

# Kern Fan Groundwater Storage Project

## FEASIBILITY REPORT

### APPENDIX D: Engineering Designs and Costs

October 21, 2019





# Preliminary Design Report

## Kern Fan Groundwater Storage Project

Prepared For:

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## **I. SECTION 1 – EXECUTIVE SUMMARY**

### **1.1. INTRODUCTION**

The Kern Fan Groundwater Storage Project (Project) consists of a regional water bank in the Kern County Groundwater Sub-basin of the San Joaquin Groundwater Basin in Kern County, California that will provide water supply, groundwater and ecosystem benefits. Project facilities will be planned, designed, constructed, owned, and operated by the Kern Fan Joint Powers Authority (JPA) that consists of representatives from the Irvine Ranch Water District (IRWD) and the Rosedale-Rio Bravo Water Storage District (RRBWSD). IRWD and RRBWSD share a ten-year history of implementing successful water banking projects in Kern County. The Project concept, sizing, location, features and operations are based on the experience and knowledge gained from IRWD's and RRBWSD's existing water banking projects.

The total storage capacity to be developed by the Project is anticipated to be 100,000 acre-feet. The Project will be supplied primarily by the State Water Project's unallocated Article 21 supplies and also by other wet-year water supplies as available, including Kern River water. In wet years, when it is declared available by the California Department of Water Resources (DWR), the JPA will take delivery of unallocated Article 21 supplies to store in the Project. IRWD and RRBWSD will equally share 75 percent of the Article 21 water delivered into storage for water supply and groundwater benefits. The remaining 25 percent of the stored unallocated Article 21 water will be held as State Water Project (SWP) system water that will be used for ecosystem benefit purposes. The ecosystem benefits will be derived by exchanging water from the Kern Fan Project to Orville Reservoir where they will be released as needed for short term pulse flows. This exchange will be coordinated through the DWR under a separate agreement.

Other water supplies that could be available for the Project include other SWP supplies diverted from the California Aqueduct, as well as other supply sources including Central Valley Project Section 215 flood water and high-flow Kern River water.

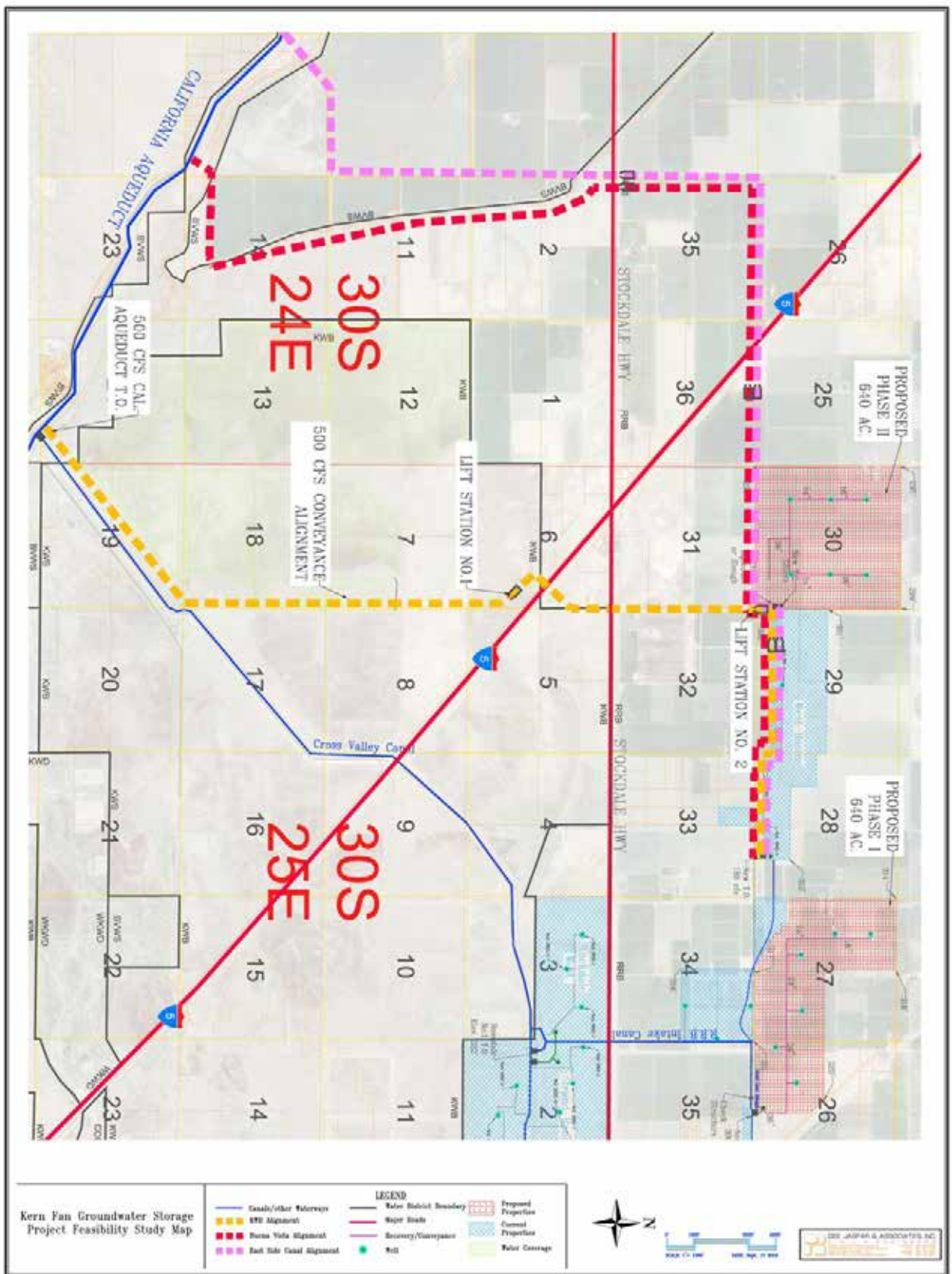
The Project objectives are to cost-efficiently recharge and store groundwater for subsequent recovery to address the following:

- Enhance water supply reliability;
- Reduce imported water demands on the San Francisco Bay/Sacramento –San Joaquin Delta Estuary (Delta) to benefit spring and winter-run Chinook salmon;
- Provide water supply during drought conditions;

- Provide water supply for emergency response benefits;
- Establish temporary wetlands through intermittent recharge events that will attract migratory and other water fowl in Kern County;
- Benefit the water levels in the Kern County Groundwater Sub-basin;
- Provide sustainable water supply for local agricultural use; and
- Be integrated into other water storage projects and storage reservoirs to provide greater statewide benefits.

## *1.2 BACKGROUND*

The Kern Fan Groundwater Storage Project consists of development of a regional water bank in the Kern County Groundwater Sub-basin of the San Joaquin Groundwater Basin in Kern County, California. The Project will construct conveyance, recharge, and recovery facilities as necessary to develop a fully functioning water banking project. It includes up to 1,280 acres of land to be developed as recharge facilities located at two different sites containing approximately 640-acres of land each. It includes up to twelve (12) new extraction wells and associated pipelines, and conveyance of up to 500 cfs from the California Aqueduct to the recharge facilities, see Figure 1 below.



**Figure 1: Project Overview Map**

The recovery facilities will consist of up to twelve (12) recovery wells each with an approximate capacity of 5 to 6 cfs to extract the stored groundwater as needed. The wells are anticipated to be 20-inches in diameter and cased to an approximate depth of 930-ft below ground surface. The wells will be equipped with vertical turbine pumps, 400 horsepower motors, discharge piping, electrical and controls, appurtenances, and site improvements. Conveyance piping ranging in size from 16-inches to 36-inches will be constructed from the recovery wells to points of discharge in the California Aqueduct, Goose Lake Slough, or the Cross Valley Canal via the RRBWSD Intake Canal.

### *1.3 Phased Development*

The Kern Fan Groundwater Storage Project is expected to be constructed in two phases. Phase 1 includes the development of approximately 640 acres of land for recharge and recovery facilities within the RRBWSD boundary and the Stockdale Integrated Banking Project's Environmental Impact Report (EIR). Water would be conveyed to this property by exchanging the existing water supplies to RRBWSD's West Basin Project with a new 500 cfs turnout and conveyance system from the California Aqueduct. Phase 2 includes the development of approximately 640 acres of land for additional recharge and recovery facilities within the RRBWSD boundary. Water would be conveyed to this property using the same turnout and conveyance system developed in Phase 1.

### *1.4 Project Alternatives*

The Kern Fan Groundwater Storage Project's recharge and recovery facilities will remain essentially the same regardless of the water supply conveyance alignment. However the conveyance alignment, construction materials, and the number of lift stations will have significant impacts on the overall project cost. The conveyance facilities may be an open canal, closed conduit, or some combination thereof. Open channel construction materials may include concrete, HDPE, or earth lined while closed conduit materials may include RCP, HDPE, CML&C Steel Pipe, etc. Three project alignments were analyzed as follows:

- Kern Water Bank (KWB) Alignment
- Buena Vista (BV) Alignment
- East Side Canal (ESC) Alignment



### *1.5 Preferred Alignment*

All three alignments were evaluated by identifying the properties impacted, permitting requirements, capital cost for a range of construction materials and advantages and disadvantages of each. Based on these criteria, the Kern Water Bank Alignment that includes a concrete lined open canal and two lift stations is preferred and a preliminary design was prepared (Appendix E).

A Class 4 project cost estimate has been prepared that is consistent with the criteria outlined in AACE International Practice No. 18R-97 and the Reclamation Manual Directives and Standards document FAC 09-01 and includes both field costs (turnout, conveyance, recharge areas, recovery and all associated appurtenances) and non-contract costs which equate to approximately \$198 million (Section 3 and Appendix C).

A preliminary Project schedule that extends over 5 and  $\frac{3}{4}$  years and includes design, bidding and construction has been developed using Microsoft Project (Appendix D).

## **II. SECTION 2 – PROJECT ALIGNMENTS**

### **2.1 DESIGN CRITERIA**

The recharge and recovery facilities will remain essentially the same regardless of the water supply conveyance alignment. However the conveyance alignment, the materials, and the number of lift stations will have significant impacts on the overall project cost.

The project objective of the conveyance facility is to deliver up to 500 cfs of water from the California Aqueduct to approximately 1,280-acres of land for groundwater recharge facilities. This will allow the project to store up to 100,000 acre-feet per year in wet years. It is also desirable for the conveyance facility from the Aqueduct to the recharge facilities to be capable of reverse flow for times when water is being recovered.

Three project alignments were considered. These alignments have been referred to as the following:

- Kern Water Bank (KWB) Alignment
- Buena Vista (BV) Alignment
- East Side Canal (ESC) Alignment

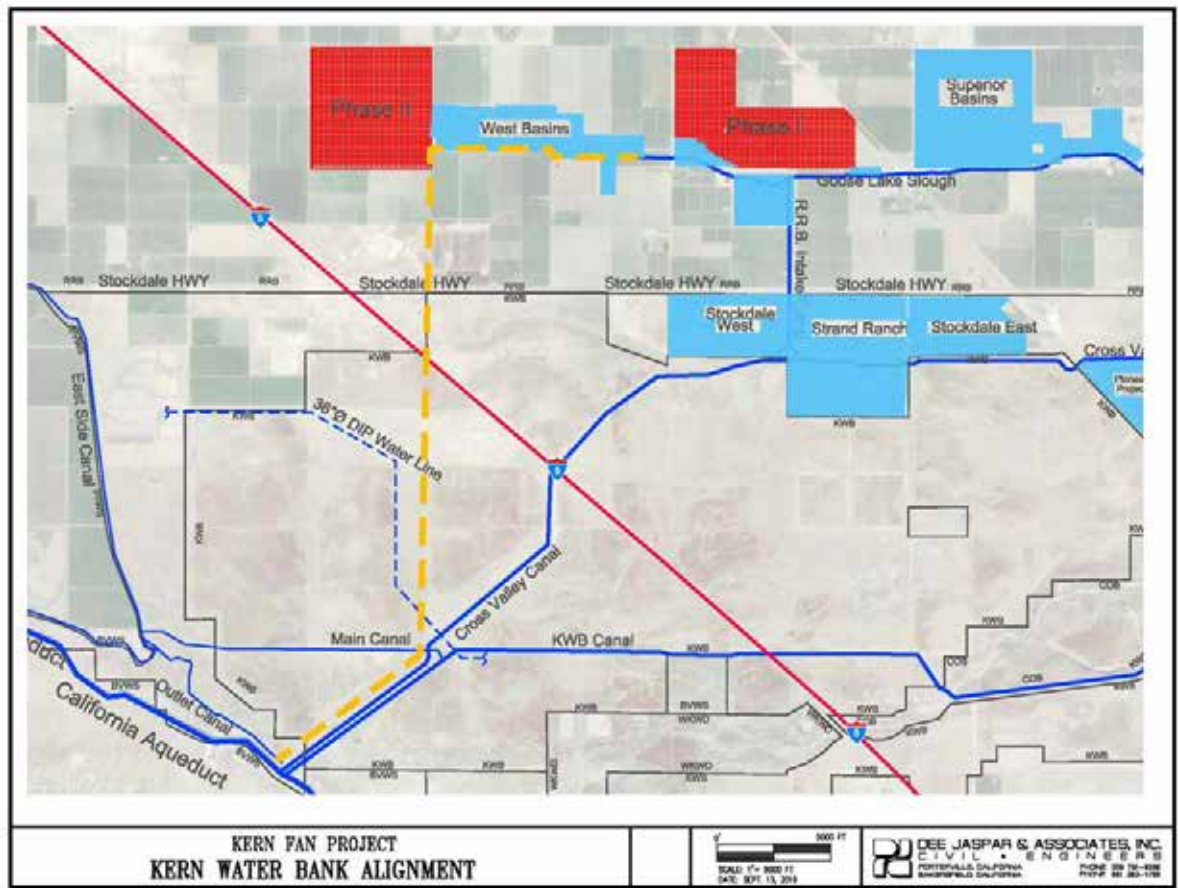
The conveyance facilities may be an open canal (concrete lined, HDPE lined, or earth lined) or the conveyance facility may be a closed conduit (RCP, HDPE, CML&C Steel Pipe, etc.) or some combination thereof. The proposed alignments and materials and associated capital costs are discussed herein.

### **2.2 KERN WATER BANK ALIGNMENT**

The Kern Water Bank Alignment source of water is a new turnout off the California Aqueduct. The turnout is located in Pool 28 or Reach 12E of the California Aqueduct just north of the existing Kern County Water Agency - Cross Valley Canal Turnout (Greater Bakersfield Turnout No. 1) located at Milepost 238.04 and Check No. 28. The new project turnout has been located approximately 600-ft north of the existing Cross Valley Canal Turnout.

Engineers at GEI provided Computational Fluid Dynamics (CFD) modeling for Reach 12E of the California Aqueduct performed by Northwest Hydraulic Consultants (NHC) to confirm the required distance between the new Project turnout and the existing Kern County Water Agency – Cross Valley Canal Turnout. The summary and conclusions are included in Appendix B. The results of the modeling suggest that the new Project turnout will have no negative impacts on the Cross Valley Canal Turnout at 5,500 cfs in the Aqueduct and three gates open if it is constructed a minimum of 500-ft upstream of the CVC Turnout.

The KWB conveyance alignment is supplied by a new Aqueduct Turnout structure with one eleven-foot (11-ft) diameter pipe across and beneath the DWR right-of-way and the Outlet Canal. The conveyance alignment then crosses the State of California property for the Tule Elk Reserve (APN 159-180-05) through Section 24 and into Section 19 where the facilities enter Kern Water Bank Authority property. The conveyance alignment remains on Kern Water Bank Authority property through Section 19, Section 18, Section 7, into Section 6, across the Interstate 5 Freeway, into Section 5, across Stockdale Hwy, and onto private property until it reaches the proposed recharge facilities and the Goose Lake Slough, see Figure 2 below.



**Figure 2: Kern Water Bank Alignment**

*2.2.1 PROPERTIES IMPACTED*

The above alignment crosses the following properties:

- APN 159-200-05, 24-30/24, State of California – Aqueduct
- APN 159-180-05, 24-30/24, State of California – Tule Elk Preserve

APN 160-100-07, 19-30/25, Kern Water Bank Authority  
APN 160-100-08, 19-30/25, Kern Water Bank Authority  
APN 160-090-02, 18-30/25, Kern Water Bank Authority  
APN 160-090-01, 18-30/25, Kern Water Bank Authority  
APN 160-040-02, 7-30/25, Kern Water Bank Authority  
APN 160-030-14, 6-30/25, Kern Water Bank Authority  
APN 160-030-12, 5-30/25, Kern Water Bank Authority  
APN 160-030-03, 5-30/25, Kern Water Bank Authority  
APN 104-270-06, 32-29/25, Bos Family Trust, Dairy – PM 1342, Lot A  
APN 104-260-15, 29-29/25, Bos Family Trust, Agricultural Zoning  
APN 104-260-16, 29-29/25, Rosedale-Rio Bravo Water Storage District  
APN 104-260-13, 29-29/25, Rosedale-Rio Bravo Water Storage District

### *2.2.2 PERMITTING*

The permitting associated with the above alignment will include:

Aqueduct Turnout: DWR Right-of-Entry Permit  
DWR/Owner/KCWA Construction Agreement  
DWR/Owner/KCWA Operations Agreement

Outlet Canal: Army Corp of Engineers Section 404 Permit  
Regional Water Quality Control Board  
Calif. Dept. of Fish & Wildlife Section 1601 Streambed  
Alteration  
United States Fish & Wildlife Service  
Buena Vista Water Storage District Joint Use of Easement

State Parks: Tule Elk Preserve Crossing Agreement

Interstate 5 Fwy: Caltrans Encroachment Permit

Stockdale Hwy: Caltrans Encroachment Permit

General: State Incidental Take Permit  
Federal Incidental Take Permit (Coverage under KWBA  
Master Agreement)  
Habitat Conservation Plan Approvals/Fees  
San Joaquin Valley Air Pollution Control District

### *2.2.3 DESIGN*

The conveyance facility could be either open canal, closed conduit pipeline, or some combination thereof. Four options for this have been considered.

a) All Closed Conduit Pipe



The conveyance alignment from the California Aqueduct to the Recharge Facilities across the Kern Water Bank Authority property is approximately 7.6 miles overall. This option installs a twelve-foot (12-ft) diameter gravity pipeline from the California Aqueduct to the I-5 Freeway crossing. One lift station will be constructed near the I-5 Freeway crossing. The lift station capacity will be 500 cfs at an approximate TDH of 50-ft. The discharge pipeline from the Lift Station over to the easterly end of the RRBWSD West Basins and the Phase II Recharge Property will be a nine-foot (9-ft) diameter pressure pipeline.

b) All Open Canal

The conveyance alignment from the California Aqueduct to the Recharge Facilities across the Kern Water Bank Authority property is approximately 7.6 miles overall. The use of an open canal for the entire length of the conveyance facility will result in two lift stations. Each lift station will have a capacity of 500 cfs at an approximate TDH of 20-ft. A water surface elevation of 297.0 was used at the California Aqueduct. The Aqueduct Turnout is a reinforced concrete structure with one eleven-foot (11-ft) diameter pipe from the structure, crossing the Outlet Canal and the State Parks property, and then discharging into an open canal. The canal cross-section has been estimated as 20-ft wide at the bottom with a 8-ft depth and 1.5:1 side slopes if lined and 3:1 side slopes if earth-lined. The canal will have an undercrossing at the KWB Main Canal and will utilize one 10-ft diameter siphon pipe. A 500 cfs – 1,800 hp lift station will be constructed near the I-5 Freeway Crossing. The pipeline crossing the I-5 Freeway is a 10-ft diameter pipeline. The pipeline discharges into the open canal on the easterly side of the I-5 Freeway and north of the KWB Pioneer Canal. The canal will have a siphon crossing at Stockdale Highway using one 10-ft diameter siphon pipe. The second lift station of similar size and capacity to the first lift station will be constructed near the southwest corner of the RRBWSD West Basins. The final canal reach delivers water to the east end of the RRBWSD West Basins, the Goose Lake Slough, and the Phase II Recharge Property. See attached Hec-Ras modeling in Appendix B.

c) Combination of Canal & Pipe - A

The conveyance alignment from the California Aqueduct to the Recharge Facilities across the Kern Water Bank Authority property is approximately 7.6 miles overall. The use of a combination of open canal and pipeline for the conveyance facility will result in one lift station. The conveyance will gravity flow via open canal from the California Aqueduct to the I-5 Freeway Crossing as described under the “All Open Canal” section above. A 500 cfs – 4,400 hp lift station will be constructed near the I-5 Freeway Crossing. The pipeline crossing the I-5 Freeway is a 9-ft diameter pipeline. The reach of conveyance from the I-5 Freeway Crossing to the Recharge property and east end of the RRBWSD West Basins is a 9-ft

diameter closed conduit pipeline with turnouts to the West Basins and the Phase II Recharge Property.

- d) **Combination of Canal & Pipe - B**  
 The conveyance alignment from the California Aqueduct to the Recharge Facilities across the Kern Water Bank Authority property is approximately 7.6 miles overall. The use of a combination of open canal and pipeline for the conveyance facility will result in two lift stations. The conveyance will gravity flow via open canal from the California Aqueduct to the I-5 Freeway Crossing as described under the “All Open Canal” section above. A 500 cfs – 1,800 hp lift station will be constructed near the I-5 Freeway Crossing. The pipeline crossing the I-5 Freeway is a 10-ft diameter pipeline. The reach of conveyance from the I-5 Freeway Crossing to the southwest corner of the RRBWSD West Basins will also be open canal and then a second lift station constructed. A 500 cfs – 2,600 hp lift station will be constructed near the southwest corner of the RRBWSD West Basins and lift the water into a 9-ft diameter closed conduit pipeline to the east end of the RRBWSD West Basins.

#### 2.2.4 CAPITAL COST ESTIMATE

The capital cost estimates of several alternatives to the KWB Alignment have been evaluated in this section. These cost estimates are merely for comparison purposes of the conveyance alignments described above. However these estimates include the costs of turnouts, conveyance facilities, recharge areas, recovery facilities, and all associated appurtenances in 2018 dollars.

**Table 1**

| KWB Alignment Capital Cost Summary |   |               |
|------------------------------------|---|---------------|
| Item #                             | Project Alternative                           | Cost Estimate |
| 1                                  | Open Canal – Partially Earth & Concrete Lined | \$187,460,000 |
| 2                                  | Open Canal – All HDPE Lined                   | \$185,840,000 |
| 3                                  | Open Canal – All Concrete Lined               | \$197,830,000 |
|                                    |   |               |
| 4                                  | Closed Conduit – All Pipeline                 | \$274,190,000 |
|                                    |   |               |
|                                    | Combination Canal and Pipe - A                |               |
| 5                                  | Reach 1 Earth Lined & Reaches 2/3 Pipeline    | \$199,500,000 |
| 6                                  | Reach 1 HDPE Lined & Reaches 2/3 Pipeline     | \$203,730,000 |
| 7                                  | Reach 1 Concrete Lined & Reaches 2/3 Pipeline | \$209,870,000 |
|                                    |   |               |
|                                    | Combination of Canal and Pipe - B             |               |
| 8                                  | Reach 1 Earth, Reach 2 Concrete, Reach 3 Pipe | \$198,590,000 |
| 9                                  | Reaches 1 & 2 HDPE Lined & Reach 3 Pipe       | \$199,330,000 |
| 10                                 | Reaches 1 & 2 Concrete Lined & Reach 3 Pipe   | \$208,960,000 |

\*Detailed cost estimates are attached in Appendix C.

The most economical alternative is the open canal option. The capital cost estimate is between \$185M to \$198M depending on whether the canal is earth lined, HDPE lined, concrete lined, or some combination thereof. The concrete lined canal is recommended at this time to help alleviate weeds, debris, and sediment in the siphon crossings and lift station forebays and to achieve a greater useful life.

The life of a HDPE liner is typically 20-25 years if protected from UV exposure, otherwise it might only have a 15-20 year life. The life of a concrete lined canal is estimated at approximately 50 years. The cost for a 60 mil thick HDPE liner is approximately \$0.80/SF and the cost for concrete lining has been estimated at approximately \$6.00/SF. There are other costs factored in as well such as the HDPE anchor trench, boots around pipes, and connections to structures. The estimated cost for the HDPE liner option is approximately \$3,000,000.00 and the estimated cost for the concrete liner option is approximately \$12,760,000.00.

The energy cost of pumping is also the most economical for the open canal option. Lifting the water in the canal two times with lift stations designed for 500 cfs at a 20-ft TDH results in a total lift of approximately 40-ft. Lifting the water one time into a closed conduit pipeline is approximately 50-ft, depending on the actual pipe friction loss, and therefore a greater energy cost. The total dynamic head (TDH) for the closed conduit pipeline can be lowered by increasing the pipe size, but then the capital costs above will increase even more.

#### *2.2.5 ADVANTAGES/DISADVANTAGES*

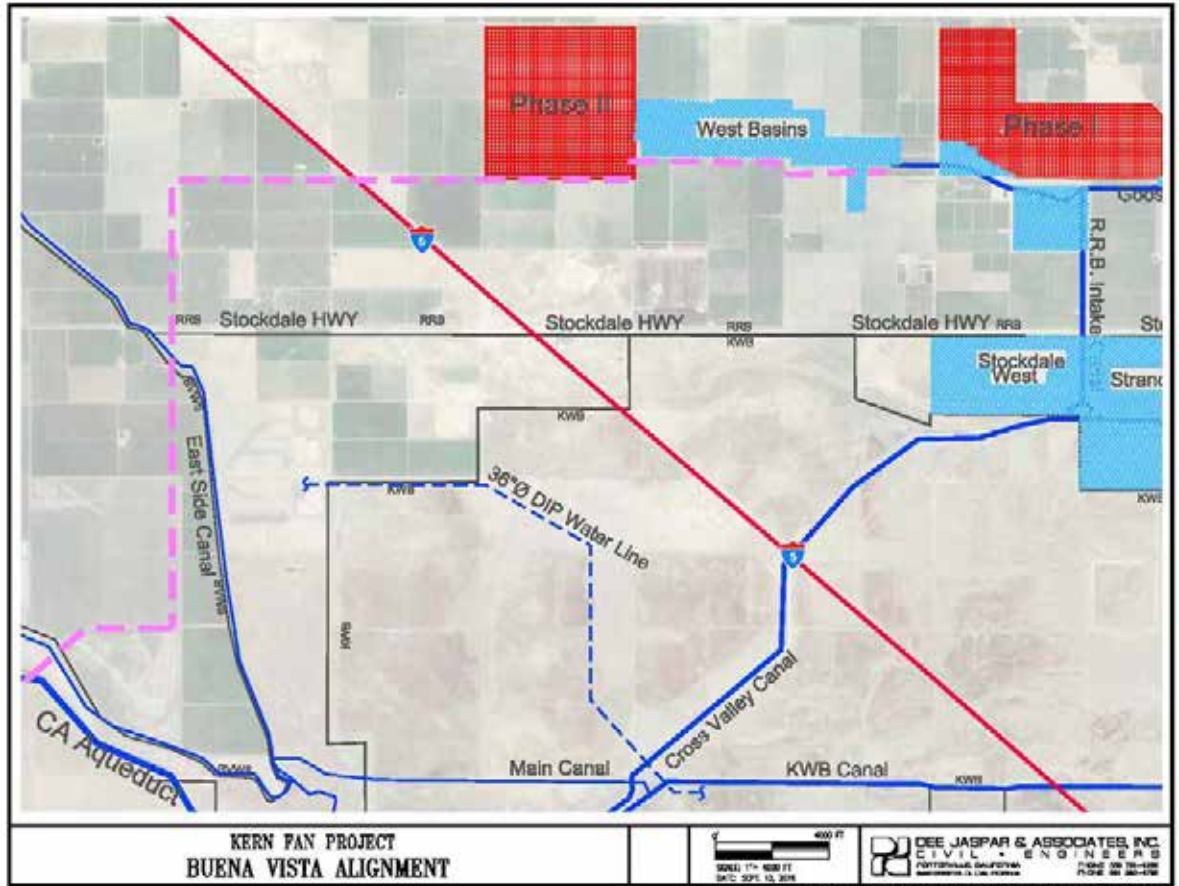
The Kern Water Bank Authority alignment is the most economical alignment since it is the most direct path and the shortest alignment. Furthermore, from a constructability standpoint, the approximate four miles of the Project that cross the Kern Water Bank property is advantageous as the construction activity, land disturbance, and dust, is isolated and far from farmland and congested areas.

The disadvantages with the KWB alignment are having to cross the California State Parks – Tule Elk Reserve property, concerns with the proximity to the CVC Turnout and any perceived hydraulic impacts, and not having conveyance facilities that are constructed through lands that do not currently have access to surface water.

### *2.3 BUENA VISTA ALIGNMENT*

The Buena Vista Alignment source of water is a new turnout off the California Aqueduct. The turnout is located in Pool 28 or Reach 12E of the California Aqueduct just south of the existing Buena Vista - 8 Turnout located near Milepost 233.78. The new Project turnout has been located approximately 4,000-ft downstream of the existing Buena Vista – 8 Turnout.

The BV conveyance alignment is supplied by a new Aqueduct Turnout structure with one eleven-foot (11-ft) diameter pipe across and beneath the DWR right-of-way and the Outlet Canal. The alignment is illustrated in Figure 3 below.



**Figure 3: Buena Vista Alignment**

### 2.3.1 PROPERTIES IMPACTED

The above alignment crosses the following properties:

- APN 159-310-05, 15-30/24, California Resources Elk Hills LLC
- APN 159-310-04, 15-30/24, Doris Sprague
- APN 159-310-02, 15-30/24, Erik Nilson
- APN 159-300-03, 15-30/24, California Resources Elk Hills LLC
- APN 159-300-02, 15-30/24, California Resources Elk Hills LLC
- APN 159-040-16, 10-30/24, Hydrogen Energy California LLC, Ag Zoning \*
- APN 159-040-02, 10-30/24, Hydrogen Energy California LLC, Ag Zoning \*
- APN 159-030-06, 3-30/24, Pacific Growers Ag Zoning
- APN 159-030-05, 3-30/24, Buttonwillow Ginning Co., Ag Zoning



APN 159-030-10, 3-30/24, Sandridge Partners LP  
 APN 159-030-09, 3-30/24, Sandridge Partners LP, Ag Zoning  
 APN 103-260-27, 34-29/24, Edward & Katherine Kosareff, Ag Zoning  
 APN 103-260-09, 34-29/24, Edward & Katherine Kosareff, Ag Zoning  
 APN 103-260-03, 34-29/24, Edward & Katherine Kosareff, Ag Zoning  
 APN 103-180-02, 27-29/24, Edward & Katherine Kosareff, Ag Zoning  
 APN 103-170-15, 26-29/24, Edward & Katherine Kosareff, Ag Zoning  
 APN 103-270-01, 35-29/24, Alborz Farms LLC, Ag Zoning  
 APN 103-170-14, 26-29/24, Yu Li Hsia Yang, Ag Zoning  
 APN 103-170-32, 26-29/24, Juan Alejandro Delgadillo  
 APN 103-170-28, 26-29/24, LOH Investment LP  
 APN 103-170-31, 26-29/24, AMS BSNS Group LLC  
 APN 103-170-30, 26-29/24, LOH Investment LP  
 APN 103-270-06, 36-29/24, Edward & Katherine Kosareff, Ag Zoning  
 APN 103-170-26, 25-29/24, Boozer Family LP  
 APN 103-270-14, 36-29/24, Ramzi Mansour, Miscellaneous Zoning  
 APN 103-270-07, 36-29/24, Bos Family Trust, Ag Zoning  
 APN 103-170-33, 25-29/24, Tracy Ranch, Inc., Ag Zoning  
 APN 104-270-01, 31-29/25, Bos Family Trust, Ag Zoning  
 APN 104-260-01, 30-29/25, Tracy Ranch, Inc., Ag Zoning  
 APN 104-260-16, 29-29/25, Rosedale-Rio Bravo Water Storage District

### 2.3.2 PERMITTING

The permitting associated with the above alignment will include:

|                   |  |
|-------------------|--|
| Aqueduct Turnout: | DWR Right-of-Entry Permit<br>DWR/Owner/KCWA Construction Agreement<br>DWR/Owner/KCWA Operations Agreement  |
| Outlet Canal:     | Army Corp of Engineers Section 404 Permit<br>Regional Water Quality Control Board<br>Calif. Dept. of Fish & Wildlife Section 1601 Streambed<br>Alteration<br>United States Fish & Wildlife Service<br>Buena Vista Water Storage District Joint Use of Easement |
| Adohr Road:       | County Encroachment Permit   |
| Interstate 5 Fwy: | Caltrans Encroachment Permit   |
| Stockdale Hwy:    | Caltrans Encroachment Permit   |
| General:          | State Incidental Take Permit<br>Federal Incidental Take Permit (Coverage under KWBA<br>Master Agreement)   |

## Habitat Conservation Plan Approvals/Fees

### 2.3.3 DESIGN

The conveyance facility could be either open canal, closed conduit pipeline, or some combination thereof. Five options for this have been considered.

- a) **All Closed Conduit Pipe**

The conveyance alignment from the California Aqueduct to the Recharge Facilities across the Buena Vista Water Storage District property is approximately 9.0 miles overall. This option will install an eleven-foot (11-ft) diameter gravity pipeline from the California Aqueduct to the Stockdale Highway crossing. One lift station will be constructed near the Stockdale Highway crossing. The lift station capacity will be 500 cfs at an approximate TDH of 80-ft. The discharge pipeline from the Lift Station over to the easterly end of the RRBWSD West Basins and the Phase II Recharge Property will be a nine-foot (9-ft) diameter pressure pipeline.
- b) **All Open Canal**

The conveyance alignment from the California Aqueduct to the Recharge Facilities across the Buena Vista Water Storage District property is approximately 9.0 miles overall. The use of an open canal for the entire length of the conveyance facility will result in three lift stations. Each lift station will have a capacity of 500 cfs at an approximate TDH of 20-ft. A water surface elevation of 305.0 was used at the California Aqueduct, however the canal is planned to operate at a lower water level such that the majority of the canal is in cut in Reach 1. The Aqueduct Turnout is a reinforced concrete structure with one eleven-foot (11-ft) diameter pipe from the structure, crossing the DWR right-of-way and Outlet Canal, and then discharging into an open canal parallel to the West Side Canal. The canal cross-section has been estimated as 20-ft wide at the bottom with a 8-ft depth and 1.5:1 side slopes if lined and 3:1 side slopes if earth-lined. The canal will have an undercrossing at Adohr Road and the East Side Canal and will utilize one 10-ft diameter siphon pipe. A 500 cfs – 1,800 hp lift station will be constructed near the Stockdale Highway Crossing. The pipeline crossing Stockdale Highway is a 10-ft diameter pipeline. The pipeline discharges into an open canal on the northerly side of Stockdale Highway that then proceeds north and east towards the I-5 Freeway crossing. A 500 cfs – 1,800 hp lift station will be constructed near the I-5 Freeway Crossing. The pipeline crossing the I-5 Freeway is a 10-ft diameter pipeline. The pipeline discharges into the open canal on the easterly side of the I-5 Freeway. The third lift station of similar size and capacity to the first two lift stations will be constructed near the southwest corner of the RRBWSD West Basins. The final canal reach delivers water to the east end of the RRBWSD West Basins, the Goose Lake Slough, and

the Phase II Recharge Property. See the attached Hec-Ras modeling in Appendix B.

- c) **Combination of Canal & Pipe - A**  
The conveyance alignment from the California Aqueduct to the Recharge Facilities across the Buena Vista Water Storage District property is approximately 9.0 miles overall. This use of a combination of open canal and pipeline for the conveyance facility will result in one lift station. The conveyance will gravity flow via open canal from the California Aqueduct to the Stockdale Highway Crossing as described under the “All Open Canal” section above. A 500 cfs – 7000 hp lift station will be constructed near the Stockdale Highway crossing. The pipeline crossing Stockdale Highway is a 9-ft diameter pipeline. The reach of conveyance from the Stockdale Highway crossing to the east end of the RRBWSD West Basins will be a 9-ft diameter closed conduit with turnouts to the West Basins and the Phase II Recharge Property.
  
- d) **Combination of Canal & Pipe - B**  
The conveyance alignment from the California Aqueduct to the Recharge Facilities across the Buena Vista Water Storage District property is approximately 9.0 miles overall. This use of a combination of open canal and pipeline for the conveyance facility will result in two lift stations. The conveyance will gravity flow via open canal from the California Aqueduct to the Stockdale Highway crossing as described under the “All Open Canal” section above. A 500 cfs – 1800 hp lift station will be constructed near the Stockdale Highway crossing. The pipeline crossing Stockdale Highway is a 10-ft diameter pipeline and will discharge into an open canal on the north side of Stockdale Highway. The open canal will proceed from Stockdale Highway to the I-5 Freeway. A second 500 cfs – 5800 hp lift station will be constructed near the I-5 Freeway crossing. The pipeline crossing the I-5 Freeway is a 9-ft diameter pipeline. The reach of conveyance from the I-5 Freeway crossing to the east end of the RRBWSD West Basins will be a 9-ft diameter closed conduit with turnouts to the West Basins and the Phase II Recharge Property.
  
- e) **Combination of Canal & Pipe - C**  
The conveyance alignment from the California Aqueduct to the Recharge Facilities across the Buena Vista Water Storage District property is approximately 9.0 miles overall. This use of a combination of open canal and pipeline for the conveyance facility will result in three lift stations. The conveyance will gravity flow via open canal from the California Aqueduct to the Stockdale Highway Crossing as described under the “All Open Canal” section above. A 500 cfs – 1800 hp lift station will be constructed near the Stockdale Highway crossing. The pipeline crossing Stockdale Highway is a 10-ft diameter pipeline and will discharge into an open canal on the north side of Stockdale Highway. The open canal will

proceed from Stockdale Highway to the I-5 Freeway. A second 500 cfs – 1800 hp lift station will be constructed near the I-5 Freeway crossing. The pipeline crossing the I-5 Freeway is a 10-ft diameter pipeline and discharges into an open canal on the east side of the I-5 Freeway. The open canal will proceed from the I-5 Freeway to the southwest corner of the West Basins. A third 500 cfs – 2600 hp lift station will be constructed at this location. The reach of conveyance from the lift station to the east end of the RRBWSD West Basins will be a 9-ft diameter closed conduit with turnouts to the West Basins and the Phase II Recharge Property.

#### 2.3.4 CAPITAL COST ESTIMATE

The capital cost estimates of several alternatives to the BV Alignment have been evaluated in this section. These cost estimates are merely for comparison purposes of the conveyance alignments described above. However these estimates include the costs of turnouts, conveyance facilities, recharge areas, recovery facilities, and all associated appurtenances in 2018 dollars.

**Table 2**

| BV Alignment Capital Cost Summary |   |               |
|-----------------------------------|---|---------------|
| Item #                            | Project Alternative                             | Cost Estimate |
| 1                                 | Open Canal – Partially Earth & Concrete Lined   | \$208,315,000 |
| 2                                 | Open Canal – All HDPE Lined                     | \$202,100,000 |
| 3                                 | Open Canal – All Concrete Lined                 | \$216,305,000 |
|                                   |   |               |
| 4                                 | Closed Conduit – All Pipeline                   | \$264,450,000 |
|                                   |   |               |
|                                   | Combination Canal and Pipe - A                  |               |
| 5                                 | Reach 1 Earth Lined & Reaches 2/3/4 Pipeline    | \$224,040,000 |
| 6                                 | Reach 1 HDPE Lined & Reaches 2/3/4 Pipeline     | \$225,450,000 |
| 7                                 | Reach 1 Concrete Lined & Reaches 2/3/4 Pipeline | \$230,185,000 |
|                                   |   |               |
|                                   | Combination of Canal and Pipe - B               |               |
| 8                                 | Reaches 1 & 2 HDPE Lined & Reaches 3/4 Pipe     | \$225,385,000 |
| 9                                 | Reaches 1 & 2 Concrete Lined & Reaches 3/4 Pipe | \$233,280,000 |
|                                   |   |               |
|                                   | Combination of Canal and Pipe - C               |               |
| 10                                | Reaches 1, 2, & 3 HDPE Lined & Reach 4 Pipe     | \$212,610,000 |
| 11                                | Reaches 1, 2, & 3 Concrete Lined & Reach 4 Pipe | \$224,630,000 |

\*Detailed cost estimates are attached in Appendix C.

The most economical alternative is the open canal option. The capital cost estimate is between \$202M to \$216M depending on whether the canal is earth



lined, HDPE lined, or concrete lined. The concrete lined canal is recommended at this time to help alleviate weeds, debris, and sediment in the siphon crossings and lift station forebays and to achieve a greater useful life.

The life of a HDPE liner is typically 20-25 years if protected from UV exposure, otherwise it might only have a 15-20 year life. The life of a concrete lined canal is estimated at approximately 50 years. The cost for a 60 mil thick HDPE liner is approximately \$0.80/SF and the cost for concrete lining has been estimated at approximately \$6.00/SF. There are other costs factored in as well such as the HDPE anchor trench, boots around pipes, and connections to structures. The estimated cost for the HDPE liner option is approximately \$3,500,000.00 and the estimated cost for the concrete liner option is approximately \$15,125,000.00.

The energy cost of pumping is also the most economical for the open canal option. Lifting the water in the canal three times with lift stations designed for 500 cfs at a 20-ft TDH results in a total lift of approximately 60-ft. Lifting the water one time into a closed conduit pipeline is approximately 80-ft, depending on the actual pipe friction loss, and therefore a greater energy cost. The total dynamic head (TDH) for the closed conduit pipeline can be lowered by increasing the pipe size, but then the capital costs above will increase even more.

### *2.3.5 ADVANTAGES/DISADVANTAGES*

The Buena Vista alignment is the most expensive alignment primarily because it is the longest alignment. This alignment will require greater crop take and could be challenging from a construction standpoint as it bisects farming operations and crop land.

The advantage to this alignment is that it is northwest of the California State Parks and a permit from that agency would not be required. Furthermore this alignment places the new Aqueduct Turnout well upstream of the CVC turnout and provides more opportunities for cooperative projects with Buena Vista or West Kern Water District. This alignment also constructs conveyance facilities along lands that currently do not have access to surface water.

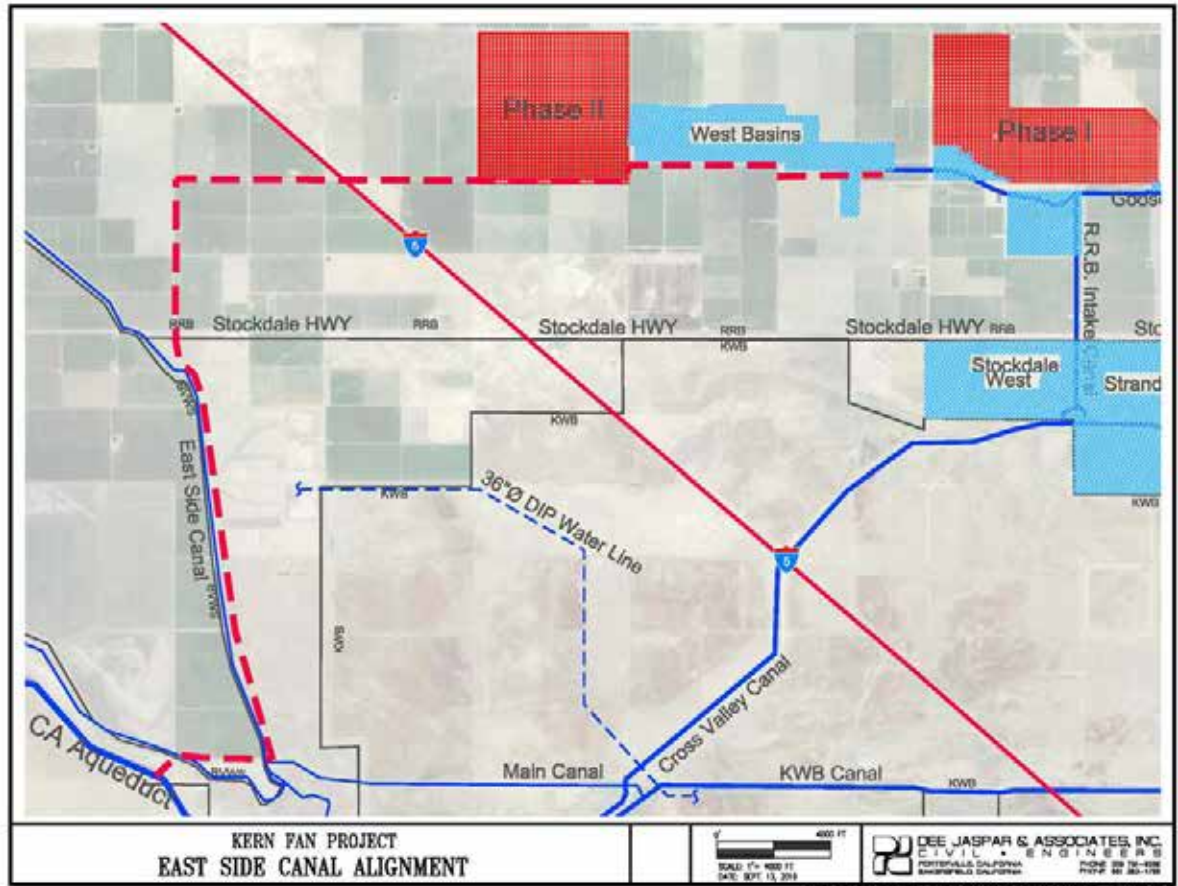
## *2.4 EAST SIDE CANAL ALIGNMENT*

The East Side Canal Alignment source of water is a new turnout off the California Aqueduct. The turnout is located in Pool 28 or Reach 12E of the California Aqueduct just north of the existing Buena Vista - 2 Turnout located near Milepost 235.75 or near the Buena Vista-8 Turnout. The new Project turnout for this evaluation has been located approximately 600-ft upstream of the existing Buena Vista – 2 Turnout.

The East Side Canal alignment is essentially the same alignment as the BV Alignment from Stockdale Highway to the north and east, however this alignment has been considered in the event the existing West Side Canal, with an approximate top

width of 60-ft, and the East Side Canal, with an approximate top width of 60-ft, can be utilized from the Aqueduct to Stockdale Highway.

The conveyance alignment is supplied by a new Aqueduct Turnout structure with one eleven-foot (11-ft) diameter pipe across and beneath the Outlet Canal. The alignment is illustrated in Figure 4 below.



**Figure 4: East Side Canal Alignment**

#### 2.4.1 PROPERTIES IMPACTED

The above alignment crosses the following properties:

- APN 159-340-18, 15-30/24, California Resources Elk Hills, LLC.
- APN 159-340-02, 15-30/24, California Resources Elk Hills, LLC.
- APN 159-190-09, 15-30/24, Hydrogen Energy California LLC, Ag Zoning \*
- APN 159-190-17, 14-30/24, Buena Vista Water Storage District
- APN 159-190-18, 14-30/24, Louis Riccomini & Sons, Inc., Ag Zoning
- APN 159-050-06, 11-30/24, Louis Riccomini & Sons, Inc.

APN 159-050-05, 11-30/24, Buena Vista Water Storage District  
 APN 159-050-10, 11-30/24, State of California  
 APN 159-050-18, 11-30/24, Cauzza Ranches, LLC, Ag Zoning  
 APN 159-050-08, 11-30/24, West Kern Water District  
 APN 159-050-09, 11-30/24, West Kern Water District  
 APN 159-020-12, 2-30/24, West Kern Water District  
 APN 159-020-19, 2-30/24, West Kern Water District  
 APN 159-020-20, 2-30/24, West Kern Water District  
 APN 159-020-11, 2-30/24, Sandridge Partners LP  
 APN 159-020-14, 2-30/24, Sandridge Partners LP, Ag Zoning  
 APN 159-030-09, 3-30/24, Sandridge Partners LP, Ag Zoning  
 APN 103-260-27, 34-29/24, Edward & Katherine Kosareff, Ag Zoning  
 APN 103-260-09, 34-29/24, Edward & Katherine Kosareff, Ag Zoning  
 APN 103-260-03, 34-29/24, Edward & Katherine Kosareff, Ag Zoning  
 APN 103-180-02, 27-29/24, Edward & Katherine Kosareff, Ag Zoning  
 APN 103-170-15, 26-29/24, Edward & Katherine Kosareff, Ag Zoning  
 APN 103-270-01, 35-29/24, Alborz Farms LLC, Ag Zoning  
 APN 103-170-14, 26-29/24, Yu Li Hsia Yang, Ag Zoning  
 APN 103-170-32, 26-29/24, Juan Alejandro Delgadillo  
 APN 103-170-28, 26-29/24, LOH Investment LP  
 APN 103-170-31, 26-29/24, AMS BSNS Group LLC  
 APN 103-170-30, 26-29/24, LOH Investment LP  
 APN 103-270-06, 36-29/24, Edward & Katherine Kosareff, Ag Zoning  
 APN 103-170-26, 25-29/24, Boozer Family LP  
 APN 103-270-14, 36-29/24, Ramzi Mansour, Miscellaneous Zoning  
 APN 103-270-07, 36-29/24, Bos Family Trust, Ag Zoning  
 APN 103-170-33, 25-29/24, Tracy Ranch, Inc., Ag Zoning  
 APN 104-270-01, 31-29/25, Bos Family Trust, Ag Zoning  
 APN 104-260-01, 30-29/25, Tracy Ranch, Inc., Ag Zoning  
 APN 104-260-16, 29-29/25, Rosedale-Rio Bravo Water Storage District

#### 2.4.2 PERMITTING

The permitting associated with the above alignment will include:

|                   |  |
|-------------------|--|
| Aqueduct Turnout: | DWR Right-of-Entry Permit<br>DWR/Owner/KCWA Construction Agreement<br>DWR/Owner/KCWA Operations Agreement  |
| Outlet Canal:     | Army Corp of Engineers Section 404 Permit<br>Regional Water Quality Control Board<br>Calif. Dept. of Fish & Wildlife Section 1601 Streambed<br>Alteration<br>United States Fish & Wildlife Service<br>Buena Vista Water Storage District Joint Use of Easement |

|                   |   |
|-------------------|---|
| Tupman Road:      | County Encroachment Permit  |
| Interstate 5 Fwy: | Caltrans Encroachment Permit  |
| Stockdale Hwy:    | Caltrans Encroachment Permit  |
| General:          | State Incidental Take Permit<br>Federal Incidental Take Permit (Coverage under KWBA Master Agreement)<br>Habitat Conservation Plan Approvals/Fees |

### 2.4.3 DESIGN

The conveyance facility from the California Aqueduct to Stockdale Highway will be open canal and utilize the existing West Side Canal and the East Side Canal. This option for this alignment has been considered. Beyond Stockdale Highway, the alternatives are the same as those discussed under the BV Alignment.

- a) The conveyance alignment from the California Aqueduct along the East Side Canal is approximately 9.0 miles overall. The use of an open canal for the entire length of the conveyance facility will result in three lift stations. Each lift station will have a capacity of 500 cfs at an approximate TDH of 20-ft. A water surface elevation of 305.0 was used at the California Aqueduct, however the canal is planned to operate at a lower water level since the canal will make use of the existing West Side Canal and the East Side Canal. The Aqueduct Turnout is a reinforced concrete structure with one eleven-foot (11-ft) diameter pipe from the structure, crossing the Outlet Canal, and then discharging into the West Side Canal. The West Side canal cross-section will be widened to the south approximately 30-ft. then feed into the East Side Canal. South of Station Road, the East Side Canal will be widened approximately 30-ft to the west and north of Station Road the East Canal will be widened approximately 30-ft to the east. The existing canal capacity was estimated as 200 cfs to 300 cfs based on current water surface elevations. The canal prism was widened to increase the capacity of the canal to approximately 800 cfs (net increase of 500 cfs) and does not take advantage of any unused capacity at this time.

A 500 cfs – 1,800 hp lift station will be constructed near the Stockdale Highway crossing. The pipeline crossing Stockdale Highway is a 10-ft diameter pipeline. The pipeline discharges into an open canal on the northerly side of Stockdale Highway that then proceeds north and east towards the I-5 Freeway crossing. A 500 cfs – 1,800 hp lift station will be constructed near the I-5 Freeway Crossing. The pipeline crossing the I-5 Freeway is a 10-ft diameter pipeline. The pipeline discharges into the open canal on the easterly side of the I-5 Freeway. The third lift station of similar size and capacity to the first two lift stations will be constructed near the southwest corner of the

RRBWSD West Basins. The final canal reach delivers water to the east end of the RRBWSD West Basins, the Goose Lake Slough, and the Phase II property.

*2.4.4 CAPITAL COST ESTIMATE*

The capital cost estimates for the East Side Canal Alignment have been evaluated in this section. These cost estimates are merely for comparison purposes of the conveyance alignment described above. However these estimates include the costs of turnouts, conveyance facilities, recharge areas, recovery facilities, and all associated appurtenances in 2018 dollars. This alignment proposes to widen and utilize the West Side Canal and the East Side Canal and these will remain earth lined canals. The remaining canal reaches beyond the Stockdale Highway lift station will either be HDPE lined or concrete lined.

**Table 3**

| ESC Alignment Capital Cost Summary |   |               |
|------------------------------------|---|---------------|
| Item #                             | Project Alternative                           | Cost Estimate |
| 1                                  | Widen the West and East Side Canal – HDPE     | \$201,380,000 |
| 2                                  | Widen the West and East Side Canal – Concrete | \$210,850,000 |

\*Detailed cost estimates are attached in Appendix C.

The utilization of the existing West Side Canal and the East Side Canal is only slightly more economical than the BV Alignment with constructing a new canal for the first three miles (up to Stockdale Hwy). Therefore the KWB Alignment is the most economical alternative.

*2.4.5 ADVANTAGES/DISADVANTAGES*

The East Side Canal alignment has essentially the same advantages as the Buena Vista Alignment.

The primary disadvantage of this alignment is that to widen the existing West Side Canal and East Side Canal, those facilities will be out-of-service for some time during construction.



### **III. SECTION 3 – PREFERRED ALIGNMENT**

Based on the analysis of the Project alignment alternatives presented in Section II, the Kern Water Bank alignment with a concrete open channel is preferred for preliminary design. This option is the shortest and most economical alignment evaluated at this time and uses a material that is easy to maintain and provides a long useful life. The final alignment, conveyance method and construction materials may be refined as the Project design progresses toward completion.

The Project involves purchasing approximately 640 acres of land within the Rosedale Rio Bravo Water Storage District (RRBWS) boundary and within the limits of the Stockdale Integrated Banking Project Environmental Impact Report (EIR). Water will be conveyed to this property for recharge from the Friant-Kern Canal or the Kern River by exchange via the Goose Lake Slough or from the Cross Valley Canal (CVC) via the RRBWS Intake Canal. An interconnection pipeline will be constructed from the RRBWS Intake Canal to the proposed property to connect the two. A new check structure will be required in the Goose Lake Slough with a reinforced concrete turnout structure constructed behind it to convey water from the Goose Lake Slough to the Phase I property. This turnout structure will include a lift station with four 60 cfs pumps each equipped with 200 hp vertical motors to lift the water up to the Phase I property for recharge and include discharge piping, metering, appurtenances, lighting, electrical, controls, and SCADA communication. The anticipated recharge at this proposed property will initially be 230 cfs (0.7 ft/d of recharge) and then drop to an approximate maintenance rate of 115 cfs (0.35 ft/d of recharge).

The Phase I property will be developed for recharging ground water and the construction work will include site clearing and grubbing, installation of site fencing and gates, construction of earthen levees, construction of inter-basin structures and conveyance facilities, rip-rap, and existing well abandonments. In addition the property will be equipped with up to six recovery wells with an approximate capacity of 5 to 6 cfs each. These will be 20-inch diameter wells cased to approximately 930-ft. The wells will be equipped with vertical turbine pumps, 400 hp vertical hollowshaft motors, discharge piping, appurtenances, electrical and controls, and site improvements. The underground well conveyance piping will be PVC pipe ranging in size from 16-inch to 36-inch diameter. The recovery wells will return water through a conveyance pipeline that crosses the Goose Lake Slough and discharges into the RRBWS Intake Canal whereby the water is returned to the Cross Valley Canal (CVC) for delivery or exchange to the California Aqueduct. In addition, the Phase I recovery wells will be able to discharge water directly to the California Aqueduct through a new conveyance facility described below.

In addition, in order to have capacity in the Goose Lake Slough to recharge water to the Phase I property it is proposed to supply water to the existing RRBWSD West Basins by an alternate means. Due to limited capacity in the Goose Lake Slough and the CVC it is planned to construct a new reinforced concrete turnout at the California Aqueduct and convey 500 cfs approximately 7.6 miles to the easterly end of the RRBWSD West Basins. The 500 cfs capacity will account for initial recharge to the West Basins of approximately 120 cfs, initial recharge to the Phase II Property of approximately 230 cfs, and potential in lieu recharge water to District farmlands. The approximate water surface elevation at the California Aqueduct is 297-ft. The approximate elevation at the east end of the West Basins is 313-ft therefore requiring an approximate static lift of 16-feet. This water supply will be conveyed in a new canal with the approximate dimensions of a 20-ft wide bottom, 8-ft depth, and 1.5:1 side slopes. A habitat conservation plan (HCP) and mitigation credit for the conveyance easement across the Kern Water Bank equal to approximately 100 acres is included. The canal will be concrete lined and have siphon crossings at the following major locations:

- Outlet Canal
- Kern Water Bank Main Canal
- West Kern Water District 36” DIP Transmission Main
- Interstate 5 Freeway
- Stockdale Highway
- Miscellaneous Levee Roads and Farm Roads

The canal is planned to be concrete lined in an effort to minimize weeds, debris, and sediment in the siphon crossings and the lift station forebays. Furthermore the concrete lining has the longest useful life. The canal will have two lift stations along the alignment to lift water to the recharge basins. It is estimated that the first lift station will consist of a reinforced concrete pump station with two 30 cfs low lift pumps with 100 hp motors, two 60 cfs low lift pumps with 200 hp motors, and four 80 cfs low lift pumps with 300 hp vertical motors, discharge piping and appurtenances, electrical and controls in order to convey 500 cfs to the east side of the I-5 Freeway. The second lift station will consist of a reinforced concrete pump station with two 30 cfs low lift pumps with 100 hp motors, two 60 cfs low lift pumps with 200 hp motors, and four 80 cfs low lift pumps with 300 hp vertical motors, discharge piping and appurtenances, electrical and controls in order to convey 500 cfs to the east end of the West Basins and the Goose Lake Slough and also to the Phase II Recharge Property. Each

lift station will also include a gravity bypass line with slide gate into the lift station structure for the reverse flow of recovered water back to the California Aqueduct.

A reinforced concrete turnout structure for approximately 420 cfs will be constructed at the east end of the West Basins to convey recharge water to the West Basins and to the Goose Lake Slough if necessary. This structure will be equipped such that recovered water from the WB wells can be returned through the canal conveyance facility to the California Aqueduct.

In addition, the Project involves purchasing approximately 640 acres of Phase II land located within the Rosedale Rio Bravo Water Storage District boundary but outside of the limits of the Stockdale Integrated Banking Project EIR. Water will then be conveyed to this property from the California Aqueduct via the new canal.

The Phase II property will be developed for the recharge and recovery of ground water. The anticipated recharge at this property will initially be approximately 230 cfs (0.7 ac-ft/d) and then drop to an approximate maintenance rate of 115 cfs (0.35 ac-ft/d). The scope of work for construction will include site clearing and grubbing, installation of site fencing and gates, construction of earthen levees, construction of inter-basin structures and conveyance facilities, rip-rap, and existing well abandonments. In addition the property will be equipped with six recovery wells with an approximate capacity of 5 to 6 cfs each. These will be 20-inch diameter wells cased to approximately 930-ft. The wells will be equipped with vertical turbine pumps, 400 hp vertical hollowshaft motors, discharge piping, appurtenances, electrical and controls, and site improvements. The underground well conveyance piping will be PVC pipe ranging in size from 16-inch to 36-inch diameter. The recovery wells will pump water through conveyance pipelines back to the new canal and reverse flow water in the canal by gravity to return water to the California Aqueduct.

The proposed Project will also include the construction of a SCADA system to aid in the operations of the Aqueduct turnout, the canal lift stations, and the turnout facilities to the groundwater banking properties. This will include PLC's, radio communication, computer station at a central headquarters, and control programming.

A preliminary set of drawings are attached in Appendix E.

## **IV. SECTION 4 – OPINION OF PROBABLE COSTS**

### *4.1 CAPITAL COST*

A detailed feasibility level cost estimate is attached in Appendix C and summarized below. The capital cost estimate at this time is considered a Class 4 Estimate. Class 4 estimates are generally prepared based on limited information and subsequently have fairly wide accuracy ranges. Typically engineering design work is from 1% to 15% complete. The accuracy of the estimate can range from -15% to -30% on the low side and +20% to +50% on the high side.

The Class 4 estimate includes the contract costs which are the actual construction costs; the field costs which include a twenty-percent (20%) contingency, design contingencies for unlisted items, and the land acquisition costs, easement procurement costs, and HCP fees; and the non-contract costs which include project management, engineering design, bid administration, and construction management and inspection. The 20% contingency utilized herein is consistent with the Class 4 Estimate criteria per AACE International Practice No. 18R-97 and the Reclamation Manual Directives and Standards document FAC 09-01. The unlisted items amount is consistent with the Reclamation Manual Directives and Standards Section E. “Special Allowances”.

The Aqueduct Turnout Facility costs are outlined below. They are, in general, considered conservative as other material options and construction methods will be evaluated as more detailed design work is completed. Appropriate selection of construction materials and methods and their impact on Project costs will occur as the design proceeds from preliminary to final.

#### *Aqueduct Turnout*

|  |             |
|--|-------------|
| • Mobilization, Demobilization, & Clean-up | \$150,555   |
| • Aqueduct Cofferdam & Dewatering          | \$250,000   |
| • Excavation Earthwork                     | \$73,500    |
| • Reinforced Concrete Structure            | \$166,000   |
| • Miscellaneous Steel                      | \$50,000    |
| • Trashrack                                | \$50,000    |
| • Turnout Piping                           | \$7,200,000 |
| • Backfill & Compaction                    | \$55,500    |
| • Metering & Metering Vault                | \$450,000   |
| • Slide Gate & Actuator                    | \$75,000    |
| • Electrical, Controls, & Lighting         | \$150,000   |
| • Aqueduct Canal Liner Repair              | \$20,000    |

|                                   |                 |
|-----------------------------------|-----------------|
| • Levee Road Pavement Restoration | \$11,200        |
| • SCADA                           | <u>\$37,500</u> |
| Subtotal:                         | \$8,739,255     |

The Conveyance Facility costs are outlined below as well and include costs for the conveyance and separate costs for each lift station:

Canal Reach One

|  |                  |
|--|------------------|
| • Mobilization, Demobilization, & Cleanup      | \$50,555         |
| • Canal Earthwork                              | \$2,360,790      |
| • Aqueduct Turnout Afterbay Concrete Structure | \$379,000        |
| • Main Canal Forebay Concrete Structure        | \$265,000        |
| • Main Canal Siphon                            | \$930,000        |
| • Main Canal Afterbay Concrete Structure       | \$265,000        |
| • WKWD Pipeline Crossing Forebay Conc. Struct. | \$265,000        |
| • WKWD Pipeline Crossing Road Siphon           | \$555,000        |
| • WKWD Pipeline Crossing Afterbay Conc. Struc. | \$265,000        |
| • Levee Crossing Forebay Concrete Structure    | \$265,000        |
| • Levee Crossing Siphon                        | \$555,000        |
| • Levee Crossing Afterbay Concrete Structure   | \$265,000        |
| • Concrete Canal Lining                        | \$8,457,961      |
| • Canal Appurtenances                          | \$125,000        |
| • Existing Facility Relocations                | \$250,000        |
| • Road Surfacing                               | \$327,500        |
| • Canal Fencing                                | <u>\$337,500</u> |
| Subtotal:                                      | \$15,918,306     |

Interstate 5 Freeway Lift Station

|  |             |
|--|-------------|
| • Mobilization, Demobilization, & Cleanup    | \$151,667   |
| • Lift Station Excavation                    | \$110,000   |
| • Reinforced Concrete Structure              | \$1,120,000 |
| • Backfill & Compaction                      | \$60,000    |
| • Trashracks                                 | \$200,000   |
| • Miscellaneous Steel                        | \$120,000   |
| • Pumps and Motors                           | \$1,960,000 |
| • Discharge Piping & Appurtenances           | \$3,650,000 |
| • Reverse Flow Bypass Piping & Appurtenances | \$205,000   |
| • Variable Speed Drives                      | \$520,000   |
| • Cathodic Protection                        | \$25,000    |
| • Electrical Building                        | \$200,000   |
| • Electrical & Controls                      | \$500,000   |
| • Site Painting                              | \$7,500     |



|                |                 |
|----------------|-----------------|
| • Fencing      | \$38,250        |
| • Ground Cover | \$45,000        |
| • SCADA        | <u>\$30,000</u> |
| Subtotal:      | \$8,942,417     |

Canal Reach Two

|  |                  |
|--|------------------|
| • Mobilization, Demobilization, & Cleanup        | \$50,555         |
| • Lift Station Afterbay Concrete Structure       | \$456,000        |
| • I-5 Freeway Forebay Concrete Structure         | \$265,000        |
| • I-5 Freeway Pipeline Crossing                  | \$2,580,000      |
| • I-5 Freeway Afterbay Concrete Structure        | \$265,000        |
| • Canal Earthwork                                | \$1,342,410      |
| • Farm Rd Crossing Forebay Concrete Structure    | \$265,000        |
| • Farm Rd Crossing Canal Siphon                  | \$555,000        |
| • Farm Rd Crossing Afterbay Concrete Structure   | \$265,000        |
| • Stockdale Hwy Forebay Concrete Structure       | \$265,000        |
| • Stockdale Hwy Siphon Crossing                  | \$1,080,000      |
| • Stockdale Hwy Afterbay Concrete Structure      | \$265,000        |
| • Farm Road Crossing Forebay Concrete Structure  | \$265,000        |
| • Farm Road Siphon Crossing                      | \$555,000        |
| • Farm Road Crossing Afterbay Concrete Structure | \$265,000        |
| • Concrete Canal Lining                          | \$3,700,605      |
| • Canal Appurtenances                            | \$75,000         |
| • Existing Facility Relocations                  | \$150,000        |
| • Road Surfacing                                 | \$196,500        |
| • Canal Fencing                                  | <u>\$202,500</u> |
| Subtotal:  | \$13,063,570     |

Lift Station

|  |             |
|--|-------------|
| • Mobilization, Demobilization, & Cleanup    | \$151,667   |
| • Lift Station Excavation                    | \$110,000   |
| • Reinforced Concrete Structure              | \$1,120,000 |
| • Backfill & Compaction                      | \$60,000    |
| • Trashracks                                 | \$200,000   |
| • Miscellaneous Steel                        | \$120,000   |
| • Pumps and Motors                           | \$1,960,000 |
| • Discharge Piping & Appurtenances           | \$3,650,000 |
| • Reverse Flow Bypass Piping & Appurtenances | \$205,000   |
| • Variable Speed Drives                      | \$520,000   |
| • Cathodic Protection                        | \$25,000    |
| • Electrical Building                        | \$200,000   |
| • Electrical & Controls                      | \$500,000   |

|                 |                 |
|-----------------|-----------------|
| • Site Painting | \$7,500         |
| • Fencing       | \$38,250        |
| • Ground Cover  | \$45,000        |
| • SCADA         | <u>\$30,000</u> |
| Subtotal:       | \$8,942,417     |

:

Canal Reach Three

|  |                  |
|--|------------------|
| • Mobilization, Demobilization, & Cleanup  | \$50,555         |
| • Lift Station Afterbay Concrete Structure | \$456,000        |
| • Canal Earthwork                          | \$925,800        |
| • Concrete Canal Lining                    | \$2,552,140      |
| • Canal Appurtenances                      | \$50,000         |
| • Existing Facility Relocations            | \$100,000        |
| • Road Surfacing                           | \$131,000        |
| • Canal Fencing                            | <u>\$135,000</u> |
| Subtotal:                                  | \$4,400,495      |

West Basins Turnout Facility

|   |                 |
|---|-----------------|
| • Mobilization, Demobilization, & Cleanup | \$50,555        |
| • Turnout Excavation                      | \$39,000        |
| • Turnout Reinforced Concrete Structure   | \$104,000       |
| • Turnout Backfill & Compaction           | \$21,000        |
| • Trashracks                              | \$100,000       |
| • Miscellaneous Steel                     | \$120,000       |
| • Turnout Slide Gates with Actuators      | \$220,000       |
| • Turnout Piping                          | \$320,000       |
| • Turnout Metering                        | \$140,000       |
| • Turnout Electrical & Controls           | \$150,000       |
| • Discharge Outlet Structure              | \$134,000       |
| • SCADA                                   | <u>\$37,500</u> |
| Subtotal:                                 | \$1,436,055     |

Phase II Turnout Facility

|   |           |
|---|-----------|
| • Mobilization, Demobilization, & Cleanup | \$50,555  |
| • Turnout Excavation                      | \$39,000  |
| • Turnout Reinforced Concrete Structure   | \$104,000 |
| • Turnout Backfill & Compaction           | \$21,000  |
| • Trashracks                              | \$100,000 |
| • Miscellaneous Steel                     | \$120,000 |
| • Turnout Slide Gates with Actuators      | \$220,000 |
| • Turnout Piping                          | \$320,000 |

|                                 |                 |
|---------------------------------|-----------------|
| • Turnout Metering              | \$140,000       |
| • Turnout Electrical & Controls | \$150,000       |
| • Discharge Outlet Structure    | \$134,000       |
| • SCADA                         | <u>\$37,500</u> |
| Subtotal:                       | \$1,436,055     |

The capital costs below are outlined for the recharge and recovery facilities:

Phase I Recharge Facility

|  |                  |
|--|------------------|
| • Mobilization, Demobilization, & Cleanup  | \$151,667        |
| • Site Clearing and Grubbing               | \$384,000        |
| • Levee Over-Excavation and Re-compaction  | \$1,081,000      |
| • Keyway Over-Excavation and Re-compaction | \$235,000        |
| • Levee Embankment Fill                    | \$1,071,000      |
| • Inter-Basin Structure Headwalls          | \$600,000        |
| • Inter-Basin Structure Piping             | \$1,000,000      |
| • Inter-Basin Structure Rip-Rap            | \$525,000        |
| • Inter-Basin Structure Cutoff Walls       | \$375,000        |
| • Site Fencing & Gates                     | <u>\$158,400</u> |
| Subtotal:                                  | \$5,581,067      |

Goose Lake Slough Check Structure & Lift Station

|   |           |
|---|-----------|
| • Mobilization, Demobilization, & Cleanup         | \$151,667 |
| • Check Structure Over-Ex and Re-compaction       | \$35,000  |
| • Check Structure Reinf. Concrete Floor and Walls | \$175,200 |
| • Check Structure Miscellaneous Steel             | \$50,000  |
| • Check Structure Appurtenances & Weir Boards     | \$25,000  |
| • Check Structure Slope Protection & Rip-Rap      | \$75,000  |
| • Turnout Structure Excavation                    | \$33,000  |
| • Turnout Reinforced Concrete Structure           | \$280,000 |
| • Turnout Backfill and Compaction                 | \$15,000  |
| • Turnout Miscellaneous Steel                     | \$50,000  |
| • Turnout Trashracks                              | \$80,000  |
| • Turnout Lift Station Pumps                      | \$720,000 |
| • Turnout Lift Station Motors                     | \$240,000 |
| • Turnout Discharge Piping & Appurtenances        | \$240,000 |
| • Turnout Painting                                | \$7,500   |
| • Turnout Lift Station Metering                   | \$90,000  |
| • Turnout Lift Station Slide Gate                 | \$37,500  |
| • Turnout Electrical & Controls                   | \$400,000 |

|   |                 |
|---|-----------------|
| • Turnout Piping to Recharge Facility   | \$350,000       |
| • Outlet Structure to Recharge Facility | \$180,000       |
| • Slope Protection Rip-Rap & Concrete   | \$50,000        |
| • SCADA                                 | <u>\$30,000</u> |
| Subtotal:                               | \$3,314,867     |

Phase I Recovery Facilities

|  |                  |
|--|------------------|
| • Mobilization, Demobilization, & Cleanup    | \$303,333        |
| • Well Drilling, Construction, & Development | \$7,052,844      |
| • Well Underground Electrical                | \$300,000        |
| • Well Concrete Foundation                   | \$210,000        |
| • Well Pump & Motors                         | \$1,530,000      |
| • Well Discharge Piping & Appurtenances      | \$270,000        |
| • Well Motor Enclosure                       | \$120,000        |
| • Well Site Electrical Concrete Slab         | \$210,000        |
| • Well Site Electrical & Controls            | \$1,650,000      |
| • Well Site VFD's                            | \$1,200,000      |
| • Well Site Electrical Shade Structure       | \$420,000        |
| • Well Site Development                      | \$672,000        |
| • Well Site Fencing                          | \$120,000        |
| • Well Site Painting                         | \$60,000         |
| • Well Site Ground Cover                     | \$60,000         |
| • SCADA                                      | \$37,500         |
| • Well Recovery Pipeline 16" C905 PVC        | \$621,000        |
| • Well Recovery Pipeline 18" C905 PVC        | \$288,000        |
| • Well Recovery Pipeline 24" C905 PVC        | \$969,500        |
| • Well Recovery Pipeline 36" C905 PVC        | <u>\$550,000</u> |
| Subtotal:                                    | \$16,644,177     |

Phase I Property & RRBWSD Intake Canal Interconnection

|   |                 |
|---|-----------------|
| • Mobilization, Demobilization, & Cleanup       | \$51,667        |
| • Structure Over-Excavation and Re-compaction   | \$10,500        |
| • Structure Reinforced Concrete Floor and Walls | \$32,800        |
| • Structure Miscellaneous Steel                 | \$10,000        |
| • Structure Backfill & Compaction               | \$7,500         |
| • Structure Slope Protection & Rip-Rap          | \$35,000        |
| • Butterfly Valve & Appurtenances               | \$50,000        |
| • Concrete Lining & Liner Repair                | <u>\$20,000</u> |
| Subtotal:                                       | \$217,467       |

Phase II Recharge Facility

|  |                  |
|--|------------------|
| • Mobilization, Demobilization, & Cleanup  | \$151,667        |
| • Site Clearing and Grubbing               | \$384,000        |
| • Levee Over-Excavation and Re-compaction  | \$1,081,000      |
| • Keyway Over-Excavation and Re-compaction | \$235,000        |
| • Levee Embankment Fill                    | \$1,071,000      |
| • Inter-Basin Structure Headwalls          | \$600,000        |
| • Inter-Basin Structure Piping             | \$1,000,000      |
| • Inter-Basin Structure Rip-Rap            | \$525,000        |
| • Inter-Basin Structure Cutoff Walls       | \$375,000        |
| • Site Fencing & Gates                     | <u>\$158,400</u> |
| Subtotal:                                  | \$5,581,067      |

Phase II Recovery Facilities

|  |                  |
|--|------------------|
| • Mobilization, Demobilization, & Cleanup    | \$303,333        |
| • Well Drilling, Construction, & Development | \$7,052,844      |
| • Well Underground Electrical                | \$300,000        |
| • Well Concrete Foundation                   | \$210,000        |
| • Well Pump & Motors                         | \$1,530,000      |
| • Well Discharge Piping & Appurtenances      | \$270,000        |
| • Well Motor Enclosure                       | \$120,000        |
| • Well Site Electrical Concrete Slab         | \$210,000        |
| • Well Site Electrical & Controls            | \$1,650,000      |
| • Well Site VFD's                            | \$1,200,000      |
| • Well Site Electrical Shade Structure       | \$420,000        |
| • Well Site Development                      | \$672,000        |
| • Well Site Fencing                          | \$120,000        |
| • Well Site Painting                         | \$60,000         |
| • Well Site Ground Cover                     | \$60,000         |
| • SCADA                                      | \$37,500         |
| • Well Recovery Pipeline 16" C905 PVC        | \$621,000        |
| • Well Recovery Pipeline 18" C905 PVC        | \$288,000        |
| • Well Recovery Pipeline 24" C905 PVC        | \$507,500        |
| • Well Recovery Turn-In Facilities           | <u>\$100,000</u> |
| Subtotal:                                    | \$15,732,177     |

Total estimated project capital cost: \$109,949,392

Based on the Class 4 Estimate criteria, this estimate could range from \$85,000,000 (-30%) to \$165,000,000 (+50%).



#### *4.2 OPERATION AND MAINTENANCE COST*

The Operation and Maintenance costs have also been estimated for the KWB Alignment utilizing an open canal alternative.

Preliminary Project operation, maintenance, and replacement costs have been prepared for the project described herein. This cost estimate approximates the operation and maintenance (O&M) costs for a typical dry year when recovering water, a typical wet year when recharging water, and an idle year. It is further broken down into those costs associated with the Phase I Recharge and Recovery property, the Phase II Recharge and Recovery property, the Phase I Canal Conveyance with two Lift Stations, and the Phase I Goose Lake Slough Turnout and one Lift Station.

The recovery operations and maintenance costs (dry year) have been based on operating approximately twelve months out of the year. The average estimated monthly cost is \$317,944.44. This equates to an annual cost of approximately \$3,815,333.33. Based on returning approximately 50,000 ac-ft per year equates to an average cost of \$76.31 per ac-ft.

The recharge operations and maintenance costs (wet year) have been based on recharging both Article 21 and other supplies for approximately 4 months out of the year. The remaining 8 months of the year were considered using the costs of an idle operation (not recharging or recovering water). The average monthly cost during actual recharge operations is approximately \$722,041.32. The average estimated monthly cost over a twelve month period is \$253,310.07. This equates to an annual cost of approximately \$3,039,720.83. Based on recharging 112,500 ac-ft per year equates to an average cost of \$27.02 per ac-ft.

IRWD and RRBWSD further applied the CalSim II system operations model to simulate existing and future operations of the SWP and the unallocated Article 21 water supplies available for the Project. Utilizing the CalSim II hydraulic sequencing, an average annual operations and maintenance cost was developed based on the year type (wet year, idle year, dry year) over a 50-year period.

**Irvine Ranch Water District  
Operation & Maintenance Cost Estimate  
Phase I Well Field Operation Costs**

| Type of Year                | Monthly RRBWSD<br>Operation Cost <sup>1,2</sup> | Monthly PG&E<br>Cost <sup>3</sup> | Monthly Mission<br>Unit Cost <sup>4</sup> | DWR<br>Conveyance<br>Cost | Total Monthly<br>Cost | Total Annual Cost if<br>Utilized for 12 Months <sup>5</sup> | Average Cost<br>per Ac-Ft <sup>7</sup> |
|-----------------------------|---|-----------------------------------|---|---------------------------|-----------------------|---|--|
| Dry Year (Pumping Wells)    | \$ 8,000.00                                     | \$ 144,900.00                     | \$ 316.67                                 | \$ -                      | \$ 153,216.67         | \$ 1,838,600.00   | \$ 73.54                               |
| Wet Year (Recharging Water) | \$ 9,000.00                                     | \$ 1,500.00                       | \$ 316.67                                 | \$ -                      | \$ 10,816.67          | \$ 90,600.00  | \$ 1.61                                |
| Idle Year                   | \$ 4,100.00                                     | \$ 1,500.00                       | \$ 316.67                                 | \$ -                      | \$ 5,916.67           | \$ 71,000.00  |  |

- Rosedale's operation cost includes pond maintenance, oil for reservoirs, field staff time, equipment cost, weed control cost, rodent control cost, office staff, overhead cost, etc.
- Cost includes one additional piece of equipment for property maintenance
- Monthly PG&E cost to operate (6) 400 hp wells
- Average monthly cost for cellular service to (6) Mission Units
- Assumed 35 cfs flow rate for a 30 day month for a total of 2,083 ac-ft of water recovered per month or 25,000 ac-ft/y
- Dry year annual cost based on operating 12 months out of the year. Wet year annual cost based on 4 months of recharging water up to 56,250 ac-ft and 8 months at idle costs.
- Dry year pumping 25,000 ac-ft and a wet year recharging 56,250 ac-ft

**Phase I Canal Operation Costs**

| Type of Year                | Monthly RRBWSD<br>Operation Cost <sup>1,2</sup> | Monthly PG&E<br>Cost <sup>3</sup> | Monthly Mission<br>Unit Cost <sup>4</sup> | DWR<br>Conveyance<br>Cost <sup>5</sup> | Total Monthly<br>Cost | Total Annual Cost <sup>6</sup> | Average Cost<br>per Ac-Ft <sup>7</sup> |
|-----------------------------|---|-----------------------------------|---|--|-----------------------|--------------------------------|--|
| Dry Year (Pumping Wells)    | \$ 8,000.00                                     | \$ 1,500.00                       | \$ 158.33                                 | \$ -                                   | \$ 9,658.33           | \$ 115,900.00                  | \$ 4.64                                |
| Wet Year (Recharging Water) | \$ 9,000.00                                     | \$ 230,400.00                     | \$ 158.33                                 | \$ 404,296.88                          | \$ 643,855.21         | \$ 2,621,487.50                | \$ 23.80                               |
| Idle Year                   | \$ 4,100.00                                     | \$ 1,500.00                       | \$ 158.33                                 | \$ -                                   | \$ 5,758.33           | \$ 69,100.00                   |  |

- Rosedale's operation cost includes pond maintenance, oil for reservoirs, field staff time, equipment cost, weed control cost, rodent control cost, office staff, overhead cost, etc.
- Cost includes one additional piece of equipment for canal maintenance
- Monthly PG&E cost to operate two lift stations moving 500 cfs at a 20-ft TDH each, Total 112,500 ac-ft / year
- Average monthly cost for cellular service to (3) Mission Units
- Article 21 water cost estimated at \$23.00/AF for 112,500 ac-ft, however IRWD's share (37.5%) is paid through agreement with Metropolitan Water District. Therefore the estimated monthly water costs include \$23/AF for 70,312.5 ac-ft.
- Dry year annual cost based on operating 12 months out of the year. Wet year annual cost based on 4 months of recharging water up to 56,250 ac-ft and 8 months at idle costs.
- Dry year conveying 25,000 ac-ft to aqueduct and a wet year recharging 112,500 ac-ft

**Phase I Goose Lake Slough Turnout Operation Costs**

| Type of Year                | Monthly RRBWSD<br>Operation Cost <sup>1</sup> | Monthly PG&E<br>Cost <sup>2</sup> | Monthly Mission<br>Unit Cost <sup>3</sup> | Conveyance<br>Cost | Total Monthly<br>Cost | Total Annual Cost <sup>4</sup> | Average Cost<br>per Ac-Ft <sup>5</sup> |
|-----------------------------|---|-----------------------------------|---|--------------------|-----------------------|--------------------------------|--|
| Dry Year (Pumping Wells)    | \$ 1,500.00                                   | \$ 300.00                         | \$ 52.78                                  | \$ -               | \$ 1,852.78           | \$ 22,233.33                   | \$ 0.89                                |
| Wet Year (Recharging Water) | \$ 4,000.00                                   | \$ 52,500.00                      | \$ 52.78                                  | \$ -               | \$ 56,552.78          | \$ 237,033.33                  | \$ 4.21                                |
| Idle Year                   | \$ 1,000.00                                   | \$ 300.00                         | \$ 52.78                                  | \$ -               | \$ 1,352.78           | \$ 16,233.33                   |  |

- Rosedale's operation cost includes pond maintenance, oil for reservoirs, field staff time, equipment cost, weed control cost, rodent control cost, office staff, overhead cost, etc.
- Monthly PG&E cost to operate (4) 200 hp lift pumps moving 240 cfs, Total 50,000 ac-ft / year
- Average monthly cost for cellular service to (1) Mission Units
- Dry year annual cost based on operating 12 months out of the year. Wet year annual cost based on 4 months of recharging water up to 56,250 ac-ft and 8 months at idle costs.
- Dry year pumping 25,000 ac-ft and a wet year recharging 50,000 ac-ft

**Phase II Well Field Operation Costs**

| Type of Year                | Monthly RRBWSD<br>Operation Cost <sup>1,2</sup> | Monthly PG&E<br>Cost <sup>3</sup> | Monthly Mission<br>Unit Cost <sup>4</sup> | DWR<br>Conveyance<br>Cost | Total Monthly<br>Cost | Total Annual Cost if<br>Utilized for 12 Months <sup>5</sup> | Average Cost<br>per Ac-Ft <sup>7</sup> |
|-----------------------------|---|-----------------------------------|---|---------------------------|-----------------------|---|--|
| Dry Year (Pumping Wells)    | \$ 8,000.00                                     | \$ 144,900.00                     | \$ 316.67                                 | \$ -                      | \$ 153,216.67         | \$ 1,838,600.00   | \$ 73.54                               |
| Wet Year (Recharging Water) | \$ 9,000.00                                     | \$ 1,500.00                       | \$ 316.67                                 | \$ -                      | \$ 10,816.67          | \$ 90,600.00  | \$ 1.61                                |
| Idle Year                   | \$ 4,100.00                                     | \$ 1,500.00                       | \$ 316.67                                 | \$ -                      | \$ 5,916.67           | \$ 71,000.00  |  |

- Rosedale's operation cost includes pond maintenance, oil for reservoirs, field staff time, equipment cost, weed control cost, rodent control cost, office staff, overhead cost, etc.
- Cost includes one additional piece of equipment for property maintenance
- Monthly PG&E cost to operate (6) wells
- Average monthly cost for cellular service to (6) Mission Units
- Assumed 35 cfs flow rate for a 30 day month for a total of 2,083 ac-ft of water recovered per month or 25,000 ac-ft/y
- Dry year annual cost based on operating 12 months out of the year. Wet year annual cost based on 4 months of recharging water up to 56,250 ac-ft and 8 months at idle costs.
- Dry year pumping 25,000 ac-ft and a wet year recharging 56,250 ac-ft

**Total Project Operation Costs**

| Type of Year                                 | Monthly RRBWSD<br>Operation Cost <sup>1,2</sup> | Monthly PG&E<br>Cost <sup>3</sup> | Monthly Mission<br>Unit Cost <sup>4</sup> | DWR<br>Conveyance<br>Cost | Total Monthly<br>Cost | Total Annual Cost if<br>Utilized for 12 Months <sup>5</sup> | Average Cost<br>per Ac-Ft <sup>7</sup> |
|--|---|-----------------------------------|---|---------------------------|-----------------------|---|--|
| Dry Year (Pumping Wells and Returning Water) | \$ 25,500.00                                    | \$ 291,600.00                     | \$ 844.44                                 | \$ -                      | \$ 317,944.44         | \$ 3,815,333.33   | \$ 76.31                               |
| Wet Year (Conveying and Recharging Water)    | \$ 31,000.00                                    | \$ 285,900.00                     | \$ 844.44                                 | \$ 404,296.88             | \$ 722,041.32         | \$ 3,039,720.83   | \$ 27.02                               |
| Idle Year                                    | \$ 13,300.00                                    | \$ 4,800.00                       | \$ 844.44                                 | \$ -                      | \$ 18,944.44          | \$ 227,333.33   |  |

#### 4.3 TOTAL PROJECT COSTS

Total project costs can be grouped into contract costs, field costs and non-contract costs. The contract costs are as follows:

**Table 4**  
**Contract Cost Summary**

| <u>Description</u>                               | <u>Cost</u>          | <u>Item No. of Cost Estimate</u>    |
|--|----------------------|-------------------------------------|
| Aqueduct Turnout                                 | \$1,539,255          | Items 1, 2-16, 301                  |
| Aqueduct Turnout Piping                          | \$7,200,000          | Item 10                             |
| Conveyance Facilities                            | \$33,382,371         | Items 1, 17-44, 71-93, 120-122, 301 |
| Conveyance Lift Stations                         | \$17,884,834         | Items 1, 45-70, 94-119, 301         |
| West Basins Turnout                              | \$1,436,055          | Items 1, 123-136, 301               |
| Phase I Turnout & Lift Station & Check Structure | \$3,314,867          | Items 1, 161-183, 301               |
| Phase I Recharge & Recovery                      | \$22,225,244         | Items 1, 151-160, 184-232, 301      |
| RRB Intake Canal Intertie                        | \$217,467            | Items 1, 233-241                    |
|  |                      |                                     |
| Phase 2 Turnout                                  | \$1,436,055          | Items 1, 137-150, 301               |
| Phase 2 Recharge & Recovery                      | \$21,313,244         | Items 1, 242-300, 301               |
|  |                      |                                     |
| <b>Subtotal:</b>                                 | <b>\$109,949,392</b> |                                     |

The field cost is an estimate of the contract cost plus a twenty-percent (20%) contingency, plus design contingencies for unlisted items, and the land acquisition costs, easement procurement costs, and HCP fees. The 20% contingency is consistent with the Class 4 Estimate criteria per ACE International Practice No. 18R-97 and the Reclamation Manual Directives and Standards document FAC 09-01. The unlisted items is consistent with the Reclamation Manual Directives and Standards Section E. "Special Allowances". The field cost equates to \$171,463,258 (see Table 5 below).

**Table 5**  
**Field Cost Summary**

| <u>Description</u>              | <u>Cost</u>   | <u>Item No. of Cost Estimate</u> |
|---------------------------------|---------------|----------------------------------|
| Contract Cost                   | \$109,949,392 |                                  |
|                                 |               |                                  |
| 20% Contingency                 | \$21,989,878  |                                  |
|                                 |               |                                  |
| Unlisted Items                  | \$2,198,988   |                                  |
|                                 |               |                                  |
| Land Purchase, Easements, & R/W | \$37,325,000  |                                  |
|                                 |               |                                  |
| Field Cost:                     | \$171,463,258 |                                  |

The non-contract costs include project management, design and engineering, permitting, environmental work, labor compliance, PG&E electrical service, bid advertisement, legal, construction staking, and construction management and inspection and equate to \$26,360,000 or approximately 20% of the contract cost including contingency (see Table 6 below).

**Table 6**  
**Non-Contract Cost Breakdown**

| <u>Description</u>   | <u>Cost</u> | <u>Item No.</u><br><u>of Cost</u><br><u>Estimate</u> |
|--|-------------|--|
| Project Management<br>-Owner's Representative<br>-Technical Representative   | \$6,500,000 |  |
| Engineering & Design<br>-Geotechnical Investigation<br>-Hydrogeological<br>-Hydraulic Modeling<br>-Preliminary Studies<br>-Technical Memorandums<br>-Plans, Specs, & Estimates | \$6,900,000 |  |
| Environmental<br>-Environmental Documentation<br>-CEQA Plus<br>-Technical Studies<br>-Supplemental EIR   | \$605,000   |  |
| Permitting<br>-DWR/KCWA Turnout<br>-Outlet Canal Crossing<br>-State Parks Permitting<br>-Caltrans Permitting<br>-County Permitting<br>-State and Federal ITP                   | \$605,000   |  |
| Labor Compliance   | \$500,000   |  |
| PG&E Service   | \$1,500,000 |  |
| Bid Advertisement & Legal<br>-Bid Document Legal Review<br>-Bid Advertisement<br>-Job Walks & RFI Responses<br>-Bid Opening & Review   | \$250,000   |  |
| Surveying and R/W<br>-Project Surveying, Topo<br>-Easement & R/W Procurement<br>-Construction Staking  | \$1,650,000 |  |
| Construction Management & Inspection<br>-Project Management<br>-Field Inspection<br>-Materials Testing<br>-Hydrogeological<br>-Special Inspections                             | \$7,850,000 |  |



|                     |              |  |
|---------------------|--------------|--|
| -Start-up & Testing |              |  |
| -Project Close-out  |              |  |
|                     |              |  |
| Non-Contract Cost:  | \$26,360,000 |  |

The total project cost consists of the contract cost, field cost, and the non-contract costs. The total project cost estimate for this project is \$197,823,258 (see Table 7 below).

**Table 7**  
**Total Project Cost Summary**

| <u>Description</u>  | <u>Cost</u>   | <u>Item No. of<br/>Cost<br/>Estimate</u> |
|---------------------|---------------|--|
| Field Cost          | \$171,463,258 |  |
|                     |               |  |
| Non-Contract Costs  | \$26,360,000  |  |
|                     |               |  |
| Total Project Cost: | \$197,823,258 |  |

The preparation of cost estimates at the feasibility level requires many assumptions to be made. Below is a list of several of the assumptions made for purposes of this cost estimate.

1. Phase I Property is estimated to be in Section 26 and 27 of T29S, R25E on the McCaslin Property based on conversations with Mike Ming of Alliance Appraisal. Appraisal value estimated between \$25K to \$28K per acre.
2. Phase II Property is estimated to be in Section 30 of T29S, R25E on the Tracy Ranch Property based on conversations with Mike Ming of Alliance Appraisal. Appraisal value estimated between \$20K to \$23K per acre.
3. Permanent and Temporary easements based on a 140-ft width for permanent and 200-ft width for temporary and appraisal values recommended by Mike Ming of Alliance Appraisal.
4. Habitat Conservation Plan (HCP) fees based on 4-miles across KWB for 200-ft width equating to approximately 100 acres. Assumed 2:1 ratio for HCP.
5. Conveyance alignment from California Aqueduct to the easterly end of RRBWSD West Basins assumed to be as shown on the attached plans in Appendix E.

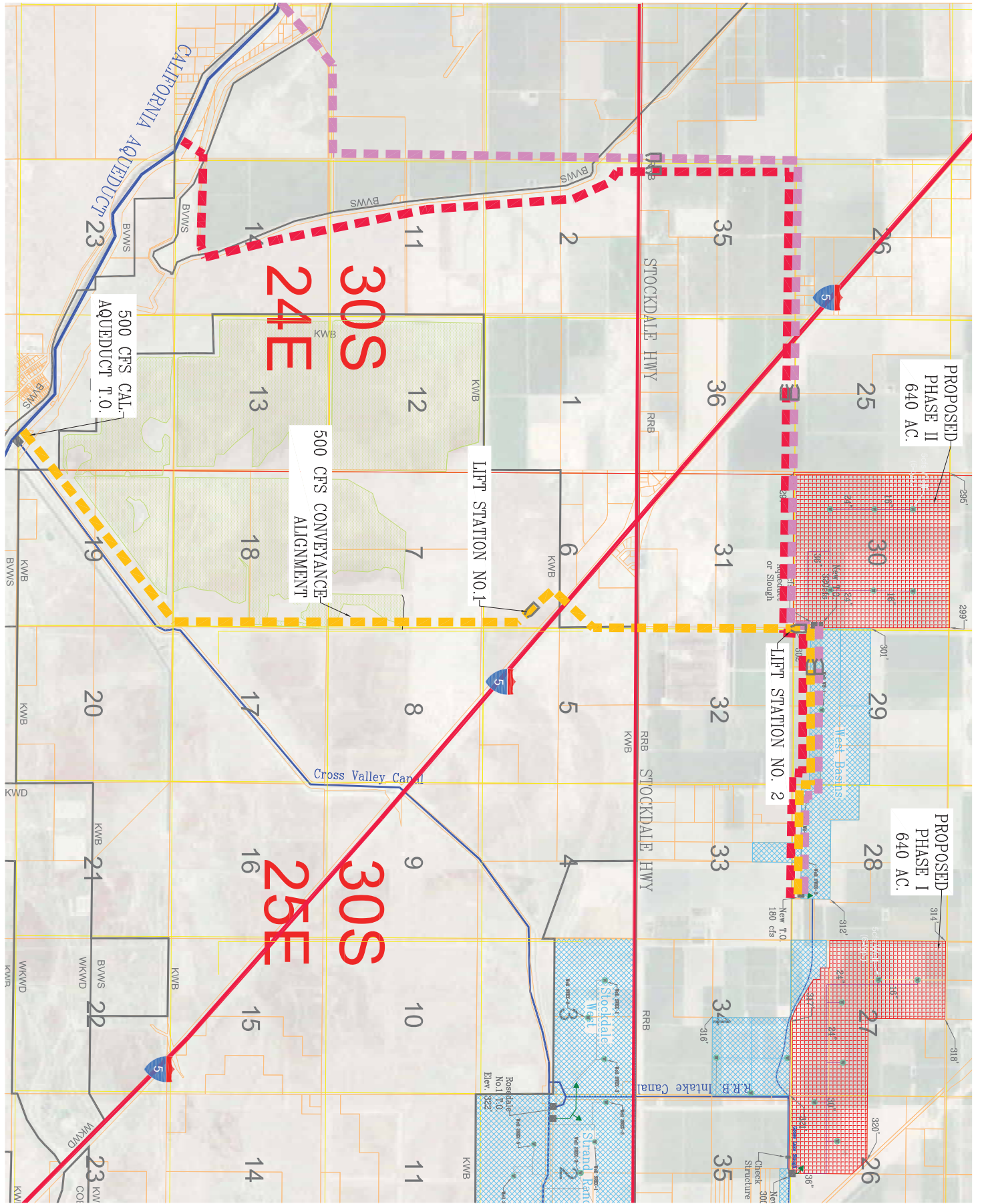
6. Conveyance facilities from California Aqueduct to the Goose Lake Slough and West Basins to have a 500 cfs capacity. Capacity to serve Phase II Property, West Basins, and potential in lieu District farmlands.

## V. SECTION 5 – PROJECT SCHEDULE

The preliminary project schedule for design, bidding, and construction has been prepared in Microsoft Project and is attached in Appendix D. As shown, Project construction is estimated to begin in the Fall of 2020 and be completed in the summer of 2025. The project construction is anticipated to be implemented in smaller contracts such as Recharge Facility Earthwork, Well Drilling and Development, Recovery Facility Well Equipping and Pipelines, Aqueduct Turnout and Conveyance Facilities/Lift Stations, and SCADA Communication System. The maximum number of workers expected to be on-site at any given time is approximately 40 - 50 persons. Construction equipment is expected to include:

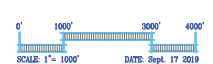
- Well Drilling Rigs
- Forklifts
- Welding Trucks
- Scrapers
- Push Dozers
- Small Dozers
- 815 Sheepsfoots
- Motor Graders
- Backhoes
- Loaders
- Excavators
- Dump Trucks
- Water Trucks
- Concrete Trucks
- Concrete Pumps
- Cranes
- Miscellaneous Tools & Equipment
- Crew Trucks

**APPENDIX A**  
**Location Maps and Overview Maps**



**Kern Fan Groundwater Storage  
Project Feasibility Study Map**

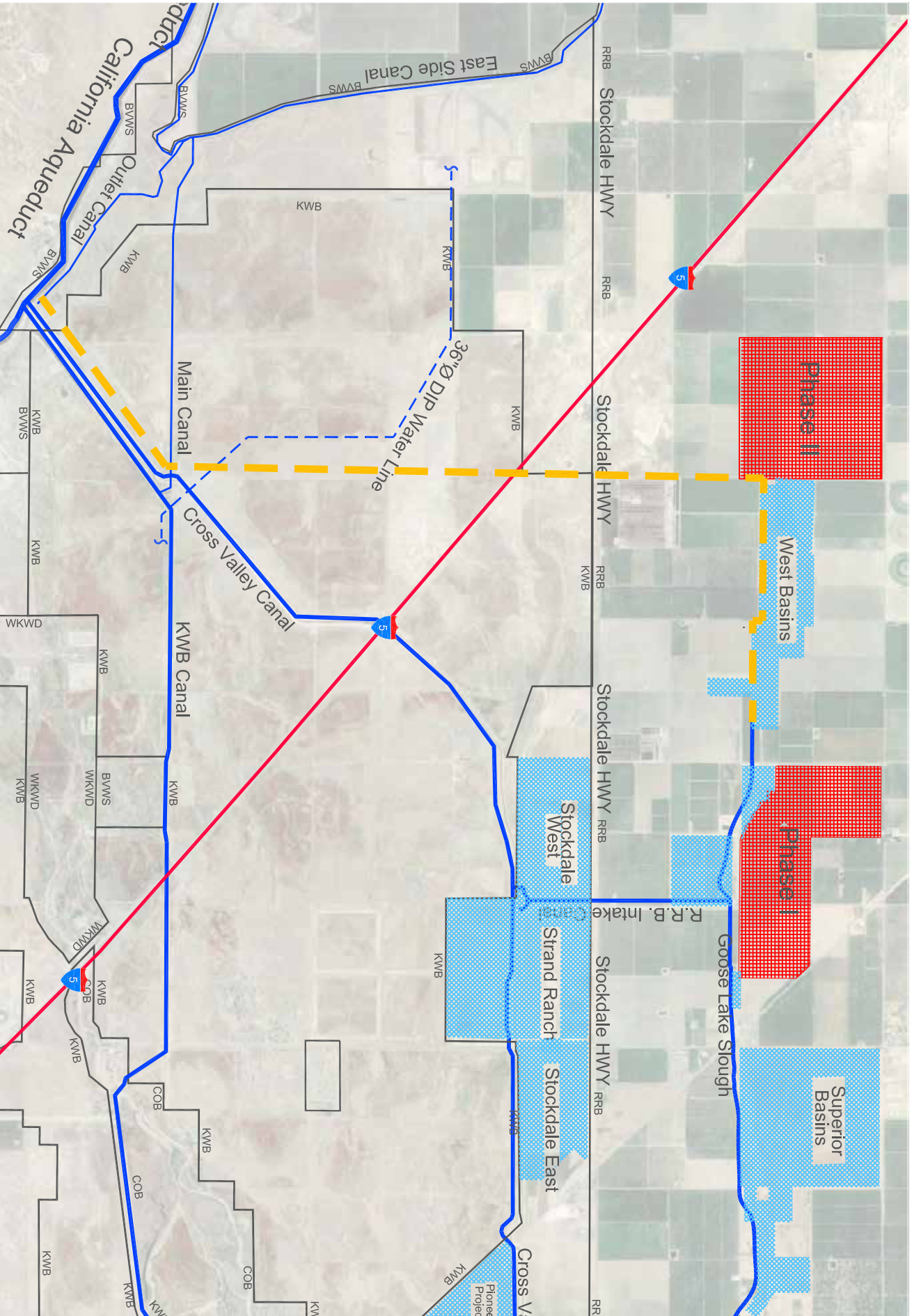
| LEGEND |                           |
|--------|---------------------------|
|        | Canals/other Waterways    |
|        | KWB Alignment             |
|        | Buena Vista Alignment     |
|        | East Side Canal Alignment |
|        | Water District Boundary   |
|        | Major Roads               |
|        | Recovery/Conveyance       |
|        | Well                      |
|        | Proposed Properties       |
|        | Current Properties        |
|        | Water Coverage            |



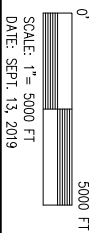
**DEE JASPAR & ASSOCIATES, INC.**  
 2200 N. GARDEN ST., SUITE 200  
 GARDEN GROVE, CA 92640  
 TEL: 714.942.1111  
 FAX: 714.942.1112  
 WWW.DJASPAR.COM

DATE: Sept. 17, 2019



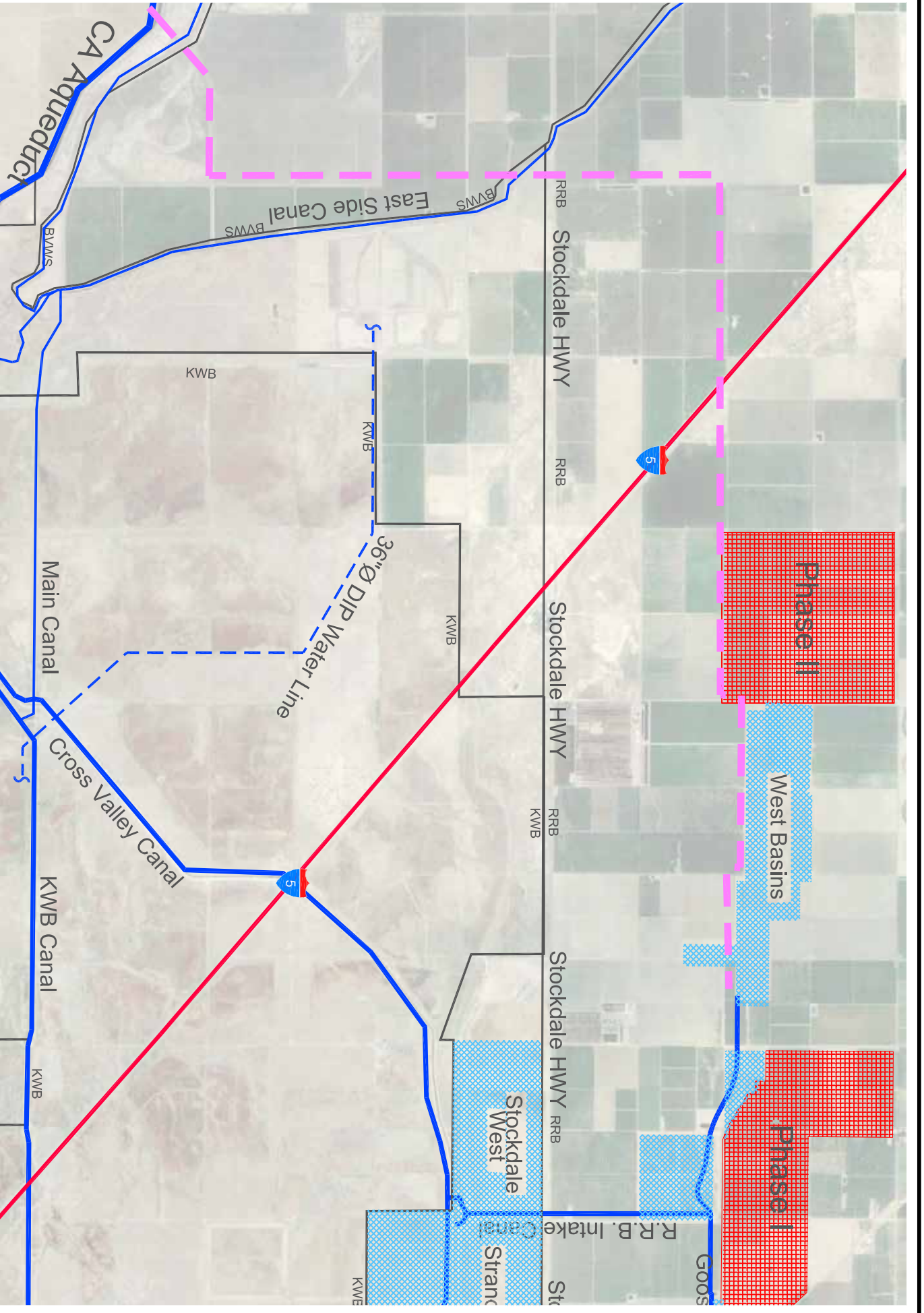


**KERN FAN PROJECT  
KERN WATER BANK ALIGNMENT**



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PORTERVILLE, CALIFORNIA  
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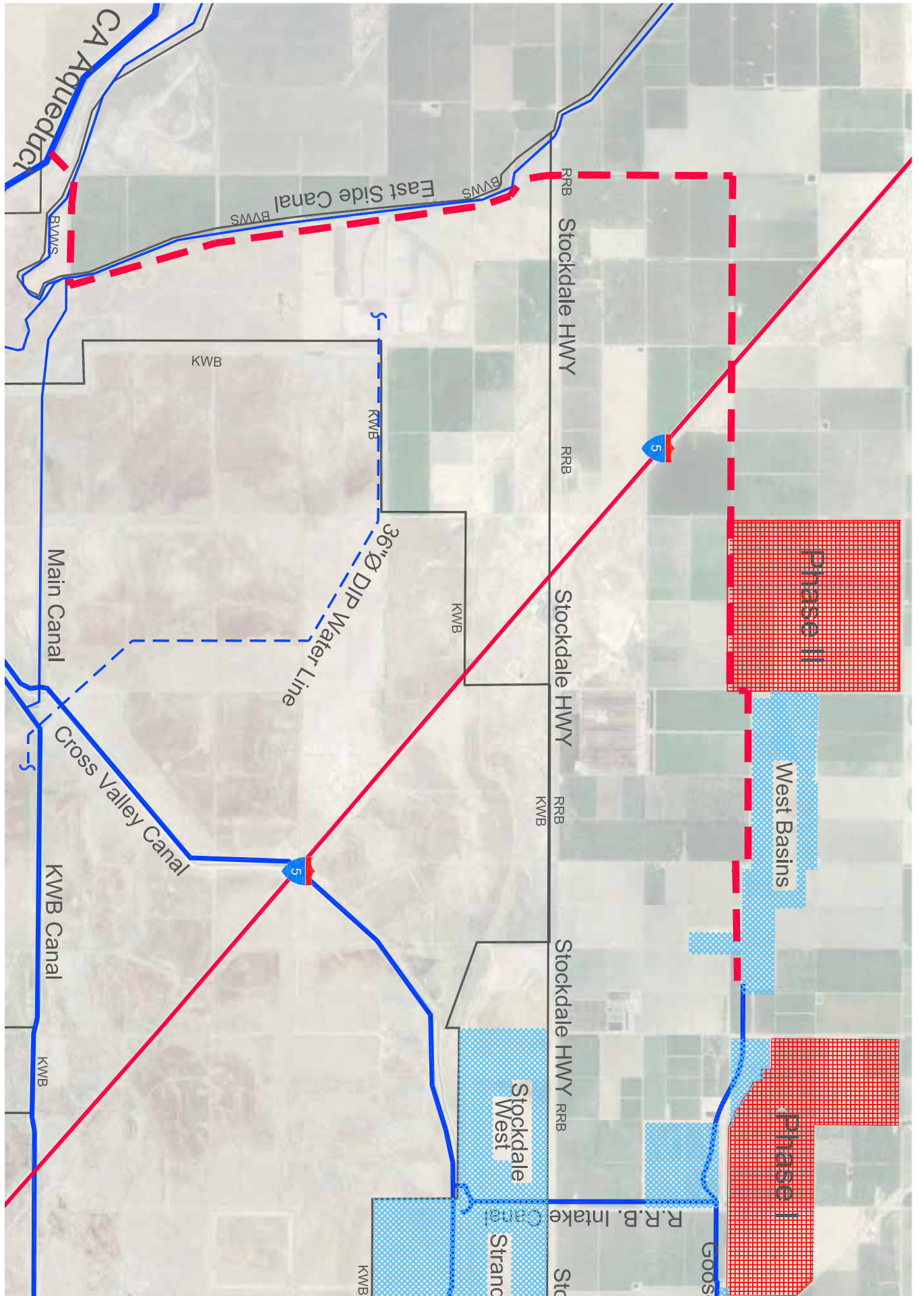




**KERN FAN PROJECT  
BUENA VISTA ALIGNMENT**



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**KERN FAN PROJECT  
EAST SIDE CANAL ALIGNMENT**



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**APPENDIX B**  
**Hydraulic Modeling**

NHC Ref. No. 03004294

8 June 2019

**GEI Consultants, Inc.**

2868 Prospect Park Drive, Suite 310  
Rancho Cordova, CA 95670

**Attention:** Rich Sanchez, P.E., Vice President and Area Manager

**Via email:** [rsanchez@geiconsultants.com](mailto:rsanchez@geiconsultants.com)

**Re:** Kern Fan Groundwater Storage Project  
Initial Hydraulics Study – New Turnout Location  
CFD Model Study Technical Memorandum - DRAFT

Dear Mr. Sanchez:

Northwest Hydraulic Consultants Ltd. (NHC) is pleased to submit the following summary of the computational fluid dynamics (CFD) model study being used as a tool to assist GEI Consultants, Inc. (GEI) with the hydraulic analysis of the intake location for the Rosedale-Rio Bravo Water Storage District's proposed turnout from California Aqueduct Reach 12E.

## 1 PROJECT DESCRIPTION

Rosedale-Rio Bravo Water Storage District (RRBWSD) has partnered with Irvine Ranch Water District (IRWD) for the development of an integrated water banking project. As part of the initial phase of the Kern Fan Groundwater Storage project, potential locations for a single 500 cfs turnout from California Aqueduct Pool 12E was investigated. California (CA) Aqueduct Pool 12E is located between Elk Hills Road and Tupman Road. The new RRBWSD turnout would be located in the same reach as Kern County Water Agency's (KCWA) two Greater Bakersfield turnouts (GBTO1 and GBTO2) to the Cross Valley Canal (CVC), which are set between check structure 27 (Mile Post 231.73) and check structure 28 (Mile Post 238.11). Each check structure consists of three radial gates (20 ft wide x 21.5 ft high). GBTO1 and GBTO2 are installed approximately 66 ft apart. The initial design flow capacity of the CA Aqueduct was 5,950 cfs; however, due to aging (increased roughness) and settling it is now believed to be 5,500 cfs.<sup>1</sup> The operating range of the water surface elevation at check structure 28 is El. 297.7 ft to El. 299.0 ft.<sup>2, 3</sup>

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<sup>1</sup> DWR, 2017. California Aqueduct Subsidence Study, San Luis Field Division; San Joaquin Field Division. State of California. California Natural Resources Agency, Department of Water Resources, Division of Engineering. June, 2017.

<sup>2</sup> DWR, 2003. Data Handbook State Water Project. State of California, The Resources Agency, Department of Water Resources.

<sup>3</sup> Unless otherwise stated, elevations reported herein are in reference to the NAVD 88 datum, which is the North America Vertical Datum of 1988.

## 2 STUDY OBJECTIVE

For the initial phase of the project, a hydraulic model study was conducted to confirm the required minimum distance between the new RRBWSD turnout and the existing GBTO1 and GBTO2 where there are no significant impacts on the approach hydraulics to GBTO1 and GBTO2.

## 3 STUDY APPROACH

The hydraulic flow field for scenarios with and without the proposed new RRBWSD turnout was computed using CFD modeling. The appropriate location of the proposed RRBWSD turnout was verified by comparing the hydraulic flow field (velocities and water depths) produced by the existing (baseline) condition with the proposed scenario with the new RRBWSD turnout operating.

## 4 CFD MODEL DESCRIPTION

Three-dimensional (3D) CFD modeling is one of the most efficient and cost-effective tools for investigating hydrodynamics and flow patterns in detail. CFD modeling is an analysis method used in fluid mechanics that deals with numerical solutions of the general flow equations for conservation of mass and momentum. CFD models compute flow hydraulics by dividing the modeling domain (water body) into small computational cells. At each cell, the CFD model computes point values of pressure plus the three-dimensional velocity vector. This information is then post-processed to determine and display hydraulic information such as flow split, flow depth, recirculation zones, head losses, and flow velocity field.

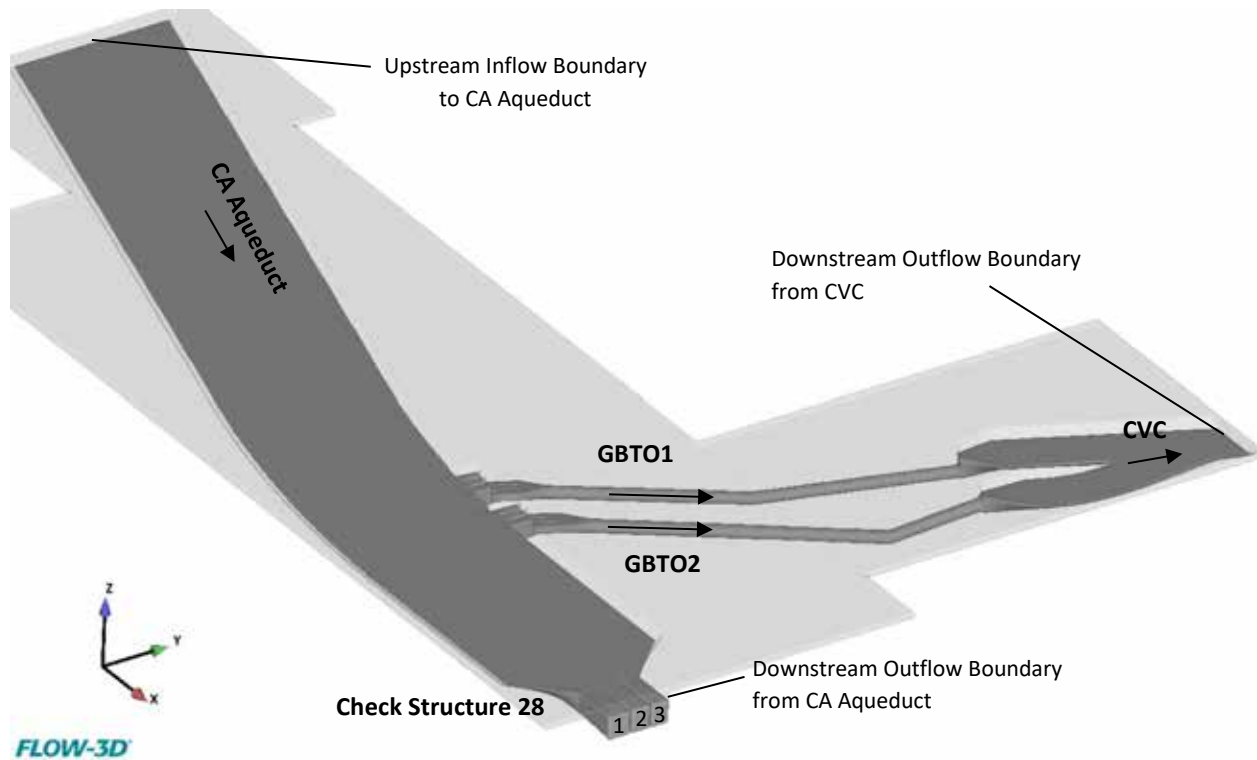
Based on drawings provided by GEI, NHC developed a 3D geometry model representing a 1000 ft long reach of CA Aqueduct 12E from about 600 ft upstream of GBTO1 to check structure 28, which is approximately 300 ft downstream of GBTO2. The model included the inlets for turnouts GBTO1, GBTO2, as shown in Figure 1. The 3D solid geometries were checked for accuracy and correctness and then transformed into the STereoLithography (STL) file format used by the CFD modeling software. NHC then uploaded the geometry files into Flow-3D software (Version 11.2.6), created the computational mesh, and set the model boundaries and parameters.

The computational mesh is made of cubic-shaped cells. The cell size was set to 2 ft throughout most of the model. The cell size was reduced to 1 ft cells from about 200 ft upstream of the proposed RRBWSD turnout down to Check Structure 28 to provide more resolution in the areas of interest without demanding excessive computational time. The total number of cells is 7,975,743.

The upstream boundary condition was set as an inflow discharge coming into the CA Aqueduct with a constant headwater elevation; the downstream boundary conditions were a specified water level at the CVC and a specified water level at check structure 28.

Model tests were operated in steady state, where the inflow equals the outflow and the hydraulic grade line profile remains constant. Modeling did not include simulation of air entrainment or sediment transport.





**Figure 1** Extents of Baseline Testing CFD Model

## 5 TESTING PROGRAM

The testing program considered two main phases: (1) Baseline and Initial Turnout Location Testing; and (2) Confirmation of Final Selected RRBWSD Turnout Location Testing.

### 5.1 Baseline and Initial Turnout Location Testing

As summarized in Table 1, the CA Aqueduct flow was set to its design capacity of 5,500 cfs for all tests, except baseline test B1-2, which ran at a smaller flow of 5,000 cfs. The water level at check structure 28 was set to the minimum operating level of El 297.7 ft. A high flow was coupled with a low water level to generate high flow velocities. When flow velocity is high, it may be more difficult for flow in the CA Aqueduct to diverge towards the turnouts, since the momentum carrying flow past the turnout (perpendicular to the face of the turnout) is relatively strong. The water level at the CVC outflow boundary was set to result in a flow rate that is close to the design capacity for CVC of 1,422 cfs. The water level was determined through trial and error to be El. 297.0 ft with three gates open at check 28 and El. 297.4 ft with 2 gates open. Baseline and initial turnout location testing did not include sedimentation in the CA Aqueduct.

Testing was first conducted at the existing condition with GBT01 and GBT02 operating to provide baseline results that will be used for comparison of the proposed RRBWSD turnout location. The first baseline test (B1) simulated all three gates at check structure 28 as fully open. For the second baseline



test (B2) Gate 1 on the right side (looking downstream, see Figure 1), which is farthest from the turnouts, was closed to generate even faster flow velocities in front of the turnouts.

The two test scenarios with the CA Aqueduct flow operating at 5,500 cfs were repeated with the new RRBWSD turnout operating at 500 cfs. Two locations were evaluated for the proposed RRBWSD turnout: 200 ft (TO1) and 500 ft (TO2) upstream of GBTO1.

**Table 1 CFD Model Testing Program – Baseline and Initial Turnout Location**

| Test  | Water Level (ft) |                        | Discharge (cfs) |         |                    |          | Description   |
|-------|------------------|------------------------|-----------------|---------|--------------------|----------|---|
|       | Check 28         | CVC Canal <sup>1</sup> | Pool 12E        | GBTO1/2 | Proposed RRBWSD TO | Check 28 |   |
| B1-1  | 297.7            | 297.0                  | 5,500           | 1,200   | -                  | 4,300    | - Forward flow baseline<br>- All gates open at Check 28                                       |
| B1-2  | 297.7            | 297.0                  | 5,000           | 1,200   | -                  | 3,800    | - Forward flow baseline<br>- All gates open at Check 28                                       |
| B2    | 297.7            | 297.4                  | 5,500           | 1,200   | -                  | 4,300    | - Forward flow baseline<br>- Gate 1 closed at Check 28  |
| TO1-1 | 297.7            | 297.0                  | 5,500           | 1,200   | 500                | 3,800    | - New TO 200 ft upstream of GBTO1<br>- Forward flow w/ new TO<br>- All gates open at Check 28 |
| TO1-2 | 297.7            | 297.4                  | 5,500           | 1,200   | 500                | 3,800    | - New TO 200 ft upstream of GBTO1<br>- Forward flow w/ new TO<br>- Gate 1 closed at Check 28  |
| TO2-1 | 297.7            | 297.0                  | 5,500           | 1,200   | 500                | 3,800    | - New TO 500 ft upstream of GBTO1<br>- Forward flow w/ new TO<br>- All gates open at Check 28 |
| TO2-2 | 297.7            | 297.4                  | 5,500           | 1,200   | 500                | 3,800    | - New TO 500 ft upstream of GBTO1<br>- Forward flow w/ new TO<br>- Gate 1 closed at Check 28  |

**Notes:**

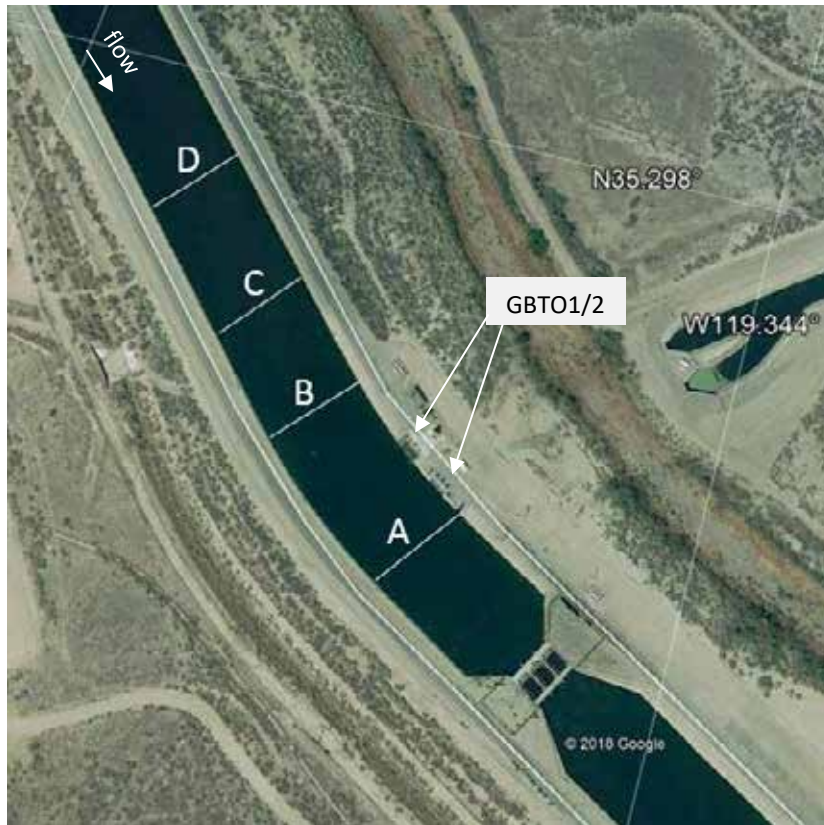
1. The water level at the CVC was set to attain a high flow rate to the CVC. The design capacity for CVC is 1,422 cfs.

## 5.2 Confirmation of Final Selected RRBWSD Turnout Location Testing

To confirm the selected minimum distance for the new RRBWSD turnout location, testing was performed at maximum forward flow to the CVC and maximum reverse flow from the CVC, both with and without the new turnout installed at the selected location (500 ft upstream of GBTO1).

The final confirmation tests were conducted with sediment deposition in CA Aqueduct Pool 12E included in the CFD model. The thickness of the sediment deposition along the Aqueduct was provided at the four cross sections shown in Figure 2. The sediment layer thickness along the channel invert at cross sections

A, B, C, and D was reported to be approximately 4.3 ft, 2.3 ft, 2.3 ft, and 2.2 ft, respectively.<sup>4</sup> This information was used to reproduce the sediment in the CFD model as a simplified geometry to match the thickness at the cross sections with a uniform thickness in the transverse direction.



**Figure 2 Sediment deposit measurement locations within the CA Aqueduct (Imagery source: Google Earth).**

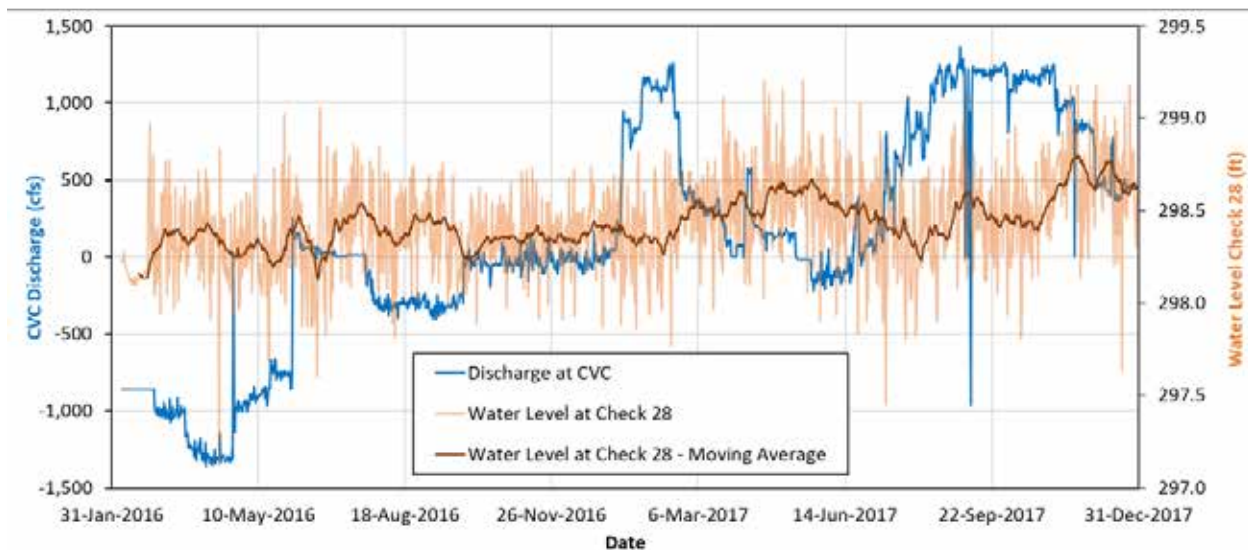
### Maximum Forward Flow Operation

Based on water levels at Check 28 and discharges through CVC recorded every 12 hours from January 2016 through December 2017<sup>5</sup> that are summarized in Figure 3, the maximum monthly forward flow discharge to the CVC ranged from 1,314 cfs to 1,415 cfs from August through October 2017. The flow rates were close to the CVC design discharge of 1,422 cfs. The average water level during the maximum forward flow rates was El. 298.5 ft (Figure 2). The minimum water level over the time period was about El. 298.3 ft.

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<sup>4</sup> Sediment thickness was provided to NHC from GEI via email correspondence on March 11, 2019. GEI based the thickness on survey results provided by HydroScientific West, Escondido, CA. The reach was surveyed on July 3, 2019.

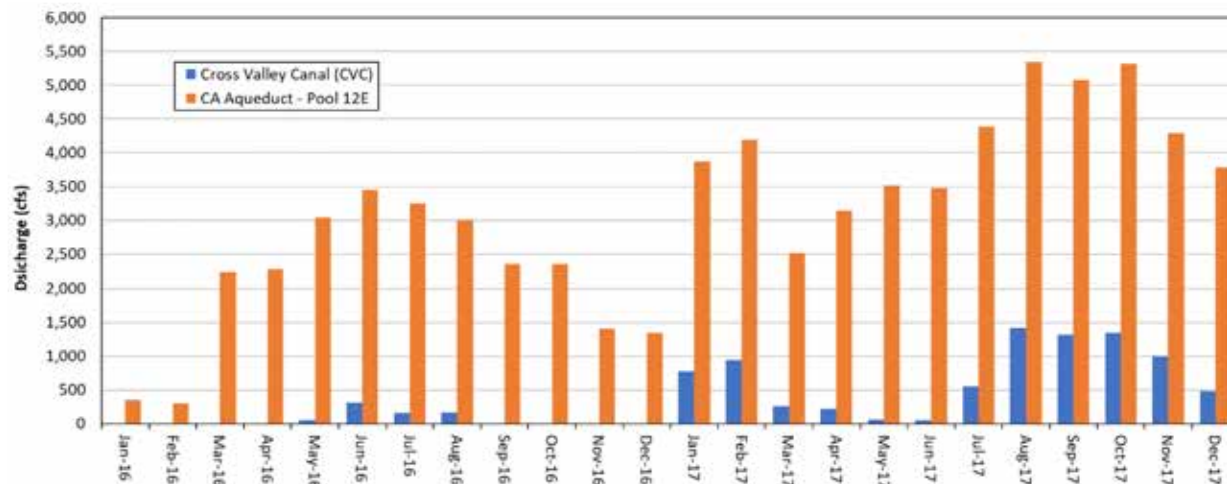
<sup>5</sup> Data files (.CSV format) were provided by Kern County Water Agency to GEI, NHC and David Rogers on July 12, 2018 to inform the CVC Hydraulic Improvements Project.



**Figure 3 Flow discharge within the CVC Canal and water level at Check 28 from January 2016 through December 2017 (Positive/Negative CVC discharges indicate forward/reverse flow).**

Monthly reports of water volumes from January 2016 through December 2017 were used to estimate the discharge at Check 28 during the same time period. Figure 4 shows the average monthly flow discharge in Pool 12E (orange bars) and the CVC (blue bars) extracted from the monthly water volumes reports. The monthly reports do not indicate reverse flow volumes from the CVC into the CA Aqueduct. Hence, if no discharge is shown for CVC in Figure 4, it is likely that CVC was operating in reverse flow. As shown in Figure 4, the discharge at Check 28 ranged from 5,077 cfs to 5,341 cfs from August through October 2017.

Based on the above data, the forward flow test scenario shown in Table 2 was selected to represent typical conditions at maximum forward flow operation of the CVC. The test scenarios were developed to produce a similar flow rate at Check 28 for a better comparison of the results with and without the proposed new turnout (i.e. similar water level and flow rate past GBTO1/2).



**Figure 4** Average monthly flow discharge at Pool 12E and CVC from January 2019 through December 2017 (based on the state water project operations data).

**Table 2** CFD Model Testing Program – Confirmation of Final Selected Turnout Location

| Simulation <sup>1</sup> | Water Level (ft)      |           | Discharge (cfs) |         |                    |                       | Description           |
|-------------------------|-----------------------|-----------|-----------------|---------|--------------------|-----------------------|-----------------------|
|                         | Check 28 <sup>2</sup> | CVC Canal | Pool 12E        | GBT01/2 | Proposed RRBWSD TO | Check 28 <sup>3</sup> |                       |
| F1                      | 298.5                 | 297.6     | 5,000           | 1,400   | -                  | 3,600                 | Forward flow baseline |
| F2                      | 298.5                 | 297.6     | 5,500           | 1,400   | 500                | 3,600                 | Forward flow w/ new   |
| F3                      | 298.3                 | 298.8     | 1,500           | -1,000  | -                  | 2,500                 | Reverse flow baseline |
| F4                      | 298.3                 | 298.8     | 1,400           | -1,000  | -100               | 2,500                 | Reverse flow w/ new   |

**Notes:**

1. Tests were conducted with sediment deposit within the CA Aqueduct and 3 gates open at Check Structure 28.
2. For comparing results with and without the proposed new turnout, the same discharge at Check 28 was targeted.

**Reverse Flow Operation**

Based on the 2016-2017 water level and CVC discharge data, the maximum CVC reverse flow occurred from late March through April 2016 (see Figure 3). During this time, the maximum average reverse flow from the CVC was about 1,000 cfs, which agrees well with the maximum Pool 1 reverse flow provided in Table 4-3A of a 2005 technical memorandum by Boyle Engineering Corporation<sup>6</sup>. The average water level during the maximum reverse flow rates was El. 298.3 ft, and the average discharge at Check 28 during this time period was 2,500 cfs (see Figure 3). The reverse flow test scenarios (F3 and F4) are summarized in Table 2.

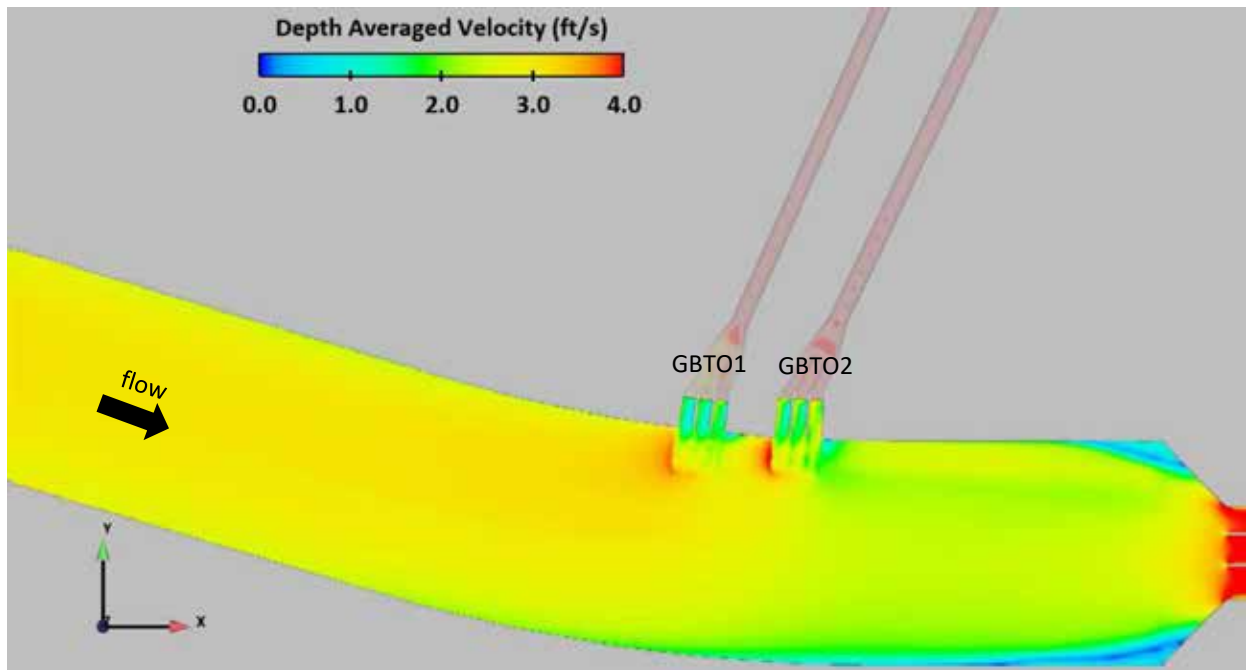
<sup>6</sup> Table 4-3A of Boyle Engineering Corporation 2005 Addendum to Technical Memorandum No. 4 Canal Hydraulic Analysis for the Phase 1 Design Process of the Cross Valley Canal Expansion Project.

## 6 MODELING RESULTS

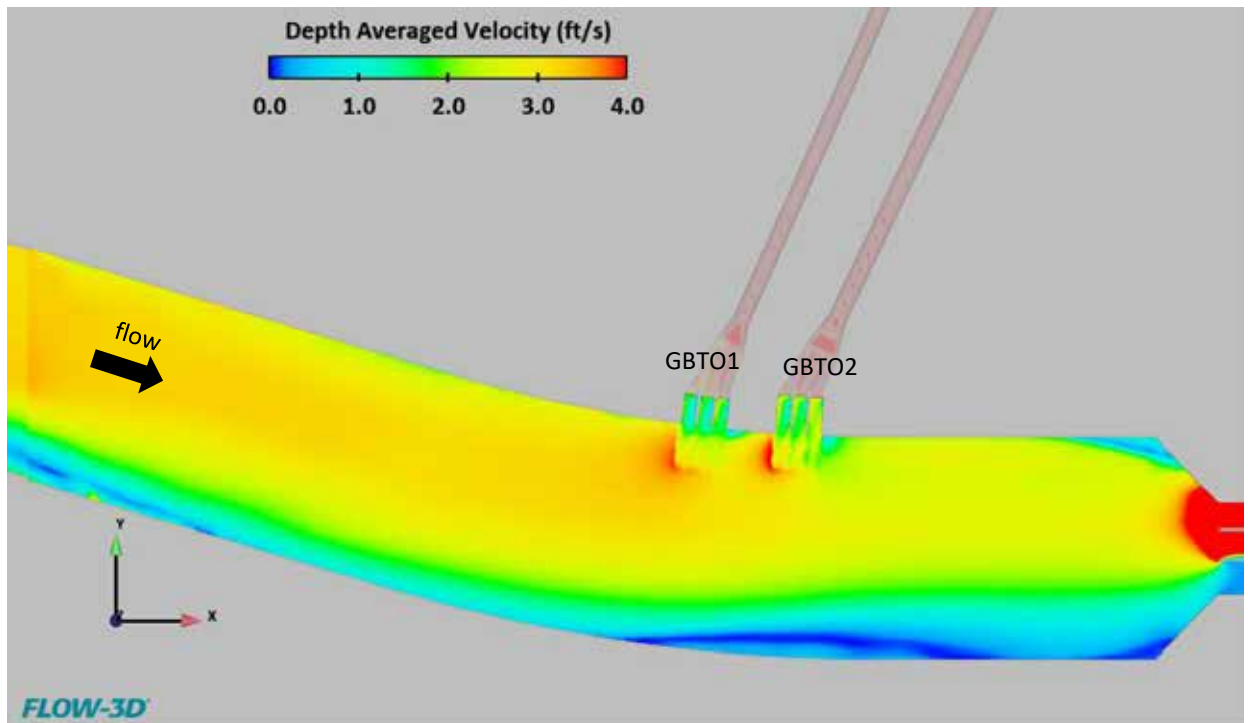
### 6.1 Baseline Testing

A plan view of the flow field in the vicinity of GBTO1/2 colored by depth-averaged velocity is shown in Figure 5 and Figure 6 for Tests B1-1 and B2, respectively. Also, Figure 7 and Figure 8 show velocity contours at different cross sections along the CA Aqueduct. In both tests, as the flow accelerated towards the GBTO1/2 turnouts, velocities exceeded 4.0 ft/s. When one gate was closed (Test B2), a relatively large area of almost stagnant flow formed along the right channel bank (see Figure 6 and Figure 8).

Baseline Test B1-1 resulted in a flow rate to the CVC of approximately 1,200 cfs (within 15 percent of the CVC design capacity), and the resulting water level upstream of GBTO1 and GBTO2 was El. 298.83 ft and El. 298.85 ft, respectively. Baseline Test B2 resulted in a flow rate through the CVC of approximately 1,311 cfs (within 8 percent of the CVC design capacity of 1,422 cfs). The resulting water level upstream of GBTO1 and GBTO2 was El. 298.35 ft and El. 298.37 ft, respectively.

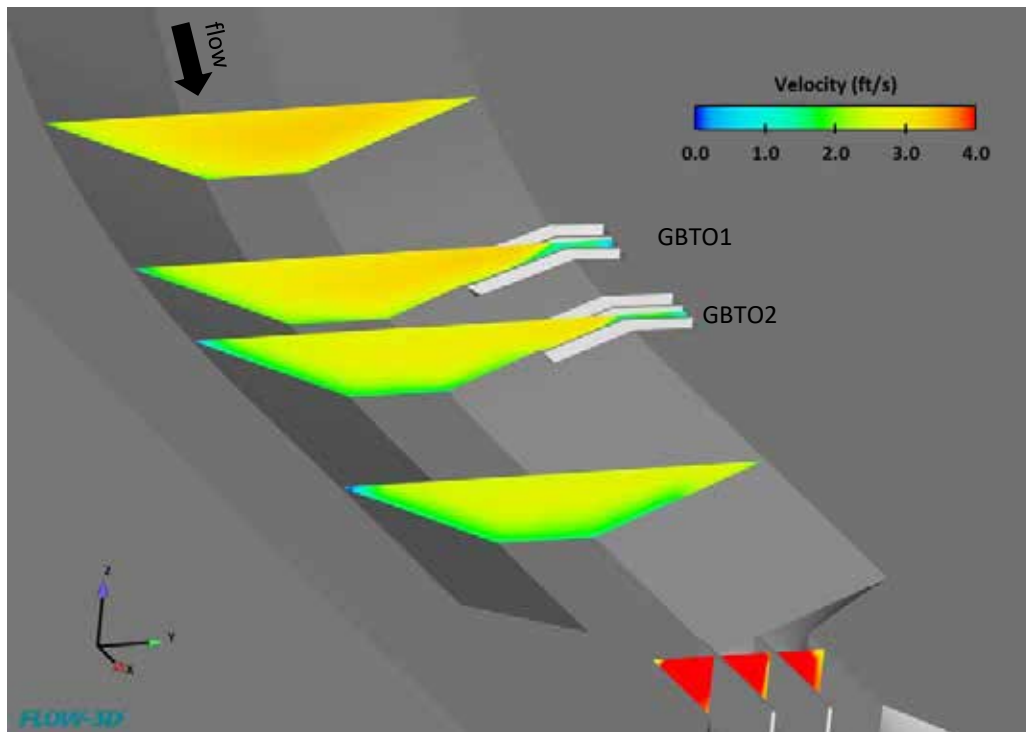


**Figure 5** Baseline testing with all 3 gates open; resulting depth-averaged velocity contours and vectors with a flow of 5,500 cfs within the CA Aqueduct.

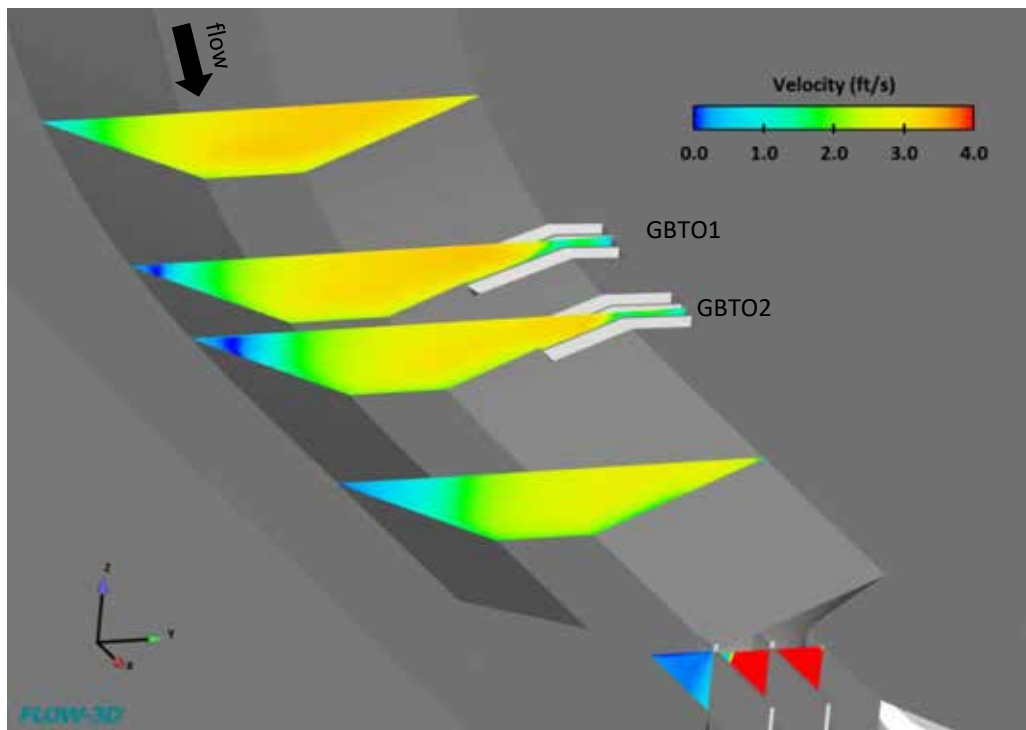


**Figure 6** Baseline testing with 2 gates open; resulting depth-averaged velocity contours and vectors with a flow of 5,500 cfs within the CA Aqueduct.





**Figure 7** Baseline testing with 3 gates open; resulting velocity cross sections with a flow of 5,500 cfs within the CA Aqueduct.



**Figure 8** Baseline testing with 2 gates open; resulting velocity cross sections with a flow of 5,500 cfs within the CA Aqueduct.

## 6.2 Selection of Proposed Turnout Location

Two locations for the proposed RRBWSD turnout were evaluated: TO1 and TO2, which were 200 ft and 500 ft, respectively, upstream of GBTO1 (center to center). The tests that included the proposed turnout resulted in 3,800 cfs through Check Structure 28. In order to help the comparison with baseline conditions, an additional baseline test, Test B1-2, was conducted which also resulted in 3,800 cfs through Check Structure 28 (see Table 1).

The model results indicate that for the same Check 28 discharge of 3,800 cfs (Tests B1-2, TO1-1 and TO2-1), the depth-averaged velocities in the aqueduct near GBTO1 and GBTO2 remain essentially the same with and without the new turnout, whether the new turnout was 200 ft upstream (TO1) or 500 ft upstream (TO2) of GBTO1. Figure 9 illustrates a comparison of longitudinal depth-averaged velocity profiles along the centerline of the CA Aqueduct for all tests with the 3 gates at Check Structure 28 open. Notice how the velocity along the CA Aqueduct decreases past each turnout due to flow being diverted out of the Aqueduct. The distance over which the velocity reduces in the vicinity of the turnout provides an indication of the “zone of influence” for that turnout. For example, the new turnout appears to influence the depth averaged velocity along the centerline of the aqueduct for about 100 ft. For GBTO1 and GBTO2, which are only about 66 ft apart, their zones of influence appear to overlap as represented by a unified drop of the depth averaged velocity for approximately 200 ft.

The ‘zone of influence’ with regard to depth averaged velocity for RRBWSD turnout TO1, which is 200 ft upstream of GBTO1, is in close proximity to the zone of influence for GBTO1/2, but they do not appear to overlap; at least along the centerline of the CA Aqueduct.

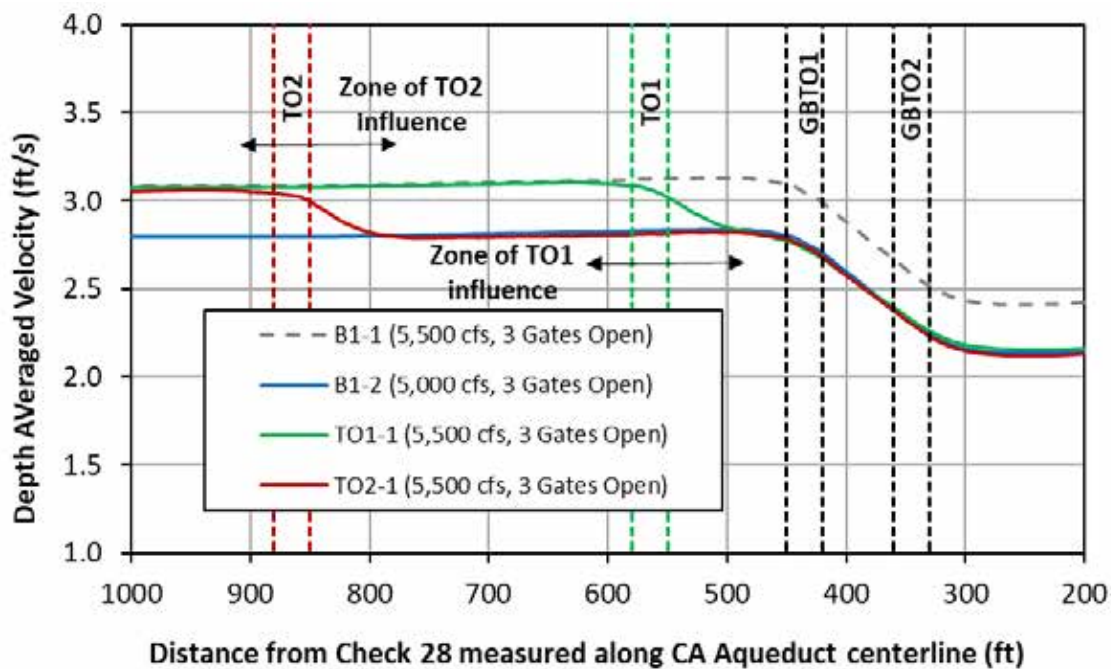
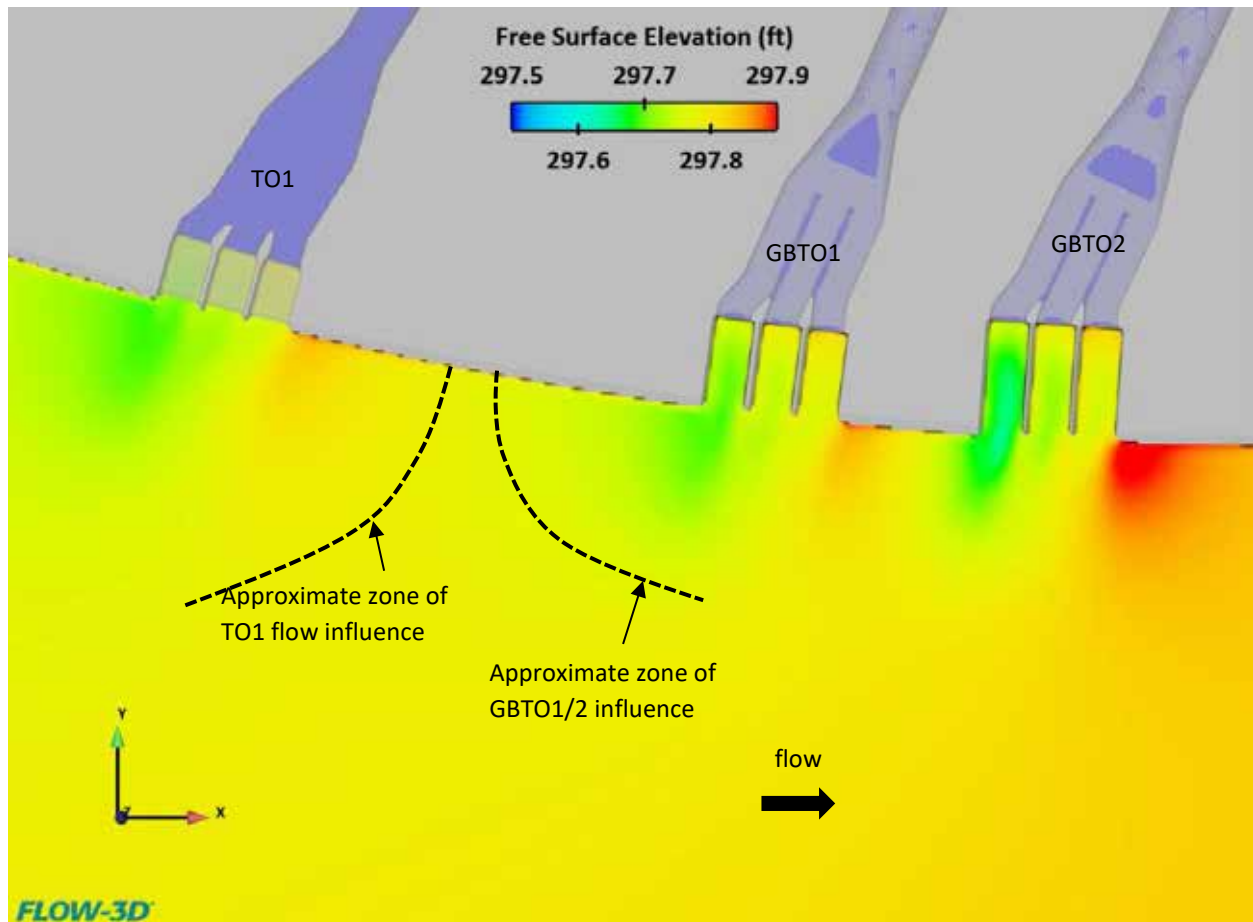


Figure 9 Depth-averaged velocity along the CA Aqueduct for different tests.

Figure 10 provides a plan view of the resulting water surface elevations for Test TO1-1, which shows that the water surface elevations near GBTO1 may be influenced by operation of TO1. The localized drawdown of the water surface toward each turnout is fairly close to the other.

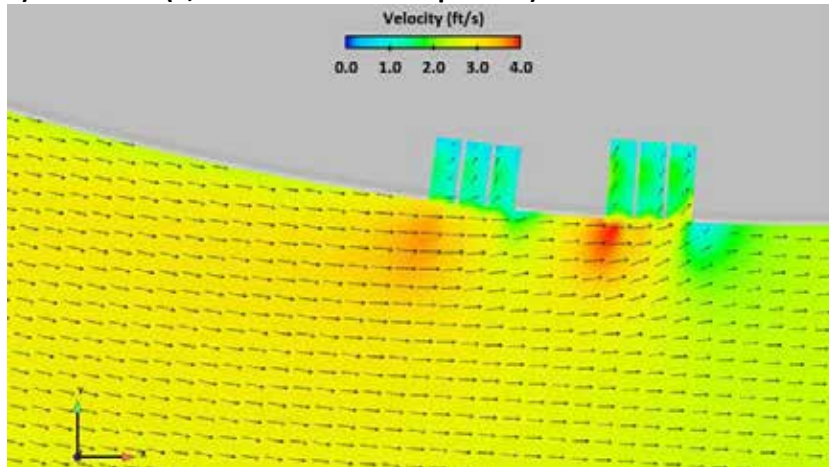


**Figure 10 Plan view showing contour map of free surface elevation with new turnout at location TO1 (200 ft upstream of GBTO1). Dashed lines indicate the approximate extents of localized drawdown of the water surface.**

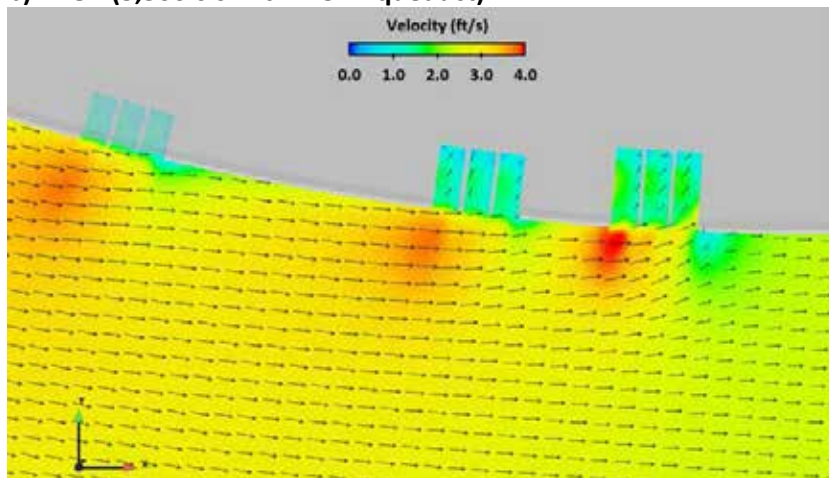
Velocity vector plots near the turnouts for the baseline, TO1 and TO2 tests with 3 gates open are shown as Figure 11. Based on these plots, there appears to have been a slight increase in the velocities near GBTO1 when TO1 (200 ft upstream) was operated, but no change when TO2 (500 ft upstream) was operated.

In summary, the CFD model results indicated that a new RRBWSD turnout within 200 ft of GBTO1 (i.e. TO1) may have an impact on the local water level and velocities at the GBTOs, but that a new RRBWSD turnout 500 ft upstream (TO2) operating at 500 cfs is unlikely to adversely impact local water level and velocities at the GBTOs. Based on these results, the TO2 location was selected for final confirmation testing using the CFD model.

a) Baseline (5,000 cfs within CA Aqueduct)



b) TO1 (5,500 cfs within CA Aqueduct)



c) TO2 (5,500 cfs within CA Aqueduct)

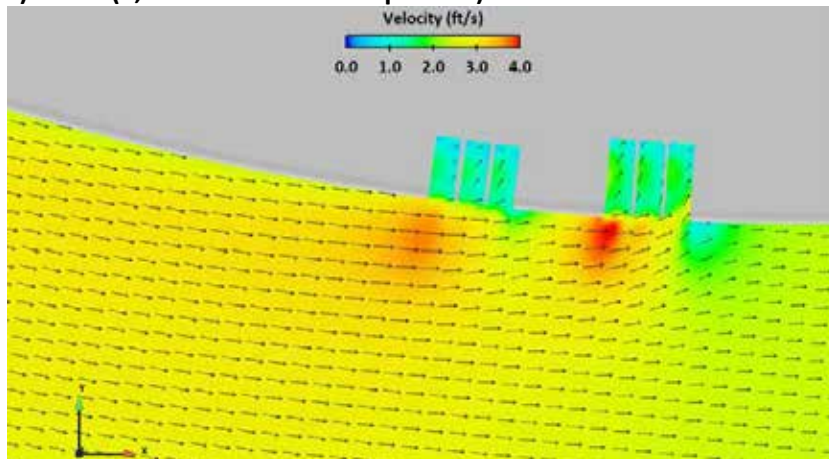


Figure 11 Plan view showing vector velocity field near the turnouts for the baseline, TO1 and TO2 tests.

## 6.3 Confirmation of Proposed RRBWSD Turnout Location

### 6.3.1 Model Results

Based on the CFD model tests, the operation of a new 500 cfs turnout located 500 ft upstream of GBTO1 has no discernible impact on the water surface elevations near or discharges through GBTO1 and GBTO2. The resulting water levels and flow rates for the final confirmation tests are summarized in Table 3. As shown, the discharges and water levels remained essentially unchanged with and without operation of the new RRBWSD turnout.

**Table 3 CFD Model Testing Results – Confirmation of Final Selected Turnout Location**

| Simulation | Water Level (ft) |       |       |           | Discharge (cfs) |       |       |                    |          |
|------------|------------------|-------|-------|-----------|-----------------|-------|-------|--------------------|----------|
|            | Check 28         | GBTO1 | GBTO2 | CVC Canal | Pool 12E        | GBTO1 | GBTO2 | Proposed RRBWSD TO | Check 28 |
| F1         | 298.5            | 298.6 | 298.6 | 297.6     | 5,000           | 597   | 769   | -                  | 3,634    |
| F2         | 298.5            | 298.6 | 298.6 | 297.6     | 5,500           | 597   | 768   | 500                | 3,635    |
| F3         | 298.3            | 298.4 | 298.4 | 298.8     | 1,500           | -469  | -553  | -                  | 2,522    |
| F4         | 298.3            | 298.4 | 298.4 | 298.8     | 1,400           | -469  | -552  | -100               | 2,521    |

These results were further supported by the longitudinal profiles of water surface elevation and depth averaged velocities along the CA Aqueduct that are provided as Figure 12 and Figure 13, respectively. Changes in water level and velocity appear only in the reaches where flow was being extracted from or delivered to the CA Aqueduct. At the GBTOs, the profiles closely match.

Plan views of the depth-averaged velocities in the vicinity of GBTO1/2 are shown in Figure 14 and Figure 15 for Tests F1 (baseline forward flow) and F2 (TO2 forward flow), respectively. As shown in these figures, the flow velocities were not impacted by operation of the new turnout (TO2). As shown, flow to the new RRBWSD turnout (TO2) was withdrawn mostly from the left half of the channel adjacent to the new turnout. As the flow was conveyed farther downstream and approached GBTO1/2, the flow field was not impacted by the withdrawal at TO2 (compare Figure 14 and Figure 15). These patterns are also apparent in the resulting flow streamlines along the CA Aqueduct that are provided as Figure 16 and Figure 17 for Tests F1 and F2.

Similar to the forward flow tests, the flow field for the reverse flow tests remained unchanged when the new turnout (TO2) was introduced. Plan views of the depth-averaged velocities for reverse flow scenarios, Tests F3 and F4, are shown in Figure 18 and Figure 19, respectively. Flow streamlines are shown in Figure 20 and Figure 21 for Tests F3 and F4, respectively. As shown in these figures, reverse flow from TO2 remained on the left side of the channel and interacted with the reverse flow from GBTO1/2. However, based on the resulting flow rates and water levels, this interaction does not appear to impact the performance of GBTO1 and GBTO2.



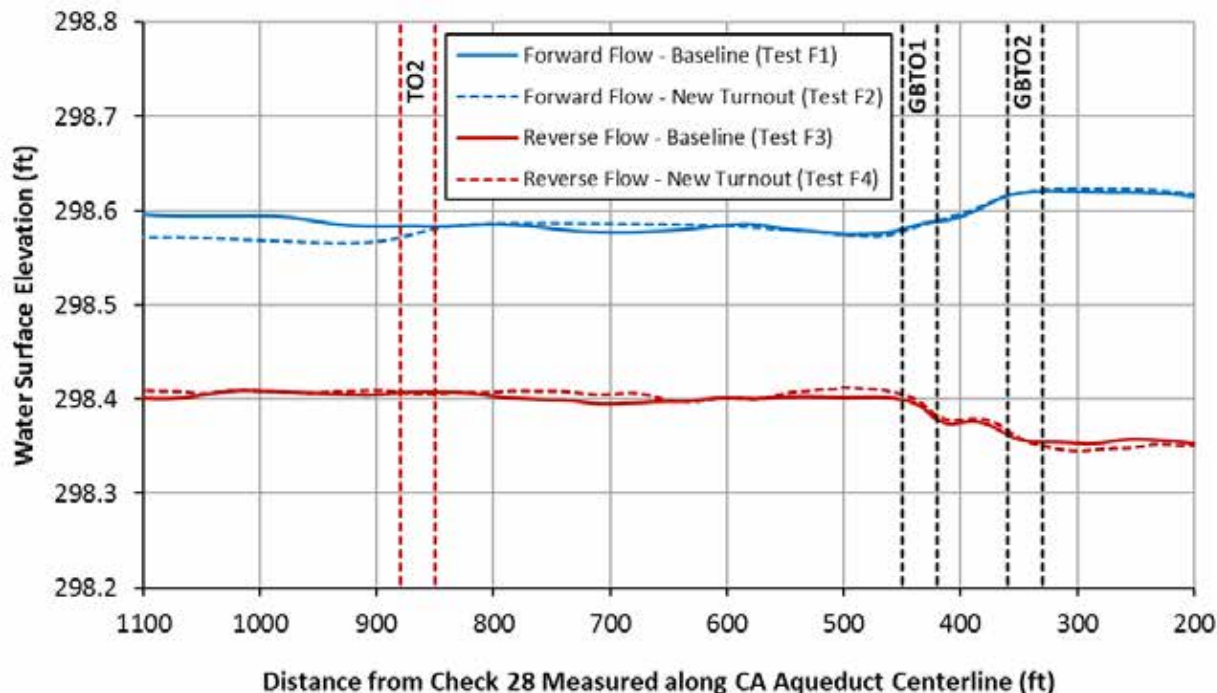


Figure 2 Water surface elevation along the CA Aqueduct for final confirmation tests.

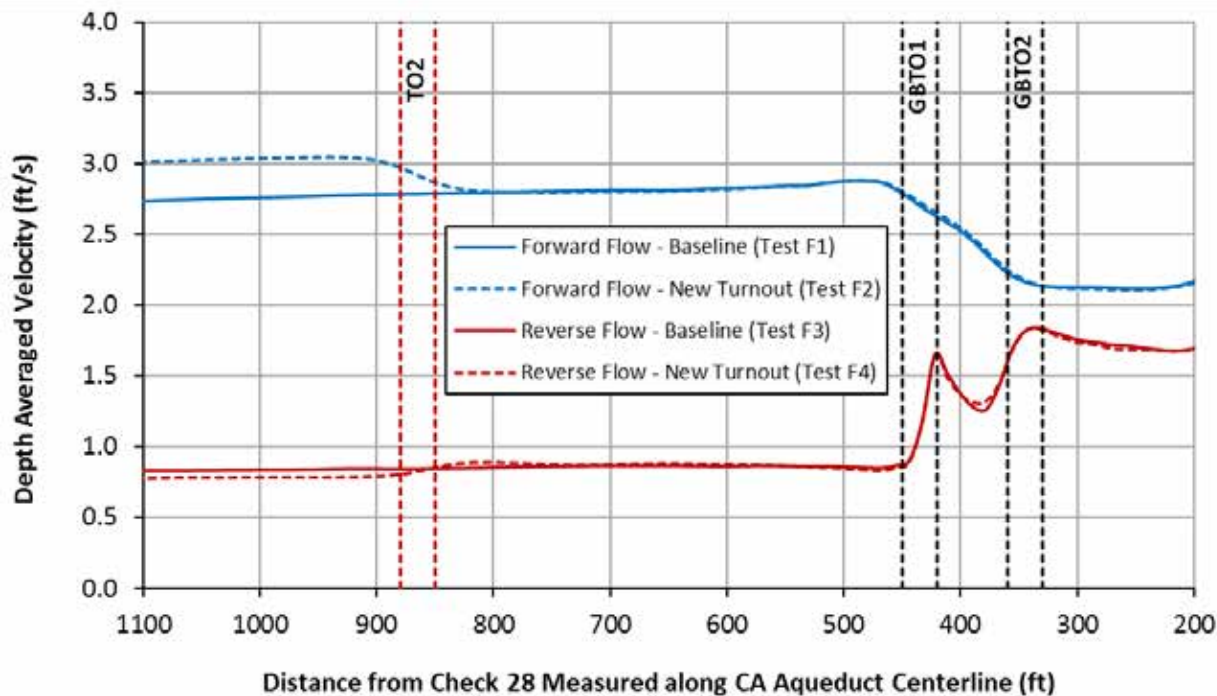


Figure 3 Depth-averaged velocity along the CA Aqueduct for final confirmation tests.



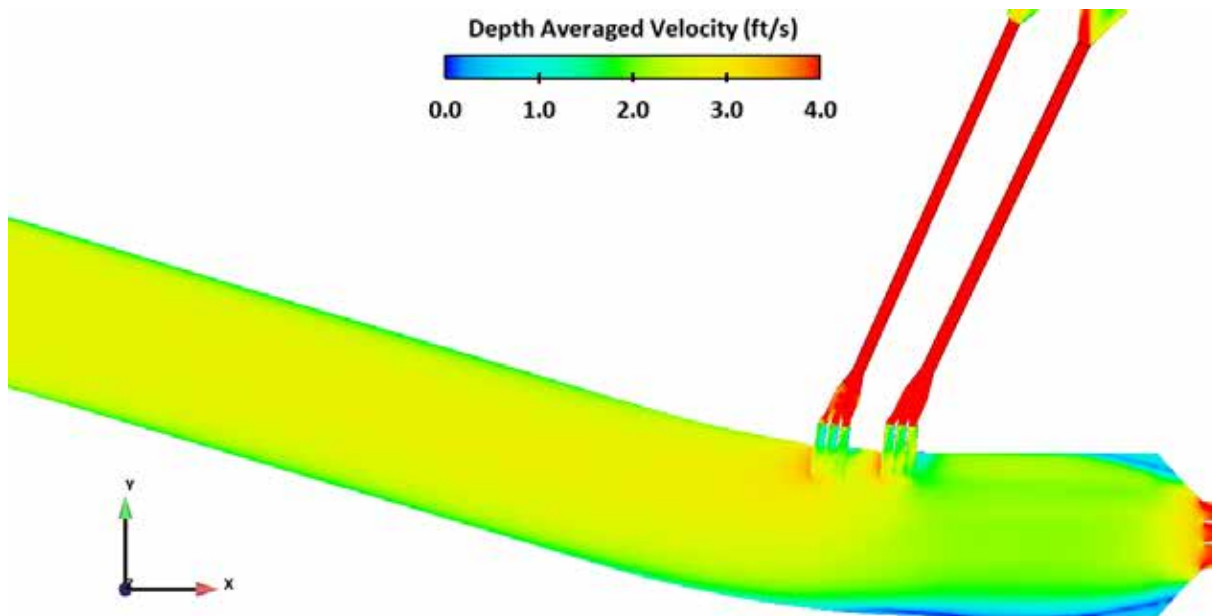


Figure 44 Plan view of velocity contours for Test F1 (Baseline with forward flow).

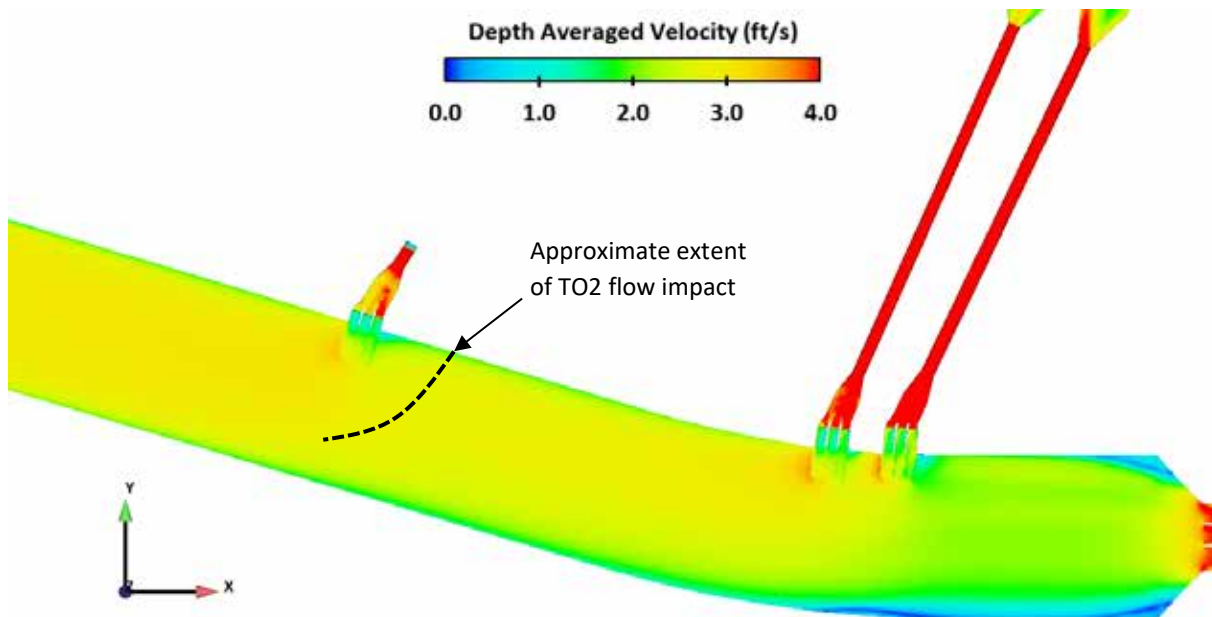


Figure 5 Plan view of velocity contours for Test F2 (TO2 with forward flow).

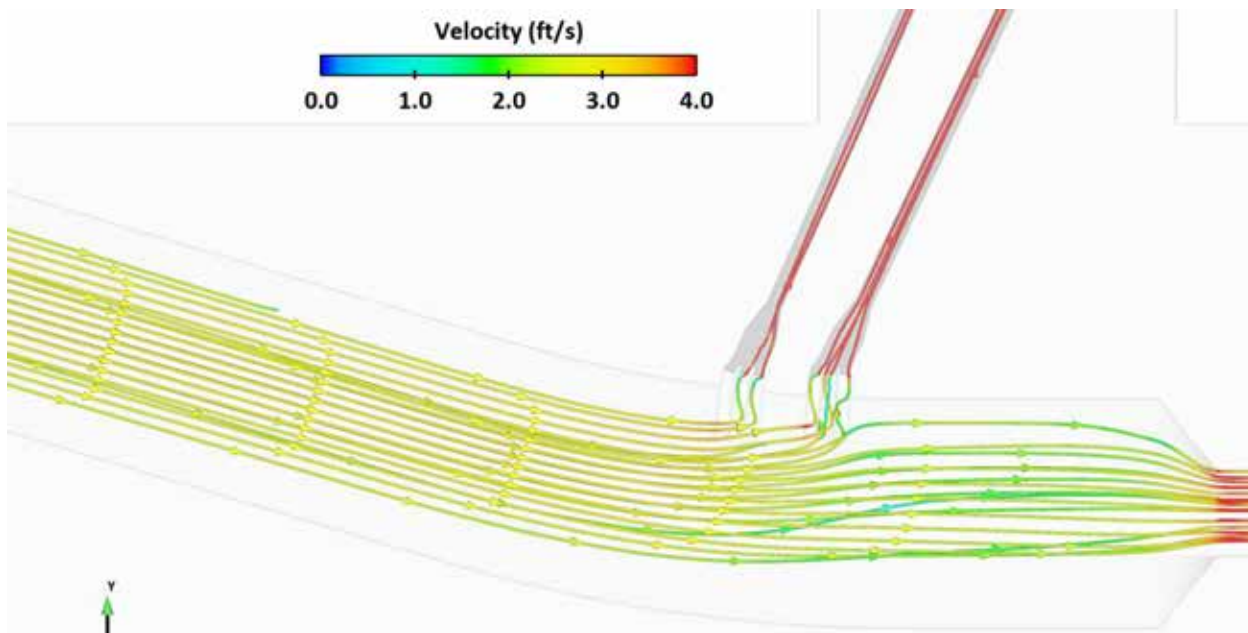


Figure 6 Plan view of flow streamlines for Test F1 (Baseline with forward flow).

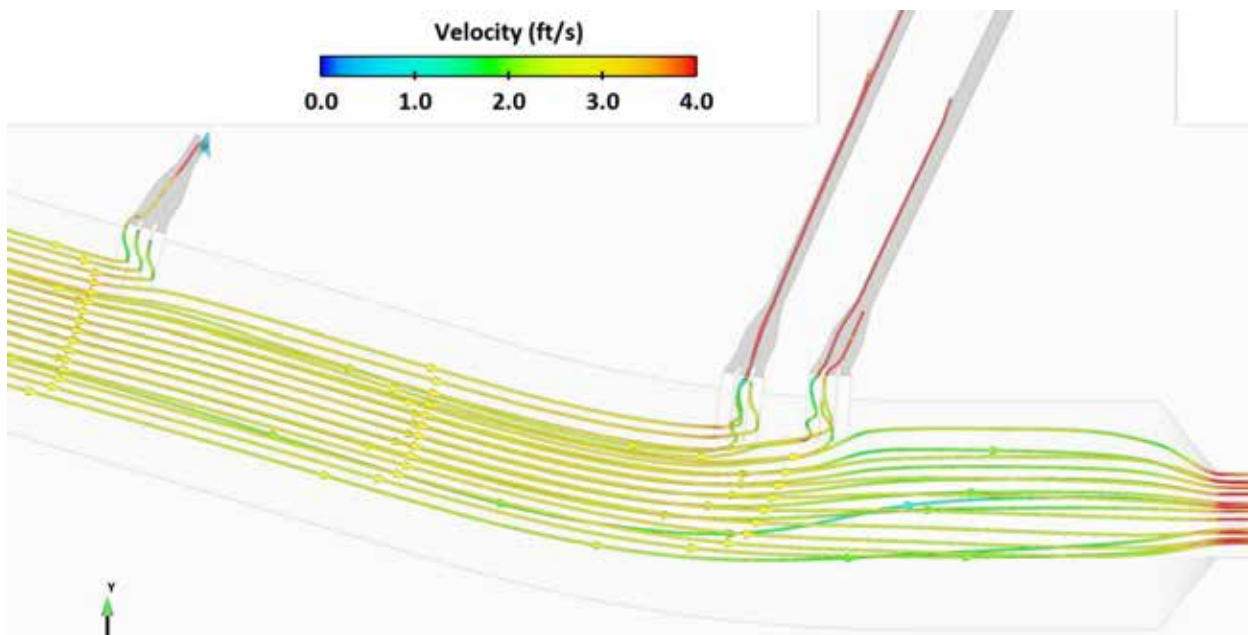


Figure 7 Plan view of flow streamlines for Test F2 (TO2 with forward flow).

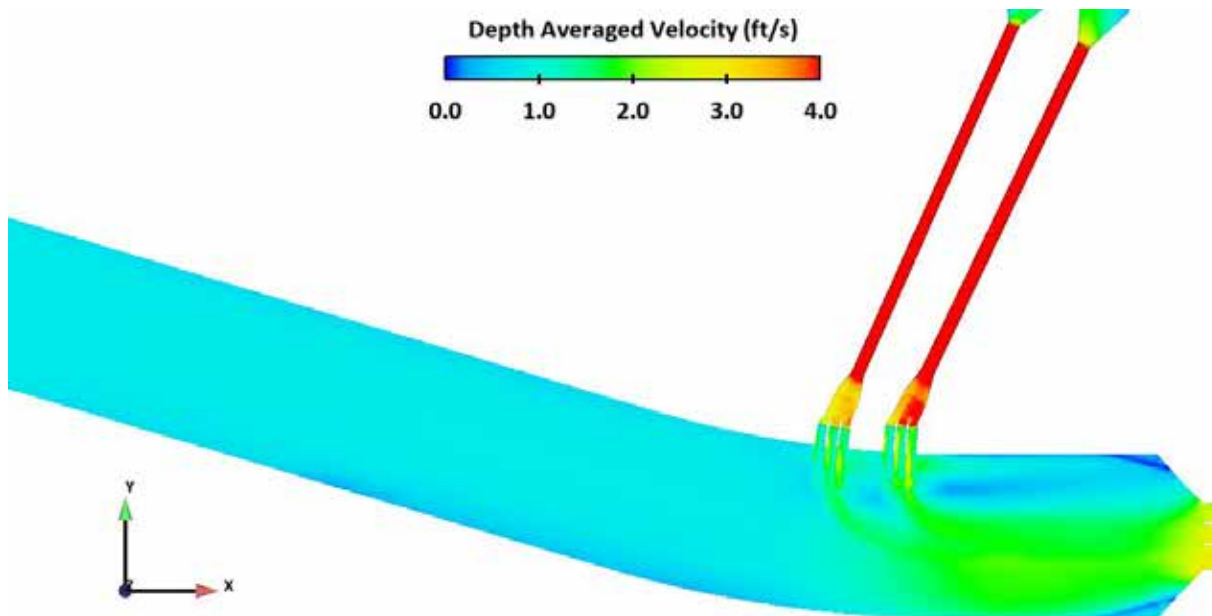


Figure 8 Plan view of velocity contours for Test F3 (Baseline with reverse flow).

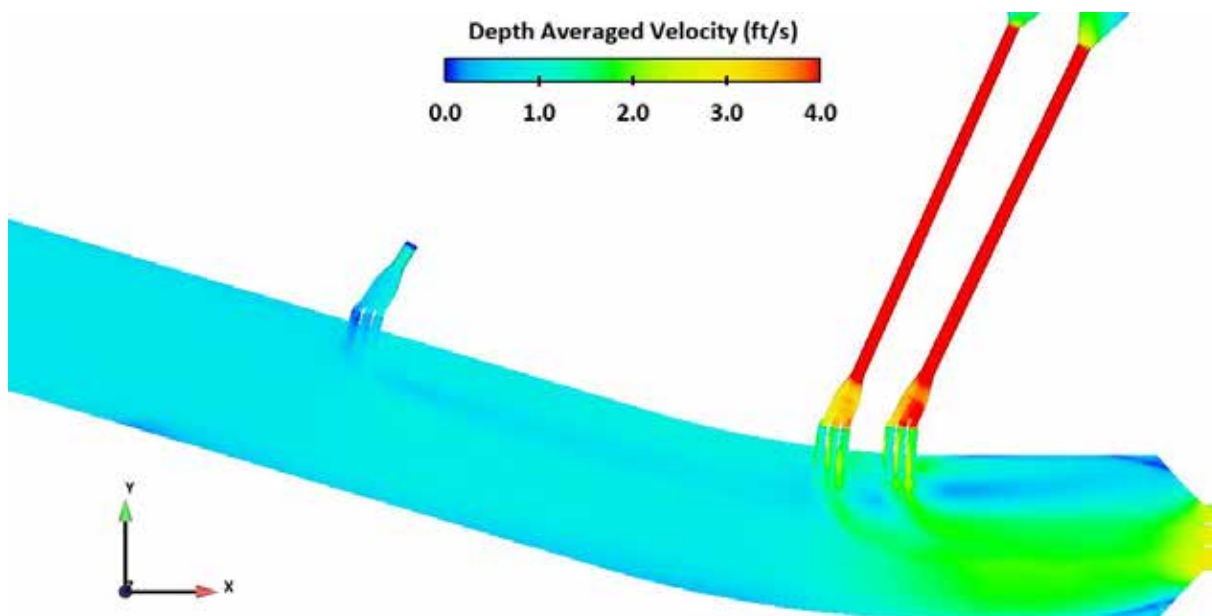


Figure 9 Plan view of velocity contours for Test F4 (TO2 with reverse flow).

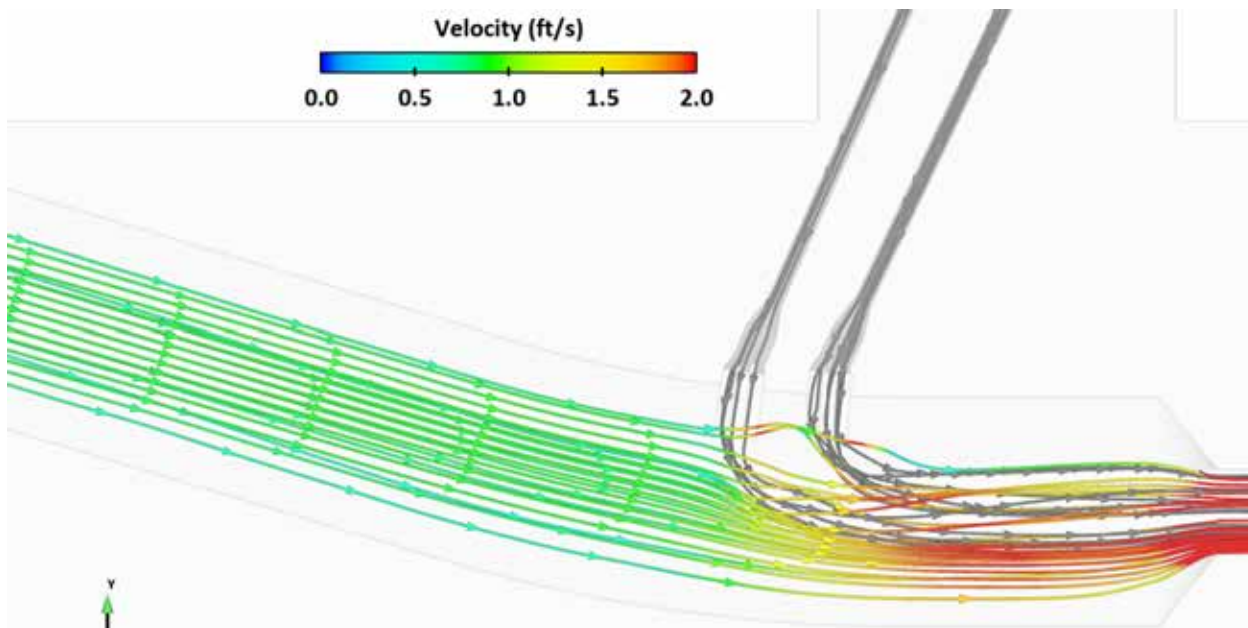


Figure 10 Plan view of flow streamlines for Test F3 (Baseline with reverse flow).

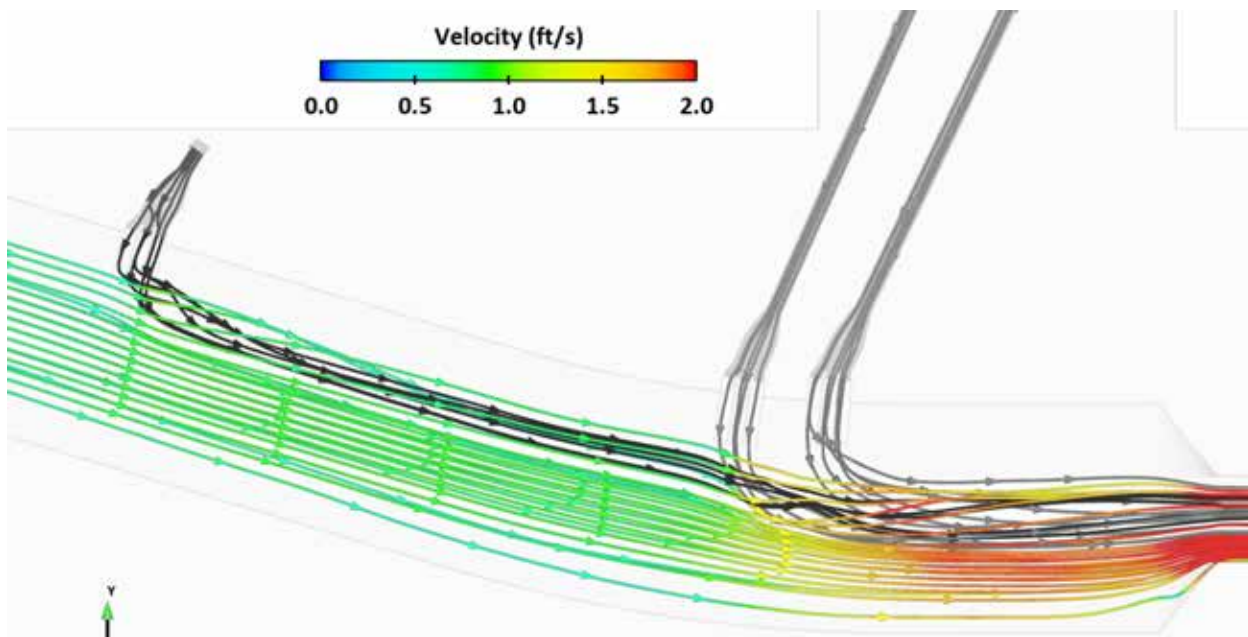


Figure 11 Plan view of flow streamlines for Test F4 (TO2 with reverse flow).

## 7 SUMMARY AND CONCLUSIONS

NHC conducted the CFD model study to assist GEI with the hydraulic analysis of the intake location for the Rosedale-Rio Bravo Water Storage District’s proposed turnout from California Aqueduct Reach 12E. Based on the model results, the following observations were made:

- When the proposed turnout was located approximately 500 ft upstream of the Greater Bakersfield turnouts (GBTO1 and GBTO2) to the Cross Valley Canal (CVC), the flow impact was negligible. However, when the proposed turnout location was approximately 200 ft upstream of GBTO1/2, the flow field in the vicinity of the existing intakes was slightly affected.
- When the proposed turnout was located approximately 500 ft upstream of existing GBTO1/2, the flow field adjacent to GBTO1/2 was not affected by the new turnout, regardless of whether it was operating in forward or reverse flow.

## 8 CLOSURE

Please do not hesitate to contact Kara Hurtig ([khurtig@nhcweb.com](mailto:khurtig@nhcweb.com)), Ali Habibzadeh ([ahabibzadeh@nhcweb.com](mailto:ahabibzadeh@nhcweb.com)) or Jose Vasquez ([jvasquez@nhcweb.com](mailto:jvasquez@nhcweb.com)) by phone (604-980-6011) or email, if you have any questions or require additional information.

Sincerely,

**Northwest Hydraulic Consultants Ltd.**

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Principal

## DISCLAIMER

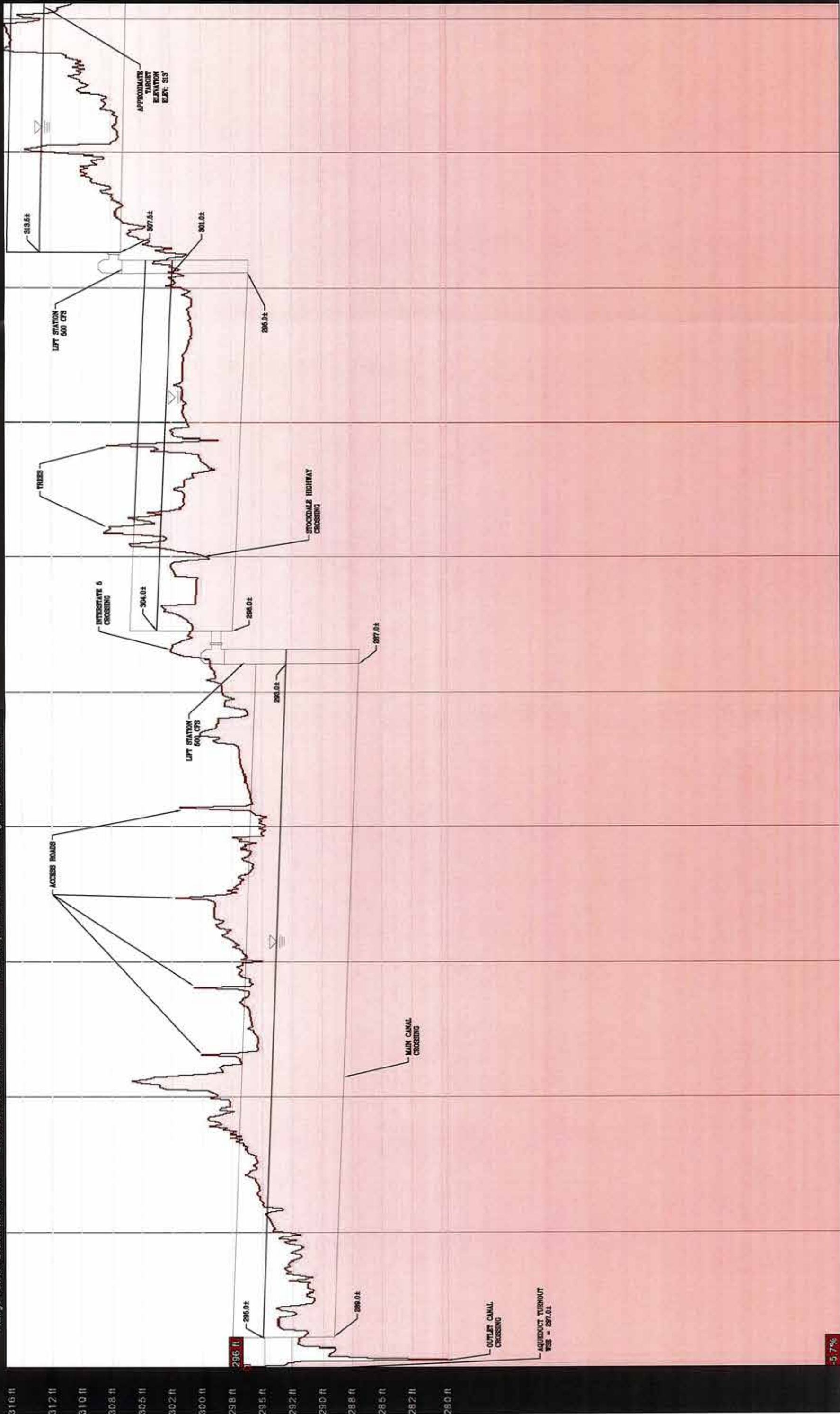
This report has been prepared by **Northwest Hydraulic Consultants Ltd.** for the benefit of **GEI Consultants, Inc.** for specific application to the **Rosedale-Rio Bravo Water Storage District - Kern Fan Turnout Project in Kern County, California.** The information and data contained herein represent **Northwest Hydraulic Consultants Ltd.** best professional judgment in light of the knowledge and information available to **Northwest Hydraulic Consultants Ltd.** at the time of preparation, and was prepared in accordance with generally accepted engineering practices.

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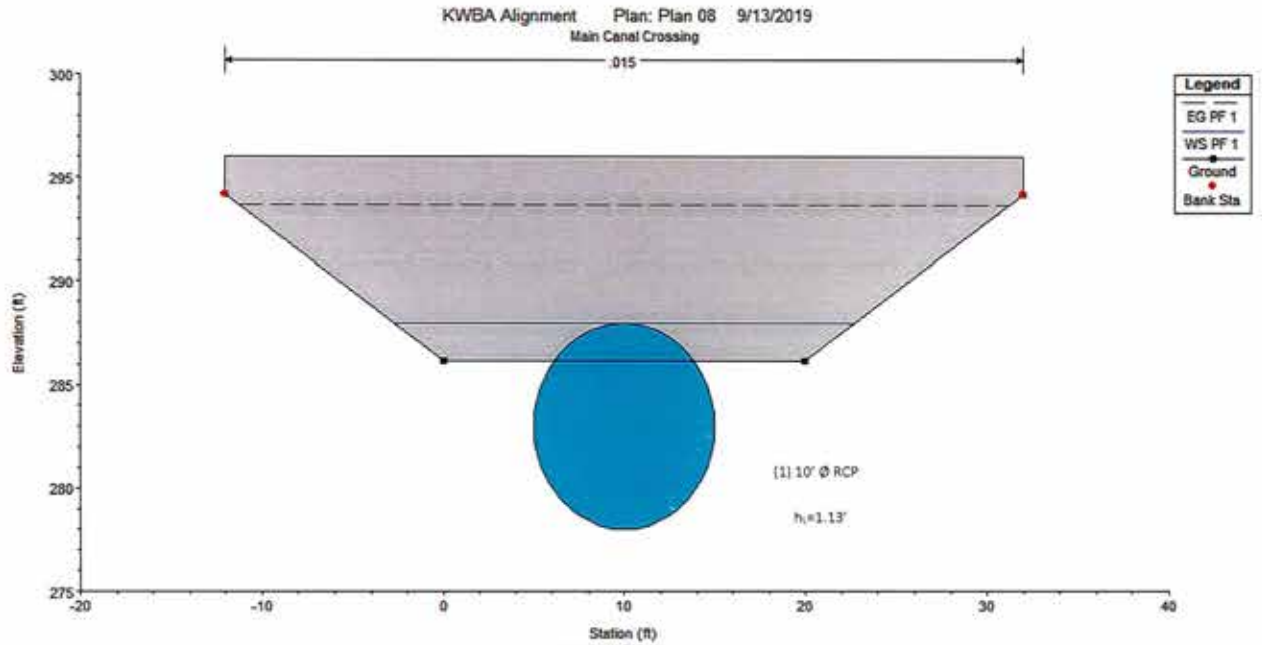
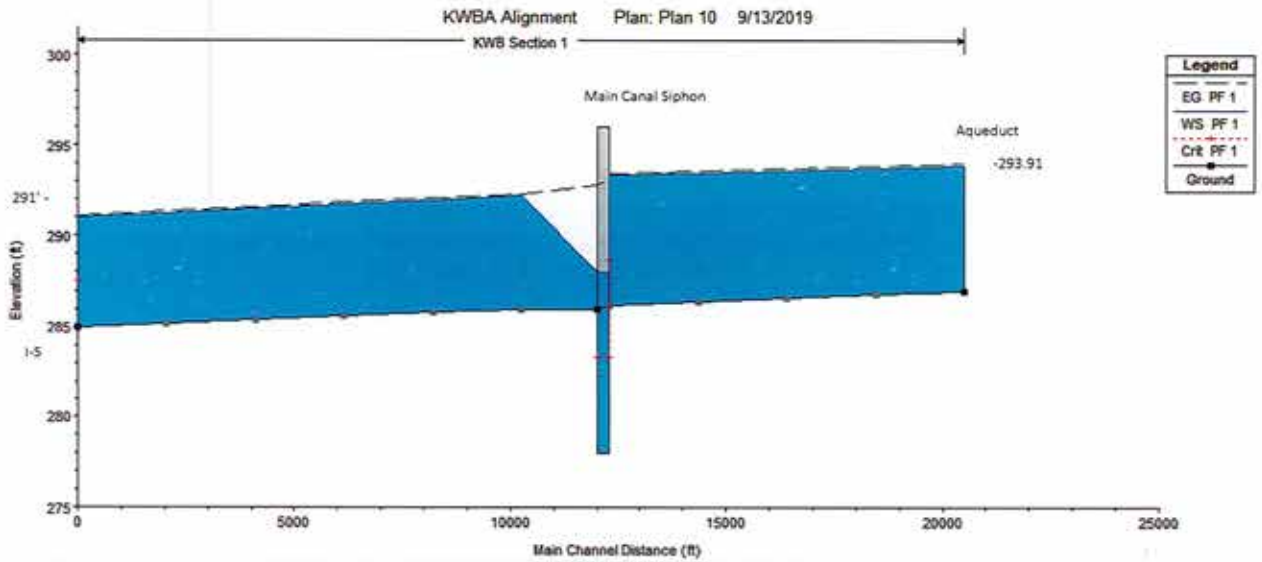
# KWBA ALIGNMENT

Graph: Min, Avg, Max Elevation: 280, 300, 316 ft  
 Range Totals: Distance: 7.59 mi Elev Gain/Loss: 186 ft, -171 ft Max Slope: 9.0%, -12.0% Avg Slope: 0.6%, -0.7%

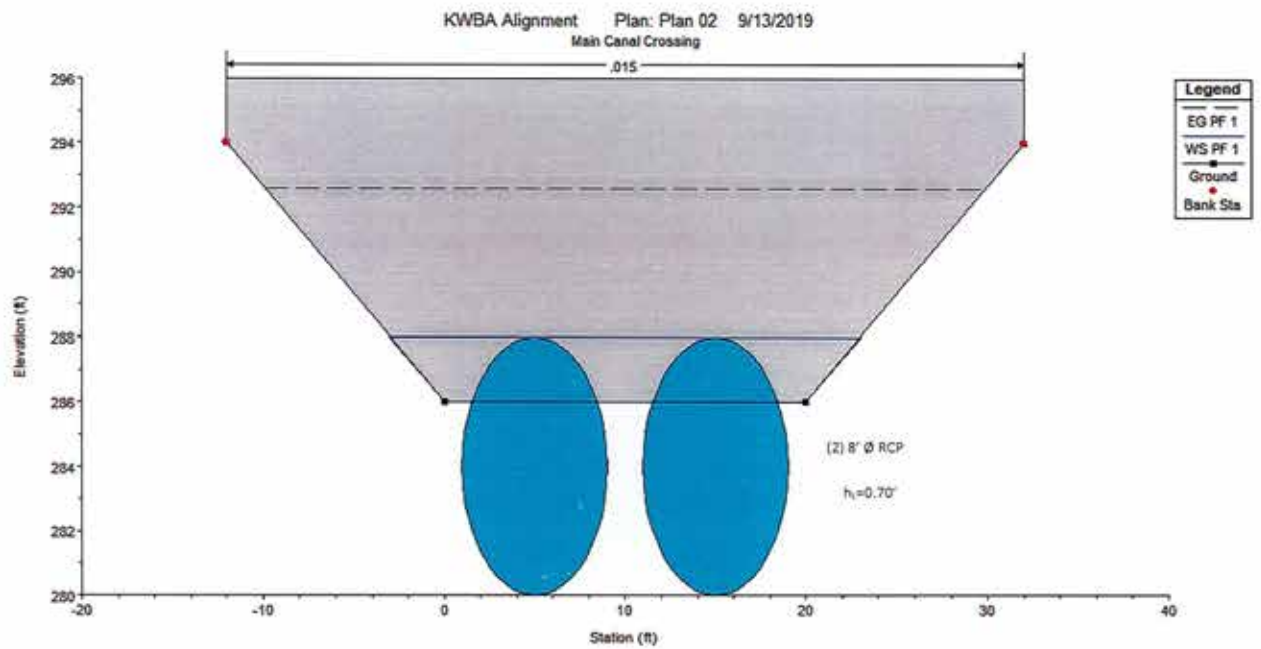
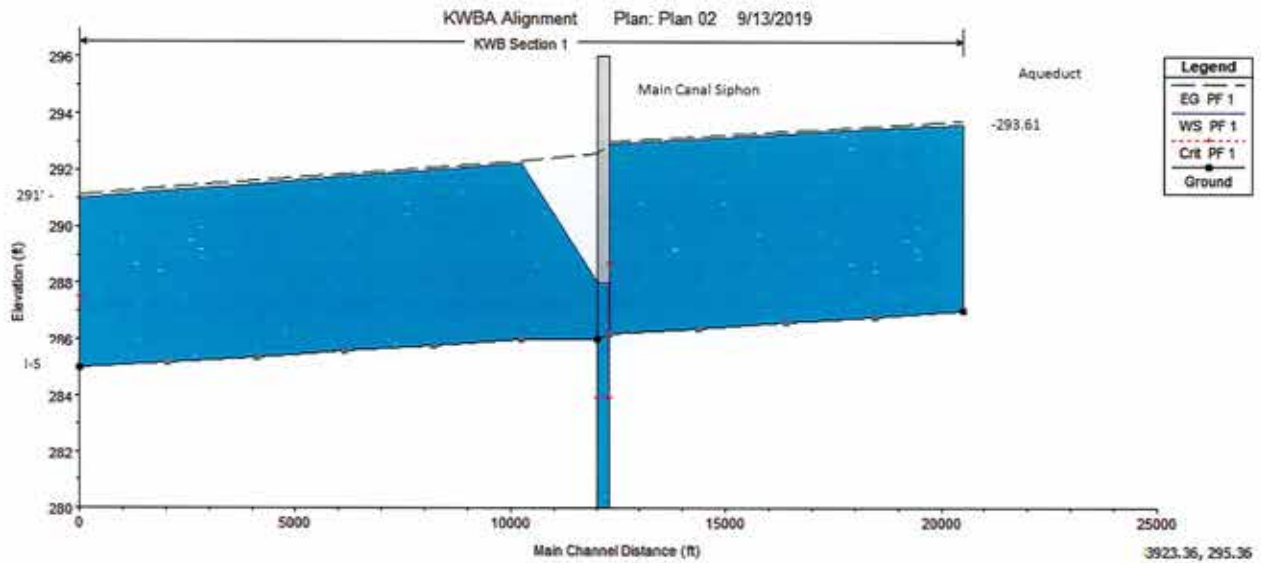




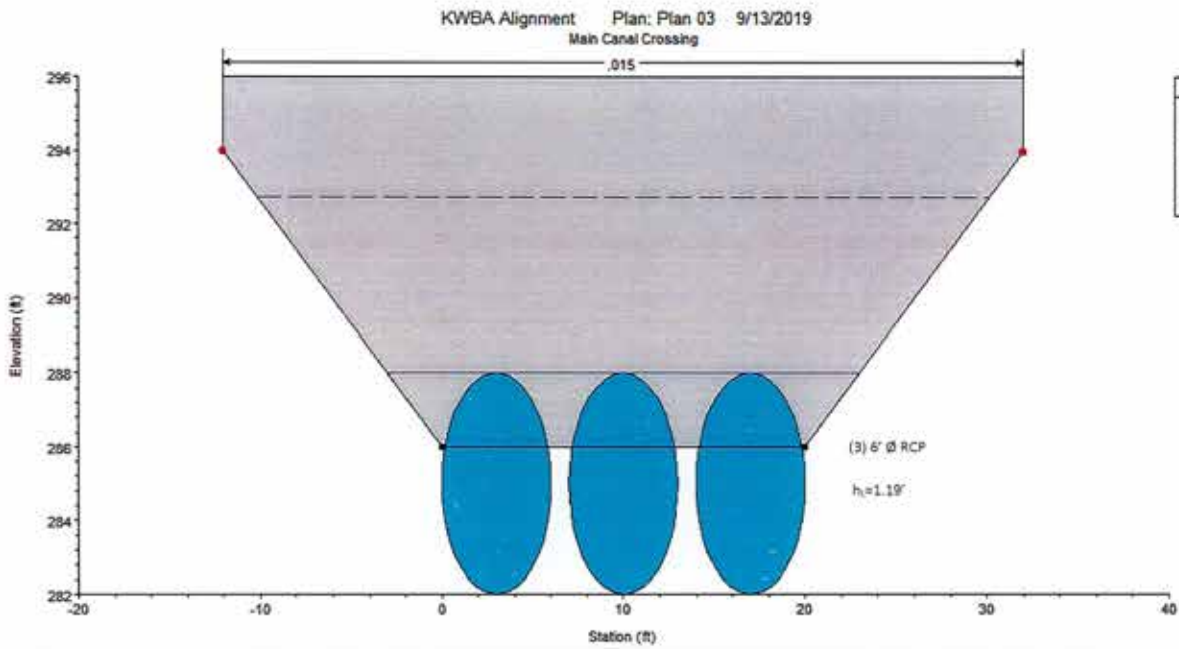
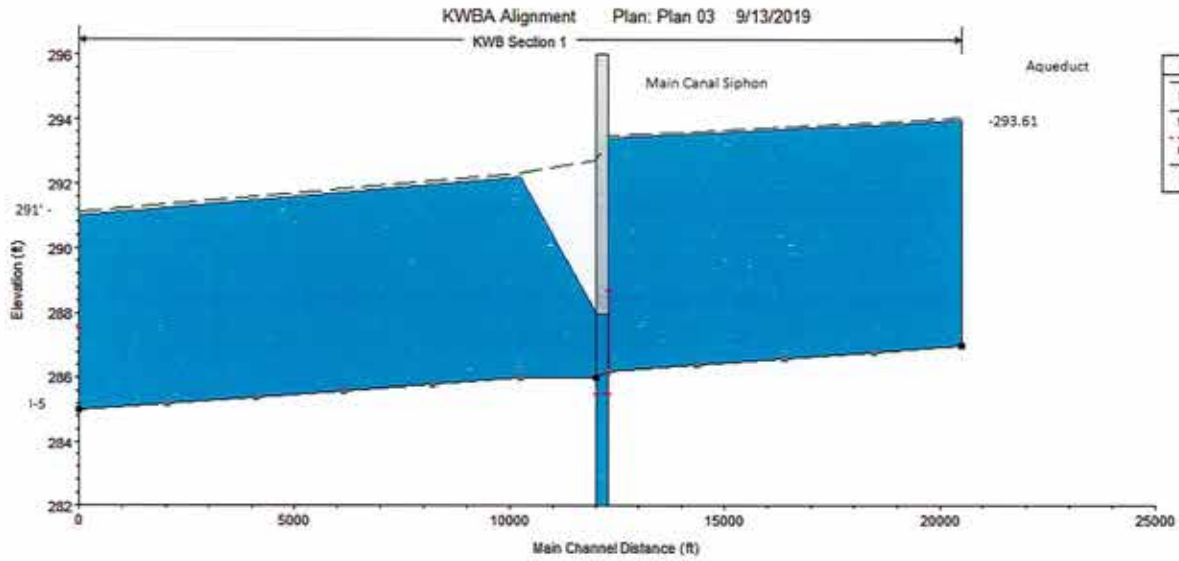
# Kern Water Bank



| Reach     | River Sta | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|-----------|-----------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Section 1 | 20500     | PF 1    | 500.00           | 287.00            | 293.91            |                   | 294.00            | 0.000074              | 2.38               | 209.79               | 40.73             | 0.19         |
| Section 1 | 18450.0*  | PF 1    | 500.00           | 286.80            | 293.76            |                   | 293.85            | 0.000072              | 2.36               | 211.91               | 40.88             | 0.18         |
| Section 1 | 16400.0*  | PF 1    | 500.00           | 286.60            | 293.62            |                   | 293.70            | 0.000070              | 2.33               | 214.21               | 41.05             | 0.18         |
| Section 1 | 14350.0*  | PF 1    | 500.00           | 286.40            | 293.48            |                   | 293.56            | 0.000068              | 2.31               | 216.72               | 41.23             | 0.18         |
| Section 1 | 12300.0*  | PF 1    | 500.00           | 286.20            | 293.34            | 288.71            | 293.42            | 0.000065              | 2.28               | 219.43               | 41.43             | 0.17         |
| Section 1 | 12299     | Culvert |                  |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 1 | 10250.0*  | PF 1    | 500.00           | 286.00            | 292.21            |                   | 292.32            | 0.000110              | 2.75               | 181.89               | 38.62             | 0.22         |
| Section 1 | 8200.00*  | PF 1    | 500.00           | 285.80            | 291.98            |                   | 292.10            | 0.000112              | 2.77               | 180.74               | 38.53             | 0.23         |
| Section 1 | 6150.00*  | PF 1    | 500.00           | 285.60            | 291.74            |                   | 291.86            | 0.000115              | 2.79               | 179.41               | 38.42             | 0.23         |
| Section 1 | 4100.00*  | PF 1    | 500.00           | 285.40            | 291.50            |                   | 291.62            | 0.000118              | 2.81               | 177.88               | 38.31             | 0.23         |
| Section 1 | 2050.00*  | PF 1    | 500.00           | 285.20            | 291.26            |                   | 291.38            | 0.000121              | 2.84               | 176.09               | 38.16             | 0.23         |
| Section 1 | 0         | PF 1    | 500.00           | 285.00            | 291.00            | 287.51            | 291.13            | 0.000125              | 2.87               | 174.00               | 38.00             | 0.24         |

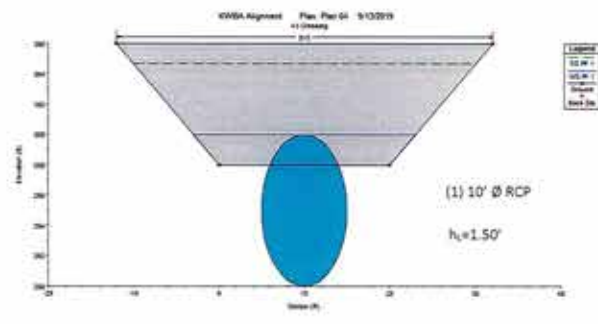
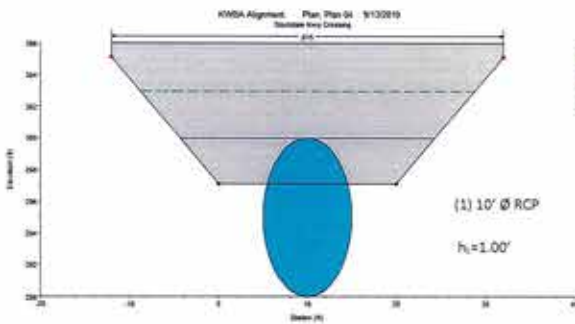
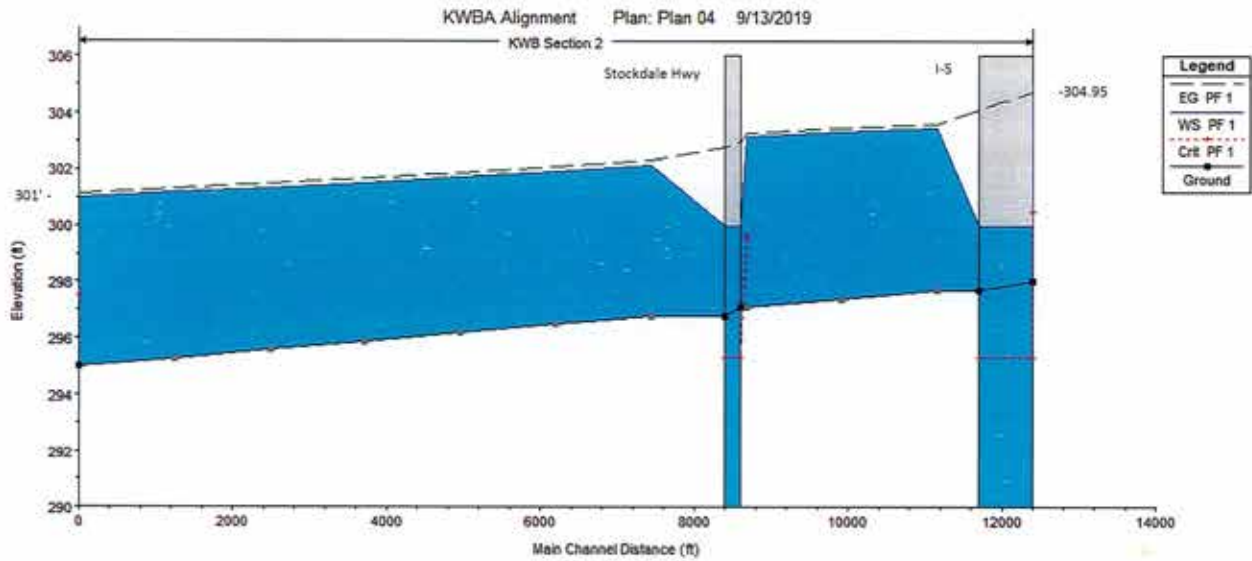


| Reach     | River Sta | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|-----------|-----------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Section 1 | 20500     | PF 1    | 500.00           | 287.00            | 293.61            |                   | 293.71            | 0.000088              | 2.53               | 197.59               | 39.82             | 0.20         |
| Section 1 | 18450.0*  | PF 1    | 500.00           | 286.80            | 293.43            |                   | 293.53            | 0.000086              | 2.52               | 198.49               | 39.89             | 0.20         |
| Section 1 | 16400.0*  | PF 1    | 500.00           | 286.60            | 293.25            |                   | 293.35            | 0.000085              | 2.51               | 199.48               | 39.96             | 0.20         |
| Section 1 | 14350.0*  | PF 1    | 500.00           | 286.40            | 293.08            |                   | 293.18            | 0.000084              | 2.49               | 200.59               | 40.04             | 0.20         |
| Section 1 | 12300.0*  | PF 1    | 500.00           | 286.20            | 292.91            | 288.71            | 293.01            | 0.000083              | 2.48               | 201.81               | 40.14             | 0.19         |
| Section 1 | 12299     |         | Culvert          |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 1 | 10250.0*  | PF 1    | 500.00           | 286.00            | 292.21            |                   | 292.32            | 0.000110              | 2.75               | 181.89               | 38.62             | 0.22         |
| Section 1 | 8200.00*  | PF 1    | 500.00           | 285.80            | 291.98            |                   | 292.10            | 0.000112              | 2.77               | 180.74               | 38.53             | 0.23         |
| Section 1 | 6150.00*  | PF 1    | 500.00           | 285.60            | 291.74            |                   | 291.86            | 0.000115              | 2.79               | 179.41               | 38.42             | 0.23         |
| Section 1 | 4100.00*  | PF 1    | 500.00           | 285.40            | 291.50            |                   | 291.62            | 0.000118              | 2.81               | 177.88               | 38.31             | 0.23         |
| Section 1 | 2050.00*  | PF 1    | 500.00           | 285.20            | 291.26            |                   | 291.38            | 0.000121              | 2.84               | 176.09               | 38.16             | 0.23         |
| Section 1 | 0         | PF 1    | 500.00           | 285.00            | 291.00            | 287.51            | 291.13            | 0.000125              | 2.87               | 174.00               | 38.00             | 0.24         |

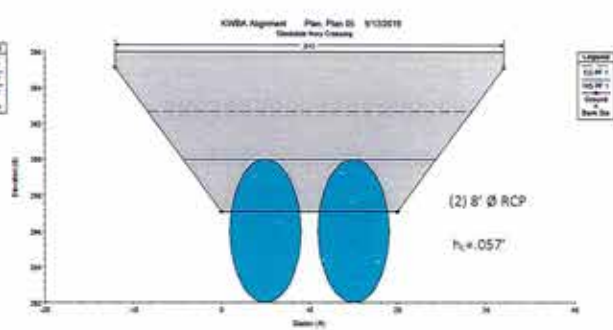
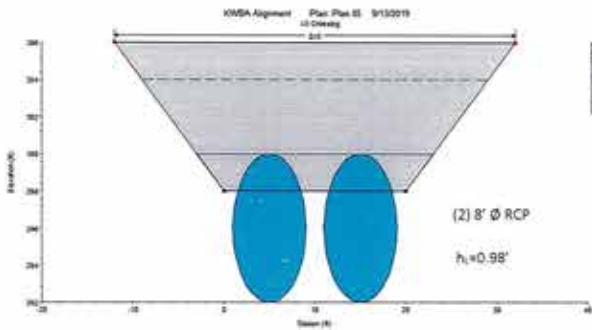
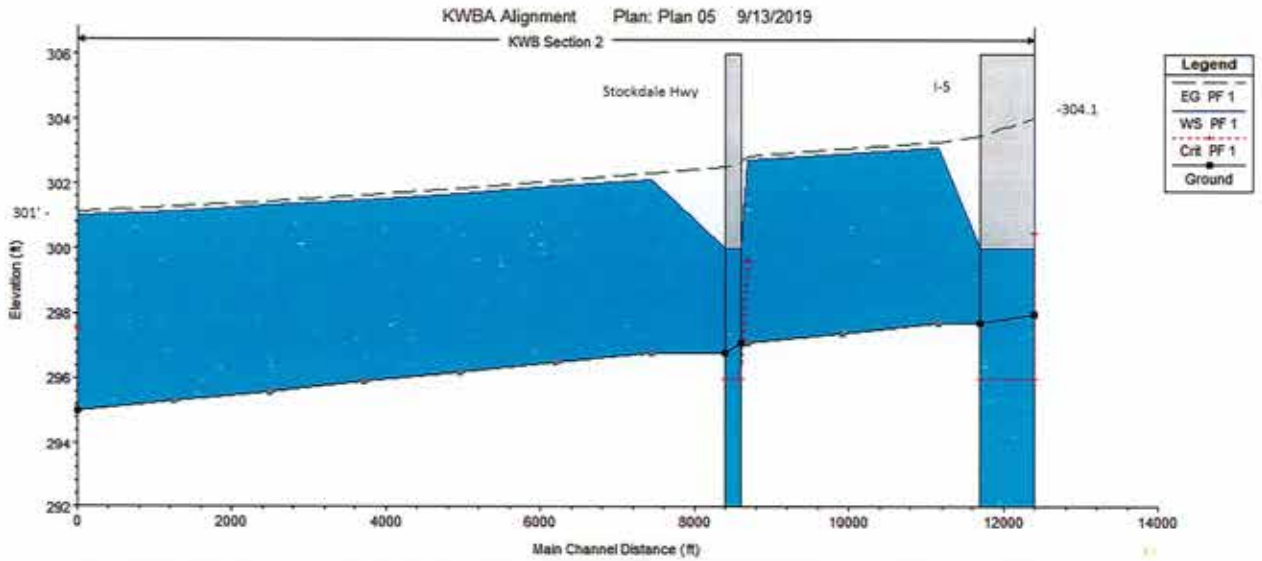


| Reach     | River Sta | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|-----------|-----------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Section 1 | 20500     | PF 1    | 500.00           | 287.00            | 293.95            |                   | 294.04            | 0.000072              | 2.36               | 211.52               | 40.85             | 0.18         |
| Section 1 | 18450.0*  | PF 1    | 500.00           | 286.80            | 293.81            |                   | 293.89            | 0.000070              | 2.34               | 213.79               | 41.02             | 0.18         |
| Section 1 | 16400.0*  | PF 1    | 500.00           | 286.60            | 293.67            |                   | 293.75            | 0.000068              | 2.31               | 216.26               | 41.20             | 0.18         |
| Section 1 | 14350.0*  | PF 1    | 500.00           | 286.40            | 293.53            |                   | 293.61            | 0.000066              | 2.28               | 218.93               | 41.40             | 0.18         |
| Section 1 | 12300.0*  | PF 1    | 500.00           | 286.20            | 293.40            | 288.71            | 293.48            | 0.000063              | 2.25               | 221.82               | 41.60             | 0.17         |
| Section 1 | 12299     |         | Culvert          |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 1 | 10250.0*  | PF 1    | 500.00           | 286.00            | 292.21            |                   | 292.32            | 0.000110              | 2.75               | 181.89               | 38.62             | 0.22         |
| Section 1 | 8200.00*  | PF 1    | 500.00           | 285.80            | 291.98            |                   | 292.10            | 0.000112              | 2.77               | 180.74               | 38.53             | 0.23         |
| Section 1 | 6150.00*  | PF 1    | 500.00           | 285.60            | 291.74            |                   | 291.86            | 0.000115              | 2.79               | 179.41               | 38.42             | 0.23         |
| Section 1 | 4100.00*  | PF 1    | 500.00           | 285.40            | 291.50            |                   | 291.62            | 0.000118              | 2.81               | 177.88               | 38.31             | 0.23         |
| Section 1 | 2050.00*  | PF 1    | 500.00           | 285.20            | 291.26            |                   | 291.38            | 0.000121              | 2.84               | 176.09               | 38.16             | 0.23         |
| Section 1 | 0         | PF 1    | 500.00           | 285.00            | 291.00            | 287.51            | 291.13            | 0.000125              | 2.87               | 174.00               | 38.00             | 0.24         |

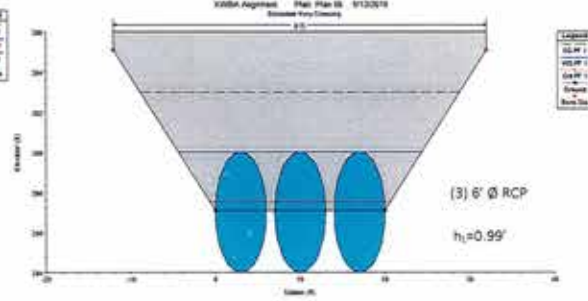
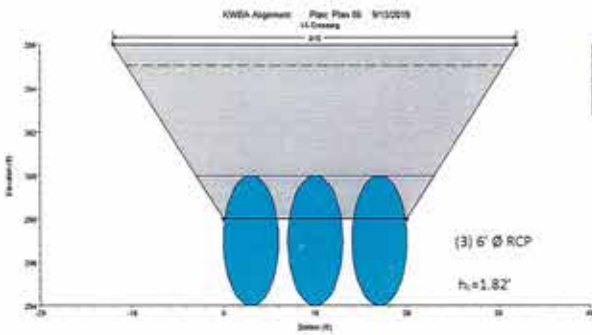
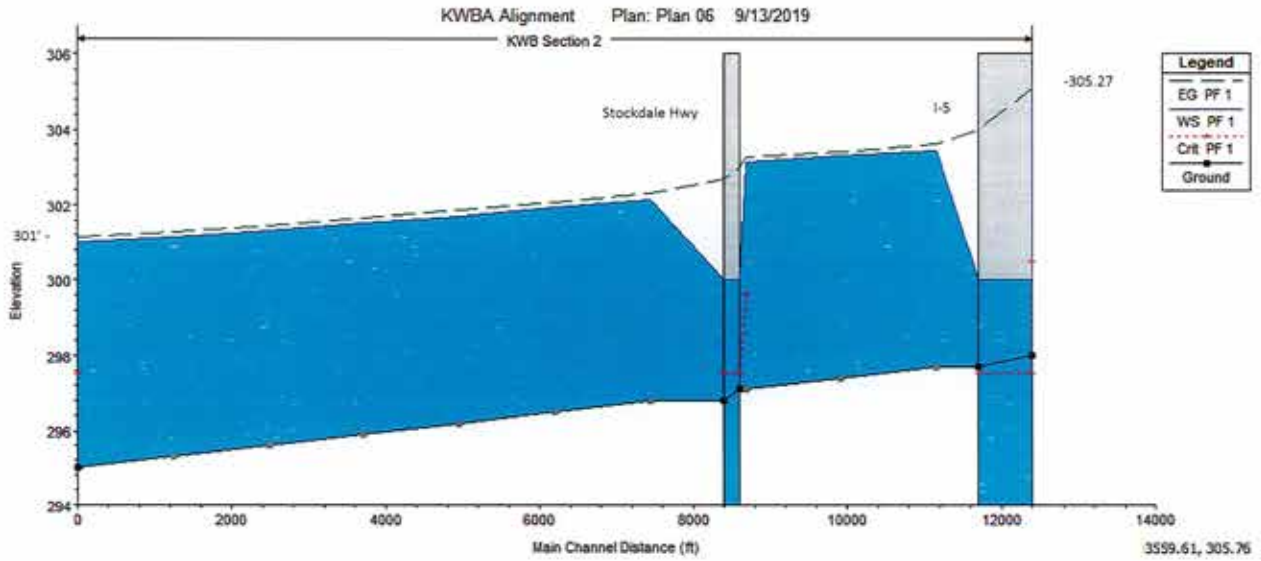




| Reach     | River Sta | Profile | Q Total (cfs) | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Flow Area (sq ft) | Top Width (ft) | Froude # Chl |
|-----------|-----------|---------|---------------|----------------|----------------|----------------|----------------|--------------------|-----------------|-------------------|----------------|--------------|
| Section 2 | 12400     | PF 1    | 500.00        | 298.00         | 304.95         | 300.51         | 305.04         | 0.000072           | 2.36            | 211.56            | 40.86          | 0.18         |
| Section 2 | 12399     |         | Culvert       |                |                |                |                |                    |                 |                   |                |              |
| Section 2 | 11160.0*  | PF 1    | 500.00        | 297.70         | 303.45         |                | 303.60         | 0.000146           | 3.03            | 164.77            | 37.26          | 0.25         |
| Section 2 | 9920.00*  | PF 1    | 500.00        | 297.40         | 303.29         |                | 303.42         | 0.000134           | 2.94            | 169.85            | 37.67          | 0.24         |
| Section 2 | 8680.00*  | PF 1    | 500.00        | 297.10         | 303.14         | 299.61         | 303.27         | 0.000122           | 2.85            | 175.54            | 38.12          | 0.23         |
| Section 2 | 8600      |         | Culvert       |                |                |                |                |                    |                 |                   |                |              |
| Section 2 | 7440.00*  | PF 1    | 500.00        | 296.80         | 302.14         |                | 302.31         | 0.000191           | 3.34            | 149.60            | 36.02          | 0.29         |
| Section 2 | 6200.00*  | PF 1    | 500.00        | 296.50         | 301.92         |                | 302.08         | 0.000182           | 3.28            | 152.31            | 36.25          | 0.28         |
| Section 2 | 4960.00*  | PF 1    | 500.00        | 296.20         | 301.70         |                | 301.86         | 0.000171           | 3.22            | 155.51            | 36.51          | 0.27         |
| Section 2 | 3720.00*  | PF 1    | 500.00        | 295.90         | 301.51         |                | 301.66         | 0.000160           | 3.14            | 159.24            | 36.82          | 0.27         |
| Section 2 | 2480.00*  | PF 1    | 500.00        | 295.60         | 301.32         |                | 301.47         | 0.000149           | 3.06            | 163.55            | 37.17          | 0.26         |
| Section 2 | 1240.00*  | PF 1    | 500.00        | 295.30         | 301.15         |                | 301.29         | 0.000137           | 2.97            | 168.47            | 37.56          | 0.25         |
| Section 2 | 0         | PF 1    | 500.00        | 295.00         | 301.00         | 297.51         | 301.13         | 0.000125           | 2.87            | 174.00            | 38.00          | 0.24         |

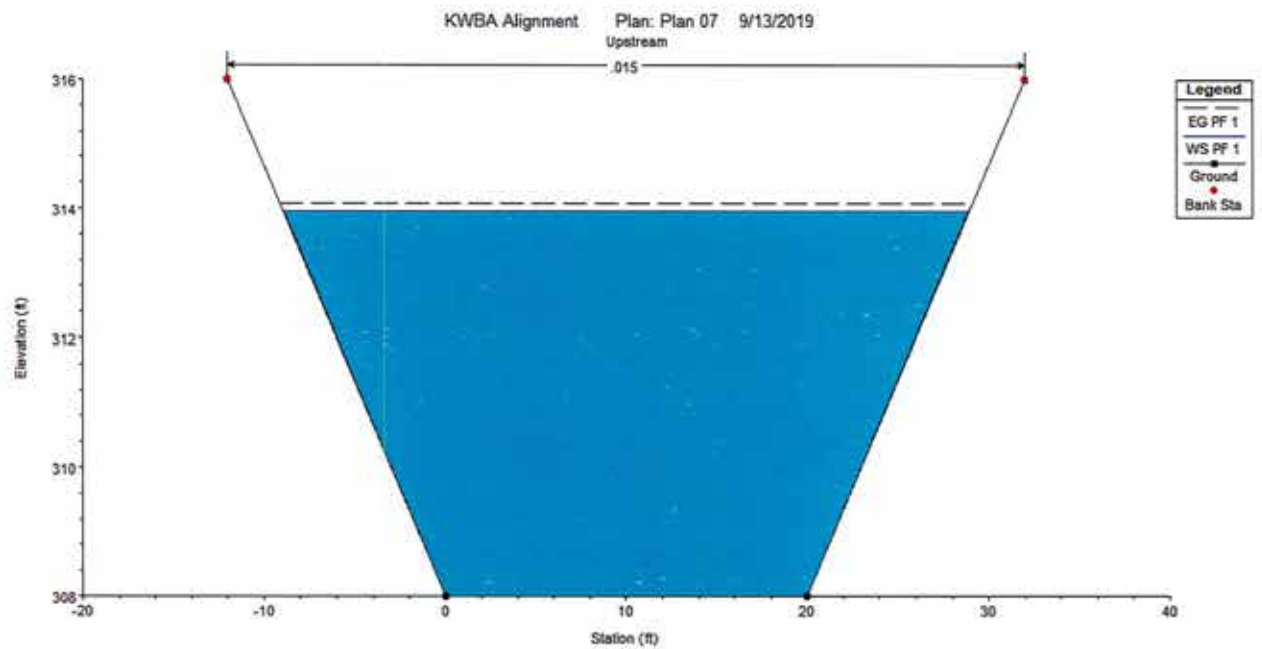
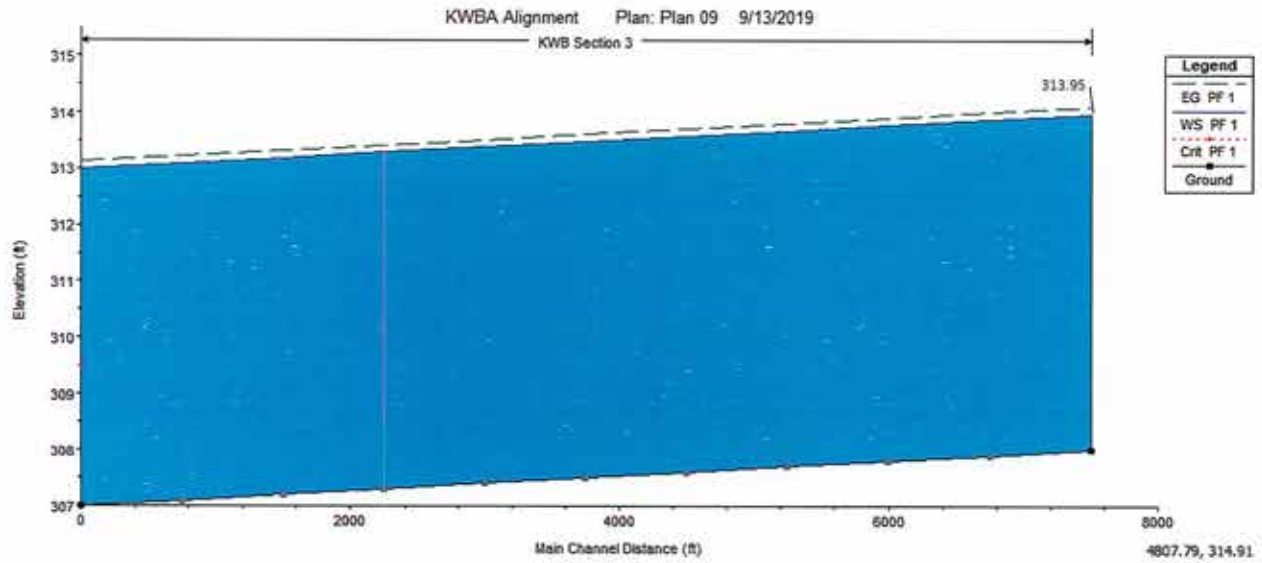


| Reach     | River Sta | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|-----------|-----------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Section 2 | 12400     | PF 1    | 500.00           | 298.00            | 304.10            | 300.51            | 304.22            | 0.000118              | 2.81               | 177.76               | 38.30             | 0.23         |
| Section 2 | 12399     | Culvert |                  |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 2 | 11160.0*  | PF 1    | 500.00           | 297.70            | 303.12            |                   | 303.29            | 0.000181              | 3.28               | 152.48               | 36.26             | 0.28         |
| Section 2 | 9920.00*  | PF 1    | 500.00           | 297.40            | 302.91            |                   | 303.07            | 0.000171              | 3.21               | 155.71               | 36.53             | 0.27         |
| Section 2 | 8680.00*  | PF 1    | 500.00           | 297.10            | 302.71            | 299.61            | 302.86            | 0.000160              | 3.14               | 159.48               | 36.84             | 0.27         |
| Section 2 | 8600      | Culvert |                  |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 2 | 7440.00*  | PF 1    | 500.00           | 296.80            | 302.14            |                   | 302.31            | 0.000191              | 3.34               | 149.60               | 36.02             | 0.29         |
| Section 2 | 6200.00*  | PF 1    | 500.00           | 296.50            | 301.92            |                   | 302.08            | 0.000182              | 3.28               | 152.31               | 36.25             | 0.28         |
| Section 2 | 4960.00*  | PF 1    | 500.00           | 296.20            | 301.70            |                   | 301.86            | 0.000171              | 3.22               | 155.51               | 36.51             | 0.27         |
| Section 2 | 3720.00*  | PF 1    | 500.00           | 295.90            | 301.51            |                   | 301.66            | 0.000160              | 3.14               | 159.24               | 36.82             | 0.27         |
| Section 2 | 2480.00*  | PF 1    | 500.00           | 295.60            | 301.32            |                   | 301.47            | 0.000149              | 3.06               | 163.55               | 37.17             | 0.26         |
| Section 2 | 1240.00*  | PF 1    | 500.00           | 295.30            | 301.15            |                   | 301.29            | 0.000137              | 2.97               | 168.47               | 37.56             | 0.25         |
| Section 2 | 0         | PF 1    | 500.00           | 295.00            | 301.00            | 297.51            | 301.13            | 0.000125              | 2.87               | 174.00               | 38.00             | 0.24         |



| Reach     | River Sta | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|-----------|-----------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Section 2 | 12400     | PF 1    | 500.00           | 298.00            | 305.27            | 300.51            | 305.34            | 0.000061              | 2.23               | 224.50               | 41.80             | 0.17         |
| Section 2 | 12399     |         | Culvert          |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 2 | 11160.0*  | PF 1    | 500.00           | 297.70            | 303.45            |                   | 303.59            | 0.000146              | 3.04               | 164.52               | 37.24             | 0.25         |
| Section 2 | 9920.00*  | PF 1    | 500.00           | 297.40            | 303.28            |                   | 303.42            | 0.000134              | 2.95               | 169.57               | 37.65             | 0.24         |
| Section 2 | 8680.00*  | PF 1    | 500.00           | 297.10            | 303.13            | 299.61            | 303.26            | 0.000123              | 2.85               | 175.23               | 38.10             | 0.23         |
| Section 2 | 8600      |         | Culvert          |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 2 | 7440.00*  | PF 1    | 500.00           | 296.80            | 302.14            |                   | 302.31            | 0.000191              | 3.34               | 149.60               | 36.02             | 0.29         |
| Section 2 | 6200.00*  | PF 1    | 500.00           | 296.50            | 301.92            |                   | 302.08            | 0.000182              | 3.28               | 152.31               | 36.25             | 0.28         |
| Section 2 | 4960.00*  | PF 1    | 500.00           | 296.20            | 301.70            |                   | 301.86            | 0.000171              | 3.22               | 155.51               | 36.51             | 0.27         |
| Section 2 | 3720.00*  | PF 1    | 500.00           | 295.90            | 301.51            |                   | 301.66            | 0.000160              | 3.14               | 159.24               | 36.82             | 0.27         |
| Section 2 | 2480.00*  | PF 1    | 500.00           | 295.60            | 301.32            |                   | 301.47            | 0.000149              | 3.06               | 163.55               | 37.17             | 0.26         |
| Section 2 | 1240.00*  | PF 1    | 500.00           | 295.30            | 301.15            |                   | 301.29            | 0.000137              | 2.97               | 168.47               | 37.56             | 0.25         |
| Section 2 | 0         | PF 1    | 500.00           | 295.00            | 301.00            | 297.51            | 301.13            | 0.000125              | 2.87               | 174.00               | 38.00             | 0.24         |

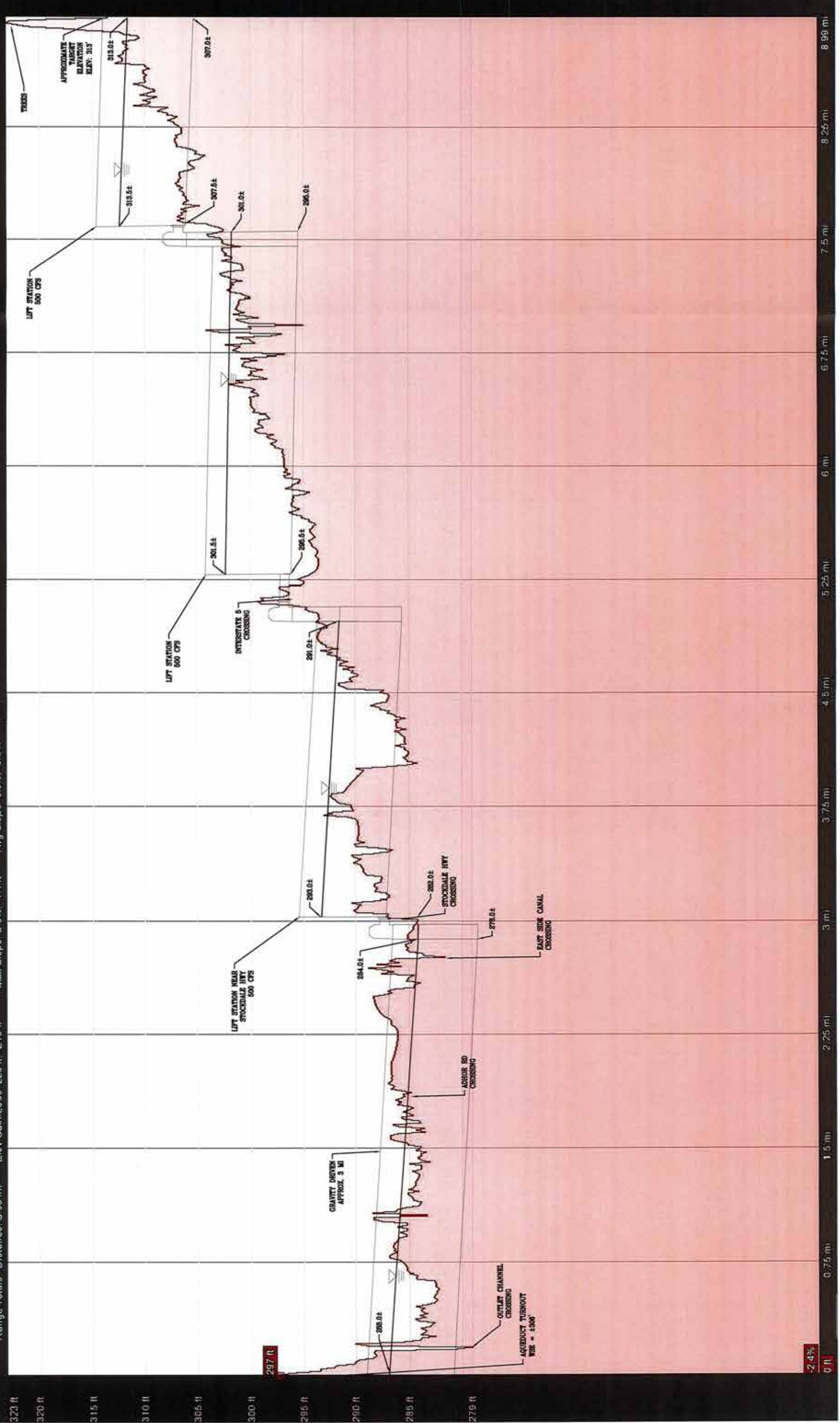




| Reach     | River Sta | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|-----------|-----------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Section 2 | 7500      | PF 1    | 500.00           | 308.00            | 313.95            |                   | 314.08            | 0.000129              | 2.90               | 172.16               | 37.85             | 0.24         |
| Section 2 | 6750.00*  | PF 1    | 500.00           | 307.90            | 313.86            |                   | 313.99            | 0.000128              | 2.90               | 172.30               | 37.87             | 0.24         |
| Section 2 | 6000.00*  | PF 1    | 500.00           | 307.80            | 313.76            |                   | 313.89            | 0.000128              | 2.90               | 172.45               | 37.88             | 0.24         |
| Section 2 | 5250.00*  | PF 1    | 500.00           | 307.70            | 313.66            |                   | 313.79            | 0.000128              | 2.90               | 172.60               | 37.89             | 0.24         |
| Section 2 | 4500.00*  | PF 1    | 500.00           | 307.60            | 313.57            |                   | 313.70            | 0.000128              | 2.89               | 172.77               | 37.90             | 0.24         |
| Section 2 | 3750.00*  | PF 1    | 500.00           | 307.50            | 313.47            |                   | 313.60            | 0.000127              | 2.89               | 172.94               | 37.92             | 0.24         |
| Section 2 | 3000.00*  | PF 1    | 500.00           | 307.40            | 313.38            |                   | 313.51            | 0.000127              | 2.89               | 173.13               | 37.93             | 0.24         |
| Section 2 | 2250.00*  | PF 1    | 500.00           | 307.30            | 313.28            |                   | 313.41            | 0.000126              | 2.88               | 173.33               | 37.95             | 0.24         |
| Section 2 | 1500.00*  | PF 1    | 500.00           | 307.20            | 313.19            |                   | 313.32            | 0.000126              | 2.88               | 173.54               | 37.96             | 0.24         |
| Section 2 | 750.00*   | PF 1    | 500.00           | 307.10            | 313.09            |                   | 313.22            | 0.000125              | 2.88               | 173.76               | 37.98             | 0.24         |
| Section 2 | 0         | PF 1    | 500.00           | 307.00            | 313.00            | 309.51            | 313.13            | 0.000125              | 2.87               | 174.00               | 38.00             | 0.24         |

# BV ALIGNMENT

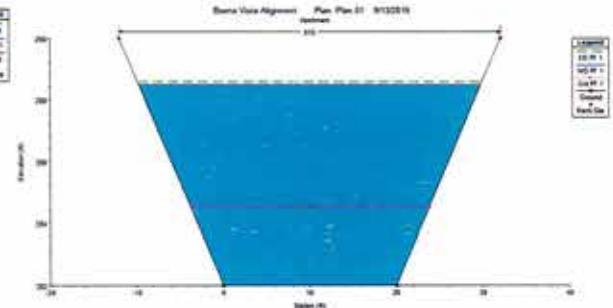
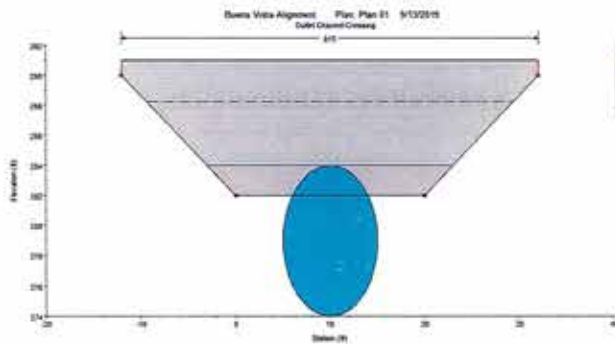
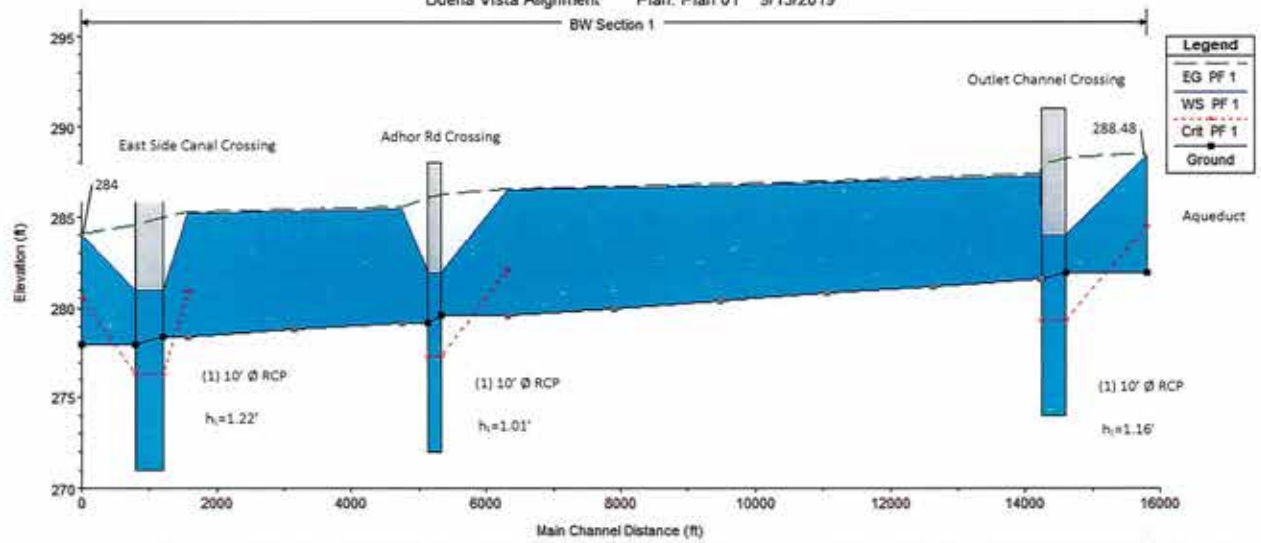
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 Range Totals: Distance: 8.99 mi | Elev Gain/Loss: 226 ft, -210 ft | Max Slope: 8.5%, -7.1% | Avg Slope: 0.6%, -0.6%



-2.4%  
0 ft

# Buena Vista

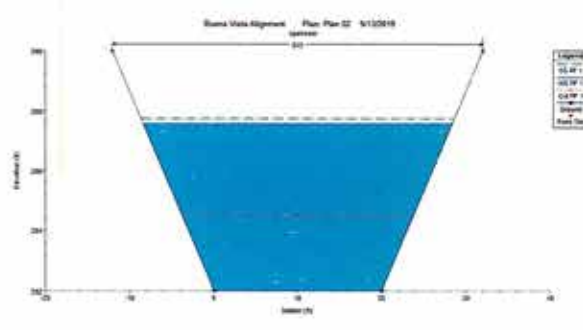
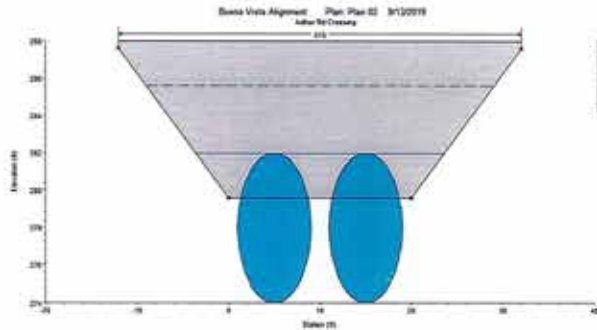
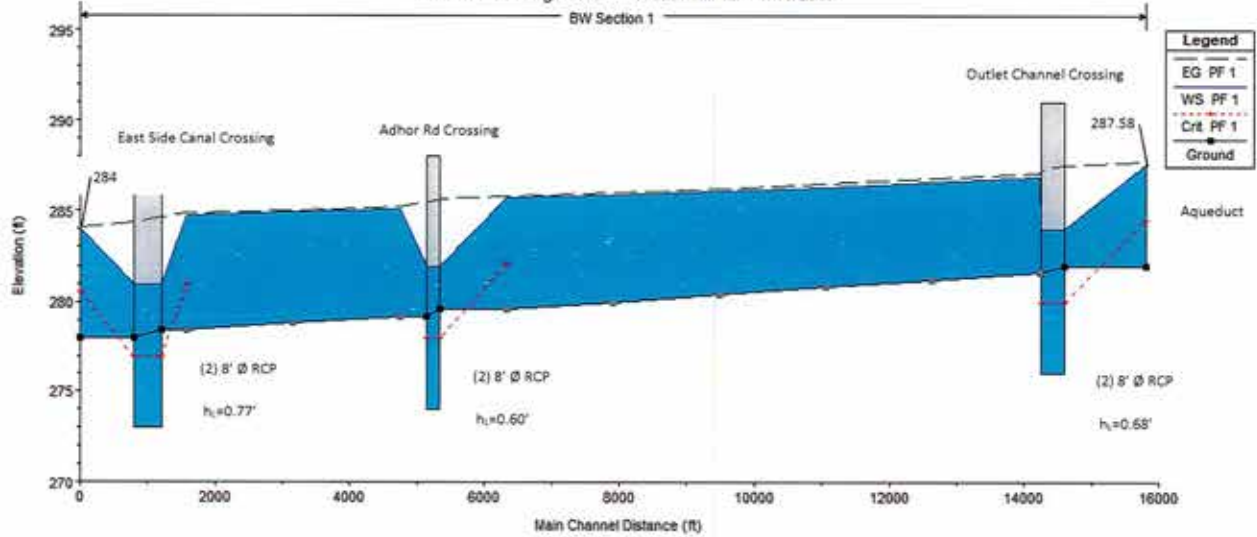
Buena Vista Alignment Plan: Plan 01 9/13/2019



| Reach     | River Sta | Profile | Q Total (cfs) | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Flow Area (sq ft) | Top Width (ft) | Froude # Chl |
|-----------|-----------|---------|---------------|----------------|----------------|----------------|----------------|--------------------|-----------------|-------------------|----------------|--------------|
| Section 1 | 15800     | PF 1    | 500.00        | 282.00         | 288.48         | 284.51         | 288.59         | 0.000094           | 2.60            | 192.66            | 39.45          | 0.21         |
| Section 1 | 14600     |         | Culvert       |                |                |                |                |                    |                 |                   |                |              |
| Section 1 | 14220.0*  | PF 1    | 500.00        | 281.60         | 287.32         |                | 287.47         | 0.000149           | 3.06            | 163.58            | 37.17          | 0.26         |
| Section 1 | 12640.0*  | PF 1    | 500.00        | 281.20         | 287.11         |                | 287.25         | 0.000132           | 2.93            | 170.73            | 37.74          | 0.24         |
| Section 1 | 11060.0*  | PF 1    | 500.00        | 280.80         | 286.93         |                | 287.05         | 0.000115           | 2.79            | 179.00            | 38.39          | 0.23         |
| Section 1 | 9480.00*  | PF 1    | 500.00        | 280.40         | 286.77         |                | 286.88         | 0.000100           | 2.65            | 188.39            | 39.12          | 0.21         |
| Section 1 | 7900.00*  | PF 1    | 500.00        | 280.00         | 286.64         |                | 286.74         | 0.000086           | 2.51            | 198.85            | 39.91          | 0.20         |
| Section 1 | 6320.00*  | PF 1    | 500.00        | 279.60         | 286.52         | 282.11         | 286.61         | 0.000074           | 2.38            | 210.34            | 40.77          | 0.18         |
| Section 1 | 5300      |         | Culvert       |                |                |                |                |                    |                 |                   |                |              |
| Section 1 | 4740.00*  | PF 1    | 500.00        | 279.20         | 285.48         |                | 285.60         | 0.000105           | 2.70            | 184.89            | 38.85          | 0.22         |
| Section 1 | 3160.00*  | PF 1    | 500.00        | 278.80         | 285.34         |                | 285.44         | 0.000091           | 2.56            | 194.98            | 39.62          | 0.20         |
| Section 1 | 1580.00*  | PF 1    | 500.00        | 278.40         | 285.22         | 280.91         | 285.31         | 0.000078           | 2.43            | 206.11            | 40.46          | 0.19         |
| Section 1 | 1200      |         | Culvert       |                |                |                |                |                    |                 |                   |                |              |
| Section 1 | 0         | PF 1    | 500.00        | 278.00         | 284.00         | 280.51         | 284.13         | 0.000125           | 2.87            | 174.00            | 38.00          | 0.24         |

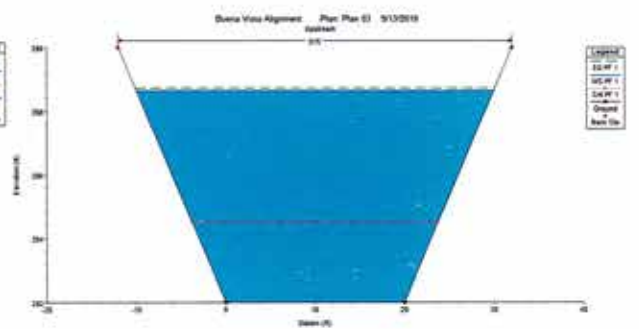
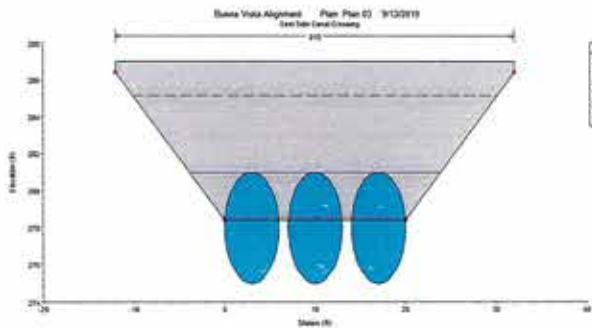
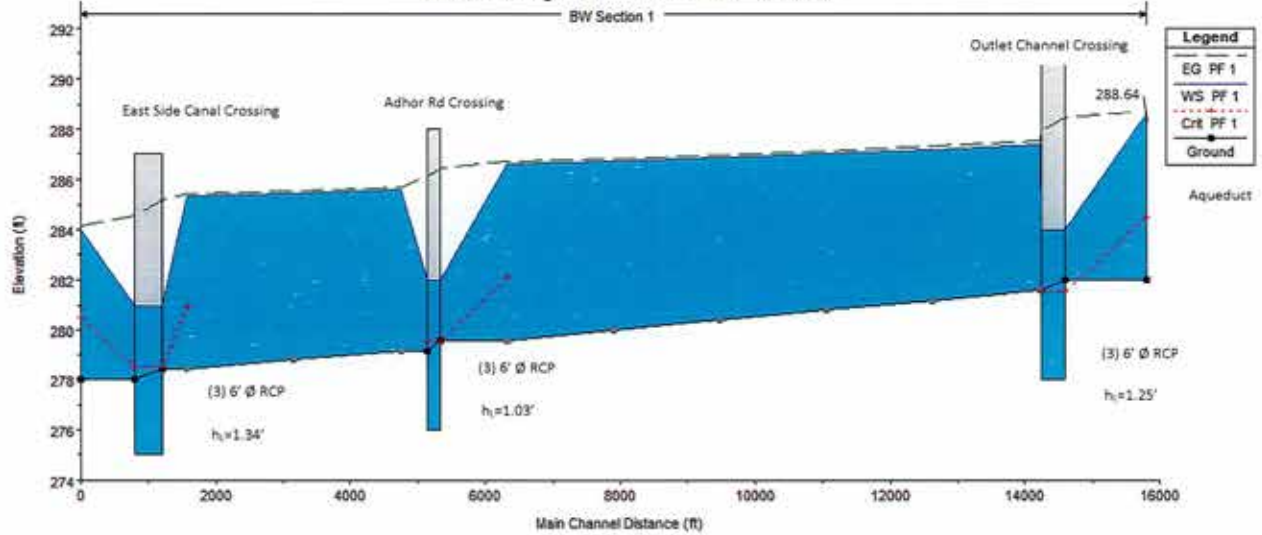


Buena Vista Alignment Plan: Plan 02 9/13/2019

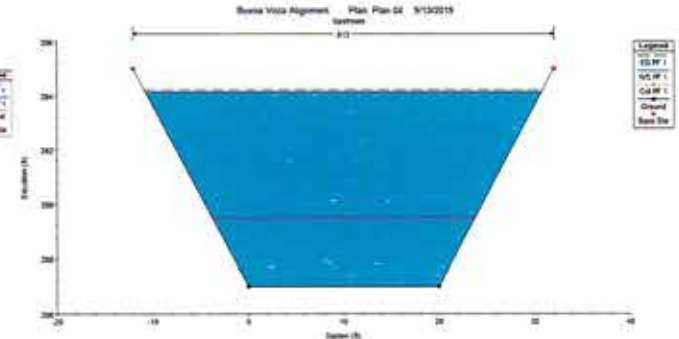
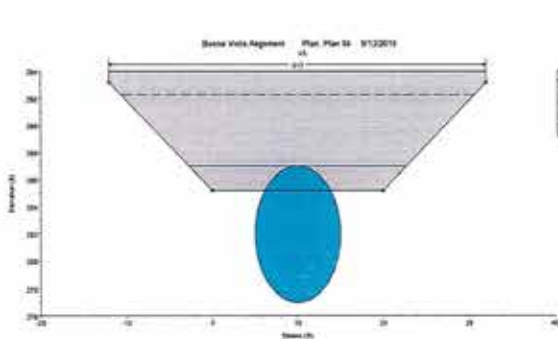
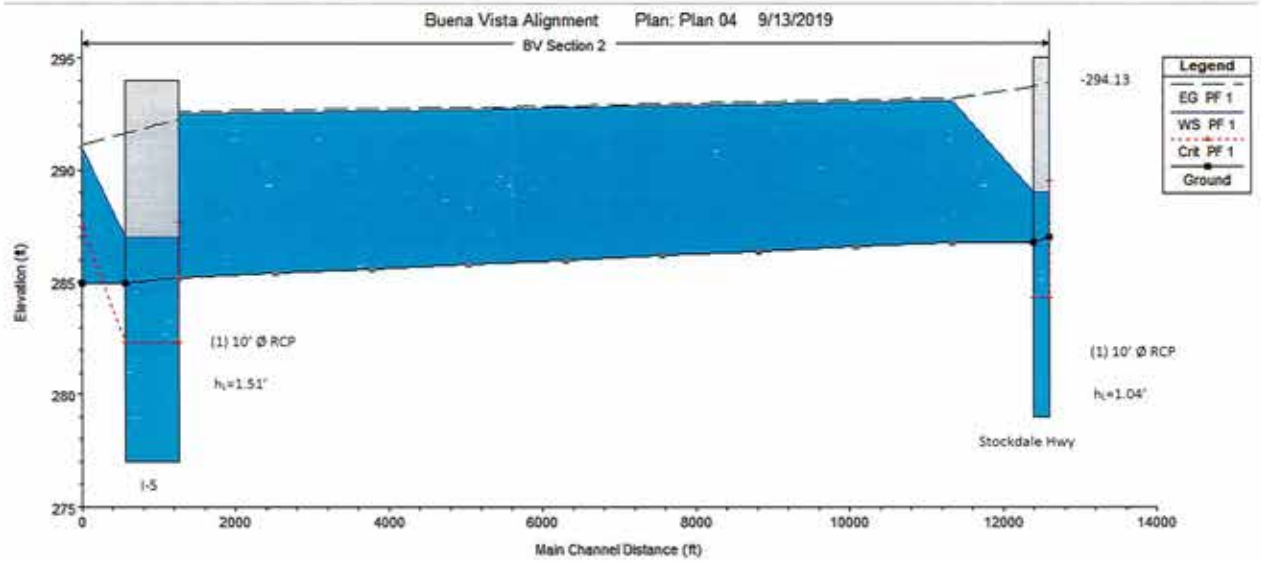


| Reach     | River Sta | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|-----------|-----------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Section 1 | 15800     | PF 1    | 500.00           | 282.00            | 287.58            | 284.51            | 287.74            | 0.000163              | 3.16               | 158.40               | 36.75             | 0.27         |
| Section 1 | 14600     |         | Culvert          |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 1 | 14220.0*  | PF 1    | 500.00           | 281.60            | 286.90            |                   | 287.08            | 0.000197              | 3.37               | 148.17               | 35.90             | 0.29         |
| Section 1 | 12640.0*  | PF 1    | 500.00           | 281.20            | 286.61            |                   | 286.78            | 0.000182              | 3.29               | 152.14               | 36.23             | 0.28         |
| Section 1 | 11060.0*  | PF 1    | 500.00           | 280.80            | 286.35            |                   | 286.50            | 0.000167              | 3.18               | 157.06               | 36.64             | 0.27         |
| Section 1 | 9480.00*  | PF 1    | 500.00           | 280.40            | 286.11            |                   | 286.25            | 0.000150              | 3.07               | 163.01               | 37.12             | 0.26         |
| Section 1 | 7900.00*  | PF 1    | 500.00           | 280.00            | 285.90            |                   | 286.03            | 0.000133              | 2.94               | 170.07               | 37.69             | 0.24         |
| Section 1 | 6320.00*  | PF 1    | 500.00           | 279.60            | 285.71            | 282.11            | 285.83            | 0.000117              | 2.81               | 178.24               | 38.33             | 0.23         |
| Section 1 | 5300      |         | Culvert          |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 1 | 4740.00*  | PF 1    | 500.00           | 279.20            | 285.11            |                   | 285.24            | 0.000132              | 2.93               | 170.52               | 37.72             | 0.24         |
| Section 1 | 3160.00*  | PF 1    | 500.00           | 278.80            | 284.92            |                   | 285.05            | 0.000116              | 2.80               | 178.77               | 38.37             | 0.23         |
| Section 1 | 1580.00*  | PF 1    | 500.00           | 278.40            | 284.77            | 280.91            | 284.88            | 0.000100              | 2.66               | 188.12               | 39.10             | 0.21         |
| Section 1 | 1200      |         | Culvert          |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 1 | 0         | PF 1    | 500.00           | 278.00            | 284.00            | 280.51            | 284.13            | 0.000125              | 2.87               | 174.00               | 38.00             | 0.24         |

Buena Vista Alignment Plan: Plan 03 9/13/2019

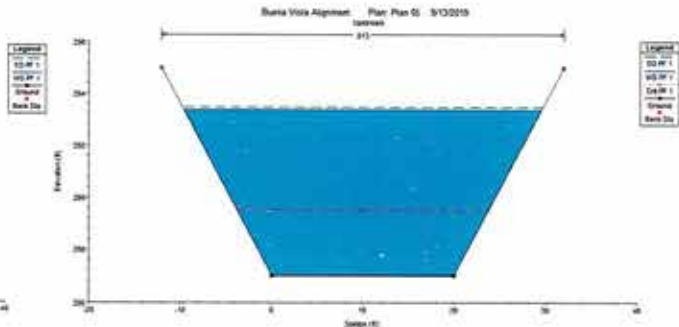
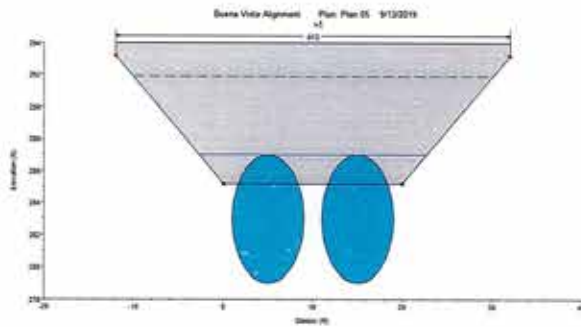
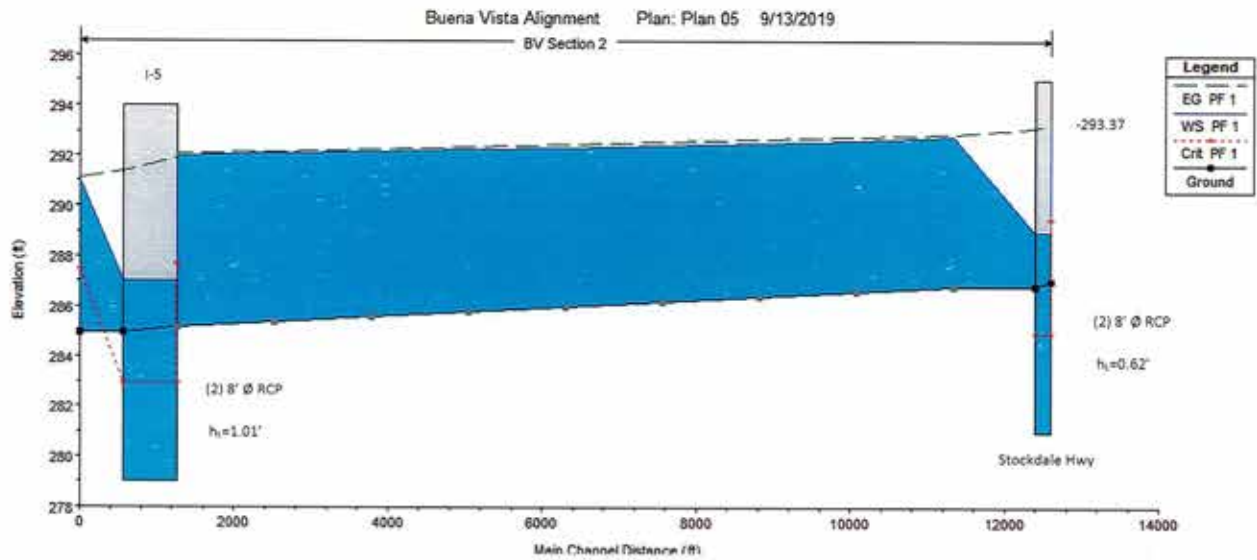


| Reach     | River Sta | Profile | Q Total (cfs) | Min Ch El (ft) | W.S. Elev (ft) | Crit W.S. (ft) | E.G. Elev (ft) | E.G. Slope (ft/ft) | Vel Chnl (ft/s) | Flow Area (sq ft) | Top Width (ft) | Froude # Chl |
|-----------|-----------|---------|---------------|----------------|----------------|----------------|----------------|--------------------|-----------------|-------------------|----------------|--------------|
| Section 1 | 15800     | PF 1    | 500.00        | 282.00         | 288.64         | 284.51         | 288.74         | 0.000086           | 2.51            | 198.87            | 39.92          | 0.20         |
| Section 1 | 14600     |         | Culvert       |                |                |                |                |                    |                 |                   |                |              |
| Section 1 | 14220.0*  | PF 1    | 500.00        | 281.60         | 287.39         |                | 287.53         | 0.000143           | 3.01            | 165.91            | 37.36          | 0.25         |
| Section 1 | 12640.0*  | PF 1    | 500.00        | 281.20         | 287.19         |                | 287.31         | 0.000126           | 2.88            | 173.44            | 37.96          | 0.24         |
| Section 1 | 11060.0*  | PF 1    | 500.00        | 280.80         | 287.01         |                | 287.13         | 0.000110           | 2.75            | 182.10            | 38.63          | 0.22         |
| Section 1 | 9480.00*  | PF 1    | 500.00        | 280.40         | 286.86         |                | 286.97         | 0.000095           | 2.61            | 191.86            | 39.38          | 0.21         |
| Section 1 | 7900.00*  | PF 1    | 500.00        | 280.00         | 286.73         |                | 286.83         | 0.000082           | 2.47            | 202.68            | 40.20          | 0.19         |
| Section 1 | 6320.00*  | PF 1    | 500.00        | 279.60         | 286.62         | 282.11         | 286.71         | 0.000070           | 2.33            | 214.52            | 41.07          | 0.18         |
| Section 1 | 5300      |         | Culvert       |                |                |                |                |                    |                 |                   |                |              |
| Section 1 | 4740.00*  | PF 1    | 500.00        | 279.20         | 285.59         |                | 285.70         | 0.000099           | 2.64            | 189.04            | 39.17          | 0.21         |
| Section 1 | 3160.00*  | PF 1    | 500.00        | 278.80         | 285.46         |                | 285.55         | 0.000085           | 2.51            | 199.58            | 39.97          | 0.20         |
| Section 1 | 1580.00*  | PF 1    | 500.00        | 278.40         | 285.34         | 280.91         | 285.43         | 0.000073           | 2.37            | 211.13            | 40.83          | 0.18         |
| Section 1 | 1200      |         | Culvert       |                |                |                |                |                    |                 |                   |                |              |
| Section 1 | 0         | PF 1    | 500.00        | 278.00         | 284.00         | 280.51         | 284.13         | 0.000125           | 2.87            | 174.00            | 38.00          | 0.24         |

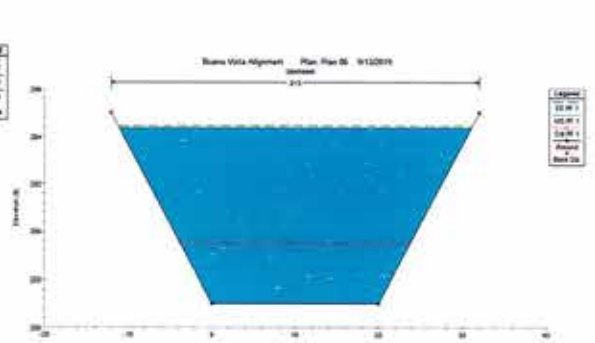
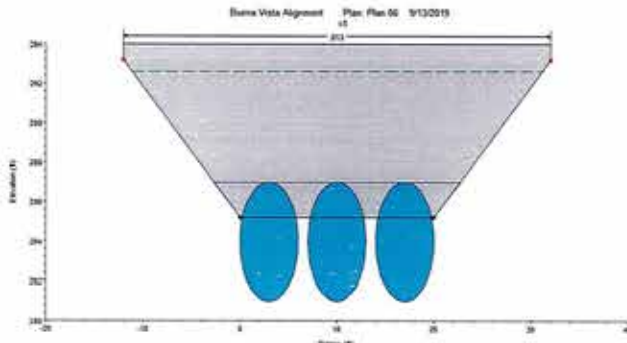
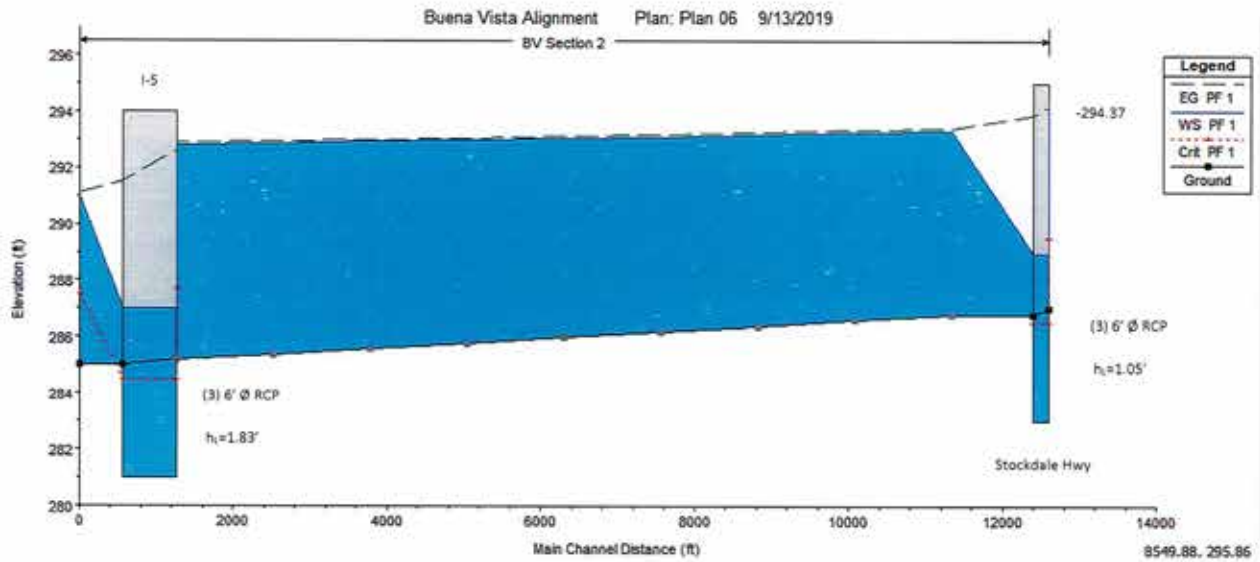


| Reach     | River Sta | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|-----------|-----------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Section 2 | 12600     | PF 1    | 500.00           | 287.00            | 294.13            | 289.51            | 294.21            | 0.000049              | 2.28               | 218.96               | 41.40             | 0.18         |
| Section 2 | 12599     |         | Culvert          |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 2 | 11340.0*  | PF 1    | 500.00           | 286.80            | 293.09            |                   | 293.20            | 0.000079              | 2.70               | 185.01               | 38.86             | 0.22         |
| Section 2 | 10080.0*  | PF 1    | 500.00           | 286.60            | 293.00            |                   | 293.10            | 0.000074              | 2.64               | 189.24               | 39.18             | 0.21         |
| Section 2 | 8820.00*  | PF 1    | 500.00           | 286.40            | 292.91            |                   | 293.01            | 0.000069              | 2.58               | 193.75               | 39.53             | 0.21         |
| Section 2 | 7560.00*  | PF 1    | 500.00           | 286.20            | 292.83            |                   | 292.93            | 0.000065              | 2.52               | 198.53               | 39.89             | 0.20         |
| Section 2 | 6300.00*  | PF 1    | 500.00           | 286.00            | 292.76            |                   | 292.85            | 0.000061              | 2.46               | 203.57               | 40.27             | 0.19         |
| Section 2 | 5040.00*  | PF 1    | 500.00           | 285.80            | 292.69            |                   | 292.78            | 0.000056              | 2.39               | 208.88               | 40.66             | 0.19         |
| Section 2 | 3780.00*  | PF 1    | 500.00           | 285.60            | 292.62            |                   | 292.71            | 0.000052              | 2.33               | 214.44               | 41.07             | 0.18         |
| Section 2 | 2520.00*  | PF 1    | 500.00           | 285.40            | 292.56            |                   | 292.64            | 0.000049              | 2.27               | 220.25               | 41.49             | 0.17         |
| Section 2 | 1260.00*  | PF 1    | 500.00           | 285.20            | 292.51            | 287.71            | 292.58            | 0.000045              | 2.21               | 226.31               | 41.93             | 0.17         |
| Section 2 | 1259      |         | Culvert          |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 2 | 0         | PF 1    | 500.00           | 285.00            | 291.00            | 287.51            | 291.13            | 0.000094              | 2.87               | 174.00               | 38.00             | 0.24         |

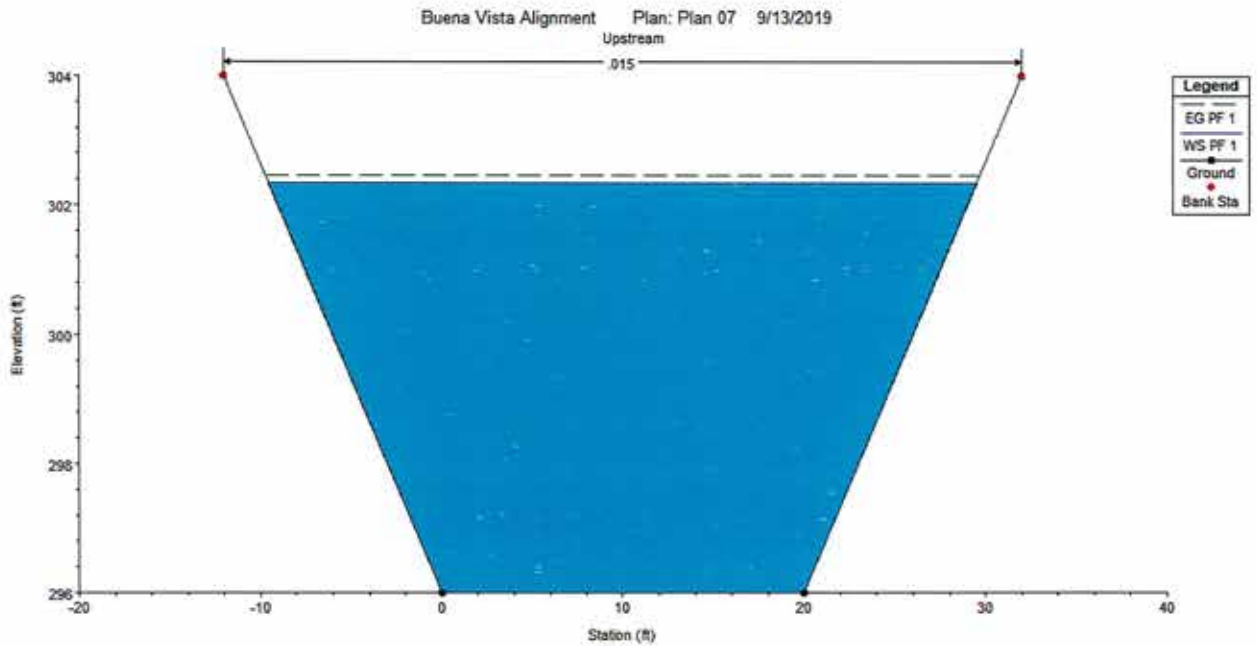
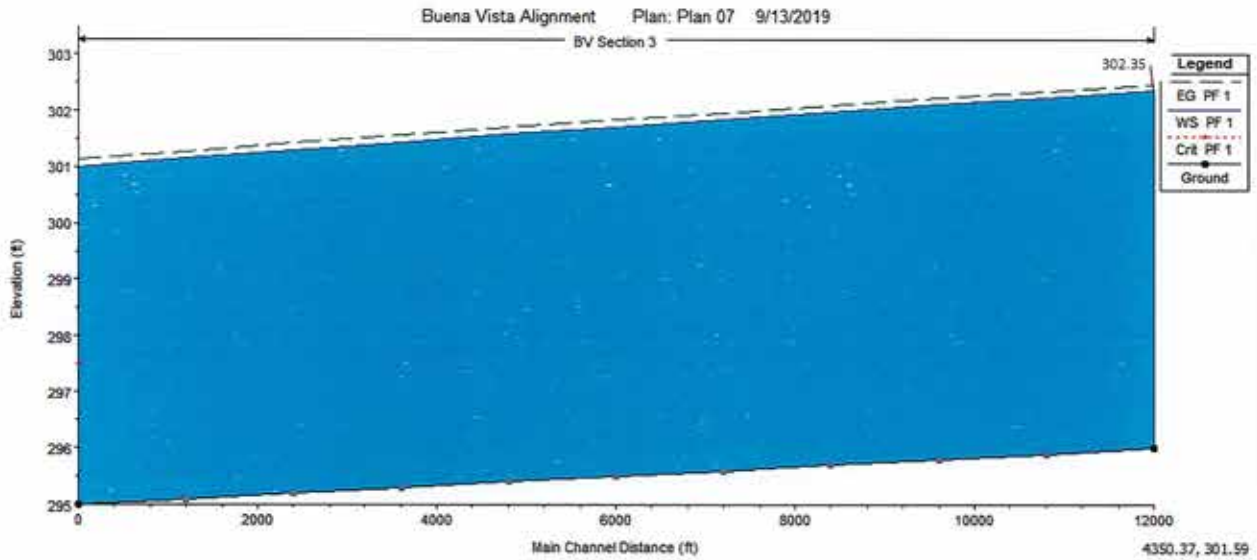




| Reach     | River Sta | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|-----------|-----------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Section 2 | 12600     | PF 1    | 500.00           | 287.00            | 293.37            | 289.51            | 293.48            | 0.000076              | 2.66               | 188.08               | 39.10             | 0.21         |
| Section 2 | 12599     | Culvert |                  |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 2 | 11340.0*  | PF 1    | 500.00           | 286.80            | 292.75            |                   | 292.88            | 0.000097              | 2.91               | 172.08               | 37.85             | 0.24         |
| Section 2 | 10080.0*  | PF 1    | 500.00           | 286.60            | 292.64            |                   | 292.76            | 0.000092              | 2.85               | 175.35               | 38.11             | 0.23         |
| Section 2 | 8820.00*  | PF 1    | 500.00           | 286.40            | 292.53            |                   | 292.65            | 0.000087              | 2.80               | 178.88               | 38.38             | 0.23         |
| Section 2 | 7560.00*  | PF 1    | 500.00           | 286.20            | 292.43            |                   | 292.54            | 0.000082              | 2.74               | 182.69               | 38.68             | 0.22         |
| Section 2 | 6300.00*  | PF 1    | 500.00           | 286.00            | 292.33            |                   | 292.44            | 0.000077              | 2.68               | 186.76               | 38.99             | 0.22         |
| Section 2 | 5040.00*  | PF 1    | 500.00           | 285.80            | 292.24            |                   | 292.35            | 0.000072              | 2.62               | 191.12               | 39.33             | 0.21         |
| Section 2 | 3780.00*  | PF 1    | 500.00           | 285.60            | 292.16            |                   | 292.26            | 0.000068              | 2.55               | 195.74               | 39.68             | 0.20         |
| Section 2 | 2520.00*  | PF 1    | 500.00           | 285.40            | 292.08            |                   | 292.18            | 0.000063              | 2.49               | 200.63               | 40.05             | 0.20         |
| Section 2 | 1260.00*  | PF 1    | 500.00           | 285.20            | 292.01            | 287.71            | 292.10            | 0.000059              | 2.43               | 205.78               | 40.43             | 0.19         |
| Section 2 | 1259      | Culvert |                  |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 2 | 0         | PF 1    | 500.00           | 285.00            | 291.00            | 287.51            | 291.13            | 0.000094              | 2.87               | 174.00               | 38.00             | 0.24         |

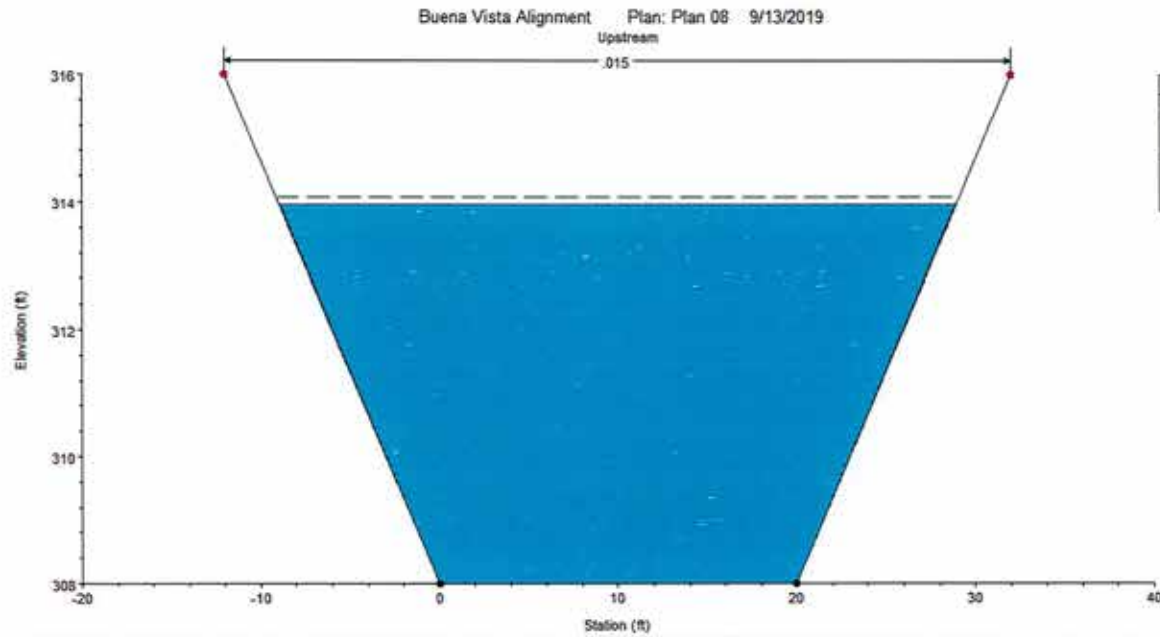
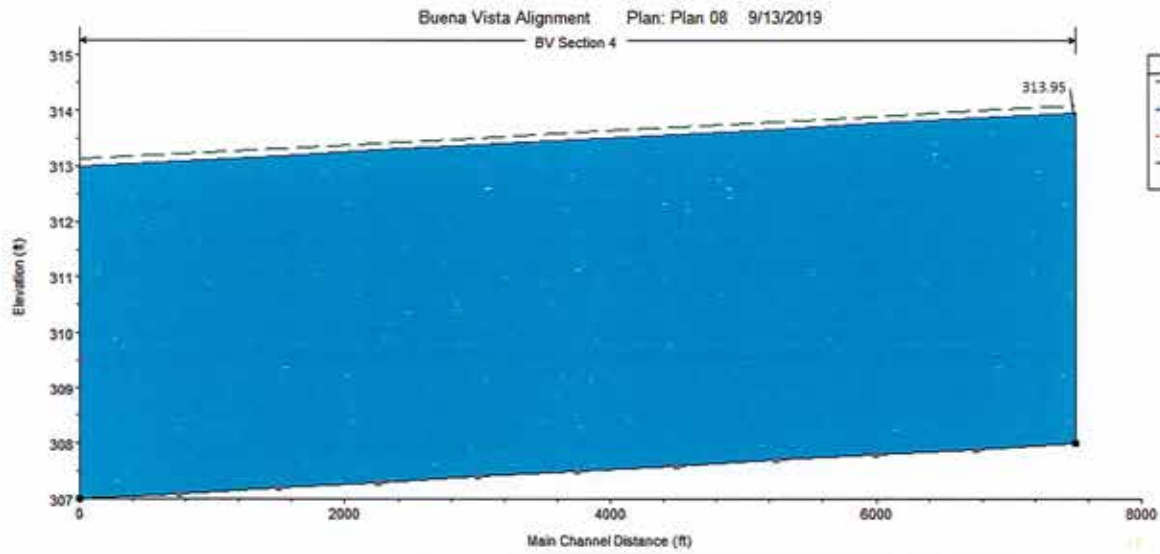


| Reach     | River Sta | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|-----------|-----------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Section 2 | 12600     | PF 1    | 500.00           | 287.00            | 294.37            | 289.51            | 294.44            | 0.000044              | 2.19               | 228.74               | 42.10             | 0.17         |
| Section 2 | 12599     | Culvert |                  |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 2 | 11340.0*  | PF 1    | 500.00           | 286.80            | 293.32            |                   | 293.42            | 0.000069              | 2.57               | 194.22               | 39.56             | 0.20         |
| Section 2 | 10080.0*  | PF 1    | 500.00           | 286.60            | 293.24            |                   | 293.34            | 0.000064              | 2.51               | 199.03               | 39.93             | 0.20         |
| Section 2 | 8820.00*  | PF 1    | 500.00           | 286.40            | 293.17            |                   | 293.26            | 0.000060              | 2.45               | 204.10               | 40.31             | 0.19         |
| Section 2 | 7560.00*  | PF 1    | 500.00           | 286.20            | 293.10            |                   | 293.19            | 0.000056              | 2.39               | 209.43               | 40.70             | 0.19         |
| Section 2 | 6300.00*  | PF 1    | 500.00           | 286.00            | 293.04            |                   | 293.12            | 0.000052              | 2.33               | 215.02               | 41.11             | 0.18         |
| Section 2 | 5040.00*  | PF 1    | 500.00           | 285.80            | 292.98            |                   | 293.06            | 0.000048              | 2.26               | 220.85               | 41.53             | 0.17         |
| Section 2 | 3780.00*  | PF 1    | 500.00           | 285.60            | 292.92            |                   | 293.00            | 0.000045              | 2.20               | 226.94               | 41.97             | 0.17         |
| Section 2 | 2520.00*  | PF 1    | 500.00           | 285.40            | 292.87            |                   | 292.95            | 0.000041              | 2.14               | 233.26               | 42.42             | 0.16         |
| Section 2 | 1260.00*  | PF 1    | 500.00           | 285.20            | 292.83            | 287.71            | 292.89            | 0.000038              | 2.09               | 239.80               | 42.88             | 0.16         |
| Section 2 | 1259      | Culvert |                  |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Section 2 | 0         | PF 1    | 500.00           | 285.00            | 291.00            | 287.51            | 291.13            | 0.000094              | 2.87               | 174.00               | 38.00             | 0.24         |



| Reach     | River Sta | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|-----------|-----------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Section 3 | 12000     | PF 1    | 500.00           | 296.00            | 302.35            |                   | 302.46            | 0.000101              | 2.67               | 187.50               | 39.05             | 0.21         |
| Section 3 | 10800.0*  | PF 1    | 500.00           | 295.90            | 302.23            |                   | 302.34            | 0.000103              | 2.68               | 186.58               | 38.98             | 0.22         |
| Section 3 | 9600.00*  | PF 1    | 500.00           | 295.80            | 302.10            |                   | 302.21            | 0.000104              | 2.69               | 185.59               | 38.90             | 0.22         |
| Section 3 | 8400.00*  | PF 1    | 500.00           | 295.70            | 301.97            |                   | 302.09            | 0.000106              | 2.71               | 184.52               | 38.82             | 0.22         |
| Section 3 | 7200.00*  | PF 1    | 500.00           | 295.60            | 301.84            |                   | 301.96            | 0.000108              | 2.73               | 183.37               | 38.73             | 0.22         |
| Section 3 | 6000.00*  | PF 1    | 500.00           | 295.50            | 301.71            |                   | 301.83            | 0.000110              | 2.75               | 182.11               | 38.64             | 0.22         |
| Section 3 | 4800.00*  | PF 1    | 500.00           | 295.40            | 301.58            |                   | 301.70            | 0.000112              | 2.77               | 180.76               | 38.53             | 0.23         |
| Section 3 | 3600.00*  | PF 1    | 500.00           | 295.30            | 301.44            |                   | 301.56            | 0.000115              | 2.79               | 179.28               | 38.41             | 0.23         |
| Section 3 | 2400.00*  | PF 1    | 500.00           | 295.20            | 301.30            |                   | 301.42            | 0.000118              | 2.81               | 177.68               | 38.29             | 0.23         |
| Section 3 | 1200.00*  | PF 1    | 500.00           | 295.10            | 301.15            |                   | 301.28            | 0.000121              | 2.84               | 175.92               | 38.15             | 0.23         |
| Section 3 | 0         | PF 1    | 500.00           | 295.00            | 301.00            | 297.51            | 301.13            | 0.000125              | 2.87               | 174.00               | 38.00             | 0.24         |





| Reach     | River Sta | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|-----------|-----------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Section 4 | 7500      | PF 1    | 500.00           | 308.00            | 313.95            |                   | 314.08            | 0.000129              | 2.90               | 172.16               | 37.85             | 0.24         |
| Section 4 | 6750.00*  | PF 1    | 500.00           | 307.90            | 313.86            |                   | 313.99            | 0.000128              | 2.90               | 172.30               | 37.87             | 0.24         |
| Section 4 | 6000.00*  | PF 1    | 500.00           | 307.80            | 313.76            |                   | 313.89            | 0.000128              | 2.90               | 172.45               | 37.88             | 0.24         |
| Section 4 | 5250.00*  | PF 1    | 500.00           | 307.70            | 313.66            |                   | 313.79            | 0.000128              | 2.90               | 172.60               | 37.89             | 0.24         |
| Section 4 | 4500.00*  | PF 1    | 500.00           | 307.60            | 313.57            |                   | 313.70            | 0.000128              | 2.89               | 172.77               | 37.90             | 0.24         |
| Section 4 | 3750.00*  | PF 1    | 500.00           | 307.50            | 313.47            |                   | 313.60            | 0.000127              | 2.89               | 172.94               | 37.92             | 0.24         |
| Section 4 | 3000.00*  | PF 1    | 500.00           | 307.40            | 313.38            |                   | 313.51            | 0.000127              | 2.89               | 173.13               | 37.93             | 0.24         |
| Section 4 | 2250.00*  | PF 1    | 500.00           | 307.30            | 313.28            |                   | 313.41            | 0.000126              | 2.88               | 173.33               | 37.95             | 0.24         |
| Section 4 | 1500.00*  | PF 1    | 500.00           | 307.20            | 313.19            |                   | 313.32            | 0.000126              | 2.88               | 173.54               | 37.96             | 0.24         |
| Section 4 | 750.00*   | PF 1    | 500.00           | 307.10            | 313.09            |                   | 313.22            | 0.000125              | 2.88               | 173.76               | 37.98             | 0.24         |
| Section 4 | 0         | PF 1    | 500.00           | 307.00            | 313.00            | 309.51            | 313.13            | 0.000125              | 2.87               | 174.00               | 38.00             | 0.24         |

**APPENDIX C**  
**Capital Cost Estimates**

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## KWB Canal Alignment - Earth and Concrete Lined (Item #1)

| Item No. | Item Description   | Unit | Quantity  | Unit Cost       | Extended Cost   | Section Subtotal |
|----------|--|------|-----------|-----------------|-----------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup                    | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00 | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                            | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 3        | Aqueduct Turnout Excavation                                | CY   | 2450      | \$ 30.00        | \$ 73,500.00    |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor             | CY   | 45        | \$ 800.00       | \$ 36,000.00    |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls             | CY   | 100       | \$ 1,200.00     | \$ 120,000.00   |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam         | CY   | 5         | \$ 2,000.00     | \$ 10,000.00    |                  |
| 7        | Aqueduct Backfill and Compaction                           | CY   | 1850      | \$ 30.00        | \$ 55,500.00    |                  |
| 8        | Aqueduct Miscellaneous Steel                               | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 9        | Aqueduct Trashrack   | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 10       | Aqueduct Turnout Piping                                    | LF   | 1800      | \$ 4,000.00     | \$ 7,200,000.00 |                  |
| 11       | Aqueduct Metering  | EA   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 12       | Aqueduct Meter Vault                                       | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 13       | Aqueduct Slide Gate & Actuator                             | EA   | 1         | \$ 75,000.00    | \$ 75,000.00    |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting                  | LS   | 1         | \$ 150,000.00   | \$ 150,000.00   |                  |
| 15       | Aqueduct Liner Repair                                      | LS   | 1         | \$ 20,000.00    | \$ 20,000.00    |                  |
| 16       | Levee Road Pavement Restoration                            | SF   | 1600      | \$ 7.00         | \$ 11,200.00    | \$ 8,551,200.00  |
| 17       | Canal Clearing & Grubbing                                  | AC   | 130       | \$ 1,200.00     | \$ 156,000.00   |                  |
| 18       | Canal Earthwork-Cut  | CY   | 500,000   | \$ 4.50         | \$ 2,250,000.00 |                  |
| 19       | Canal Earthwork-Fill                                       | CY   | 310,000   | \$ 4.50         | \$ 1,395,000.00 |                  |
| 20       | Levee Subgrade Preparation                                 | CY   | 180,000   | \$ 4.60         | \$ 828,000.00   |                  |
| 21       | Concrete Canal Lining                                      | SF   | 1,035,408 | \$ 6.00         | \$ 6,212,448.00 |                  |
| 22       | Canal Appurtenances  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 23       | Canal Fencing  | LF   | 90,000    | \$ 7.50         | \$ 675,000.00   |                  |
| 24       | Levee Road Aggregate Base Ground Cover                     | LS   | 1         | \$ 655,000.00   | \$ 655,000.00   |                  |
| 25       | Ex. Facility Relocations                                   | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   | \$ 12,921,448.00 |
| 26       | Aqueduct Turnout Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 27       | Turnout Afterbay Earthwork                                 | CY   | 3800      | \$ 30.00        | \$ 114,000.00   |                  |
| 28       | Turnout Afterbay Miscellaneous Steel                       | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 29       | Main Canal Forebay Structure Walls & Footings              | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 30       | Main Canal Siphon Pipes                                    | LF   | 300       | \$ 2,500.00     | \$ 750,000.00   |                  |
| 31       | Main Canal Afterbay Structure Walls & Footings             | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 32       | Siphon Crossing Earthwork                                  | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 33       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 34       | WKWD Pipeline Forebay Structure Walls & Footings           | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 35       | WKWD Pipeline Siphon Pipes                                 | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 36       | WKWD Pipeline Afterbay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 37       | Siphon Crossing Earthwork                                  | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 38       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 39       | Levee Side Canal Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 40       | Levee Side Canal Siphon Pipes                              | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 41       | Levee Side Canal Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 42       | Siphon Crossing Earthwork                                  | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 43       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    | \$ 4,009,000.00  |
| 44       | Lift Station Excavation                                    | CY   | 11000     | \$ 10.00        | \$ 110,000.00   |                  |
| 45       | Lift Station Reinforced Concrete Structure - Floor         | CY   | 320       | \$ 800.00       | \$ 256,000.00   |                  |
| 46       | Lift Station Reinforced Concrete Structure - Walls         | CY   | 520       | \$ 1,200.00     | \$ 624,000.00   |                  |
| 47       | Lift Station Reinforced Concrete Structure - Deck          | CY   | 120       | \$ 2,000.00     | \$ 240,000.00   |                  |
| 48       | Lift Station Pumps - 30 cfs                                | EA   | 2         | \$ 130,000.00   | \$ 260,000.00   |                  |
| 49       | Lift Station Pumps - 60 cfs                                | EA   | 2         | \$ 180,000.00   | \$ 360,000.00   |                  |
| 50       | Lift Station Pumps - 80 cfs                                | EA   | 4         | \$ 195,000.00   | \$ 780,000.00   |                  |
| 51       | Lift Station Motors - 100 hp                               | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 52       | Lift Station Motors - 200 hp                               | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 53       | Lift Station Motors - 300 hp                               | EA   | 4         | \$ 90,000.00    | \$ 360,000.00   |                  |
| 54       | Lift Station 36" Discharge Piping & Appurtenances          | LS   | 2         | \$ 300,000.00   | \$ 600,000.00   |                  |
| 55       | Lift Station 48" Discharge Piping & Appurtenances          | LS   | 2         | \$ 425,000.00   | \$ 850,000.00   |                  |
| 56       | Lift Station 54" Discharge Piping & Appurtenances          | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00 |                  |
| 57       | Lift Station 100 hp VFD's                                  | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 58       | Lift Station 200 hp VFD's                                  | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 59       | Lift Station 300 hp VFD's                                  | EA   | 4         | \$ 80,000.00    | \$ 320,000.00   |                  |
| 60       | Lift Station Electrical, Controls, & Lighting              | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   |                  |
| 61       | Lift Station Electrical Control Building                   | LS   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 62       | Lift Station Backfill & Compaction                         | CY   | 6000      | \$ 10.00        | \$ 60,000.00    |                  |
| 63       | Lift Station Slide Gates                                   | EA   | 1         | \$ 55,000.00    | \$ 55,000.00    |                  |
| 64       | Lift Station Trashracks                                    | LS   | 8         | \$ 25,000.00    | \$ 200,000.00   |                  |
| 65       | Lift Station Miscellaneous Steel                           | LS   | 1         | \$ 120,000.00   | \$ 120,000.00   |                  |
| 66       | Lift Station Cathodic Protection                           | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 67       | Lift Station Site Fencing                                  | LF   | 850       | \$ 45.00        | \$ 38,250.00    |                  |
| 68       | Lift Station Bypass Pipeline                               | LF   | 200       | \$ 750.00       | \$ 150,000.00   |                  |
| 69       | Lift Station Ground Cover                                  | LS   | 1         | \$ 45,000.00    | \$ 45,000.00    | \$ 8,753,250.00  |
| 70       | Lift Station Afterbay Structure Walls & Footings           | CY   | 280       | \$ 1,200.00     | \$ 336,000.00   |                  |
| 71       | Lift Station Afterbay Earthwork                            | CY   | 3800      | \$ 25.00        | \$ 95,000.00    |                  |
| 72       | Lift Station Afterbay Miscellaneous Steel                  | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 73       | I-5 Fwy Crossing Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 74       | I-5 Fwy Crossing Siphon Pipes                              | LF   | 400       | \$ 6,000.00     | \$ 2,400,000.00 |                  |
| 75       | I-5 Fwy Crossing Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 76       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 77       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 78       | Farm Rd Crossing Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 79       | Farm Rd Crossing Siphon Pipes                              | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 80       | Farm Rd Crossing Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 81       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 82       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 83       | Stockdale Hwy Crossing Forebay Structure Walls & Footings  | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 84       | Stockdale Hwy Crossing Siphon Pipes                        | LF   | 150       | \$ 6,000.00     | \$ 900,000.00   |                  |
| 85       | Stockdale Hwy Crossing Afterbay Structure Walls & Footings | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 86       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 87       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 88       | Farm Rd Crossing Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 89       | Farm Rd Crossing Siphon Pipes                              | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 90       | Farm Rd Crossing Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 91       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 92       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    | \$ 7,346,000.00  |



|     |  |    |        |    |              |    |              |    |              |
|-----|--|----|--------|----|--------------|----|--------------|----|--------------|
| 93  | Lift Station Excavation  | CY | 11000  | \$ | 10.00        | \$ | 110,000.00   |    |              |
| 94  | Lift Station Reinforced Concrete Structure - Floor               | CY | 320    | \$ | 800.00       | \$ | 256,000.00   |    |              |
| 95  | Lift Station Reinforced Concrete Structure - Walls               | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00   |    |              |
| 96  | Lift Station Reinforced Concrete Structure - Deck                | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00   |    |              |
| 97  | Lift Station Pumps - 30 cfs                                      | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00   |    |              |
| 98  | Lift Station Pumps - 60 cfs                                      | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00   |    |              |
| 99  | Lift Station Pumps - 80 cfs                                      | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00   |    |              |
| 100 | Lift Station Motors - 100 hp                                     | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |    |              |
| 101 | Lift Station Motors - 200 hp                                     | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |    |              |
| 102 | Lift Station Motors - 300 hp                                     | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00   |    |              |
| 103 | Lift Station 36" Discharge Piping & Appurtenances                | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00   |    |              |
| 104 | Lift Station 48" Discharge Piping & Appurtenances                | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00   |    |              |
| 105 | Lift Station 54" Discharge Piping & Appurtenances                | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00 |    |              |
| 106 | Lift Station 100 hp VFD's  | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |    |              |
| 107 | Lift Station 200 hp VFD's  | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |    |              |
| 108 | Lift Station 300 hp VFD's  | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00   |    |              |
| 109 | Lift Station Electrical, Controls, & Lighting                    | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00   |    |              |
| 110 | Lift Station Electrical Control Building                         | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00   |    |              |
| 111 | Lift Station Backfill & Compaction                               | CY | 6000   | \$ | 10.00        | \$ | 60,000.00    |    |              |
| 112 | Lift Station Slide Gates   | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00    |    |              |
| 113 | Lift Station Trashracks  | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00   |    |              |
| 114 | Lift Station Miscellaneous Steel                                 | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |    |              |
| 115 | Lift Station Cathodic Protection                                 | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |    |              |
| 116 | Lift Station Site Fencing  | LF | 850    | \$ | 45.00        | \$ | 38,250.00    |    |              |
| 117 | Lift Station Bypass Pipeline                                     | LF | 200    | \$ | 750.00       | \$ | 150,000.00   |    |              |
| 118 | Lift Station Ground Cover  | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00    | \$ | 8,753,250.00 |
| 119 | Afterbay Structure Walls & Footings                              | CY | 280    | \$ | 1,200.00     | \$ | 336,000.00   |    |              |
| 120 | Afterbay Earthwork   | CY | 3800   | \$ | 25.00        | \$ | 95,000.00    |    |              |
| 121 | Afterbay Miscellaneous Steel                                     | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ | 456,000.00   |
| 122 | West Basins Turnout Structure Excavation                         | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |    |              |
| 123 | West Basins Turnout Reinforced Concrete Structure - Floor        | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |    |              |
| 124 | West Basins Turnout Reinforced Concrete Structure - Walls        | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |    |              |
| 125 | West Basins Turnout Reinforced Concrete Structure - Deck         | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |    |              |
| 126 | West Basins Structure Backfill & Compaction                      | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |    |              |
| 127 | West Basins Turnout Trashrack                                    | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |    |              |
| 128 | West Basins Turnout Miscellaneous Steel                          | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |    |              |
| 129 | West Basins Metering   | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |    |              |
| 130 | West Basins Piping   | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |    |              |
| 131 | West Basins Turnout Slide Gate                                   | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |    |              |
| 132 | West Basins Turnout Electrical                                   | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |    |              |
| 133 | West Basins Outlet Structure - Floor                             | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |    |              |
| 134 | West Basins Outlet Structure - Walls                             | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |    |              |
| 135 | West Basins Outlet Structure Rip-Rap                             | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ | 1,348,000.00 |
| 136 | Phase II 640 Acres Turnout Structure Excavation                  | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |    |              |
| 137 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Floor | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |    |              |
| 138 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Walls | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |    |              |
| 139 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Deck  | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |    |              |
| 140 | Phase II 640 Acres Structure Backfill & Compaction               | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |    |              |
| 141 | Phase II 640 Acres Turnout Trashrack                             | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |    |              |
| 142 | Phase II 640 Acres Turnout Miscellaneous Steel                   | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |    |              |
| 143 | Phase II 640 Acres Metering                                      | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |    |              |
| 144 | Phase II 640 Acres Piping  | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |    |              |
| 145 | Phase II 640 Acres Turnout Slide Gate                            | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |    |              |
| 146 | Phase II 640 Acres Turnout Electrical                            | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |    |              |
| 147 | Phase II 640 Acres Outlet Structure - Floor                      | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |    |              |
| 148 | Phase II 640 Acres Outlet Structure - Walls                      | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |    |              |
| 149 | Phase II 640 Acres Outlet Structure Rip-Rap                      | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ | 1,348,000.00 |
| 150 | Phase I 640 Acres Clearing & Grubbing                            | AC | 320    | \$ | 1,200.00     | \$ | 384,000.00   |    |              |
| 151 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction        | CY | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |    |              |
| 152 | Phase I 640 Acres Levee Keyway                                   | CY | 50000  | \$ | 4.70         | \$ | 235,000.00   |    |              |
| 153 | Phase I 640 Acres Levee Embankment Fill                          | CY | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |    |              |
| 154 | Phase I 640 Acres Structure Headwalls                            | EA | 15     | \$ | 30,000.00    | \$ | 450,000.00   |    |              |
| 155 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards    | EA | 15     | \$ | 10,000.00    | \$ | 150,000.00   |    |              |
| 156 | Phase I 640 Acres Interbasin Structure Piping                    | LS | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |    |              |
| 157 | Phase I 640 Acres Interbasin Structure Rip-Rap                   | EA | 15     | \$ | 35,000.00    | \$ | 525,000.00   |    |              |
| 158 | Phase I 640 Acres Interbasin Structure Cutoff Walls              | EA | 15     | \$ | 25,000.00    | \$ | 375,000.00   |    |              |
| 159 | Phase I 640 Acres Site Fencing and Gates                         | LF | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ | 5,429,400.00 |
| 160 | Goose Lake Slough Turnout Structure Excavation                   | CY | 1100   | \$ | 30.00        | \$ | 33,000.00    |    |              |
| 161 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor  | CY | 90     | \$ | 800.00       | \$ | 72,000.00    |    |              |
| 162 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls  | CY | 90     | \$ | 1,200.00     | \$ | 108,000.00   |    |              |
| 163 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck   | CY | 50     | \$ | 2,000.00     | \$ | 100,000.00   |    |              |
| 164 | Goose Lake Slough Turnout Backfill & Compaction                  | LS | 500    | \$ | 30.00        | \$ | 15,000.00    |    |              |
| 165 | Goose Lake Slough Turnout Trashracks                             | LS | 1      | \$ | 80,000.00    | \$ | 80,000.00    |    |              |
| 166 | Goose Lake Slough Turnout Miscellaneous Steel                    | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |    |              |
| 167 | Goose Lake Slough Lift Station Pumps - 60 cfs                    | EA | 4      | \$ | 180,000.00   | \$ | 720,000.00   |    |              |
| 168 | Goose Lake Slough Lift Station Motors - 200 hp                   | EA | 4      | \$ | 60,000.00    | \$ | 240,000.00   |    |              |
| 169 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances  | LS | 1      | \$ | 240,000.00   | \$ | 240,000.00   |    |              |
| 170 | Goose Lake Slough Metering                                       | EA | 1      | \$ | 90,000.00    | \$ | 90,000.00    |    |              |
| 171 | Goose Lake Slough Turnout Slide Gate                             | EA | 1      | \$ | 37,500.00    | \$ | 37,500.00    |    |              |
| 172 | Goose Lake Slough Turnout Electrical                             | LS | 1      | \$ | 350,000.00   | \$ | 350,000.00   |    |              |
| 173 | Goose Lake Slough Electrical Shade Structure & Foundation        | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |    |              |
| 174 | Goose Lake Slough Pipe Outlet                                    | LF | 200    | \$ | 1,750.00     | \$ | 350,000.00   |    |              |
| 175 | Goose Lake Slough Turnout Outlet Structure                       | LS | 1      | \$ | 180,000.00   | \$ | 180,000.00   |    |              |
| 176 | Goose Lake Slough Outlet Rip-Rap                                 | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |    |              |
| 177 | Goose Lake Slough Check Structure - Earthwork                    | CY | 1      | \$ | 35,000.00    | \$ | 35,000.00    |    |              |
| 178 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor  | CY | 75     | \$ | 2,000.00     | \$ | 150,000.00   |    |              |
| 179 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls  | CY | 21     | \$ | 1,200.00     | \$ | 25,200.00    |    |              |
| 180 | Goose Lake Slough Check Structure - Miscellaneous Steel          | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |    |              |
| 181 | Goose Lake Slough Check Structure - Rip-Rap                      | LS | 1      | \$ | 75,000.00    | \$ | 75,000.00    |    |              |
| 182 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards   | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ | 3,125,700.00 |

|     |  |     |        |    |              |    |    |              |
|-----|--|-----|--------|----|--------------|----|----|--------------|
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    | \$ | 7,052,844.00 |
| 183 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ |    | 25,000.00    |
| 184 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 185 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 186 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ |    | 31,000.00    |
| 187 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ |    | 101,200.00   |
| 188 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ |    | 47,300.00    |
| 189 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ |    | 15,000.00    |
| 190 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ |    | 75,000.00    |
| 191 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ |    | 105,000.00   |
| 192 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ |    | 30,800.00    |
| 193 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ |    | 72,600.00    |
| 194 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ |    | 5,500.00     |
| 195 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ |    | 5,500.00     |
| 196 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ |    | 93,280.00    |
| 197 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 198 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screer | LF  | 510    | \$ | 320.00       | \$ |    | 163,200.00   |
| 199 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ |    | 29,992.00    |
| 200 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ |    | 12,122.00    |
| 201 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ |    | 150,750.00   |
| 202 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ |    | 51,000.00    |
| 203 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ |    | 29,700.00    |
| 204 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ |    | 6,630.00     |
| 205 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ |    | 4,400.00     |
| 206 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ |    | 25,000.00    |
| 207 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ |    | 30,000.00    |
| 208 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ |    | 4,000.00     |
| 209 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ |    | 14,000.00    |
| 210 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 211 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ |    | 2,500.00     |
| 212 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 213 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    | \$ | 6,822,000.00 |
| 214 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ |    | 60,000.00    |
| 215 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ |    | 15,000.00    |
| 216 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ |    | 20,000.00    |
| 217 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ |    | 17,000.00    |
| 218 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ |    | 70,000.00    |
| 219 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ |    | 45,000.00    |
| 220 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ |    | 255,000.00   |
| 221 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ |    | 20,000.00    |
| 222 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ |    | 325,000.00   |
| 223 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ |    | 70,000.00    |
| 224 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 225 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ |    | 20,000.00    |
| 226 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 227 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ |    | 200,000.00   |
| 228 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ |    | 621,000.00   |
| 229 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ |    | 288,000.00   |
| 230 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ |    | 969,500.00   |
| 231 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ |    | 550,000.00   |
|     |  |     |        |    |              |    | \$ | 2,428,500.00 |
| 232 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ |    | 10,500.00    |
| 233 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ |    | 11,200.00    |
| 234 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ |    | 21,600.00    |
| 235 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ |    | 7,500.00     |
| 236 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 237 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ |    | 50,000.00    |
| 238 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ |    | 15,000.00    |
| 239 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 240 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ |    | 35,000.00    |
|     |  |     |        |    |              |    | \$ | 165,800.00   |
| 241 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ |    | 384,000.00   |
| 242 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ |    | 1,081,000.00 |
| 243 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ |    | 235,000.00   |
| 244 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ |    | 1,071,000.00 |
| 245 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ |    | 450,000.00   |
| 246 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ |    | 150,000.00   |
| 247 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ |    | 1,000,000.00 |
| 248 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ |    | 525,000.00   |
| 249 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ |    | 375,000.00   |
| 250 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ |    | 158,400.00   |
|     |  |     |        |    |              |    | \$ | 5,429,400.00 |
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6      | \$ | 1,175,474.00 |    | \$ | 7,052,844.00 |
| 251 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ |    | 25,000.00    |
| 252 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 253 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 254 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ |    | 31,000.00    |
| 255 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ |    | 101,200.00   |
| 256 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ |    | 47,300.00    |
| 257 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ |    | 15,000.00    |
| 258 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ |    | 75,000.00    |
| 259 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ |    | 105,000.00   |
| 260 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ |    | 30,800.00    |
| 261 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ |    | 72,600.00    |
| 262 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ |    | 5,500.00     |
| 263 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ |    | 5,500.00     |
| 264 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ |    | 93,280.00    |
| 265 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 266 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screer | LF  | 510    | \$ | 320.00       | \$ |    | 163,200.00   |
| 267 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ |    | 29,992.00    |
| 268 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ |    | 12,122.00    |
| 269 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ |    | 150,750.00   |
| 270 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ |    | 51,000.00    |
| 271 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ |    | 29,700.00    |
| 272 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ |    | 6,630.00     |
| 273 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ |    | 4,400.00     |
| 274 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ |    | 25,000.00    |
| 275 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ |    | 30,000.00    |
| 276 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ |    | 4,000.00     |
| 277 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ |    | 14,000.00    |
| 278 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 279 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ |    | 2,500.00     |
| 280 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 281 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |

|     |  |    |      |    |              |    |                       |                 |
|-----|--|----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Equipping and Site Development               | EA | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 282 | Mobilization, Demobilization, & Cleanup                              | LS | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 283 | Water Supply   | LS | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 284 | Environmental Mitigation   | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 285 | Construct site work  | LS | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 286 | Furnish and install concrete foundations                             | LS | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 287 | Furnish and install yard piping, mechanical piping and appurtenances | LS | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 288 | Furnish and install vertical turbine well pumps, pump base, etc.     | LS | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 289 | Furnish and install well enclosures and appurtenances                | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 290 | Furnish and install electrical facilities and instrumentation        | LS | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 291 | Furnish and install pre-fabricated metal canopy                      | LS | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 292 | Furnish and install site ground cover                                | LS | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 293 | Furnish and install site fencing                                     | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 294 | Furnish and install site painting                                    | LS | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 295 | Furnish and install VFD's  | LS | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 296 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC             | LF | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 297 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC             | LF | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 298 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC             | LF | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 299 | Phase II 640 Acres Canal Turn-in Facilities                          | LF | 2    | \$ | 50,000.00    | \$ | 100,000.00            | \$ 1,516,500.00 |
| 300 | SCADA Communication & Appurtenances                                  | LS | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |    |      |    |              | \$ | 101,451,136.00        |                 |
|     | 20% Construction Contingency:  |    |      |    |              | \$ | 20,290,227.20         |                 |
|     | Unlisted Items:  |    |      |    |              | \$ | 2,029,022.72          |                 |
|     | Property Acquisition - 640 acres                                     | AC | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres                                     | AC | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC | 30   | \$ | 25,000.00    | \$ | 750,000.00            |                 |
|     | Habitat Credit Purchase  | AC | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |    |      |    |              | \$ | 161,095,385.92        |                 |
|     | Non-Contract Costs:  |    |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>                                      |    |      |    |              | \$ | <b>187,455,385.92</b> |                 |

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## KWB Canal Alignment - HDPE Lined (Item #2)

| Item No. | Item Description   | Unit | Quantity  | Unit Cost       | Extended Cost   | Phase            |
|----------|--|------|-----------|-----------------|-----------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup                    | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00 | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                            | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 3        | Aqueduct Turnout Excavation                                | CY   | 2450      | \$ 30.00        | \$ 73,500.00    |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor             | CY   | 45        | \$ 800.00       | \$ 36,000.00    |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls             | CY   | 100       | \$ 1,200.00     | \$ 120,000.00   |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam         | CY   | 5         | \$ 2,000.00     | \$ 10,000.00    |                  |
| 7        | Aqueduct Backfill and Compaction                           | CY   | 1850      | \$ 30.00        | \$ 55,500.00    |                  |
| 8        | Aqueduct Miscellaneous Steel                               | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 9        | Aqueduct Trashrack   | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 10       | Aqueduct Turnout Piping                                    | LF   | 1800      | \$ 4,000.00     | \$ 7,200,000.00 |                  |
| 11       | Aqueduct Metering  | EA   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 12       | Aqueduct Meter Vault                                       | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 13       | Aqueduct Slide Gate & Actuator                             | EA   | 1         | \$ 75,000.00    | \$ 75,000.00    |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting                  | LS   | 1         | \$ 150,000.00   | \$ 150,000.00   |                  |
| 15       | Aqueduct Liner Repair                                      | LS   | 1         | \$ 20,000.00    | \$ 20,000.00    |                  |
| 16       | Levee Road Pavement Restoration                            | SF   | 1600      | \$ 7.00         | \$ 11,200.00    | \$ 8,551,200.00  |
| 17       | Canal Clearing & Grubbing                                  | AC   | 130       | \$ 1,200.00     | \$ 156,000.00   |                  |
| 18       | Canal Earthwork-Cut  | CY   | 500,000   | \$ 4.50         | \$ 2,250,000.00 |                  |
| 19       | Canal Earthwork-Fill                                       | CY   | 310,000   | \$ 4.50         | \$ 1,395,000.00 |                  |
| 20       | Levee Subgrade Preparation                                 | CY   | 180,000   | \$ 4.60         | \$ 828,000.00   |                  |
| 21       | HDPE Canal Lining  | SF   | 2,126,784 | \$ 1.00         | \$ 2,126,784.00 |                  |
| 22       | HDPE Liner Anchor Trench                                   | LF   | 80,500    | \$ 10.00        | \$ 805,000.00   |                  |
| 23       | Canal Drain System   | LS   | 1         | \$ 1,950,000.00 | \$ 1,950,000.00 |                  |
| 24       | Canal Appurtenances  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 25       | Canal Fencing  | LF   | 90,000    | \$ 7.50         | \$ 675,000.00   |                  |
| 26       | Levee Road Aggregate Base Ground Cover                     | LS   | 1         | \$ 655,000.00   | \$ 655,000.00   |                  |
| 27       | Ex. Facility Relocations                                   | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   | \$ 11,590,784.00 |
| 28       | Aqueduct Turnout Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 29       | Turnout Afterbay Earthwork                                 | CY   | 3800      | \$ 30.00        | \$ 114,000.00   |                  |
| 30       | Turnout Afterbay Miscellaneous Steel                       | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 31       | Main Canal Forebay Structure Walls & Footings              | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 32       | Main Canal Siphon Pipes                                    | LF   | 300       | \$ 2,500.00     | \$ 750,000.00   |                  |
| 33       | Main Canal Afterbay Structure Walls & Footings             | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 34       | Siphon Crossing Earthwork                                  | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 35       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 36       | WKWD Pipeline Forebay Structure Walls & Footings           | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 37       | WKWD Pipeline Siphon Pipes                                 | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 38       | WKWD Pipeline Afterbay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 39       | Siphon Crossing Earthwork                                  | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 40       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 41       | Levee Side Canal Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 42       | Levee Side Canal Siphon Pipes                              | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 43       | Levee Side Canal Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 44       | Siphon Crossing Earthwork                                  | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 45       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    | \$ 4,009,000.00  |
| 46       | Lift Station Excavation                                    | CY   | 11000     | \$ 10.00        | \$ 110,000.00   |                  |
| 47       | Lift Station Reinforced Concrete Structure - Floor         | CY   | 320       | \$ 800.00       | \$ 256,000.00   |                  |
| 48       | Lift Station Reinforced Concrete Structure - Walls         | CY   | 520       | \$ 1,200.00     | \$ 624,000.00   |                  |
| 49       | Lift Station Reinforced Concrete Structure - Deck          | CY   | 120       | \$ 2,000.00     | \$ 240,000.00   |                  |
| 50       | Lift Station Pumps - 30 cfs                                | EA   | 2         | \$ 130,000.00   | \$ 260,000.00   |                  |
| 51       | Lift Station Pumps - 60 cfs                                | EA   | 2         | \$ 180,000.00   | \$ 360,000.00   |                  |
| 52       | Lift Station Pumps - 80 cfs                                | EA   | 4         | \$ 195,000.00   | \$ 780,000.00   |                  |
| 53       | Lift Station Motors - 100 hp                               | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 54       | Lift Station Motors - 200 hp                               | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 55       | Lift Station Motors - 300 hp                               | EA   | 4         | \$ 90,000.00    | \$ 360,000.00   |                  |
| 56       | Lift Station 36" Discharge Piping & Appurtenances          | LS   | 2         | \$ 300,000.00   | \$ 600,000.00   |                  |
| 57       | Lift Station 48" Discharge Piping & Appurtenances          | LS   | 2         | \$ 425,000.00   | \$ 850,000.00   |                  |
| 58       | Lift Station 54" Discharge Piping & Appurtenances          | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00 |                  |
| 59       | Lift Station 100 hp VFD's                                  | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 60       | Lift Station 200 hp VFD's                                  | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 61       | Lift Station 300 hp VFD's                                  | EA   | 4         | \$ 80,000.00    | \$ 320,000.00   |                  |
| 62       | Lift Station Electrical, Controls, & Lighting              | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   |                  |
| 63       | Lift Station Electrical Control Building                   | LS   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 64       | Lift Station Backfill & Compaction                         | CY   | 6000      | \$ 10.00        | \$ 60,000.00    |                  |
| 65       | Lift Station Slide Gates                                   | EA   | 1         | \$ 55,000.00    | \$ 55,000.00    |                  |
| 66       | Lift Station Trashracks                                    | LS   | 8         | \$ 25,000.00    | \$ 200,000.00   |                  |
| 67       | Lift Station Miscellaneous Steel                           | LS   | 1         | \$ 120,000.00   | \$ 120,000.00   |                  |
| 68       | Lift Station Cathodic Protection                           | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 69       | Lift Station Site Fencing                                  | LF   | 850       | \$ 45.00        | \$ 38,250.00    |                  |
| 70       | Lift Station Bypass Pipeline                               | LF   | 200       | \$ 750.00       | \$ 150,000.00   |                  |
| 71       | Lift Station Ground Cover                                  | LS   | 1         | \$ 45,000.00    | \$ 45,000.00    | \$ 8,753,250.00  |
| 72       | Lift Station Afterbay Structure Walls & Footings           | CY   | 280       | \$ 1,200.00     | \$ 336,000.00   |                  |
| 73       | Lift Station Afterbay Earthwork                            | CY   | 3800      | \$ 25.00        | \$ 95,000.00    |                  |
| 74       | Lift Station Afterbay Miscellaneous Steel                  | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 75       | I-5 Fwy Crossing Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 76       | I-5 Fwy Crossing Siphon Pipes                              | LF   | 400       | \$ 6,000.00     | \$ 2,400,000.00 |                  |
| 77       | I-5 Fwy Crossing Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 78       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 79       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 80       | Farm Rd Crossing Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 81       | Farm Rd Crossing Siphon Pipes                              | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 82       | Farm Rd Crossing Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 83       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 84       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 85       | Stockdale Hwy Crossing Forebay Structure Walls & Footings  | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 86       | Stockdale Hwy Crossing Siphon Pipes                        | LF   | 150       | \$ 6,000.00     | \$ 900,000.00   |                  |
| 87       | Stockdale Hwy Crossing Afterbay Structure Walls & Footings | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 88       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 89       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 90       | Farm Rd Crossing Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 91       | Farm Rd Crossing Siphon Pipes                              | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 92       | Farm Rd Crossing Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 93       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 94       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    | \$ 7,346,000.00  |

|     |  |    |        |    |              |    |              |                 |
|-----|--|----|--------|----|--------------|----|--------------|-----------------|
| 95  | Lift Station Excavation  | CY | 11000  | \$ | 10.00        | \$ | 110,000.00   |                 |
| 96  | Lift Station Reinforced Concrete Structure - Floor               | CY | 320    | \$ | 800.00       | \$ | 256,000.00   |                 |
| 97  | Lift Station Reinforced Concrete Structure - Walls               | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00   |                 |
| 98  | Lift Station Reinforced Concrete Structure - Deck                | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00   |                 |
| 99  | Lift Station Pumps - 30 cfs                                      | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00   |                 |
| 100 | Lift Station Pumps - 60 cfs                                      | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00   |                 |
| 101 | Lift Station Pumps - 80 cfs                                      | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00   |                 |
| 102 | Lift Station Motors - 100 hp                                     | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 103 | Lift Station Motors - 200 hp                                     | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 104 | Lift Station Motors - 300 hp                                     | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00   |                 |
| 105 | Lift Station 36" Discharge Piping & Appurtenances                | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00   |                 |
| 106 | Lift Station 48" Discharge Piping & Appurtenances                | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00   |                 |
| 107 | Lift Station 54" Discharge Piping & Appurtenances                | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00 |                 |
| 108 | Lift Station 100 hp VFD's  | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 109 | Lift Station 200 hp VFD's  | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 110 | Lift Station 300 hp VFD's  | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00   |                 |
| 111 | Lift Station Electrical, Controls, & Lighting                    | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00   |                 |
| 112 | Lift Station Electrical Control Building                         | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 113 | Lift Station Backfill & Compaction                               | CY | 6000   | \$ | 10.00        | \$ | 60,000.00    |                 |
| 114 | Lift Station Slide Gates   | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00    |                 |
| 115 | Lift Station Trashracks  | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00   |                 |
| 116 | Lift Station Miscellaneous Steel                                 | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 117 | Lift Station Cathodic Protection                                 | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 118 | Lift Station Site Fencing  | LF | 850    | \$ | 45.00        | \$ | 38,250.00    |                 |
| 119 | Lift Station Bypass Pipeline                                     | LF | 200    | \$ | 750.00       | \$ | 150,000.00   |                 |
| 120 | Lift Station Ground Cover  | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00    | \$ 8,753,250.00 |
| 121 | Afterbay Structure Walls & Footings                              | CY | 280    | \$ | 1,200.00     | \$ | 336,000.00   |                 |
| 122 | Afterbay Earthwork   | CY | 3800   | \$ | 25.00        | \$ | 95,000.00    |                 |
| 123 | Afterbay Miscellaneous Steel                                     | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 456,000.00   |
| 124 | West Basins Turnout Structure Excavation                         | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 125 | West Basins Turnout Reinforced Concrete Structure - Floor        | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 126 | West Basins Turnout Reinforced Concrete Structure - Walls        | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 127 | West Basins Turnout Reinforced Concrete Structure - Deck         | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 128 | West Basins Structure Backfill & Compaction                      | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 129 | West Basins Turnout Trashrack                                    | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 130 | West Basins Turnout Miscellaneous Steel                          | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 131 | West Basins Metering   | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 132 | West Basins Piping   | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 133 | West Basins Turnout Slide Gate                                   | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 134 | West Basins Turnout Electrical                                   | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 135 | West Basins Outlet Structure - Floor                             | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 136 | West Basins Outlet Structure - Walls                             | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 137 | West Basins Outlet Structure Rip-Rap                             | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 138 | Phase II 640 Acres Turnout Structure Excavation                  | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 139 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Floor | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 140 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Walls | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 141 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Deck  | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 142 | Phase II 640 Acres Structure Backfill & Compaction               | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 143 | Phase II 640 Acres Turnout Trashrack                             | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 144 | Phase II 640 Acres Turnout Miscellaneous Steel                   | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 145 | Phase II 640 Acres Metering                                      | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 146 | Phase II 640 Acres Piping  | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 147 | Phase II 640 Acres Turnout Slide Gate                            | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 148 | Phase II 640 Acres Turnout Electrical                            | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 149 | Phase II 640 Acres Outlet Structure - Floor                      | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 150 | Phase II 640 Acres Outlet Structure - Walls                      | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 151 | Phase II 640 Acres Outlet Structure Rip-Rap                      | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 152 | Phase I 640 Acres Clearing & Grubbing                            | AC | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 153 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction        | CY | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 154 | Phase I 640 Acres Levee Keyway                                   | CY | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 155 | Phase I 640 Acres Levee Embankment Fill                          | CY | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 156 | Phase I 640 Acres Structure Headwalls                            | EA | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 157 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards    | EA | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 158 | Phase I 640 Acres Interbasin Structure Piping                    | LS | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 159 | Phase I 640 Acres Interbasin Structure Rip-Rap                   | EA | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 160 | Phase I 640 Acres Interbasin Structure Cutoff Walls              | EA | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 161 | Phase I 640 Acres Site Fencing and Gates                         | LF | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |
| 162 | Goose Lake Slough Turnout Structure Excavation                   | CY | 1100   | \$ | 30.00        | \$ | 33,000.00    |                 |
| 163 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor  | CY | 90     | \$ | 800.00       | \$ | 72,000.00    |                 |
| 164 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls  | CY | 90     | \$ | 1,200.00     | \$ | 108,000.00   |                 |
| 165 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck   | CY | 50     | \$ | 2,000.00     | \$ | 100,000.00   |                 |
| 166 | Goose Lake Slough Turnout Backfill & Compaction                  | LS | 500    | \$ | 30.00        | \$ | 15,000.00    |                 |
| 167 | Goose Lake Slough Turnout Trashracks                             | LS | 1      | \$ | 80,000.00    | \$ | 80,000.00    |                 |
| 168 | Goose Lake Slough Turnout Miscellaneous Steel                    | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 169 | Goose Lake Slough Lift Station Pumps - 60 cfs                    | EA | 4      | \$ | 180,000.00   | \$ | 720,000.00   |                 |
| 170 | Goose Lake Slough Lift Station Motors - 200 hp                   | EA | 4      | \$ | 60,000.00    | \$ | 240,000.00   |                 |
| 171 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances  | LS | 1      | \$ | 240,000.00   | \$ | 240,000.00   |                 |
| 172 | Goose Lake Slough Metering                                       | EA | 1      | \$ | 90,000.00    | \$ | 90,000.00    |                 |
| 173 | Goose Lake Slough Turnout Slide Gate                             | EA | 1      | \$ | 37,500.00    | \$ | 37,500.00    |                 |
| 174 | Goose Lake Slough Turnout Electrical                             | LS | 1      | \$ | 350,000.00   | \$ | 350,000.00   |                 |
| 175 | Goose Lake Slough Electrical Shade Structure & Foundation        | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 176 | Goose Lake Slough Pipe Outlet                                    | LF | 200    | \$ | 1,750.00     | \$ | 350,000.00   |                 |
| 177 | Goose Lake Slough Turnout Outlet Structure                       | LS | 1      | \$ | 180,000.00   | \$ | 180,000.00   |                 |
| 178 | Goose Lake Slough Outlet Rip-Rap                                 | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 179 | Goose Lake Slough Check Structure - Earthwork                    | CY | 1      | \$ | 35,000.00    | \$ | 35,000.00    |                 |
| 180 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor  | CY | 75     | \$ | 2,000.00     | \$ | 150,000.00   |                 |
| 181 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls  | CY | 21     | \$ | 1,200.00     | \$ | 25,200.00    |                 |
| 182 | Goose Lake Slough Check Structure - Miscellaneous Steel          | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 183 | Goose Lake Slough Check Structure - Rip-Rap                      | LS | 1      | \$ | 75,000.00    | \$ | 75,000.00    |                 |
| 184 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards   | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 3,125,700.00 |



|     |  |     |        |    |              |    |              |              |              |
|-----|--|-----|--------|----|--------------|----|--------------|--------------|--------------|
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    | \$           | 7,052,844.00 |              |
| 185 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |              |              |
| 186 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 187 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 188 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |              |              |
| 189 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |              |              |
| 190 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |              |              |
| 191 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |              |              |
| 192 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |              |              |
| 193 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |              |              |
| 194 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |              |              |
| 195 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |              |              |
| 196 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |              |              |
| 197 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |              |              |
| 198 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |              |              |
| 199 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 200 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |              |              |
| 201 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |              |              |
| 202 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |              |              |
| 203 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |              |              |
| 204 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |              |              |
| 205 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |              |              |
| 206 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |              |              |
| 207 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |              |              |
| 208 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |              |              |
| 209 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |              |              |
| 210 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |              |              |
| 211 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |              |              |
| 212 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 213 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |              |              |
| 214 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 215 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    | \$           | 6,822,000.00 |              |
| 216 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |              |              |
| 217 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |              |              |
| 218 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |              |              |
| 219 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |              |              |
| 220 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |              |              |
| 221 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |              |              |
| 222 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |              |              |
| 223 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |              |              |
| 224 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |              |              |
| 225 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |              |              |
| 226 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 227 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |              |              |
| 228 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 229 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |              |              |
| 230 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |              |              |
| 231 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |              |              |
| 232 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |              |              |
| 233 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$           | 2,428,500.00 |
| 234 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |              |              |
| 235 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |              |              |
| 236 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |              |              |
| 237 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |              |              |
| 238 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 239 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |              |              |
| 240 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |              |              |
| 241 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 242 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$           | 165,800.00   |
| 243 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |              |              |
| 244 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |              |              |
| 245 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |              |              |
| 246 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |              |              |
| 247 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |              |              |
| 248 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |              |              |
| 249 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |              |              |
| 250 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |              |              |
| 251 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |              |              |
| 252 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$           | 5,429,400.00 |
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6      | \$ | 1,175,474.00 |    | \$           | 7,052,844.00 |              |
| 253 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |              |              |
| 254 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 255 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 256 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |              |              |
| 257 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |              |              |
| 258 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |              |              |
| 259 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |              |              |
| 260 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |              |              |
| 261 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |              |              |
| 262 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |              |              |
| 263 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |              |              |
| 264 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |              |              |
| 265 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |              |              |
| 266 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |              |              |
| 267 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 268 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |              |              |
| 269 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |              |              |
| 270 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |              |              |
| 271 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |              |              |
| 272 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |              |              |
| 273 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |              |              |
| 274 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |              |              |
| 275 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |              |              |
| 276 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |              |              |
| 277 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |              |              |
| 278 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |              |              |
| 279 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |              |              |
| 280 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 281 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |              |              |
| 282 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 283 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |

|     |  |    |      |    |              |    |                       |                 |
|-----|--|----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Equipping and Site Development               | EA | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 284 | Mobilization, Demobilization, & Cleanup                              | LS | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 285 | Water Supply   | LS | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 286 | Environmental Mitigation   | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 287 | Construct site work  | LS | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 288 | Furnish and install concrete foundations                             | LS | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 289 | Furnish and install yard piping, mechanical piping and appurtenances | LS | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 290 | Furnish and install vertical turbine well pumps, pump base, etc.     | LS | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 291 | Furnish and install well enclosures and appurtenances                | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 292 | Furnish and install electrical facilities and instrumentation        | LS | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 293 | Furnish and install pre-fabricated metal canopy                      | LS | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 294 | Furnish and install site ground cover                                | LS | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 295 | Furnish and install site fencing                                     | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 296 | Furnish and install site painting                                    | LS | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 297 | Furnish and install VFD's  | LS | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 298 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC             | LF | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 299 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC             | LF | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 300 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC             | LF | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 301 | Phase II 640 Acres Canal Turn-In Facilities                          | EA | 2    | \$ | 50,000.00    | \$ | 100,000.00            | \$ 1,516,500.00 |
| 302 | SCADA Communication & Appurtenances                                  | LS | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |    |      |    |              | \$ | 100,120,472.00        |                 |
|     | 20% Construction Contingency:  |    |      |    |              | \$ | 20,024,094.40         |                 |
|     | Unlisted Items:  |    |      |    |              | \$ | 2,002,409.44          |                 |
|     | Property Acquisition - 640 acres                                     | AC | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres                                     | AC | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC | 30   | \$ | 25,000.00    | \$ | 750,000.00            |                 |
|     | Habitat Credit Purchase  | AC | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |    |      |    |              | \$ | 159,471,975.84        |                 |
|     | Non-Contract Costs:  |    |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>                                      |    |      |    |              | \$ | <b>185,831,975.84</b> |                 |

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## KWB Canal Alignment - Concrete Lined (Item #3)

| Item No. | Item Description   | Unit | Quantity  | Unit Cost       | Extended Cost    | Section Subtotal |
|----------|--|------|-----------|-----------------|------------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup                    | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00  | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                            | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 3        | Aqueduct Turnout Excavation                                | CY   | 2450      | \$ 30.00        | \$ 73,500.00     |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor             | CY   | 45        | \$ 800.00       | \$ 36,000.00     |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls             | CY   | 100       | \$ 1,200.00     | \$ 120,000.00    |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam         | CY   | 5         | \$ 2,000.00     | \$ 10,000.00     |                  |
| 7        | Aqueduct Backfill and Compaction                           | CY   | 1850      | \$ 30.00        | \$ 55,500.00     |                  |
| 8        | Aqueduct Miscellaneous Steel                               | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 9        | Aqueduct Trashrack   | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 10       | Aqueduct Turnout Piping                                    | LF   | 1800      | \$ 4,000.00     | \$ 7,200,000.00  |                  |
| 11       | Aqueduct Metering  | EA   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 12       | Aqueduct Meter Vault                                       | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 13       | Aqueduct Slide Gate & Actuator                             | EA   | 1         | \$ 75,000.00    | \$ 75,000.00     |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting                  | LS   | 1         | \$ 150,000.00   | \$ 150,000.00    |                  |
| 15       | Aqueduct Liner Repair                                      | LS   | 1         | \$ 20,000.00    | \$ 20,000.00     |                  |
| 16       | Levee Road Pavement Restoration                            | SF   | 1600      | \$ 7.00         | \$ 11,200.00     | \$ 8,551,200.00  |
| 17       | Canal Clearing & Grubbing                                  | AC   | 130       | \$ 1,200.00     | \$ 156,000.00    |                  |
| 18       | Canal Earthwork-Cut  | CY   | 500,000   | \$ 4.50         | \$ 2,250,000.00  |                  |
| 19       | Canal Earthwork-Fill                                       | CY   | 310,000   | \$ 4.50         | \$ 1,395,000.00  |                  |
| 20       | Levee Subgrade Preparation                                 | CY   | 180,000   | \$ 4.60         | \$ 828,000.00    |                  |
| 21       | Concrete Canal Lining                                      | SF   | 2,126,784 | \$ 6.00         | \$ 12,760,704.00 |                  |
| 22       | Canal Drain System   | LS   | 1         | \$ 1,950,000.00 | \$ 1,950,000.00  |                  |
| 23       | Canal Appurtenances  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 24       | Canal Fencing  | LF   | 90,000    | \$ 7.50         | \$ 675,000.00    |                  |
| 25       | Levee Road Aggregate Base Ground Cover                     | LS   | 1         | \$ 655,000.00   | \$ 655,000.00    |                  |
| 26       | Ex. Facility Relocations                                   | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    | \$ 21,419,704.00 |
| 27       | Aqueduct Turnout Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 28       | Turnout Afterbay Earthwork                                 | CY   | 3800      | \$ 30.00        | \$ 114,000.00    |                  |
| 29       | Turnout Afterbay Miscellaneous Steel                       | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 30       | Main Canal Forebay Structure Walls & Footings              | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 31       | Main Canal Siphon Pipes                                    | LF   | 300       | \$ 2,500.00     | \$ 750,000.00    |                  |
| 32       | Main Canal Afterbay Structure Walls & Footings             | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 33       | Siphon Crossing Earthwork                                  | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 34       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 35       | WKWD Pipeline Forebay Structure Walls & Footings           | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 36       | WKWD Pipeline Siphon Pipes                                 | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 37       | WKWD Pipeline Afterbay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 38       | Siphon Crossing Earthwork                                  | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 39       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 40       | Levee Side Canal Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 41       | Levee Side Canal Siphon Pipes                              | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 42       | Levee Side Canal Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 43       | Siphon Crossing Earthwork                                  | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 44       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     | \$ 4,009,000.00  |
| 45       | Lift Station Excavation                                    | CY   | 11000     | \$ 10.00        | \$ 110,000.00    |                  |
| 46       | Lift Station Reinforced Concrete Structure - Floor         | CY   | 320       | \$ 800.00       | \$ 256,000.00    |                  |
| 47       | Lift Station Reinforced Concrete Structure - Walls         | CY   | 520       | \$ 1,200.00     | \$ 624,000.00    |                  |
| 48       | Lift Station Reinforced Concrete Structure - Deck          | CY   | 120       | \$ 2,000.00     | \$ 240,000.00    |                  |
| 49       | Lift Station Pumps - 30 cfs                                | EA   | 2         | \$ 130,000.00   | \$ 260,000.00    |                  |
| 50       | Lift Station Pumps - 60 cfs                                | EA   | 2         | \$ 180,000.00   | \$ 360,000.00    |                  |
| 51       | Lift Station Pumps - 80 cfs                                | EA   | 4         | \$ 195,000.00   | \$ 780,000.00    |                  |
| 52       | Lift Station Motors - 100 hp                               | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 53       | Lift Station Motors - 200 hp                               | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 54       | Lift Station Motors - 300 hp                               | EA   | 4         | \$ 90,000.00    | \$ 360,000.00    |                  |
| 55       | Lift Station 36" Discharge Piping & Appurtenances          | LS   | 2         | \$ 300,000.00   | \$ 600,000.00    |                  |
| 56       | Lift Station 48" Discharge Piping & Appurtenances          | LS   | 2         | \$ 425,000.00   | \$ 850,000.00    |                  |
| 57       | Lift Station 54" Discharge Piping & Appurtenances          | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00  |                  |
| 58       | Lift Station 100 hp VFD's                                  | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 59       | Lift Station 200 hp VFD's                                  | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 60       | Lift Station 300 hp VFD's                                  | EA   | 4         | \$ 80,000.00    | \$ 320,000.00    |                  |
| 61       | Lift Station Electrical, Controls, & Lighting              | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    |                  |
| 62       | Electrical Control Building                                | LS   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 63       | Lift Station Backfill & Compaction                         | CY   | 6000      | \$ 10.00        | \$ 60,000.00     |                  |
| 64       | Lift Station Slide Gates                                   | EA   | 1         | \$ 55,000.00    | \$ 55,000.00     |                  |
| 65       | Lift Station Trashracks                                    | LS   | 8         | \$ 25,000.00    | \$ 200,000.00    |                  |
| 66       | Lift Station Miscellaneous Steel                           | LS   | 1         | \$ 120,000.00   | \$ 120,000.00    |                  |
| 67       | Lift Station Cathodic Protection                           | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 68       | Lift Station Site Fencing                                  | LF   | 850       | \$ 45.00        | \$ 38,250.00     |                  |
| 69       | Lift Station Bypass Pipeline                               | LF   | 200       | \$ 750.00       | \$ 150,000.00    |                  |
| 70       | Lift Station Ground Cover                                  | LS   | 1         | \$ 45,000.00    | \$ 45,000.00     | \$ 8,753,250.00  |
| 71       | Lift Station Afterbay Structure Walls & Footings           | CY   | 280       | \$ 1,200.00     | \$ 336,000.00    |                  |
| 72       | Lift Station Afterbay Earthwork                            | CY   | 3800      | \$ 25.00        | \$ 95,000.00     |                  |
| 73       | Lift Station Afterbay Miscellaneous Steel                  | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 74       | I-5 Fwy Crossing Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 75       | I-5 Fwy Crossing Siphon Pipe                               | LF   | 400       | \$ 6,000.00     | \$ 2,400,000.00  |                  |
| 76       | I-5 Fwy Crossing Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 77       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 78       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 79       | Farm Road Crossing Forebay Structure Walls & Footings      | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 80       | Farm Road Crossing Siphon Pipes                            | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 81       | Farm Road Crossing Afterbay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 82       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 83       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 84       | Stockdale Hwy Crossing Forebay Structure Walls & Footings  | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 85       | Stockdale Hwy Crossing Siphon Pipes                        | LF   | 150       | \$ 6,000.00     | \$ 900,000.00    |                  |
| 86       | Stockdale Hwy Crossing Afterbay Structure Walls & Footings | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 87       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 88       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 89       | Farm Rd Crossing Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 90       | Farm Rd Crossing Siphon Pipes                              | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 91       | Farm Rd Crossing Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 92       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 93       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     | \$ 7,346,000.00  |

|     |  |    |        |    |              |    |              |                 |
|-----|--|----|--------|----|--------------|----|--------------|-----------------|
| 94  | Lift Station Excavation  | CY | 11000  | \$ | 10.00        | \$ | 110,000.00   |                 |
| 95  | Lift Station Reinforced Concrete Structure - Floor               | CY | 320    | \$ | 800.00       | \$ | 256,000.00   |                 |
| 96  | Lift Station Reinforced Concrete Structure - Walls               | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00   |                 |
| 97  | Lift Station Reinforced Concrete Structure - Deck                | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00   |                 |
| 98  | Lift Station Pumps - 30 cfs                                      | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00   |                 |
| 99  | Lift Station Pumps - 60 cfs                                      | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00   |                 |
| 100 | Lift Station Pumps - 80 cfs                                      | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00   |                 |
| 101 | Lift Station Motors - 100 hp                                     | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 102 | Lift Station Motors - 200 hp                                     | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 103 | Lift Station Motors - 300 hp                                     | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00   |                 |
| 104 | Lift Station 36" Discharge Piping & Appurtenances                | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00   |                 |
| 105 | Lift Station 48" Discharge Piping & Appurtenances                | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00   |                 |
| 106 | Lift Station 54" Discharge Piping & Appurtenances                | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00 |                 |
| 107 | Lift Station 100 hp VFD's  | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 108 | Lift Station 200 hp VFD's  | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 109 | Lift Station 300 hp VFD's  | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00   |                 |
| 110 | Lift Station Electrical, Controls, & Lighting                    | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00   |                 |
| 111 | Electrical Control Building                                      | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 112 | Lift Station Backfill & Compaction                               | CY | 6000   | \$ | 10.00        | \$ | 60,000.00    |                 |
| 113 | Lift Station Slide Gates   | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00    |                 |
| 114 | Lift Station Trashracks  | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00   |                 |
| 115 | Lift Station Miscellaneous Steel                                 | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 116 | Lift Station Cathodic Protection                                 | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 117 | Lift Station Site Fencing  | LF | 850    | \$ | 45.00        | \$ | 38,250.00    |                 |
| 118 | Lift Station Bypass Pipeline                                     | LF | 200    | \$ | 750.00       | \$ | 150,000.00   |                 |
| 119 | Lift Station Ground Cover  | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00    | \$ 8,753,250.00 |
| 120 | Afterbay Structure Walls & Footings                              | CY | 280    | \$ | 1,200.00     | \$ | 336,000.00   |                 |
| 121 | Afterbay Earthwork   | CY | 3800   | \$ | 25.00        | \$ | 95,000.00    |                 |
| 122 | Afterbay Miscellaneous Steel                                     | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 456,000.00   |
| 123 | West Basins Turnout Structure Excavation                         | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 124 | West Basins Turnout Reinforced Concrete Structure - Floor        | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 125 | West Basins Turnout Reinforced Concrete Structure - Walls        | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 126 | West Basins Turnout Reinforced Concrete Structure - Deck         | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 127 | West Basins Structure Backfill & Compaction                      | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 128 | West Basins Turnout Trashrack                                    | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 129 | West Basins Turnout Miscellaneous Steel                          | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 130 | West Basins Metering   | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 131 | West Basins Piping   | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 132 | West Basins Turnout Slide Gate                                   | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 133 | West Basins Turnout Electrical                                   | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 134 | West Basins Outlet Structure - Floor                             | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 135 | West Basins Outlet Structure - Walls                             | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 136 | West Basins Outlet Structure Rip-Rap                             | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 137 | Phase II 640 Acres Turnout Structure Excavation                  | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 138 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Floor | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 139 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Walls | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 140 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Deck  | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 141 | Phase II 640 Acres Structure Backfill & Compaction               | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 142 | Phase II 640 Acres Turnout Trashrack                             | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 143 | Phase II 640 Acres Turnout Miscellaneous Steel                   | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 144 | Phase II 640 Acres Metering                                      | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 145 | Phase II 640 Acres Piping  | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 146 | Phase II 640 Acres Turnout Slide Gate                            | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 147 | Phase II 640 Acres Turnout Electrical                            | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 148 | Phase II 640 Acres Outlet Structure - Floor                      | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 149 | Phase II 640 Acres Outlet Structure - Walls                      | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 150 | Phase II 640 Acres Outlet Structure Rip-Rap                      | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 151 | Phase I 640 Acres Clearing & Grubbing                            | AC | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 152 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction        | CY | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 153 | Phase I 640 Acres Levee Keyway                                   | CY | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 154 | Phase I 640 Acres Levee Embankment Fill                          | CY | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 155 | Phase I 640 Acres Structure Headwalls                            | EA | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 156 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards    | EA | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 157 | Phase I 640 Acres Interbasin Structure Piping                    | LS | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 158 | Phase I 640 Acres Interbasin Structure Rip-Rap                   | EA | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 159 | Phase I 640 Acres Interbasin Structure Cutoff Walls              | EA | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 160 | Phase I 640 Acres Site Fencing and Gates                         | LF | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |
| 161 | Goose Lake Slough Turnout Structure Excavation                   | CY | 1100   | \$ | 30.00        | \$ | 33,000.00    |                 |
| 162 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor  | CY | 90     | \$ | 800.00       | \$ | 72,000.00    |                 |
| 163 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls  | CY | 90     | \$ | 1,200.00     | \$ | 108,000.00   |                 |
| 164 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck   | CY | 50     | \$ | 2,000.00     | \$ | 100,000.00   |                 |
| 165 | Goose Lake Slough Turnout Backfill & Compaction                  | LS | 500    | \$ | 30.00        | \$ | 15,000.00    |                 |
| 166 | Goose Lake Slough Turnout Trashracks                             | LS | 1      | \$ | 80,000.00    | \$ | 80,000.00    |                 |
| 167 | Goose Lake Slough Turnout Miscellaneous Steel                    | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 168 | Goose Lake Slough Lift Station Pumps - 60 cfs                    | EA | 4      | \$ | 180,000.00   | \$ | 720,000.00   |                 |
| 169 | Goose Lake Slough Lift Station Motors - 200 hp                   | EA | 4      | \$ | 60,000.00    | \$ | 240,000.00   |                 |
| 170 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances  | LS | 1      | \$ | 240,000.00   | \$ | 240,000.00   |                 |
| 171 | Goose Lake Slough Metering                                       | EA | 1      | \$ | 90,000.00    | \$ | 90,000.00    |                 |
| 172 | Goose Lake Slough Turnout Slide Gate                             | EA | 1      | \$ | 37,500.00    | \$ | 37,500.00    |                 |
| 173 | Goose Lake Slough Turnout Electrical                             | LS | 1      | \$ | 350,000.00   | \$ | 350,000.00   |                 |
| 174 | Goose Lake Slough Electrical Shade Structure & Foundation        | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 175 | Goose Lake Slough Pipe Outlet                                    | LF | 200    | \$ | 1,750.00     | \$ | 350,000.00   |                 |
| 176 | Goose Lake Slough Turnout Outlet Structure                       | LS | 1      | \$ | 180,000.00   | \$ | 180,000.00   |                 |
| 177 | Goose Lake Slough Outlet Rip-Rap                                 | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 178 | Goose Lake Slough Check Structure - Earthwork                    | CY | 1      | \$ | 35,000.00    | \$ | 35,000.00    |                 |
| 179 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor  | CY | 75     | \$ | 2,000.00     | \$ | 150,000.00   |                 |
| 180 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls  | CY | 21     | \$ | 1,200.00     | \$ | 25,200.00    |                 |
| 181 | Goose Lake Slough Check Structure - Miscellaneous Steel          | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 182 | Goose Lake Slough Check Structure - Rip-Rap                      | LS | 1      | \$ | 75,000.00    | \$ | 75,000.00    |                 |
| 183 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards   | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 3,125,700.00 |

|     |  |     |        |    |              |    |              |              |              |
|-----|--|-----|--------|----|--------------|----|--------------|--------------|--------------|
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    | \$           | 7,052,844.00 |              |
| 184 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |              |              |
| 185 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 186 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 187 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |              |              |
| 188 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |              |              |
| 189 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |              |              |
| 190 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |              |              |
| 191 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |              |              |
| 192 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |              |              |
| 193 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |              |              |
| 194 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |              |              |
| 195 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |              |              |
| 196 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |              |              |
| 197 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |              |              |
| 198 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 199 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |              |              |
| 200 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |              |              |
| 201 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |              |              |
| 202 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |              |              |
| 203 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |              |              |
| 204 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |              |              |
| 205 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |              |              |
| 206 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |              |              |
| 207 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |              |              |
| 208 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |              |              |
| 209 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |              |              |
| 210 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |              |              |
| 211 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 212 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |              |              |
| 213 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 214 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    | \$           | 6,822,000.00 |              |
| 215 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |              |              |
| 216 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |              |              |
| 217 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |              |              |
| 218 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |              |              |
| 219 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |              |              |
| 220 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |              |              |
| 221 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |              |              |
| 222 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |              |              |
| 223 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |              |              |
| 224 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |              |              |
| 225 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 226 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |              |              |
| 227 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 228 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |              |              |
| 229 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |              |              |
| 230 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |              |              |
| 231 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |              |              |
| 232 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$           | 2,428,500.00 |
| 233 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |              |              |
| 234 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |              |              |
| 235 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |              |              |
| 236 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |              |              |
| 237 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 238 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |              |              |
| 239 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |              |              |
| 240 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 241 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$           | 165,800.00   |
| 242 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |              |              |
| 243 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |              |              |
| 244 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |              |              |
| 245 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |              |              |
| 246 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |              |              |
| 247 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | LS  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |              |              |
| 248 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |              |              |
| 249 | Phase II 640 Acres Interbasin Structure Rip-Rap  | LS  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |              |              |
| 250 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | LS  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |              |              |
| 251 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$           | 5,429,400.00 |
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6      | \$ | 1,175,474.00 |    | \$           | 7,052,844.00 |              |
| 252 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |              |              |
| 253 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 254 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 255 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |              |              |
| 256 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |              |              |
| 257 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |              |              |
| 258 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |              |              |
| 259 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |              |              |
| 260 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |              |              |
| 261 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |              |              |
| 262 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |              |              |
| 263 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |              |              |
| 264 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |              |              |
| 265 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |              |              |
| 266 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 267 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |              |              |
| 268 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |              |              |
| 269 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |              |              |
| 270 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |              |              |
| 271 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |              |              |
| 272 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |              |              |
| 273 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |              |              |
| 274 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |              |              |
| 275 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |              |              |
| 276 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |              |              |
| 277 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |              |              |
| 278 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |              |              |
| 279 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 280 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |              |              |
| 281 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 282 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |



|     |  |    |      |    |              |    |                       |                 |
|-----|--|----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Equipping and Site Development               | EA | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 283 | Mobilization, Demobilization, & Cleanup                              | LS | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 284 | Water Supply   | LS | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 285 | Environmental Mitigation   | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 286 | Construct site work  | LS | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 287 | Furnish and install concrete foundations                             | LS | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 288 | Furnish and install yard piping, mechanical piping and appurtenances | LS | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 289 | Furnish and install vertical turbine well pumps, pump base, etc.     | LS | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 290 | Furnish and install well enclosures and appurtenances                | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 291 | Furnish and install electrical facilities and instrumentation        | LS | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 292 | Furnish and install pre-fabricated metal canopy                      | LS | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 293 | Furnish and install site ground cover                                | LS | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 294 | Furnish and install site fencing                                     | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 295 | Furnish and install site painting                                    | LS | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 296 | Furnish and install VFD's  | LS | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 297 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC             | LF | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 298 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC             | LF | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 299 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC             | LF | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 300 | Phase II 640 Acres Canal Turn-In Facilities                          | EA | 2    | \$ | 50,000.00    | \$ | 100,000.00            | \$ 1,516,500.00 |
| 301 | SCADA Communication & Appurtenances                                  | LS | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |    |      |    |              | \$ | 109,949,392.00        |                 |
|     | 20% Construction Contingency:  |    |      |    |              | \$ | 21,989,878.40         |                 |
|     | Unlisted Items:  |    |      |    |              | \$ | 2,198,987.84          |                 |
|     | Property Acquisition - 640 acres                                     | AC | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres                                     | AC | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC | 30   | \$ | 25,000.00    | \$ | 750,000.00            |                 |
|     | Habitat Credit Purchase  | AC | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |    |      |    |              | \$ | 171,463,258.24        |                 |
|     | Non-Contract Costs:  |    |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>                                      |    |      |    |              | \$ | <b>197,823,258.24</b> |                 |

Irvine Ranch Water District

Feasibility Level Cost Estimate (Class 4)

KWB Canal Alignment - All Closed Conduit (Item #4)

| Item No. | Item Description  | Unit | Quantity | Unit Cost       | Extended Cost    | Phase            |
|----------|---|------|----------|-----------------|------------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup                         | LS   | 1        | \$ 1,820,000.00 | \$ 1,820,000.00  | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                                 | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 3        | Aqueduct Turnout Excavation                                     | CY   | 2450     | \$ 30.00        | \$ 73,500.00     |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor                  | CY   | 45       | \$ 800.00       | \$ 36,000.00     |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls                  | CY   | 100      | \$ 1,200.00     | \$ 120,000.00    |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam              | CY   | 5        | \$ 2,000.00     | \$ 10,000.00     |                  |
| 7        | Aqueduct Backfill and Compaction                                | CY   | 1850     | \$ 30.00        | \$ 55,500.00     |                  |
| 8        | Aqueduct Miscellaneous Steel                                    | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 9        | Aqueduct Trashrack  | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 10       | Aqueduct Turnout Piping   | LF   | 1800     | \$ 4,500.00     | \$ 8,100,000.00  |                  |
| 11       | Aqueduct Metering   | EA   | 1        | \$ 200,000.00   | \$ 200,000.00    |                  |
| 12       | Aqueduct Meter Vault  | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 13       | Aqueduct Slide Gate & Actuator                                  | EA   | 1        | \$ 75,000.00    | \$ 75,000.00     |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting                       | LS   | 1        | \$ 150,000.00   | \$ 150,000.00    |                  |
| 15       | Aqueduct Liner Repair   | LS   | 1        | \$ 20,000.00    | \$ 20,000.00     |                  |
| 16       | Levee Road Pavement Restoration                                 | SF   | 1600     | \$ 7.00         | \$ 11,200.00     | \$ 9,451,200.00  |
| 17       | RW Clearing & Grubbing  | AC   | 67       | \$ 1,200.00     | \$ 80,400.00     |                  |
| 18       | Conveyance Pipeline 12-ft Diameter Gravity                      | LF   | 20,600   | \$ 3,300.00     | \$ 67,980,000.00 |                  |
| 19       | Pipeline Appurtenances  | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 20       | Main Canal Crossing   | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 21       | Main Canal Cutoff Walls   | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     | \$ 68,860,400.00 |
| 22       | Lift Station Excavation   | CY   | 11000    | \$ 10.00        | \$ 110,000.00    |                  |
| 23       | Lift Station Reinforced Concrete Structure - Floor              | CY   | 320      | \$ 800.00       | \$ 256,000.00    |                  |
| 24       | Lift Station Reinforced Concrete Structure - Walls              | CY   | 520      | \$ 1,200.00     | \$ 624,000.00    |                  |
| 25       | Lift Station Reinforced Concrete Structure - Deck               | CY   | 120      | \$ 2,000.00     | \$ 240,000.00    |                  |
| 26       | Lift Station Pumps - 30 cfs                                     | EA   | 2        | \$ 130,000.00   | \$ 260,000.00    |                  |
| 27       | Lift Station Pumps - 60 cfs                                     | EA   | 2        | \$ 180,000.00   | \$ 360,000.00    |                  |
| 28       | Lift Station Pumps - 80 cfs                                     | EA   | 4        | \$ 195,000.00   | \$ 780,000.00    |                  |
| 29       | Lift Station Motors - 100 hp                                    | EA   | 2        | \$ 40,000.00    | \$ 80,000.00     |                  |
| 30       | Lift Station Motors - 200 hp                                    | EA   | 2        | \$ 60,000.00    | \$ 120,000.00    |                  |
| 31       | Lift Station Motors - 300 hp                                    | EA   | 4        | \$ 90,000.00    | \$ 360,000.00    |                  |
| 32       | Lift Station 36" Discharge Piping & Appurtenances               | LS   | 2        | \$ 300,000.00   | \$ 600,000.00    |                  |
| 33       | Lift Station 48" Discharge Piping & Appurtenances               | LS   | 2        | \$ 425,000.00   | \$ 850,000.00    |                  |
| 34       | Lift Station 54" Discharge Piping & Appurtenances               | LS   | 4        | \$ 550,000.00   | \$ 2,200,000.00  |                  |
| 35       | Lift Station 100 hp VFD's                                       | EA   | 2        | \$ 40,000.00    | \$ 80,000.00     |                  |
| 36       | Lift Station 200 hp VFD's                                       | EA   | 2        | \$ 60,000.00    | \$ 120,000.00    |                  |
| 37       | Lift Station 300 hp VFD's                                       | EA   | 4        | \$ 80,000.00    | \$ 320,000.00    |                  |
| 38       | Lift Station Electrical, Controls, & Lighting                   | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 39       | Lift Station Electrical Control Building                        | LS   | 1        | \$ 200,000.00   | \$ 200,000.00    |                  |
| 40       | Lift Station Backfill & Compaction                              | CY   | 6000     | \$ 10.00        | \$ 60,000.00     |                  |
| 41       | Lift Station Slide Gates  | EA   | 1        | \$ 55,000.00    | \$ 55,000.00     |                  |
| 42       | Lift Station Trashracks   | LS   | 8        | \$ 25,000.00    | \$ 200,000.00    |                  |
| 43       | Lift Station Miscellaneous Steel                                | LS   | 1        | \$ 120,000.00   | \$ 120,000.00    |                  |
| 44       | Lift Station Cathodic Protection                                | LS   | 1        | \$ 25,000.00    | \$ 25,000.00     |                  |
| 45       | Lift Station Site Fencing                                       | LF   | 850      | \$ 45.00        | \$ 38,250.00     |                  |
| 46       | Lift Station Bypass Pipeline                                    | LF   | 200      | \$ 750.00       | \$ 150,000.00    |                  |
| 47       | Lift Station Ground Cover                                       | LS   | 1        | \$ 45,000.00    | \$ 45,000.00     | \$ 8,753,250.00  |
| 48       | Lift Station Pipeline across I-5 Freeway                        | LF   | 400      | \$ 6,000.00     | \$ 2,400,000.00  | \$ 2,400,000.00  |
| 49       | R/W Clearing & Grubbing   | AC   | 65       | \$ 1,200.00     | \$ 78,000.00     |                  |
| 50       | Conveyance Pipeline 9-ft Diameter                               | LF   | 19600    | \$ 1,575.00     | \$ 30,870,000.00 |                  |
| 51       | Pipeline Appurtenances  | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 52       | Pioneer Canal Crossing  | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 53       | Pioneer Canal Cutoff Walls                                      | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 54       | Stockdale Hwy Cased Crossing                                    | LF   | 150      | \$ 5,700.00     | \$ 855,000.00    |                  |
| 55       | Turnout to Phase II 640 Acres                                   | LF   | 200      | \$ 1,275.00     | \$ 255,000.00    |                  |
| 56       | Turnout to West Basins  | LF   | 200      | \$ 1,275.00     | \$ 255,000.00    |                  |
| 57       | Phase II 640 Acres Outlet Structure                             | LS   | 1        | \$ 950,000.00   | \$ 950,000.00    |                  |
| 58       | West Basins Outlet Structure                                    | LS   | 1        | \$ 950,000.00   | \$ 950,000.00    | \$ 35,013,000.00 |
| 59       | Phase I 640 Acres Clearing & Grubbing                           | AC   | 320      | \$ 1,200.00     | \$ 384,000.00    |                  |
| 60       | Phase I 640 Acres Levee Over-Excavation and Re-Compaction       | CY   | 235000   | \$ 4.60         | \$ 1,081,000.00  |                  |
| 61       | Phase I 640 Acres Levee Keyway                                  | CY   | 50000    | \$ 4.70         | \$ 235,000.00    |                  |
| 62       | Phase I 640 Acres Levee Embankment Fill                         | CY   | 255000   | \$ 4.20         | \$ 1,071,000.00  |                  |
| 63       | Phase I 640 Acres Structure Headwalls                           | EA   | 15       | \$ 30,000.00    | \$ 450,000.00    |                  |
| 64       | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards   | EA   | 15       | \$ 10,000.00    | \$ 150,000.00    |                  |
| 65       | Phase I 640 Acres Interbasin Structure Piping                   | LS   | 1        | \$ 1,000,000.00 | \$ 1,000,000.00  |                  |
| 66       | Phase I 640 Acres Interbasin Structure Rip-Rap                  | EA   | 15       | \$ 35,000.00    | \$ 525,000.00    |                  |
| 67       | Phase I 640 Acres Interbasin Structure Cutoff Walls             | EA   | 15       | \$ 25,000.00    | \$ 375,000.00    |                  |
| 68       | Phase I 640 Acres Site Fencing and Gates                        | LF   | 21120    | \$ 7.50         | \$ 158,400.00    | \$ 5,429,400.00  |
| 69       | Goose Lake Slough Turnout Structure Excavation                  | CY   | 1100     | \$ 30.00        | \$ 33,000.00     |                  |
| 70       | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor | CY   | 90       | \$ 800.00       | \$ 72,000.00     |                  |
| 71       | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls | CY   | 90       | \$ 1,200.00     | \$ 108,000.00    |                  |
| 72       | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck  | CY   | 50       | \$ 2,000.00     | \$ 100,000.00    |                  |
| 73       | Goose Lake Slough Turnout Backfill & Compaction                 | LS   | 500      | \$ 30.00        | \$ 15,000.00     |                  |
| 74       | Goose Lake Slough Turnout Trashracks                            | LS   | 1        | \$ 80,000.00    | \$ 80,000.00     |                  |
| 75       | Goose Lake Slough Turnout Miscellaneous Steel                   | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 76       | Goose Lake Slough Lift Station Pumps - 60 cfs                   | EA   | 4        | \$ 180,000.00   | \$ 720,000.00    |                  |
| 77       | Goose Lake Slough Lift Station Motors - 200 hp                  | EA   | 4        | \$ 60,000.00    | \$ 240,000.00    |                  |
| 78       | Goose Lake Slough Lift Station Discharge Piping & Appurtenances | LS   | 1        | \$ 240,000.00   | \$ 240,000.00    |                  |
| 79       | Goose Lake Slough Metering                                      | EA   | 1        | \$ 90,000.00    | \$ 90,000.00     |                  |
| 80       | Goose Lake Slough Turnout Slide Gate                            | EA   | 1        | \$ 37,500.00    | \$ 37,500.00     |                  |
| 81       | Goose Lake Slough Turnout Electrical                            | LS   | 1        | \$ 350,000.00   | \$ 350,000.00    |                  |
| 82       | Goose Lake Slough Electrical Shade Structure & Foundation       | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 83       | Goose Lake Slough Pipe Outlet                                   | LF   | 200      | \$ 1,750.00     | \$ 350,000.00    |                  |
| 84       | Goose Lake Slough Turnout Outlet Structure                      | LS   | 1        | \$ 180,000.00   | \$ 180,000.00    |                  |
| 85       | Goose Lake Slough Outlet Rip-Rap                                | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 86       | Goose Lake Slough Check Structure - Earthwork                   | CY   | 1        | \$ 35,000.00    | \$ 35,000.00     |                  |
| 87       | Goose Lake Slough Check Structure - Reinforced Concrete - Floor | CY   | 75       | \$ 2,000.00     | \$ 150,000.00    |                  |
| 88       | Goose Lake Slough Check Structure - Reinforced Concrete - Walls | CY   | 21       | \$ 1,200.00     | \$ 25,200.00     |                  |
| 89       | Goose Lake Slough Check Structure - Miscellaneous Steel         | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 90       | Goose Lake Slough Check Structure - Rip-Rap                     | LS   | 1        | \$ 75,000.00    | \$ 75,000.00     |                  |
| 91       | Goose Lake Slough Check Structure - Appurtenances, Weir Boards  | LS   | 1        | \$ 25,000.00    | \$ 25,000.00     | \$ 3,125,700.00  |

|     |  |     |        |    |              |    |    |              |
|-----|--|-----|--------|----|--------------|----|----|--------------|
| 92  | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    | \$ | 7,052,844.00 |
| 93  | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ |    | 25,000.00    |
| 94  | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 95  | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 96  | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ |    | 31,000.00    |
| 97  | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ |    | 101,200.00   |
| 98  | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ |    | 47,300.00    |
| 99  | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ |    | 15,000.00    |
| 100 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ |    | 75,000.00    |
| 101 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ |    | 105,000.00   |
| 102 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ |    | 30,800.00    |
| 103 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ |    | 72,600.00    |
| 104 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ |    | 5,500.00     |
| 105 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ |    | 5,500.00     |
| 106 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ |    | 93,280.00    |
| 107 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 108 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ |    | 163,200.00   |
| 109 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ |    | 29,992.00    |
| 110 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ |    | 12,122.00    |
| 111 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ |    | 150,750.00   |
| 112 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ |    | 51,000.00    |
| 113 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ |    | 29,700.00    |
| 114 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ |    | 6,630.00     |
| 115 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ |    | 4,400.00     |
| 116 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ |    | 25,000.00    |
| 117 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ |    | 30,000.00    |
| 118 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ |    | 4,000.00     |
| 119 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ |    | 14,000.00    |
| 120 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 121 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ |    | 2,500.00     |
| 122 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 122 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 123 | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    | \$ | 6,822,000.00 |
| 124 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ |    | 60,000.00    |
| 125 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ |    | 15,000.00    |
| 126 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ |    | 20,000.00    |
| 127 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ |    | 17,000.00    |
| 128 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ |    | 70,000.00    |
| 129 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ |    | 45,000.00    |
| 130 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ |    | 255,000.00   |
| 131 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ |    | 20,000.00    |
| 132 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ |    | 325,000.00   |
| 133 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ |    | 70,000.00    |
| 134 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 135 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ |    | 20,000.00    |
| 136 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 136 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ |    | 200,000.00   |
| 137 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ |    | 621,000.00   |
| 138 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ |    | 288,000.00   |
| 139 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ |    | 969,500.00   |
| 140 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ |    | 550,000.00   |
| 140 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ |    | 550,000.00   |
| 141 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ |    | 10,500.00    |
| 142 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ |    | 11,200.00    |
| 143 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ |    | 21,600.00    |
| 144 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ |    | 7,500.00     |
| 145 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 146 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ |    | 50,000.00    |
| 147 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ |    | 15,000.00    |
| 148 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 149 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ |    | 35,000.00    |
| 149 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ |    | 35,000.00    |
| 150 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ |    | 384,000.00   |
| 151 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ |    | 1,081,000.00 |
| 152 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ |    | 235,000.00   |
| 153 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ |    | 1,071,000.00 |
| 154 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ |    | 450,000.00   |
| 155 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ |    | 150,000.00   |
| 156 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ |    | 1,000,000.00 |
| 157 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ |    | 525,000.00   |
| 158 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ |    | 375,000.00   |
| 159 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ |    | 158,400.00   |
| 159 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ |    | 158,400.00   |
| 160 | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6      | \$ | 1,175,474.00 |    | \$ | 7,052,844.00 |
| 161 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ |    | 25,000.00    |
| 162 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 163 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 164 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ |    | 31,000.00    |
| 165 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ |    | 101,200.00   |
| 166 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ |    | 47,300.00    |
| 167 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ |    | 15,000.00    |
| 168 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ |    | 75,000.00    |
| 169 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ |    | 105,000.00   |
| 170 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ |    | 30,800.00    |
| 171 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ |    | 72,600.00    |
| 172 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ |    | 5,500.00     |
| 173 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ |    | 5,500.00     |
| 174 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ |    | 93,280.00    |
| 175 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 176 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ |    | 163,200.00   |
| 177 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ |    | 29,992.00    |
| 178 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ |    | 12,122.00    |
| 179 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ |    | 150,750.00   |
| 180 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ |    | 51,000.00    |
| 181 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ |    | 29,700.00    |
| 182 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ |    | 6,630.00     |
| 183 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ |    | 4,400.00     |
| 184 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ |    | 25,000.00    |
| 185 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ |    | 30,000.00    |
| 186 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ |    | 4,000.00     |
| 187 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ |    | 14,000.00    |
| 188 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 189 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ |    | 2,500.00     |
| 190 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 190 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |

|     |   |    |      |    |              |    |                       |                 |
|-----|---|----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Equipping and Site Development                        | EA | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 191 | Mobilization, Demobilization, & Cleanup                                       | LS | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 192 | Water Supply  | LS | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 193 | Environmental Mitigation  | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 194 | Construct site work   | LS | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 195 | Furnish and install concrete foundations                                      | LS | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 196 | Furnish and install yard piping, mechanical piping and appurtenances          | LS | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 197 | Furnish and install vertical turbine well pumps, pump base, etc.              | LS | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 198 | Furnish and install well enclosures and appurtenances                         | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 199 | Furnish and install electrical facilities and instrumentation                 | LS | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 200 | Furnish and install pre-fabricated metal canopy                               | LS | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 201 | Furnish and install site ground cover   | LS | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 202 | Furnish and install site fencing  | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 203 | Furnish and install site painting   | LS | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 204 | Furnish and install VFD's   | LS | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 205 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                      | LF | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 206 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                      | LF | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 207 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                      | LF | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 208 | Phase II 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline | EA | 2    | \$ | 100,000.00   | \$ | 200,000.00            | \$ 1,616,500.00 |
| 209 | SCADA Communication & Appurtenances   | LS | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:  |    |      |    |              | \$ | 172,542,838.00        |                 |
|     | 20% Construction Contingency:   |    |      |    |              | \$ | 34,508,567.60         |                 |
|     | Unlisted Items:   |    |      |    |              | \$ | 3,450,856.76          |                 |
|     | Property Acquisition - 640 acres  | AC | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres  | AC | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement  | AC | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement  | AC | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take   | AC | 30   | \$ | 25,000.00    | \$ | 750,000.00            |                 |
|     | Habitat Credit Purchase   | AC | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:   |    |      |    |              | \$ | 247,827,262.36        |                 |
|     | Non-Contract Costs:   |    |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>   |    |      |    |              | \$ | <b>274,187,262.36</b> |                 |

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## KWB Canal Alignment - Earth Lined Canal Reach 1 &amp; Pipeline Reach 2/3 (Item #5)

| Item No. | Item Description  | Unit | Quantity | Unit Cost       | Extended Cost    | Section Subtotal |
|----------|---|------|----------|-----------------|------------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup                       | LS   | 1        | \$ 1,820,000.00 | \$ 1,820,000.00  | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                               | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 3        | Aqueduct Turnout Excavation                                   | CY   | 2450     | \$ 30.00        | \$ 73,500.00     |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor                | CY   | 45       | \$ 800.00       | \$ 36,000.00     |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls                | CY   | 100      | \$ 1,200.00     | \$ 120,000.00    |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam            | CY   | 5        | \$ 2,000.00     | \$ 10,000.00     |                  |
| 7        | Aqueduct Backfill and Compaction                              | CY   | 1850     | \$ 30.00        | \$ 55,500.00     |                  |
| 8        | Aqueduct Miscellaneous Steel                                  | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 9        | Aqueduct Trashrack  | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 10       | Aqueduct Turnout Piping                                       | LF   | 1800     | \$ 4,000.00     | \$ 7,200,000.00  |                  |
| 11       | Aqueduct Metering   | EA   | 1        | \$ 200,000.00   | \$ 200,000.00    |                  |
| 12       | Aqueduct Meter Vault  | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 13       | Aqueduct Slide Gate & Actuator                                | EA   | 1        | \$ 75,000.00    | \$ 75,000.00     |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting                     | LS   | 1        | \$ 150,000.00   | \$ 150,000.00    |                  |
| 15       | Aqueduct Liner Repair   | LS   | 1        | \$ 20,000.00    | \$ 20,000.00     |                  |
| 16       | Levee Road Pavement Restoration                               | SF   | 1600     | \$ 7.00         | \$ 11,200.00     | \$ 8,551,200.00  |
| 17       | Canal Clearing & Grubbing                                     | AC   | 67       | \$ 1,200.00     | \$ 80,400.00     |                  |
| 18       | Canal Earthwork-Cut   | CY   | 300,000  | \$ 4.50         | \$ 1,350,000.00  |                  |
| 19       | Canal Earthwork-Fill  | CY   | 120,000  | \$ 4.50         | \$ 540,000.00    |                  |
| 20       | Levee Subgrade Preparation                                    | CY   | 95,000   | \$ 4.60         | \$ 437,000.00    |                  |
| 22       | Canal Appurtenances   | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 23       | Canal Fencing   | LF   | 45,000   | \$ 7.50         | \$ 337,500.00    |                  |
| 24       | Levee Road Aggregate Base Ground Cover                        | LS   | 1        | \$ 335,000.00   | \$ 335,000.00    |                  |
| 25       | Ex. Facility Relocations                                      | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    | \$ 3,829,900.00  |
| 26       | Aqueduct Turnout Afterbay Structure Walls & Footings          | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 27       | Turnout Afterbay Earthwork                                    | CY   | 3800     | \$ 30.00        | \$ 114,000.00    |                  |
| 28       | Turnout Afterbay Miscellaneous Steel                          | LS   | 1        | \$ 25,000.00    | \$ 25,000.00     |                  |
| 29       | Main Canal Forebay Structure Walls & Footings                 | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 30       | Main Canal Siphon Pipes                                       | LF   | 300      | \$ 2,500.00     | \$ 750,000.00    |                  |
| 31       | Main Canal Afterbay Structure Walls & Footings                | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 32       | Siphon Crossing Earthwork                                     | CY   | 7200     | \$ 25.00        | \$ 180,000.00    |                  |
| 33       | Siphon Crossing Miscellaneous Steel                           | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 34       | WKWD Pipeline Forebay Structure Walls & Footings              | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 35       | WKWD Pipeline Siphon Pipes                                    | LF   | 150      | \$ 2,500.00     | \$ 375,000.00    |                  |
| 36       | WKWD Pipeline Afterbay Structure Walls & Footings             | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 37       | Siphon Crossing Earthwork                                     | CY   | 7200     | \$ 25.00        | \$ 180,000.00    |                  |
| 38       | Siphon Crossing Miscellaneous Steel                           | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 39       | Levee Side Canal Forebay Structure Walls & Footings           | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 40       | Levee Side Canal Siphon Pipes                                 | LF   | 150      | \$ 2,500.00     | \$ 375,000.00    |                  |
| 41       | Levee Side Canal Afterbay Structure Walls & Footings          | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 42       | Siphon Crossing Earthwork                                     | CY   | 7200     | \$ 25.00        | \$ 180,000.00    |                  |
| 43       | Siphon Crossing Miscellaneous Steel                           | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     | \$ 4,009,000.00  |
| 44       | Lift Station Excavation                                       | CY   | 11000    | \$ 10.00        | \$ 110,000.00    |                  |
| 45       | Lift Station Reinforced Concrete Structure - Floor            | CY   | 320      | \$ 800.00       | \$ 256,000.00    |                  |
| 46       | Lift Station Reinforced Concrete Structure - Walls            | CY   | 520      | \$ 1,200.00     | \$ 624,000.00    |                  |
| 47       | Lift Station Reinforced Concrete Structure - Deck             | CY   | 120      | \$ 2,000.00     | \$ 240,000.00    |                  |
| 48       | Lift Station Pumps - 30 cfs                                   | EA   | 2        | \$ 130,000.00   | \$ 260,000.00    |                  |
| 49       | Lift Station Pumps - 60 cfs                                   | EA   | 2        | \$ 180,000.00   | \$ 360,000.00    |                  |
| 50       | Lift Station Pumps - 80 cfs                                   | EA   | 4        | \$ 195,000.00   | \$ 780,000.00    |                  |
| 51       | Lift Station Motors - 100 hp                                  | EA   | 2        | \$ 40,000.00    | \$ 80,000.00     |                  |
| 52       | Lift Station Motors - 200 hp                                  | EA   | 2        | \$ 60,000.00    | \$ 120,000.00    |                  |
| 53       | Lift Station Motors - 300 hp                                  | EA   | 4        | \$ 90,000.00    | \$ 360,000.00    |                  |
| 54       | Lift Station 36" Discharge Piping & Appurtenances             | LS   | 2        | \$ 300,000.00   | \$ 600,000.00    |                  |
| 55       | Lift Station 48" Discharge Piping & Appurtenances             | LS   | 2        | \$ 425,000.00   | \$ 850,000.00    |                  |
| 56       | Lift Station 54" Discharge Piping & Appurtenances             | LS   | 4        | \$ 550,000.00   | \$ 2,200,000.00  |                  |
| 57       | Lift Station 100 hp VFD's                                     | EA   | 2        | \$ 40,000.00    | \$ 80,000.00     |                  |
| 58       | Lift Station 200 hp VFD's                                     | EA   | 2        | \$ 60,000.00    | \$ 120,000.00    |                  |
| 59       | Lift Station 300 hp VFD's                                     | EA   | 4        | \$ 80,000.00    | \$ 320,000.00    |                  |
| 60       | Lift Station Electrical, Controls, & Lighting                 | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 61       | Lift Station Electrical Control Building                      | LS   | 1        | \$ 200,000.00   | \$ 200,000.00    |                  |
| 62       | Lift Station Backfill & Compaction                            | CY   | 6000     | \$ 10.00        | \$ 60,000.00     |                  |
| 63       | Lift Station Slide Gates                                      | EA   | 1        | \$ 55,000.00    | \$ 55,000.00     |                  |
| 64       | Lift Station Trashracks                                       | LS   | 8        | \$ 25,000.00    | \$ 200,000.00    |                  |
| 65       | Lift Station Miscellaneous Steel                              | LS   | 1        | \$ 120,000.00   | \$ 120,000.00    |                  |
| 66       | Lift Station Cathodic Protection                              | LS   | 1        | \$ 25,000.00    | \$ 25,000.00     |                  |
| 67       | Lift Station Site Fencing                                     | LF   | 850      | \$ 45.00        | \$ 38,250.00     |                  |
| 68       | Lift Station Bypass Pipeline                                  | LF   | 200      | \$ 750.00       | \$ 150,000.00    |                  |
| 69       | Lift Station Ground Cover                                     | LS   | 1        | \$ 45,000.00    | \$ 45,000.00     | \$ 8,753,250.00  |
| 70       | Lift Station Pipeline across I-5 Freeway                      | LF   | 400      | \$ 6,000.00     | \$ 2,400,000.00  | \$ 2,400,000.00  |
| 71       | R/W Clearing & Grubbing                                       | AC   | 65       | \$ 1,200.00     | \$ 78,000.00     |                  |
| 72       | Conveyance Pipeline 9-ft Diameter                             | LF   | 19600    | \$ 1,575.00     | \$ 30,870,000.00 |                  |
| 73       | Pipeline Appurtenances  | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 74       | Pioneer Canal Crossing  | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 75       | Pioneer Canal Cutoff Walls                                    | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 76       | Stockdale Hwy Cased Crossing                                  | LF   | 150      | \$ 5,700.00     | \$ 855,000.00    |                  |
| 77       | Turnout to Phase II 640 Acres                                 | LF   | 200      | \$ 1,275.00     | \$ 255,000.00    |                  |
| 78       | Turnout to West Basins  | LF   | 200      | \$ 1,275.00     | \$ 255,000.00    |                  |
| 79       | Turnout Fittings  | EA   | 2        | \$ 350,000.00   | \$ 700,000.00    |                  |
| 80       | Phase II 640 Acres Outlet Structure                           | LS   | 1        | \$ 950,000.00   | \$ 950,000.00    |                  |
| 81       | West Basins Outlet Structure                                  | LS   | 1        | \$ 950,000.00   | \$ 950,000.00    | \$ 35,713,000.00 |
| 82       | Phase I 640 Acres Clearing & Grubbing                         | AC   | 320      | \$ 1,200.00     | \$ 384,000.00    |                  |
| 83       | Phase I 640 Acres Levee Over-Excavation and Re-Compaction     | CY   | 235000   | \$ 4.60         | \$ 1,081,000.00  |                  |
| 84       | Phase I 640 Acres Levee Keyway                                | CY   | 50000    | \$ 4.70         | \$ 235,000.00    |                  |
| 85       | Phase I 640 Acres Levee Embankment Fill                       | CY   | 255000   | \$ 4.20         | \$ 1,071,000.00  |                  |
| 86       | Phase I 640 Acres Structure Headwalls                         | EA   | 15       | \$ 30,000.00    | \$ 450,000.00    |                  |
| 87       | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards | EA   | 15       | \$ 10,000.00    | \$ 150,000.00    |                  |
| 88       | Phase I 640 Acres Interbasin Structure Piping                 | LS   | 1        | \$ 1,000,000.00 | \$ 1,000,000.00  |                  |
| 89       | Phase I 640 Acres Interbasin Structure Rip-Rap                | EA   | 15       | \$ 35,000.00    | \$ 525,000.00    |                  |
| 90       | Phase I 640 Acres Interbasin Structure Cutoff Walls           | EA   | 15       | \$ 25,000.00    | \$ 375,000.00    |                  |
| 91       | Phase I 640 Acres Site Fencing and Gates                      | LF   | 21120    | \$ 7.50         | \$ 158,400.00    | \$ 5,429,400.00  |



|     |  |     |        |    |              |    |              |                 |
|-----|--|-----|--------|----|--------------|----|--------------|-----------------|
| 92  | Goose Lake Slough Turnout Structure Excavation   | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00    |                 |
| 93  | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                        | CY  | 90     | \$ | 800.00       | \$ | 72,000.00    |                 |
| 94  | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                        | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00   |                 |
| 95  | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                         | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00   |                 |
| 96  | Goose Lake Slough Turnout Backfill & Compaction  | LS  | 500    | \$ | 30.00        | \$ | 15,000.00    |                 |
| 97  | Goose Lake Slough Turnout Trashracks   | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00    |                 |
| 98  | Goose Lake Slough Turnout Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 99  | Goose Lake Slough Lift Station Pumps - 60 cfs  | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00   |                 |
| 100 | Goose Lake Slough Lift Station Motors - 200 hp   | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00   |                 |
| 101 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                        | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00   |                 |
| 102 | Goose Lake Slough Metering   | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00    |                 |
| 103 | Goose Lake Slough Turnout Slide Gate   | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00    |                 |
| 104 | Goose Lake Slough Turnout Electrical   | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00   |                 |
| 105 | Goose Lake Slough Electrical Shade Structure & Foundation                              | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 106 | Goose Lake Slough Pipe Outlet  | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00   |                 |
| 107 | Goose Lake Slough Turnout Outlet Structure   | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00   |                 |
| 108 | Goose Lake Slough Outlet Rip-Rap   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 109 | Goose Lake Slough Check Structure - Earthwork  | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00    |                 |
| 110 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                        | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00   |                 |
| 111 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                        | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00    |                 |
| 112 | Goose Lake Slough Check Structure - Miscellaneous Steel                                | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 113 | Goose Lake Slough Check Structure - Rip-Rap  | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00    |                 |
| 114 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                         | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 3,125,700.00 |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    |              | \$ 7,052,844.00 |
| 115 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 116 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 117 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 118 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |                 |
| 119 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |                 |
| 120 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |                 |
| 121 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 122 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |                 |
| 123 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |                 |
| 124 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |                 |
| 125 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |                 |
| 126 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 127 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 128 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |                 |
| 129 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 130 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |                 |
| 131 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |                 |
| 132 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |                 |
| 133 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |                 |
| 134 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |                 |
| 135 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |                 |
| 136 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |                 |
| 137 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |                 |
| 138 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 139 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |                 |
| 140 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |                 |
| 141 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |                 |
| 142 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 143 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |                 |
| 144 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 145 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    |              | \$ 6,822,000.00 |
| 146 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |                 |
| 147 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 148 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 149 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |                 |
| 150 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 151 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |                 |
| 152 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |                 |
| 153 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 154 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |                 |
| 155 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 156 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 157 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 158 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 159 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 160 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |                 |
| 161 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |                 |
| 162 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |                 |
| 163 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$ 2,428,500.00 |
| 164 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |                 |
| 165 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |                 |
| 166 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |                 |
| 167 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |                 |
| 168 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 169 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 170 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 171 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 172 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$ 165,800.00   |
| 173 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 174 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 175 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 176 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 177 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 178 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 179 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 180 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 181 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 182 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |

|     |  |     |      |    |              |    |                       |                 |
|-----|--|-----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6    | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00    |
| 183 | Mobilization, demobilization & misc. work  | LS  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 184 | Transport and dispose of drill cuttings offsite  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 185 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 186 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50   | \$ | 620.00       | \$ | 31,000.00             |                 |
| 187 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920  | \$ | 110.00       | \$ | 101,200.00            |                 |
| 188 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430  | \$ | 110.00       | \$ | 47,300.00             |                 |
| 189 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 190 | Conduct isolated aquifer zone test   | EA  | 3    | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 191 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3    | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 192 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280  | \$ | 110.00       | \$ | 30,800.00             |                 |
| 193 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660  | \$ | 110.00       | \$ | 72,600.00             |                 |
| 194 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 195 | Conduct a caliper survey of enlarged borehole  | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 196 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424  | \$ | 220.00       | \$ | 93,280.00             |                 |
| 197 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 198 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510  | \$ | 320.00       | \$ | 163,200.00            |                 |
| 199 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652  | \$ | 46.00        | \$ | 29,992.00             |                 |
| 200 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319  | \$ | 38.00        | \$ | 12,122.00             |                 |
| 201 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670  | \$ | 225.00       | \$ | 150,750.00            |                 |
| 202 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300  | \$ | 170.00       | \$ | 51,000.00             |                 |
| 203 | Perform initial well development   | HRS | 108  | \$ | 275.00       | \$ | 29,700.00             |                 |
| 204 | Provide chlorine solution for chemical development of the well                         | GAL | 255  | \$ | 26.00        | \$ | 6,630.00              |                 |
| 205 | Provide polymer dispersant for chemical development of the well                        | GAL | 40   | \$ | 110.00       | \$ | 4,400.00              |                 |
| 206 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 207 | Conduct final development by pumping and surging                                       | HRS | 60   | \$ | 500.00       | \$ | 30,000.00             |                 |
| 208 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8    | \$ | 500.00       | \$ | 4,000.00              |                 |
| 209 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28   | \$ | 500.00       | \$ | 14,000.00             |                 |
| 210 | Conduct a dynamic flow meter survey  | EA  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 211 | Conduct a color video camera survey  | EA  | 1    | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 212 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 213 | Conduct final well disinfection in newly completed wells                               | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 214 | Mobilization, Demobilization, & Cleanup  | LS  | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 215 | Water Supply   | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 216 | Environmental Mitigation   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 217 | Construct site work  | LS  | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 218 | Furnish and install concrete foundations   | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 219 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 220 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 221 | Furnish and install well enclosures and appurtenances                                  | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 222 | Furnish and install electrical facilities and instrumentation                          | LS  | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 223 | Furnish and install pre-fabricated metal canopy  | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 224 | Furnish and install site ground cover  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 225 | Furnish and install site fencing   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 226 | Furnish and install site painting  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 227 | Furnish and install VFD's  | LS  | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 228 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 229 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 230 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 231 | Phase I 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline           | EA  | 2    | \$ | 100,000.00   | \$ | 200,000.00            | \$ 1,616,500.00 |
| 232 | SCADA Communication & Appurtenances  | LS  | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |      |    |              | \$ | 111,321,338.00        |                 |
|     | 20% Construction Contingency:  |     |      |    |              | \$ | 22,264,267.60         |                 |
|     | Unlisted Items:  |     |      |    |              | \$ | 2,226,426.76          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 30   | \$ | 25,000.00    | \$ | 750,000.00            |                 |
|     | Habitat Credit Purchase  | AC  | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |      |    |              | \$ | 173,137,032.36        |                 |
|     | Non-Contract Costs:  |     |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |      |    |              | \$ | <b>199,497,032.36</b> |                 |

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## KWB Canal Alignment - HDPE Lined Canal Reach 1 &amp; Pipeline Reach 2/3 (Item #6)

| Item No. | Item Description  | Unit | Quantity  | Unit Cost       | Extended Cost    | Section Subtotal |
|----------|---|------|-----------|-----------------|------------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup                       | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00  | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                               | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 3        | Aqueduct Turnout Excavation                                   | CY   | 2450      | \$ 30.00        | \$ 73,500.00     |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor                | CY   | 45        | \$ 800.00       | \$ 36,000.00     |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls                | CY   | 100       | \$ 1,200.00     | \$ 120,000.00    |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam            | CY   | 5         | \$ 2,000.00     | \$ 10,000.00     |                  |
| 7        | Aqueduct Backfill and Compaction                              | CY   | 1850      | \$ 30.00        | \$ 55,500.00     |                  |
| 8        | Aqueduct Miscellaneous Steel                                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 9        | Aqueduct Trashrack  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 10       | Aqueduct Turnout Piping                                       | LF   | 1800      | \$ 4,000.00     | \$ 7,200,000.00  |                  |
| 11       | Aqueduct Metering   | EA   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 12       | Aqueduct Meter Vault  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 13       | Aqueduct Slide Gate & Actuator                                | EA   | 1         | \$ 75,000.00    | \$ 75,000.00     |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting                     | LS   | 1         | \$ 150,000.00   | \$ 150,000.00    |                  |
| 15       | Aqueduct Liner Repair   | LS   | 1         | \$ 20,000.00    | \$ 20,000.00     |                  |
| 16       | Levee Road Pavement Restoration                               | SF   | 1600      | \$ 7.00         | \$ 11,200.00     | \$ 8,551,200.00  |
| 17       | Canal Clearing & Grubbing                                     | AC   | 67        | \$ 1,200.00     | \$ 80,400.00     |                  |
| 18       | Canal Earthwork-Cut   | CY   | 300,000   | \$ 4.50         | \$ 1,350,000.00  |                  |
| 19       | Canal Earthwork-Fill  | CY   | 120,000   | \$ 4.50         | \$ 540,000.00    |                  |
| 20       | Levee Subgrade Preparation                                    | CY   | 95,000    | \$ 4.60         | \$ 437,000.00    |                  |
| 21       | HDPE Canal Lining   | SF   | 1,092,000 | \$ 1.00         | \$ 1,092,000.00  |                  |
| 22       | HDPE Anchor Trench  | LF   | 42,000    | \$ 10.00        | \$ 420,000.00    |                  |
| 23       | Canal Drain System  | LS   | 1         | \$ 1,950,000.00 | \$ 1,950,000.00  |                  |
| 24       | Canal Appurtenances   | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 25       | Canal Fencing   | LF   | 45,000    | \$ 7.50         | \$ 337,500.00    |                  |
| 26       | Levee Road Aggregate Base Ground Cover                        | LS   | 1         | \$ 335,000.00   | \$ 335,000.00    |                  |
| 27       | Ex. Facility Relocations                                      | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    | \$ 7,291,900.00  |
| 28       | Aqueduct Turnout Afterbay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 29       | Turnout Afterbay Earthwork                                    | CY   | 3800      | \$ 30.00        | \$ 114,000.00    |                  |
| 30       | Turnout Afterbay Miscellaneous Steel                          | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 31       | Main Canal Forebay Structure Walls & Footings                 | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 32       | Main Canal Siphon Pipes                                       | LF   | 300       | \$ 2,500.00     | \$ 750,000.00    |                  |
| 33       | Main Canal Afterbay Structure Walls & Footings                | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 34       | Siphon Crossing Earthwork                                     | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 35       | Siphon Crossing Miscellaneous Steel                           | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 36       | WKWD Pipeline Forebay Structure Walls & Footings              | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 37       | WKWD Pipeline Siphon Pipes                                    | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 38       | WKWD Pipeline Afterbay Structure Walls & Footings             | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 39       | Siphon Crossing Earthwork                                     | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 40       | Siphon Crossing Miscellaneous Steel                           | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 41       | Levee Side Canal Forebay Structure Walls & Footings           | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 42       | Levee Side Canal Siphon Pipes                                 | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 43       | Levee Side Canal Afterbay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 44       | Siphon Crossing Earthwork                                     | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 45       | Siphon Crossing Miscellaneous Steel                           | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     | \$ 4,009,000.00  |
| 46       | Lift Station Excavation                                       | CY   | 11000     | \$ 10.00        | \$ 110,000.00    |                  |
| 47       | Lift Station Reinforced Concrete Structure - Floor            | CY   | 320       | \$ 800.00       | \$ 256,000.00    |                  |
| 48       | Lift Station Reinforced Concrete Structure - Walls            | CY   | 520       | \$ 1,200.00     | \$ 624,000.00    |                  |
| 49       | Lift Station Reinforced Concrete Structure - Deck             | CY   | 120       | \$ 2,000.00     | \$ 240,000.00    |                  |
| 50       | Lift Station Pumps - 30 cfs                                   | EA   | 2         | \$ 130,000.00   | \$ 260,000.00    |                  |
| 51       | Lift Station Pumps - 60 cfs                                   | EA   | 2         | \$ 180,000.00   | \$ 360,000.00    |                  |
| 52       | Lift Station Pumps - 80 cfs                                   | EA   | 4         | \$ 195,000.00   | \$ 780,000.00    |                  |
| 53       | Lift Station Motors - 100 hp                                  | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 54       | Lift Station Motors - 200 hp                                  | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 55       | Lift Station Motors - 300 hp                                  | EA   | 4         | \$ 90,000.00    | \$ 360,000.00    |                  |
| 56       | Lift Station 36" Discharge Piping & Appurtenances             | LS   | 2         | \$ 300,000.00   | \$ 600,000.00    |                  |
| 57       | Lift Station 48" Discharge Piping & Appurtenances             | LS   | 2         | \$ 425,000.00   | \$ 850,000.00    |                  |
| 58       | Lift Station 54" Discharge Piping & Appurtenances             | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00  |                  |
| 59       | Lift Station 100 hp VFD's                                     | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 60       | Lift Station 200 hp VFD's                                     | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 61       | Lift Station 300 hp VFD's                                     | EA   | 4         | \$ 80,000.00    | \$ 320,000.00    |                  |
| 62       | Lift Station Electrical, Controls, & Lighting                 | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    |                  |
| 63       | Lift Station Electrical Control Building                      | LS   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 64       | Lift Station Backfill & Compaction                            | CY   | 6000      | \$ 10.00        | \$ 60,000.00     |                  |
| 65       | Lift Station Slide Gates                                      | EA   | 1         | \$ 55,000.00    | \$ 55,000.00     |                  |
| 66       | Lift Station Trashracks                                       | LS   | 8         | \$ 25,000.00    | \$ 200,000.00    |                  |
| 67       | Lift Station Miscellaneous Steel                              | LS   | 1         | \$ 120,000.00   | \$ 120,000.00    |                  |
| 68       | Lift Station Cathodic Protection                              | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 69       | Lift Station Site Fencing                                     | LF   | 850       | \$ 45.00        | \$ 38,250.00     |                  |
| 70       | Lift Station Bypass Pipeline                                  | LF   | 200       | \$ 750.00       | \$ 150,000.00    |                  |
| 71       | Lift Station Ground Cover                                     | LS   | 1         | \$ 45,000.00    | \$ 45,000.00     | \$ 8,753,250.00  |
| 72       | Lift Station Pipeline across I-5 Freeway                      | LF   | 400       | \$ 6,000.00     | \$ 2,400,000.00  | \$ 2,400,000.00  |
| 73       | R/W Clearing & Grubbing                                       | AC   | 65        | \$ 1,200.00     | \$ 78,000.00     |                  |
| 74       | Conveyance Pipeline 9-ft Diameter                             | LF   | 19600     | \$ 1,575.00     | \$ 30,870,000.00 |                  |
| 75       | Pipeline Appurtenances  | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    |                  |
| 76       | Pioneer Canal Crossing  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 77       | Pioneer Canal Cutoff Walls                                    | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 78       | Stockdale Hwy Cased Crossing                                  | LF   | 150       | \$ 5,700.00     | \$ 855,000.00    |                  |
| 79       | Turnout to Phase II 640 Acres                                 | LF   | 200       | \$ 1,275.00     | \$ 255,000.00    |                  |
| 80       | Turnout to West Basins  | LF   | 200       | \$ 1,275.00     | \$ 255,000.00    |                  |
| 81       | Turnout Fittings  | EA   | 2         | \$ 350,000.00   | \$ 700,000.00    |                  |
| 82       | Phase II 640 Acres Outlet Structure                           | LS   | 1         | \$ 950,000.00   | \$ 950,000.00    |                  |
| 83       | West Basins Outlet Structure                                  | LS   | 1         | \$ 950,000.00   | \$ 950,000.00    | \$ 35,713,000.00 |
| 84       | Phase I 640 Acres Clearing & Grubbing                         | AC   | 320       | \$ 1,200.00     | \$ 384,000.00    |                  |
| 85       | Phase I 640 Acres Levee Over-Excavation and Re-Compaction     | CY   | 235000    | \$ 4.60         | \$ 1,081,000.00  |                  |
| 86       | Phase I 640 Acres Levee Keyway                                | CY   | 50000     | \$ 4.70         | \$ 235,000.00    |                  |
| 87       | Phase I 640 Acres Levee Embankment Fill                       | CY   | 255000    | \$ 4.20         | \$ 1,071,000.00  |                  |
| 88       | Phase I 640 Acres Structure Headwalls                         | EA   | 15        | \$ 30,000.00    | \$ 450,000.00    |                  |
| 89       | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards | EA   | 15        | \$ 10,000.00    | \$ 150,000.00    |                  |
| 90       | Phase I 640 Acres Interbasin Structure Piping                 | LS   | 1         | \$ 1,000,000.00 | \$ 1,000,000.00  |                  |
| 91       | Phase I 640 Acres Interbasin Structure Rip-Rap                | EA   | 15        | \$ 35,000.00    | \$ 525,000.00    |                  |
| 92       | Phase I 640 Acres Interbasin Structure Cutoff Walls           | EA   | 15        | \$ 25,000.00    | \$ 375,000.00    |                  |
| 93       | Phase I 640 Acres Site Fencing and Gates                      | LF   | 21120     | \$ 7.50         | \$ 158,400.00    | \$ 5,429,400.00  |

|     |  |     |        |    |              |    |              |                 |
|-----|--|-----|--------|----|--------------|----|--------------|-----------------|
| 94  | Goose Lake Slough Turnout Structure Excavation   | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00    |                 |
| 95  | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                        | CY  | 90     | \$ | 800.00       | \$ | 72,000.00    |                 |
| 96  | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                        | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00   |                 |
| 97  | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                         | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00   |                 |
| 98  | Goose Lake Slough Turnout Backfill & Compaction  | LS  | 500    | \$ | 30.00        | \$ | 15,000.00    |                 |
| 99  | Goose Lake Slough Turnout Trashracks   | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00    |                 |
| 100 | Goose Lake Slough Turnout Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 101 | Goose Lake Slough Lift Station Pumps - 60 cfs  | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00   |                 |
| 102 | Goose Lake Slough Lift Station Motors - 200 hp   | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00   |                 |
| 103 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                        | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00   |                 |
| 104 | Goose Lake Slough Metering   | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00    |                 |
| 105 | Goose Lake Slough Turnout Slide Gate   | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00    |                 |
| 106 | Goose Lake Slough Turnout Electrical   | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00   |                 |
| 107 | Goose Lake Slough Electrical Shade Structure & Foundation                              | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 108 | Goose Lake Slough Pipe Outlet  | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00   |                 |
| 109 | Goose Lake Slough Turnout Outlet Structure   | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00   |                 |
| 110 | Goose Lake Slough Outlet Rip-Rap   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 111 | Goose Lake Slough Check Structure - Earthwork  | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00    |                 |
| 112 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                        | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00   |                 |
| 113 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                        | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00    |                 |
| 114 | Goose Lake Slough Check Structure - Miscellaneous Steel                                | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 115 | Goose Lake Slough Check Structure - Rip-Rap  | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00    |                 |
| 116 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                         | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 3,125,700.00 |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    |              | \$ 7,052,844.00 |
| 117 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 118 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 119 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 120 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |                 |
| 121 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |                 |
| 122 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |                 |
| 123 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 124 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |                 |
| 125 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |                 |
| 126 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |                 |
| 127 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |                 |
| 128 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 129 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 130 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |                 |
| 131 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 132 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |                 |
| 133 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |                 |
| 134 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |                 |
| 135 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |                 |
| 136 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |                 |
| 137 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |                 |
| 138 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |                 |
| 139 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |                 |
| 140 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 141 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |                 |
| 142 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |                 |
| 143 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |                 |
| 144 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 145 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |                 |
| 146 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 147 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    |              | \$ 6,822,000.00 |
| 148 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |                 |
| 149 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 150 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 151 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |                 |
| 152 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 153 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |                 |
| 154 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |                 |
| 155 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 156 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |                 |
| 157 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 158 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 159 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 160 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 161 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 162 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |                 |
| 163 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |                 |
| 164 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |                 |
| 165 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$ 2,428,500.00 |
| 166 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |                 |
| 167 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |                 |
| 168 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |                 |
| 169 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |                 |
| 170 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 171 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 172 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 173 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 174 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$ 165,800.00   |
| 175 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 176 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 177 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 178 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 179 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 180 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 181 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 182 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 183 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 184 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |

|     |  |     |      |    |              |    |                       |                 |
|-----|--|-----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6    | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00    |
| 185 | Mobilization, demobilization & misc. work  | LS  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 186 | Transport and dispose of drill cuttings offsite  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 187 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 188 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50   | \$ | 620.00       | \$ | 31,000.00             |                 |
| 189 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920  | \$ | 110.00       | \$ | 101,200.00            |                 |
| 190 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430  | \$ | 110.00       | \$ | 47,300.00             |                 |
| 191 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 192 | Conduct isolated aquifer zone test   | EA  | 3    | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 193 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3    | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 194 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280  | \$ | 110.00       | \$ | 30,800.00             |                 |
| 195 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660  | \$ | 110.00       | \$ | 72,600.00             |                 |
| 196 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 197 | Conduct a caliper survey of enlarged borehole  | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 198 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424  | \$ | 220.00       | \$ | 93,280.00             |                 |
| 199 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 200 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510  | \$ | 320.00       | \$ | 163,200.00            |                 |
| 201 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652  | \$ | 46.00        | \$ | 29,992.00             |                 |
| 202 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319  | \$ | 38.00        | \$ | 12,122.00             |                 |
| 203 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670  | \$ | 225.00       | \$ | 150,750.00            |                 |
| 204 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300  | \$ | 170.00       | \$ | 51,000.00             |                 |
| 205 | Perform initial well development   | HRS | 108  | \$ | 275.00       | \$ | 29,700.00             |                 |
| 206 | Provide chlorine solution for chemical development of the well                         | GAL | 255  | \$ | 26.00        | \$ | 6,630.00              |                 |
| 207 | Provide polymer dispersant for chemical development of the well                        | GAL | 40   | \$ | 110.00       | \$ | 4,400.00              |                 |
| 208 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 209 | Conduct final development by pumping and surging                                       | HRS | 60   | \$ | 500.00       | \$ | 30,000.00             |                 |
| 210 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8    | \$ | 500.00       | \$ | 4,000.00              |                 |
| 211 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28   | \$ | 500.00       | \$ | 14,000.00             |                 |
| 212 | Conduct a dynamic flow meter survey  | EA  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 213 | Conduct a color video camera survey  | EA  | 1    | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 214 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 215 | Conduct final well disinfection in newly completed wells                               | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 216 | Mobilization, Demobilization, & Cleanup  | LS  | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 217 | Water Supply   | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 218 | Environmental Mitigation   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 219 | Construct site work  | LS  | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 220 | Furnish and install concrete foundations   | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 221 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 222 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 223 | Furnish and install well enclosures and appurtenances                                  | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 224 | Furnish and install electrical facilities and instrumentation                          | LS  | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 225 | Furnish and install pre-fabricated metal canopy  | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 226 | Furnish and install site ground cover  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 227 | Furnish and install site fencing   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 228 | Furnish and install site painting  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 229 | Furnish and install VFD's  | LS  | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 230 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 231 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 232 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 233 | Phase II 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline          | EA  | 2    | \$ | 100,000.00   | \$ | 200,000.00            | \$ 1,616,500.00 |
| 234 | SCADA Communication & Appurtenances  | LS  | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |      |    |              | \$ | 114,783,338.00        |                 |
|     | 20% Construction Contingency:  |     |      |    |              | \$ | 22,956,667.60         |                 |
|     | Unlisted Items:  |     |      |    |              | \$ | 2,295,666.76          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 30   | \$ | 25,000.00    | \$ | 750,000.00            |                 |
|     | Habitat Credit Purchase  | AC  | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |      |    |              | \$ | 177,360,672.36        |                 |
|     | Non-Contract Costs:  |     |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |      |    |              | \$ | <b>203,720,672.36</b> |                 |



## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## KWB Canal Alignment - Concrete Lined Canal Reach 1 &amp; Pipeline Reach 2/3 (Item #7)

| Item No. | Item Description  | Unit | Quantity  | Unit Cost       | Extended Cost    | Section Subtotal |
|----------|---|------|-----------|-----------------|------------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup                       | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00  | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                               | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 3        | Aqueduct Turnout Excavation                                   | CY   | 2450      | \$ 30.00        | \$ 73,500.00     |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor                | CY   | 45        | \$ 800.00       | \$ 36,000.00     |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls                | CY   | 100       | \$ 1,200.00     | \$ 120,000.00    |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam            | CY   | 5         | \$ 2,000.00     | \$ 10,000.00     |                  |
| 7        | Aqueduct Backfill and Compaction                              | CY   | 1850      | \$ 30.00        | \$ 55,500.00     |                  |
| 8        | Aqueduct Miscellaneous Steel                                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 9        | Aqueduct Trashrack  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 10       | Aqueduct Turnout Piping                                       | LF   | 1800      | \$ 4,000.00     | \$ 7,200,000.00  |                  |
| 11       | Aqueduct Metering   | EA   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 12       | Aqueduct Meter Vault  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 13       | Aqueduct Slide Gate & Actuator                                | EA   | 1         | \$ 75,000.00    | \$ 75,000.00     |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting                     | LS   | 1         | \$ 150,000.00   | \$ 150,000.00    |                  |
| 15       | Aqueduct Liner Repair   | LS   | 1         | \$ 20,000.00    | \$ 20,000.00     |                  |
| 16       | Levee Road Pavement Restoration                               | SF   | 1600      | \$ 7.00         | \$ 11,200.00     | \$ 8,551,200.00  |
| 17       | Canal Clearing & Grubbing                                     | AC   | 67        | \$ 1,200.00     | \$ 80,400.00     |                  |
| 18       | Canal Earthwork-Cut   | CY   | 300,000   | \$ 4.50         | \$ 1,350,000.00  |                  |
| 19       | Canal Earthwork-Fill  | CY   | 120,000   | \$ 4.50         | \$ 540,000.00    |                  |
| 20       | Levee Subgrade Preparation                                    | CY   | 95,000    | \$ 4.60         | \$ 437,000.00    |                  |
| 21       | Concrete Canal Lining   | SF   | 1,092,000 | \$ 6.00         | \$ 6,552,000.00  |                  |
| 22       | Canal Drain System  | LS   | 1         | \$ 1,950,000.00 | \$ 1,950,000.00  |                  |
| 23       | Canal Appurtenances   | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 24       | Canal Fencing   | LF   | 45,000    | \$ 7.50         | \$ 337,500.00    |                  |
| 25       | Levee Road Aggregate Base Ground Cover                        | LS   | 1         | \$ 335,000.00   | \$ 335,000.00    |                  |
| 26       | Ex. Facility Relocations                                      | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    | \$ 12,331,900.00 |
| 27       | Aqueduct Turnout Afterbay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 28       | Turnout Afterbay Earthwork                                    | CY   | 3800      | \$ 30.00        | \$ 114,000.00    |                  |
| 29       | Turnout Afterbay Miscellaneous Steel                          | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 30       | Main Canal Forebay Structure Walls & Footings                 | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 31       | Main Canal Siphon Pipes                                       | LF   | 300       | \$ 2,500.00     | \$ 750,000.00    |                  |
| 32       | Main Canal Afterbay Structure Walls & Footings                | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 33       | Siphon Crossing Earthwork                                     | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 34       | Siphon Crossing Miscellaneous Steel                           | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 35       | WKWD Pipeline Forebay Structure Walls & Footings              | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 36       | WKWD Pipeline Siphon Pipes                                    | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 37       | WKWD Pipeline Afterbay Structure Walls & Footings             | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 38       | Siphon Crossing Earthwork                                     | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 39       | Siphon Crossing Miscellaneous Steel                           | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 40       | Levee Side Canal Forebay Structure Walls & Footings           | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 41       | Levee Side Canal Siphon Pipes                                 | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 42       | Levee Side Canal Afterbay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 43       | Siphon Crossing Earthwork                                     | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 44       | Siphon Crossing Miscellaneous Steel                           | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     | \$ 4,009,000.00  |
| 45       | Lift Station Excavation                                       | CY   | 11000     | \$ 10.00        | \$ 110,000.00    |                  |
| 46       | Lift Station Reinforced Concrete Structure - Floor            | CY   | 320       | \$ 800.00       | \$ 256,000.00    |                  |
| 47       | Lift Station Reinforced Concrete Structure - Walls            | CY   | 520       | \$ 1,200.00     | \$ 624,000.00    |                  |
| 48       | Lift Station Reinforced Concrete Structure - Deck             | CY   | 120       | \$ 2,000.00     | \$ 240,000.00    |                  |
| 49       | Lift Station Pumps - 30 cfs                                   | EA   | 2         | \$ 130,000.00   | \$ 260,000.00    |                  |
| 50       | Lift Station Pumps - 60 cfs                                   | EA   | 2         | \$ 180,000.00   | \$ 360,000.00    |                  |
| 51       | Lift Station Pumps - 80 cfs                                   | EA   | 4         | \$ 195,000.00   | \$ 780,000.00    |                  |
| 52       | Lift Station Motors - 100 hp                                  | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 53       | Lift Station Motors - 200 hp                                  | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 54       | Lift Station Motors - 300 hp                                  | EA   | 4         | \$ 90,000.00    | \$ 360,000.00    |                  |
| 55       | Lift Station 36" Discharge Piping & Appurtenances             | LS   | 2         | \$ 300,000.00   | \$ 600,000.00    |                  |
| 56       | Lift Station 48" Discharge Piping & Appurtenances             | LS   | 2         | \$ 425,000.00   | \$ 850,000.00    |                  |
| 57       | Lift Station 54" Discharge Piping & Appurtenances             | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00  |                  |
| 58       | Lift Station 100 hp VFD's                                     | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 59       | Lift Station 200 hp VFD's                                     | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 60       | Lift Station 300 hp VFD's                                     | EA   | 4         | \$ 80,000.00    | \$ 320,000.00    |                  |
| 61       | Lift Station Electrical, Controls, & Lighting                 | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    |                  |
| 62       | Lift Station Electrical Control Building                      | LS   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 63       | Lift Station Backfill & Compaction                            | CY   | 6000      | \$ 10.00        | \$ 60,000.00     |                  |
| 64       | Lift Station Slide Gates                                      | EA   | 1         | \$ 55,000.00    | \$ 55,000.00     |                  |
| 65       | Lift Station Trashracks                                       | LS   | 8         | \$ 25,000.00    | \$ 200,000.00    |                  |
| 66       | Lift Station Miscellaneous Steel                              | LS   | 1         | \$ 120,000.00   | \$ 120,000.00    |                  |
| 67       | Lift Station Cathodic Protection                              | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 68       | Lift Station Site Fencing                                     | LF   | 850       | \$ 45.00        | \$ 38,250.00     |                  |
| 69       | Lift Station Bypass Pipeline                                  | LF   | 200       | \$ 750.00       | \$ 150,000.00    |                  |
| 70       | Lift Station Ground Cover                                     | LS   | 1         | \$ 45,000.00    | \$ 45,000.00     | \$ 8,753,250.00  |
| 71       | Lift Station Pipeline across I-5 Freeway                      | LF   | 400       | \$ 6,000.00     | \$ 2,400,000.00  | \$ 2,400,000.00  |
| 72       | R/W Clearing & Grubbing                                       | AC   | 65        | \$ 1,200.00     | \$ 78,000.00     |                  |
| 73       | Conveyance Pipeline 9-ft Diameter                             | LF   | 19600     | \$ 1,575.00     | \$ 30,870,000.00 |                  |
| 74       | Pipeline Appurtenances  | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    |                  |
| 75       | Pioneer Canal Crossing  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 76       | Pioneer Canal Cutoff Walls                                    | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 77       | Stockdale Hwy Cased Crossing                                  | LF   | 150       | \$ 5,700.00     | \$ 855,000.00    |                  |
| 78       | Turnout to Phase II 640 Acres                                 | LF   | 200       | \$ 1,275.00     | \$ 255,000.00    |                  |
| 79       | Turnout to West Basins  | LF   | 200       | \$ 1,275.00     | \$ 255,000.00    |                  |
| 80       | Turnout Fittings  | EA   | 2         | \$ 350,000.00   | \$ 700,000.00    |                  |
| 81       | Phase II 640 Acres Outlet Structure                           | LS   | 1         | \$ 950,000.00   | \$ 950,000.00    |                  |
| 82       | West Basins Outlet Structure                                  | LS   | 1         | \$ 950,000.00   | \$ 950,000.00    | \$ 35,713,000.00 |
| 83       | Phase I 640 Acres Clearing & Grubbing                         | AC   | 320       | \$ 1,200.00     | \$ 384,000.00    |                  |
| 84       | Phase I 640 Acres Levee Over-Excavation and Re-Compaction     | CY   | 235000    | \$ 4.60         | \$ 1,081,000.00  |                  |
| 85       | Phase I 640 Acres Levee Keyway                                | CY   | 50000     | \$ 4.70         | \$ 235,000.00    |                  |
| 86       | Phase I 640 Acres Levee Embankment Fill                       | CY   | 255000    | \$ 4.20         | \$ 1,071,000.00  |                  |
| 87       | Phase I 640 Acres Structure Headwalls                         | EA   | 15        | \$ 30,000.00    | \$ 450,000.00    |                  |
| 88       | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards | EA   | 15        | \$ 10,000.00    | \$ 150,000.00    |                  |
| 89       | Phase I 640 Acres Interbasin Structure Piping                 | LS   | 1         | \$ 1,000,000.00 | \$ 1,000,000.00  |                  |
| 90       | Phase I 640 Acres Interbasin Structure Rip-Rap                | EA   | 15        | \$ 35,000.00    | \$ 525,000.00    |                  |
| 91       | Phase I 640 Acres Interbasin Structure Cutoff Walls           | EA   | 15        | \$ 25,000.00    | \$ 375,000.00    |                  |
| 92       | Phase I 640 Acres Site Fencing and Gates                      | LF   | 21120     | \$ 7.50         | \$ 158,400.00    | \$ 5,429,400.00  |

|     |  |     |        |    |              |    |              |                 |
|-----|--|-----|--------|----|--------------|----|--------------|-----------------|
| 93  | Goose Lake Slough Turnout Structure Excavation   | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00    |                 |
| 94  | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                          | CY  | 90     | \$ | 800.00       | \$ | 72,000.00    |                 |
| 95  | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                          | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00   |                 |
| 96  | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                           | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00   |                 |
| 97  | Goose Lake Slough Turnout Backfill & Compaction  | LS  | 500    | \$ | 30.00        | \$ | 15,000.00    |                 |
| 98  | Goose Lake Slough Turnout Trashracks   | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00    |                 |
| 99  | Goose Lake Slough Turnout Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 100 | Goose Lake Slough Lift Station Pumps - 60 cfs  | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00   |                 |
| 101 | Goose Lake Slough Lift Station Motors - 200 hp   | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00   |                 |
| 102 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                          | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00   |                 |
| 103 | Goose Lake Slough Metering   | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00    |                 |
| 104 | Goose Lake Slough Turnout Slide Gate   | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00    |                 |
| 105 | Goose Lake Slough Turnout Electrical   | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00   |                 |
| 106 | Goose Lake Slough Electrical Shade Structure & Foundation                                | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 107 | Goose Lake Slough Pipe Outlet  | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00   |                 |
| 108 | Goose Lake Slough Turnout Outlet Structure   | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00   |                 |
| 109 | Goose Lake Slough Outlet Rip-Rap   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 110 | Goose Lake Slough Check Structure - Earthwork  | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00    |                 |
| 111 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                          | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00   |                 |
| 112 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                          | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00    |                 |
| 113 | Goose Lake Slough Check Structure - Miscellaneous Steel                                  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 114 | Goose Lake Slough Check Structure - Rip-Rap  | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00    |                 |
| 115 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                           | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 3,125,700.00 |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                             | EA  | 6      | \$ | 1,175,474.00 |    |              | \$ 7,052,844.00 |
| 116 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 117 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 118 | Three 20,000-gallon temporary water storage tanks and discharge piping                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 119 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                     | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |                 |
| 120 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs                 | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |                 |
| 121 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs              | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |                 |
| 122 | Conduct downhole geophysical surveys and alignment/deviation survey                      | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 123 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |                 |
| 124 | Conduct deep isolated aquifer zone test below 800 ft bgs                                 | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |                 |
| 125 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                      | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |                 |
| 126 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                     | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |                 |
| 127 | Conduct alignment/deviation tests in enlarged borehole                                   | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 128 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 129 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing          | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |                 |
| 130 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"             | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 131 | Furnish and install 20-inch by 5/16-inch wall Full Flow louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |                 |
| 132 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube       | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |                 |
| 133 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                  | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |                 |
| 134 | Furnish and install gravel pack in borehole annulus                                      | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |                 |
| 135 | Furnish and install 10.3-sack sand-cement grout upper annular seal                       | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |                 |
| 136 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |                 |
| 137 | Provide chlorine solution for chemical development of the well                           | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |                 |
| 138 | Provide polymer dispersant for chemical development of the well                          | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |                 |
| 139 | Mobilize, install, and demobilize test pumping equipment in newly completed wells        | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 140 | Conduct final development by pumping and surging   | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |                 |
| 141 | Conduct step-drawdown pumping test in newly completed wells                              | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |                 |
| 142 | Conduct constant-rate pumping test in newly completed wells                              | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |                 |
| 143 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 144 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |                 |
| 145 | Conduct well alignment/deviation test in newly completed wells                           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 146 | Conduct final well disinfection in newly completed wells                                 | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
|     | Phase I 640 Acre Well Equipping and Site Development                                     | EA  | 6      | \$ | 1,137,000.00 |    |              | \$ 6,822,000.00 |
| 147 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |                 |
| 148 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 149 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 150 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |                 |
| 151 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 152 | Furnish and install yard piping, mechanical piping and appurtenances                     | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |                 |
| 153 | Furnish and install vertical turbine well pumps, pump base, etc.                         | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |                 |
| 154 | Furnish and install well enclosures and appurtenances                                    | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 155 | Furnish and install electrical facilities and instrumentation                            | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |                 |
| 156 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 157 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 158 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 159 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 160 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 161 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                  | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |                 |
| 162 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                  | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |                 |
| 163 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                  | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |                 |
| 164 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                  | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$ 2,428,500.00 |
| 165 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |                 |
| 166 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                   | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |                 |
| 167 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                   | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |                 |
| 168 | RRB Intake Canal Interconnection Backfill & Compaction                                   | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |                 |
| 169 | RRB Intake Canal Interconnection Miscellaneous Steel                                     | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 170 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                         | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 171 | RRB Intake Canal Interconnection Concrete Lining   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 172 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 173 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                              | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$ 165,800.00   |
| 174 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 175 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                               | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 176 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 177 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 178 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 179 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                           | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 180 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 181 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 182 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                     | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 183 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |

|     |  |     |      |    |              |    |                       |                 |
|-----|--|-----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6    | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00    |
| 184 | Mobilization, demobilization & misc. work  | LS  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 185 | Transport and dispose of drill cuttings offsite  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 186 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 187 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50   | \$ | 620.00       | \$ | 31,000.00             |                 |
| 188 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920  | \$ | 110.00       | \$ | 101,200.00            |                 |
| 189 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430  | \$ | 110.00       | \$ | 47,300.00             |                 |
| 190 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 191 | Conduct isolated aquifer zone test   | EA  | 3    | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 192 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3    | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 193 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280  | \$ | 110.00       | \$ | 30,800.00             |                 |
| 194 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660  | \$ | 110.00       | \$ | 72,600.00             |                 |
| 195 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 196 | Conduct a caliper survey of enlarged borehole  | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 197 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424  | \$ | 220.00       | \$ | 93,280.00             |                 |
| 198 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 199 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510  | \$ | 320.00       | \$ | 163,200.00            |                 |
| 200 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652  | \$ | 46.00        | \$ | 29,992.00             |                 |
| 201 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319  | \$ | 38.00        | \$ | 12,122.00             |                 |
| 202 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670  | \$ | 225.00       | \$ | 150,750.00            |                 |
| 203 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300  | \$ | 170.00       | \$ | 51,000.00             |                 |
| 204 | Perform initial well development   | HRS | 108  | \$ | 275.00       | \$ | 29,700.00             |                 |
| 205 | Provide chlorine solution for chemical development of the well                         | GAL | 255  | \$ | 26.00        | \$ | 6,630.00              |                 |
| 206 | Provide polymer dispersant for chemical development of the well                        | GAL | 40   | \$ | 110.00       | \$ | 4,400.00              |                 |
| 207 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 208 | Conduct final development by pumping and surging                                       | HRS | 60   | \$ | 500.00       | \$ | 30,000.00             |                 |
| 209 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8    | \$ | 500.00       | \$ | 4,000.00              |                 |
| 210 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28   | \$ | 500.00       | \$ | 14,000.00             |                 |
| 211 | Conduct a dynamic flow meter survey  | EA  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 212 | Conduct a color video camera survey  | EA  | 1    | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 213 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 214 | Conduct final well disinfection in newly completed wells                               | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 215 | Mobilization, Demobilization, & Cleanup  | LS  | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 216 | Water Supply   | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 217 | Environmental Mitigation   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 218 | Construct site work  | LS  | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 219 | Furnish and install concrete foundations   | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 220 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 221 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 222 | Furnish and install well enclosures and appurtenances                                  | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 223 | Furnish and install electrical facilities and instrumentation                          | LS  | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 224 | Furnish and install pre-fabricated metal canopy  | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 225 | Furnish and install site ground cover  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 226 | Furnish and install site fencing   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 227 | Furnish and install site painting  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 228 | Furnish and install VFD's  | LS  | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 229 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 230 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 231 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 232 | Phase II 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline          | EA  | 2    | \$ | 100,000.00   | \$ | 200,000.00            | \$ 1,616,500.00 |
| 233 | SCADA Communication & Appurtenances  | LS  | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |      |    |              | \$ | 119,823,338.00        |                 |
|     | 20% Construction Contingency:  |     |      |    |              | \$ | 23,964,667.60         |                 |
|     | Unlisted Items:  |     |      |    |              | \$ | 2,396,466.76          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 30   | \$ | 25,000.00    | \$ | 750,000.00            |                 |
|     | Habitat Credit Purchase  | AC  | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |      |    |              | \$ | 183,509,472.36        |                 |
|     | Non-Contract Costs:  |     |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |      |    |              | \$ | <b>209,869,472.36</b> |                 |

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## KWB Canal Alignment - Earth &amp; Concrete Lined Canal Reach 1 &amp; 2 and Pipeline Reach 3 (Item #8)

| Item No. | Item Description   | Unit | Quantity | Unit Cost       | Extended Cost   | Section Subtotal |
|----------|--|------|----------|-----------------|-----------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup                    | LS   | 1        | \$ 1,820,000.00 | \$ 1,820,000.00 | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                            | LS   | 1        | \$ 250,000.00   | \$ 250,000.00   |                  |
| 3        | Aqueduct Turnout Excavation                                | CY   | 2450     | \$ 30.00        | \$ 73,500.00    |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor             | CY   | 45       | \$ 800.00       | \$ 36,000.00    |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls             | CY   | 100      | \$ 1,200.00     | \$ 120,000.00   |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam         | CY   | 5        | \$ 2,000.00     | \$ 10,000.00    |                  |
| 7        | Aqueduct Backfill and Compaction                           | CY   | 1850     | \$ 30.00        | \$ 55,500.00    |                  |
| 8        | Aqueduct Miscellaneous Steel                               | LS   | 1        | \$ 50,000.00    | \$ 50,000.00    |                  |
| 9        | Aqueduct Trashrack   | LS   | 1        | \$ 50,000.00    | \$ 50,000.00    |                  |
| 10       | Aqueduct Turnout Piping                                    | LF   | 1800     | \$ 4,000.00     | \$ 7,200,000.00 |                  |
| 11       | Aqueduct Metering  | EA   | 1        | \$ 200,000.00   | \$ 200,000.00   |                  |
| 12       | Aqueduct Meter Vault                                       | LS   | 1        | \$ 250,000.00   | \$ 250,000.00   |                  |
| 13       | Aqueduct Slide Gate & Actuator                             | EA   | 1        | \$ 75,000.00    | \$ 75,000.00    |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting                  | LS   | 1        | \$ 150,000.00   | \$ 150,000.00   |                  |
| 15       | Aqueduct Liner Repair                                      | LS   | 1        | \$ 20,000.00    | \$ 20,000.00    |                  |
| 16       | Levee Road Pavement Restoration                            | SF   | 1600     | \$ 7.00         | \$ 11,200.00    | \$ 8,551,200.00  |
| 17       | Canal Clearing & Grubbing                                  | AC   | 104      | \$ 1,200.00     | \$ 124,800.00   |                  |
| 18       | Canal Earthwork-Cut  | CY   | 400,000  | \$ 4.50         | \$ 1,800,000.00 |                  |
| 19       | Canal Earthwork-Fill                                       | CY   | 180,000  | \$ 4.50         | \$ 810,000.00   |                  |
| 20       | Levee Subgrade Preparation                                 | CY   | 145,000  | \$ 4.60         | \$ 667,000.00   |                  |
| 21       | Concrete Canal Lining                                      | SF   | 615,650  | \$ 6.00         | \$ 3,693,900.00 |                  |
| 22       | Canal Appurtenances  | LS   | 1        | \$ 250,000.00   | \$ 250,000.00   |                  |
| 23       | Canal Fencing  | LF   | 65,000   | \$ 7.50         | \$ 487,500.00   |                  |
| 24       | Levee Road Aggregate Base Ground Cover                     | LS   | 1        | \$ 525,000.00   | \$ 525,000.00   |                  |
| 25       | Ex. Facility Relocations                                   | LS   | 1        | \$ 500,000.00   | \$ 500,000.00   | \$ 8,858,200.00  |
| 26       | Aqueduct Turnout Afterbay Structure Walls & Footings       | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 27       | Turnout Afterbay Earthwork                                 | CY   | 3800     | \$ 30.00        | \$ 114,000.00   |                  |
| 28       | Turnout Afterbay Miscellaneous Steel                       | LS   | 1        | \$ 25,000.00    | \$ 25,000.00    |                  |
| 29       | Main Canal Forebay Structure Walls & Footings              | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 30       | Main Canal Siphon Pipes                                    | LF   | 300      | \$ 2,500.00     | \$ 750,000.00   |                  |
| 31       | Main Canal Afterbay Structure Walls & Footings             | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 32       | Siphon Crossing Earthwork                                  | CY   | 7200     | \$ 25.00        | \$ 180,000.00   |                  |
| 33       | Siphon Crossing Miscellaneous Steel                        | LS   | 1        | \$ 50,000.00    | \$ 50,000.00    |                  |
| 34       | WKWD Pipeline Forebay Structure Walls & Footings           | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 35       | WKWD Pipeline Siphon Pipes                                 | LF   | 150      | \$ 2,500.00     | \$ 375,000.00   |                  |
| 36       | WKWD Pipeline Afterbay Structure Walls & Footings          | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 37       | Siphon Crossing Earthwork                                  | CY   | 7200     | \$ 25.00        | \$ 180,000.00   |                  |
| 38       | Siphon Crossing Miscellaneous Steel                        | LS   | 1        | \$ 50,000.00    | \$ 50,000.00    |                  |
| 39       | Levee Side Canal Forebay Structure Walls & Footings        | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 40       | Levee Side Canal Siphon Pipes                              | LF   | 150      | \$ 2,500.00     | \$ 375,000.00   |                  |
| 41       | Levee Side Canal Afterbay Structure Walls & Footings       | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 42       | Siphon Crossing Earthwork                                  | CY   | 7200     | \$ 25.00        | \$ 180,000.00   |                  |
| 43       | Siphon Crossing Miscellaneous Steel                        | LS   | 1        | \$ 50,000.00    | \$ 50,000.00    | \$ 4,009,000.00  |
| 44       | Lift Station Excavation                                    | CY   | 11000    | \$ 10.00        | \$ 110,000.00   |                  |
| 45       | Lift Station Reinforced Concrete Structure - Floor         | CY   | 320      | \$ 800.00       | \$ 256,000.00   |                  |
| 46       | Lift Station Reinforced Concrete Structure - Walls         | CY   | 520      | \$ 1,200.00     | \$ 624,000.00   |                  |
| 47       | Lift Station Reinforced Concrete Structure - Deck          | CY   | 120      | \$ 2,000.00     | \$ 240,000.00   |                  |
| 48       | Lift Station Pumps - 30 cfs                                | EA   | 2        | \$ 130,000.00   | \$ 260,000.00   |                  |
| 49       | Lift Station Pumps - 60 cfs                                | EA   | 2        | \$ 180,000.00   | \$ 360,000.00   |                  |
| 50       | Lift Station Pumps - 80 cfs                                | EA   | 4        | \$ 195,000.00   | \$ 780,000.00   |                  |
| 51       | Lift Station Motors - 100 hp                               | EA   | 2        | \$ 40,000.00    | \$ 80,000.00    |                  |
| 52       | Lift Station Motors - 200 hp                               | EA   | 2        | \$ 60,000.00    | \$ 120,000.00   |                  |
| 53       | Lift Station Motors - 300 hp                               | EA   | 4        | \$ 90,000.00    | \$ 360,000.00   |                  |
| 54       | Lift Station 36" Discharge Piping & Appurtenances          | LS   | 2        | \$ 300,000.00   | \$ 600,000.00   |                  |
| 55       | Lift Station 48" Discharge Piping & Appurtenances          | LS   | 2        | \$ 425,000.00   | \$ 850,000.00   |                  |
| 56       | Lift Station 54" Discharge Piping & Appurtenances          | LS   | 4        | \$ 550,000.00   | \$ 2,200,000.00 |                  |
| 57       | Lift Station 100 hp VFD's                                  | EA   | 2        | \$ 40,000.00    | \$ 80,000.00    |                  |
| 58       | Lift Station 200 hp VFD's                                  | EA   | 2        | \$ 60,000.00    | \$ 120,000.00   |                  |
| 59       | Lift Station 300 hp VFD's                                  | EA   | 4        | \$ 80,000.00    | \$ 320,000.00   |                  |
| 60       | Lift Station Electrical, Controls, & Lighting              | LS   | 1        | \$ 500,000.00   | \$ 500,000.00   |                  |
| 61       | Lift Station Electrical Control Building                   | LS   | 1        | \$ 200,000.00   | \$ 200,000.00   |                  |
| 62       | Lift Station Backfill & Compaction                         | CY   | 6000     | \$ 10.00        | \$ 60,000.00    |                  |
| 63       | Lift Station Slide Gates                                   | EA   | 1        | \$ 55,000.00    | \$ 55,000.00    |                  |
| 64       | Lift Station Trashracks                                    | LS   | 8        | \$ 25,000.00    | \$ 200,000.00   |                  |
| 65       | Lift Station Miscellaneous Steel                           | LS   | 1        | \$ 120,000.00   | \$ 120,000.00   |                  |
| 66       | Lift Station Cathodic Protection                           | LS   | 1        | \$ 25,000.00    | \$ 25,000.00    |                  |
| 67       | Lift Station Site Fencing                                  | LF   | 850      | \$ 45.00        | \$ 38,250.00    |                  |
| 68       | Lift Station Bypass Pipeline                               | LF   | 200      | \$ 750.00       | \$ 150,000.00   |                  |
| 69       | Lift Station Ground Cover                                  | LS   | 1        | \$ 45,000.00    | \$ 45,000.00    | \$ 8,753,250.00  |
| 70       | Lift Station Afterbay Structure Walls & Footings           | CY   | 280      | \$ 1,200.00     | \$ 336,000.00   |                  |
| 71       | Lift Station Afterbay Earthwork                            | CY   | 3800     | \$ 25.00        | \$ 95,000.00    |                  |
| 72       | Lift Station Afterbay Miscellaneous Steel                  | LS   | 1        | \$ 25,000.00    | \$ 25,000.00    |                  |
| 73       | I-5 Fwy Crossing Forebay Structure Walls & Footings        | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 74       | I-5 Fwy Crossing Siphon Pipes                              | LF   | 400      | \$ 6,000.00     | \$ 2,400,000.00 |                  |
| 75       | I-5 Fwy Crossing Afterbay Structure Walls & Footings       | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 76       | Siphon Crossing Earthwork                                  | LS   | 7200     | \$ 25.00        | \$ 180,000.00   |                  |
| 77       | Siphon Crossing Miscellaneous Steel                        | LS   | 1        | \$ 50,000.00    | \$ 50,000.00    |                  |
| 78       | Farm Rd Crossing Forebay Structure Walls & Footings        | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 79       | Farm Rd Crossing Siphon Pipes                              | LF   | 150      | \$ 2,500.00     | \$ 375,000.00   |                  |
| 80       | Farm Rd Crossing Afterbay Structure Walls & Footings       | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 81       | Siphon Crossing Earthwork                                  | LS   | 7200     | \$ 25.00        | \$ 180,000.00   |                  |
| 82       | Siphon Crossing Miscellaneous Steel                        | LS   | 1        | \$ 50,000.00    | \$ 50,000.00    |                  |
| 83       | Stockdale Hwy Crossing Forebay Structure Walls & Footings  | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 84       | Stockdale Hwy Crossing Siphon Pipes                        | LF   | 150      | \$ 6,000.00     | \$ 900,000.00   |                  |
| 85       | Stockdale Hwy Crossing Afterbay Structure Walls & Footings | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 86       | Siphon Crossing Earthwork                                  | LS   | 7200     | \$ 25.00        | \$ 180,000.00   |                  |
| 87       | Siphon Crossing Miscellaneous Steel                        | LS   | 1        | \$ 50,000.00    | \$ 50,000.00    |                  |
| 88       | Farm Rd Crossing Forebay Structure Walls & Footings        | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 89       | Farm Rd Crossing Siphon Pipes                              | LF   | 150      | \$ 2,500.00     | \$ 375,000.00   |                  |
| 90       | Farm Rd Crossing Afterbay Structure Walls & Footings       | CY   | 200      | \$ 1,200.00     | \$ 240,000.00   |                  |
| 91       | Siphon Crossing Earthwork                                  | LS   | 7200     | \$ 25.00        | \$ 180,000.00   |                  |
| 92       | Siphon Crossing Miscellaneous Steel                        | LS   | 1        | \$ 50,000.00    | \$ 50,000.00    | \$ 7,346,000.00  |

|     |  |     |        |    |              |    |               |                  |
|-----|--|-----|--------|----|--------------|----|---------------|------------------|
| 93  | Lift Station Excavation  | CY  | 11000  | \$ | 10.00        | \$ | 110,000.00    |                  |
| 94  | Lift Station Reinforced Concrete Structure - Floor                                     | CY  | 320    | \$ | 800.00       | \$ | 256,000.00    |                  |
| 95  | Lift Station Reinforced Concrete Structure - Walls                                     | CY  | 520    | \$ | 1,200.00     | \$ | 624,000.00    |                  |
| 96  | Lift Station Reinforced Concrete Structure - Deck                                      | CY  | 120    | \$ | 2,000.00     | \$ | 240,000.00    |                  |
| 97  | Lift Station Pumps - 30 cfs  | EA  | 2      | \$ | 130,000.00   | \$ | 260,000.00    |                  |
| 98  | Lift Station Pumps - 60 cfs  | EA  | 2      | \$ | 180,000.00   | \$ | 360,000.00    |                  |
| 99  | Lift Station Pumps - 80 cfs  | EA  | 4      | \$ | 195,000.00   | \$ | 780,000.00    |                  |
| 100 | Lift Station Motors - 100 hp   | EA  | 2      | \$ | 40,000.00    | \$ | 80,000.00     |                  |
| 101 | Lift Station Motors - 200 hp   | EA  | 2      | \$ | 60,000.00    | \$ | 120,000.00    |                  |
| 102 | Lift Station Motors - 300 hp   | EA  | 4      | \$ | 90,000.00    | \$ | 360,000.00    |                  |
| 103 | Lift Station 36" Discharge Piping & Appurtenances                                      | LS  | 2      | \$ | 300,000.00   | \$ | 600,000.00    |                  |
| 104 | Lift Station 48" Discharge Piping & Appurtenances                                      | LS  | 2      | \$ | 425,000.00   | \$ | 850,000.00    |                  |
| 105 | Lift Station 54" Discharge Piping & Appurtenances                                      | LS  | 4      | \$ | 550,000.00   | \$ | 2,200,000.00  |                  |
| 106 | Lift Station 100 hp VFD's  | EA  | 2      | \$ | 40,000.00    | \$ | 80,000.00     |                  |
| 107 | Lift Station 200 hp VFD's  | EA  | 2      | \$ | 60,000.00    | \$ | 120,000.00    |                  |
| 108 | Lift Station 300 hp VFD's  | EA  | 4      | \$ | 80,000.00    | \$ | 320,000.00    |                  |
| 109 | Lift Station Electrical, Controls, & Lighting  | LS  | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 110 | Lift Station Electrical Control Building   | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00    |                  |
| 111 | Lift Station Backfill & Compaction   | CY  | 6000   | \$ | 10.00        | \$ | 60,000.00     |                  |
| 112 | Lift Station Slide Gates   | EA  | 1      | \$ | 55,000.00    | \$ | 55,000.00     |                  |
| 113 | Lift Station Trashracks  | LS  | 8      | \$ | 25,000.00    | \$ | 200,000.00    |                  |
| 114 | Lift Station Miscellaneous Steel   | LS  | 1      | \$ | 120,000.00   | \$ | 120,000.00    |                  |
| 115 | Lift Station Cathodic Protection   | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 116 | Lift Station Site Fencing  | LF  | 850    | \$ | 45.00        | \$ | 38,250.00     |                  |
| 117 | Lift Station Bypass Pipeline   | LF  | 200    | \$ | 750.00       | \$ | 150,000.00    |                  |
| 118 | Lift Station Ground Cover  | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00     | \$ 8,753,250.00  |
| 119 | R/W Clearing & Grubbing  | AC  | 25     | \$ | 1,200.00     | \$ | 30,000.00     |                  |
| 120 | Conveyance Pipeline 9-ft Diameter  | LF  | 8000   | \$ | 1,575.00     | \$ | 12,600,000.00 |                  |
| 121 | Pipeline Appurtenances   | LS  | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 122 | Turnout to Phase II 640 Acres  | LF  | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 123 | Turnout to West Basins   | LF  | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 124 | Turnout Fittings   | EA  | 2      | \$ | 350,000.00   | \$ | 700,000.00    |                  |
| 125 | Phase II 640 Acres Outlet Structure  | LS  | 1      | \$ | 950,000.00   | \$ | 950,000.00    |                  |
| 126 | West Basins Outlet Structure   | LS  | 1      | \$ | 950,000.00   | \$ | 950,000.00    | \$ 16,240,000.00 |
| 127 | Phase I 640 Acres Clearing & Grubbing  | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00    |                  |
| 128 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction                              | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00  |                  |
| 129 | Phase I 640 Acres Levee Keyway   | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00    |                  |
| 130 | Phase I 640 Acres Levee Embankment Fill  | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00  |                  |
| 131 | Phase I 640 Acres Structure Headwalls  | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00    |                  |
| 132 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards                          | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00    |                  |
| 133 | Phase I 640 Acres Interbasin Structure Piping  | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00  |                  |
| 134 | Phase I 640 Acres Interbasin Structure Rip-Rap   | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00    |                  |
| 135 | Phase I 640 Acres Interbasin Structure Cutoff Walls                                    | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00    |                  |
| 136 | Phase I 640 Acres Site Fencing and Gates   | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00    | \$ 5,429,400.00  |
| 137 | Goose Lake Slough Turnout Structure Excavation   | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00     |                  |
| 138 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                        | CY  | 90     | \$ | 800.00       | \$ | 72,000.00     |                  |
| 139 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                        | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00    |                  |
| 140 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                         | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00    |                  |
| 141 | Goose Lake Slough Turnout Backfill & Compaction  | LS  | 500    | \$ | 30.00        | \$ | 15,000.00     |                  |
| 142 | Goose Lake Slough Turnout Trashracks   | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00     |                  |
| 143 | Goose Lake Slough Turnout Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 144 | Goose Lake Slough Lift Station Pumps - 60 cfs  | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00    |                  |
| 145 | Goose Lake Slough Lift Station Motors - 200 hp   | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00    |                  |
| 146 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                        | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00    |                  |
| 147 | Goose Lake Slough Metering   | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00     |                  |
| 148 | Goose Lake Slough Turnout Slide Gate   | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00     |                  |
| 149 | Goose Lake Slough Turnout Electrical   | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00    |                  |
| 150 | Goose Lake Slough Electrical Shade Structure & Foundation                              | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 151 | Goose Lake Slough Pipe Outlet  | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00    |                  |
| 152 | Goose Lake Slough Turnout Outlet Structure   | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00    |                  |
| 153 | Goose Lake Slough Outlet Rip-Rap   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 154 | Goose Lake Slough Check Structure - Earthwork  | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00     |                  |
| 155 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                        | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00    |                  |
| 156 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                        | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00     |                  |
| 157 | Goose Lake Slough Check Structure - Miscellaneous Steel                                | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 158 | Goose Lake Slough Check Structure - Rip-Rap  | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00     |                  |
| 159 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                         | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     | \$ 3,125,700.00  |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 | \$ |               | \$ 7,052,844.00  |
| 160 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 161 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 162 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 163 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00     |                  |
| 164 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00    |                  |
| 165 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00     |                  |
| 166 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00     |                  |
| 167 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00     |                  |
| 168 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00    |                  |
| 169 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00     |                  |
| 170 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00     |                  |
| 171 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00      |                  |
| 172 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00      |                  |
| 173 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00     |                  |
| 174 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
| 175 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00    |                  |
| 176 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00     |                  |
| 177 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00     |                  |
| 178 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00    |                  |
| 179 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00     |                  |
| 180 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00     |                  |
| 181 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00      |                  |
| 182 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00      |                  |
| 183 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 184 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00     |                  |
| 185 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00      |                  |
| 186 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00     |                  |
| 187 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 188 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00      |                  |
| 189 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
| 190 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |



|     |   |     |        |    |              |           |                       |              |              |
|-----|---|-----|--------|----|--------------|-----------|-----------------------|--------------|--------------|
| 191 | Phase I 640 Acre Well Equipping and Site Development                                    | EA  | 6      | \$ | 1,137,000.00 |           | \$                    | 6,822,000.00 |              |
| 192 | Mobilization, Demobilization, & Cleanup   | LS  | 1      | \$ | 60,000.00    | \$        | 60,000.00             |              |              |
| 193 | Water Supply  | LS  | 1      | \$ | 15,000.00    | \$        | 15,000.00             |              |              |
| 194 | Environmental Mitigation  | LS  | 1      | \$ | 20,000.00    | \$        | 20,000.00             |              |              |
| 195 | Construct site work   | LS  | 1      | \$ | 17,000.00    | \$        | 17,000.00             |              |              |
| 196 | Furnish and install concrete foundations  | LS  | 1      | \$ | 70,000.00    | \$        | 70,000.00             |              |              |
| 197 | Furnish and install yard piping, mechanical piping and appurtenances                    | LS  | 1      | \$ | 45,000.00    | \$        | 45,000.00             |              |              |
| 198 | Furnish and install vertical turbine well pumps, pump base, etc.                        | LS  | 1      | \$ | 255,000.00   | \$        | 255,000.00            |              |              |
| 199 | Furnish and install well enclosures and appurtenances                                   | LS  | 1      | \$ | 20,000.00    | \$        | 20,000.00             |              |              |
| 200 | Furnish and install electrical facilities and instrumentation                           | LS  | 1      | \$ | 325,000.00   | \$        | 325,000.00            |              |              |
| 201 | Furnish and install pre-fabricated metal canopy   | LS  | 1      | \$ | 70,000.00    | \$        | 70,000.00             |              |              |
| 202 | Furnish and install site ground cover   | LS  | 1      | \$ | 10,000.00    | \$        | 10,000.00             |              |              |
| 203 | Furnish and install site fencing  | LS  | 1      | \$ | 20,000.00    | \$        | 20,000.00             |              |              |
| 204 | Furnish and install site painting   | LS  | 1      | \$ | 10,000.00    | \$        | 10,000.00             |              |              |
| 205 | Furnish and install VFD's   | LS  | 1      | \$ | 200,000.00   | \$        | 200,000.00            |              |              |
| 206 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                 | LF  | 6900   | \$ | 90.00        | \$        | 621,000.00            |              |              |
| 207 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                 | LF  | 2400   | \$ | 120.00       | \$        | 288,000.00            |              |              |
| 208 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                 | LF  | 5540   | \$ | 175.00       | \$        | 969,500.00            |              |              |
| 209 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                 | LF  | 2000   | \$ | 275.00       | \$        | 550,000.00            | \$           | 2,428,500.00 |
| 210 | RRB Intake Canal Interconnection Excavation   | CY  | 350    | \$ | 30.00        | \$        | 10,500.00             |              |              |
| 211 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                  | CY  | 14     | \$ | 800.00       | \$        | 11,200.00             |              |              |
| 212 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                  | CY  | 18     | \$ | 1,200.00     | \$        | 21,600.00             |              |              |
| 213 | RRB Intake Canal Interconnection Backfill & Compaction                                  | CY  | 250    | \$ | 30.00        | \$        | 7,500.00              |              |              |
| 214 | RRB Intake Canal Interconnection Miscellaneous Steel                                    | LS  | 1      | \$ | 10,000.00    | \$        | 10,000.00             |              |              |
| 215 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                        | EA  | 1      | \$ | 50,000.00    | \$        | 50,000.00             |              |              |
| 216 | RRB Intake Canal Interconnection Concrete Lining  | LS  | 1      | \$ | 15,000.00    | \$        | 15,000.00             |              |              |
| 217 | RRB Intake Canal Interconnection Liner Repair   | LS  | 1      | \$ | 5,000.00     | \$        | 5,000.00              |              |              |
| 218 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                             | LS  | 1      | \$ | 35,000.00    | \$        | 35,000.00             | \$           | 165,800.00   |
| 219 | Phase II 640 Acres Clearing & Grubbing  | AC  | 320    | \$ | 1,200.00     | \$        | 384,000.00            |              |              |
| 220 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                              | CY  | 235000 | \$ | 4.60         | \$        | 1,081,000.00          |              |              |
| 221 | Phase II 640 Acres Levee Keyway   | CY  | 50000  | \$ | 4.70         | \$        | 235,000.00            |              |              |
| 222 | Phase II 640 Acres Levee Embankment Fill  | CY  | 255000 | \$ | 4.20         | \$        | 1,071,000.00          |              |              |
| 223 | Phase II 640 Acres Structure Headwalls  | EA  | 15     | \$ | 30,000.00    | \$        | 450,000.00            |              |              |
| 224 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                          | EA  | 15     | \$ | 10,000.00    | \$        | 150,000.00            |              |              |
| 225 | Phase II 640 Acres Interbasin Structure Piping  | LS  | 1      | \$ | 1,000,000.00 | \$        | 1,000,000.00          |              |              |
| 226 | Phase II 640 Acres Interbasin Structure Rip-Rap   | EA  | 15     | \$ | 35,000.00    | \$        | 525,000.00            |              |              |
| 227 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                    | EA  | 15     | \$ | 25,000.00    | \$        | 375,000.00            |              |              |
| 228 | Phase II 640 Acres Site Fencing and Gates   | LF  | 21120  | \$ | 7.50         | \$        | 158,400.00            | \$           | 5,429,400.00 |
| 229 | Phase II 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |           | \$                    | 7,052,844.00 |              |
| 230 | Mobilization, demobilization & misc. work   | LS  | 1      | \$ | 25,000.00    | \$        | 25,000.00             |              |              |
| 231 | Transport and dispose of drill cuttings offsite   | LS  | 1      | \$ | 10,000.00    | \$        | 10,000.00             |              |              |
| 232 | Three 20,000-gallon temporary water storage tanks and discharge piping                  | LS  | 1      | \$ | 10,000.00    | \$        | 10,000.00             |              |              |
| 233 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                    | LF  | 50     | \$ | 620.00       | \$        | 31,000.00             |              |              |
| 234 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs                | LF  | 920    | \$ | 110.00       | \$        | 101,200.00            |              |              |
| 235 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs             | LF  | 430    | \$ | 110.00       | \$        | 47,300.00             |              |              |
| 236 | Conduct downhole geophysical surveys and alignment/deviation survey                     | LS  | 1      | \$ | 15,000.00    | \$        | 15,000.00             |              |              |
| 237 | Conduct isolated aquifer zone test  | EA  | 3      | \$ | 25,000.00    | \$        | 75,000.00             |              |              |
| 238 | Conduct deep isolated aquifer zone test below 800 ft bgs                                | EA  | 3      | \$ | 35,000.00    | \$        | 105,000.00            |              |              |
| 239 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                     | LF  | 280    | \$ | 110.00       | \$        | 30,800.00             |              |              |
| 240 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                    | LF  | 660    | \$ | 110.00       | \$        | 72,600.00             |              |              |
| 241 | Conduct alignment/deviation tests in enlarged borehole                                  | EA  | 1      | \$ | 5,500.00     | \$        | 5,500.00              |              |              |
| 242 | Conduct a caliper survey of enlarged borehole   | EA  | 1      | \$ | 5,500.00     | \$        | 5,500.00              |              |              |
| 243 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing         | LF  | 424    | \$ | 220.00       | \$        | 93,280.00             |              |              |
| 244 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"            | EA  | 1      | \$ | 5,000.00     | \$        | 5,000.00              |              |              |
| 245 | Furnish and install 20-inch by 5/16-inch wall Full Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$        | 163,200.00            |              |              |
| 246 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube      | LF  | 652    | \$ | 46.00        | \$        | 29,992.00             |              |              |
| 247 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                 | LF  | 319    | \$ | 38.00        | \$        | 12,122.00             |              |              |
| 248 | Furnish and install gravel pack in borehole annulus                                     | LF  | 670    | \$ | 225.00       | \$        | 150,750.00            |              |              |
| 249 | Furnish and install 10.3-sack sand-cement grout upper annular seal                      | LF  | 300    | \$ | 170.00       | \$        | 51,000.00             |              |              |
| 250 | Perform initial well development  | HRS | 108    | \$ | 275.00       | \$        | 29,700.00             |              |              |
| 251 | Provide chlorine solution for chemical development of the well                          | GAL | 255    | \$ | 26.00        | \$        | 6,630.00              |              |              |
| 252 | Provide polymer dispersant for chemical development of the well                         | GAL | 40     | \$ | 110.00       | \$        | 4,400.00              |              |              |
| 253 | Mobilize, install, and demobilize test pumping equipment in newly completed wells       | EA  | 1      | \$ | 25,000.00    | \$        | 25,000.00             |              |              |
| 254 | Conduct final development by pumping and surging  | HRS | 60     | \$ | 500.00       | \$        | 30,000.00             |              |              |
| 255 | Conduct step-drawdown pumping test in newly completed wells                             | HRS | 8      | \$ | 500.00       | \$        | 4,000.00              |              |              |
| 256 | Conduct constant-rate pumping test in newly completed wells                             | HRS | 28     | \$ | 500.00       | \$        | 14,000.00             |              |              |
| 257 | Conduct a dynamic flow meter survey   | EA  | 1      | \$ | 10,000.00    | \$        | 10,000.00             |              |              |
| 258 | Conduct a color video camera survey   | EA  | 1      | \$ | 2,500.00     | \$        | 2,500.00              |              |              |
| 259 | Conduct well alignment/deviation test in newly completed wells                          | EA  | 1      | \$ | 5,000.00     | \$        | 5,000.00              |              |              |
| 260 | Conduct final well disinfection in newly completed wells                                | EA  | 1      | \$ | 5,000.00     | \$        | 5,000.00              |              |              |
| 261 | Phase II 640 Acres Well Equipping and Site Development                                  | EA  | 6      | \$ | 1,137,000.00 |           | \$                    | 6,822,000.00 |              |
| 262 | Mobilization, Demobilization, & Cleanup   | LS  | 1      | \$ | 60,000.00    | \$        | 60,000.00             |              |              |
| 263 | Water Supply  | LS  | 1      | \$ | 15,000.00    | \$        | 15,000.00             |              |              |
| 264 | Environmental Mitigation  | LS  | 1      | \$ | 20,000.00    | \$        | 20,000.00             |              |              |
| 265 | Construct site work   | LS  | 1      | \$ | 17,000.00    | \$        | 17,000.00             |              |              |
| 266 | Furnish and install concrete foundations  | LS  | 1      | \$ | 70,000.00    | \$        | 70,000.00             |              |              |
| 267 | Furnish and install yard piping, mechanical piping and appurtenances                    | LS  | 1      | \$ | 45,000.00    | \$        | 45,000.00             |              |              |
| 268 | Furnish and install vertical turbine well pumps, pump base, etc.                        | LS  | 1      | \$ | 255,000.00   | \$        | 255,000.00            |              |              |
| 269 | Furnish and install well enclosures and appurtenances                                   | LS  | 1      | \$ | 20,000.00    | \$        | 20,000.00             |              |              |
| 270 | Furnish and install electrical facilities and instrumentation                           | LS  | 1      | \$ | 325,000.00   | \$        | 325,000.00            |              |              |
| 271 | Furnish and install pre-fabricated metal canopy   | LS  | 1      | \$ | 70,000.00    | \$        | 70,000.00             |              |              |
| 272 | Furnish and install site ground cover   | LS  | 1      | \$ | 10,000.00    | \$        | 10,000.00             |              |              |
| 273 | Furnish and install site fencing  | LS  | 1      | \$ | 20,000.00    | \$        | 20,000.00             |              |              |
| 274 | Furnish and install site painting   | LS  | 1      | \$ | 10,000.00    | \$        | 10,000.00             |              |              |
| 275 | Furnish and install VFD's   | LS  | 1      | \$ | 200,000.00   | \$        | 200,000.00            |              |              |
| 276 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$        | 621,000.00            |              |              |
| 277 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$        | 288,000.00            |              |              |
| 278 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 2900   | \$ | 175.00       | \$        | 507,500.00            |              |              |
| 279 | Phase II 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline           | EA  | 2      | \$ | 100,000.00   | \$        | 200,000.00            | \$           | 1,616,500.00 |
| 280 | SCADA Communication & Appurtenances   | LS  | 1      | \$ | 300,000.00   | \$        | 300,000.00            | \$           | 300,000.00   |
|     | Contract Cost:  |     |        |    |              | \$        | 110,575,888.00        |              |              |
|     | 20% Construction Contingency:   |     |        |    |              | \$        | 22,115,177.60         |              |              |
|     | Unlisted Items:   |     |        |    |              | \$        | 2,211,517.76          |              |              |
|     | Property Acquisition - 640 acres  | AC  | 640    | \$ | 26,500.00    | \$        | 16,960,000.00         |              |              |
|     | Property Acquisition - 640 acres  | AC  | 640    | \$ | 21,500.00    | \$        | 13,760,000.00         |              |              |
|     | Temporary Easement  | AC  | 235    | \$ | 3,750.00     | \$        | 881,250.00            |              |              |
|     | Permanent Easement  | AC  | 165    | \$ | 10,750.00    | \$        | 1,773,750.00          |              |              |
|     | Crop Take   | AC  | 30     | \$ | 25,000.00    | \$        | 750,000.00            |              |              |
|     | Habitat Credit Purchase   | AC  | 200    | \$ | 16,000.00    | \$        | 3,200,000.00          |              |              |
|     | Field Cost:   |     |        |    |              | \$        | 172,227,583.36        |              |              |
|     | Non-Contract Costs:   |     |        |    |              | \$        | 26,360,000.00         |              |              |
|     | <b>Total Construction Cost:</b>   |     |        |    |              | <b>\$</b> | <b>198,587,583.36</b> |              |              |

Irvine Ranch Water District  
**Feasibility Level Cost Estimate (Class 4)**

**KWB Canal Alignment - HDPE Lined Canal Reach 1 & 2 and Pipeline Reach 3 (Item #9)**

| <u>Item No.</u> | <u>Item Description</u>                                    | <u>Unit</u> | <u>Quantity</u> | <u>Unit Cost</u> | <u>Extended Cost</u> | <u>Section Subtotal</u> |
|-----------------|--|-------------|-----------------|------------------|----------------------|-------------------------|
| 1               | Mobilization, Demobilization, & Cleanup                    | LS          | 1               | \$ 1,820,000.00  | \$ 1,820,000.00      | \$ 1,820,000.00         |
| 2               | Aqueduct Cofferdam & Dewatering                            | LS          | 1               | \$ 250,000.00    | \$ 250,000.00        |                         |
| 3               | Aqueduct Turnout Excavation                                | CY          | 2450            | \$ 30.00         | \$ 73,500.00         |                         |
| 4               | Aqueduct Reinforced Concrete Structure - Floor             | CY          | 45              | \$ 800.00        | \$ 36,000.00         |                         |
| 5               | Aqueduct Reinforced Concrete Structure - Walls             | CY          | 100             | \$ 1,200.00      | \$ 120,000.00        |                         |
| 6               | Aqueduct Reinforced Concrete Structure - Deck/Beam         | CY          | 5               | \$ 2,000.00      | \$ 10,000.00         |                         |
| 7               | Aqueduct Backfill and Compaction                           | CY          | 1850            | \$ 30.00         | \$ 55,500.00         |                         |
| 8               | Aqueduct Miscellaneous Steel                               | LS          | 1               | \$ 50,000.00     | \$ 50,000.00         |                         |
| 9               | Aqueduct Trashrack   | LS          | 1               | \$ 50,000.00     | \$ 50,000.00         |                         |
| 10              | Aqueduct Turnout Piping                                    | LF          | 1800            | \$ 4,000.00      | \$ 7,200,000.00      |                         |
| 11              | Aqueduct Metering  | EA          | 1               | \$ 200,000.00    | \$ 200,000.00        |                         |
| 12              | Aqueduct Meter Vault                                       | LS          | 1               | \$ 250,000.00    | \$ 250,000.00        |                         |
| 13              | Aqueduct Slide Gate & Actuator                             | EA          | 1               | \$ 75,000.00     | \$ 75,000.00         |                         |
| 14              | Aqueduct Electrical, Controls, & Lighting                  | LS          | 1               | \$ 150,000.00    | \$ 150,000.00        |                         |
| 15              | Aqueduct Liner Repair                                      | LS          | 1               | \$ 20,000.00     | \$ 20,000.00         |                         |
| 16              | Levee Road Pavement Restoration                            | SF          | 1600            | \$ 7.00          | \$ 11,200.00         | \$ 8,551,200.00         |
| 17              | Canal Clearing & Grubbing                                  | AC          | 104             | \$ 1,200.00      | \$ 124,800.00        |                         |
| 18              | Canal Earthwork-Cut  | CY          | 400,000         | \$ 4.50          | \$ 1,800,000.00      |                         |
| 19              | Canal Earthwork-Fill                                       | CY          | 180,000         | \$ 4.50          | \$ 810,000.00        |                         |
| 20              | Levee Subgrade Preparation                                 | CY          | 145,000         | \$ 4.60          | \$ 667,000.00        |                         |
| 21              | HDPE Canal Lining  | SF          | 1,707,024       | \$ 1.00          | \$ 1,707,024.00      |                         |
| 22              | HDPE Anchor Trench   | LF          | 64,500          | \$ 10.00         | \$ 645,000.00        |                         |
| 23              | Canal Drain System   | LS          | 1               | \$ 1,950,000.00  | \$ 1,950,000.00      |                         |
| 24              | Canal Appurtenances  | LS          | 1               | \$ 250,000.00    | \$ 250,000.00        |                         |
| 25              | Canal Fencing  | LF          | 65,000          | \$ 7.50          | \$ 487,500.00        |                         |
| 26              | Levee Road Aggregate Base Ground Cover                     | LS          | 1               | \$ 525,000.00    | \$ 525,000.00        |                         |
| 27              | Ex. Facility Relocations                                   | LS          | 1               | \$ 500,000.00    | \$ 500,000.00        | \$ 9,466,324.00         |
| 28              | Aqueduct Turnout Afterbay Structure Walls & Footings       | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 29              | Turnout Afterbay Earthwork                                 | CY          | 3800            | \$ 30.00         | \$ 114,000.00        |                         |
| 30              | Turnout Afterbay Miscellaneous Steel                       | LS          | 1               | \$ 25,000.00     | \$ 25,000.00         |                         |
| 31              | Main Canal Forebay Structure Walls & Footings              | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 32              | Main Canal Siphon Pipes                                    | LF          | 300             | \$ 2,500.00      | \$ 750,000.00        |                         |
| 33              | Main Canal Afterbay Structure Walls & Footings             | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 34              | Siphon Crossing Earthwork                                  | CY          | 7200            | \$ 25.00         | \$ 180,000.00        |                         |
| 35              | Siphon Crossing Miscellaneous Steel                        | LS          | 1               | \$ 50,000.00     | \$ 50,000.00         |                         |
| 36              | WKWD Pipeline Forebay Structure Walls & Footings           | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 37              | WKWD Pipeline Siphon Pipes                                 | LF          | 150             | \$ 2,500.00      | \$ 375,000.00        |                         |
| 38              | WKWD Pipeline Afterbay Structure Walls & Footings          | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 39              | Siphon Crossing Earthwork                                  | CY          | 7200            | \$ 25.00         | \$ 180,000.00        |                         |
| 40              | Siphon Crossing Miscellaneous Steel                        | LS          | 1               | \$ 50,000.00     | \$ 50,000.00         |                         |
| 41              | Levee Side Canal Forebay Structure Walls & Footings        | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 42              | Levee Side Canal Siphon Pipes                              | LF          | 150             | \$ 2,500.00      | \$ 375,000.00        |                         |
| 43              | Levee Side Canal Afterbay Structure Walls & Footings       | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 44              | Siphon Crossing Earthwork                                  | CY          | 7200            | \$ 25.00         | \$ 180,000.00        |                         |
| 45              | Siphon Crossing Miscellaneous Steel                        | LS          | 1               | \$ 50,000.00     | \$ 50,000.00         | \$ 4,009,000.00         |
| 46              | Lift Station Excavation                                    | CY          | 11000           | \$ 10.00         | \$ 110,000.00        |                         |
| 47              | Lift Station Reinforced Concrete Structure - Floor         | CY          | 320             | \$ 800.00        | \$ 256,000.00        |                         |
| 48              | Lift Station Reinforced Concrete Structure - Walls         | CY          | 520             | \$ 1,200.00      | \$ 624,000.00        |                         |
| 49              | Lift Station Reinforced Concrete Structure - Deck          | CY          | 120             | \$ 2,000.00      | \$ 240,000.00        |                         |
| 50              | Lift Station Pumps - 30 cfs                                | EA          | 2               | \$ 130,000.00    | \$ 260,000.00        |                         |
| 51              | Lift Station Pumps - 60 cfs                                | EA          | 2               | \$ 180,000.00    | \$ 360,000.00        |                         |
| 52              | Lift Station Pumps - 80 cfs                                | EA          | 4               | \$ 195,000.00    | \$ 780,000.00        |                         |
| 53              | Lift Station Motors - 100 hp                               | EA          | 2               | \$ 40,000.00     | \$ 80,000.00         |                         |
| 54              | Lift Station Motors - 200 hp                               | EA          | 2               | \$ 60,000.00     | \$ 120,000.00        |                         |
| 55              | Lift Station Motors - 300 hp                               | EA          | 4               | \$ 90,000.00     | \$ 360,000.00        |                         |
| 56              | Lift Station 36" Discharge Piping & Appurtenances          | LS          | 2               | \$ 300,000.00    | \$ 600,000.00        |                         |
| 57              | Lift Station 48" Discharge Piping & Appurtenances          | LS          | 2               | \$ 425,000.00    | \$ 850,000.00        |                         |
| 58              | Lift Station 54" Discharge Piping & Appurtenances          | LS          | 4               | \$ 550,000.00    | \$ 2,200,000.00      |                         |
| 59              | Lift Station 100 hp VFD's                                  | EA          | 2               | \$ 40,000.00     | \$ 80,000.00         |                         |
| 60              | Lift Station 200 hp VFD's                                  | EA          | 2               | \$ 60,000.00     | \$ 120,000.00        |                         |
| 61              | Lift Station 300 hp VFD's                                  | EA          | 4               | \$ 80,000.00     | \$ 320,000.00        |                         |
| 62              | Lift Station Electrical, Controls, & Lighting              | LS          | 1               | \$ 500,000.00    | \$ 500,000.00        |                         |
| 63              | Lift Station Electrical Control Building                   | LS          | 1               | \$ 200,000.00    | \$ 200,000.00        |                         |
| 64              | Lift Station Backfill & Compaction                         | CY          | 6000            | \$ 10.00         | \$ 60,000.00         |                         |
| 65              | Lift Station Slide Gates                                   | EA          | 1               | \$ 55,000.00     | \$ 55,000.00         |                         |
| 66              | Lift Station Trashracks                                    | LS          | 8               | \$ 25,000.00     | \$ 200,000.00        |                         |
| 67              | Lift Station Miscellaneous Steel                           | LS          | 1               | \$ 120,000.00    | \$ 120,000.00        |                         |
| 68              | Lift Station Cathodic Protection                           | LS          | 1               | \$ 25,000.00     | \$ 25,000.00         |                         |
| 69              | Lift Station Site Fencing                                  | LF          | 850             | \$ 45.00         | \$ 38,250.00         |                         |
| 70              | Lift Station Bypass Pipeline                               | LF          | 200             | \$ 750.00        | \$ 150,000.00        |                         |
| 71              | Lift Station Ground Cover                                  | LS          | 1               | \$ 45,000.00     | \$ 45,000.00         | \$ 8,753,250.00         |
| 72              | Lift Station Afterbay Structure Walls & Footings           | CY          | 280             | \$ 1,200.00      | \$ 336,000.00        |                         |
| 73              | Lift Station Afterbay Earthwork                            | CY          | 3800            | \$ 25.00         | \$ 95,000.00         |                         |
| 74              | Lift Station Afterbay Miscellaneous Steel                  | LS          | 1               | \$ 25,000.00     | \$ 25,000.00         |                         |
| 75              | I-5 Fwy Crossing Forebay Structure Walls & Footings        | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 76              | I-5 Fwy Crossing Siphon Pipes                              | LF          | 400             | \$ 6,000.00      | \$ 2,400,000.00      |                         |
| 77              | I-5 Fwy Crossing Afterbay Structure Walls & Footings       | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 78              | Siphon Crossing Earthwork                                  | LS          | 7200            | \$ 25.00         | \$ 180,000.00        |                         |
| 79              | Siphon Crossing Miscellaneous Steel                        | LS          | 1               | \$ 50,000.00     | \$ 50,000.00         |                         |
| 80              | Farm Rd Crossing Forebay Structure Walls & Footings        | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 81              | Farm Rd Crossing Siphon Pipes                              | LF          | 150             | \$ 2,500.00      | \$ 375,000.00        |                         |
| 82              | Farm Rd Crossing Afterbay Structure Walls & Footings       | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 83              | Siphon Crossing Earthwork                                  | LS          | 7200            | \$ 25.00         | \$ 180,000.00        |                         |
| 84              | Siphon Crossing Miscellaneous Steel                        | LS          | 1               | \$ 50,000.00     | \$ 50,000.00         |                         |
| 85              | Stockdale Hwy Crossing Forebay Structure Walls & Footings  | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 86              | Stockdale Hwy Crossing Siphon Pipes                        | LF          | 150             | \$ 6,000.00      | \$ 900,000.00        |                         |
| 87              | Stockdale Hwy Crossing Afterbay Structure Walls & Footings | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 88              | Siphon Crossing Earthwork                                  | LS          | 7200            | \$ 25.00         | \$ 180,000.00        |                         |
| 89              | Siphon Crossing Miscellaneous Steel                        | LS          | 1               | \$ 50,000.00     | \$ 50,000.00         |                         |
| 90              | Farm Rd Crossing Forebay Structure Walls & Footings        | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 91              | Farm Rd Crossing Siphon Pipes                              | LF          | 150             | \$ 2,500.00      | \$ 375,000.00        |                         |
| 92              | Farm Rd Crossing Afterbay Structure Walls & Footings       | CY          | 200             | \$ 1,200.00      | \$ 240,000.00        |                         |
| 93              | Siphon Crossing Earthwork                                  | LS          | 7200            | \$ 25.00         | \$ 180,000.00        |                         |
| 94              | Siphon Crossing Miscellaneous Steel                        | LS          | 1               | \$ 50,000.00     | \$ 50,000.00         | \$ 7,346,000.00         |
| 95              | Lift Station Excavation                                    | CY          | 11000           | \$ 10.00         | \$ 110,000.00        |                         |
| 96              | Lift Station Reinforced Concrete Structure - Floor         | CY          | 320             | \$ 800.00        | \$ 256,000.00        |                         |
| 97              | Lift Station Reinforced Concrete Structure - Walls         | CY          | 520             | \$ 1,200.00      | \$ 624,000.00        |                         |
| 98              | Lift Station Reinforced Concrete Structure - Deck          | CY          | 120             | \$ 2,000.00      | \$ 240,000.00        |                         |
| 99              | Lift Station Pumps - 30 cfs                                | EA          | 2               | \$ 130,000.00    | \$ 260,000.00        |                         |
| 100             | Lift Station Pumps - 60 cfs                                | EA          | 2               | \$ 180,000.00    | \$ 360,000.00        |                         |
| 101             | Lift Station Pumps - 80 cfs                                | EA          | 4               | \$ 195,000.00    | \$ 780,000.00        |                         |
| 102             | Lift Station Motors - 100 hp                               | EA          | 2               | \$ 40,000.00     | \$ 80,000.00         |                         |
| 103             | Lift Station Motors - 200 hp                               | EA          | 2               | \$ 60,000.00     | \$ 120,000.00        |                         |
| 104             | Lift Station Motors - 300 hp                               | EA          | 4               | \$ 90,000.00     | \$ 360,000.00        |                         |
| 105             | Lift Station 36" Discharge Piping & Appurtenances          | LS          | 2               | \$ 300,000.00    | \$ 600,000.00        |                         |
| 106             | Lift Station 48" Discharge Piping & Appurtenances          | LS          | 2               | \$ 425,000.00    | \$ 850,000.00        |                         |

|     |   |     |        |    |              |    |               |                  |
|-----|---|-----|--------|----|--------------|----|---------------|------------------|
| 107 | Lift Station 54" Discharge Piping & Appurtenances                                       | LS  | 4      | \$ | 550,000.00   | \$ | 2,200,000.00  |                  |
| 108 | Lift Station 100 hp VFD's   | EA  | 2      | \$ | 40,000.00    | \$ | 80,000.00     |                  |
| 109 | Lift Station 200 hp VFD's   | EA  | 2      | \$ | 60,000.00    | \$ | 120,000.00    |                  |
| 110 | Lift Station 300 hp VFD's   | EA  | 4      | \$ | 80,000.00    | \$ | 320,000.00    |                  |
| 111 | Lift Station Electrical, Controls, & Lighting   | LS  | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 112 | Lift Station Electrical Control Building  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00    |                  |
| 113 | Lift Station Backfill & Compaction  | CY  | 6000   | \$ | 10.00        | \$ | 60,000.00     |                  |
| 114 | Lift Station Slide Gates  | EA  | 1      | \$ | 55,000.00    | \$ | 55,000.00     |                  |
| 115 | Lift Station Trashracks   | LS  | 8      | \$ | 25,000.00    | \$ | 200,000.00    |                  |
| 116 | Lift Station Miscellaneous Steel  | LS  | 1      | \$ | 120,000.00   | \$ | 120,000.00    |                  |
| 117 | Lift Station Cathodic Protection  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 118 | Lift Station Site Fencing   | LF  | 850    | \$ | 45.00        | \$ | 38,250.00     |                  |
| 119 | Lift Station Bypass Pipeline  | LF  | 200    | \$ | 750.00       | \$ | 150,000.00    |                  |
| 120 | Lift Station Ground Cover   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00     | \$ 8,753,250.00  |
| 121 | R/W Clearing & Grubbing   | AC  | 25     | \$ | 1,200.00     | \$ | 30,000.00     |                  |
| 122 | Conveyance Pipeline 9-ft Diameter   | LF  | 8000   | \$ | 1,575.00     | \$ | 12,600,000.00 |                  |
| 123 | Pipeline Appurtenances  | LS  | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 124 | Turnout to Phase II 640 Acres   | LF  | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 125 | Turnout to West Basins  | LF  | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 126 | Turnout Fittings  | EA  | 2      | \$ | 350,000.00   | \$ | 700,000.00    |                  |
| 127 | Phase II 640 Acres Outlet Structure   | LS  | 1      | \$ | 950,000.00   | \$ | 950,000.00    |                  |
| 128 | West Basins Outlet Structure  | LS  | 1      | \$ | 950,000.00   | \$ | 950,000.00    | \$ 16,240,000.00 |
| 129 | Phase I 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00    |                  |
| 130 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction                               | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00  |                  |
| 131 | Phase I 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00    |                  |
| 132 | Phase I 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00  |                  |
| 133 | Phase I 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00    |                  |
| 134 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards                           | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00    |                  |
| 135 | Phase I 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00  |                  |
| 136 | Phase I 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00    |                  |
| 137 | Phase I 640 Acres Interbasin Structure Cutoff Walls                                     | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00    |                  |
| 138 | Phase I 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00    | \$ 5,429,400.00  |
| 139 | Goose Lake Slough Turnout Structure Excavation  | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00     |                  |
| 140 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                         | CY  | 90     | \$ | 800.00       | \$ | 72,000.00     |                  |
| 141 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                         | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00    |                  |
| 142 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                          | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00    |                  |
| 143 | Goose Lake Slough Turnout Backfill & Compaction   | LS  | 500    | \$ | 30.00        | \$ | 15,000.00     |                  |
| 144 | Goose Lake Slough Turnout Trashracks  | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00     |                  |
| 145 | Goose Lake Slough Turnout Miscellaneous Steel   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 146 | Goose Lake Slough Lift Station Pumps - 60 cfs   | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00    |                  |
| 147 | Goose Lake Slough Lift Station Motors - 200 hp  | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00    |                  |
| 148 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                         | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00    |                  |
| 149 | Goose Lake Slough Metering  | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00     |                  |
| 150 | Goose Lake Slough Turnout Slide Gate  | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00     |                  |
| 151 | Goose Lake Slough Turnout Electrical  | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00    |                  |
| 152 | Goose Lake Slough Electrical Shade Structure & Foundation                               | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 153 | Goose Lake Slough Pipe Outlet   | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00    |                  |
| 154 | Goose Lake Slough Turnout Outlet Structure  | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00    |                  |
| 155 | Goose Lake Slough Outlet Rip-Rap  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 156 | Goose Lake Slough Check Structure - Earthwork   | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00     |                  |
| 157 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                         | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00    |                  |
| 158 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                         | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00     |                  |
| 159 | Goose Lake Slough Check Structure - Miscellaneous Steel                                 | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 160 | Goose Lake Slough Check Structure - Rip-Rap   | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00     |                  |
| 161 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                          | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     | \$ 3,125,700.00  |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                            | EA  | 6      | \$ | 1,175,474.00 | \$ |               | \$ 7,052,844.00  |
| 162 | Mobilization, demobilization & misc. work   | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 163 | Transport and dispose of drill cuttings offsite   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 164 | Three 20,000-gallon temporary water storage tanks and discharge piping                  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 165 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                    | LF  | 50     | \$ | 620.00       | \$ | 31,000.00     |                  |
| 166 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs                | LF  | 920    | \$ | 110.00       | \$ | 101,200.00    |                  |
| 167 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs             | LF  | 430    | \$ | 110.00       | \$ | 47,300.00     |                  |
| 168 | Conduct downhole geophysical surveys and alignment/deviation survey                     | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00     |                  |
| 169 | Conduct isolated aquifer zone test  | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00     |                  |
| 170 | Conduct deep isolated aquifer zone test below 800 ft bgs                                | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00    |                  |
| 171 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                     | LF  | 280    | \$ | 110.00       | \$ | 30,800.00     |                  |
| 172 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                    | LF  | 660    | \$ | 110.00       | \$ | 72,600.00     |                  |
| 173 | Conduct alignment/deviation tests in enlarged borehole                                  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00      |                  |
| 174 | Conduct a caliper survey of enlarged borehole   | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00      |                  |
| 175 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing         | LF  | 424    | \$ | 220.00       | \$ | 93,280.00     |                  |
| 176 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"            | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
| 177 | Furnish and install 20-inch by 5/16-inch wall Full Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00    |                  |
| 178 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube      | LF  | 652    | \$ | 46.00        | \$ | 29,992.00     |                  |
| 179 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                 | LF  | 319    | \$ | 38.00        | \$ | 12,122.00     |                  |
| 180 | Furnish and install gravel pack in borehole annulus                                     | LF  | 670    | \$ | 225.00       | \$ | 150,750.00    |                  |
| 181 | Furnish and install 10.3-sack sand-cement grout upper annular seal                      | LF  | 300    | \$ | 170.00       | \$ | 51,000.00     |                  |
| 182 | Perform initial well development  | HRS | 108    | \$ | 275.00       | \$ | 29,700.00     |                  |
| 183 | Provide chlorine solution for chemical development of the well                          | GAL | 255    | \$ | 26.00        | \$ | 6,630.00      |                  |
| 184 | Provide polymer dispersant for chemical development of the well                         | GAL | 40     | \$ | 110.00       | \$ | 4,400.00      |                  |
| 185 | Mobilize, install, and demobilize test pumping equipment in newly completed wells       | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 186 | Conduct final development by pumping and surging  | HRS | 60     | \$ | 500.00       | \$ | 30,000.00     |                  |
| 187 | Conduct step-drawdown pumping test in newly completed wells                             | HRS | 8      | \$ | 500.00       | \$ | 4,000.00      |                  |
| 188 | Conduct constant-rate pumping test in newly completed wells                             | HRS | 28     | \$ | 500.00       | \$ | 14,000.00     |                  |
| 189 | Conduct a dynamic flow meter survey   | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 190 | Conduct a color video camera survey   | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00      |                  |
| 191 | Conduct well alignment/deviation test in newly completed wells                          | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
| 192 | Conduct final well disinfection in newly completed wells                                | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
|     | Phase I 640 Acre Well Equipping and Site Development                                    | EA  | 6      | \$ | 1,137,000.00 | \$ |               | \$ 6,822,000.00  |
| 193 | Mobilization, Demobilization, & Cleanup   | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00     |                  |
| 194 | Water Supply  | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00     |                  |
| 195 | Environmental Mitigation  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00     |                  |
| 196 | Construct site work   | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00     |                  |
| 197 | Furnish and install concrete foundations  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00     |                  |
| 198 | Furnish and install yard piping, mechanical piping and appurtenances                    | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00     |                  |
| 199 | Furnish and install vertical turbine well pumps, pump base, etc.                        | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00    |                  |
| 200 | Furnish and install well enclosures and appurtenances                                   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00     |                  |
| 201 | Furnish and install electrical facilities and instrumentation                           | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00    |                  |
| 202 | Furnish and install pre-fabricated metal canopy   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00     |                  |
| 203 | Furnish and install site ground cover   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 204 | Furnish and install site fencing  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00     |                  |
| 205 | Furnish and install site painting   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 206 | Furnish and install VFD's   | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00    |                  |
| 207 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                 | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00    |                  |
| 208 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                 | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00    |                  |
| 209 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                 | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00    |                  |
| 210 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                 | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00    | \$ 2,428,500.00  |
| 211 | RRB Intake Canal Interconnection Excavation   | CY  | 350    | \$ | 30.00        | \$ | 10,500.00     |                  |
| 212 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                  | CY  | 14     | \$ | 800.00       | \$ | 11,200.00     |                  |
| 213 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                  | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00     |                  |
| 214 | RRB Intake Canal Interconnection Backfill & Compaction                                  | CY  | 250    | \$ | 30.00        | \$ | 7,500.00      |                  |
| 215 | RRB Intake Canal Interconnection Miscellaneous Steel                                    | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |

|     |  |     |        |    |              |    |                       |                 |
|-----|--|-----|--------|----|--------------|----|-----------------------|-----------------|
| 216 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00             |                 |
| 217 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 218 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 219 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00             | \$ 165,800.00   |
| 220 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00            |                 |
| 221 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00          |                 |
| 222 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00            |                 |
| 223 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00          |                 |
| 224 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00            |                 |
| 225 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00            |                 |
| 226 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00          |                 |
| 227 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00            |                 |
| 228 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00            |                 |
| 229 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00            | \$ 5,429,400.00 |
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6      | \$ | 1,175,474.00 |    |                       | \$ 7,052,844.00 |
| 230 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 231 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 232 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 233 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00             |                 |
| 234 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00            |                 |
| 235 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00             |                 |
| 236 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 237 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 238 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 239 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00             |                 |
| 240 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00             |                 |
| 241 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 242 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 243 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00             |                 |
| 244 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 245 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00            |                 |
| 246 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00             |                 |
| 247 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00             |                 |
| 248 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00            |                 |
| 249 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00             |                 |
| 250 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00             |                 |
| 251 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00              |                 |
| 252 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00              |                 |
| 253 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 254 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00             |                 |
| 255 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00              |                 |
| 256 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00             |                 |
| 257 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 258 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 259 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 260 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6      | \$ | 1,137,000.00 |    |                       | \$ 6,822,000.00 |
| 261 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 262 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 263 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 264 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 265 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 266 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 267 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 268 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 269 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 270 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 271 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 272 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 273 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 274 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 275 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00            |                 |
| 276 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00            |                 |
| 277 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900   | \$ | 175.00       | \$ | 507,500.00            |                 |
| 278 | Phase II 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline          | EA  | 2      | \$ | 100,000.00   | \$ | 200,000.00            | \$ 1,616,500.00 |
| 279 | SCADA Communication & Appurtenances  | LS  | 1      | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |        |    |              | \$ | 111,184,012.00        |                 |
|     | 20% Construction Contingency:  |     |        |    |              | \$ | 22,236,802.40         |                 |
|     | Unlisted Items:  |     |        |    |              | \$ | 2,223,680.24          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640    | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640    | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235    | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165    | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 30     | \$ | 25,000.00    | \$ | 750,000.00            |                 |
|     | Habitat Credit Purchase  | AC  | 200    | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |        |    |              | \$ | 172,969,494.64        |                 |
|     | Non-Contract Costs:  |     |        |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |        |    |              | \$ | <b>199,329,494.64</b> |                 |

Irvine Ranch Water District  
**Feasibility Level Cost Estimate (Class 4)**

**KWB Canal Alignment - Concrete Lined Canal Reach 1 & 2 and Pipeline Reach 3 (Item #10)**

| Item No. | Item Description   | Unit | Quantity  | Unit Cost       | Extended Cost    | Section Subtotal |
|----------|--|------|-----------|-----------------|------------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup                    | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00  | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                            | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 3        | Aqueduct Turnout Excavation                                | CY   | 2450      | \$ 30.00        | \$ 73,500.00     |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor             | CY   | 45        | \$ 800.00       | \$ 36,000.00     |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls             | CY   | 100       | \$ 1,200.00     | \$ 120,000.00    |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam         | CY   | 5         | \$ 2,000.00     | \$ 10,000.00     |                  |
| 7        | Aqueduct Backfill and Compaction                           | CY   | 1850      | \$ 30.00        | \$ 55,500.00     |                  |
| 8        | Aqueduct Miscellaneous Steel                               | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 9        | Aqueduct Trashrack   | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 10       | Aqueduct Turnout Piping                                    | LF   | 1800      | \$ 4,000.00     | \$ 7,200,000.00  |                  |
| 11       | Aqueduct Metering  | EA   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 12       | Aqueduct Meter Vault                                       | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 13       | Aqueduct Slide Gate & Actuator                             | EA   | 1         | \$ 75,000.00    | \$ 75,000.00     |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting                  | LS   | 1         | \$ 150,000.00   | \$ 150,000.00    |                  |
| 15       | Aqueduct Liner Repair                                      | LS   | 1         | \$ 20,000.00    | \$ 20,000.00     |                  |
| 16       | Levee Road Pavement Restoration                            | SF   | 1600      | \$ 7.00         | \$ 11,200.00     | \$ 8,551,200.00  |
| 17       | Canal Clearing & Grubbing                                  | AC   | 104       | \$ 1,200.00     | \$ 124,800.00    |                  |
| 18       | Canal Earthwork-Cut  | CY   | 400,000   | \$ 4.50         | \$ 1,800,000.00  |                  |
| 19       | Canal Earthwork-Fill                                       | CY   | 180,000   | \$ 4.50         | \$ 810,000.00    |                  |
| 20       | Levee Subgrade Preparation                                 | CY   | 145,000   | \$ 4.60         | \$ 667,000.00    |                  |
| 21       | Concrete Canal Lining                                      | SF   | 1,707,024 | \$ 6.00         | \$ 10,242,144.00 |                  |
| 22       | Canal Drain System   | LS   | 1         | \$ 1,950,000.00 | \$ 1,950,000.00  |                  |
| 23       | Canal Appurtenances  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 24       | Canal Fencing  | LF   | 65,000    | \$ 7.50         | \$ 487,500.00    |                  |
| 25       | Levee Road Aggregate Base Ground Cover                     | LS   | 1         | \$ 525,000.00   | \$ 525,000.00    |                  |
| 26       | Ex. Facility Relocations                                   | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    | \$ 17,356,444.00 |
| 27       | Aqueduct Turnout Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 28       | Turnout Afterbay Earthwork                                 | CY   | 3800      | \$ 30.00        | \$ 114,000.00    |                  |
| 29       | Turnout Afterbay Miscellaneous Steel                       | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 30       | Main Canal Forebay Structure Walls & Footings              | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 31       | Main Canal Siphon Pipes                                    | LF   | 300       | \$ 2,500.00     | \$ 750,000.00    |                  |
| 32       | Main Canal Afterbay Structure Walls & Footings             | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 33       | Siphon Crossing Earthwork                                  | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 34       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 35       | WKWD Pipeline Forebay Structure Walls & Footings           | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 36       | WKWD Pipeline Siphon Pipes                                 | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 37       | WKWD Pipeline Afterbay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 38       | Siphon Crossing Earthwork                                  | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 39       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 40       | Levee Side Canal Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 41       | Levee Side Canal Siphon Pipes                              | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 42       | Levee Side Canal Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 43       | Siphon Crossing Earthwork                                  | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 44       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     | \$ 4,009,000.00  |
| 45       | Lift Station Excavation                                    | CY   | 11000     | \$ 10.00        | \$ 110,000.00    |                  |
| 46       | Lift Station Reinforced Concrete Structure - Floor         | CY   | 320       | \$ 800.00       | \$ 256,000.00    |                  |
| 47       | Lift Station Reinforced Concrete Structure - Walls         | CY   | 520       | \$ 1,200.00     | \$ 624,000.00    |                  |
| 48       | Lift Station Reinforced Concrete Structure - Deck          | CY   | 120       | \$ 2,000.00     | \$ 240,000.00    |                  |
| 49       | Lift Station Pumps - 30 cfs                                | EA   | 2         | \$ 130,000.00   | \$ 260,000.00    |                  |
| 50       | Lift Station Pumps - 60 cfs                                | EA   | 2         | \$ 180,000.00   | \$ 360,000.00    |                  |
| 51       | Lift Station Pumps - 80 cfs                                | EA   | 4         | \$ 195,000.00   | \$ 780,000.00    |                  |
| 52       | Lift Station Motors - 100 hp                               | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 53       | Lift Station Motors - 200 hp                               | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 54       | Lift Station Motors - 300 hp                               | EA   | 4         | \$ 90,000.00    | \$ 360,000.00    |                  |
| 55       | Lift Station 36" Discharge Piping & Appurtenances          | LS   | 2         | \$ 300,000.00   | \$ 600,000.00    |                  |
| 56       | Lift Station 48" Discharge Piping & Appurtenances          | LS   | 2         | \$ 425,000.00   | \$ 850,000.00    |                  |
| 57       | Lift Station 54" Discharge Piping & Appurtenances          | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00  |                  |
| 58       | Lift Station 100 hp VFD's                                  | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 59       | Lift Station 200 hp VFD's                                  | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 60       | Lift Station 300 hp VFD's                                  | EA   | 4         | \$ 80,000.00    | \$ 320,000.00    |                  |
| 61       | Lift Station Electrical, Controls, & Lighting              | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    |                  |
| 62       | Lift Station Electrical Control Building                   | LS   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 63       | Lift Station Backfill & Compaction                         | CY   | 6000      | \$ 10.00        | \$ 60,000.00     |                  |
| 64       | Lift Station Slide Gates                                   | EA   | 1         | \$ 55,000.00    | \$ 55,000.00     |                  |
| 65       | Lift Station Trashracks                                    | LS   | 8         | \$ 25,000.00    | \$ 200,000.00    |                  |
| 66       | Lift Station Miscellaneous Steel                           | LS   | 1         | \$ 120,000.00   | \$ 120,000.00    |                  |
| 67       | Lift Station Cathodic Protection                           | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 68       | Lift Station Site Fencing                                  | LF   | 850       | \$ 45.00        | \$ 38,250.00     |                  |
| 69       | Lift Station Bypass Pipeline                               | LF   | 200       | \$ 750.00       | \$ 150,000.00    |                  |
| 70       | Lift Station Ground Cover                                  | LS   | 1         | \$ 45,000.00    | \$ 45,000.00     | \$ 8,753,250.00  |
| 71       | Lift Station Afterbay Structure Walls & Footings           | CY   | 280       | \$ 1,200.00     | \$ 336,000.00    |                  |
| 72       | Lift Station Afterbay Earthwork                            | CY   | 3800      | \$ 25.00        | \$ 95,000.00     |                  |
| 73       | Lift Station Afterbay Miscellaneous Steel                  | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 74       | I-5 Fwy Crossing Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 75       | I-5 Fwy Crossing Siphon Pipes                              | LF   | 400       | \$ 6,000.00     | \$ 2,400,000.00  |                  |
| 76       | I-5 Fwy Crossing Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 77       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 78       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 79       | Farm Rd Crossing Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 80       | Farm Rd Crossing Siphon Pipes                              | CY   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 81       | Farm Rd Crossing Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 82       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 83       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 84       | Stockdale Hwy Crossing Forebay Structure Walls & Footings  | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 85       | Stockdale Hwy Crossing Siphon Pipes                        | CY   | 150       | \$ 6,000.00     | \$ 900,000.00    |                  |
| 86       | Stockdale Hwy Crossing Afterbay Structure Walls & Footings | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 87       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 88       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 89       | Farm Rd Crossing Forebay Structure Walls & Footings        | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 90       | Farm Rd Crossing Siphon Pipes                              | CY   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 91       | Farm Rd Crossing Afterbay Structure Walls & Footings       | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 92       | Siphon Crossing Earthwork                                  | LS   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 93       | Siphon Crossing Miscellaneous Steel                        | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     | \$ 7,346,000.00  |



|     |   |     |        |    |              |    |               |                  |
|-----|---|-----|--------|----|--------------|----|---------------|------------------|
| 94  | Lift Station Excavation   | CY  | 11000  | \$ | 10.00        | \$ | 110,000.00    |                  |
| 95  | Lift Station Reinforced Concrete Structure - Floor                                      | CY  | 320    | \$ | 800.00       | \$ | 256,000.00    |                  |
| 96  | Lift Station Reinforced Concrete Structure - Walls                                      | CY  | 520    | \$ | 1,200.00     | \$ | 624,000.00    |                  |
| 97  | Lift Station Reinforced Concrete Structure - Deck                                       | CY  | 120    | \$ | 2,000.00     | \$ | 240,000.00    |                  |
| 98  | Lift Station Pumps - 30 cfs   | EA  | 2      | \$ | 130,000.00   | \$ | 260,000.00    |                  |
| 99  | Lift Station Pumps - 60 cfs   | EA  | 2      | \$ | 180,000.00   | \$ | 360,000.00    |                  |
| 100 | Lift Station Pumps - 80 cfs   | EA  | 4      | \$ | 195,000.00   | \$ | 780,000.00    |                  |
| 101 | Lift Station Motors - 100 hp  | EA  | 2      | \$ | 40,000.00    | \$ | 80,000.00     |                  |
| 102 | Lift Station Motors - 200 hp  | EA  | 2      | \$ | 60,000.00    | \$ | 120,000.00    |                  |
| 103 | Lift Station Motors - 300 hp  | EA  | 4      | \$ | 90,000.00    | \$ | 360,000.00    |                  |
| 104 | Lift Station 36" Discharge Piping & Appurtenances                                       | LS  | 2      | \$ | 300,000.00   | \$ | 600,000.00    |                  |
| 105 | Lift Station 48" Discharge Piping & Appurtenances                                       | LS  | 2      | \$ | 425,000.00   | \$ | 850,000.00    |                  |
| 106 | Lift Station 54" Discharge Piping & Appurtenances                                       | LS  | 4      | \$ | 550,000.00   | \$ | 2,200,000.00  |                  |
| 107 | Lift Station 100 hp VFD's   | EA  | 2      | \$ | 40,000.00    | \$ | 80,000.00     |                  |
| 108 | Lift Station 200 hp VFD's   | EA  | 2      | \$ | 60,000.00    | \$ | 120,000.00    |                  |
| 109 | Lift Station 300 hp VFD's   | EA  | 4      | \$ | 80,000.00    | \$ | 320,000.00    |                  |
| 110 | Lift Station Electrical, Controls, & Lighting   | LS  | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 111 | Lift Station Electrical Control Building  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00    |                  |
| 112 | Lift Station Backfill & Compaction  | CY  | 6000   | \$ | 10.00        | \$ | 60,000.00     |                  |
| 113 | Lift Station Slide Gates  | EA  | 1      | \$ | 55,000.00    | \$ | 55,000.00     |                  |
| 114 | Lift Station Trashracks   | LS  | 8      | \$ | 25,000.00    | \$ | 200,000.00    |                  |
| 115 | Lift Station Miscellaneous Steel  | LS  | 1      | \$ | 120,000.00   | \$ | 120,000.00    |                  |
| 116 | Lift Station Cathodic Protection  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 117 | Lift Station Site Fencing   | LF  | 850    | \$ | 45.00        | \$ | 38,250.00     |                  |
| 118 | Lift Station Bypass Pipeline  | LF  | 200    | \$ | 750.00       | \$ | 150,000.00    |                  |
| 119 | Lift Station Ground Cover   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00     | \$ 8,753,250.00  |
| 120 | R/W Clearing & Grubbing   | AC  | 25     | \$ | 1,200.00     | \$ | 30,000.00     |                  |
| 121 | Conveyance Pipeline 9-ft Diameter   | LF  | 8000   | \$ | 1,575.00     | \$ | 12,600,000.00 |                  |
| 122 | Pipeline Appurtenances  | LS  | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 123 | Turnout to Phase II 640 Acres   | LF  | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 124 | Turnout to West Basins  | LF  | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 125 | Turnout Fittings  | EA  | 2      | \$ | 350,000.00   | \$ | 700,000.00    |                  |
| 126 | Phase II 640 Acres Outlet Structure   | LS  | 1      | \$ | 950,000.00   | \$ | 950,000.00    |                  |
| 127 | West Basins Outlet Structure  | LS  | 1      | \$ | 950,000.00   | \$ | 950,000.00    | \$ 16,240,000.00 |
| 128 | Phase I 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00    |                  |
| 129 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction                               | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00  |                  |
| 130 | Phase I 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00    |                  |
| 131 | Phase I 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00  |                  |
| 132 | Phase I 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00    |                  |
| 133 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards                           | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00    |                  |
| 134 | Phase I 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00  |                  |
| 135 | Phase I 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00    |                  |
| 136 | Phase I 640 Acres Interbasin Structure Cutoff Walls                                     | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00    |                  |
| 137 | Phase I 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00    | \$ 5,429,400.00  |
| 138 | Goose Lake Slough Turnout Structure Excavation  | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00     |                  |
| 139 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                         | CY  | 90     | \$ | 800.00       | \$ | 72,000.00     |                  |
| 140 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                         | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00    |                  |
| 141 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                          | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00    |                  |
| 142 | Goose Lake Slough Turnout Backfill & Compaction   | LS  | 500    | \$ | 30.00        | \$ | 15,000.00     |                  |
| 143 | Goose Lake Slough Turnout Trashracks  | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00     |                  |
| 144 | Goose Lake Slough Turnout Miscellaneous Steel   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 145 | Goose Lake Slough Lift Station Pumps - 60 cfs   | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00    |                  |
| 146 | Goose Lake Slough Lift Station Motors - 200 hp  | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00    |                  |
| 147 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                         | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00    |                  |
| 148 | Goose Lake Slough Metering  | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00     |                  |
| 149 | Goose Lake Slough Turnout Slide Gate  | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00     |                  |
| 150 | Goose Lake Slough Turnout Electrical  | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00    |                  |
| 151 | Goose Lake Slough Electrical Shade Structure & Foundation                               | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 152 | Goose Lake Slough Pipe Outlet   | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00    |                  |
| 153 | Goose Lake Slough Turnout Outlet Structure  | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00    |                  |
| 154 | Goose Lake Slough Outlet Rip-Rap  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 155 | Goose Lake Slough Check Structure - Earthwork   | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00     |                  |
| 156 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                         | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00    |                  |
| 157 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                         | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00     |                  |
| 158 | Goose Lake Slough Check Structure - Miscellaneous Steel                                 | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 159 | Goose Lake Slough Check Structure - Rip-Rap   | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00     |                  |
| 160 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                          | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     | \$ 3,125,700.00  |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                            | EA  | 6      | \$ | 1,175,474.00 | \$ | 7,052,844.00  |                  |
| 161 | Mobilization, demobilization & misc. work   | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 162 | Transport and dispose of drill cuttings offsite   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 163 | Three 20,000-gallon temporary water storage tanks and discharge piping                  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 164 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                    | LF  | 50     | \$ | 620.00       | \$ | 31,000.00     |                  |
| 165 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs                | LF  | 920    | \$ | 110.00       | \$ | 101,200.00    |                  |
| 166 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs             | LF  | 430    | \$ | 110.00       | \$ | 47,300.00     |                  |
| 167 | Conduct downhole geophysical surveys and alignment/deviation survey                     | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00     |                  |
| 168 | Conduct isolated aquifer zone test  | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00     |                  |
| 169 | Conduct deep isolated aquifer zone test below 800 ft bgs                                | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00    |                  |
| 170 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                     | LF  | 280    | \$ | 110.00       | \$ | 30,800.00     |                  |
| 171 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                    | LF  | 660    | \$ | 110.00       | \$ | 72,600.00     |                  |
| 172 | Conduct alignment/deviation tests in enlarged borehole                                  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00      |                  |
| 173 | Conduct a caliper survey of enlarged borehole   | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00      |                  |
| 174 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing         | LF  | 424    | \$ | 220.00       | \$ | 93,280.00     |                  |
| 175 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"            | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
| 176 | Furnish and install 20-inch by 5/16-inch wall Full Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00    |                  |
| 177 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube      | LF  | 652    | \$ | 46.00        | \$ | 29,992.00     |                  |
| 178 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                 | LF  | 319    | \$ | 38.00        | \$ | 12,122.00     |                  |
| 179 | Furnish and install gravel pack in borehole annulus                                     | LF  | 670    | \$ | 225.00       | \$ | 150,750.00    |                  |
| 180 | Furnish and install 10.3-sack sand-cement grout upper annular seal                      | LF  | 300    | \$ | 170.00       | \$ | 51,000.00     |                  |
| 181 | Perform initial well development  | HRS | 108    | \$ | 275.00       | \$ | 29,700.00     |                  |
| 182 | Provide chlorine solution for chemical development of the well                          | GAL | 255    | \$ | 26.00        | \$ | 6,630.00      |                  |
| 183 | Provide polymer dispersant for chemical development of the well                         | GAL | 40     | \$ | 110.00       | \$ | 4,400.00      |                  |
| 184 | Mobilize, install, and demobilize test pumping equipment in newly completed wells       | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 185 | Conduct final development by pumping and surging  | HRS | 60     | \$ | 500.00       | \$ | 30,000.00     |                  |
| 186 | Conduct step-drawdown pumping test in newly completed wells                             | HRS | 8      | \$ | 500.00       | \$ | 4,000.00      |                  |
| 187 | Conduct constant-rate pumping test in newly completed wells                             | HRS | 28     | \$ | 500.00       | \$ | 14,000.00     |                  |
| 188 | Conduct a dynamic flow meter survey   | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 189 | Conduct a color video camera survey   | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00      |                  |
| 190 | Conduct well alignment/deviation test in newly completed wells                          | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
| 191 | Conduct final well disinfection in newly completed wells                                | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |

|     |  |     |        |    |              |    |                       |                 |
|-----|--|-----|--------|----|--------------|----|-----------------------|-----------------|
| 192 | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 193 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 194 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 195 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 196 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 197 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 198 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 199 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 200 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 201 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 202 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 203 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 204 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 205 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 205 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 206 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00            |                 |
| 207 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00            |                 |
| 208 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00            |                 |
| 209 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00            | \$ 2,428,500.00 |
| 210 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00             |                 |
| 211 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00             |                 |
| 212 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00             |                 |
| 213 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00              |                 |
| 214 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 215 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00             |                 |
| 216 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 217 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 218 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00             | \$ 165,800.00   |
| 219 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00            |                 |
| 220 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00          |                 |
| 221 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00            |                 |
| 222 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00          |                 |
| 223 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00            |                 |
| 224 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00            |                 |
| 225 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00          |                 |
| 226 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00            |                 |
| 227 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00            |                 |
| 228 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00            | \$ 5,429,400.00 |
| 229 | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6      | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00    |
| 229 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 230 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 231 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 232 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00             |                 |
| 233 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00            |                 |
| 234 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00             |                 |
| 235 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 236 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 237 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 238 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00             |                 |
| 239 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00             |                 |
| 240 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 241 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 242 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00             |                 |
| 243 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 244 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00            |                 |
| 245 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00             |                 |
| 246 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00             |                 |
| 247 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00            |                 |
| 248 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00             |                 |
| 249 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00             |                 |
| 250 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00              |                 |
| 251 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00              |                 |
| 252 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 253 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00             |                 |
| 254 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00              |                 |
| 255 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00             |                 |
| 256 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 257 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 258 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 259 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 260 | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6      | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 260 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 261 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 262 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 263 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 264 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 265 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 266 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 267 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 268 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 269 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 270 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 271 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 272 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 273 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 274 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00            |                 |
| 275 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00            |                 |
| 276 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900   | \$ | 175.00       | \$ | 507,500.00            |                 |
| 277 | Phase II 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline          | EA  | 2      | \$ | 100,000.00   | \$ | 200,000.00            | \$ 1,616,500.00 |
| 278 | SCADA Communication & Appurtenances  | LS  | 1      | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |        |    |              | \$ | 119,074,132.00        |                 |
|     | 20% Construction Contingency:  |     |        |    |              | \$ | 23,814,826.40         |                 |
|     | Unlisted Items:  |     |        |    |              | \$ | 2,381,482.64          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640    | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640    | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235    | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165    | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 30     | \$ | 25,000.00    | \$ | 750,000.00            |                 |
|     | Habitat Credit Purchase  | AC  | 200    | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |        |    |              | \$ | 182,595,441.04        |                 |
|     | Non-Contract Costs:  |     |        |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |        |    |              | \$ | <b>208,955,441.04</b> |                 |

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## BV Canal Alignment - Earth and Concrete Lined (Item #1)

| Item No. | Item Description                                     | Unit | Quantity  | Unit Cost       | Extended Cost   | Section Subtotal |
|----------|--|------|-----------|-----------------|-----------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup              | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00 | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                      | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 3        | Aqueduct Turnout Excavation                          | CY   | 2450      | \$ 30.00        | \$ 73,500.00    |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor       | CY   | 45        | \$ 800.00       | \$ 36,000.00    |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls       | CY   | 100       | \$ 1,200.00     | \$ 120,000.00   |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam   | CY   | 5         | \$ 2,000.00     | \$ 10,000.00    |                  |
| 7        | Aqueduct Backfill and Compaction                     | CY   | 1850      | \$ 30.00        | \$ 55,500.00    |                  |
| 8        | Aqueduct Miscellaneous Steel                         | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 9        | Aqueduct Trashrack                                   | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 10       | Aqueduct Turnout Piping                              | LF   | 2000      | \$ 4,000.00     | \$ 8,000,000.00 |                  |
| 11       | Aqueduct Metering                                    | EA   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 12       | Aqueduct Meter Vault                                 | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 13       | Aqueduct Slide Gate & Actuator                       | EA   | 1         | \$ 75,000.00    | \$ 75,000.00    |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting            | LS   | 1         | \$ 150,000.00   | \$ 150,000.00   |                  |
| 15       | Aqueduct Liner Repair                                | LS   | 1         | \$ 20,000.00    | \$ 20,000.00    |                  |
| 16       | Levee Road Pavement Restoration                      | SF   | 1600      | \$ 7.00         | \$ 11,200.00    | \$ 9,351,200.00  |
| 17       | Canal Clearing & Grubbing                            | AC   | 155       | \$ 1,200.00     | \$ 186,000.00   |                  |
| 18       | Canal Earthwork-Cut                                  | CY   | 500,000   | \$ 4.50         | \$ 2,250,000.00 |                  |
| 19       | Canal Earthwork-Fill                                 | CY   | 310,000   | \$ 4.50         | \$ 1,395,000.00 |                  |
| 20       | Levee Subgrade Preparation                           | CY   | 211,200   | \$ 4.60         | \$ 971,520.00   |                  |
| 21       | Concrete Canal Lining                                | SF   | 1,427,184 | \$ 6.00         | \$ 8,563,104.00 |                  |
| 22       | Canal Appurtenances                                  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 23       | Canal Fencing  | LF   | 110,000   | \$ 7.50         | \$ 825,000.00   |                  |
| 24       | Levee Road Aggregate Base Ground Cover               | LS   | 1         | \$ 775,000.00   | \$ 775,000.00   |                  |
| 25       | Ex. Facility Relocations                             | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   | \$ 15,715,624.00 |
| 26       | Aqueduct Turnout Afterbay Structure Walls & Footings | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 27       | Turnout Afterbay Earthwork                           | CY   | 3800      | \$ 30.00        | \$ 114,000.00   |                  |
| 28       | Turnout Afterbay Miscellaneous Steel                 | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 29       | Outlet Canal Forebay Structure Walls & Footings      | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 30       | Outlet Canal Siphon Pipes                            | LF   | 300       | \$ 2,500.00     | \$ 750,000.00   |                  |
| 31       | Outlet Canal Afterbay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 32       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 33       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 34       | Adohr Rd Forebay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 35       | Adohr Rd Siphon Pipes                                | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 36       | Adohr Rd Afterbay Structure Walls & Footings         | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 37       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 38       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 39       | East Side Canal Forebay Structure Walls & Footings   | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 40       | East Side Canal Siphon Pipes                         | LF   | 350       | \$ 2,500.00     | \$ 875,000.00   |                  |
| 41       | East Side Canal Afterbay Structure Walls & Footings  | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 42       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 43       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    | \$ 4,509,000.00  |
| 44       | Lift Station Excavation                              | CY   | 11000     | \$ 10.00        | \$ 110,000.00   |                  |
| 45       | Lift Station Reinforced Concrete Structure - Floor   | CY   | 320       | \$ 800.00       | \$ 256,000.00   |                  |
| 46       | Lift Station Reinforced Concrete Structure - Walls   | CY   | 520       | \$ 1,200.00     | \$ 624,000.00   |                  |
| 47       | Lift Station Reinforced Concrete Structure - Deck    | CY   | 120       | \$ 2,000.00     | \$ 240,000.00   |                  |
| 48       | Lift Station Pumps - 30 cfs                          | EA   | 2         | \$ 130,000.00   | \$ 260,000.00   |                  |
| 49       | Lift Station Pumps - 60 cfs                          | EA   | 2         | \$ 180,000.00   | \$ 360,000.00   |                  |
| 50       | Lift Station Pumps - 80 cfs                          | EA   | 4         | \$ 195,000.00   | \$ 780,000.00   |                  |
| 51       | Lift Station Motors - 100 hp                         | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 52       | Lift Station Motors - 200 hp                         | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 53       | Lift Station Motors - 300 hp                         | EA   | 4         | \$ 90,000.00    | \$ 360,000.00   |                  |
| 54       | Lift Station 36" Discharge Piping & Appurtenances    | LS   | 2         | \$ 300,000.00   | \$ 600,000.00   |                  |
| 55       | Lift Station 48" Discharge Piping & Appurtenances    | LS   | 2         | \$ 425,000.00   | \$ 850,000.00   |                  |
| 56       | Lift Station 54" Discharge Piping & Appurtenances    | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00 |                  |
| 57       | Lift Station 100 hp VFD's                            | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 58       | Lift Station 200 hp VFD's                            | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 59       | Lift Station 300 hp VFD's                            | EA   | 4         | \$ 80,000.00    | \$ 320,000.00   |                  |
| 60       | Lift Station Electrical, Controls, & Lighting        | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   |                  |
| 61       | Lift Station Electrical Control Building             | LS   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 62       | Lift Station Backfill & Compaction                   | CY   | 6000      | \$ 10.00        | \$ 60,000.00    |                  |
| 63       | Lift Station Slide Gates                             | EA   | 1         | \$ 55,000.00    | \$ 55,000.00    |                  |
| 64       | Lift Station Trashracks                              | LS   | 8         | \$ 25,000.00    | \$ 200,000.00   |                  |
| 65       | Lift Station Miscellaneous Steel                     | LS   | 1         | \$ 120,000.00   | \$ 120,000.00   |                  |
| 66       | Lift Station Cathodic Protection                     | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 67       | Lift Station Site Fencing                            | LF   | 850       | \$ 45.00        | \$ 38,250.00    |                  |
| 68       | Lift Station Bypass Pipeline                         | LF   | 200       | \$ 750.00       | \$ 150,000.00   |                  |
| 69       | Lift Station Ground Cover                            | LS   | 1         | \$ 45,000.00    | \$ 45,000.00    | \$ 8,753,250.00  |
| 70       | Lift Station Pipeline across Stockdale Hwy           | LF   | 1500      | \$ 2,500.00     | \$ 3,750,000.00 |                  |
| 71       | Stockdale Hwy Cased Crossing                         | LF   | 150       | \$ 6,000.00     | \$ 900,000.00   |                  |
| 72       | Stockdale Hwy Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 73       | Stockdale Hwy Afterbay Earthwork                     | CY   | 3800      | \$ 25.00        | \$ 95,000.00    |                  |
| 74       | Stockdale Hwy Afterbay Miscellaneous Steel           | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 75       | Road Crossing Forebay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 76       | Road Crossing Siphon Pipes                           | CY   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 77       | Road Crossing Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 78       | Siphon Crossing Earthwork                            | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 79       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 5,000.00     | \$ 5,000.00     | \$ 6,050,000.00  |

|     |  |    |        |    |              |    |              |                 |
|-----|--|----|--------|----|--------------|----|--------------|-----------------|
| 80  | Lift Station Excavation  | CY | 11000  | \$ | 10.00        | \$ | 110,000.00   |                 |
| 81  | Lift Station Reinforced Concrete Structure - Floor               | CY | 320    | \$ | 800.00       | \$ | 256,000.00   |                 |
| 82  | Lift Station Reinforced Concrete Structure - Walls               | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00   |                 |
| 83  | Lift Station Reinforced Concrete Structure - Deck                | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00   |                 |
| 84  | Lift Station Pumps - 30 cfs                                      | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00   |                 |
| 85  | Lift Station Pumps - 60 cfs                                      | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00   |                 |
| 86  | Lift Station Pumps - 80 cfs                                      | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00   |                 |
| 87  | Lift Station Motors - 100 hp                                     | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 88  | Lift Station Motors - 200 hp                                     | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 89  | Lift Station Motors - 300 hp                                     | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00   |                 |
| 90  | Lift Station 36" Discharge Piping & Appurtenances                | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00   |                 |
| 91  | Lift Station 48" Discharge Piping & Appurtenances                | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00   |                 |
| 92  | Lift Station 54" Discharge Piping & Appurtenances                | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00 |                 |
| 93  | Lift Station 100 hp VFD's  | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 94  | Lift Station 200 hp VFD's  | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 95  | Lift Station 300 hp VFD's  | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00   |                 |
| 96  | Lift Station Electrical, Controls, & Lighting                    | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00   |                 |
| 97  | Lift Station Electrical Control Building                         | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 98  | Lift Station Backfill & Compaction                               | CY | 6000   | \$ | 10.00        | \$ | 60,000.00    |                 |
| 99  | Lift Station Slide Gates   | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00    |                 |
| 100 | Lift Station Trashracks  | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00   |                 |
| 101 | Lift Station Miscellaneous Steel                                 | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 102 | Lift Station Cathodic Protection                                 | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 103 | Lift Station Site Fencing  | LF | 850    | \$ | 45.00        | \$ | 38,250.00    |                 |
| 104 | Lift Station Bypass Pipeline                                     | LF | 200    | \$ | 750.00       | \$ | 150,000.00   |                 |
| 105 | Lift Station Ground Cover  | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00    | \$ 8,753,250.00 |
| 106 | Lift Station Pipeline across I-5 Freeway                         | LF | 400    | \$ | 6,000.00     | \$ | 2,400,000.00 |                 |
| 107 | I-5 Fwy Afterbay Structure Walls & Footings                      | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 108 | I-5 Fwy Afterbay Earthwork                                       | CY | 3800   | \$ | 25.00        | \$ | 95,000.00    |                 |
| 109 | I-5 Fwy Afterbay Miscellaneous Steel                             | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 110 | Road Crossing Forebay Structure Walls & Footings                 | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 111 | Road Crossing Siphon Pipes                                       | LF | 150    | \$ | 2,500.00     | \$ | 375,000.00   |                 |
| 112 | Road Crossing Afterbay Structure Walls & Footings                | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 113 | Siphon Crossing Earthwork  | LS | 7200   | \$ | 25.00        | \$ | 180,000.00   |                 |
| 114 | Siphon Crossing Miscellaneous Steel                              | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 115 | Road Crossing Forebay Structure Walls & Footings                 | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 116 | Road Crossing Siphon Pipes                                       | LF | 150    | \$ | 2,500.00     | \$ | 375,000.00   |                 |
| 117 | Road Crossing Afterbay Structure Walls & Footings                | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 118 | Siphon Crossing Earthwork  | LS | 7200   | \$ | 25.00        | \$ | 180,000.00   |                 |
| 119 | Siphon Crossing Miscellaneous Steel                              | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 4,930,000.00 |
| 120 | Lift Station Excavation  | CY | 11000  | \$ | 10.00        | \$ | 110,000.00   |                 |
| 121 | Lift Station Reinforced Concrete Structure - Floor               | CY | 320    | \$ | 800.00       | \$ | 256,000.00   |                 |
| 122 | Lift Station Reinforced Concrete Structure - Walls               | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00   |                 |
| 123 | Lift Station Reinforced Concrete Structure - Deck                | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00   |                 |
| 124 | Lift Station Pumps - 30 cfs                                      | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00   |                 |
| 125 | Lift Station Pumps - 60 cfs                                      | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00   |                 |
| 126 | Lift Station Pumps - 80 cfs                                      | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00   |                 |
| 127 | Lift Station Motors - 100 hp                                     | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 128 | Lift Station Motors - 200 hp                                     | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 129 | Lift Station Motors - 300 hp                                     | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00   |                 |
| 130 | Lift Station 36" Discharge Piping & Appurtenances                | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00   |                 |
| 131 | Lift Station 48" Discharge Piping & Appurtenances                | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00   |                 |
| 132 | Lift Station 54" Discharge Piping & Appurtenances                | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00 |                 |
| 133 | Lift Station 100 hp VFD's  | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 134 | Lift Station 200 hp VFD's  | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 135 | Lift Station 300 hp VFD's  | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00   |                 |
| 136 | Lift Station Electrical, Controls, & Lighting                    | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00   |                 |
| 137 | Lift Station Electrical Control Building                         | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 138 | Lift Station Backfill & Compaction                               | CY | 6000   | \$ | 10.00        | \$ | 60,000.00    |                 |
| 139 | Lift Station Slide Gates   | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00    |                 |
| 140 | Lift Station Trashracks  | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00   |                 |
| 141 | Lift Station Miscellaneous Steel                                 | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 142 | Lift Station Cathodic Protection                                 | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 143 | Lift Station Site Fencing  | LF | 850    | \$ | 45.00        | \$ | 38,250.00    |                 |
| 144 | Lift Station Bypass Pipeline                                     | LF | 200    | \$ | 750.00       | \$ | 150,000.00   |                 |
| 145 | Lift Station Ground Cover  | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00    | \$ 8,753,250.00 |
| 146 | Afterbay Structure Walls & Footings                              | CY | 280    | \$ | 1,200.00     | \$ | 336,000.00   |                 |
| 147 | Afterbay Earthwork   | CY | 3800   | \$ | 25.00        | \$ | 95,000.00    |                 |
| 148 | Afterbay Miscellaneous Steel                                     | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 456,000.00   |
| 149 | West Basins Turnout Structure Excavation                         | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 150 | West Basins Turnout Reinforced Concrete Structure - Floor        | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 151 | West Basins Turnout Reinforced Concrete Structure - Walls        | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 152 | West Basins Turnout Reinforced Concrete Structure - Deck         | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 153 | West Basins Structure Backfill & Compaction                      | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 154 | West Basins Turnout Trashrack                                    | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 155 | West Basins Turnout Miscellaneous Steel                          | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 156 | West Basins Metering   | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 157 | West Basins Piping   | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 158 | West Basins Turnout Slide Gate                                   | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 159 | West Basins Turnout Electrical                                   | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 160 | West Basins Outlet Structure - Floor                             | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 161 | West Basins Outlet Structure - Walls                             | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 162 | West Basins Outlet Structure Rip-Rap                             | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 163 | Phase II 640 Acres Turnout Structure Excavation                  | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 164 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Floor | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 165 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Walls | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 166 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Deck  | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 167 | Phase II 640 Acres Structure Backfill & Compaction               | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 168 | Phase II 640 Acres Turnout Trashrack                             | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 169 | Phase II 640 Acres Turnout Miscellaneous Steel                   | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 170 | Phase II 640 Acres Metering                                      | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 171 | Phase II 640 Acres Piping  | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 172 | Phase II 640 Acres Turnout Slide Gate                            | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 173 | Phase II 640 Acres Turnout Electrical                            | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 174 | Phase II 640 Acres Outlet Structure - Floor                      | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 175 | Phase II 640 Acres Outlet Structure - Walls                      | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 176 | Phase II 640 Acres Outlet Structure Rip-Rap                      | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 177 | Phase I 640 Acres Clearing & Grubbing                            | AC | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 178 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction        | CY | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 179 | Phase I 640 Acres Levee Keyway                                   | CY | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 180 | Phase I 640 Acres Levee Embankment Fill                          | CY | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 181 | Phase I 640 Acres Structure Headwalls                            | EA | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 182 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards    | EA | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 183 | Phase I 640 Acres Interbasin Structure Piping                    | LS | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 184 | Phase I 640 Acres Interbasin Structure Rip-Rap                   | EA | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 185 | Phase I 640 Acres Interbasin Structure Cutoff Walls              | EA | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 186 | Phase I 640 Acres Site Fencing and Gates                         | LF | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |

|     |  |     |        |    |              |    |              |                 |
|-----|--|-----|--------|----|--------------|----|--------------|-----------------|
| 187 | Goose Lake Slough Turnout Structure Excavation   | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00    |                 |
| 188 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                        | CY  | 90     | \$ | 800.00       | \$ | 72,000.00    |                 |
| 189 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                        | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00   |                 |
| 190 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                         | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00   |                 |
| 191 | Goose Lake Slough Turnout Backfill & Compaction  | LS  | 500    | \$ | 30.00        | \$ | 15,000.00    |                 |
| 192 | Goose Lake Slough Turnout Trashracks   | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00    |                 |
| 193 | Goose Lake Slough Turnout Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 194 | Goose Lake Slough Lift Station Pumps - 60 cfs  | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00   |                 |
| 195 | Goose Lake Slough Lift Station Motors - 200 hp   | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00   |                 |
| 196 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                        | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00   |                 |
| 197 | Goose Lake Slough Metering   | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00    |                 |
| 198 | Goose Lake Slough Turnout Slide Gate   | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00    |                 |
| 199 | Goose Lake Slough Turnout Electrical   | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00   |                 |
| 200 | Goose Lake Slough Electrical Shade Structure & Foundation                              | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 201 | Goose Lake Slough Pipe Outlet  | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00   |                 |
| 202 | Goose Lake Slough Turnout Outlet Structure   | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00   |                 |
| 203 | Goose Lake Slough Outlet Rip-Rap   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 204 | Goose Lake Slough Check Structure - Earthwork  | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00    |                 |
| 205 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                        | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00   |                 |
| 206 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                        | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00    |                 |
| 207 | Goose Lake Slough Check Structure - Miscellaneous Steel                                | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 208 | Goose Lake Slough Check Structure - Rip-Rap  | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00    |                 |
| 209 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                         | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 3,125,700.00 |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    |              | \$ 7,052,844.00 |
| 210 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 211 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 212 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 213 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |                 |
| 214 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |                 |
| 215 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |                 |
| 216 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 217 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |                 |
| 218 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |                 |
| 219 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |                 |
| 220 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |                 |
| 221 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 222 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 223 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |                 |
| 224 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 225 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |                 |
| 226 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |                 |
| 227 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |                 |
| 228 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |                 |
| 229 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |                 |
| 230 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |                 |
| 231 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |                 |
| 232 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |                 |
| 233 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 234 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |                 |
| 235 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |                 |
| 236 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |                 |
| 237 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 238 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |                 |
| 239 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 240 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    |              | \$ 6,822,000.00 |
| 241 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |                 |
| 242 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 243 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 244 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |                 |
| 245 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 246 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |                 |
| 247 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |                 |
| 248 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 249 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |                 |
| 250 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 251 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 252 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 253 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 254 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 255 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |                 |
| 256 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |                 |
| 257 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |                 |
| 258 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$ 2,428,500.00 |
| 259 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |                 |
| 260 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |                 |
| 261 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |                 |
| 262 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |                 |
| 263 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 264 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 265 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 266 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 267 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$ 165,800.00   |
| 268 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 269 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 270 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 271 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 272 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 273 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 274 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 275 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 276 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 277 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |



|     |  |     |      |    |              |    |                       |                 |
|-----|--|-----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6    | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00    |
| 278 | Mobilization, demobilization & misc. work  | LS  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 279 | Transport and dispose of drill cuttings offsite  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 280 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 281 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50   | \$ | 620.00       | \$ | 31,000.00             |                 |
| 282 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920  | \$ | 110.00       | \$ | 101,200.00            |                 |
| 283 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430  | \$ | 110.00       | \$ | 47,300.00             |                 |
| 284 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 285 | Conduct isolated aquifer zone test   | EA  | 3    | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 286 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3    | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 287 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280  | \$ | 110.00       | \$ | 30,800.00             |                 |
| 288 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660  | \$ | 110.00       | \$ | 72,600.00             |                 |
| 289 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 290 | Conduct a caliper survey of enlarged borehole  | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 291 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424  | \$ | 220.00       | \$ | 93,280.00             |                 |
| 292 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 293 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510  | \$ | 320.00       | \$ | 163,200.00            |                 |
| 294 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652  | \$ | 46.00        | \$ | 29,992.00             |                 |
| 295 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319  | \$ | 38.00        | \$ | 12,122.00             |                 |
| 296 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670  | \$ | 225.00       | \$ | 150,750.00            |                 |
| 297 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300  | \$ | 170.00       | \$ | 51,000.00             |                 |
| 298 | Perform initial well development   | HRS | 108  | \$ | 275.00       | \$ | 29,700.00             |                 |
| 299 | Provide chlorine solution for chemical development of the well                         | GAL | 255  | \$ | 26.00        | \$ | 6,630.00              |                 |
| 300 | Provide polymer dispersant for chemical development of the well                        | GAL | 40   | \$ | 110.00       | \$ | 4,400.00              |                 |
| 301 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 302 | Conduct final development by pumping and surging                                       | HRS | 60   | \$ | 500.00       | \$ | 30,000.00             |                 |
| 303 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8    | \$ | 500.00       | \$ | 4,000.00              |                 |
| 304 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28   | \$ | 500.00       | \$ | 14,000.00             |                 |
| 305 | Conduct a dynamic flow meter survey  | EA  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 306 | Conduct a color video camera survey  | EA  | 1    | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 307 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 308 | Conduct final well disinfection in newly completed wells                               | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 309 | Mobilization, Demobilization, & Cleanup  | LS  | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 310 | Water Supply   | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 311 | Environmental Mitigation   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 312 | Construct site work  | LS  | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 313 | Furnish and install concrete foundations   | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 314 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 315 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 316 | Furnish and install well enclosures and appurtenances                                  | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 317 | Furnish and install electrical facilities and instrumentation                          | LS  | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 318 | Furnish and install pre-fabricated metal canopy  | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 319 | Furnish and install site ground cover  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 320 | Furnish and install site fencing   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 321 | Furnish and install site painting  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 322 | Furnish and install VFD's  | LS  | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 323 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 324 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 325 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 326 | Phase II 640 Acres Canal Turn-In Facilities  | EA  | 2    | \$ | 50,000.00    | \$ | 100,000.00            | \$ 1,516,500.00 |
| 327 | SCADA Communication & Appurtenances  | LS  | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |      |    |              | \$ | 117,932,562.00        |                 |
|     | 20% Construction Contingency:  |     |      |    |              | \$ | 23,586,512.40         |                 |
|     | Unlisted Items:  |     |      |    |              | \$ | 2,358,651.24          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 60   | \$ | 25,000.00    | \$ | 1,500,000.00          |                 |
|     | Habitat Credit Purchase  | AC  | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |      |    |              | \$ | 181,952,725.64        |                 |
|     | Non-Contract Costs:  |     |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |      |    |              | \$ | <b>208,312,725.64</b> |                 |

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## BV Canal Alignment - HDPE Lined (Item #2)

| Item No. | Item Description                                     | Unit | Quantity  | Unit Cost       | Extended Cost   | Section Subtotal |
|----------|--|------|-----------|-----------------|-----------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup              | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00 | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                      | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 3        | Aqueduct Turnout Excavation                          | CY   | 2450      | \$ 30.00        | \$ 73,500.00    |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor       | CY   | 45        | \$ 800.00       | \$ 36,000.00    |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls       | CY   | 100       | \$ 1,200.00     | \$ 120,000.00   |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam   | CY   | 5         | \$ 2,000.00     | \$ 10,000.00    |                  |
| 7        | Aqueduct Backfill and Compaction                     | CY   | 1850      | \$ 30.00        | \$ 55,500.00    |                  |
| 8        | Aqueduct Miscellaneous Steel                         | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 9        | Aqueduct Trashrack                                   | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 10       | Aqueduct Turnout Piping                              | LF   | 2000      | \$ 4,000.00     | \$ 8,000,000.00 |                  |
| 11       | Aqueduct Metering                                    | EA   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 12       | Aqueduct Meter Vault                                 | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 13       | Aqueduct Slide Gate & Actuator                       | EA   | 1         | \$ 75,000.00    | \$ 75,000.00    |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting            | LS   | 1         | \$ 150,000.00   | \$ 150,000.00   |                  |
| 15       | Aqueduct Liner Repair                                | LS   | 1         | \$ 20,000.00    | \$ 20,000.00    |                  |
| 16       | Levee Road Pavement Restoration                      | SF   | 1600      | \$ 7.00         | \$ 11,200.00    | \$ 9,351,200.00  |
| 17       | Canal Clearing & Grubbing                            | AC   | 155       | \$ 1,200.00     | \$ 186,000.00   |                  |
| 18       | Canal Earthwork-Cut                                  | CY   | 500,000   | \$ 4.50         | \$ 2,250,000.00 |                  |
| 19       | Canal Earthwork-Fill                                 | CY   | 310,000   | \$ 4.50         | \$ 1,395,000.00 |                  |
| 20       | Levee Subgrade Preparation                           | CY   | 211,200   | \$ 4.60         | \$ 971,520.00   |                  |
| 21       | HDPE Canal Lining                                    | SF   | 2,518,560 | \$ 1.00         | \$ 2,518,560.00 |                  |
| 22       | HDPE Anchor Trench                                   | LF   | 95,040    | \$ 10.00        | \$ 950,400.00   |                  |
| 23       | Canal Appurtenances                                  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 24       | Canal Fencing  | LF   | 110,000   | \$ 7.50         | \$ 825,000.00   |                  |
| 25       | Levee Road Aggregate Base Ground Cover               | LS   | 1         | \$ 775,000.00   | \$ 775,000.00   |                  |
| 26       | Ex. Facility Relocations                             | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   | \$ 10,621,480.00 |
| 27       | Aqueduct Turnout Afterbay Structure Walls & Footings | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 28       | Turnout Afterbay Earthwork                           | CY   | 3800      | \$ 30.00        | \$ 114,000.00   |                  |
| 29       | Turnout Afterbay Miscellaneous Steel                 | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 30       | Outlet Canal Forebay Structure Walls & Footings      | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 31       | Outlet Canal Siphon Pipes                            | LF   | 300       | \$ 2,500.00     | \$ 750,000.00   |                  |
| 32       | Outlet Canal Afterbay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 33       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 34       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 35       | Adohr Rd Forebay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 36       | Adohr Rd Siphon Pipes                                | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 37       | Adohr Rd Afterbay Structure Walls & Footings         | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 38       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 39       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 40       | East Side Canal Forebay Structure Walls & Footings   | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 41       | East Side Canal Siphon Pipes                         | LF   | 350       | \$ 2,500.00     | \$ 875,000.00   |                  |
| 42       | East Side Canal Afterbay Structure Walls & Footings  | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 43       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 44       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    | \$ 4,509,000.00  |
| 45       | Lift Station Excavation                              | CY   | 11000     | \$ 10.00        | \$ 110,000.00   |                  |
| 46       | Lift Station Reinforced Concrete Structure - Floor   | CY   | 320       | \$ 800.00       | \$ 256,000.00   |                  |
| 47       | Lift Station Reinforced Concrete Structure - Walls   | CY   | 520       | \$ 1,200.00     | \$ 624,000.00   |                  |
| 48       | Lift Station Reinforced Concrete Structure - Deck    | CY   | 120       | \$ 2,000.00     | \$ 240,000.00   |                  |
| 49       | Lift Station Pumps - 30 cfs                          | EA   | 2         | \$ 130,000.00   | \$ 260,000.00   |                  |
| 50       | Lift Station Pumps - 60 cfs                          | EA   | 2         | \$ 180,000.00   | \$ 360,000.00   |                  |
| 51       | Lift Station Pumps - 80 cfs                          | EA   | 4         | \$ 195,000.00   | \$ 780,000.00   |                  |
| 52       | Lift Station Motors - 100 hp                         | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 53       | Lift Station Motors - 200 hp                         | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 54       | Lift Station Motors - 300 hp                         | EA   | 4         | \$ 90,000.00    | \$ 360,000.00   |                  |
| 55       | Lift Station 36" Discharge Piping & Appurtenances    | LS   | 2         | \$ 300,000.00   | \$ 600,000.00   |                  |
| 56       | Lift Station 48" Discharge Piping & Appurtenances    | LS   | 2         | \$ 425,000.00   | \$ 850,000.00   |                  |
| 57       | Lift Station 54" Discharge Piping & Appurtenances    | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00 |                  |
| 58       | Lift Station 100 hp VFD's                            | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 59       | Lift Station 200 hp VFD's                            | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 60       | Lift Station 300 hp VFD's                            | EA   | 4         | \$ 80,000.00    | \$ 320,000.00   |                  |
| 61       | Lift Station Electrical, Controls, & Lighting        | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   |                  |
| 62       | Lift Station Electrical Control Building             | LS   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 63       | Lift Station Backfill & Compaction                   | CY   | 6000      | \$ 10.00        | \$ 60,000.00    |                  |
| 64       | Lift Station Slide Gates                             | EA   | 1         | \$ 55,000.00    | \$ 55,000.00    |                  |
| 65       | Lift Station Trashracks                              | LS   | 8         | \$ 25,000.00    | \$ 200,000.00   |                  |
| 66       | Lift Station Miscellaneous Steel                     | LS   | 1         | \$ 120,000.00   | \$ 120,000.00   |                  |
| 67       | Lift Station Cathodic Protection                     | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 68       | Lift Station Site Fencing                            | LF   | 850       | \$ 45.00        | \$ 38,250.00    |                  |
| 69       | Lift Station Bypass Pipeline                         | LF   | 200       | \$ 750.00       | \$ 150,000.00   |                  |
| 70       | Lift Station Ground Cover                            | LS   | 1         | \$ 45,000.00    | \$ 45,000.00    | \$ 8,753,250.00  |
| 71       | Lift Station Pipeline across Stockdale Hwy           | LF   | 1500      | \$ 2,500.00     | \$ 3,750,000.00 |                  |
| 72       | Stockdale Hwy Cased Crossing                         | LF   | 150       | \$ 6,000.00     | \$ 900,000.00   |                  |
| 73       | Stockdale Hwy Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 74       | Stockdale Hwy Afterbay Earthwork                     | CY   | 3800      | \$ 25.00        | \$ 95,000.00    |                  |
| 75       | Stockdale Hwy Afterbay Miscellaneous Steel           | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 76       | Road Crossing Forebay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 77       | Road Crossing Siphon Pipes                           | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 78       | Road Crossing Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 79       | Siphon Crossing Earthwork                            | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 80       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 5,000.00     | \$ 5,000.00     | \$ 6,050,000.00  |

|     |  |    |        |    |              |    |              |                 |
|-----|--|----|--------|----|--------------|----|--------------|-----------------|
| 81  | Lift Station Excavation  | CY | 11000  | \$ | 10.00        | \$ | 110,000.00   |                 |
| 82  | Lift Station Reinforced Concrete Structure - Floor               | CY | 320    | \$ | 800.00       | \$ | 256,000.00   |                 |
| 83  | Lift Station Reinforced Concrete Structure - Walls               | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00   |                 |
| 84  | Lift Station Reinforced Concrete Structure - Deck                | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00   |                 |
| 85  | Lift Station Pumps - 30 cfs                                      | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00   |                 |
| 86  | Lift Station Pumps - 60 cfs                                      | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00   |                 |
| 87  | Lift Station Pumps - 80 cfs                                      | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00   |                 |
| 88  | Lift Station Motors - 100 hp                                     | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 89  | Lift Station Motors - 200 hp                                     | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 90  | Lift Station Motors - 300 hp                                     | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00   |                 |
| 91  | Lift Station 36" Discharge Piping & Appurtenances                | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00   |                 |
| 92  | Lift Station 48" Discharge Piping & Appurtenances                | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00   |                 |
| 93  | Lift Station 54" Discharge Piping & Appurtenances                | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00 |                 |
| 94  | Lift Station 100 hp VFD's  | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 95  | Lift Station 200 hp VFD's  | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 96  | Lift Station 300 hp VFD's  | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00   |                 |
| 97  | Lift Station Electrical, Controls, & Lighting                    | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00   |                 |
| 98  | Lift Station Electrical Control Building                         | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 99  | Lift Station Backfill & Compaction                               | CY | 6000   | \$ | 10.00        | \$ | 60,000.00    |                 |
| 100 | Lift Station Slide Gates   | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00    |                 |
| 101 | Lift Station Trashracks  | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00   |                 |
| 102 | Lift Station Miscellaneous Steel                                 | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 103 | Lift Station Cathodic Protection                                 | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 104 | Lift Station Site Fencing  | LF | 850    | \$ | 45.00        | \$ | 38,250.00    |                 |
| 105 | Lift Station Bypass Pipeline                                     | LF | 200    | \$ | 750.00       | \$ | 150,000.00   |                 |
| 106 | Lift Station Ground Cover  | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00    | \$ 8,753,250.00 |
| 107 | Lift Station Pipeline across I-5 Freeway                         | LF | 400    | \$ | 6,000.00     | \$ | 2,400,000.00 |                 |
| 108 | I-5 Fwy Afterbay Structure Walls & Footings                      | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 109 | I-5 Fwy Afterbay Earthwork                                       | CY | 3800   | \$ | 25.00        | \$ | 95,000.00    |                 |
| 110 | I-5 Fwy Afterbay Miscellaneous Steel                             | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 111 | Road Crossing Forebay Structure Walls & Footings                 | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 112 | Road Crossing Siphon Pipes                                       | LF | 150    | \$ | 2,500.00     | \$ | 375,000.00   |                 |
| 113 | Road Crossing Afterbay Structure Walls & Footings                | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 114 | Siphon Crossing Earthwork  | LS | 7200   | \$ | 25.00        | \$ | 180,000.00   |                 |
| 115 | Siphon Crossing Miscellaneous Steel                              | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 116 | Road Crossing Forebay Structure Walls & Footings                 | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 117 | Road Crossing Siphon Pipes                                       | LF | 150    | \$ | 2,500.00     | \$ | 375,000.00   |                 |
| 118 | Road Crossing Afterbay Structure Walls & Footings                | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 119 | Siphon Crossing Earthwork  | LS | 7200   | \$ | 25.00        | \$ | 180,000.00   |                 |
| 120 | Siphon Crossing Miscellaneous Steel                              | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 4,930,000.00 |
| 121 | Lift Station Excavation  | CY | 11000  | \$ | 10.00        | \$ | 110,000.00   |                 |
| 122 | Lift Station Reinforced Concrete Structure - Floor               | CY | 320    | \$ | 800.00       | \$ | 256,000.00   |                 |
| 123 | Lift Station Reinforced Concrete Structure - Walls               | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00   |                 |
| 124 | Lift Station Reinforced Concrete Structure - Deck                | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00   |                 |
| 125 | Lift Station Pumps - 30 cfs                                      | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00   |                 |
| 126 | Lift Station Pumps - 60 cfs                                      | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00   |                 |
| 127 | Lift Station Pumps - 80 cfs                                      | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00   |                 |
| 128 | Lift Station Motors - 100 hp                                     | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 129 | Lift Station Motors - 200 hp                                     | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 130 | Lift Station Motors - 300 hp                                     | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00   |                 |
| 131 | Lift Station 36" Discharge Piping & Appurtenances                | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00   |                 |
| 132 | Lift Station 48" Discharge Piping & Appurtenances                | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00   |                 |
| 133 | Lift Station 54" Discharge Piping & Appurtenances                | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00 |                 |
| 134 | Lift Station 100 hp VFD's  | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 135 | Lift Station 200 hp VFD's  | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 136 | Lift Station 300 hp VFD's  | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00   |                 |
| 137 | Lift Station Electrical, Controls, & Lighting                    | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00   |                 |
| 138 | Lift Station Electrical Control Building                         | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 139 | Lift Station Backfill & Compaction                               | CY | 6000   | \$ | 10.00        | \$ | 60,000.00    |                 |
| 140 | Lift Station Slide Gates   | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00    |                 |
| 141 | Lift Station Trashracks  | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00   |                 |
| 142 | Lift Station Miscellaneous Steel                                 | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 143 | Lift Station Cathodic Protection                                 | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 144 | Lift Station Site Fencing  | LF | 850    | \$ | 45.00        | \$ | 38,250.00    |                 |
| 145 | Lift Station Bypass Pipeline                                     | LF | 200    | \$ | 750.00       | \$ | 150,000.00   |                 |
| 146 | Lift Station Ground Cover  | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00    | \$ 8,753,250.00 |
| 147 | Afterbay Structure Walls & Footings                              | CY | 280    | \$ | 1,200.00     | \$ | 336,000.00   |                 |
| 148 | Afterbay Earthwork   | CY | 3800   | \$ | 25.00        | \$ | 95,000.00    |                 |
| 149 | Afterbay Miscellaneous Steel                                     | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 456,000.00   |
| 150 | West Basins Turnout Structure Excavation                         | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 151 | West Basins Turnout Reinforced Concrete Structure - Floor        | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 152 | West Basins Turnout Reinforced Concrete Structure - Walls        | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 153 | West Basins Turnout Reinforced Concrete Structure - Deck         | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 154 | West Basins Structure Backfill & Compaction                      | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 155 | West Basins Turnout Trashrack                                    | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 156 | West Basins Turnout Miscellaneous Steel                          | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 157 | West Basins Metering   | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 158 | West Basins Piping   | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 159 | West Basins Turnout Slide Gate                                   | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 160 | West Basins Turnout Electrical                                   | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 161 | West Basins Outlet Structure - Floor                             | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 162 | West Basins Outlet Structure - Walls                             | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 163 | West Basins Outlet Structure Rip-Rap                             | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 164 | Phase II 640 Acres Turnout Structure Excavation                  | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 165 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Floor | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 166 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Walls | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 167 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Deck  | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 168 | Phase II 640 Acres Structure Backfill & Compaction               | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 169 | Phase II 640 Acres Turnout Trashrack                             | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 170 | Phase II 640 Acres Turnout Miscellaneous Steel                   | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 171 | Phase II 640 Acres Metering                                      | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 172 | Phase II 640 Acres Piping  | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 173 | Phase II 640 Acres Turnout Slide Gate                            | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 174 | Phase II 640 Acres Turnout Electrical                            | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 175 | Phase II 640 Acres Outlet Structure - Floor                      | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 176 | Phase II 640 Acres Outlet Structure - Walls                      | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 177 | Phase II 640 Acres Outlet Structure Rip-Rap                      | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 178 | Phase I 640 Acres Clearing & Grubbing                            | AC | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 179 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction        | CY | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 180 | Phase I 640 Acres Levee Keyway                                   | CY | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 181 | Phase I 640 Acres Levee Embankment Fill                          | CY | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 182 | Phase I 640 Acres Structure Headwalls                            | EA | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 183 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards    | EA | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 184 | Phase I 640 Acres Interbasin Structure Piping                    | LS | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 185 | Phase I 640 Acres Interbasin Structure Rip-Rap                   | EA | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 186 | Phase I 640 Acres Interbasin Structure Cutoff Walls              | EA | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 187 | Phase I 640 Acres Site Fencing and Gates                         | LF | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |

|     |  |     |        |    |              |    |              |                 |
|-----|--|-----|--------|----|--------------|----|--------------|-----------------|
| 188 | Goose Lake Slough Turnout Structure Excavation   | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00    |                 |
| 189 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                        | CY  | 90     | \$ | 800.00       | \$ | 72,000.00    |                 |
| 190 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                        | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00   |                 |
| 191 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                         | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00   |                 |
| 192 | Goose Lake Slough Turnout Backfill & Compaction  | LS  | 500    | \$ | 30.00        | \$ | 15,000.00    |                 |
| 193 | Goose Lake Slough Turnout Trashracks   | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00    |                 |
| 194 | Goose Lake Slough Turnout Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 195 | Goose Lake Slough Lift Station Pumps - 60 cfs  | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00   |                 |
| 196 | Goose Lake Slough Lift Station Motors - 200 hp   | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00   |                 |
| 197 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                        | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00   |                 |
| 198 | Goose Lake Slough Metering   | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00    |                 |
| 199 | Goose Lake Slough Turnout Slide Gate   | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00    |                 |
| 200 | Goose Lake Slough Turnout Electrical   | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00   |                 |
| 201 | Goose Lake Slough Electrical Shade Structure & Foundation                              | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 202 | Goose Lake Slough Pipe Outlet  | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00   |                 |
| 203 | Goose Lake Slough Turnout Outlet Structure   | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00   |                 |
| 204 | Goose Lake Slough Outlet Rip-Rap   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 205 | Goose Lake Slough Check Structure - Earthwork  | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00    |                 |
| 206 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                        | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00   |                 |
| 207 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                        | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00    |                 |
| 208 | Goose Lake Slough Check Structure - Miscellaneous Steel                                | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 209 | Goose Lake Slough Check Structure - Rip-Rap  | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00    |                 |
| 210 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                         | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 3,125,700.00 |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    |              | \$ 7,052,844.00 |
| 211 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 212 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 213 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 214 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |                 |
| 215 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |                 |
| 216 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |                 |
| 217 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 218 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |                 |
| 219 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |                 |
| 220 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |                 |
| 221 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |                 |
| 222 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 223 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 224 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |                 |
| 225 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 226 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |                 |
| 227 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |                 |
| 228 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |                 |
| 229 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |                 |
| 230 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |                 |
| 231 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |                 |
| 232 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |                 |
| 233 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |                 |
| 234 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 235 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |                 |
| 236 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |                 |
| 237 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |                 |
| 238 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 239 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |                 |
| 240 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 241 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    |              | \$ 6,822,000.00 |
| 242 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |                 |
| 243 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 244 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 245 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |                 |
| 246 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 247 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |                 |
| 248 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |                 |
| 249 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 250 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |                 |
| 251 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 252 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 253 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 254 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 255 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 256 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |                 |
| 257 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |                 |
| 258 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |                 |
| 259 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$ 2,428,500.00 |
| 260 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |                 |
| 261 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |                 |
| 262 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |                 |
| 263 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |                 |
| 264 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 265 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 266 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 267 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 268 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$ 165,800.00   |
| 269 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 270 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 271 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 272 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 273 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 274 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 275 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 276 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 277 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 278 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |

|     |  |     |      |    |              |    |                       |                 |
|-----|--|-----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6    | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00    |
| 279 | Mobilization, demobilization & misc. work  | LS  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 280 | Transport and dispose of drill cuttings offsite  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 281 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 282 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50   | \$ | 620.00       | \$ | 31,000.00             |                 |
| 283 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920  | \$ | 110.00       | \$ | 101,200.00            |                 |
| 284 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430  | \$ | 110.00       | \$ | 47,300.00             |                 |
| 285 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 286 | Conduct isolated aquifer zone test   | EA  | 3    | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 287 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3    | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 288 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280  | \$ | 110.00       | \$ | 30,800.00             |                 |
| 289 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660  | \$ | 110.00       | \$ | 72,600.00             |                 |
| 290 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 291 | Conduct a caliper survey of enlarged borehole  | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 292 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424  | \$ | 220.00       | \$ | 93,280.00             |                 |
| 293 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 294 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510  | \$ | 320.00       | \$ | 163,200.00            |                 |
| 295 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652  | \$ | 46.00        | \$ | 29,992.00             |                 |
| 296 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319  | \$ | 38.00        | \$ | 12,122.00             |                 |
| 297 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670  | \$ | 225.00       | \$ | 150,750.00            |                 |
| 298 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300  | \$ | 170.00       | \$ | 51,000.00             |                 |
| 299 | Perform initial well development   | HRS | 108  | \$ | 275.00       | \$ | 29,700.00             |                 |
| 300 | Provide chlorine solution for chemical development of the well                         | GAL | 255  | \$ | 26.00        | \$ | 6,630.00              |                 |
| 301 | Provide polymer dispersant for chemical development of the well                        | GAL | 40   | \$ | 110.00       | \$ | 4,400.00              |                 |
| 302 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 303 | Conduct final development by pumping and surging                                       | HRS | 60   | \$ | 500.00       | \$ | 30,000.00             |                 |
| 304 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8    | \$ | 500.00       | \$ | 4,000.00              |                 |
| 305 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28   | \$ | 500.00       | \$ | 14,000.00             |                 |
| 306 | Conduct a dynamic flow meter survey  | EA  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 307 | Conduct a color video camera survey  | EA  | 1    | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 308 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 309 | Conduct final well disinfection in newly completed wells                               | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 310 | Mobilization, Demobilization, & Cleanup  | LS  | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 311 | Water Supply   | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 312 | Environmental Mitigation   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 313 | Construct site work  | LS  | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 314 | Furnish and install concrete foundations   | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 315 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 316 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 317 | Furnish and install well enclosures and appurtenances                                  | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 318 | Furnish and install electrical facilities and instrumentation                          | LS  | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 319 | Furnish and install pre-fabricated metal canopy  | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 320 | Furnish and install site ground cover  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 321 | Furnish and install site fencing   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 322 | Furnish and install site painting  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 323 | Furnish and install VFD's  | LS  | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 324 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 325 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 326 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 327 | Phase II 640 Acres Canal Turn-In Facilities  | EA  | 2    | \$ | 50,000.00    | \$ | 100,000.00            | \$ 1,516,500.00 |
| 328 | SCADA Communication & Appurtenances  | LS  | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |      |    |              | \$ | 112,838,418.00        |                 |
|     | 20% Construction Contingency:  |     |      |    |              | \$ | 22,567,683.60         |                 |
|     | Unlisted Items:  |     |      |    |              | \$ | 2,256,768.36          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 60   | \$ | 25,000.00    | \$ | 1,500,000.00          |                 |
|     | Habitat Credit Purchase  | AC  | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |      |    |              | \$ | 175,737,869.96        |                 |
|     | Non-Contract Costs:  |     |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |      |    |              | \$ | <b>202,097,869.96</b> |                 |



## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## BV Canal Alignment - Concrete Lined (Item #3)

| Item No. | Item Description                                     | Unit | Quantity  | Unit Cost       | Extended Cost    | Section Subtotal |
|----------|--|------|-----------|-----------------|------------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup              | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00  | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                      | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 3        | Aqueduct Turnout Excavation                          | CY   | 2450      | \$ 30.00        | \$ 73,500.00     |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor       | CY   | 45        | \$ 800.00       | \$ 36,000.00     |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls       | CY   | 100       | \$ 1,200.00     | \$ 120,000.00    |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam   | CY   | 5         | \$ 2,000.00     | \$ 10,000.00     |                  |
| 7        | Aqueduct Backfill and Compaction                     | CY   | 1850      | \$ 30.00        | \$ 55,500.00     |                  |
| 8        | Aqueduct Miscellaneous Steel                         | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 9        | Aqueduct Trashrack                                   | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 10       | Aqueduct Turnout Piping                              | LF   | 2000      | \$ 4,000.00     | \$ 8,000,000.00  |                  |
| 11       | Aqueduct Metering                                    | EA   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 12       | Aqueduct Meter Vault                                 | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 13       | Aqueduct Slide Gate & Actuator                       | EA   | 1         | \$ 75,000.00    | \$ 75,000.00     |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting            | LS   | 1         | \$ 150,000.00   | \$ 150,000.00    |                  |
| 15       | Aqueduct Liner Repair                                | LS   | 1         | \$ 20,000.00    | \$ 20,000.00     |                  |
| 16       | Levee Road Pavement Restoration                      | SF   | 1600      | \$ 7.00         | \$ 11,200.00     | \$ 9,351,200.00  |
| 17       | Canal Clearing & Grubbing                            | AC   | 155       | \$ 1,200.00     | \$ 186,000.00    |                  |
| 18       | Canal Earthwork-Cut                                  | CY   | 500,000   | \$ 4.50         | \$ 2,250,000.00  |                  |
| 19       | Canal Earthwork-Fill                                 | CY   | 310,000   | \$ 4.50         | \$ 1,395,000.00  |                  |
| 20       | Levee Subgrade Preparation                           | CY   | 211,200   | \$ 4.60         | \$ 971,520.00    |                  |
| 21       | Concrete Canal Lining                                | SF   | 2,518,560 | \$ 6.00         | \$ 15,111,360.00 |                  |
| 22       | Canal Appurtenances                                  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 23       | Canal Fencing  | LF   | 110,000   | \$ 7.50         | \$ 825,000.00    |                  |
| 24       | Levee Road Aggregate Base Ground Cover               | LS   | 1         | \$ 775,000.00   | \$ 775,000.00    |                  |
| 25       | Ex. Facility Relocations                             | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    | \$ 22,263,880.00 |
| 26       | Aqueduct Turnout Afterbay Structure Walls & Footings | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 27       | Turnout Afterbay Earthwork                           | CY   | 3800      | \$ 30.00        | \$ 114,000.00    |                  |
| 28       | Turnout Afterbay Miscellaneous Steel                 | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 29       | Outlet Canal Forebay Structure Walls & Footings      | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 30       | Outlet Canal Siphon Pipes                            | LF   | 300       | \$ 2,500.00     | \$ 750,000.00    |                  |
| 31       | Outlet Canal Afterbay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 32       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 33       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 34       | Adohr Rd Forebay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 35       | Adohr Rd Siphon Pipes                                | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 36       | Adohr Rd Afterbay Structure Walls & Footings         | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 37       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 38       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 39       | East Side Canal Forebay Structure Walls & Footings   | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 40       | East Side Canal Siphon Pipes                         | LF   | 350       | \$ 2,500.00     | \$ 875,000.00    |                  |
| 41       | East Side Canal Afterbay Structure Walls & Footings  | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 42       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 43       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     | \$ 4,509,000.00  |
| 44       | Lift Station Excavation                              | CY   | 11000     | \$ 10.00        | \$ 110,000.00    |                  |
| 45       | Lift Station Reinforced Concrete Structure - Floor   | CY   | 320       | \$ 800.00       | \$ 256,000.00    |                  |
| 46       | Lift Station Reinforced Concrete Structure - Walls   | CY   | 520       | \$ 1,200.00     | \$ 624,000.00    |                  |
| 47       | Lift Station Reinforced Concrete Structure - Deck    | CY   | 120       | \$ 2,000.00     | \$ 240,000.00    |                  |
| 48       | Lift Station Pumps - 30 cfs                          | EA   | 2         | \$ 130,000.00   | \$ 260,000.00    |                  |
| 49       | Lift Station Pumps - 60 cfs                          | EA   | 2         | \$ 180,000.00   | \$ 360,000.00    |                  |
| 50       | Lift Station Pumps - 80 cfs                          | EA   | 4         | \$ 195,000.00   | \$ 780,000.00    |                  |
| 51       | Lift Station Motors - 100 hp                         | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 52       | Lift Station Motors - 200 hp                         | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 53       | Lift Station Motors - 300 hp                         | EA   | 4         | \$ 90,000.00    | \$ 360,000.00    |                  |
| 54       | Lift Station 36" Discharge Piping & Appurtenances    | LS   | 2         | \$ 300,000.00   | \$ 600,000.00    |                  |
| 55       | Lift Station 48" Discharge Piping & Appurtenances    | LS   | 2         | \$ 425,000.00   | \$ 850,000.00    |                  |
| 56       | Lift Station 54" Discharge Piping & Appurtenances    | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00  |                  |
| 57       | Lift Station 100 hp VFD's                            | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 58       | Lift Station 200 hp VFD's                            | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 59       | Lift Station 300 hp VFD's                            | EA   | 4         | \$ 80,000.00    | \$ 320,000.00    |                  |
| 60       | Lift Station Electrical, Controls, & Lighting        | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    |                  |
| 61       | Lift Station Electrical Control Building             | LS   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 62       | Lift Station Backfill & Compaction                   | CY   | 6000      | \$ 10.00        | \$ 60,000.00     |                  |
| 63       | Lift Station Slide Gates                             | EA   | 1         | \$ 55,000.00    | \$ 55,000.00     |                  |
| 64       | Lift Station Trashracks                              | LS   | 8         | \$ 25,000.00    | \$ 200,000.00    |                  |
| 65       | Lift Station Miscellaneous Steel                     | LS   | 1         | \$ 120,000.00   | \$ 120,000.00    |                  |
| 66       | Lift Station Cathodic Protection                     | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 67       | Lift Station Site Fencing                            | LF   | 850       | \$ 45.00        | \$ 38,250.00     |                  |
| 68       | Lift Station Bypass Pipeline                         | LF   | 200       | \$ 750.00       | \$ 150,000.00    |                  |
| 69       | Lift Station Ground Cover                            | LS   | 1         | \$ 45,000.00    | \$ 45,000.00     | \$ 8,753,250.00  |
| 70       | Lift Station Pipeline across Stockdale Hwy           | LF   | 1500      | \$ 2,500.00     | \$ 3,750,000.00  |                  |
| 71       | Stockdale Hwy Cased Crossing                         | LF   | 150       | \$ 6,000.00     | \$ 900,000.00    |                  |
| 72       | Stockdale Hwy Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 73       | Stockdale Hwy Afterbay Earthwork                     | CY   | 3800      | \$ 25.00        | \$ 95,000.00     |                  |
| 74       | Stockdale Hwy Afterbay Miscellaneous Steel           | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 75       | Road Crossing Forebay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 76       | Road Crossing Siphon Pipes                           | CY   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 77       | Road Crossing Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 78       | Siphon Crossing Earthwork                            | LS   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 79       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 5,000.00     | \$ 5,000.00      | \$ 6,050,000.00  |

|     |  |    |        |    |              |    |              |                 |
|-----|--|----|--------|----|--------------|----|--------------|-----------------|
| 80  | Lift Station Excavation  | CY | 11000  | \$ | 10.00        | \$ | 110,000.00   |                 |
| 81  | Lift Station Reinforced Concrete Structure - Floor               | CY | 320    | \$ | 800.00       | \$ | 256,000.00   |                 |
| 82  | Lift Station Reinforced Concrete Structure - Walls               | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00   |                 |
| 83  | Lift Station Reinforced Concrete Structure - Deck                | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00   |                 |
| 84  | Lift Station Pumps - 30 cfs                                      | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00   |                 |
| 85  | Lift Station Pumps - 60 cfs                                      | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00   |                 |
| 86  | Lift Station Pumps - 80 cfs                                      | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00   |                 |
| 87  | Lift Station Motors - 100 hp                                     | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 88  | Lift Station Motors - 200 hp                                     | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 89  | Lift Station Motors - 300 hp                                     | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00   |                 |
| 90  | Lift Station 36" Discharge Piping & Appurtenances                | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00   |                 |
| 91  | Lift Station 48" Discharge Piping & Appurtenances                | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00   |                 |
| 92  | Lift Station 54" Discharge Piping & Appurtenances                | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00 |                 |
| 93  | Lift Station 100 hp VFD's  | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 94  | Lift Station 200 hp VFD's  | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 95  | Lift Station 300 hp VFD's  | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00   |                 |
| 96  | Lift Station Electrical, Controls, & Lighting                    | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00   |                 |
| 97  | Lift Station Electrical Control Building                         | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 98  | Lift Station Backfill & Compaction                               | CY | 6000   | \$ | 10.00        | \$ | 60,000.00    |                 |
| 99  | Lift Station Slide Gates   | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00    |                 |
| 100 | Lift Station Trashracks  | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00   |                 |
| 101 | Lift Station Miscellaneous Steel                                 | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 102 | Lift Station Cathodic Protection                                 | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 103 | Lift Station Site Fencing  | LF | 850    | \$ | 45.00        | \$ | 38,250.00    |                 |
| 104 | Lift Station Bypass Pipeline                                     | LF | 200    | \$ | 750.00       | \$ | 150,000.00   |                 |
| 105 | Lift Station Ground Cover  | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00    | \$ 8,753,250.00 |
| 106 | Lift Station Pipeline across I-5 Freeway                         | LF | 400    | \$ | 6,000.00     | \$ | 2,400,000.00 |                 |
| 107 | I-5 Fwy Afterbay Structure Walls & Footings                      | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 108 | I-5 Fwy Afterbay Earthwork                                       | CY | 3800   | \$ | 25.00        | \$ | 95,000.00    |                 |
| 109 | I-5 Fwy Afterbay Miscellaneous Steel                             | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 110 | Road Crossing Forebay Structure Walls & Footings                 | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 111 | Road Crossing Siphon Pipes                                       | LS | 150    | \$ | 2,500.00     | \$ | 375,000.00   |                 |
| 112 | Road Crossing Afterbay Structure Walls & Footings                | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 113 | Siphon Crossing Earthwork  | LS | 7200   | \$ | 25.00        | \$ | 180,000.00   |                 |
| 114 | Siphon Crossing Miscellaneous Steel                              | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 115 | Road Crossing Forebay Structure Walls & Footings                 | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 116 | Road Crossing Siphon Pipes                                       | LS | 150    | \$ | 2,500.00     | \$ | 375,000.00   |                 |
| 117 | Road Crossing Afterbay Structure Walls & Footings                | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 118 | Siphon Crossing Earthwork  | LS | 7200   | \$ | 25.00        | \$ | 180,000.00   |                 |
| 119 | Siphon Crossing Miscellaneous Steel                              | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 4,930,000.00 |
| 120 | Lift Station Excavation  | CY | 11000  | \$ | 10.00        | \$ | 110,000.00   |                 |
| 121 | Lift Station Reinforced Concrete Structure - Floor               | CY | 320    | \$ | 800.00       | \$ | 256,000.00   |                 |
| 122 | Lift Station Reinforced Concrete Structure - Walls               | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00   |                 |
| 123 | Lift Station Reinforced Concrete Structure - Deck                | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00   |                 |
| 124 | Lift Station Pumps - 30 cfs                                      | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00   |                 |
| 125 | Lift Station Pumps - 60 cfs                                      | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00   |                 |
| 126 | Lift Station Pumps - 80 cfs                                      | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00   |                 |
| 127 | Lift Station Motors - 100 hp                                     | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 128 | Lift Station Motors - 200 hp                                     | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 129 | Lift Station Motors - 300 hp                                     | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00   |                 |
| 130 | Lift Station 36" Discharge Piping & Appurtenances                | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00   |                 |
| 131 | Lift Station 48" Discharge Piping & Appurtenances                | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00   |                 |
| 132 | Lift Station 54" Discharge Piping & Appurtenances                | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00 |                 |
| 133 | Lift Station 100 hp VFD's  | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 134 | Lift Station 200 hp VFD's  | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 135 | Lift Station 300 hp VFD's  | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00   |                 |
| 136 | Lift Station Electrical, Controls, & Lighting                    | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00   |                 |
| 137 | Lift Station Electrical Control Building                         | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 138 | Lift Station Backfill & Compaction                               | CY | 6000   | \$ | 10.00        | \$ | 60,000.00    |                 |
| 139 | Lift Station Slide Gates   | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00    |                 |
| 140 | Lift Station Trashracks  | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00   |                 |
| 141 | Lift Station Miscellaneous Steel                                 | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 142 | Lift Station Cathodic Protection                                 | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 143 | Lift Station Site Fencing  | LF | 850    | \$ | 45.00        | \$ | 38,250.00    |                 |
| 144 | Lift Station Bypass Pipeline                                     | LF | 200    | \$ | 750.00       | \$ | 150,000.00   |                 |
| 145 | Lift Station Ground Cover  | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00    | \$ 8,753,250.00 |
| 146 | Afterbay Structure Walls & Footings                              | CY | 280    | \$ | 1,200.00     | \$ | 336,000.00   |                 |
| 147 | Afterbay Earthwork   | CY | 3800   | \$ | 25.00        | \$ | 95,000.00    |                 |
| 148 | Afterbay Miscellaneous Steel                                     | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 456,000.00   |
| 149 | West Basins Turnout Structure Excavation                         | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 150 | West Basins Turnout Reinforced Concrete Structure - Floor        | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 151 | West Basins Turnout Reinforced Concrete Structure - Walls        | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 152 | West Basins Turnout Reinforced Concrete Structure - Deck         | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 153 | West Basins Structure Backfill & Compaction                      | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 154 | West Basins Turnout Trashrack                                    | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 155 | West Basins Turnout Miscellaneous Steel                          | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 156 | West Basins Metering   | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 157 | West Basins Piping   | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 158 | West Basins Turnout Slide Gate                                   | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 159 | West Basins Turnout Electrical                                   | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 160 | West Basins Outlet Structure - Floor                             | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 161 | West Basins Outlet Structure - Walls                             | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 162 | West Basins Outlet Structure Rip-Rap                             | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 163 | Phase II 640 Acres Turnout Structure Excavation                  | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 164 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Floor | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 165 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Walls | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 166 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Deck  | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 167 | Phase II 640 Acres Structure Backfill & Compaction               | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 168 | Phase II 640 Acres Turnout Trashrack                             | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 169 | Phase II 640 Acres Turnout Miscellaneous Steel                   | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 170 | Phase II 640 Acres Metering                                      | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 171 | Phase II 640 Acres Piping  | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 172 | Phase II 640 Acres Turnout Slide Gate                            | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 173 | Phase II 640 Acres Turnout Electrical                            | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 174 | Phase II 640 Acres Outlet Structure - Floor                      | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 175 | Phase II 640 Acres Outlet Structure - Walls                      | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 176 | Phase II 640 Acres Outlet Structure Rip-Rap                      | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 177 | Phase I 640 Acres Clearing & Grubbing                            | AC | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 178 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction        | CY | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 179 | Phase I 640 Acres Levee Keyway                                   | CY | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 180 | Phase I 640 Acres Levee Embankment Fill                          | CY | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 181 | Phase I 640 Acres Structure Headwalls                            | EA | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 182 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards    | EA | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 183 | Phase I 640 Acres Interbasin Structure Piping                    | LS | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 184 | Phase I 640 Acres Interbasin Structure Rip-Rap                   | EA | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 185 | Phase I 640 Acres Interbasin Structure Cutoff Walls              | EA | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 186 | Phase I 640 Acres Site Fencing and Gates                         | LF | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |

|     |  |     |        |    |              |    |              |                 |
|-----|--|-----|--------|----|--------------|----|--------------|-----------------|
| 187 | Goose Lake Slough Turnout Structure Excavation   | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00    |                 |
| 188 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                        | CY  | 90     | \$ | 800.00       | \$ | 72,000.00    |                 |
| 189 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                        | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00   |                 |
| 190 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                         | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00   |                 |
| 191 | Goose Lake Slough Turnout Backfill & Compaction  | LS  | 500    | \$ | 30.00        | \$ | 15,000.00    |                 |
| 192 | Goose Lake Slough Turnout Trashracks   | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00    |                 |
| 193 | Goose Lake Slough Turnout Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 194 | Goose Lake Slough Lift Station Pumps - 60 cfs  | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00   |                 |
| 195 | Goose Lake Slough Lift Station Motors - 200 hp   | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00   |                 |
| 196 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                        | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00   |                 |
| 197 | Goose Lake Slough Metering   | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00    |                 |
| 198 | Goose Lake Slough Turnout Slide Gate   | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00    |                 |
| 199 | Goose Lake Slough Turnout Electrical   | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00   |                 |
| 200 | Goose Lake Slough Electrical Shade Structure & Foundation                              | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 201 | Goose Lake Slough Pipe Outlet  | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00   |                 |
| 202 | Goose Lake Slough Turnout Outlet Structure   | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00   |                 |
| 203 | Goose Lake Slough Outlet Rip-Rap   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 204 | Goose Lake Slough Check Structure - Earthwork  | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00    |                 |
| 205 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                        | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00   |                 |
| 206 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                        | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00    |                 |
| 207 | Goose Lake Slough Check Structure - Miscellaneous Steel                                | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 208 | Goose Lake Slough Check Structure - Rip-Rap  | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00    |                 |
| 209 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                         | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 3,125,700.00 |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    |              | \$ 7,052,844.00 |
| 210 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 211 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 212 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 213 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |                 |
| 214 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |                 |
| 215 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |                 |
| 216 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 217 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |                 |
| 218 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |                 |
| 219 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |                 |
| 220 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |                 |
| 221 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 222 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 223 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |                 |
| 224 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 225 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |                 |
| 226 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |                 |
| 227 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |                 |
| 228 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |                 |
| 229 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |                 |
| 230 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |                 |
| 231 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |                 |
| 232 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |                 |
| 233 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 234 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |                 |
| 235 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |                 |
| 236 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |                 |
| 237 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 238 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |                 |
| 239 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 240 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    |              | \$ 6,822,000.00 |
| 241 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |                 |
| 242 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 243 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 244 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |                 |
| 245 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 246 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |                 |
| 247 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |                 |
| 248 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 249 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |                 |
| 250 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 251 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 252 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 253 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 254 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 255 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |                 |
| 256 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |                 |
| 257 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |                 |
| 258 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$ 2,428,500.00 |
| 259 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |                 |
| 260 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |                 |
| 261 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |                 |
| 262 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |                 |
| 263 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 264 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 265 | RRB Intake Canal Interconnection Liner Repair & Protection                             | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 266 | RRB Intake Canal Interconnection Liner Repair & Protection                             | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 267 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$ 165,800.00   |
| 268 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 269 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 270 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 271 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 272 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 273 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 274 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 275 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 276 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 277 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |

|     |  |     |      |    |              |    |                       |                 |
|-----|--|-----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6    | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00    |
| 278 | Mobilization, demobilization & misc. work  | LS  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 279 | Transport and dispose of drill cuttings offsite  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 280 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 281 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50   | \$ | 620.00       | \$ | 31,000.00             |                 |
| 282 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920  | \$ | 110.00       | \$ | 101,200.00            |                 |
| 283 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430  | \$ | 110.00       | \$ | 47,300.00             |                 |
| 284 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 285 | Conduct isolated aquifer zone test   | EA  | 3    | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 286 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3    | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 287 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280  | \$ | 110.00       | \$ | 30,800.00             |                 |
| 288 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660  | \$ | 110.00       | \$ | 72,600.00             |                 |
| 289 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 290 | Conduct a caliper survey of enlarged borehole  | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 291 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424  | \$ | 220.00       | \$ | 93,280.00             |                 |
| 292 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 293 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510  | \$ | 320.00       | \$ | 163,200.00            |                 |
| 294 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652  | \$ | 46.00        | \$ | 29,992.00             |                 |
| 295 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319  | \$ | 38.00        | \$ | 12,122.00             |                 |
| 296 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670  | \$ | 225.00       | \$ | 150,750.00            |                 |
| 297 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300  | \$ | 170.00       | \$ | 51,000.00             |                 |
| 298 | Perform initial well development   | HRS | 108  | \$ | 275.00       | \$ | 29,700.00             |                 |
| 299 | Provide chlorine solution for chemical development of the well                         | GAL | 255  | \$ | 26.00        | \$ | 6,630.00              |                 |
| 300 | Provide polymer dispersant for chemical development of the well                        | GAL | 40   | \$ | 110.00       | \$ | 4,400.00              |                 |
| 301 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 302 | Conduct final development by pumping and surging                                       | HRS | 60   | \$ | 500.00       | \$ | 30,000.00             |                 |
| 303 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8    | \$ | 500.00       | \$ | 4,000.00              |                 |
| 304 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28   | \$ | 500.00       | \$ | 14,000.00             |                 |
| 305 | Conduct a dynamic flow meter survey  | EA  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 306 | Conduct a color video camera survey  | EA  | 1    | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 307 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 308 | Conduct final well disinfection in newly completed wells                               | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 309 | Mobilization, Demobilization, & Cleanup  | LS  | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 310 | Water Supply   | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 311 | Environmental Mitigation   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 312 | Construct site work  | LS  | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 313 | Furnish and install concrete foundations   | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 314 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 315 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 316 | Furnish and install well enclosures and appurtenances                                  | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 317 | Furnish and install electrical facilities and instrumentation                          | LS  | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 318 | Furnish and install pre-fabricated metal canopy  | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 319 | Furnish and install site ground cover  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 320 | Furnish and install site fencing   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 321 | Furnish and install site painting  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 322 | Furnish and install VFD's  | LS  | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 323 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 324 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 325 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 326 | Phase II 640 Acres Canal Turn-In Facilities  | EA  | 2    | \$ | 50,000.00    | \$ | 100,000.00            | \$ 1,516,500.00 |
| 327 | SCADA Communication & Appurtenances  | LS  | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |      |    |              | \$ | 124,480,818.00        |                 |
|     | 20% Construction Contingency:  |     |      |    |              | \$ | 24,896,163.60         |                 |
|     | Unlisted Items:  |     |      |    |              | \$ | 2,489,616.36          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 60   | \$ | 25,000.00    | \$ | 1,500,000.00          |                 |
|     | Habitat Credit Purchase  | AC  | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |      |    |              | \$ | 189,941,597.96        |                 |
|     | Non-Contract Costs:  |     |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |      |    |              | \$ | <b>216,301,597.96</b> |                 |

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## BV Canal Alignment - All Closed Conduit (Item #4)

| Item No. | Item Description  | Unit | Quantity | Unit Cost       | Extended Cost    | Section Subtotal |
|----------|---|------|----------|-----------------|------------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup                         | LS   | 1        | \$ 1,820,000.00 | \$ 1,820,000.00  | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                                 | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 3        | Aqueduct Turnout Excavation                                     | CY   | 2450     | \$ 30.00        | \$ 73,500.00     |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor                  | CY   | 45       | \$ 800.00       | \$ 36,000.00     |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls                  | CY   | 100      | \$ 1,200.00     | \$ 120,000.00    |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam              | CY   | 5        | \$ 2,000.00     | \$ 10,000.00     |                  |
| 7        | Aqueduct Backfill and Compaction                                | CY   | 1850     | \$ 30.00        | \$ 55,500.00     |                  |
| 8        | Aqueduct Miscellaneous Steel                                    | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 9        | Aqueduct Trashrack  | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 10       | Aqueduct Turnout Piping   | LF   | 2000     | \$ 4,000.00     | \$ 8,000,000.00  |                  |
| 11       | Aqueduct Metering   | EA   | 1        | \$ 200,000.00   | \$ 200,000.00    |                  |
| 12       | Aqueduct Meter Vault  | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 13       | Aqueduct Slide Gate & Actuator                                  | EA   | 1        | \$ 75,000.00    | \$ 75,000.00     |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting                       | LS   | 1        | \$ 150,000.00   | \$ 150,000.00    |                  |
| 15       | Aqueduct Liner Repair   | LS   | 1        | \$ 20,000.00    | \$ 20,000.00     |                  |
| 16       | Levee Road Pavement Restoration                                 | SF   | 1600     | \$ 7.00         | \$ 11,200.00     | \$ 9,351,200.00  |
| 17       | R/W Clearing & Grubbing   | AC   | 50       | \$ 1,200.00     | \$ 60,000.00     |                  |
| 18       | Conveyance Pipeline 11-ft Diameter Gravity                      | LF   | 15,840   | \$ 2,500.00     | \$ 39,600,000.00 |                  |
| 19       | Pipeline Appurtenances  | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 20       | Outlet Canal Crossing   | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 21       | Outlet Canal Cutoff Walls                                       | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 22       | Adohr Rd Road Crossing  | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 23       | East Side Canal Crossing  | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 24       | East Side Canal Cutoff Walls                                    | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     | \$ 41,010,000.00 |
| 25       | Lift Station Excavation   | CY   | 11000    | \$ 10.00        | \$ 110,000.00    |                  |
| 26       | Lift Station Reinforced Concrete Structure - Floor              | CY   | 320      | \$ 800.00       | \$ 256,000.00    |                  |
| 27       | Lift Station Reinforced Concrete Structure - Walls              | CY   | 520      | \$ 1,200.00     | \$ 624,000.00    |                  |
| 28       | Lift Station Reinforced Concrete Structure - Deck               | CY   | 120      | \$ 2,000.00     | \$ 240,000.00    |                  |
| 29       | Lift Station Pumps - 30 cfs                                     | EA   | 2        | \$ 130,000.00   | \$ 260,000.00    |                  |
| 30       | Lift Station Pumps - 60 cfs                                     | EA   | 2        | \$ 180,000.00   | \$ 360,000.00    |                  |
| 31       | Lift Station Pumps - 80 cfs                                     | EA   | 4        | \$ 195,000.00   | \$ 780,000.00    |                  |
| 32       | Lift Station Motors - 100 hp                                    | EA   | 2        | \$ 40,000.00    | \$ 80,000.00     |                  |
| 33       | Lift Station Motors - 200 hp                                    | EA   | 2        | \$ 60,000.00    | \$ 120,000.00    |                  |
| 34       | Lift Station Motors - 300 hp                                    | EA   | 4        | \$ 90,000.00    | \$ 360,000.00    |                  |
| 35       | Lift Station 36" Discharge Piping & Appurtenances               | LS   | 2        | \$ 300,000.00   | \$ 600,000.00    |                  |
| 36       | Lift Station 48" Discharge Piping & Appurtenances               | LS   | 2        | \$ 425,000.00   | \$ 850,000.00    |                  |
| 37       | Lift Station 54" Discharge Piping & Appurtenances               | LS   | 4        | \$ 550,000.00   | \$ 2,200,000.00  |                  |
| 38       | Lift Station 100 hp VFD's                                       | EA   | 2        | \$ 40,000.00    | \$ 80,000.00     |                  |
| 39       | Lift Station 200 hp VFD's                                       | EA   | 2        | \$ 60,000.00    | \$ 120,000.00    |                  |
| 40       | Lift Station 300 hp VFD's                                       | EA   | 4        | \$ 80,000.00    | \$ 320,000.00    |                  |
| 41       | Lift Station Electrical, Controls, & Lighting                   | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 42       | Lift Station Electrical Control Building                        | LS   | 1        | \$ 200,000.00   | \$ 200,000.00    |                  |
| 43       | Lift Station Backfill & Compaction                              | CY   | 6000     | \$ 10.00        | \$ 60,000.00     |                  |
| 44       | Lift Station Slide Gates  | EA   | 1        | \$ 55,000.00    | \$ 55,000.00     |                  |
| 45       | Lift Station Trashracks   | LS   | 8        | \$ 25,000.00    | \$ 200,000.00    |                  |
| 46       | Lift Station Miscellaneous Steel                                | LS   | 1        | \$ 120,000.00   | \$ 120,000.00    |                  |
| 47       | Lift Station Cathodic Protection                                | LS   | 1        | \$ 25,000.00    | \$ 25,000.00     |                  |
| 48       | Lift Station Site Fencing                                       | LF   | 850      | \$ 45.00        | \$ 38,250.00     |                  |
| 49       | Lift Station Bypass Pipeline                                    | LF   | 200      | \$ 750.00       | \$ 150,000.00    |                  |
| 50       | Lift Station Ground Cover                                       | LS   | 1        | \$ 45,000.00    | \$ 45,000.00     | \$ 8,753,250.00  |
| 51       | R/W Clearing & Grubbing   | AC   | 105      | \$ 1,200.00     | \$ 126,000.00    |                  |
| 52       | Conveyance Pipeline 9-ft Diameter                               | LF   | 31,680   | \$ 1,575.00     | \$ 49,896,000.00 |                  |
| 53       | Pipeline Appurtenances  | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 54       | Stockdale Hwy Crossing  | LF   | 150      | \$ 5,700.00     | \$ 855,000.00    |                  |
| 55       | I-5 Cased Crossing  | LF   | 400      | \$ 5,700.00     | \$ 2,280,000.00  |                  |
| 56       | Turnout to Phase II 640 Acres                                   | LF   | 200      | \$ 1,275.00     | \$ 255,000.00    |                  |
| 57       | Turnout to West Basins  | LF   | 200      | \$ 1,275.00     | \$ 255,000.00    |                  |
| 58       | Turnout Fittings  | EA   | 2        | \$ 350,000.00   | \$ 700,000.00    |                  |
| 59       | Phase II 640 Acres Outlet Structure                             | LS   | 1        | \$ 950,000.00   | \$ 950,000.00    |                  |
| 60       | West Basins Outlet Structure                                    | LS   | 1        | \$ 950,000.00   | \$ 950,000.00    | \$ 56,767,000.00 |
| 61       | Phase I 640 Acres Clearing & Grubbing                           | AC   | 320      | \$ 1,200.00     | \$ 384,000.00    |                  |
| 62       | Phase I 640 Acres Levee Over-Excavation and Re-Compaction       | CY   | 235000   | \$ 4.60         | \$ 1,081,000.00  |                  |
| 63       | Phase I 640 Acres Levee Keyway                                  | CY   | 50000    | \$ 4.70         | \$ 235,000.00    |                  |
| 64       | Phase I 640 Acres Levee Embankment Fill                         | CY   | 255000   | \$ 4.20         | \$ 1,071,000.00  |                  |
| 65       | Phase I 640 Acres Structure Headwalls                           | EA   | 15       | \$ 30,000.00    | \$ 450,000.00    |                  |
| 66       | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards   | EA   | 15       | \$ 10,000.00    | \$ 150,000.00    |                  |
| 67       | Phase I 640 Acres Interbasin Structure Piping                   | LS   | 1        | \$ 1,000,000.00 | \$ 1,000,000.00  |                  |
| 68       | Phase I 640 Acres Interbasin Structure Rip-Rap                  | EA   | 15       | \$ 35,000.00    | \$ 525,000.00    |                  |
| 69       | Phase I 640 Acres Interbasin Structure Cutoff Walls             | EA   | 15       | \$ 25,000.00    | \$ 375,000.00    |                  |
| 70       | Phase I 640 Acres Site Fencing and Gates                        | LF   | 21120    | \$ 7.50         | \$ 158,400.00    | \$ 5,429,400.00  |
| 71       | Goose Lake Slough Turnout Structure Excavation                  | CY   | 1100     | \$ 30.00        | \$ 33,000.00     |                  |
| 72       | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor | CY   | 90       | \$ 800.00       | \$ 72,000.00     |                  |
| 73       | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls | CY   | 90       | \$ 1,200.00     | \$ 108,000.00    |                  |
| 74       | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck  | CY   | 50       | \$ 2,000.00     | \$ 100,000.00    |                  |
| 75       | Goose Lake Slough Turnout Backfill & Compaction                 | LS   | 500      | \$ 30.00        | \$ 15,000.00     |                  |
| 76       | Goose Lake Slough Turnout Trashracks                            | LS   | 1        | \$ 80,000.00    | \$ 80,000.00     |                  |
| 77       | Goose Lake Slough Turnout Miscellaneous Steel                   | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 78       | Goose Lake Slough Lift Station Pumps - 60 cfs                   | EA   | 4        | \$ 180,000.00   | \$ 720,000.00    |                  |
| 79       | Goose Lake Slough Lift Station Motors - 200 hp                  | EA   | 4        | \$ 60,000.00    | \$ 240,000.00    |                  |
| 80       | Goose Lake Slough Lift Station Discharge Piping & Appurtenances | LS   | 1        | \$ 240,000.00   | \$ 240,000.00    |                  |
| 81       | Goose Lake Slough Metering                                      | EA   | 1        | \$ 90,000.00    | \$ 90,000.00     |                  |
| 82       | Goose Lake Slough Turnout Slide Gate                            | EA   | 1        | \$ 37,500.00    | \$ 37,500.00     |                  |
| 83       | Goose Lake Slough Turnout Electrical                            | LS   | 1        | \$ 350,000.00   | \$ 350,000.00    |                  |
| 84       | Goose Lake Slough Electrical Shade Structure & Foundation       | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 85       | Goose Lake Slough Pipe Outlet                                   | LF   | 200      | \$ 1,750.00     | \$ 350,000.00    |                  |
| 86       | Goose Lake Slough Turnout Outlet Structure                      | LS   | 1        | \$ 180,000.00   | \$ 180,000.00    |                  |
| 87       | Goose Lake Slough Outlet Rip-Rap                                | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 88       | Goose Lake Slough Check Structure - Earthwork                   | CY   | 1        | \$ 35,000.00    | \$ 35,000.00     |                  |
| 89       | Goose Lake Slough Check Structure - Reinforced Concrete - Floor | CY   | 75       | \$ 2,000.00     | \$ 150,000.00    |                  |
| 90       | Goose Lake Slough Check Structure - Reinforced Concrete - Walls | CY   | 21       | \$ 1,200.00     | \$ 25,200.00     |                  |
| 91       | Goose Lake Slough Check Structure - Miscellaneous Steel         | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 92       | Goose Lake Slough Check Structure - Rip-Rap                     | LS   | 1        | \$ 75,000.00    | \$ 75,000.00     |                  |
| 93       | Goose Lake Slough Check Structure - Appurtenances, Weir Boards  | LS   | 1        | \$ 25,000.00    | \$ 25,000.00     | \$ 3,125,700.00  |



|     |  |     |        |    |              |    |              |              |              |
|-----|--|-----|--------|----|--------------|----|--------------|--------------|--------------|
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    | \$           | 7,052,844.00 |              |
| 94  | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |              |              |
| 95  | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 96  | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 97  | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |              |              |
| 98  | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |              |              |
| 99  | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |              |              |
| 100 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |              |              |
| 101 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |              |              |
| 102 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |              |              |
| 103 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |              |              |
| 104 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |              |              |
| 105 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |              |              |
| 106 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |              |              |
| 107 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |              |              |
| 108 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 109 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |              |              |
| 110 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |              |              |
| 111 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |              |              |
| 112 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |              |              |
| 113 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |              |              |
| 114 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |              |              |
| 115 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |              |              |
| 116 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |              |              |
| 117 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |              |              |
| 118 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |              |              |
| 119 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |              |              |
| 120 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |              |              |
| 121 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 122 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |              |              |
| 123 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 124 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    | \$           | 6,822,000.00 |              |
| 125 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |              |              |
| 126 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |              |              |
| 127 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |              |              |
| 128 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |              |              |
| 129 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |              |              |
| 130 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |              |              |
| 131 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |              |              |
| 132 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |              |              |
| 133 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |              |              |
| 134 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |              |              |
| 135 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 136 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |              |              |
| 137 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 138 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |              |              |
| 139 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |              |              |
| 140 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |              |              |
| 141 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |              |              |
| 142 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$           | 2,428,500.00 |
| 143 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |              |              |
| 144 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |              |              |
| 145 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |              |              |
| 146 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |              |              |
| 147 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 148 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |              |              |
| 149 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |              |              |
| 150 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 151 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$           | 165,800.00   |
| 152 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |              |              |
| 153 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |              |              |
| 154 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |              |              |
| 155 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |              |              |
| 156 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |              |              |
| 157 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |              |              |
| 158 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |              |              |
| 159 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |              |              |
| 160 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |              |              |
| 161 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$           | 5,429,400.00 |
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6      | \$ | 1,175,474.00 |    | \$           | 7,052,844.00 |              |
| 162 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |              |              |
| 163 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 164 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 165 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |              |              |
| 166 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |              |              |
| 167 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |              |              |
| 168 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |              |              |
| 169 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |              |              |
| 170 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |              |              |
| 171 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |              |              |
| 172 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |              |              |
| 173 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |              |              |
| 174 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |              |              |
| 175 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |              |              |
| 176 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 177 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |              |              |
| 178 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |              |              |
| 179 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |              |              |
| 180 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |              |              |
| 181 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |              |              |
| 182 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |              |              |
| 183 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |              |              |
| 184 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |              |              |
| 185 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |              |              |
| 186 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |              |              |
| 187 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |              |              |
| 188 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |              |              |
| 189 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |              |              |
| 190 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |              |              |
| 191 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |
| 192 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |              |              |

|     |  |    |      |    |              |    |                       |                 |
|-----|--|----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Equipping and Site Development                         | EA | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 193 | Mobilization, Demobilization, & Cleanup  | LS | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 194 | Water Supply   | LS | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 195 | Environmental Mitigation   | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 196 | Construct site work  | LS | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 197 | Furnish and install concrete foundations                                       | LS | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 198 | Furnish and install yard piping, mechanical piping and appurtenances           | LS | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 199 | Furnish and install vertical turbine well pumps, pump base, etc.               | LS | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 200 | Furnish and install well enclosures and appurtenances                          | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 201 | Furnish and install electrical facilities and instrumentation                  | LS | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 202 | Furnish and install pre-fabricated metal canopy                                | LS | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 203 | Furnish and install site ground cover  | LS | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 204 | Furnish and install site fencing   | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 205 | Furnish and install site painting  | LS | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 206 | Furnish and install VFD's  | LS | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 207 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                       | LF | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 208 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                       | LF | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 209 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                       | LF | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 210 | Phase II 640 Acres Well Recovery Pipeline - Connections to Conveyance Pipeline | EA | 2    | \$ | 100,000.00   | \$ | 200,000.00            | \$ 1,616,500.00 |
| 211 | SCADA Communication & Appurtenances  | LS | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |    |      |    |              | \$ | 163,946,438.00        |                 |
|     | 20% Construction Contingency:  |    |      |    |              | \$ | 32,789,287.60         |                 |
|     | Unlisted Items:  |    |      |    |              | \$ | 3,278,928.76          |                 |
|     | Property Acquisition - 640 acres   | AC | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC | 60   | \$ | 25,000.00    | \$ | 1,500,000.00          |                 |
|     | Habitat Credit Purchase  | AC | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |    |      |    |              | \$ | 238,089,654.36        |                 |
|     | Non-Contract Costs:  |    |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |    |      |    |              | \$ | <b>264,449,654.36</b> |                 |

Irvine Ranch Water District

Feasibility Level Cost Estimate (Class 4)

**BV Canal Alignment - Earth Lined Canal Reach 1 & Pipeline Reach 2/3/4 (Item #5)**

| Item No. | Item Description  | Unit | Quantity | Unit Cost       | Extended Cost    | Section Subtotal |
|----------|---|------|----------|-----------------|------------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup                       | LS   | 1        | \$ 1,820,000.00 | \$ 1,820,000.00  | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                               | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 3        | Aqueduct Turnout Excavation                                   | CY   | 2450     | \$ 30.00        | \$ 73,500.00     |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor                | CY   | 45       | \$ 800.00       | \$ 36,000.00     |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls                | CY   | 100      | \$ 1,200.00     | \$ 120,000.00    |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam            | CY   | 5        | \$ 2,000.00     | \$ 10,000.00     |                  |
| 7        | Aqueduct Backfill and Compaction                              | CY   | 1850     | \$ 30.00        | \$ 55,500.00     |                  |
| 8        | Aqueduct Miscellaneous Steel                                  | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 9        | Aqueduct Trashrack  | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 10       | Aqueduct Turnout Piping                                       | LF   | 2000     | \$ 4,000.00     | \$ 8,000,000.00  |                  |
| 11       | Aqueduct Metering   | EA   | 1        | \$ 200,000.00   | \$ 200,000.00    |                  |
| 12       | Aqueduct Meter Vault  | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 13       | Aqueduct Slide Gate & Actuator                                | EA   | 1        | \$ 75,000.00    | \$ 75,000.00     |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting                     | LS   | 1        | \$ 150,000.00   | \$ 150,000.00    |                  |
| 15       | Aqueduct Liner Repair   | LS   | 1        | \$ 20,000.00    | \$ 20,000.00     |                  |
| 16       | Levee Road Pavement Restoration                               | SF   | 1600     | \$ 7.00         | \$ 11,200.00     | \$ 9,351,200.00  |
| 17       | Canal Clearing & Grubbing                                     | AC   | 50       | \$ 1,200.00     | \$ 60,000.00     |                  |
| 18       | Canal Earthwork-Cut   | CY   | 205,000  | \$ 4.50         | \$ 922,500.00    |                  |
| 19       | Canal Earthwork-Fill  | CY   | 50,000   | \$ 4.50         | \$ 225,000.00    |                  |
| 20       | Levee Subgrade Preparation                                    | CY   | 75,000   | \$ 4.60         | \$ 345,000.00    |                  |
| 21       | Canal Appurtenances   | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 22       | Canal Fencing   | LF   | 110,000  | \$ 7.50         | \$ 825,000.00    |                  |
| 23       | Levee Road Aggregate Base Ground Cover                        | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 24       | Ex. Facility Relocations                                      | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    | \$ 3,377,500.00  |
| 25       | Aqueduct Turnout Afterbay Structure Walls & Footings          | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 26       | Turnout Afterbay Earthwork                                    | CY   | 3800     | \$ 30.00        | \$ 114,000.00    |                  |
| 27       | Turnout Afterbay Miscellaneous Steel                          | LS   | 1        | \$ 25,000.00    | \$ 25,000.00     |                  |
| 28       | Outlet Canal Forebay Structure Walls & Footings               | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 29       | Outlet Canal Siphon Pipes                                     | LF   | 300      | \$ 2,500.00     | \$ 750,000.00    |                  |
| 30       | Outlet Canal Afterbay Structure Walls & Footings              | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 31       | Siphon Crossing Earthwork                                     | CY   | 7200     | \$ 25.00        | \$ 180,000.00    |                  |
| 32       | Siphon Crossing Miscellaneous Steel                           | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 33       | Adohr Rd Forebay Structure Walls & Footings                   | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 34       | Adohr Rd Siphon Pipes   | LF   | 150      | \$ 2,500.00     | \$ 375,000.00    |                  |
| 35       | Adohr Rd Afterbay Structure Walls & Footings                  | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 36       | Siphon Crossing Earthwork                                     | CY   | 7200     | \$ 25.00        | \$ 180,000.00    |                  |
| 37       | Siphon Crossing Miscellaneous Steel                           | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 38       | East Side Canal Forebay Structure Walls & Footings            | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 39       | East Side Canal Siphon Pipes                                  | LF   | 350      | \$ 2,500.00     | \$ 875,000.00    |                  |
| 40       | East Side Canal Afterbay Structure Walls & Footings           | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 41       | Siphon Crossing Earthwork                                     | CY   | 7200     | \$ 25.00        | \$ 180,000.00    |                  |
| 42       | Siphon Crossing Miscellaneous Steel                           | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     | \$ 4,509,000.00  |
| 43       | Lift Station Excavation                                       | CY   | 11000    | \$ 10.00        | \$ 110,000.00    |                  |
| 44       | Lift Station Reinforced Concrete Structure - Floor            | CY   | 320      | \$ 800.00       | \$ 256,000.00    |                  |
| 45       | Lift Station Reinforced Concrete Structure - Walls            | CY   | 520      | \$ 1,200.00     | \$ 624,000.00    |                  |
| 46       | Lift Station Reinforced Concrete Structure - Deck             | CY   | 120      | \$ 2,000.00     | \$ 240,000.00    |                  |
| 47       | Lift Station Pumps - 30 cfs                                   | EA   | 2        | \$ 130,000.00   | \$ 260,000.00    |                  |
| 48       | Lift Station Pumps - 60 cfs                                   | EA   | 2        | \$ 180,000.00   | \$ 360,000.00    |                  |
| 49       | Lift Station Pumps - 80 cfs                                   | EA   | 4        | \$ 195,000.00   | \$ 780,000.00    |                  |
| 50       | Lift Station Motors - 100 hp                                  | EA   | 2        | \$ 40,000.00    | \$ 80,000.00     |                  |
| 51       | Lift Station Motors - 200 hp                                  | EA   | 2        | \$ 60,000.00    | \$ 120,000.00    |                  |
| 52       | Lift Station Motors - 300 hp                                  | EA   | 4        | \$ 90,000.00    | \$ 360,000.00    |                  |
| 53       | Lift Station 36" Discharge Piping & Appurtenances             | LS   | 2        | \$ 300,000.00   | \$ 600,000.00    |                  |
| 54       | Lift Station 48" Discharge Piping & Appurtenances             | LS   | 2        | \$ 425,000.00   | \$ 850,000.00    |                  |
| 55       | Lift Station 54" Discharge Piping & Appurtenances             | LS   | 4        | \$ 550,000.00   | \$ 2,200,000.00  |                  |
| 56       | Lift Station 100 hp VFD's                                     | EA   | 2        | \$ 40,000.00    | \$ 80,000.00     |                  |
| 57       | Lift Station 200 hp VFD's                                     | EA   | 2        | \$ 60,000.00    | \$ 120,000.00    |                  |
| 58       | Lift Station 300 hp VFD's                                     | EA   | 4        | \$ 80,000.00    | \$ 320,000.00    |                  |
| 59       | Lift Station Electrical, Controls, & Lighting                 | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 60       | Lift Station Electrical Control Building                      | LS   | 1        | \$ 200,000.00   | \$ 200,000.00    |                  |
| 61       | Lift Station Backfill & Compaction                            | CY   | 6000     | \$ 10.00        | \$ 60,000.00     |                  |
| 62       | Lift Station Slide Gates                                      | EA   | 1        | \$ 55,000.00    | \$ 55,000.00     |                  |
| 63       | Lift Station Trashracks                                       | LS   | 8        | \$ 25,000.00    | \$ 200,000.00    |                  |
| 64       | Lift Station Miscellaneous Steel                              | LS   | 1        | \$ 120,000.00   | \$ 120,000.00    |                  |
| 65       | Lift Station Cathodic Protection                              | LS   | 1        | \$ 25,000.00    | \$ 25,000.00     |                  |
| 66       | Lift Station Site Fencing                                     | LF   | 850      | \$ 45.00        | \$ 38,250.00     |                  |
| 67       | Lift Station Bypass Pipeline                                  | LF   | 200      | \$ 750.00       | \$ 150,000.00    |                  |
| 68       | Lift Station Ground Cover                                     | LS   | 1        | \$ 45,000.00    | \$ 45,000.00     | \$ 8,753,250.00  |
| 69       | R/W Clearing & Grubbing                                       | AC   | 105      | \$ 1,200.00     | \$ 126,000.00    |                  |
| 70       | Conveyance Pipeline 9-ft Diameter                             | LF   | 31,680   | \$ 1,575.00     | \$ 49,896,000.00 |                  |
| 71       | Pipeline Appurtenances  | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 72       | Stockdale Hwy Crossing  | LF   | 150      | \$ 5,700.00     | \$ 855,000.00    |                  |
| 73       | I-5 Cased Crossing  | LF   | 400      | \$ 5,700.00     | \$ 2,280,000.00  |                  |
| 74       | Turnout to Phase II 640 Acres                                 | LF   | 200      | \$ 1,275.00     | \$ 255,000.00    |                  |
| 75       | Turnout to West Basins  | LF   | 200      | \$ 1,275.00     | \$ 255,000.00    |                  |
| 76       | Turnout Fittings  | EA   | 2        | \$ 350,000.00   | \$ 700,000.00    |                  |
| 77       | Phase II 640 Acres Outlet Structure                           | LS   | 1        | \$ 950,000.00   | \$ 950,000.00    |                  |
| 78       | West Basins Outlet Structure                                  | LS   | 1        | \$ 950,000.00   | \$ 950,000.00    | \$ 56,767,000.00 |
| 79       | Phase I 640 Acres Clearing & Grubbing                         | AC   | 320      | \$ 1,200.00     | \$ 384,000.00    |                  |
| 80       | Phase I 640 Acres Levee Over-Excavation and Re-Compaction     | CY   | 235000   | \$ 4.60         | \$ 1,081,000.00  |                  |
| 81       | Phase I 640 Acres Levee Keyway                                | CY   | 50000    | \$ 4.70         | \$ 235,000.00    |                  |
| 82       | Phase I 640 Acres Levee Embankment Fill                       | CY   | 255000   | \$ 4.20         | \$ 1,071,000.00  |                  |
| 83       | Phase I 640 Acres Structure Headwalls                         | EA   | 15       | \$ 30,000.00    | \$ 450,000.00    |                  |
| 84       | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards | EA   | 15       | \$ 10,000.00    | \$ 150,000.00    |                  |
| 85       | Phase I 640 Acres Interbasin Structure Piping                 | LS   | 1        | \$ 1,000,000.00 | \$ 1,000,000.00  |                  |
| 86       | Phase I 640 Acres Interbasin Structure Rip-Rap                | EA   | 15       | \$ 35,000.00    | \$ 525,000.00    |                  |
| 87       | Phase I 640 Acres Interbasin Structure Cutoff Walls           | EA   | 15       | \$ 25,000.00    | \$ 375,000.00    |                  |
| 88       | Phase I 640 Acres Site Fencing and Gates                      | LF   | 21120    | \$ 7.50         | \$ 158,400.00    | \$ 5,429,400.00  |

|     |  |     |        |    |              |    |              |                 |
|-----|--|-----|--------|----|--------------|----|--------------|-----------------|
| 89  | Goose Lake Slough Turnout Structure Excavation   | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00    |                 |
| 90  | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                        | CY  | 90     | \$ | 800.00       | \$ | 72,000.00    |                 |
| 91  | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                        | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00   |                 |
| 92  | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                         | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00   |                 |
| 93  | Goose Lake Slough Turnout Backfill & Compaction  | LS  | 500    | \$ | 30.00        | \$ | 15,000.00    |                 |
| 94  | Goose Lake Slough Turnout Trashracks   | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00    |                 |
| 95  | Goose Lake Slough Turnout Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 96  | Goose Lake Slough Lift Station Pumps - 60 cfs  | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00   |                 |
| 97  | Goose Lake Slough Lift Station Motors - 200 hp   | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00   |                 |
| 98  | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                        | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00   |                 |
| 99  | Goose Lake Slough Metering   | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00    |                 |
| 100 | Goose Lake Slough Turnout Slide Gate   | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00    |                 |
| 101 | Goose Lake Slough Turnout Electrical   | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00   |                 |
| 102 | Goose Lake Slough Electrical Shade Structure & Foundation                              | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 103 | Goose Lake Slough Pipe Outlet  | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00   |                 |
| 104 | Goose Lake Slough Turnout Outlet Structure   | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00   |                 |
| 105 | Goose Lake Slough Outlet Rip-Rap   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 106 | Goose Lake Slough Check Structure - Earthwork  | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00    |                 |
| 107 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                        | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00   |                 |
| 108 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                        | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00    |                 |
| 109 | Goose Lake Slough Check Structure - Miscellaneous Steel                                | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 110 | Goose Lake Slough Check Structure - Rip-Rap  | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00    |                 |
| 111 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                         | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 3,125,700.00 |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    |              | \$ 7,052,844.00 |
| 112 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 113 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 114 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 115 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |                 |
| 116 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |                 |
| 117 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |                 |
| 118 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 119 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |                 |
| 120 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |                 |
| 121 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |                 |
| 122 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |                 |
| 123 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 124 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 125 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |                 |
| 126 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 127 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |                 |
| 128 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |                 |
| 129 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |                 |
| 130 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |                 |
| 131 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |                 |
| 132 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |                 |
| 133 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |                 |
| 134 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |                 |
| 135 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 136 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |                 |
| 137 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |                 |
| 138 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |                 |
| 139 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 140 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |                 |
| 141 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 142 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    |              | \$ 6,822,000.00 |
| 143 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |                 |
| 144 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 145 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 146 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |                 |
| 147 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 148 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |                 |
| 149 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |                 |
| 150 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 151 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |                 |
| 152 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 153 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 154 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 155 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 156 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 157 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |                 |
| 158 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |                 |
| 159 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |                 |
| 160 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$ 2,428,500.00 |
| 161 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |                 |
| 162 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |                 |
| 163 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |                 |
| 164 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |                 |
| 165 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 166 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 167 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 168 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 169 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$ 165,800.00   |
| 170 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 171 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 172 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 173 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 174 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 175 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 176 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 177 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 178 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 179 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |

|     |  |     |      |    |              |    |                       |                 |
|-----|--|-----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6    | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00    |
| 180 | Mobilization, demobilization & misc. work  | LS  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 181 | Transport and dispose of drill cuttings offsite  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 182 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 183 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50   | \$ | 620.00       | \$ | 31,000.00             |                 |
| 184 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920  | \$ | 110.00       | \$ | 101,200.00            |                 |
| 185 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430  | \$ | 110.00       | \$ | 47,300.00             |                 |
| 186 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 187 | Conduct isolated aquifer zone test   | EA  | 3    | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 188 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3    | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 189 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280  | \$ | 110.00       | \$ | 30,800.00             |                 |
| 190 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660  | \$ | 110.00       | \$ | 72,600.00             |                 |
| 191 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 192 | Conduct a caliper survey of enlarged borehole  | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 193 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424  | \$ | 220.00       | \$ | 93,280.00             |                 |
| 194 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 195 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510  | \$ | 320.00       | \$ | 163,200.00            |                 |
| 196 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652  | \$ | 46.00        | \$ | 29,992.00             |                 |
| 197 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319  | \$ | 38.00        | \$ | 12,122.00             |                 |
| 198 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670  | \$ | 225.00       | \$ | 150,750.00            |                 |
| 199 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300  | \$ | 170.00       | \$ | 51,000.00             |                 |
| 200 | Perform initial well development   | HRS | 108  | \$ | 275.00       | \$ | 29,700.00             |                 |
| 201 | Provide chlorine solution for chemical development of the well                         | GAL | 255  | \$ | 26.00        | \$ | 6,630.00              |                 |
| 202 | Provide polymer dispersant for chemical development of the well                        | GAL | 40   | \$ | 110.00       | \$ | 4,400.00              |                 |
| 203 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 204 | Conduct final development by pumping and surging                                       | HRS | 60   | \$ | 500.00       | \$ | 30,000.00             |                 |
| 205 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8    | \$ | 500.00       | \$ | 4,000.00              |                 |
| 206 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28   | \$ | 500.00       | \$ | 14,000.00             |                 |
| 207 | Conduct a dynamic flow meter survey  | EA  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 208 | Conduct a color video camera survey  | EA  | 1    | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 209 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 210 | Conduct final well disinfection in newly completed wells                               | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 211 | Mobilization, Demobilization, & Cleanup  | LS  | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 212 | Water Supply   | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 213 | Environmental Mitigation   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 214 | Construct site work  | LS  | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 215 | Furnish and install concrete foundations   | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 216 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 217 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 218 | Furnish and install well enclosures and appurtenances                                  | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 219 | Furnish and install electrical facilities and instrumentation                          | LS  | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 220 | Furnish and install pre-fabricated metal canopy  | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 221 | Furnish and install site ground cover  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 222 | Furnish and install site fencing   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 223 | Furnish and install site painting  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 224 | Furnish and install VFD's  | LS  | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 225 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 226 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 227 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 228 | Phase II 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline          | EA  | 2    | \$ | 100,000.00   | \$ | 200,000.00            | \$ 1,616,500.00 |
| 229 | SCADA Communication & Appurtenances  | LS  | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |      |    |              | \$ | 130,822,938.00        |                 |
|     | 20% Construction Contingency:  |     |      |    |              | \$ | 26,164,587.60         |                 |
|     | Unlisted Items:  |     |      |    |              | \$ | 2,616,458.76          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 60   | \$ | 25,000.00    | \$ | 1,500,000.00          |                 |
|     | Habitat Credit Purchase  | AC  | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |      |    |              | \$ | 197,678,984.36        |                 |
|     | Non-Contract Costs:  |     |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |      |    |              | \$ | <b>224,038,984.36</b> |                 |



## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## BV Canal Alignment - HDPE Lined Canal Reach 1 &amp; Pipeline Reach 2/3/4 (Item #6)

| Item No. | Item Description  | Unit | Quantity | Unit Cost       | Extended Cost    | Section Subtotal |
|----------|---|------|----------|-----------------|------------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup                       | LS   | 1        | \$ 1,820,000.00 | \$ 1,820,000.00  | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                               | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 3        | Aqueduct Turnout Excavation                                   | CY   | 2450     | \$ 30.00        | \$ 73,500.00     |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor                | CY   | 45       | \$ 800.00       | \$ 36,000.00     |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls                | CY   | 100      | \$ 1,200.00     | \$ 120,000.00    |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam            | CY   | 5        | \$ 2,000.00     | \$ 10,000.00     |                  |
| 7        | Aqueduct Backfill and Compaction                              | CY   | 1850     | \$ 30.00        | \$ 55,500.00     |                  |
| 8        | Aqueduct Miscellaneous Steel                                  | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 9        | Aqueduct Trashrack  | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 10       | Aqueduct Turnout Piping                                       | LF   | 2000     | \$ 4,000.00     | \$ 8,000,000.00  |                  |
| 11       | Aqueduct Metering   | EA   | 1        | \$ 200,000.00   | \$ 200,000.00    |                  |
| 12       | Aqueduct Meter Vault  | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 13       | Aqueduct Slide Gate & Actuator                                | EA   | 1        | \$ 75,000.00    | \$ 75,000.00     |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting                     | LS   | 1        | \$ 150,000.00   | \$ 150,000.00    |                  |
| 15       | Aqueduct Liner Repair   | LS   | 1        | \$ 20,000.00    | \$ 20,000.00     |                  |
| 16       | Levee Road Pavement Restoration                               | SF   | 1600     | \$ 7.00         | \$ 11,200.00     | \$ 9,351,200.00  |
| 17       | Canal Clearing & Grubbing                                     | AC   | 50       | \$ 1,200.00     | \$ 60,000.00     |                  |
| 18       | Canal Earthwork-Cut   | CY   | 205,000  | \$ 4.50         | \$ 922,500.00    |                  |
| 19       | Canal Earthwork-Fill  | CY   | 50,000   | \$ 4.50         | \$ 225,000.00    |                  |
| 20       | Levee Subgrade Preparation                                    | CY   | 75,000   | \$ 4.60         | \$ 345,000.00    |                  |
| 21       | HDPE Canal Lining   | SF   | 839,520  | \$ 1.00         | \$ 839,520.00    |                  |
| 22       | HDPE Anchor Trench  | LF   | 31,680   | \$ 10.00        | \$ 316,800.00    |                  |
| 23       | Canal Appurtenances   | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 24       | Canal Fencing   | LF   | 110,000  | \$ 7.50         | \$ 825,000.00    |                  |
| 25       | Levee Road Aggregate Base Ground Cover                        | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 26       | Ex. Facility Relocations                                      | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    | \$ 4,533,820.00  |
| 27       | Aqueduct Turnout Afterbay Structure Walls & Footings          | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 28       | Turnout Afterbay Earthwork                                    | CY   | 3800     | \$ 30.00        | \$ 114,000.00    |                  |
| 29       | Turnout Afterbay Miscellaneous Steel                          | LS   | 1        | \$ 25,000.00    | \$ 25,000.00     |                  |
| 30       | Outlet Canal Forebay Structure Walls & Footings               | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 31       | Outlet Canal Siphon Pipes                                     | LF   | 300      | \$ 2,500.00     | \$ 750,000.00    |                  |
| 32       | Outlet Canal Afterbay Structure Walls & Footings              | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 33       | Siphon Crossing Earthwork                                     | CY   | 7200     | \$ 25.00        | \$ 180,000.00    |                  |
| 34       | Siphon Crossing Miscellaneous Steel                           | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 35       | Adohr Rd Forebay Structure Walls & Footings                   | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 36       | Adohr Rd Siphon Pipes   | LF   | 150      | \$ 2,500.00     | \$ 375,000.00    |                  |
| 37       | Adohr Rd Afterbay Structure Walls & Footings                  | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 38       | Siphon Crossing Earthwork                                     | CY   | 7200     | \$ 25.00        | \$ 180,000.00    |                  |
| 39       | Siphon Crossing Miscellaneous Steel                           | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 40       | East Side Canal Forebay Structure Walls & Footings            | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 41       | East Side Canal Siphon Pipes                                  | LF   | 350      | \$ 2,500.00     | \$ 875,000.00    |                  |
| 42       | East Side Canal Afterbay Structure Walls & Footings           | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 43       | Siphon Crossing Earthwork                                     | CY   | 7200     | \$ 25.00        | \$ 180,000.00    |                  |
| 44       | Siphon Crossing Miscellaneous Steel                           | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     | \$ 4,509,000.00  |
| 44       | Lift Station Excavation                                       | CY   | 11000    | \$ 10.00        | \$ 110,000.00    |                  |
| 45       | Lift Station Reinforced Concrete Structure - Floor            | CY   | 320      | \$ 800.00       | \$ 256,000.00    |                  |
| 46       | Lift Station Reinforced Concrete Structure - Walls            | CY   | 520      | \$ 1,200.00     | \$ 624,000.00    |                  |
| 47       | Lift Station Reinforced Concrete Structure - Deck             | CY   | 120      | \$ 2,000.00     | \$ 240,000.00    |                  |
| 48       | Lift Station Pumps - 30 cfs                                   | EA   | 2        | \$ 130,000.00   | \$ 260,000.00    |                  |
| 49       | Lift Station Pumps - 60 cfs                                   | EA   | 2        | \$ 180,000.00   | \$ 360,000.00    |                  |
| 50       | Lift Station Pumps - 80 cfs                                   | EA   | 4        | \$ 195,000.00   | \$ 780,000.00    |                  |
| 51       | Lift Station Motors - 100 hp                                  | EA   | 2        | \$ 40,000.00    | \$ 80,000.00     |                  |
| 52       | Lift Station Motors - 200 hp                                  | EA   | 2        | \$ 60,000.00    | \$ 120,000.00    |                  |
| 53       | Lift Station Motors - 300 hp                                  | EA   | 4        | \$ 90,000.00    | \$ 360,000.00    |                  |
| 54       | Lift Station 36" Discharge Piping & Appurtenances             | LS   | 2        | \$ 300,000.00   | \$ 600,000.00    |                  |
| 55       | Lift Station 48" Discharge Piping & Appurtenances             | LS   | 2        | \$ 425,000.00   | \$ 850,000.00    |                  |
| 56       | Lift Station 54" Discharge Piping & Appurtenances             | LS   | 4        | \$ 550,000.00   | \$ 2,200,000.00  |                  |
| 57       | Lift Station 100 hp VFD's                                     | EA   | 2        | \$ 40,000.00    | \$ 80,000.00     |                  |
| 58       | Lift Station 200 hp VFD's                                     | EA   | 2        | \$ 60,000.00    | \$ 120,000.00    |                  |
| 59       | Lift Station 300 hp VFD's                                     | EA   | 4        | \$ 80,000.00    | \$ 320,000.00    |                  |
| 60       | Lift Station Electrical, Controls, & Lighting                 | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 61       | Lift Station Electrical Control Building                      | LS   | 1        | \$ 200,000.00   | \$ 200,000.00    |                  |
| 62       | Lift Station Backfill & Compaction                            | CY   | 6000     | \$ 10.00        | \$ 60,000.00     |                  |
| 63       | Lift Station Slide Gates                                      | EA   | 1        | \$ 55,000.00    | \$ 55,000.00     |                  |
| 64       | Lift Station Trashracks                                       | LS   | 8        | \$ 25,000.00    | \$ 200,000.00    |                  |
| 65       | Lift Station Miscellaneous Steel                              | LS   | 1        | \$ 120,000.00   | \$ 120,000.00    |                  |
| 66       | Lift Station Cathodic Protection                              | LS   | 1        | \$ 25,000.00    | \$ 25,000.00     |                  |
| 67       | Lift Station Site Fencing                                     | LF   | 850      | \$ 45.00        | \$ 38,250.00     |                  |
| 67       | Lift Station Bypass Pipeline                                  | LF   | 200      | \$ 750.00       | \$ 150,000.00    |                  |
| 68       | Lift Station Ground Cover                                     | LS   | 1        | \$ 45,000.00    | \$ 45,000.00     | \$ 8,753,250.00  |
| 69       | R/W Clearing & Grubbing                                       | AC   | 105      | \$ 1,200.00     | \$ 126,000.00    |                  |
| 70       | Conveyance Pipeline 9-ft Diameter                             | LF   | 31,680   | \$ 1,575.00     | \$ 49,896,000.00 |                  |
| 71       | Pipeline Appurtenances  | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 72       | Stockdale Hwy Crossing  | LF   | 150      | \$ 5,700.00     | \$ 855,000.00    |                  |
| 73       | I-5 Cased Crossing  | LF   | 400      | \$ 5,700.00     | \$ 2,280,000.00  |                  |
| 74       | Turnout to Phase II 640 Acres                                 | LF   | 200      | \$ 1,275.00     | \$ 255,000.00    |                  |
| 75       | Turnout to West Basins  | LF   | 200      | \$ 1,275.00     | \$ 255,000.00    |                  |
| 76       | Turnout Fittings  | EA   | 2        | \$ 350,000.00   | \$ 700,000.00    |                  |
| 77       | Phase II 640 Acres Outlet Structure                           | LS   | 1        | \$ 950,000.00   | \$ 950,000.00    |                  |
| 78       | West Basins Outlet Structure                                  | LS   | 1        | \$ 950,000.00   | \$ 950,000.00    | \$ 56,767,000.00 |
| 79       | Phase I 640 Acres Clearing & Grubbing                         | AC   | 320      | \$ 1,200.00     | \$ 384,000.00    |                  |
| 80       | Phase I 640 Acres Levee Over-Excavation and Re-Compaction     | CY   | 235000   | \$ 4.60         | \$ 1,081,000.00  |                  |
| 81       | Phase I 640 Acres Levee Keyway                                | CY   | 50000    | \$ 4.70         | \$ 235,000.00    |                  |
| 82       | Phase I 640 Acres Levee Embankment Fill                       | CY   | 255000   | \$ 4.20         | \$ 1,071,000.00  |                  |
| 83       | Phase I 640 Acres Structure Headwalls                         | EA   | 15       | \$ 30,000.00    | \$ 450,000.00    |                  |
| 84       | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards | EA   | 15       | \$ 10,000.00    | \$ 150,000.00    |                  |
| 85       | Phase I 640 Acres Interbasin Structure Piping                 | LS   | 1        | \$ 1,000,000.00 | \$ 1,000,000.00  |                  |
| 86       | Phase I 640 Acres Interbasin Structure Rip-Rap                | EA   | 15       | \$ 35,000.00    | \$ 525,000.00    |                  |
| 87       | Phase I 640 Acres Interbasin Structure Cutoff Walls           | EA   | 15       | \$ 25,000.00    | \$ 375,000.00    |                  |
| 88       | Phase I 640 Acres Site Fencing and Gates                      | LF   | 21120    | \$ 7.50         | \$ 158,400.00    | \$ 5,429,400.00  |

|     |  |     |        |    |              |    |              |                 |
|-----|--|-----|--------|----|--------------|----|--------------|-----------------|
| 89  | Goose Lake Slough Turnout Structure Excavation   | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00    |                 |
| 90  | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                        | CY  | 90     | \$ | 800.00       | \$ | 72,000.00    |                 |
| 91  | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                        | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00   |                 |
| 92  | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                         | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00   |                 |
| 93  | Goose Lake Slough Turnout Backfill & Compaction  | LS  | 500    | \$ | 30.00        | \$ | 15,000.00    |                 |
| 94  | Goose Lake Slough Turnout Trashracks   | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00    |                 |
| 95  | Goose Lake Slough Turnout Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 96  | Goose Lake Slough Lift Station Pumps - 60 cfs  | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00   |                 |
| 97  | Goose Lake Slough Lift Station Motors - 200 hp   | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00   |                 |
| 98  | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                        | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00   |                 |
| 99  | Goose Lake Slough Metering   | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00    |                 |
| 100 | Goose Lake Slough Turnout Slide Gate   | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00    |                 |
| 101 | Goose Lake Slough Turnout Electrical   | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00   |                 |
| 102 | Goose Lake Slough Electrical Shade Structure & Foundation                              | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 103 | Goose Lake Slough Pipe Outlet  | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00   |                 |
| 104 | Goose Lake Slough Turnout Outlet Structure   | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00   |                 |
| 105 | Goose Lake Slough Outlet Rip-Rap   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 106 | Goose Lake Slough Check Structure - Earthwork  | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00    |                 |
| 107 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                        | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00   |                 |
| 108 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                        | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00    |                 |
| 109 | Goose Lake Slough Check Structure - Miscellaneous Steel                                | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 110 | Goose Lake Slough Check Structure - Rip-Rap  | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00    |                 |
| 111 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                         | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 3,125,700.00 |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    |              | \$ 7,052,844.00 |
| 112 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 113 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 114 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 115 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |                 |
| 116 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |                 |
| 117 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |                 |
| 118 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 119 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |                 |
| 120 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |                 |
| 121 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |                 |
| 122 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |                 |
| 123 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 124 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 125 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |                 |
| 126 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 127 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |                 |
| 128 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |                 |
| 129 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |                 |
| 130 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |                 |
| 131 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |                 |
| 132 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |                 |
| 133 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |                 |
| 134 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |                 |
| 135 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 136 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |                 |
| 137 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |                 |
| 138 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |                 |
| 139 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 140 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |                 |
| 141 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 142 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    |              | \$ 6,822,000.00 |
| 143 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |                 |
| 144 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 145 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 146 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |                 |
| 147 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 148 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |                 |
| 149 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |                 |
| 150 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 151 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |                 |
| 152 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 153 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 154 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 155 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 156 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 157 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |                 |
| 158 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |                 |
| 159 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |                 |
| 160 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$ 2,428,500.00 |
| 161 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |                 |
| 162 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |                 |
| 163 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |                 |
| 164 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |                 |
| 165 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 166 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 167 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 168 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 169 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$ 165,800.00   |
| 170 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 171 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 172 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 173 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 174 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 175 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 176 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 177 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 178 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 179 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |

|     |  |     |      |    |              |    |                       |              |              |
|-----|--|-----|------|----|--------------|----|-----------------------|--------------|--------------|
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6    | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00 |              |
| 180 | Mobilization, demobilization & misc. work  | LS  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |              |              |
| 181 | Transport and dispose of drill cuttings offsite  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |              |              |
| 182 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |              |              |
| 183 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50   | \$ | 620.00       | \$ | 31,000.00             |              |              |
| 184 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920  | \$ | 110.00       | \$ | 101,200.00            |              |              |
| 185 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430  | \$ | 110.00       | \$ | 47,300.00             |              |              |
| 186 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |              |              |
| 187 | Conduct isolated aquifer zone test   | EA  | 3    | \$ | 25,000.00    | \$ | 75,000.00             |              |              |
| 188 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3    | \$ | 35,000.00    | \$ | 105,000.00            |              |              |
| 189 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280  | \$ | 110.00       | \$ | 30,800.00             |              |              |
| 190 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660  | \$ | 110.00       | \$ | 72,600.00             |              |              |
| 191 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |              |              |
| 192 | Conduct a caliper survey of enlarged borehole  | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |              |              |
| 193 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424  | \$ | 220.00       | \$ | 93,280.00             |              |              |
| 194 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |              |              |
| 195 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510  | \$ | 320.00       | \$ | 163,200.00            |              |              |
| 196 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652  | \$ | 46.00        | \$ | 29,992.00             |              |              |
| 197 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319  | \$ | 38.00        | \$ | 12,122.00             |              |              |
| 198 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670  | \$ | 225.00       | \$ | 150,750.00            |              |              |
| 199 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300  | \$ | 170.00       | \$ | 51,000.00             |              |              |
| 200 | Perform initial well development   | HRS | 108  | \$ | 275.00       | \$ | 29,700.00             |              |              |
| 201 | Provide chlorine solution for chemical development of the well                         | GAL | 255  | \$ | 26.00        | \$ | 6,630.00              |              |              |
| 202 | Provide polymer dispersant for chemical development of the well                        | GAL | 40   | \$ | 110.00       | \$ | 4,400.00              |              |              |
| 203 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |              |              |
| 204 | Conduct final development by pumping and surging                                       | HRS | 60   | \$ | 500.00       | \$ | 30,000.00             |              |              |
| 205 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8    | \$ | 500.00       | \$ | 4,000.00              |              |              |
| 206 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28   | \$ | 500.00       | \$ | 14,000.00             |              |              |
| 207 | Conduct a dynamic flow meter survey  | EA  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |              |              |
| 208 | Conduct a color video camera survey  | EA  | 1    | \$ | 2,500.00     | \$ | 2,500.00              |              |              |
| 209 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |              |              |
| 210 | Conduct final well disinfection in newly completed wells                               | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |              |              |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00 |              |
| 211 | Mobilization, Demobilization, & Cleanup  | LS  | 1    | \$ | 60,000.00    | \$ | 60,000.00             |              |              |
| 212 | Water Supply   | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |              |              |
| 213 | Environmental Mitigation   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |              |              |
| 214 | Construct site work  | LS  | 1    | \$ | 17,000.00    | \$ | 17,000.00             |              |              |
| 215 | Furnish and install concrete foundations   | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |              |              |
| 216 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1    | \$ | 45,000.00    | \$ | 45,000.00             |              |              |
| 217 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1    | \$ | 255,000.00   | \$ | 255,000.00            |              |              |
| 218 | Furnish and install well enclosures and appurtenances                                  | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |              |              |
| 219 | Furnish and install electrical facilities and instrumentation                          | LS  | 1    | \$ | 325,000.00   | \$ | 325,000.00            |              |              |
| 220 | Furnish and install pre-fabricated metal canopy  | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |              |              |
| 221 | Furnish and install site ground cover  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |              |              |
| 222 | Furnish and install site fencing   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |              |              |
| 223 | Furnish and install site painting  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |              |              |
| 224 | Furnish and install VFD's  | LS  | 1    | \$ | 200,000.00   | \$ | 200,000.00            |              |              |
| 225 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900 | \$ | 90.00        | \$ | 621,000.00            |              |              |
| 226 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400 | \$ | 120.00       | \$ | 288,000.00            |              |              |
| 227 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900 | \$ | 175.00       | \$ | 507,500.00            |              |              |
| 228 | Phase II 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline          | LF  | 2    | \$ | 100,000.00   | \$ | 200,000.00            | \$           | 1,616,500.00 |
| 229 | SCADA Communication & Appurtenances  | LS  | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$           | 300,000.00   |
|     | Contract Cost:   |     |      |    |              | \$ | 131,979,258.00        |              |              |
|     | 20% Construction Contingency:  |     |      |    |              | \$ | 26,395,851.60         |              |              |
|     | Unlisted Items:  |     |      |    |              | \$ | 2,639,585.16          |              |              |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |              |              |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |              |              |
|     | Temporary Easement   | AC  | 235  | \$ | 3,750.00     | \$ | 881,250.00            |              |              |
|     | Permanent Easement   | AC  | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |              |              |
|     | Crop Take  | AC  | 60   | \$ | 25,000.00    | \$ | 1,500,000.00          |              |              |
|     | Habitat Credit Purchase  | AC  | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |              |              |
|     | Field Cost:  |     |      |    |              | \$ | 199,089,694.76        |              |              |
|     | Non-Contract Costs:  |     |      |    |              | \$ | 26,360,000.00         |              |              |
|     | <b>Total Construction Cost:</b>  |     |      |    |              | \$ | <b>225,449,694.76</b> |              |              |

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## BV Canal Alignment - Concrete Lined Canal Reach 1 &amp; Pipeline Reach 2/3/4 (Item #7)

| Item No. | Item Description  | Unit | Quantity | Unit Cost       | Extended Cost    | Section Subtotal |
|----------|---|------|----------|-----------------|------------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup                       | LS   | 1        | \$ 1,820,000.00 | \$ 1,820,000.00  | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                               | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 3        | Aqueduct Turnout Excavation                                   | CY   | 2450     | \$ 30.00        | \$ 73,500.00     |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor                | CY   | 45       | \$ 800.00       | \$ 36,000.00     |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls                | CY   | 100      | \$ 1,200.00     | \$ 120,000.00    |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam            | CY   | 5        | \$ 2,000.00     | \$ 10,000.00     |                  |
| 7        | Aqueduct Backfill and Compaction                              | CY   | 1850     | \$ 30.00        | \$ 55,500.00     |                  |
| 8        | Aqueduct Miscellaneous Steel                                  | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 9        | Aqueduct Trashrack  | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 10       | Aqueduct Turnout Piping                                       | LF   | 2000     | \$ 4,000.00     | \$ 8,000,000.00  |                  |
| 11       | Aqueduct Metering   | EA   | 1        | \$ 200,000.00   | \$ 200,000.00    |                  |
| 12       | Aqueduct Meter Vault  | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 13       | Aqueduct Slide Gate & Actuator                                | EA   | 1        | \$ 75,000.00    | \$ 75,000.00     |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting                     | LS   | 1        | \$ 150,000.00   | \$ 150,000.00    |                  |
| 15       | Aqueduct Liner Repair   | LS   | 1        | \$ 20,000.00    | \$ 20,000.00     |                  |
| 16       | Levee Road Pavement Restoration                               | SF   | 1600     | \$ 7.00         | \$ 11,200.00     | \$ 9,351,200.00  |
| 17       | Canal Clearing & Grubbing                                     | AC   | 50       | \$ 1,200.00     | \$ 60,000.00     |                  |
| 18       | Canal Earthwork-Cut   | CY   | 205,000  | \$ 4.50         | \$ 922,500.00    |                  |
| 19       | Canal Earthwork-Fill  | CY   | 50,000   | \$ 4.50         | \$ 225,000.00    |                  |
| 20       | Levee Subgrade Preparation                                    | CY   | 75,000   | \$ 4.60         | \$ 345,000.00    |                  |
| 21       | Concrete Canal Lining   | SF   | 839,520  | \$ 6.00         | \$ 5,037,120.00  |                  |
| 22       | Canal Appurtenances   | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 23       | Canal Fencing   | LF   | 110,000  | \$ 7.50         | \$ 825,000.00    |                  |
| 24       | Levee Road Aggregate Base Ground Cover                        | LS   | 1        | \$ 250,000.00   | \$ 250,000.00    |                  |
| 25       | Ex. Facility Relocations                                      | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    | \$ 8,414,620.00  |
| 26       | Aqueduct Turnout Afterbay Structure Walls & Footings          | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 27       | Turnout Afterbay Earthwork                                    | CY   | 3800     | \$ 30.00        | \$ 114,000.00    |                  |
| 28       | Turnout Afterbay Miscellaneous Steel                          | LS   | 1        | \$ 25,000.00    | \$ 25,000.00     |                  |
| 29       | Outlet Canal Forebay Structure Walls & Footings               | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 30       | Outlet Canal Siphon Pipes                                     | LF   | 300      | \$ 2,500.00     | \$ 750,000.00    |                  |
| 31       | Outlet Canal Afterbay Structure Walls & Footings              | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 32       | Siphon Crossing Earthwork                                     | CY   | 7200     | \$ 25.00        | \$ 180,000.00    |                  |
| 33       | Siphon Crossing Miscellaneous Steel                           | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 34       | Adohr Rd Forebay Structure Walls & Footings                   | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 35       | Adohr Rd Siphon Pipes   | LF   | 150      | \$ 2,500.00     | \$ 375,000.00    |                  |
| 36       | Adohr Rd Afterbay Structure Walls & Footings                  | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 37       | Siphon Crossing Earthwork                                     | CY   | 7200     | \$ 25.00        | \$ 180,000.00    |                  |
| 38       | Siphon Crossing Miscellaneous Steel                           | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     |                  |
| 39       | East Side Canal Forebay Structure Walls & Footings            | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 40       | East Side Canal Siphon Pipes                                  | LF   | 350      | \$ 2,500.00     | \$ 875,000.00    |                  |
| 41       | East Side Canal Afterbay Structure Walls & Footings           | CY   | 200      | \$ 1,200.00     | \$ 240,000.00    |                  |
| 42       | Siphon Crossing Earthwork                                     | CY   | 7200     | \$ 25.00        | \$ 180,000.00    |                  |
| 43       | Siphon Crossing Miscellaneous Steel                           | LS   | 1        | \$ 50,000.00    | \$ 50,000.00     | \$ 4,509,000.00  |
| 44       | Lift Station Excavation                                       | CY   | 11000    | \$ 10.00        | \$ 110,000.00    |                  |
| 45       | Lift Station Reinforced Concrete Structure - Floor            | CY   | 320      | \$ 800.00       | \$ 256,000.00    |                  |
| 46       | Lift Station Reinforced Concrete Structure - Walls            | CY   | 520      | \$ 1,200.00     | \$ 624,000.00    |                  |
| 47       | Lift Station Reinforced Concrete Structure - Deck             | CY   | 120      | \$ 2,000.00     | \$ 240,000.00    |                  |
| 48       | Lift Station Pumps - 30 cfs                                   | EA   | 2        | \$ 130,000.00   | \$ 260,000.00    |                  |
| 49       | Lift Station Pumps - 60 cfs                                   | EA   | 2        | \$ 180,000.00   | \$ 360,000.00    |                  |
| 50       | Lift Station Pumps - 80 cfs                                   | EA   | 4        | \$ 195,000.00   | \$ 780,000.00    |                  |
| 51       | Lift Station Motors - 100 hp                                  | EA   | 2        | \$ 40,000.00    | \$ 80,000.00     |                  |
| 52       | Lift Station Motors - 200 hp                                  | EA   | 2        | \$ 60,000.00    | \$ 120,000.00    |                  |
| 53       | Lift Station Motors - 300 hp                                  | EA   | 4        | \$ 90,000.00    | \$ 360,000.00    |                  |
| 54       | Lift Station 36" Discharge Piping & Appurtenances             | LS   | 2        | \$ 300,000.00   | \$ 600,000.00    |                  |
| 55       | Lift Station 48" Discharge Piping & Appurtenances             | LS   | 2        | \$ 425,000.00   | \$ 850,000.00    |                  |
| 56       | Lift Station 54" Discharge Piping & Appurtenances             | LS   | 4        | \$ 550,000.00   | \$ 2,200,000.00  |                  |
| 57       | Lift Station 100 hp VFD's                                     | EA   | 2        | \$ 40,000.00    | \$ 80,000.00     |                  |
| 58       | Lift Station 200 hp VFD's                                     | EA   | 2        | \$ 60,000.00    | \$ 120,000.00    |                  |
| 59       | Lift Station 300 hp VFD's                                     | EA   | 4        | \$ 80,000.00    | \$ 320,000.00    |                  |
| 60       | Lift Station Electrical, Controls, & Lighting                 | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 61       | Lift Station Electrical Control Building                      | LS   | 1        | \$ 200,000.00   | \$ 200,000.00    |                  |
| 62       | Lift Station Backfill & Compaction                            | CY   | 6000     | \$ 10.00        | \$ 60,000.00     |                  |
| 63       | Lift Station Slide Gates                                      | EA   | 1        | \$ 55,000.00    | \$ 55,000.00     |                  |
| 64       | Lift Station Trashracks                                       | LS   | 8        | \$ 25,000.00    | \$ 200,000.00    |                  |
| 65       | Lift Station Miscellaneous Steel                              | LS   | 1        | \$ 120,000.00   | \$ 120,000.00    |                  |
| 66       | Lift Station Cathodic Protection                              | LS   | 1        | \$ 25,000.00    | \$ 25,000.00     |                  |
| 67       | Lift Station Site Fencing                                     | LF   | 850      | \$ 45.00        | \$ 38,250.00     |                  |
| 67       | Lift Station Bypass Pipeline                                  | LF   | 200      | \$ 750.00       | \$ 150,000.00    |                  |
| 68       | Lift Station Ground Cover                                     | LS   | 1        | \$ 45,000.00    | \$ 45,000.00     | \$ 8,753,250.00  |
| 69       | R/W Clearing & Grubbing                                       | AC   | 105      | \$ 1,200.00     | \$ 126,000.00    |                  |
| 70       | Conveyance Pipeline 9-ft Diameter                             | LF   | 31,680   | \$ 1,575.00     | \$ 49,896,000.00 |                  |
| 71       | Pipeline Appurtenances  | LS   | 1        | \$ 500,000.00   | \$ 500,000.00    |                  |
| 72       | Stockdale Hwy Crossing  | LF   | 150      | \$ 5,700.00     | \$ 855,000.00    |                  |
| 73       | I-5 Cased Crossing  | LF   | 400      | \$ 5,700.00     | \$ 2,280,000.00  |                  |
| 74       | Turnout to Phase II 640 Acres                                 | LF   | 200      | \$ 1,275.00     | \$ 255,000.00    |                  |
| 75       | Turnout to West Basins  | LF   | 200      | \$ 1,275.00     | \$ 255,000.00    |                  |
| 76       | Turnout Fittings  | EA   | 2        | \$ 350,000.00   | \$ 700,000.00    |                  |
| 77       | Phase II 640 Acres Outlet Structure                           | LS   | 1        | \$ 950,000.00   | \$ 950,000.00    |                  |
| 78       | West Basins Outlet Structure                                  | LS   | 1        | \$ 950,000.00   | \$ 950,000.00    | \$ 56,767,000.00 |
| 79       | Phase I 640 Acres Clearing & Grubbing                         | AC   | 320      | \$ 1,200.00     | \$ 384,000.00    |                  |
| 80       | Phase I 640 Acres Levee Over-Excavation and Re-Compaction     | CY   | 235000   | \$ 4.60         | \$ 1,081,000.00  |                  |
| 81       | Phase I 640 Acres Levee Keyway                                | CY   | 50000    | \$ 4.70         | \$ 235,000.00    |                  |
| 82       | Phase I 640 Acres Levee Embankment Fill                       | CY   | 255000   | \$ 4.20         | \$ 1,071,000.00  |                  |
| 83       | Phase I 640 Acres Structure Headwalls                         | EA   | 15       | \$ 30,000.00    | \$ 450,000.00    |                  |
| 84       | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards | EA   | 15       | \$ 10,000.00    | \$ 150,000.00    |                  |
| 85       | Phase I 640 Acres Interbasin Structure Piping                 | LS   | 1        | \$ 1,000,000.00 | \$ 1,000,000.00  |                  |
| 86       | Phase I 640 Acres Interbasin Structure Rip-Rap                | EA   | 15       | \$ 35,000.00    | \$ 525,000.00    |                  |
| 87       | Phase I 640 Acres Interbasin Structure Cutoff Walls           | EA   | 15       | \$ 25,000.00    | \$ 375,000.00    |                  |
| 88       | Phase I 640 Acres Site Fencing and Gates                      | LF   | 21120    | \$ 7.50         | \$ 158,400.00    | \$ 5,429,400.00  |

|     |   |     |        |    |              |    |              |                 |
|-----|---|-----|--------|----|--------------|----|--------------|-----------------|
| 89  | Goose Lake Slough Turnout Structure Excavation                                      | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00    |                 |
| 90  | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                     | CY  | 90     | \$ | 800.00       | \$ | 72,000.00    |                 |
| 91  | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                     | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00   |                 |
| 92  | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                      | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00   |                 |
| 93  | Goose Lake Slough Turnout Backfill & Compaction                                     | LS  | 500    | \$ | 30.00        | \$ | 15,000.00    |                 |
| 94  | Goose Lake Slough Turnout Trashracks  | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00    |                 |
| 95  | Goose Lake Slough Turnout Miscellaneous Steel                                       | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 96  | Goose Lake Slough Lift Station Pumps - 60 cfs                                       | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00   |                 |
| 97  | Goose Lake Slough Lift Station Motors - 200 hp                                      | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00   |                 |
| 98  | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                     | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00   |                 |
| 99  | Goose Lake Slough Metering  | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00    |                 |
| 100 | Goose Lake Slough Turnout Slide Gate  | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00    |                 |
| 101 | Goose Lake Slough Turnout Electrical  | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00   |                 |
| 102 | Goose Lake Slough Electrical Shade Structure & Foundation                           | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 103 | Goose Lake Slough Pipe Outlet   | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00   |                 |
| 104 | Goose Lake Slough Turnout Outlet Structure  | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00   |                 |
| 105 | Goose Lake Slough Outlet Rip-Rap  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 106 | Goose Lake Slough Check Structure - Earthwork                                       | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00    |                 |
| 107 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                     | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00   |                 |
| 108 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                     | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00    |                 |
| 109 | Goose Lake Slough Check Structure - Miscellaneous Steel                             | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 110 | Goose Lake Slough Check Structure - Rip-Rap   | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00    |                 |
| 111 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                      | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 3,125,700.00 |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                        | EA  | 6      | \$ | 1,175,474.00 |    |              | \$ 7,052,844.00 |
| 112 | Mobilization, demobilization & misc. work   | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 113 | Transport and dispose of drill cuttings offsite                                     | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 114 | Three 20,000-gallon temporary water storage tanks and discharge piping              | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 115 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |                 |
| 116 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs            | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |                 |
| 117 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs         | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |                 |
| 118 | Conduct downhole geophysical surveys and alignment/deviation survey                 | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 119 | Conduct isolated aquifer zone test  | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |                 |
| 120 | Conduct deep isolated aquifer zone test below 800 ft bgs                            | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |                 |
| 121 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                 | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |                 |
| 122 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |                 |
| 123 | Conduct alignment/deviation tests in enlarged borehole                              | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 124 | Conduct a caliper survey of enlarged borehole                                       | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 125 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing     | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |                 |
| 126 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"        | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 127 | Furnish and install 20-inch by 5/16-inch wall Full louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |                 |
| 128 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube  | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |                 |
| 129 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube             | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |                 |
| 130 | Furnish and install gravel pack in borehole annulus                                 | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |                 |
| 131 | Furnish and install 10.3-sack sand-cement grout upper annular seal                  | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |                 |
| 132 | Perform initial well development  | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |                 |
| 133 | Provide chlorine solution for chemical development of the well                      | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |                 |
| 134 | Provide polymer dispersant for chemical development of the well                     | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |                 |
| 135 | Mobilize, install, and demobilize test pumping equipment in newly completed wells   | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 136 | Conduct final development by pumping and surging                                    | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |                 |
| 137 | Conduct step-drawdown pumping test in newly completed wells                         | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |                 |
| 138 | Conduct constant-rate pumping test in newly completed wells                         | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |                 |
| 139 | Conduct a dynamic flow meter survey   | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 140 | Conduct a color video camera survey   | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |                 |
| 141 | Conduct well alignment/deviation test in newly completed wells                      | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 142 | Conduct final well disinfection in newly completed wells                            | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
|     | Phase I 640 Acre Well Equipping and Site Development                                | EA  | 6      | \$ | 1,137,000.00 |    |              | \$ 6,822,000.00 |
| 143 | Mobilization, Demobilization, & Cleanup   | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |                 |
| 144 | Water Supply  | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 145 | Environmental Mitigation  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 146 | Construct site work   | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |                 |
| 147 | Furnish and install concrete foundations  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 148 | Furnish and install yard piping, mechanical piping and appurtenances                | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |                 |
| 149 | Furnish and install vertical turbine well pumps, pump base, etc.                    | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |                 |
| 150 | Furnish and install well enclosures and appurtenances                               | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 151 | Furnish and install electrical facilities and instrumentation                       | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |                 |
| 152 | Furnish and install pre-fabricated metal canopy                                     | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 153 | Furnish and install site ground cover   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 154 | Furnish and install site fencing  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 155 | Furnish and install site painting   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 156 | Furnish and install VFD's   | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 157 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                             | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |                 |
| 158 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                             | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |                 |
| 159 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                             | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |                 |
| 160 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                             | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$ 2,428,500.00 |
| 161 | RRB Intake Canal Interconnection Excavation   | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |                 |
| 162 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor              | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |                 |
| 163 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls              | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |                 |
| 164 | RRB Intake Canal Interconnection Backfill & Compaction                              | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |                 |
| 165 | RRB Intake Canal Interconnection Miscellaneous Steel                                | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 166 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                    | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 167 | RRB Intake Canal Interconnection Concrete Lining                                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 168 | RRB Intake Canal Interconnection Liner Repair                                       | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 169 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                         | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$ 165,800.00   |
| 170 | Phase II 640 Acres Clearing & Grubbing  | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 171 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                          | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 172 | Phase II 640 Acres Levee Keyway   | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 173 | Phase II 640 Acres Levee Embankment Fill  | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 174 | Phase II 640 Acres Structure Headwalls  | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 175 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                      | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 176 | Phase II 640 Acres Interbasin Structure Piping                                      | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 177 | Phase II 640 Acres Interbasin Structure Rip-Rap                                     | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 178 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 179 | Phase II 640 Acres Site Fencing and Gates   | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |



|     |   |     |      |    |              |    |                       |                 |
|-----|---|-----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Drilling, Construction, & Development                           | EA  | 6    | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00    |
| 180 | Mobilization, demobilization & misc. work   | LS  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 181 | Transport and dispose of drill cuttings offsite   | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 182 | Three 20,000-gallon temporary water storage tanks and discharge piping                  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 183 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                    | LF  | 50   | \$ | 620.00       | \$ | 31,000.00             |                 |
| 184 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs                | LF  | 920  | \$ | 110.00       | \$ | 101,200.00            |                 |
| 185 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs             | LF  | 430  | \$ | 110.00       | \$ | 47,300.00             |                 |
| 186 | Conduct downhole geophysical surveys and alignment/deviation survey                     | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 187 | Conduct isolated aquifer zone test  | EA  | 3    | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 188 | Conduct deep isolated aquifer zone test below 800 ft bgs                                | EA  | 3    | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 189 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                     | LF  | 280  | \$ | 110.00       | \$ | 30,800.00             |                 |
| 190 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                    | LF  | 660  | \$ | 110.00       | \$ | 72,600.00             |                 |
| 191 | Conduct alignment/deviation tests in enlarged borehole                                  | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 192 | Conduct a caliper survey of enlarged borehole   | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 193 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing         | LF  | 424  | \$ | 220.00       | \$ | 93,280.00             |                 |
| 194 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"            | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 195 | Furnish and install 20-inch by 5/16-inch wall Full Flo louvered, HSLA steel well screen | LF  | 510  | \$ | 320.00       | \$ | 163,200.00            |                 |
| 196 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube      | LF  | 652  | \$ | 46.00        | \$ | 29,992.00             |                 |
| 197 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                 | LF  | 319  | \$ | 38.00        | \$ | 12,122.00             |                 |
| 198 | Furnish and install gravel pack in borehole annulus                                     | LF  | 670  | \$ | 225.00       | \$ | 150,750.00            |                 |
| 199 | Furnish and install 10.3-sack sand-cement grout upper annular seal                      | LF  | 300  | \$ | 170.00       | \$ | 51,000.00             |                 |
| 200 | Perform initial well development  | HRS | 108  | \$ | 275.00       | \$ | 29,700.00             |                 |
| 201 | Provide chlorine solution for chemical development of the well                          | GAL | 255  | \$ | 26.00        | \$ | 6,630.00              |                 |
| 202 | Provide polymer dispersant for chemical development of the well                         | GAL | 40   | \$ | 110.00       | \$ | 4,400.00              |                 |
| 203 | Mobilize, install, and demobilize test pumping equipment in newly completed wells       | EA  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 204 | Conduct final development by pumping and surging  | HRS | 60   | \$ | 500.00       | \$ | 30,000.00             |                 |
| 205 | Conduct step-drawdown pumping test in newly completed wells                             | HRS | 8    | \$ | 500.00       | \$ | 4,000.00              |                 |
| 206 | Conduct constant-rate pumping test in newly completed wells                             | HRS | 28   | \$ | 500.00       | \$ | 14,000.00             |                 |
| 207 | Conduct a dynamic flow meter survey   | EA  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 208 | Conduct a color video camera survey   | EA  | 1    | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 209 | Conduct well alignment/deviation test in newly completed wells                          | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 210 | Conduct final well disinfection in newly completed wells                                | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                  | EA  | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 211 | Mobilization, Demobilization, & Cleanup   | LS  | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 212 | Water Supply  | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 213 | Environmental Mitigation  | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 214 | Construct site work   | LS  | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 215 | Furnish and install concrete foundations  | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 216 | Furnish and install yard piping, mechanical piping and appurtenances                    | LS  | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 217 | Furnish and install vertical turbine well pumps, pump base, etc.                        | LS  | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 218 | Furnish and install well enclosures and appurtenances                                   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 219 | Furnish and install electrical facilities and instrumentation                           | LS  | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 220 | Furnish and install pre-fabricated metal canopy   | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 221 | Furnish and install site ground cover   | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 222 | Furnish and install site fencing  | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 223 | Furnish and install site painting   | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 224 | Furnish and install VFD's   | LS  | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 225 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 226 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 227 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 228 | Phase II 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline           | EA  | 2    | \$ | 100,000.00   | \$ | 200,000.00            | \$ 1,616,500.00 |
| 229 | SCADA Communication & Appurtenances   | LS  | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:  |     |      |    |              | \$ | 135,860,058.00        |                 |
|     | 20% Construction Contingency:   |     |      |    |              | \$ | 27,172,011.60         |                 |
|     | Unlisted Items:   |     |      |    |              | \$ | 2,717,201.16          |                 |
|     | Property Acquisition - 640 acres  | AC  | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres  | AC  | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement  | AC  | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement  | AC  | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take   | AC  | 60   | \$ | 25,000.00    | \$ | 1,500,000.00          |                 |
|     | Habitat Credit Purchase   | AC  | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:   |     |      |    |              | \$ | 203,824,270.76        |                 |
|     | Non-Contract Costs:   |     |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>   |     |      |    |              | \$ | <b>230,184,270.76</b> |                 |

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## BV Canal Alignment - HDPE Lined Canal Reach 1 &amp; 2 and Pipeline Reach 3/4 (Item #8)

| Item No. | Item Description                                     | Unit | Quantity  | Unit Cost       | Extended Cost   | Section Subtotal |
|----------|--|------|-----------|-----------------|-----------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup              | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00 | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                      | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 3        | Aqueduct Turnout Excavation                          | CY   | 2450      | \$ 30.00        | \$ 73,500.00    |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor       | CY   | 45        | \$ 800.00       | \$ 36,000.00    |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls       | CY   | 100       | \$ 1,200.00     | \$ 120,000.00   |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam   | CY   | 5         | \$ 2,000.00     | \$ 10,000.00    |                  |
| 7        | Aqueduct Backfill and Compaction                     | CY   | 1850      | \$ 30.00        | \$ 55,500.00    |                  |
| 8        | Aqueduct Miscellaneous Steel                         | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 9        | Aqueduct Trashrack                                   | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 10       | Aqueduct Turnout Piping                              | LF   | 2000      | \$ 4,000.00     | \$ 8,000,000.00 |                  |
| 11       | Aqueduct Metering                                    | EA   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 12       | Aqueduct Meter Vault                                 | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 13       | Aqueduct Slide Gate & Actuator                       | EA   | 1         | \$ 75,000.00    | \$ 75,000.00    |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting            | LS   | 1         | \$ 150,000.00   | \$ 150,000.00   |                  |
| 15       | Aqueduct Liner Repair                                | LS   | 1         | \$ 20,000.00    | \$ 20,000.00    |                  |
| 16       | Levee Road Pavement Restoration                      | SF   | 1600      | \$ 7.00         | \$ 11,200.00    | \$ 9,351,200.00  |
| 17       | Canal Clearing & Grubbing                            | AC   | 85        | \$ 1,200.00     | \$ 102,000.00   |                  |
| 18       | Canal Earthwork-Cut                                  | CY   | 320,000   | \$ 4.50         | \$ 1,440,000.00 |                  |
| 19       | Canal Earthwork-Fill                                 | CY   | 110,000   | \$ 4.50         | \$ 495,000.00   |                  |
| 20       | Levee Subgrade Preparation                           | CY   | 120,000   | \$ 4.60         | \$ 552,000.00   |                  |
| 21       | HDPE Canal Lining                                    | SF   | 1,399,200 | \$ 1.00         | \$ 1,399,200.00 |                  |
| 22       | HDPE Anchor Trench                                   | LF   | 52,800    | \$ 10.00        | \$ 528,000.00   |                  |
| 23       | Canal Appurtenances                                  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 24       | Canal Fencing  | LF   | 55,000    | \$ 7.50         | \$ 412,500.00   |                  |
| 25       | Levee Road Aggregate Base Ground Cover               | LS   | 1         | \$ 387,500.00   | \$ 387,500.00   |                  |
| 26       | Ex. Facility Relocations                             | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   | \$ 6,066,200.00  |
| 27       | Aqueduct Turnout Afterbay Structure Walls & Footings | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 28       | Turnout Afterbay Earthwork                           | CY   | 3800      | \$ 30.00        | \$ 114,000.00   |                  |
| 29       | Turnout Afterbay Miscellaneous Steel                 | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 30       | Outlet Canal Forebay Structure Walls & Footings      | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 31       | Outlet Canal Siphon Pipes                            | LF   | 300       | \$ 2,500.00     | \$ 750,000.00   |                  |
| 32       | Outlet Canal Afterbay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 33       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 34       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 35       | Adohr Rd Forebay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 36       | Adohr Rd Siphon Pipes                                | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 37       | Adohr Rd Afterbay Structure Walls & Footings         | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 38       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 39       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 40       | East Side Canal Forebay Structure Walls & Footings   | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 41       | East Side Canal Siphon Pipes                         | LF   | 350       | \$ 2,500.00     | \$ 875,000.00   |                  |
| 42       | East Side Canal Afterbay Structure Walls & Footings  | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 43       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 44       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    | \$ 4,509,000.00  |
| 44       | Lift Station Excavation                              | CY   | 11000     | \$ 10.00        | \$ 110,000.00   |                  |
| 45       | Lift Station Reinforced Concrete Structure - Floor   | CY   | 320       | \$ 800.00       | \$ 256,000.00   |                  |
| 46       | Lift Station Reinforced Concrete Structure - Walls   | CY   | 520       | \$ 1,200.00     | \$ 624,000.00   |                  |
| 47       | Lift Station Reinforced Concrete Structure - Deck    | CY   | 120       | \$ 2,000.00     | \$ 240,000.00   |                  |
| 48       | Lift Station Pumps - 30 cfs                          | EA   | 2         | \$ 130,000.00   | \$ 260,000.00   |                  |
| 49       | Lift Station Pumps - 60 cfs                          | EA   | 2         | \$ 180,000.00   | \$ 360,000.00   |                  |
| 50       | Lift Station Pumps - 80 cfs                          | EA   | 4         | \$ 195,000.00   | \$ 780,000.00   |                  |
| 51       | Lift Station Motors - 100 hp                         | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 52       | Lift Station Motors - 200 hp                         | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 53       | Lift Station Motors - 300 hp                         | EA   | 4         | \$ 90,000.00    | \$ 360,000.00   |                  |
| 54       | Lift Station 36" Discharge Piping & Appurtenances    | LS   | 2         | \$ 300,000.00   | \$ 600,000.00   |                  |
| 55       | Lift Station 48" Discharge Piping & Appurtenances    | LS   | 2         | \$ 425,000.00   | \$ 850,000.00   |                  |
| 56       | Lift Station 54" Discharge Piping & Appurtenances    | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00 |                  |
| 57       | Lift Station 100 hp VFD's                            | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 58       | Lift Station 200 hp VFD's                            | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 59       | Lift Station 300 hp VFD's                            | EA   | 4         | \$ 80,000.00    | \$ 320,000.00   |                  |
| 60       | Lift Station Electrical, Controls, & Lighting        | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   |                  |
| 61       | Lift Station Electrical Control Building             | LS   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 62       | Lift Station Backfill & Compaction                   | CY   | 6000      | \$ 10.00        | \$ 60,000.00    |                  |
| 63       | Lift Station Slide Gates                             | EA   | 1         | \$ 55,000.00    | \$ 55,000.00    |                  |
| 64       | Lift Station Trashracks                              | LS   | 8         | \$ 25,000.00    | \$ 200,000.00   |                  |
| 65       | Lift Station Miscellaneous Steel                     | LS   | 1         | \$ 120,000.00   | \$ 120,000.00   |                  |
| 66       | Lift Station Cathodic Protection                     | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 67       | Lift Station Site Fencing                            | LF   | 850       | \$ 45.00        | \$ 38,250.00    |                  |
| 68       | Lift Station Bypass Pipeline                         | LF   | 200       | \$ 750.00       | \$ 150,000.00   |                  |
| 69       | Lift Station Ground Cover                            | LS   | 1         | \$ 45,000.00    | \$ 45,000.00    | \$ 8,753,250.00  |
| 70       | Lift Station Pipeline across Stockdale Hwy           | LF   | 1500      | \$ 2,500.00     | \$ 3,750,000.00 |                  |
| 71       | Stockdale Hwy Cased Crossing                         | LF   | 150       | \$ 6,000.00     | \$ 900,000.00   |                  |
| 72       | Stockdale Hwy Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 73       | Stockdale Hwy Afterbay Earthwork                     | CY   | 3800      | \$ 25.00        | \$ 95,000.00    |                  |
| 74       | Stockdale Hwy Afterbay Miscellaneous Steel           | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 75       | Road Crossing Forebay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 76       | Road Crossing Siphon Pipes                           | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 77       | Road Crossing Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 78       | Siphon Crossing Earthwork                            | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 79       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 5,000.00     | \$ 5,000.00     | \$ 6,050,000.00  |

|     |  |     |        |    |              |    |               |                  |
|-----|--|-----|--------|----|--------------|----|---------------|------------------|
| 80  | Lift Station Excavation  | CY  | 11000  | \$ | 10.00        | \$ | 110,000.00    |                  |
| 81  | Lift Station Reinforced Concrete Structure - Floor                                     | CY  | 320    | \$ | 800.00       | \$ | 256,000.00    |                  |
| 82  | Lift Station Reinforced Concrete Structure - Walls                                     | CY  | 520    | \$ | 1,200.00     | \$ | 624,000.00    |                  |
| 83  | Lift Station Reinforced Concrete Structure - Deck                                      | CY  | 120    | \$ | 2,000.00     | \$ | 240,000.00    |                  |
| 84  | Lift Station Pumps - 30 cfs  | EA  | 2      | \$ | 130,000.00   | \$ | 260,000.00    |                  |
| 85  | Lift Station Pumps - 60 cfs  | EA  | 2      | \$ | 180,000.00   | \$ | 360,000.00    |                  |
| 86  | Lift Station Pumps - 80 cfs  | EA  | 4      | \$ | 195,000.00   | \$ | 780,000.00    |                  |
| 87  | Lift Station Motors - 100 hp   | EA  | 2      | \$ | 40,000.00    | \$ | 80,000.00     |                  |
| 88  | Lift Station Motors - 200 hp   | EA  | 2      | \$ | 60,000.00    | \$ | 120,000.00    |                  |
| 89  | Lift Station Motors - 300 hp   | EA  | 4      | \$ | 90,000.00    | \$ | 360,000.00    |                  |
| 90  | Lift Station 36" Discharge Piping & Appurtenances                                      | LS  | 2      | \$ | 300,000.00   | \$ | 600,000.00    |                  |
| 91  | Lift Station 48" Discharge Piping & Appurtenances                                      | LS  | 2      | \$ | 425,000.00   | \$ | 850,000.00    |                  |
| 92  | Lift Station 54" Discharge Piping & Appurtenances                                      | LS  | 4      | \$ | 550,000.00   | \$ | 2,200,000.00  |                  |
| 93  | Lift Station 100 hp VFD's  | EA  | 2      | \$ | 40,000.00    | \$ | 80,000.00     |                  |
| 94  | Lift Station 200 hp VFD's  | EA  | 2      | \$ | 60,000.00    | \$ | 120,000.00    |                  |
| 95  | Lift Station 300 hp VFD's  | EA  | 4      | \$ | 80,000.00    | \$ | 320,000.00    |                  |
| 96  | Lift Station Electrical, Controls, & Lighting  | LS  | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 97  | Lift Station Electrical Control Building   | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00    |                  |
| 98  | Lift Station Backfill & Compaction   | CY  | 6000   | \$ | 10.00        | \$ | 60,000.00     |                  |
| 99  | Lift Station Slide Gates   | EA  | 1      | \$ | 55,000.00    | \$ | 55,000.00     |                  |
| 100 | Lift Station Trashracks  | LS  | 8      | \$ | 25,000.00    | \$ | 200,000.00    |                  |
| 101 | Lift Station Miscellaneous Steel   | LS  | 1      | \$ | 120,000.00   | \$ | 120,000.00    |                  |
| 102 | Lift Station Cathodic Protection   | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 103 | Lift Station Site Fencing  | LF  | 850    | \$ | 45.00        | \$ | 38,250.00     |                  |
| 104 | Lift Station Bypass Pipeline   | LF  | 200    | \$ | 750.00       | \$ | 150,000.00    |                  |
| 105 | Lift Station Ground Cover  | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00     | \$ 8,753,250.00  |
| 106 | R/W Clearing & Grubbing  | AC  | 70     | \$ | 1,200.00     | \$ | 84,000.00     |                  |
| 107 | Conveyance Pipeline 9-ft Diameter  | LF  | 21,120 | \$ | 1,575.00     | \$ | 33,264,000.00 |                  |
| 108 | Pipeline Appurtenances   | LS  | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 109 | I-5 Cased Crossing   | LF  | 600    | \$ | 5,700.00     | \$ | 3,420,000.00  |                  |
| 110 | Turnout to Phase II 640 Acres  | LF  | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 111 | Turnout to West Basins   | LF  | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 112 | Turnout Fittings   | EA  | 2      | \$ | 350,000.00   | \$ | 700,000.00    |                  |
| 113 | Phase II 640 Acres Outlet Structure  | LS  | 1      | \$ | 950,000.00   | \$ | 950,000.00    |                  |
| 114 | West Basins Outlet Structure   | LS  | 1      | \$ | 950,000.00   | \$ | 950,000.00    | \$ 40,378,000.00 |
| 115 | Phase I 640 Acres Clearing & Grubbing  | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00    |                  |
| 116 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction                              | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00  |                  |
| 117 | Phase I 640 Acres Levee Keyway   | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00    |                  |
| 118 | Phase I 640 Acres Levee Embankment Fill  | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00  |                  |
| 119 | Phase I 640 Acres Structure Headwalls  | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00    |                  |
| 120 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards                          | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00    |                  |
| 121 | Phase I 640 Acres Interbasin Structure Piping  | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00  |                  |
| 122 | Phase I 640 Acres Interbasin Structure Rip-Rap   | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00    |                  |
| 123 | Phase I 640 Acres Interbasin Structure Cutoff Walls                                    | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00    |                  |
| 124 | Phase I 640 Acres Site Fencing and Gates   | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00    | \$ 5,429,400.00  |
| 125 | Goose Lake Slough Turnout Structure Excavation   | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00     |                  |
| 126 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                        | CY  | 90     | \$ | 800.00       | \$ | 72,000.00     |                  |
| 127 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                        | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00    |                  |
| 128 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                         | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00    |                  |
| 129 | Goose Lake Slough Turnout Backfill & Compaction  | LS  | 500    | \$ | 30.00        | \$ | 15,000.00     |                  |
| 130 | Goose Lake Slough Turnout Trashracks   | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00     |                  |
| 131 | Goose Lake Slough Turnout Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 132 | Goose Lake Slough Lift Station Pumps - 60 cfs  | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00    |                  |
| 133 | Goose Lake Slough Lift Station Motors - 200 hp   | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00    |                  |
| 134 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                        | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00    |                  |
| 135 | Goose Lake Slough Metering   | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00     |                  |
| 136 | Goose Lake Slough Turnout Slide Gate   | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00     |                  |
| 137 | Goose Lake Slough Turnout Electrical   | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00    |                  |
| 138 | Goose Lake Slough Electrical Shade Structure & Foundation                              | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 139 | Goose Lake Slough Pipe Outlet  | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00    |                  |
| 140 | Goose Lake Slough Turnout Outlet Structure   | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00    |                  |
| 141 | Goose Lake Slough Outlet Rip-Rap   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 142 | Goose Lake Slough Check Structure - Earthwork  | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00     |                  |
| 143 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                        | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00    |                  |
| 144 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                        | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00     |                  |
| 145 | Goose Lake Slough Check Structure - Miscellaneous Steel                                | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 146 | Goose Lake Slough Check Structure - Rip-Rap  | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00     |                  |
| 147 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                         | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     | \$ 3,125,700.00  |
| 148 | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 | \$ | 7,052,844.00  |                  |
| 149 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 150 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 151 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 152 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00     |                  |
| 153 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00    |                  |
| 154 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00     |                  |
| 155 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00     |                  |
| 156 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00     |                  |
| 157 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00    |                  |
| 158 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00     |                  |
| 159 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00     |                  |
| 160 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00      |                  |
| 161 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00      |                  |
| 162 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00     |                  |
| 163 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
| 164 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00    |                  |
| 165 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00     |                  |
| 166 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00     |                  |
| 167 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00    |                  |
| 168 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00     |                  |
| 169 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00     |                  |
| 170 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00      |                  |
| 171 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00      |                  |
| 172 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 173 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00     |                  |
| 174 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00      |                  |
| 175 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00     |                  |
| 176 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 177 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00      |                  |
| 178 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
| 179 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |

|     |  |     |        |    |              |    |                       |                 |
|-----|--|-----|--------|----|--------------|----|-----------------------|-----------------|
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 179 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 180 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 181 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 182 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 183 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 184 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 185 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 186 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 187 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 188 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 189 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 190 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 191 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 192 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 193 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00            |                 |
| 194 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00            |                 |
| 195 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00            |                 |
| 196 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00            | \$ 2,428,500.00 |
| 197 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00             |                 |
| 198 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00             |                 |
| 199 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00             |                 |
| 200 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00              |                 |
| 201 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 202 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00             |                 |
| 203 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 204 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 205 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00             | \$ 165,800.00   |
| 206 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00            |                 |
| 207 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00          |                 |
| 208 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00            |                 |
| 209 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00          |                 |
| 210 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00            |                 |
| 211 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00            |                 |
| 212 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00          |                 |
| 213 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00            |                 |
| 214 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00            |                 |
| 215 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00            | \$ 5,429,400.00 |
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6      | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00    |
| 216 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 217 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 218 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 219 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00             |                 |
| 220 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00            |                 |
| 221 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00             |                 |
| 222 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 223 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 224 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 225 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00             |                 |
| 226 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00             |                 |
| 227 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 228 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 229 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00             |                 |
| 230 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 231 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00            |                 |
| 232 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00             |                 |
| 233 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00             |                 |
| 234 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00            |                 |
| 235 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00             |                 |
| 236 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00             |                 |
| 237 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00              |                 |
| 238 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00              |                 |
| 239 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 240 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00             |                 |
| 241 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00              |                 |
| 242 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00             |                 |
| 243 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 244 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 245 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 246 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6      | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 247 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 248 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 249 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 250 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 251 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 252 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 253 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 254 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 255 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 256 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 257 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 258 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 259 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 260 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 261 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00            |                 |
| 262 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00            |                 |
| 263 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900   | \$ | 175.00       | \$ | 507,500.00            |                 |
| 264 | Phase II 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline          | EA  | 2      | \$ | 100,000.00   | \$ | 200,000.00            | \$ 1,616,500.00 |
| 265 | SCADA Communication & Appurtenances  | LS  | 1      | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |        | \$ |              | \$ | 131,925,888.00        |                 |
|     | 20% Construction Contingency:  |     |        | \$ |              | \$ | 26,385,177.60         |                 |
|     | Unlisted Items:  |     |        | \$ |              | \$ | 2,638,517.76          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640    | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640    | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235    | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165    | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 60     | \$ | 25,000.00    | \$ | 1,500,000.00          |                 |
|     | Habitat Credit Purchase  | AC  | 200    | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |        | \$ |              | \$ | 199,024,583.36        |                 |
|     | Non-Contract Costs:  |     |        | \$ |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |        | \$ |              | \$ | <b>225,384,583.36</b> |                 |

Irvine Ranch Water District

Feasibility Level Cost Estimate (Class 4)

**BV Canal Alignment - Concrete Lined Canal Reach 1 & 2 and Pipeline Reach 3/4 (Item #9)**

| Item No. | Item Description                                     | Unit | Quantity  | Unit Cost       | Extended Cost   | Section Subtotal |
|----------|--|------|-----------|-----------------|-----------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup              | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00 | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                      | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 3        | Aqueduct Turnout Excavation                          | CY   | 2450      | \$ 30.00        | \$ 73,500.00    |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor       | CY   | 45        | \$ 800.00       | \$ 36,000.00    |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls       | CY   | 100       | \$ 1,200.00     | \$ 120,000.00   |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam   | CY   | 5         | \$ 2,000.00     | \$ 10,000.00    |                  |
| 7        | Aqueduct Backfill and Compaction                     | CY   | 1850      | \$ 30.00        | \$ 55,500.00    |                  |
| 8        | Aqueduct Miscellaneous Steel                         | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 9        | Aqueduct Trashrack                                   | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 10       | Aqueduct Turnout Piping                              | LF   | 2000      | \$ 4,000.00     | \$ 8,000,000.00 |                  |
| 11       | Aqueduct Metering                                    | EA   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 12       | Aqueduct Meter Vault                                 | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 13       | Aqueduct Slide Gate & Actuator                       | EA   | 1         | \$ 75,000.00    | \$ 75,000.00    |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting            | LS   | 1         | \$ 150,000.00   | \$ 150,000.00   |                  |
| 15       | Aqueduct Liner Repair                                | LS   | 1         | \$ 20,000.00    | \$ 20,000.00    |                  |
| 16       | Levee Road Pavement Restoration                      | SF   | 1600      | \$ 7.00         | \$ 11,200.00    | \$ 9,351,200.00  |
| 17       | Canal Clearing & Grubbing                            | AC   | 85        | \$ 1,200.00     | \$ 102,000.00   |                  |
| 18       | Canal Earthwork-Cut                                  | CY   | 320,000   | \$ 4.50         | \$ 1,440,000.00 |                  |
| 19       | Canal Earthwork-Fill                                 | CY   | 110,000   | \$ 4.50         | \$ 495,000.00   |                  |
| 20       | Levee Subgrade Preparation                           | CY   | 120,000   | \$ 4.60         | \$ 552,000.00   |                  |
| 21       | Concrete Canal Lining                                | SF   | 1,399,200 | \$ 6.00         | \$ 8,395,200.00 |                  |
| 22       | Canal Appurtenances                                  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 23       | Canal Fencing  | LF   | 55,000    | \$ 7.50         | \$ 412,500.00   |                  |
| 24       | Levee Road Aggregate Base Ground Cover               | LS   | 1         | \$ 387,500.00   | \$ 387,500.00   |                  |
| 25       | Ex. Facility Relocations                             | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   | \$ 12,534,200.00 |
| 26       | Aqueduct Turnout Afterbay Structure Walls & Footings | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 27       | Turnout Afterbay Earthwork                           | CY   | 3800      | \$ 30.00        | \$ 114,000.00   |                  |
| 28       | Turnout Afterbay Miscellaneous Steel                 | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 29       | Outlet Canal Forebay Structure Walls & Footings      | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 30       | Outlet Canal Siphon Pipes                            | LF   | 300       | \$ 2,500.00     | \$ 750,000.00   |                  |
| 31       | Outlet Canal Afterbay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 32       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 33       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 34       | Adohr Rd Forebay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 35       | Adohr Rd Siphon Pipes                                | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 36       | Adohr Rd Afterbay Structure Walls & Footings         | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 37       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 38       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 39       | East Side Canal Forebay Structure Walls & Footings   | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 40       | East Side Canal Siphon Pipes                         | LF   | 350       | \$ 2,500.00     | \$ 875,000.00   |                  |
| 41       | East Side Canal Afterbay Structure Walls & Footings  | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 42       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 43       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    | \$ 4,509,000.00  |
| 44       | Lift Station Excavation                              | CY   | 11000     | \$ 10.00        | \$ 110,000.00   |                  |
| 45       | Lift Station Reinforced Concrete Structure - Floor   | CY   | 320       | \$ 800.00       | \$ 256,000.00   |                  |
| 46       | Lift Station Reinforced Concrete Structure - Walls   | CY   | 520       | \$ 1,200.00     | \$ 624,000.00   |                  |
| 47       | Lift Station Reinforced Concrete Structure - Deck    | CY   | 120       | \$ 2,000.00     | \$ 240,000.00   |                  |
| 48       | Lift Station Pumps - 30 cfs                          | EA   | 2         | \$ 130,000.00   | \$ 260,000.00   |                  |
| 49       | Lift Station Pumps - 60 cfs                          | EA   | 2         | \$ 180,000.00   | \$ 360,000.00   |                  |
| 50       | Lift Station Pumps - 80 cfs                          | EA   | 4         | \$ 195,000.00   | \$ 780,000.00   |                  |
| 51       | Lift Station Motors - 100 hp                         | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 52       | Lift Station Motors - 200 hp                         | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 53       | Lift Station Motors - 300 hp                         | EA   | 4         | \$ 90,000.00    | \$ 360,000.00   |                  |
| 54       | Lift Station 36" Discharge Piping & Appurtenances    | LS   | 2         | \$ 300,000.00   | \$ 600,000.00   |                  |
| 55       | Lift Station 48" Discharge Piping & Appurtenances    | LS   | 2         | \$ 425,000.00   | \$ 850,000.00   |                  |
| 56       | Lift Station 54" Discharge Piping & Appurtenances    | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00 |                  |
| 57       | Lift Station 100 hp VFD's                            | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 58       | Lift Station 200 hp VFD's                            | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 59       | Lift Station 300 hp VFD's                            | EA   | 4         | \$ 80,000.00    | \$ 320,000.00   |                  |
| 60       | Lift Station Electrical, Controls, & Lighting        | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   |                  |
| 61       | Lift Station Electrical Control Building             | LS   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 62       | Lift Station Backfill & Compaction                   | CY   | 6000      | \$ 10.00        | \$ 60,000.00    |                  |
| 63       | Lift Station Slide Gates                             | EA   | 1         | \$ 55,000.00    | \$ 55,000.00    |                  |
| 64       | Lift Station Trashracks                              | LS   | 8         | \$ 25,000.00    | \$ 200,000.00   |                  |
| 65       | Lift Station Miscellaneous Steel                     | LS   | 1         | \$ 120,000.00   | \$ 120,000.00   |                  |
| 66       | Lift Station Cathodic Protection                     | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 67       | Lift Station Site Fencing                            | LF   | 850       | \$ 45.00        | \$ 38,250.00    |                  |
| 68       | Lift Station Bypass Pipeline                         | LF   | 200       | \$ 750.00       | \$ 150,000.00   |                  |
| 69       | Lift Station Ground Cover                            | LS   | 1         | \$ 45,000.00    | \$ 45,000.00    | \$ 8,753,250.00  |
| 70       | Lift Station Pipeline across Stockdale Hwy           | LF   | 1500      | \$ 2,500.00     | \$ 3,750,000.00 |                  |
| 71       | Stockdale Hwy Cased Crossing                         | LF   | 150       | \$ 6,000.00     | \$ 900,000.00   |                  |
| 72       | Stockdale Hwy Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 73       | Stockdale Hwy Afterbay Earthwork                     | CY   | 3800      | \$ 25.00        | \$ 95,000.00    |                  |
| 74       | Stockdale Hwy Afterbay Miscellaneous Steel           | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 75       | Road Crossing Forebay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 76       | Road Crossing Siphon Pipes                           | CY   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 77       | Road Crossing Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 78       | Siphon Crossing Earthwork                            | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 79       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 5,000.00     | \$ 5,000.00     | \$ 6,050,000.00  |
| 80       | Lift Station Excavation                              | CY   | 11000     | \$ 10.00        | \$ 110,000.00   |                  |
| 81       | Lift Station Reinforced Concrete Structure - Floor   | CY   | 320       | \$ 800.00       | \$ 256,000.00   |                  |
| 82       | Lift Station Reinforced Concrete Structure - Walls   | CY   | 520       | \$ 1,200.00     | \$ 624,000.00   |                  |
| 83       | Lift Station Reinforced Concrete Structure - Deck    | CY   | 120       | \$ 2,000.00     | \$ 240,000.00   |                  |
| 84       | Lift Station Pumps - 30 cfs                          | EA   | 2         | \$ 130,000.00   | \$ 260,000.00   |                  |
| 85       | Lift Station Pumps - 60 cfs                          | EA   | 2         | \$ 180,000.00   | \$ 360,000.00   |                  |
| 86       | Lift Station Pumps - 80 cfs                          | EA   | 4         | \$ 195,000.00   | \$ 780,000.00   |                  |
| 87       | Lift Station Motors - 100 hp                         | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 88       | Lift Station Motors - 200 hp                         | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 89       | Lift Station Motors - 300 hp                         | EA   | 4         | \$ 90,000.00    | \$ 360,000.00   |                  |
| 90       | Lift Station 36" Discharge Piping & Appurtenances    | LS   | 2         | \$ 300,000.00   | \$ 600,000.00   |                  |
| 91       | Lift Station 48" Discharge Piping & Appurtenances    | LS   | 2         | \$ 425,000.00   | \$ 850,000.00   |                  |
| 92       | Lift Station 54" Discharge Piping & Appurtenances    | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00 |                  |
| 93       | Lift Station 100 hp VFD's                            | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 94       | Lift Station 200 hp VFD's                            | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 95       | Lift Station 300 hp VFD's                            | EA   | 4         | \$ 80,000.00    | \$ 320,000.00   |                  |
| 96       | Lift Station Electrical, Controls, & Lighting        | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   |                  |
| 97       | Lift Station Electrical Control Building             | LS   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 98       | Lift Station Backfill & Compaction                   | CY   | 6000      | \$ 10.00        | \$ 60,000.00    |                  |
| 99       | Lift Station Slide Gates                             | EA   | 1         | \$ 55,000.00    | \$ 55,000.00    |                  |
| 100      | Lift Station Trashracks                              | LS   | 8         | \$ 25,000.00    | \$ 200,000.00   |                  |
| 101      | Lift Station Miscellaneous Steel                     | LS   | 1         | \$ 120,000.00   | \$ 120,000.00   |                  |
| 102      | Lift Station Cathodic Protection                     | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 103      | Lift Station Site Fencing                            | LF   | 850       | \$ 45.00        | \$ 38,250.00    |                  |
| 104      | Lift Station Bypass Pipeline                         | LF   | 200       | \$ 750.00       | \$ 150,000.00   |                  |
| 105      | Lift Station Ground Cover                            | LS   | 1         | \$ 45,000.00    | \$ 45,000.00    | \$ 8,753,250.00  |



|     |   |     |        |    |              |    |               |                  |
|-----|---|-----|--------|----|--------------|----|---------------|------------------|
| 106 | R/W Clearing & Grubbing   | AC  | 70     | \$ | 1,200.00     | \$ | 84,000.00     |                  |
| 107 | Conveyance Pipeline 9-ft Diameter   | LF  | 21,120 | \$ | 1,575.00     | \$ | 33,264,000.00 |                  |
| 108 | Pipeline Appurtenances  | LS  | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 109 | I-5 Cased Crossing  | LF  | 600    | \$ | 5,700.00     | \$ | 3,420,000.00  |                  |
| 110 | Turnout to Phase II 640 Acres   | LF  | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 111 | Turnout to West Basins  | LF  | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 112 | Turnout Fittings  | EA  | 2      | \$ | 350,000.00   | \$ | 700,000.00    |                  |
| 113 | Phase II 640 Acres Outlet Structure   | LS  | 1      | \$ | 950,000.00   | \$ | 950,000.00    |                  |
| 114 | West Basins Outlet Structure  | LS  | 1      | \$ | 950,000.00   | \$ | 950,000.00    | \$ 40,378,000.00 |
| 115 | Phase I 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00    |                  |
| 116 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction                               | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00  |                  |
| 117 | Phase I 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00    |                  |
| 118 | Phase I 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00  |                  |
| 119 | Phase I 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00    |                  |
| 120 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards                           | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00    |                  |
| 121 | Phase I 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00  |                  |
| 122 | Phase I 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00    |                  |
| 123 | Phase I 640 Acres Interbasin Structure Cutoff Walls                                     | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00    |                  |
| 124 | Phase I 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00    | \$ 5,429,400.00  |
| 125 | Goose Lake Slough Turnout Structure Excavation  | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00     |                  |
| 126 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                         | CY  | 90     | \$ | 800.00       | \$ | 72,000.00     |                  |
| 127 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                         | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00    |                  |
| 128 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                          | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00    |                  |
| 129 | Goose Lake Slough Turnout Backfill & Compaction   | LS  | 500    | \$ | 30.00        | \$ | 15,000.00     |                  |
| 130 | Goose Lake Slough Turnout Trashracks  | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00     |                  |
| 131 | Goose Lake Slough Turnout Miscellaneous Steel   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 132 | Goose Lake Slough Lift Station Pumps - 60 cfs   | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00    |                  |
| 133 | Goose Lake Slough Lift Station Motors - 200 hp  | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00    |                  |
| 134 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                         | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00    |                  |
| 135 | Goose Lake Slough Metering  | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00     |                  |
| 136 | Goose Lake Slough Turnout Slide Gate  | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00     |                  |
| 137 | Goose Lake Slough Turnout Electrical  | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00    |                  |
| 138 | Goose Lake Slough Electrical Shade Structure & Foundation                               | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 139 | Goose Lake Slough Pipe Outlet   | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00    |                  |
| 140 | Goose Lake Slough Turnout Outlet Structure  | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00    |                  |
| 141 | Goose Lake Slough Outlet Rip-Rap  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 142 | Goose Lake Slough Check Structure - Earthwork   | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00     |                  |
| 143 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                         | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00    |                  |
| 144 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                         | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00     |                  |
| 145 | Goose Lake Slough Check Structure - Miscellaneous Steel                                 | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 146 | Goose Lake Slough Check Structure - Rip-Rap   | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00     |                  |
| 147 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                          | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     | \$ 3,125,700.00  |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                            | EA  | 6      | \$ | 1,175,474.00 | \$ |               | \$ 7,052,844.00  |
| 148 | Mobilization, demobilization & misc. work   | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 149 | Transport and dispose of drill cuttings offsite   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 150 | Three 20,000-gallon temporary water storage tanks and discharge piping                  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 151 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                    | LF  | 50     | \$ | 620.00       | \$ | 31,000.00     |                  |
| 152 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs                | LF  | 920    | \$ | 110.00       | \$ | 101,200.00    |                  |
| 153 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs             | LF  | 430    | \$ | 110.00       | \$ | 47,300.00     |                  |
| 154 | Conduct downhole geophysical surveys and alignment/deviation survey                     | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00     |                  |
| 155 | Conduct isolated aquifer zone test  | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00     |                  |
| 156 | Conduct deep isolated aquifer zone test below 800 ft bgs                                | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00    |                  |
| 157 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                     | LF  | 280    | \$ | 110.00       | \$ | 30,800.00     |                  |
| 158 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                    | LF  | 660    | \$ | 110.00       | \$ | 72,600.00     |                  |
| 159 | Conduct alignment/deviation tests in enlarged borehole                                  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00      |                  |
| 160 | Conduct a caliper survey of enlarged borehole   | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00      |                  |
| 161 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing         | LF  | 424    | \$ | 220.00       | \$ | 93,280.00     |                  |
| 162 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"            | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
| 163 | Furnish and install 20-inch by 5/16-inch wall Full Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00    |                  |
| 164 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube      | LF  | 652    | \$ | 46.00        | \$ | 29,992.00     |                  |
| 165 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                 | LF  | 319    | \$ | 38.00        | \$ | 12,122.00     |                  |
| 166 | Furnish and install gravel pack in borehole annulus                                     | LF  | 670    | \$ | 225.00       | \$ | 150,750.00    |                  |
| 167 | Furnish and install 10.3-sack sand-cement grout upper annular seal                      | LF  | 300    | \$ | 170.00       | \$ | 51,000.00     |                  |
| 168 | Perform initial well development  | HRS | 108    | \$ | 275.00       | \$ | 29,700.00     |                  |
| 169 | Provide chlorine solution for chemical development of the well                          | GAL | 255    | \$ | 26.00        | \$ | 6,630.00      |                  |
| 170 | Provide polymer dispersant for chemical development of the well                         | GAL | 40     | \$ | 110.00       | \$ | 4,400.00      |                  |
| 171 | Mobilize, install, and demobilize test pumping equipment in newly completed wells       | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 172 | Conduct final development by pumping and surging  | HRS | 60     | \$ | 500.00       | \$ | 30,000.00     |                  |
| 173 | Conduct step-drawdown pumping test in newly completed wells                             | HRS | 8      | \$ | 500.00       | \$ | 4,000.00      |                  |
| 174 | Conduct constant-rate pumping test in newly completed wells                             | HRS | 28     | \$ | 500.00       | \$ | 14,000.00     |                  |
| 175 | Conduct a dynamic flow meter survey   | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 176 | Conduct a color video camera survey   | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00      |                  |
| 177 | Conduct well alignment/deviation test in newly completed wells                          | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
| 178 | Conduct final well disinfection in newly completed wells                                | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
|     | Phase I 640 Acre Well Equipping and Site Development                                    | EA  | 6      | \$ | 1,137,000.00 | \$ |               | \$ 6,822,000.00  |
| 179 | Mobilization, Demobilization, & Cleanup   | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00     |                  |
| 180 | Water Supply  | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00     |                  |
| 181 | Environmental Mitigation  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00     |                  |
| 182 | Construct site work   | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00     |                  |
| 183 | Furnish and install concrete foundations  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00     |                  |
| 184 | Furnish and install yard piping, mechanical piping and appurtenances                    | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00     |                  |
| 185 | Furnish and install vertical turbine well pumps, pump base, etc.                        | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00    |                  |
| 186 | Furnish and install well enclosures and appurtenances                                   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00     |                  |
| 187 | Furnish and install electrical facilities and instrumentation                           | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00    |                  |
| 188 | Furnish and install pre-fabricated metal canopy   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00     |                  |
| 189 | Furnish and install site ground cover   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 190 | Furnish and install site fencing  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00     |                  |
| 191 | Furnish and install site painting   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 192 | Furnish and install VFD's   | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00    |                  |
| 193 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                 | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00    |                  |
| 194 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                 | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00    |                  |
| 195 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                 | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00    |                  |
| 196 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                 | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00    | \$ 2,428,500.00  |
| 197 | RRB Intake Canal Interconnection Excavation   | CY  | 350    | \$ | 30.00        | \$ | 10,500.00     |                  |
| 198 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                  | CY  | 14     | \$ | 800.00       | \$ | 11,200.00     |                  |
| 199 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                  | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00     |                  |
| 200 | RRB Intake Canal Interconnection Backfill & Compaction                                  | CY  | 250    | \$ | 30.00        | \$ | 7,500.00      |                  |
| 201 | RRB Intake Canal Interconnection Miscellaneous Steel                                    | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 202 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                        | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 203 | RRB Intake Canal Interconnection Concrete Lining  | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00     |                  |
| 204 | RRB Intake Canal Interconnection Liner Repair   | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
| 205 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                             | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00     | \$ 165,800.00    |

|     |  |     |        |    |              |    |                       |                 |
|-----|--|-----|--------|----|--------------|----|-----------------------|-----------------|
| 206 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00            |                 |
| 207 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00          |                 |
| 208 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00            |                 |
| 209 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00          |                 |
| 210 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00            |                 |
| 211 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00            |                 |
| 212 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00          |                 |
| 213 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00            |                 |
| 214 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00            |                 |
| 215 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00            | \$ 5,429,400.00 |
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6      | \$ | 1,175,474.00 |    |                       | \$ 7,052,844.00 |
| 216 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 217 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 218 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 219 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00             |                 |
| 220 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00            |                 |
| 221 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00             |                 |
| 222 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 223 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 224 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 225 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00             |                 |
| 226 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00             |                 |
| 227 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 228 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 229 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00             |                 |
| 230 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 231 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00            |                 |
| 232 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00             |                 |
| 233 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00             |                 |
| 234 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00            |                 |
| 235 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00             |                 |
| 236 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00             |                 |
| 237 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00              |                 |
| 238 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00              |                 |
| 239 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 240 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00             |                 |
| 241 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00              |                 |
| 242 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00             |                 |
| 243 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 244 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 245 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 246 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6      | \$ | 1,137,000.00 |    |                       | \$ 6,822,000.00 |
| 247 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 248 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 249 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 250 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 251 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 252 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 253 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 254 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 255 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 256 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 257 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 258 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 259 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 260 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 261 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00            |                 |
| 262 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00            |                 |
| 263 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900   | \$ | 175.00       | \$ | 507,500.00            |                 |
| 264 | Phase II 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline          | EA  | 2      | \$ | 100,000.00   | \$ | 200,000.00            | \$ 1,616,500.00 |
| 265 | SCADA Communication & Appurtenances  | LS  | 1      | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |        |    |              | \$ | 138,393,888.00        |                 |
|     | 20% Construction Contingency:  |     |        |    |              | \$ | 27,678,777.60         |                 |
|     | Unlisted Items:  |     |        |    |              | \$ | 2,767,877.76          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640    | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640    | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235    | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165    | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 60     | \$ | 25,000.00    | \$ | 1,500,000.00          |                 |
|     | Habitat Credit Purchase  | AC  | 200    | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |        |    |              | \$ | 206,915,543.36        |                 |
|     | Non-Contract Costs:  |     |        |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |        |    |              | \$ | <b>233,275,543.36</b> |                 |

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## BV Canal Alignment - HDPE Lined Canal Reaches 1, 2, and 3 and Pipeline Reach 4 (Item #10)

| Item No. | Item Description                                     | Unit | Quantity  | Unit Cost       | Extended Cost   | Section Subtotal |
|----------|--|------|-----------|-----------------|-----------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup              | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00 | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                      | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 3        | Aqueduct Turnout Excavation                          | CY   | 2450      | \$ 30.00        | \$ 73,500.00    |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor       | CY   | 45        | \$ 800.00       | \$ 36,000.00    |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls       | CY   | 100       | \$ 1,200.00     | \$ 120,000.00   |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam   | CY   | 5         | \$ 2,000.00     | \$ 10,000.00    |                  |
| 7        | Aqueduct Backfill and Compaction                     | CY   | 1850      | \$ 30.00        | \$ 55,500.00    |                  |
| 8        | Aqueduct Miscellaneous Steel                         | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 9        | Aqueduct Trashrack                                   | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 10       | Aqueduct Turnout Piping                              | LF   | 2000      | \$ 4,000.00     | \$ 8,000,000.00 |                  |
| 11       | Aqueduct Metering                                    | EA   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 12       | Aqueduct Meter Vault                                 | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 13       | Aqueduct Slide Gate & Actuator                       | EA   | 1         | \$ 75,000.00    | \$ 75,000.00    |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting            | LS   | 1         | \$ 150,000.00   | \$ 150,000.00   |                  |
| 15       | Aqueduct Liner Repair                                | LS   | 1         | \$ 20,000.00    | \$ 20,000.00    |                  |
| 16       | Levee Road Pavement Restoration                      | SF   | 1600      | \$ 7.00         | \$ 11,200.00    | \$ 9,351,200.00  |
| 17       | Canal Clearing & Grubbing                            | AC   | 130       | \$ 1,200.00     | \$ 156,000.00   |                  |
| 18       | Canal Earthwork-Cut                                  | CY   | 420,000   | \$ 4.50         | \$ 1,890,000.00 |                  |
| 19       | Canal Earthwork-Fill                                 | CY   | 210,000   | \$ 4.50         | \$ 945,000.00   |                  |
| 20       | Levee Subgrade Preparation                           | CY   | 176,000   | \$ 4.60         | \$ 809,600.00   |                  |
| 21       | HDPE Canal Lining                                    | SF   | 2,098,800 | \$ 1.00         | \$ 2,098,800.00 |                  |
| 22       | HDPE Anchor Trench                                   | LF   | 64,450    | \$ 10.00        | \$ 644,500.00   |                  |
| 23       | Canal Appurtenances                                  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 24       | Canal Fencing  | LF   | 80,000    | \$ 7.50         | \$ 600,000.00   |                  |
| 25       | Levee Road Aggregate Base Ground Cover               | LS   | 1         | \$ 650,000.00   | \$ 650,000.00   |                  |
| 26       | Ex. Facility Relocations                             | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   | \$ 8,543,900.00  |
| 27       | Aqueduct Turnout Afterbay Structure Walls & Footings | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 28       | Turnout Afterbay Earthwork                           | CY   | 3800      | \$ 30.00        | \$ 114,000.00   |                  |
| 29       | Turnout Afterbay Miscellaneous Steel                 | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 30       | Outlet Canal Forebay Structure Walls & Footings      | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 31       | Outlet Canal Siphon Pipes                            | LF   | 300       | \$ 2,500.00     | \$ 750,000.00   |                  |
| 32       | Outlet Canal Afterbay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 33       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 34       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 35       | Adohr Rd Forebay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 36       | Adohr Rd Siphon Pipes                                | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 37       | Adohr Rd Afterbay Structure Walls & Footings         | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 38       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 39       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 40       | East Side Canal Forebay Structure Walls & Footings   | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 41       | East Side Canal Siphon Pipes                         | LF   | 350       | \$ 2,500.00     | \$ 875,000.00   |                  |
| 42       | East Side Canal Afterbay Structure Walls & Footings  | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 43       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 44       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    | \$ 4,509,000.00  |
| 44       | Lift Station Excavation                              | CY   | 11000     | \$ 10.00        | \$ 110,000.00   |                  |
| 45       | Lift Station Reinforced Concrete Structure - Floor   | CY   | 320       | \$ 800.00       | \$ 256,000.00   |                  |
| 46       | Lift Station Reinforced Concrete Structure - Walls   | CY   | 520       | \$ 1,200.00     | \$ 624,000.00   |                  |
| 47       | Lift Station Reinforced Concrete Structure - Deck    | CY   | 120       | \$ 2,000.00     | \$ 240,000.00   |                  |
| 48       | Lift Station Pumps - 30 cfs                          | EA   | 2         | \$ 130,000.00   | \$ 260,000.00   |                  |
| 49       | Lift Station Pumps - 60 cfs                          | EA   | 2         | \$ 180,000.00   | \$ 360,000.00   |                  |
| 50       | Lift Station Pumps - 80 cfs                          | EA   | 4         | \$ 195,000.00   | \$ 780,000.00   |                  |
| 51       | Lift Station Motors - 100 hp                         | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 52       | Lift Station Motors - 200 hp                         | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 53       | Lift Station Motors - 300 hp                         | EA   | 4         | \$ 90,000.00    | \$ 360,000.00   |                  |
| 54       | Lift Station 36" Discharge Piping & Appurtenances    | LS   | 2         | \$ 300,000.00   | \$ 600,000.00   |                  |
| 55       | Lift Station 48" Discharge Piping & Appurtenances    | LS   | 2         | \$ 425,000.00   | \$ 850,000.00   |                  |
| 56       | Lift Station 54" Discharge Piping & Appurtenances    | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00 |                  |
| 57       | Lift Station 100 hp VFD's                            | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 58       | Lift Station 200 hp VFD's                            | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 59       | Lift Station 300 hp VFD's                            | EA   | 4         | \$ 80,000.00    | \$ 320,000.00   |                  |
| 60       | Lift Station Electrical, Controls, & Lighting        | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   |                  |
| 61       | Lift Station Electrical Control Building             | LS   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 62       | Lift Station Backfill & Compaction                   | CY   | 6000      | \$ 10.00        | \$ 60,000.00    |                  |
| 63       | Lift Station Slide Gates                             | EA   | 1         | \$ 55,000.00    | \$ 55,000.00    |                  |
| 64       | Lift Station Trashracks                              | LS   | 8         | \$ 25,000.00    | \$ 200,000.00   |                  |
| 65       | Lift Station Miscellaneous Steel                     | LS   | 1         | \$ 120,000.00   | \$ 120,000.00   |                  |
| 66       | Lift Station Cathodic Protection                     | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 67       | Lift Station Site Fencing                            | LF   | 850       | \$ 45.00        | \$ 38,250.00    |                  |
| 68       | Lift Station Bypass Pipeline                         | LF   | 200       | \$ 750.00       | \$ 150,000.00   |                  |
| 69       | Lift Station Ground Cover                            | LS   | 1         | \$ 45,000.00    | \$ 45,000.00    | \$ 8,753,250.00  |
| 70       | Lift Station Pipeline across Stockdale Hwy           | LF   | 1500      | \$ 2,500.00     | \$ 3,750,000.00 |                  |
| 71       | Stockdale Hwy Cased Crossing                         | LF   | 150       | \$ 6,000.00     | \$ 900,000.00   |                  |
| 72       | Stockdale Hwy Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 73       | Stockdale Hwy Afterbay Earthwork                     | CY   | 3800      | \$ 25.00        | \$ 95,000.00    |                  |
| 74       | Stockdale Hwy Afterbay Miscellaneous Steel           | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 75       | Road Crossing Forebay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 76       | Road Crossing Siphon Pipes                           | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 77       | Road Crossing Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 78       | Siphon Crossing Earthwork                            | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 79       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 5,000.00     | \$ 5,000.00     | \$ 6,050,000.00  |
| 80       | Lift Station Excavation                              | CY   | 11000     | \$ 10.00        | \$ 110,000.00   |                  |
| 81       | Lift Station Reinforced Concrete Structure - Floor   | CY   | 320       | \$ 800.00       | \$ 256,000.00   |                  |
| 82       | Lift Station Reinforced Concrete Structure - Walls   | CY   | 520       | \$ 1,200.00     | \$ 624,000.00   |                  |
| 83       | Lift Station Reinforced Concrete Structure - Deck    | CY   | 120       | \$ 2,000.00     | \$ 240,000.00   |                  |
| 84       | Lift Station Pumps - 30 cfs                          | EA   | 2         | \$ 130,000.00   | \$ 260,000.00   |                  |
| 85       | Lift Station Pumps - 60 cfs                          | EA   | 2         | \$ 180,000.00   | \$ 360,000.00   |                  |
| 86       | Lift Station Pumps - 80 cfs                          | EA   | 4         | \$ 195,000.00   | \$ 780,000.00   |                  |
| 87       | Lift Station Motors - 100 hp                         | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 88       | Lift Station Motors - 200 hp                         | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 89       | Lift Station Motors - 300 hp                         | EA   | 4         | \$ 90,000.00    | \$ 360,000.00   |                  |
| 90       | Lift Station 36" Discharge Piping & Appurtenances    | LS   | 2         | \$ 300,000.00   | \$ 600,000.00   |                  |
| 91       | Lift Station 48" Discharge Piping & Appurtenances    | LS   | 2         | \$ 425,000.00   | \$ 850,000.00   |                  |
| 92       | Lift Station 54" Discharge Piping & Appurtenances    | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00 |                  |
| 93       | Lift Station 100 hp VFD's                            | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 94       | Lift Station 200 hp VFD's                            | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 95       | Lift Station 300 hp VFD's                            | EA   | 4         | \$ 80,000.00    | \$ 320,000.00   |                  |
| 96       | Lift Station Electrical, Controls, & Lighting        | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   |                  |
| 97       | Lift Station Electrical Control Building             | LS   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 98       | Lift Station Backfill & Compaction                   | CY   | 6000      | \$ 10.00        | \$ 60,000.00    |                  |
| 99       | Lift Station Slide Gates                             | EA   | 1         | \$ 55,000.00    | \$ 55,000.00    |                  |
| 100      | Lift Station Trashracks                              | LS   | 8         | \$ 25,000.00    | \$ 200,000.00   |                  |
| 101      | Lift Station Miscellaneous Steel                     | LS   | 1         | \$ 120,000.00   | \$ 120,000.00   |                  |
| 102      | Lift Station Cathodic Protection                     | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 103      | Lift Station Site Fencing                            | LF   | 850       | \$ 45.00        | \$ 38,250.00    |                  |
| 104      | Lift Station Bypass Pipeline                         | LF   | 200       | \$ 750.00       | \$ 150,000.00   |                  |
| 105      | Lift Station Ground Cover                            | LS   | 1         | \$ 45,000.00    | \$ 45,000.00    | \$ 8,753,250.00  |

|     |  |     |        |    |              |    |               |                  |
|-----|--|-----|--------|----|--------------|----|---------------|------------------|
| 106 | Lift Station Pipeline across I-5 Freeway   | LF  | 400    | \$ | 6,000.00     | \$ | 2,400,000.00  |                  |
| 107 | I-5 Fwy Afterbay Structure Walls & Footings  | CY  | 200    | \$ | 1,200.00     | \$ | 240,000.00    |                  |
| 108 | I-5 Fwy Afterbay Earthwork   | CY  | 3800   | \$ | 25.00        | \$ | 95,000.00     |                  |
| 109 | I-5 Fwy Afterbay Miscellaneous Steel   | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 110 | Road Crossing Forebay Structure Walls & Footings                                       | CY  | 200    | \$ | 1,200.00     | \$ | 240,000.00    |                  |
| 111 | Road Crossing Siphon Pipes   | LF  | 150    | \$ | 2,500.00     | \$ | 375,000.00    |                  |
| 112 | Road Crossing Afterbay Structure Walls & Footings                                      | CY  | 200    | \$ | 1,200.00     | \$ | 240,000.00    |                  |
| 113 | Siphon Crossing Earthwork  | LS  | 7200   | \$ | 25.00        | \$ | 180,000.00    |                  |
| 114 | Siphon Crossing Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 115 | Road Crossing Forebay Structure Walls & Footings                                       | CY  | 200    | \$ | 1,200.00     | \$ | 240,000.00    |                  |
| 116 | Road Crossing Siphon Pipes   | LF  | 150    | \$ | 2,500.00     | \$ | 375,000.00    |                  |
| 117 | Road Crossing Afterbay Structure Walls & Footings                                      | CY  | 200    | \$ | 1,200.00     | \$ | 240,000.00    |                  |
| 118 | Siphon Crossing Earthwork  | LS  | 7200   | \$ | 25.00        | \$ | 180,000.00    |                  |
| 119 | Siphon Crossing Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     | \$ 4,930,000.00  |
| 120 | Lift Station Excavation  | CY  | 11000  | \$ | 10.00        | \$ | 110,000.00    |                  |
| 121 | Lift Station Reinforced Concrete Structure - Floor                                     | CY  | 320    | \$ | 800.00       | \$ | 256,000.00    |                  |
| 122 | Lift Station Reinforced Concrete Structure - Walls                                     | CY  | 520    | \$ | 1,200.00     | \$ | 624,000.00    |                  |
| 123 | Lift Station Reinforced Concrete Structure - Deck                                      | CY  | 120    | \$ | 2,000.00     | \$ | 240,000.00    |                  |
| 124 | Lift Station Pumps - 30 cfs  | EA  | 2      | \$ | 130,000.00   | \$ | 260,000.00    |                  |
| 125 | Lift Station Pumps - 60 cfs  | EA  | 2      | \$ | 180,000.00   | \$ | 360,000.00    |                  |
| 126 | Lift Station Pumps - 80 cfs  | EA  | 4      | \$ | 195,000.00   | \$ | 780,000.00    |                  |
| 127 | Lift Station Motors - 100 hp   | EA  | 2      | \$ | 40,000.00    | \$ | 80,000.00     |                  |
| 128 | Lift Station Motors - 200 hp   | EA  | 2      | \$ | 60,000.00    | \$ | 120,000.00    |                  |
| 129 | Lift Station Motors - 300 hp   | EA  | 4      | \$ | 90,000.00    | \$ | 360,000.00    |                  |
| 130 | Lift Station 36" Discharge Piping & Appurtenances                                      | LS  | 2      | \$ | 300,000.00   | \$ | 600,000.00    |                  |
| 131 | Lift Station 48" Discharge Piping & Appurtenances                                      | LS  | 2      | \$ | 425,000.00   | \$ | 850,000.00    |                  |
| 132 | Lift Station 54" Discharge Piping & Appurtenances                                      | LS  | 4      | \$ | 550,000.00   | \$ | 2,200,000.00  |                  |
| 133 | Lift Station 100 hp VFD's  | EA  | 2      | \$ | 40,000.00    | \$ | 80,000.00     |                  |
| 134 | Lift Station 200 hp VFD's  | EA  | 2      | \$ | 60,000.00    | \$ | 120,000.00    |                  |
| 135 | Lift Station 300 hp VFD's  | EA  | 4      | \$ | 80,000.00    | \$ | 320,000.00    |                  |
| 136 | Lift Station Electrical, Controls, & Lighting  | LS  | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 137 | Lift Station Electrical Control Building   | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00    |                  |
| 138 | Lift Station Backfill & Compaction   | CY  | 6000   | \$ | 10.00        | \$ | 60,000.00     |                  |
| 139 | Lift Station Slide Gates   | EA  | 1      | \$ | 55,000.00    | \$ | 55,000.00     |                  |
| 140 | Lift Station Trashracks  | LS  | 8      | \$ | 25,000.00    | \$ | 200,000.00    |                  |
| 141 | Lift Station Miscellaneous Steel   | LS  | 1      | \$ | 120,000.00   | \$ | 120,000.00    |                  |
| 142 | Lift Station Cathodic Protection   | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 143 | Lift Station Site Fencing  | LF  | 850    | \$ | 45.00        | \$ | 38,250.00     |                  |
| 144 | Lift Station Bypass Pipeline   | LF  | 200    | \$ | 750.00       | \$ | 150,000.00    |                  |
| 145 | Lift Station Ground Cover  | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00     | \$ 8,753,250.00  |
| 146 | R/W Clearing & Grubbing  | AC  | 30     | \$ | 1,200.00     | \$ | 36,000.00     |                  |
| 147 | Conveyance Pipeline 8-ft Diameter  | LF  | 7,920  | \$ | 1,275.00     | \$ | 10,098,000.00 |                  |
| 148 | Pipeline Appurtenances   | LS  | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 149 | Turnout to Phase II 640 Acres  | LF  | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 150 | Turnout to West Basins   | LF  | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 151 | Turnout Fittings   | EA  | 2      | \$ | 350,000.00   | \$ | 700,000.00    |                  |
| 152 | Phase II 640 Acres Outlet Structure  | LS  | 1      | \$ | 950,000.00   | \$ | 950,000.00    |                  |
| 153 | West Basins Outlet Structure   | LS  | 1      | \$ | 950,000.00   | \$ | 950,000.00    | \$ 13,744,000.00 |
| 154 | Phase I 640 Acres Clearing & Grubbing  | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00    |                  |
| 155 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction                              | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00  |                  |
| 156 | Phase I 640 Acres Levee Keyway   | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00    |                  |
| 157 | Phase I 640 Acres Levee Embankment Fill  | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00  |                  |
| 158 | Phase I 640 Acres Structure Headwalls  | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00    |                  |
| 159 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards                          | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00    |                  |
| 160 | Phase I 640 Acres Interbasin Structure Piping  | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00  |                  |
| 161 | Phase I 640 Acres Interbasin Structure Rip-Rap   | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00    |                  |
| 162 | Phase I 640 Acres Interbasin Structure Cutoff Walls                                    | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00    |                  |
| 163 | Phase I 640 Acres Site Fencing and Gates   | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00    | \$ 5,429,400.00  |
| 164 | Goose Lake Slough Turnout Structure Excavation   | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00     |                  |
| 165 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                        | CY  | 90     | \$ | 800.00       | \$ | 72,000.00     |                  |
| 166 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                        | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00    |                  |
| 167 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                         | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00    |                  |
| 168 | Goose Lake Slough Turnout Backfill & Compaction  | LS  | 500    | \$ | 30.00        | \$ | 15,000.00     |                  |
| 169 | Goose Lake Slough Turnout Trashracks   | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00     |                  |
| 170 | Goose Lake Slough Turnout Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 171 | Goose Lake Slough Lift Station Pumps - 60 cfs  | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00    |                  |
| 172 | Goose Lake Slough Lift Station Motors - 200 hp   | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00    |                  |
| 173 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                        | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00    |                  |
| 174 | Goose Lake Slough Metering   | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00     |                  |
| 175 | Goose Lake Slough Turnout Slide Gate   | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00     |                  |
| 176 | Goose Lake Slough Turnout Electrical   | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00    |                  |
| 177 | Goose Lake Slough Electrical Shade Structure & Foundation                              | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 178 | Goose Lake Slough Pipe Outlet  | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00    |                  |
| 179 | Goose Lake Slough Turnout Outlet Structure   | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00    |                  |
| 180 | Goose Lake Slough Outlet Rip-Rap   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 181 | Goose Lake Slough Check Structure - Earthwork  | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00     |                  |
| 182 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                        | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00    |                  |
| 183 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                        | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00     |                  |
| 184 | Goose Lake Slough Check Structure - Miscellaneous Steel                                | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 185 | Goose Lake Slough Check Structure - Rip-Rap  | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00     |                  |
| 186 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                         | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     | \$ 3,125,700.00  |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 | \$ | 7,052,844.00  |                  |
| 187 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 188 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 189 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 190 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00     |                  |
| 191 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00    |                  |
| 192 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00     |                  |
| 193 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00     |                  |
| 194 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00     |                  |
| 195 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00    |                  |
| 196 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00     |                  |
| 197 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00     |                  |
| 198 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00      |                  |
| 199 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00      |                  |
| 200 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00     |                  |
| 201 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
| 202 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00    |                  |
| 203 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00     |                  |
| 204 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00     |                  |
| 205 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00    |                  |
| 206 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00     |                  |
| 207 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00     |                  |
| 208 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00      |                  |
| 209 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00      |                  |
| 210 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 211 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00     |                  |
| 212 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00      |                  |
| 213 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00     |                  |
| 214 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00     |                  |
| 215 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00      |                  |
| 216 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |
| 217 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00      |                  |

|     |  |     |        |    |              |    |                       |                 |
|-----|--|-----|--------|----|--------------|----|-----------------------|-----------------|
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 218 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 219 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 220 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 221 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 222 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 223 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 224 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 225 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 226 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 227 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 228 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 229 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 230 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 231 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 232 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00            |                 |
| 233 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00            |                 |
| 234 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00            |                 |
| 235 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00            | \$ 2,428,500.00 |
| 236 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00             |                 |
| 237 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00             |                 |
| 238 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00             |                 |
| 239 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00              |                 |
| 240 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 241 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00             |                 |
| 242 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 243 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 244 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00             | \$ 165,800.00   |
| 245 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00            |                 |
| 246 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00          |                 |
| 247 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00            |                 |
| 248 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00          |                 |
| 249 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00            |                 |
| 250 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00            |                 |
| 251 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00          |                 |
| 252 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00            |                 |
| 253 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00            |                 |
| 254 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00            | \$ 5,429,400.00 |
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6      | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00    |
| 255 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 256 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 257 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 258 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00             |                 |
| 259 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00            |                 |
| 260 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00             |                 |
| 261 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 262 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 263 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 264 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00             |                 |
| 265 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00             |                 |
| 266 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 267 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 268 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00             |                 |
| 269 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 270 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00            |                 |
| 271 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00             |                 |
| 272 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00             |                 |
| 273 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00            |                 |
| 274 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00             |                 |
| 275 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00             |                 |
| 276 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00              |                 |
| 277 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00              |                 |
| 278 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 279 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00             |                 |
| 280 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00              |                 |
| 281 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00             |                 |
| 282 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 283 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 284 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 285 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6      | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 286 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 287 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 288 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 289 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 290 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 291 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 292 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 293 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 294 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 295 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 296 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 297 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 298 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 299 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 300 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00            |                 |
| 301 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00            |                 |
| 302 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900   | \$ | 175.00       | \$ | 507,500.00            |                 |
| 303 | Phase II 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline          | EA  | 2      | \$ | 100,000.00   | \$ | 200,000.00            | \$ 1,616,500.00 |
| 304 | SCADA Communication & Appurtenances  | LS  | 1      | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |        |    |              | \$ | 121,452,838.00        |                 |
|     | 20% Construction Contingency:  |     |        |    |              | \$ | 24,290,567.60         |                 |
|     | Unlisted Items:  |     |        |    |              | \$ | 2,429,056.76          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640    | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640    | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235    | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165    | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 60     | \$ | 25,000.00    | \$ | 1,500,000.00          |                 |
|     | Habitat Credit Purchase  | AC  | 200    | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |        |    |              | \$ | 186,247,462.36        |                 |
|     | Non-Contract Costs:  |     |        |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |        |    |              | \$ | <b>212,607,462.36</b> |                 |



## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## BV Canal Alignment - Concrete Lined Canal Reaches 1, 2, and 3 and Pipeline Reach 4 (Item #11)

| Item No. | Item Description                                     | Unit | Quantity  | Unit Cost       | Extended Cost    | Section Subtotal |
|----------|--|------|-----------|-----------------|------------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup              | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00  | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                      | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 3        | Aqueduct Turnout Excavation                          | CY   | 2450      | \$ 30.00        | \$ 73,500.00     |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor       | CY   | 45        | \$ 800.00       | \$ 36,000.00     |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls       | CY   | 100       | \$ 1,200.00     | \$ 120,000.00    |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam   | CY   | 5         | \$ 2,000.00     | \$ 10,000.00     |                  |
| 7        | Aqueduct Backfill and Compaction                     | CY   | 1850      | \$ 30.00        | \$ 55,500.00     |                  |
| 8        | Aqueduct Miscellaneous Steel                         | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 9        | Aqueduct Trashrack                                   | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 10       | Aqueduct Turnout Piping                              | LF   | 2000      | \$ 4,000.00     | \$ 8,000,000.00  |                  |
| 11       | Aqueduct Metering                                    | EA   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 12       | Aqueduct Meter Vault                                 | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 13       | Aqueduct Slide Gate & Actuator                       | EA   | 1         | \$ 75,000.00    | \$ 75,000.00     |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting            | LS   | 1         | \$ 150,000.00   | \$ 150,000.00    |                  |
| 15       | Aqueduct Liner Repair                                | LS   | 1         | \$ 20,000.00    | \$ 20,000.00     |                  |
| 16       | Levee Road Pavement Restoration                      | SF   | 1600      | \$ 7.00         | \$ 11,200.00     | \$ 9,351,200.00  |
| 17       | Canal Clearing & Grubbing                            | AC   | 130       | \$ 1,200.00     | \$ 156,000.00    |                  |
| 18       | Canal Earthwork-Cut                                  | CY   | 420,000   | \$ 4.50         | \$ 1,890,000.00  |                  |
| 19       | Canal Earthwork-Fill                                 | CY   | 210,000   | \$ 4.50         | \$ 945,000.00    |                  |
| 20       | Levee Subgrade Preparation                           | CY   | 176,000   | \$ 4.60         | \$ 809,600.00    |                  |
| 21       | Concrete Canal Lining                                | SF   | 2,098,800 | \$ 6.00         | \$ 12,592,800.00 |                  |
| 22       | Canal Appurtenances                                  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 23       | Canal Fencing  | LF   | 80,000    | \$ 7.50         | \$ 600,000.00    |                  |
| 24       | Levee Road Aggregate Base Ground Cover               | LS   | 1         | \$ 650,000.00   | \$ 650,000.00    |                  |
| 25       | Ex. Facility Relocations                             | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    | \$ 18,393,400.00 |
| 26       | Aqueduct Turnout Afterbay Structure Walls & Footings | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 27       | Turnout Afterbay Earthwork                           | CY   | 3800      | \$ 30.00        | \$ 114,000.00    |                  |
| 28       | Turnout Afterbay Miscellaneous Steel                 | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 29       | Outlet Canal Forebay Structure Walls & Footings      | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 30       | Outlet Canal Siphon Pipes                            | LF   | 300       | \$ 2,500.00     | \$ 750,000.00    |                  |
| 31       | Outlet Canal Afterbay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 32       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 33       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 34       | Adohr Rd Forebay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 35       | Adohr Rd Siphon Pipes                                | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 36       | Adohr Rd Afterbay Structure Walls & Footings         | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 37       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 38       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 39       | East Side Canal Forebay Structure Walls & Footings   | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 40       | East Side Canal Siphon Pipes                         | LF   | 350       | \$ 2,500.00     | \$ 875,000.00    |                  |
| 41       | East Side Canal Afterbay Structure Walls & Footings  | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 42       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 43       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     | \$ 4,509,000.00  |
| 44       | Lift Station Excavation                              | CY   | 11000     | \$ 10.00        | \$ 110,000.00    |                  |
| 45       | Lift Station Reinforced Concrete Structure - Floor   | CY   | 320       | \$ 800.00       | \$ 256,000.00    |                  |
| 46       | Lift Station Reinforced Concrete Structure - Walls   | CY   | 520       | \$ 1,200.00     | \$ 624,000.00    |                  |
| 47       | Lift Station Reinforced Concrete Structure - Deck    | CY   | 120       | \$ 2,000.00     | \$ 240,000.00    |                  |
| 48       | Lift Station Pumps - 30 cfs                          | EA   | 2         | \$ 130,000.00   | \$ 260,000.00    |                  |
| 49       | Lift Station Pumps - 60 cfs                          | EA   | 2         | \$ 180,000.00   | \$ 360,000.00    |                  |
| 50       | Lift Station Pumps - 80 cfs                          | EA   | 4         | \$ 195,000.00   | \$ 780,000.00    |                  |
| 51       | Lift Station Motors - 100 hp                         | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 52       | Lift Station Motors - 200 hp                         | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 53       | Lift Station Motors - 300 hp                         | EA   | 4         | \$ 90,000.00    | \$ 360,000.00    |                  |
| 54       | Lift Station 36" Discharge Piping & Appurtenances    | LS   | 2         | \$ 300,000.00   | \$ 600,000.00    |                  |
| 55       | Lift Station 48" Discharge Piping & Appurtenances    | LS   | 2         | \$ 425,000.00   | \$ 850,000.00    |                  |
| 56       | Lift Station 54" Discharge Piping & Appurtenances    | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00  |                  |
| 57       | Lift Station 100 hp VFD's                            | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 58       | Lift Station 200 hp VFD's                            | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 59       | Lift Station 300 hp VFD's                            | EA   | 4         | \$ 80,000.00    | \$ 320,000.00    |                  |
| 60       | Lift Station Electrical, Controls, & Lighting        | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    |                  |
| 61       | Lift Station Electrical Control Building             | LS   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 62       | Lift Station Backfill & Compaction                   | CY   | 6000      | \$ 10.00        | \$ 60,000.00     |                  |
| 63       | Lift Station Slide Gates                             | EA   | 1         | \$ 55,000.00    | \$ 55,000.00     |                  |
| 64       | Lift Station Trashracks                              | LS   | 8         | \$ 25,000.00    | \$ 200,000.00    |                  |
| 65       | Lift Station Miscellaneous Steel                     | LS   | 1         | \$ 120,000.00   | \$ 120,000.00    |                  |
| 66       | Lift Station Cathodic Protection                     | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 67       | Lift Station Site Fencing                            | LF   | 850       | \$ 45.00        | \$ 38,250.00     |                  |
| 68       | Lift Station Bypass Pipeline                         | LF   | 200       | \$ 750.00       | \$ 150,000.00    |                  |
| 69       | Lift Station Ground Cover                            | LS   | 1         | \$ 45,000.00    | \$ 45,000.00     | \$ 8,753,250.00  |
| 70       | Lift Station Pipeline across Stockdale Hwy           | LF   | 1500      | \$ 2,500.00     | \$ 3,750,000.00  |                  |
| 71       | Stockdale Hwy Cased Crossing                         | LF   | 150       | \$ 6,000.00     | \$ 900,000.00    |                  |
| 72       | Stockdale Hwy Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 73       | Stockdale Hwy Afterbay Earthwork                     | CY   | 3800      | \$ 25.00        | \$ 95,000.00     |                  |
| 74       | Stockdale Hwy Afterbay Miscellaneous Steel           | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 75       | Road Crossing Forebay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 76       | Road Crossing Siphon Pipes                           | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 77       | Road Crossing Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 78       | Siphon Crossing Earthwork                            | LS   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 79       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 5,000.00     | \$ 5,000.00      | \$ 6,050,000.00  |

|     |   |    |        |    |              |    |               |                  |
|-----|---|----|--------|----|--------------|----|---------------|------------------|
| 80  | Lift Station Excavation   | CY | 11000  | \$ | 10.00        | \$ | 110,000.00    |                  |
| 81  | Lift Station Reinforced Concrete Structure - Floor              | CY | 320    | \$ | 800.00       | \$ | 256,000.00    |                  |
| 82  | Lift Station Reinforced Concrete Structure - Walls              | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00    |                  |
| 83  | Lift Station Reinforced Concrete Structure - Deck               | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00    |                  |
| 84  | Lift Station Pumps - 30 cfs                                     | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00    |                  |
| 85  | Lift Station Pumps - 60 cfs                                     | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00    |                  |
| 86  | Lift Station Pumps - 80 cfs                                     | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00    |                  |
| 87  | Lift Station Motors - 100 hp                                    | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00     |                  |
| 88  | Lift Station Motors - 200 hp                                    | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00    |                  |
| 89  | Lift Station Motors - 300 hp                                    | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00    |                  |
| 90  | Lift Station 36" Discharge Piping & Appurtenances               | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00    |                  |
| 91  | Lift Station 48" Discharge Piping & Appurtenances               | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00    |                  |
| 92  | Lift Station 54" Discharge Piping & Appurtenances               | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00  |                  |
| 93  | Lift Station 100 hp VFD's                                       | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00     |                  |
| 94  | Lift Station 200 hp VFD's                                       | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00    |                  |
| 95  | Lift Station 300 hp VFD's                                       | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00    |                  |
| 96  | Lift Station Electrical, Controls, & Lighting                   | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 97  | Lift Station Electrical Control Building                        | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00    |                  |
| 98  | Lift Station Backfill & Compaction                              | CY | 6000   | \$ | 10.00        | \$ | 60,000.00     |                  |
| 99  | Lift Station Slide Gates  | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00     |                  |
| 100 | Lift Station Trashracks   | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00    |                  |
| 101 | Lift Station Miscellaneous Steel                                | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00    |                  |
| 102 | Lift Station Cathodic Protection                                | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 103 | Lift Station Site Fencing                                       | LF | 850    | \$ | 45.00        | \$ | 38,250.00     |                  |
| 104 | Lift Station Bypass Pipeline                                    | LF | 200    | \$ | 750.00       | \$ | 150,000.00    |                  |
| 105 | Lift Station Ground Cover                                       | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00     | \$ 8,753,250.00  |
| 106 | Lift Station Pipeline across I-5 Freeway                        | LF | 400    | \$ | 6,000.00     | \$ | 2,400,000.00  |                  |
| 107 | I-5 Fwy Afterbay Structure Walls & Footings                     | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00    |                  |
| 108 | I-5 Fwy Afterbay Earthwork                                      | CY | 3800   | \$ | 25.00        | \$ | 95,000.00     |                  |
| 109 | I-5 Fwy Afterbay Miscellaneous Steel                            | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 110 | Road Crossing Forebay Structure Walls & Footings                | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00    |                  |
| 111 | Road Crossing Siphon Pipes                                      | LF | 150    | \$ | 2,500.00     | \$ | 375,000.00    |                  |
| 112 | Road Crossing Afterbay Structure Walls & Footings               | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00    |                  |
| 113 | Siphon Crossing Earthwork                                       | LS | 7200   | \$ | 25.00        | \$ | 180,000.00    |                  |
| 114 | Siphon Crossing Miscellaneous Steel                             | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 115 | Road Crossing Forebay Structure Walls & Footings                | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00    |                  |
| 116 | Road Crossing Siphon Pipes                                      | LF | 150    | \$ | 2,500.00     | \$ | 375,000.00    |                  |
| 117 | Road Crossing Afterbay Structure Walls & Footings               | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00    |                  |
| 118 | Siphon Crossing Earthwork                                       | LS | 7200   | \$ | 25.00        | \$ | 180,000.00    |                  |
| 119 | Siphon Crossing Miscellaneous Steel                             | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00     | \$ 4,930,000.00  |
| 120 | Lift Station Excavation   | CY | 11000  | \$ | 10.00        | \$ | 110,000.00    |                  |
| 121 | Lift Station Reinforced Concrete Structure - Floor              | CY | 320    | \$ | 800.00       | \$ | 256,000.00    |                  |
| 122 | Lift Station Reinforced Concrete Structure - Walls              | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00    |                  |
| 123 | Lift Station Reinforced Concrete Structure - Deck               | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00    |                  |
| 124 | Lift Station Pumps - 30 cfs                                     | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00    |                  |
| 125 | Lift Station Pumps - 60 cfs                                     | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00    |                  |
| 126 | Lift Station Pumps - 80 cfs                                     | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00    |                  |
| 127 | Lift Station Motors - 100 hp                                    | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00     |                  |
| 128 | Lift Station Motors - 200 hp                                    | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00    |                  |
| 129 | Lift Station Motors - 300 hp                                    | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00    |                  |
| 130 | Lift Station 36" Discharge Piping & Appurtenances               | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00    |                  |
| 131 | Lift Station 48" Discharge Piping & Appurtenances               | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00    |                  |
| 132 | Lift Station 54" Discharge Piping & Appurtenances               | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00  |                  |
| 133 | Lift Station 100 hp VFD's                                       | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00     |                  |
| 134 | Lift Station 200 hp VFD's                                       | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00    |                  |
| 135 | Lift Station 300 hp VFD's                                       | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00    |                  |
| 136 | Lift Station Electrical, Controls, & Lighting                   | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 137 | Lift Station Electrical Control Building                        | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00    |                  |
| 138 | Lift Station Backfill & Compaction                              | CY | 6000   | \$ | 10.00        | \$ | 60,000.00     |                  |
| 139 | Lift Station Slide Gates  | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00     |                  |
| 140 | Lift Station Trashracks   | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00    |                  |
| 141 | Lift Station Miscellaneous Steel                                | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00    |                  |
| 142 | Lift Station Cathodic Protection                                | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00     |                  |
| 143 | Lift Station Site Fencing                                       | LF | 850    | \$ | 45.00        | \$ | 38,250.00     |                  |
| 144 | Lift Station Bypass Pipeline                                    | LF | 200    | \$ | 750.00       | \$ | 150,000.00    |                  |
| 145 | Lift Station Ground Cover                                       | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00     | \$ 8,753,250.00  |
| 146 | R/W Clearing & Grubbing   | AC | 30     | \$ | 1,200.00     | \$ | 36,000.00     |                  |
| 147 | Conveyance Pipeline 8-ft Diameter                               | LF | 7,920  | \$ | 1,275.00     | \$ | 10,098,000.00 |                  |
| 148 | Pipeline Appurtenances  | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00    |                  |
| 149 | Turnout to Phase II 640 Acres                                   | LF | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 150 | Turnout to West Basins  | LF | 200    | \$ | 1,275.00     | \$ | 255,000.00    |                  |
| 151 | Turnout Fittings  | EA | 2      | \$ | 350,000.00   | \$ | 700,000.00    |                  |
| 152 | Phase II 640 Acres Outlet Structure                             | LS | 1      | \$ | 950,000.00   | \$ | 950,000.00    |                  |
| 153 | West Basins Outlet Structure                                    | LS | 1      | \$ | 950,000.00   | \$ | 950,000.00    | \$ 13,744,000.00 |
| 154 | Phase I 640 Acres Clearing & Grubbing                           | AC | 320    | \$ | 1,200.00     | \$ | 384,000.00    |                  |
| 155 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction       | CY | 235000 | \$ | 4.60         | \$ | 1,081,000.00  |                  |
| 156 | Phase I 640 Acres Levee Keyway                                  | CY | 50000  | \$ | 4.70         | \$ | 235,000.00    |                  |
| 157 | Phase I 640 Acres Levee Embankment Fill                         | CY | 255000 | \$ | 4.20         | \$ | 1,071,000.00  |                  |
| 158 | Phase I 640 Acres Structure Headwalls                           | EA | 15     | \$ | 30,000.00    | \$ | 450,000.00    |                  |
| 159 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards   | EA | 15     | \$ | 10,000.00    | \$ | 150,000.00    |                  |
| 160 | Phase I 640 Acres Interbasin Structure Piping                   | LS | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00  |                  |
| 161 | Phase I 640 Acres Interbasin Structure Rip-Rap                  | EA | 15     | \$ | 35,000.00    | \$ | 525,000.00    |                  |
| 162 | Phase I 640 Acres Interbasin Structure Cutoff Walls             | EA | 15     | \$ | 25,000.00    | \$ | 375,000.00    |                  |
| 163 | Phase I 640 Acres Site Fencing and Gates                        | LF | 21120  | \$ | 7.50         | \$ | 158,400.00    | \$ 5,429,400.00  |
| 164 | Goose Lake Slough Turnout Structure Excavation                  | CY | 1100   | \$ | 30.00        | \$ | 33,000.00     |                  |
| 165 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor | CY | 90     | \$ | 800.00       | \$ | 72,000.00     |                  |
| 166 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls | CY | 90     | \$ | 1,200.00     | \$ | 108,000.00    |                  |
| 167 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck  | CY | 50     | \$ | 2,000.00     | \$ | 100,000.00    |                  |
| 168 | Goose Lake Slough Turnout Backfill & Compaction                 | LS | 500    | \$ | 30.00        | \$ | 15,000.00     |                  |
| 169 | Goose Lake Slough Turnout Trashracks                            | LS | 1      | \$ | 80,000.00    | \$ | 80,000.00     |                  |
| 170 | Goose Lake Slough Turnout Miscellaneous Steel                   | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 171 | Goose Lake Slough Lift Station Pumps - 60 cfs                   | EA | 4      | \$ | 180,000.00   | \$ | 720,000.00    |                  |
| 172 | Goose Lake Slough Lift Station Motors - 200 hp                  | EA | 4      | \$ | 60,000.00    | \$ | 240,000.00    |                  |
| 173 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances | LS | 1      | \$ | 240,000.00   | \$ | 240,000.00    |                  |
| 174 | Goose Lake Slough Metering                                      | EA | 1      | \$ | 90,000.00    | \$ | 90,000.00     |                  |
| 175 | Goose Lake Slough Turnout Slide Gate                            | EA | 1      | \$ | 37,500.00    | \$ | 37,500.00     |                  |
| 176 | Goose Lake Slough Turnout Electrical                            | LS | 1      | \$ | 350,000.00   | \$ | 350,000.00    |                  |
| 177 | Goose Lake Slough Electrical Shade Structure & Foundation       | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 178 | Goose Lake Slough Pipe Outlet                                   | LF | 200    | \$ | 1,750.00     | \$ | 350,000.00    |                  |
| 179 | Goose Lake Slough Turnout Outlet Structure                      | LS | 1      | \$ | 180,000.00   | \$ | 180,000.00    |                  |
| 180 | Goose Lake Slough Outlet Rip-Rap                                | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 181 | Goose Lake Slough Check Structure - Earthwork                   | CY | 1      | \$ | 35,000.00    | \$ | 35,000.00     |                  |
| 182 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor | CY | 75     | \$ | 2,000.00     | \$ | 150,000.00    |                  |
| 183 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls | CY | 21     | \$ | 1,200.00     | \$ | 25,200.00     |                  |
| 184 | Goose Lake Slough Check Structure - Miscellaneous Steel         | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00     |                  |
| 185 | Goose Lake Slough Check Structure - Rip-Rap                     | LS | 1      | \$ | 75,000.00    | \$ | 75,000.00     |                  |
| 186 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards  | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00     | \$ 3,125,700.00  |

|     |  |     |        |    |              |    |    |              |
|-----|--|-----|--------|----|--------------|----|----|--------------|
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    | \$ | 7,052,844.00 |
| 187 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ |    | 25,000.00    |
| 188 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 189 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 190 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ |    | 31,000.00    |
| 191 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ |    | 101,200.00   |
| 192 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ |    | 47,300.00    |
| 193 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ |    | 15,000.00    |
| 194 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ |    | 75,000.00    |
| 195 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ |    | 105,000.00   |
| 196 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ |    | 30,800.00    |
| 197 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ |    | 72,600.00    |
| 198 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ |    | 5,500.00     |
| 199 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ |    | 5,500.00     |
| 200 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ |    | 93,280.00    |
| 201 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 202 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ |    | 163,200.00   |
| 203 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ |    | 29,992.00    |
| 204 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ |    | 12,122.00    |
| 205 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ |    | 150,750.00   |
| 206 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ |    | 51,000.00    |
| 207 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ |    | 29,700.00    |
| 208 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ |    | 6,630.00     |
| 209 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ |    | 4,400.00     |
| 210 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ |    | 25,000.00    |
| 211 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ |    | 30,000.00    |
| 212 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ |    | 4,000.00     |
| 213 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ |    | 14,000.00    |
| 214 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 215 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ |    | 2,500.00     |
| 216 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 217 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    | \$ | 6,822,000.00 |
| 218 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ |    | 60,000.00    |
| 219 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ |    | 15,000.00    |
| 220 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ |    | 20,000.00    |
| 221 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ |    | 17,000.00    |
| 222 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ |    | 70,000.00    |
| 223 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ |    | 45,000.00    |
| 224 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ |    | 255,000.00   |
| 225 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ |    | 20,000.00    |
| 226 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ |    | 325,000.00   |
| 227 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ |    | 70,000.00    |
| 228 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 229 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ |    | 20,000.00    |
| 230 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 231 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ |    | 200,000.00   |
| 232 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ |    | 621,000.00   |
| 233 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ |    | 288,000.00   |
| 234 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ |    | 969,500.00   |
| 235 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ |    | 550,000.00   |
|     |  |     |        |    |              |    | \$ | 2,428,500.00 |
| 236 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ |    | 10,500.00    |
| 237 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ |    | 11,200.00    |
| 238 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ |    | 21,600.00    |
| 239 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ |    | 7,500.00     |
| 240 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 241 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ |    | 50,000.00    |
| 242 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ |    | 15,000.00    |
| 243 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 244 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ |    | 35,000.00    |
|     |  |     |        |    |              |    | \$ | 165,800.00   |
| 245 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ |    | 384,000.00   |
| 246 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ |    | 1,081,000.00 |
| 247 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ |    | 235,000.00   |
| 248 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ |    | 1,071,000.00 |
| 249 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ |    | 450,000.00   |
| 250 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ |    | 150,000.00   |
| 251 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ |    | 1,000,000.00 |
| 252 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ |    | 525,000.00   |
| 253 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ |    | 375,000.00   |
| 254 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ |    | 158,400.00   |
|     |  |     |        |    |              |    | \$ | 5,429,400.00 |
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6      | \$ | 1,175,474.00 |    | \$ | 7,052,844.00 |
| 255 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ |    | 25,000.00    |
| 256 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 257 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 258 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ |    | 31,000.00    |
| 259 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ |    | 101,200.00   |
| 260 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ |    | 47,300.00    |
| 261 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ |    | 15,000.00    |
| 262 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ |    | 75,000.00    |
| 263 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ |    | 105,000.00   |
| 264 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ |    | 30,800.00    |
| 265 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ |    | 72,600.00    |
| 266 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ |    | 5,500.00     |
| 267 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ |    | 5,500.00     |
| 268 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ |    | 93,280.00    |
| 269 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 270 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ |    | 163,200.00   |
| 271 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ |    | 29,992.00    |
| 272 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ |    | 12,122.00    |
| 273 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ |    | 150,750.00   |
| 274 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ |    | 51,000.00    |
| 275 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ |    | 29,700.00    |
| 276 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ |    | 6,630.00     |
| 277 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ |    | 4,400.00     |
| 278 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ |    | 25,000.00    |
| 279 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ |    | 30,000.00    |
| 280 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ |    | 4,000.00     |
| 281 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ |    | 14,000.00    |
| 282 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ |    | 10,000.00    |
| 283 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ |    | 2,500.00     |
| 284 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |
| 285 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ |    | 5,000.00     |

|     |   |    |      |    |              |    |                       |                 |
|-----|---|----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Equipping and Site Development                        | EA | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 286 | Mobilization, Demobilization, & Cleanup                                       | LS | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 287 | Water Supply  | LS | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 288 | Environmental Mitigation  | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 289 | Construct site work   | LS | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 290 | Furnish and install concrete foundations                                      | LS | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 291 | Furnish and install yard piping, mechanical piping and appurtenances          | LS | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 292 | Furnish and install vertical turbine well pumps, pump base, etc.              | LS | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 293 | Furnish and install well enclosures and appurtenances                         | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 294 | Furnish and install electrical facilities and instrumentation                 | LS | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 295 | Furnish and install pre-fabricated metal canopy                               | LS | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 296 | Furnish and install site ground cover   | LS | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 297 | Furnish and install site fencing  | LS | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 298 | Furnish and install site painting   | LS | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 299 | Furnish and install VFD's   | LS | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 300 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                      | LF | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 301 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                      | LF | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 302 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                      | LF | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 303 | Phase II 640 Acres Well Recovery Pipeline - Connection to Conveyance Pipeline | EA | 2    | \$ | 100,000.00   | \$ | 200,000.00            | \$ 1,616,500.00 |
| 304 | SCADA Communication & Appurtenances   | LS | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:  |    |      |    |              | \$ | 131,302,338.00        |                 |
|     | 20% Construction Contingency:   |    |      |    |              | \$ | 26,260,467.60         |                 |
|     | Unlisted Items:   |    |      |    |              | \$ | 2,626,046.76          |                 |
|     | Property Acquisition - 640 acres  | AC | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres  | AC | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement  | AC | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement  | AC | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take   | AC | 60   | \$ | 25,000.00    | \$ | 1,500,000.00          |                 |
|     | Habitat Credit Purchase   | AC | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:   |    |      |    |              | \$ | 198,263,852.36        |                 |
|     | Non-Contract Costs:   |    |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>   |    |      |    |              | \$ | <b>224,623,852.36</b> |                 |

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## East Side Canal Alignment - HDPE Lined after Stockdale Hwy (Item #1)

| Item No. | Item Description                                     | Unit | Quantity  | Unit Cost       | Extended Cost   | Section Subtotal |
|----------|--|------|-----------|-----------------|-----------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup              | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00 | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                      | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 3        | Aqueduct Turnout Excavation                          | CY   | 2450      | \$ 30.00        | \$ 73,500.00    |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor       | CY   | 45        | \$ 800.00       | \$ 36,000.00    |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls       | CY   | 100       | \$ 1,200.00     | \$ 120,000.00   |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam   | CY   | 5         | \$ 2,000.00     | \$ 10,000.00    |                  |
| 7        | Aqueduct Backfill and Compaction                     | CY   | 1850      | \$ 30.00        | \$ 55,500.00    |                  |
| 8        | Aqueduct Miscellaneous Steel                         | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 9        | Aqueduct Trashrack                                   | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 10       | Aqueduct Turnout Piping                              | LF   | 2000      | \$ 4,000.00     | \$ 8,000,000.00 |                  |
| 11       | Aqueduct Metering                                    | EA   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 12       | Aqueduct Meter Vault                                 | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 13       | Aqueduct Slide Gate & Actuator                       | EA   | 1         | \$ 75,000.00    | \$ 75,000.00    |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting            | LS   | 1         | \$ 150,000.00   | \$ 150,000.00   |                  |
| 15       | Aqueduct Liner Repair                                | LS   | 1         | \$ 20,000.00    | \$ 20,000.00    |                  |
| 16       | Levee Road Pavement Restoration                      | SF   | 1600      | \$ 7.00         | \$ 11,200.00    | \$ 9,351,200.00  |
| 17       | Canal Clearing & Grubbing                            | AC   | 155       | \$ 1,200.00     | \$ 186,000.00   |                  |
| 18       | Canal Earthwork-Cut                                  | CY   | 540,000   | \$ 4.50         | \$ 2,430,000.00 |                  |
| 19       | Canal Earthwork-Fill                                 | CY   | 395,000   | \$ 4.50         | \$ 1,777,500.00 |                  |
| 20       | Levee Subgrade Preparation                           | CY   | 211,200   | \$ 4.60         | \$ 971,520.00   |                  |
| 21       | HDPE Canal Lining                                    | SF   | 1,679,040 | \$ 1.00         | \$ 1,679,040.00 |                  |
| 22       | HDPE Anchor Trench                                   | LF   | 63,500    | \$ 10.00        | \$ 635,000.00   |                  |
| 23       | Canal Appurtenances                                  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00   |                  |
| 24       | Canal Fencing  | LF   | 110,000   | \$ 7.50         | \$ 825,000.00   |                  |
| 25       | Levee Road Aggregate Base Ground Cover               | LS   | 1         | \$ 775,000.00   | \$ 775,000.00   |                  |
| 26       | Ex. Facility Relocations                             | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   | \$ 10,029,060.00 |
| 27       | Aqueduct Turnout Afterbay Structure Walls & Footings | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 28       | Turnout Afterbay Earthwork                           | CY   | 3800      | \$ 30.00        | \$ 114,000.00   |                  |
| 29       | Turnout Afterbay Miscellaneous Steel                 | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 30       | Outlet Canal Forebay Structure Walls & Footings      | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 31       | Outlet Canal Siphon Pipes                            | LF   | 300       | \$ 2,500.00     | \$ 750,000.00   |                  |
| 32       | Outlet Canal Afterbay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 33       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 34       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 35       | Adohr Rd Forebay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 36       | Adohr Rd Siphon Pipes                                | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 37       | Adohr Rd Afterbay Structure Walls & Footings         | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 38       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 39       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    |                  |
| 40       | East Side Canal Forebay Structure Walls & Footings   | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 41       | East Side Canal Siphon Pipes                         | LF   | 350       | \$ 2,500.00     | \$ 875,000.00   |                  |
| 42       | East Side Canal Afterbay Structure Walls & Footings  | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 43       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 44       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00    | \$ 4,509,000.00  |
| 45       | Lift Station Excavation                              | CY   | 11000     | \$ 10.00        | \$ 110,000.00   |                  |
| 46       | Lift Station Reinforced Concrete Structure - Floor   | CY   | 320       | \$ 800.00       | \$ 256,000.00   |                  |
| 47       | Lift Station Reinforced Concrete Structure - Walls   | CY   | 520       | \$ 1,200.00     | \$ 624,000.00   |                  |
| 48       | Lift Station Reinforced Concrete Structure - Deck    | CY   | 120       | \$ 2,000.00     | \$ 240,000.00   |                  |
| 49       | Lift Station Pumps - 30 cfs                          | EA   | 2         | \$ 130,000.00   | \$ 260,000.00   |                  |
| 50       | Lift Station Pumps - 60 cfs                          | EA   | 2         | \$ 180,000.00   | \$ 360,000.00   |                  |
| 51       | Lift Station Pumps - 80 cfs                          | EA   | 4         | \$ 195,000.00   | \$ 780,000.00   |                  |
| 52       | Lift Station Motors - 100 hp                         | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 53       | Lift Station Motors - 200 hp                         | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 54       | Lift Station Motors - 300 hp                         | EA   | 4         | \$ 90,000.00    | \$ 360,000.00   |                  |
| 55       | Lift Station 36" Discharge Piping & Appurtenances    | LS   | 2         | \$ 300,000.00   | \$ 600,000.00   |                  |
| 56       | Lift Station 48" Discharge Piping & Appurtenances    | LS   | 2         | \$ 425,000.00   | \$ 850,000.00   |                  |
| 57       | Lift Station 54" Discharge Piping & Appurtenances    | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00 |                  |
| 58       | Lift Station 100 hp VFD's                            | EA   | 2         | \$ 40,000.00    | \$ 80,000.00    |                  |
| 59       | Lift Station 200 hp VFD's                            | EA   | 2         | \$ 60,000.00    | \$ 120,000.00   |                  |
| 60       | Lift Station 300 hp VFD's                            | EA   | 4         | \$ 80,000.00    | \$ 320,000.00   |                  |
| 61       | Lift Station Electrical, Controls, & Lighting        | LS   | 1         | \$ 500,000.00   | \$ 500,000.00   |                  |
| 62       | Lift Station Electrical Control Building             | LS   | 1         | \$ 200,000.00   | \$ 200,000.00   |                  |
| 63       | Lift Station Backfill & Compaction                   | CY   | 6000      | \$ 10.00        | \$ 60,000.00    |                  |
| 64       | Lift Station Slide Gates                             | EA   | 1         | \$ 55,000.00    | \$ 55,000.00    |                  |
| 65       | Lift Station Trashracks                              | LS   | 8         | \$ 25,000.00    | \$ 200,000.00   |                  |
| 66       | Lift Station Miscellaneous Steel                     | LS   | 1         | \$ 120,000.00   | \$ 120,000.00   |                  |
| 67       | Lift Station Cathodic Protection                     | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 68       | Lift Station Site Fencing                            | LF   | 850       | \$ 45.00        | \$ 38,250.00    |                  |
| 69       | Lift Station Bypass Pipeline                         | LF   | 200       | \$ 750.00       | \$ 150,000.00   |                  |
| 70       | Lift Station Ground Cover                            | LS   | 1         | \$ 45,000.00    | \$ 45,000.00    | \$ 8,753,250.00  |
| 71       | Lift Station Pipeline across Stockdale Hwy           | LF   | 1500      | \$ 2,500.00     | \$ 3,750,000.00 |                  |
| 72       | Stockdale Hwy Cased Crossing                         | LF   | 150       | \$ 6,000.00     | \$ 900,000.00   |                  |
| 73       | Stockdale Hwy Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 74       | Stockdale Hwy Afterbay Earthwork                     | CY   | 3800      | \$ 25.00        | \$ 95,000.00    |                  |
| 75       | Stockdale Hwy Afterbay Miscellaneous Steel           | LS   | 1         | \$ 25,000.00    | \$ 25,000.00    |                  |
| 76       | Road Crossing Forebay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 77       | Road Crossing Siphon Pipes                           | LF   | 150       | \$ 2,500.00     | \$ 375,000.00   |                  |
| 78       | Road Crossing Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00   |                  |
| 79       | Siphon Crossing Earthwork                            | LS   | 7200      | \$ 25.00        | \$ 180,000.00   |                  |
| 80       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 5,000.00     | \$ 5,000.00     | \$ 6,050,000.00  |

|     |  |    |        |    |              |    |              |                 |
|-----|--|----|--------|----|--------------|----|--------------|-----------------|
| 81  | Lift Station Excavation  | CY | 11000  | \$ | 10.00        | \$ | 110,000.00   |                 |
| 82  | Lift Station Reinforced Concrete Structure - Floor               | CY | 320    | \$ | 800.00       | \$ | 256,000.00   |                 |
| 83  | Lift Station Reinforced Concrete Structure - Walls               | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00   |                 |
| 84  | Lift Station Reinforced Concrete Structure - Deck                | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00   |                 |
| 85  | Lift Station Pumps - 30 cfs                                      | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00   |                 |
| 86  | Lift Station Pumps - 60 cfs                                      | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00   |                 |
| 87  | Lift Station Pumps - 80 cfs                                      | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00   |                 |
| 88  | Lift Station Motors - 100 hp                                     | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 89  | Lift Station Motors - 200 hp                                     | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 90  | Lift Station Motors - 300 hp                                     | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00   |                 |
| 91  | Lift Station 36" Discharge Piping & Appurtenances                | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00   |                 |
| 92  | Lift Station 48" Discharge Piping & Appurtenances                | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00   |                 |
| 93  | Lift Station 54" Discharge Piping & Appurtenances                | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00 |                 |
| 94  | Lift Station 100 hp VFD's  | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 95  | Lift Station 200 hp VFD's  | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 96  | Lift Station 300 hp VFD's  | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00   |                 |
| 97  | Lift Station Electrical, Controls, & Lighting                    | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00   |                 |
| 98  | Lift Station Electrical Control Building                         | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 99  | Lift Station Backfill & Compaction                               | CY | 6000   | \$ | 10.00        | \$ | 60,000.00    |                 |
| 100 | Lift Station Slide Gates   | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00    |                 |
| 101 | Lift Station Trashracks  | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00   |                 |
| 102 | Lift Station Miscellaneous Steel                                 | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 103 | Lift Station Cathodic Protection                                 | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 104 | Lift Station Site Fencing  | LF | 850    | \$ | 45.00        | \$ | 38,250.00    |                 |
| 105 | Lift Station Bypass Pipeline                                     | LF | 200    | \$ | 750.00       | \$ | 150,000.00   |                 |
| 106 | Lift Station Ground Cover  | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00    | \$ 8,753,250.00 |
| 107 | Lift Station Pipeline across I-5 Freeway                         | LF | 400    | \$ | 6,000.00     | \$ | 2,400,000.00 |                 |
| 108 | I-5 Fwy Afterbay Structure Walls & Footings                      | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 109 | I-5 Fwy Afterbay Earthwork                                       | CY | 3800   | \$ | 25.00        | \$ | 95,000.00    |                 |
| 110 | I-5 Fwy Afterbay Miscellaneous Steel                             | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 111 | Road Crossing Forebay Structure Walls & Footings                 | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 112 | Road Crossing Siphon Pipes                                       | LF | 150    | \$ | 2,500.00     | \$ | 375,000.00   |                 |
| 113 | Road Crossing Afterbay Structure Walls & Footings                | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 114 | Siphon Crossing Earthwork  | LS | 7200   | \$ | 25.00        | \$ | 180,000.00   |                 |
| 115 | Siphon Crossing Miscellaneous Steel                              | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 116 | Road Crossing Forebay Structure Walls & Footings                 | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 117 | Road Crossing Siphon Pipes                                       | LF | 150    | \$ | 2,500.00     | \$ | 375,000.00   |                 |
| 118 | Road Crossing Afterbay Structure Walls & Footings                | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 119 | Siphon Crossing Earthwork  | LS | 7200   | \$ | 25.00        | \$ | 180,000.00   |                 |
| 120 | Siphon Crossing Miscellaneous Steel                              | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 4,930,000.00 |
| 121 | Lift Station Excavation  | CY | 11000  | \$ | 10.00        | \$ | 110,000.00   |                 |
| 122 | Lift Station Reinforced Concrete Structure - Floor               | CY | 320    | \$ | 800.00       | \$ | 256,000.00   |                 |
| 123 | Lift Station Reinforced Concrete Structure - Walls               | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00   |                 |
| 124 | Lift Station Reinforced Concrete Structure - Deck                | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00   |                 |
| 125 | Lift Station Pumps - 30 cfs                                      | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00   |                 |
| 126 | Lift Station Pumps - 60 cfs                                      | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00   |                 |
| 127 | Lift Station Pumps - 80 cfs                                      | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00   |                 |
| 128 | Lift Station Motors - 100 hp                                     | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 129 | Lift Station Motors - 200 hp                                     | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 130 | Lift Station Motors - 300 hp                                     | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00   |                 |
| 131 | Lift Station 36" Discharge Piping & Appurtenances                | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00   |                 |
| 132 | Lift Station 48" Discharge Piping & Appurtenances                | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00   |                 |
| 133 | Lift Station 54" Discharge Piping & Appurtenances                | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00 |                 |
| 134 | Lift Station 100 hp VFD's  | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 135 | Lift Station 200 hp VFD's  | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 136 | Lift Station 300 hp VFD's  | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00   |                 |
| 137 | Lift Station Electrical, Controls, & Lighting                    | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00   |                 |
| 138 | Lift Station Electrical Control Building                         | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 139 | Lift Station Backfill & Compaction                               | CY | 6000   | \$ | 10.00        | \$ | 60,000.00    |                 |
| 140 | Lift Station Slide Gates   | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00    |                 |
| 141 | Lift Station Trashracks  | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00   |                 |
| 142 | Lift Station Miscellaneous Steel                                 | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 143 | Lift Station Cathodic Protection                                 | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 144 | Lift Station Site Fencing  | LF | 850    | \$ | 45.00        | \$ | 38,250.00    |                 |
| 145 | Lift Station Bypass Pipeline                                     | LF | 200    | \$ | 750.00       | \$ | 150,000.00   |                 |
| 146 | Lift Station Ground Cover  | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00    | \$ 8,753,250.00 |
| 147 | Afterbay Structure Walls & Footings                              | CY | 280    | \$ | 1,200.00     | \$ | 336,000.00   |                 |
| 148 | Afterbay Earthwork   | CY | 3800   | \$ | 25.00        | \$ | 95,000.00    |                 |
| 149 | Afterbay Miscellaneous Steel                                     | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 456,000.00   |
| 150 | West Basins Turnout Structure Excavation                         | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 151 | West Basins Turnout Reinforced Concrete Structure - Floor        | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 152 | West Basins Turnout Reinforced Concrete Structure - Walls        | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 153 | West Basins Turnout Reinforced Concrete Structure - Deck         | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 154 | West Basins Structure Backfill & Compaction                      | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 155 | West Basins Turnout Trashrack                                    | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 156 | West Basins Turnout Miscellaneous Steel                          | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 157 | West Basins Metering   | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 158 | West Basins Piping   | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 159 | West Basins Turnout Slide Gate                                   | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 160 | West Basins Turnout Electrical                                   | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 161 | West Basins Outlet Structure - Floor                             | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 162 | West Basins Outlet Structure - Walls                             | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 163 | West Basins Outlet Structure Rip-Rap                             | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 164 | Phase II 640 Acres Turnout Structure Excavation                  | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 165 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Floor | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 166 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Walls | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 167 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Deck  | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 168 | Phase II 640 Acres Structure Backfill & Compaction               | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 169 | Phase II 640 Acres Turnout Trashrack                             | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 170 | Phase II 640 Acres Turnout Miscellaneous Steel                   | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 171 | Phase II 640 Acres Metering                                      | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 172 | Phase II 640 Acres Piping  | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 173 | Phase II 640 Acres Turnout Slide Gate                            | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 174 | Phase II 640 Acres Turnout Electrical                            | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 175 | Phase II 640 Acres Outlet Structure - Floor                      | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 176 | Phase II 640 Acres Outlet Structure - Walls                      | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 177 | Phase II 640 Acres Outlet Structure Rip-Rap                      | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 178 | Phase I 640 Acres Clearing & Grubbing                            | AC | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 179 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction        | CY | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 180 | Phase I 640 Acres Levee Keyway                                   | CY | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 181 | Phase I 640 Acres Levee Embankment Fill                          | CY | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 182 | Phase I 640 Acres Structure Headwalls                            | EA | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 183 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards    | EA | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 184 | Phase I 640 Acres Interbasin Structure Piping                    | LS | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 185 | Phase I 640 Acres Interbasin Structure Rip-Rap                   | EA | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 186 | Phase I 640 Acres Interbasin Structure Cutoff Walls              | EA | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 187 | Phase I 640 Acres Site Fencing and Gates                         | LF | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |



|     |  |     |        |    |              |    |              |                 |
|-----|--|-----|--------|----|--------------|----|--------------|-----------------|
| 188 | Goose Lake Slough Turnout Structure Excavation   | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00    |                 |
| 189 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                        | CY  | 90     | \$ | 800.00       | \$ | 72,000.00    |                 |
| 190 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                        | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00   |                 |
| 191 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                         | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00   |                 |
| 192 | Goose Lake Slough Turnout Backfill & Compaction  | LS  | 500    | \$ | 30.00        | \$ | 15,000.00    |                 |
| 193 | Goose Lake Slough Turnout Trashracks   | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00    |                 |
| 194 | Goose Lake Slough Turnout Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 195 | Goose Lake Slough Lift Station Pumps - 60 cfs  | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00   |                 |
| 196 | Goose Lake Slough Lift Station Motors - 200 hp   | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00   |                 |
| 197 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                        | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00   |                 |
| 198 | Goose Lake Slough Metering   | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00    |                 |
| 199 | Goose Lake Slough Turnout Slide Gate   | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00    |                 |
| 200 | Goose Lake Slough Turnout Electrical   | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00   |                 |
| 201 | Goose Lake Slough Electrical Shade Structure & Foundation                              | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 202 | Goose Lake Slough Pipe Outlet  | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00   |                 |
| 203 | Goose Lake Slough Turnout Outlet Structure   | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00   |                 |
| 204 | Goose Lake Slough Outlet Rip-Rap   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 205 | Goose Lake Slough Check Structure - Earthwork  | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00    |                 |
| 206 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                        | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00   |                 |
| 207 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                        | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00    |                 |
| 208 | Goose Lake Slough Check Structure - Miscellaneous Steel                                | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 209 | Goose Lake Slough Check Structure - Rip-Rap  | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00    |                 |
| 210 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                         | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 3,125,700.00 |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    |              | \$ 7,052,844.00 |
| 211 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 212 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 213 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 214 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |                 |
| 215 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |                 |
| 216 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |                 |
| 217 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 218 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |                 |
| 219 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |                 |
| 220 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |                 |
| 221 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |                 |
| 222 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 223 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 224 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |                 |
| 225 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 226 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |                 |
| 227 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |                 |
| 228 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |                 |
| 229 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |                 |
| 230 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |                 |
| 231 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |                 |
| 232 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |                 |
| 233 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |                 |
| 234 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 235 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |                 |
| 236 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |                 |
| 237 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |                 |
| 238 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 239 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |                 |
| 240 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 241 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    |              | \$ 6,822,000.00 |
| 242 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |                 |
| 243 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 244 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 245 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |                 |
| 246 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 247 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |                 |
| 248 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |                 |
| 249 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 250 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |                 |
| 251 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 252 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 253 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 254 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 255 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 256 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |                 |
| 257 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |                 |
| 258 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |                 |
| 259 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$ 2,428,500.00 |
| 260 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |                 |
| 261 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |                 |
| 262 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |                 |
| 263 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |                 |
| 264 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 265 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 266 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 267 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 268 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$ 165,800.00   |
| 269 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 270 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 271 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 272 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 273 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 274 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 275 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 276 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 277 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 278 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |

|     |  |     |      |    |              |    |                       |                 |
|-----|--|-----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6    | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00    |
| 279 | Mobilization, demobilization & misc. work  | LS  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 280 | Transport and dispose of drill cuttings offsite  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 281 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 282 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50   | \$ | 620.00       | \$ | 31,000.00             |                 |
| 283 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920  | \$ | 110.00       | \$ | 101,200.00            |                 |
| 284 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430  | \$ | 110.00       | \$ | 47,300.00             |                 |
| 285 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 286 | Conduct isolated aquifer zone test   | EA  | 3    | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 287 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3    | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 288 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280  | \$ | 110.00       | \$ | 30,800.00             |                 |
| 289 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660  | \$ | 110.00       | \$ | 72,600.00             |                 |
| 290 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 291 | Conduct a caliper survey of enlarged borehole  | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 292 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424  | \$ | 220.00       | \$ | 93,280.00             |                 |
| 293 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 294 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510  | \$ | 320.00       | \$ | 163,200.00            |                 |
| 295 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652  | \$ | 46.00        | \$ | 29,992.00             |                 |
| 296 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319  | \$ | 38.00        | \$ | 12,122.00             |                 |
| 297 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670  | \$ | 225.00       | \$ | 150,750.00            |                 |
| 298 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300  | \$ | 170.00       | \$ | 51,000.00             |                 |
| 299 | Perform initial well development   | HRS | 108  | \$ | 275.00       | \$ | 29,700.00             |                 |
| 300 | Provide chlorine solution for chemical development of the well                         | GAL | 255  | \$ | 26.00        | \$ | 6,630.00              |                 |
| 301 | Provide polymer dispersant for chemical development of the well                        | GAL | 40   | \$ | 110.00       | \$ | 4,400.00              |                 |
| 302 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 303 | Conduct final development by pumping and surging                                       | HRS | 60   | \$ | 500.00       | \$ | 30,000.00             |                 |
| 304 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8    | \$ | 500.00       | \$ | 4,000.00              |                 |
| 305 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28   | \$ | 500.00       | \$ | 14,000.00             |                 |
| 306 | Conduct a dynamic flow meter survey  | EA  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 307 | Conduct a color video camera survey  | EA  | 1    | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 308 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 309 | Conduct final well disinfection in newly completed wells                               | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 310 | Mobilization, Demobilization, & Cleanup  | LS  | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 311 | Water Supply   | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 312 | Environmental Mitigation   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 313 | Construct site work  | LS  | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 314 | Furnish and install concrete foundations   | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 315 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 316 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 317 | Furnish and install well enclosures and appurtenances                                  | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 318 | Furnish and install electrical facilities and instrumentation                          | LS  | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 319 | Furnish and install pre-fabricated metal canopy  | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 320 | Furnish and install site ground cover  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 321 | Furnish and install site fencing   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 322 | Furnish and install site painting  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 323 | Furnish and install VFD's  | LS  | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 324 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 325 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 326 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 327 | Phase I 640 Acres Canal Turn-In Facilities   | EA  | 2    | \$ | 50,000.00    | \$ | 100,000.00            | \$ 1,516,500.00 |
| 328 | SCADA Communication & Appurtenances  | LS  | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |      |    |              | \$ | 112,245,998.00        |                 |
|     | 20% Construction Contingency:  |     |      |    |              | \$ | 22,449,199.60         |                 |
|     | Unlisted Items:  |     |      |    |              | \$ | 2,244,919.96          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 60   | \$ | 25,000.00    | \$ | 1,500,000.00          |                 |
|     | Habitat Credit Purchase  | AC  | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |      |    |              | \$ | 175,015,117.56        |                 |
|     | Non-Contract Costs:  |     |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |      |    |              | \$ | <b>201,375,117.56</b> |                 |

## Irvine Ranch Water District

## Feasibility Level Cost Estimate (Class 4)

## East Side Canal Alignment - Concrete Lined after Stockdale Hwy (Item #2)

| Item No. | Item Description                                     | Unit | Quantity  | Unit Cost       | Extended Cost    | Section Subtotal |
|----------|--|------|-----------|-----------------|------------------|------------------|
| 1        | Mobilization, Demobilization, & Cleanup              | LS   | 1         | \$ 1,820,000.00 | \$ 1,820,000.00  | \$ 1,820,000.00  |
| 2        | Aqueduct Cofferdam & Dewatering                      | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 3        | Aqueduct Turnout Excavation                          | CY   | 2450      | \$ 30.00        | \$ 73,500.00     |                  |
| 4        | Aqueduct Reinforced Concrete Structure - Floor       | CY   | 45        | \$ 800.00       | \$ 36,000.00     |                  |
| 5        | Aqueduct Reinforced Concrete Structure - Walls       | CY   | 100       | \$ 1,200.00     | \$ 120,000.00    |                  |
| 6        | Aqueduct Reinforced Concrete Structure - Deck/Beam   | CY   | 5         | \$ 2,000.00     | \$ 10,000.00     |                  |
| 7        | Aqueduct Backfill and Compaction                     | CY   | 1850      | \$ 30.00        | \$ 55,500.00     |                  |
| 8        | Aqueduct Miscellaneous Steel                         | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 9        | Aqueduct Trashrack                                   | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 10       | Aqueduct Turnout Piping                              | LF   | 2000      | \$ 4,000.00     | \$ 8,000,000.00  |                  |
| 11       | Aqueduct Metering                                    | EA   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 12       | Aqueduct Meter Vault                                 | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 13       | Aqueduct Slide Gate & Actuator                       | EA   | 1         | \$ 75,000.00    | \$ 75,000.00     |                  |
| 14       | Aqueduct Electrical, Controls, & Lighting            | LS   | 1         | \$ 150,000.00   | \$ 150,000.00    |                  |
| 15       | Aqueduct Liner Repair                                | LS   | 1         | \$ 20,000.00    | \$ 20,000.00     |                  |
| 16       | Levee Road Pavement Restoration                      | SF   | 1600      | \$ 7.00         | \$ 11,200.00     | \$ 9,351,200.00  |
| 17       | Canal Clearing & Grubbing                            | AC   | 155       | \$ 1,200.00     | \$ 186,000.00    |                  |
| 18       | Canal Earthwork-Cut                                  | CY   | 540,000   | \$ 4.50         | \$ 2,430,000.00  |                  |
| 19       | Canal Earthwork-Fill                                 | CY   | 395,000   | \$ 4.50         | \$ 1,777,500.00  |                  |
| 20       | Levee Subgrade Preparation                           | CY   | 211,200   | \$ 4.60         | \$ 971,520.00    |                  |
| 21       | Concrete Canal Lining                                | SF   | 1,679,040 | \$ 6.00         | \$ 10,074,240.00 |                  |
| 22       | Canal Appurtenances                                  | LS   | 1         | \$ 250,000.00   | \$ 250,000.00    |                  |
| 23       | Canal Fencing  | LF   | 110,000   | \$ 7.50         | \$ 825,000.00    |                  |
| 24       | Levee Road Aggregate Base Ground Cover               | LS   | 1         | \$ 775,000.00   | \$ 775,000.00    |                  |
| 25       | Ex. Facility Relocations                             | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    | \$ 17,789,260.00 |
| 26       | Aqueduct Turnout Afterbay Structure Walls & Footings | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 27       | Turnout Afterbay Earthwork                           | CY   | 3800      | \$ 30.00        | \$ 114,000.00    |                  |
| 28       | Turnout Afterbay Miscellaneous Steel                 | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 29       | Outlet Canal Forebay Structure Walls & Footings      | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 30       | Outlet Canal Siphon Pipes                            | LF   | 300       | \$ 2,500.00     | \$ 750,000.00    |                  |
| 31       | Outlet Canal Afterbay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 32       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 33       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 34       | Adohr Rd Forebay Structure Walls & Footings          | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 35       | Adohr Rd Siphon Pipes                                | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 36       | Adohr Rd Afterbay Structure Walls & Footings         | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 37       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 38       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     |                  |
| 39       | East Side Canal Forebay Structure Walls & Footings   | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 40       | East Side Canal Siphon Pipes                         | LF   | 350       | \$ 2,500.00     | \$ 875,000.00    |                  |
| 41       | East Side Canal Afterbay Structure Walls & Footings  | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 42       | Siphon Crossing Earthwork                            | CY   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 43       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 50,000.00    | \$ 50,000.00     | \$ 4,509,000.00  |
| 44       | Lift Station Excavation                              | CY   | 11000     | \$ 10.00        | \$ 110,000.00    |                  |
| 45       | Lift Station Reinforced Concrete Structure - Floor   | CY   | 320       | \$ 800.00       | \$ 256,000.00    |                  |
| 46       | Lift Station Reinforced Concrete Structure - Walls   | CY   | 520       | \$ 1,200.00     | \$ 624,000.00    |                  |
| 47       | Lift Station Reinforced Concrete Structure - Deck    | CY   | 120       | \$ 2,000.00     | \$ 240,000.00    |                  |
| 48       | Lift Station Pumps - 30 cfs                          | EA   | 2         | \$ 130,000.00   | \$ 260,000.00    |                  |
| 49       | Lift Station Pumps - 60 cfs                          | EA   | 2         | \$ 180,000.00   | \$ 360,000.00    |                  |
| 50       | Lift Station Pumps - 80 cfs                          | EA   | 4         | \$ 195,000.00   | \$ 780,000.00    |                  |
| 51       | Lift Station Motors - 100 hp                         | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 52       | Lift Station Motors - 200 hp                         | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 53       | Lift Station Motors - 300 hp                         | EA   | 4         | \$ 90,000.00    | \$ 360,000.00    |                  |
| 54       | Lift Station 36" Discharge Piping & Appurtenances    | LS   | 2         | \$ 300,000.00   | \$ 600,000.00    |                  |
| 55       | Lift Station 48" Discharge Piping & Appurtenances    | LS   | 2         | \$ 425,000.00   | \$ 850,000.00    |                  |
| 56       | Lift Station 54" Discharge Piping & Appurtenances    | LS   | 4         | \$ 550,000.00   | \$ 2,200,000.00  |                  |
| 57       | Lift Station 100 hp VFD's                            | EA   | 2         | \$ 40,000.00    | \$ 80,000.00     |                  |
| 58       | Lift Station 200 hp VFD's                            | EA   | 2         | \$ 60,000.00    | \$ 120,000.00    |                  |
| 59       | Lift Station 300 hp VFD's                            | EA   | 4         | \$ 80,000.00    | \$ 320,000.00    |                  |
| 60       | Lift Station Electrical, Controls, & Lighting        | LS   | 1         | \$ 500,000.00   | \$ 500,000.00    |                  |
| 61       | Lift Station Electrical Control Building             | LS   | 1         | \$ 200,000.00   | \$ 200,000.00    |                  |
| 62       | Lift Station Backfill & Compaction                   | CY   | 6000      | \$ 10.00        | \$ 60,000.00     |                  |
| 63       | Lift Station Slide Gates                             | EA   | 1         | \$ 55,000.00    | \$ 55,000.00     |                  |
| 64       | Lift Station Trashracks                              | LS   | 8         | \$ 25,000.00    | \$ 200,000.00    |                  |
| 65       | Lift Station Miscellaneous Steel                     | LS   | 1         | \$ 120,000.00   | \$ 120,000.00    |                  |
| 66       | Lift Station Cathodic Protection                     | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 67       | Lift Station Site Fencing                            | LF   | 850       | \$ 45.00        | \$ 38,250.00     |                  |
| 68       | Lift Station Bypass Pipeline                         | LF   | 200       | \$ 750.00       | \$ 150,000.00    |                  |
| 69       | Lift Station Ground Cover                            | LS   | 1         | \$ 45,000.00    | \$ 45,000.00     | \$ 8,753,250.00  |
| 70       | Lift Station Pipeline across Stockdale Hwy           | LF   | 1500      | \$ 2,500.00     | \$ 3,750,000.00  |                  |
| 71       | Stockdale Hwy Cased Crossing                         | LF   | 150       | \$ 6,000.00     | \$ 900,000.00    |                  |
| 72       | Stockdale Hwy Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 73       | Stockdale Hwy Afterbay Earthwork                     | CY   | 3800      | \$ 25.00        | \$ 95,000.00     |                  |
| 74       | Stockdale Hwy Afterbay Miscellaneous Steel           | LS   | 1         | \$ 25,000.00    | \$ 25,000.00     |                  |
| 75       | Road Crossing Forebay Structure Walls & Footings     | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 76       | Road Crossing Siphon Pipes                           | LF   | 150       | \$ 2,500.00     | \$ 375,000.00    |                  |
| 77       | Road Crossing Afterbay Structure Walls & Footings    | CY   | 200       | \$ 1,200.00     | \$ 240,000.00    |                  |
| 78       | Siphon Crossing Earthwork                            | LS   | 7200      | \$ 25.00        | \$ 180,000.00    |                  |
| 79       | Siphon Crossing Miscellaneous Steel                  | LS   | 1         | \$ 5,000.00     | \$ 5,000.00      | \$ 6,050,000.00  |

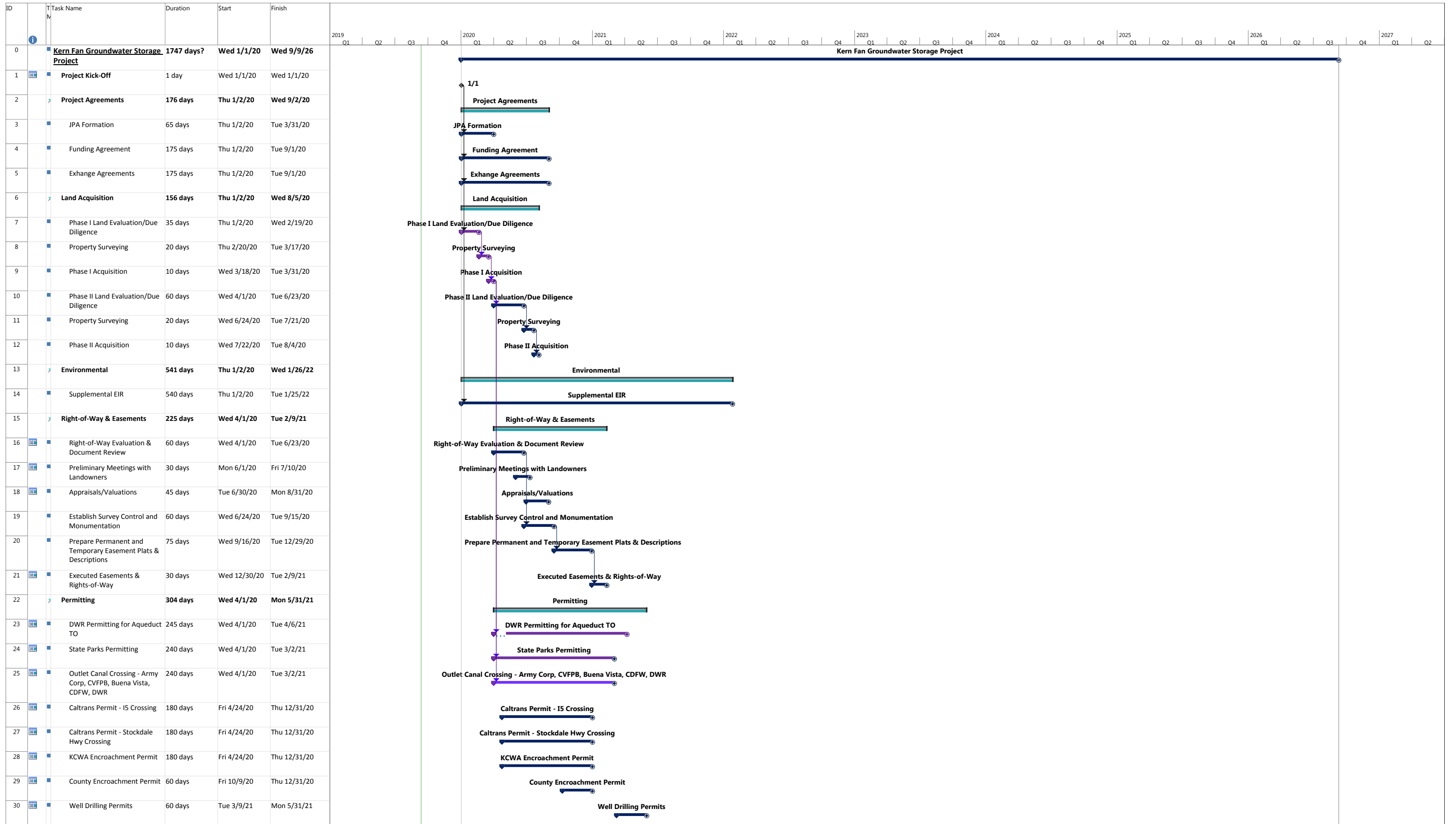
|     |  |    |        |    |              |    |              |                 |
|-----|--|----|--------|----|--------------|----|--------------|-----------------|
| 80  | Lift Station Excavation  | CY | 11000  | \$ | 10.00        | \$ | 110,000.00   |                 |
| 81  | Lift Station Reinforced Concrete Structure - Floor               | CY | 320    | \$ | 800.00       | \$ | 256,000.00   |                 |
| 82  | Lift Station Reinforced Concrete Structure - Walls               | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00   |                 |
| 83  | Lift Station Reinforced Concrete Structure - Deck                | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00   |                 |
| 84  | Lift Station Pumps - 30 cfs                                      | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00   |                 |
| 85  | Lift Station Pumps - 60 cfs                                      | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00   |                 |
| 86  | Lift Station Pumps - 80 cfs                                      | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00   |                 |
| 87  | Lift Station Motors - 100 hp                                     | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 88  | Lift Station Motors - 200 hp                                     | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 89  | Lift Station Motors - 300 hp                                     | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00   |                 |
| 90  | Lift Station 36" Discharge Piping & Appurtenances                | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00   |                 |
| 91  | Lift Station 48" Discharge Piping & Appurtenances                | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00   |                 |
| 92  | Lift Station 54" Discharge Piping & Appurtenances                | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00 |                 |
| 93  | Lift Station 100 hp VFD's  | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 94  | Lift Station 200 hp VFD's  | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 95  | Lift Station 300 hp VFD's  | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00   |                 |
| 96  | Lift Station Electrical, Controls, & Lighting                    | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00   |                 |
| 97  | Lift Station Electrical Control Building                         | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 98  | Lift Station Backfill & Compaction                               | CY | 6000   | \$ | 10.00        | \$ | 60,000.00    |                 |
| 99  | Lift Station Slide Gates   | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00    |                 |
| 100 | Lift Station Trashracks  | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00   |                 |
| 101 | Lift Station Miscellaneous Steel                                 | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 102 | Lift Station Cathodic Protection                                 | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 103 | Lift Station Site Fencing  | LF | 850    | \$ | 45.00        | \$ | 38,250.00    |                 |
| 104 | Lift Station Bypass Pipeline                                     | LF | 200    | \$ | 750.00       | \$ | 150,000.00   |                 |
| 105 | Lift Station Ground Cover  | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00    | \$ 8,753,250.00 |
| 106 | Lift Station Pipeline across I-5 Freeway                         | LF | 400    | \$ | 6,000.00     | \$ | 2,400,000.00 |                 |
| 107 | I-5 Fwy Afterbay Structure Walls & Footings                      | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 108 | I-5 Fwy Afterbay Earthwork                                       | CY | 3800   | \$ | 25.00        | \$ | 95,000.00    |                 |
| 109 | I-5 Fwy Afterbay Miscellaneous Steel                             | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 110 | Road Crossing Forebay Structure Walls & Footings                 | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 111 | Road Crossing Siphon Pipes                                       | LF | 150    | \$ | 2,500.00     | \$ | 375,000.00   |                 |
| 112 | Road Crossing Afterbay Structure Walls & Footings                | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 113 | Siphon Crossing Earthwork  | LS | 7200   | \$ | 25.00        | \$ | 180,000.00   |                 |
| 114 | Siphon Crossing Miscellaneous Steel                              | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 115 | Road Crossing Forebay Structure Walls & Footings                 | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 116 | Road Crossing Siphon Pipes                                       | LF | 150    | \$ | 2,500.00     | \$ | 375,000.00   |                 |
| 117 | Road Crossing Afterbay Structure Walls & Footings                | CY | 200    | \$ | 1,200.00     | \$ | 240,000.00   |                 |
| 118 | Siphon Crossing Earthwork  | LS | 7200   | \$ | 25.00        | \$ | 180,000.00   |                 |
| 119 | Siphon Crossing Miscellaneous Steel                              | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 4,930,000.00 |
| 120 | Lift Station Excavation  | CY | 11000  | \$ | 10.00        | \$ | 110,000.00   |                 |
| 121 | Lift Station Reinforced Concrete Structure - Floor               | CY | 320    | \$ | 800.00       | \$ | 256,000.00   |                 |
| 122 | Lift Station Reinforced Concrete Structure - Walls               | CY | 520    | \$ | 1,200.00     | \$ | 624,000.00   |                 |
| 123 | Lift Station Reinforced Concrete Structure - Deck                | CY | 120    | \$ | 2,000.00     | \$ | 240,000.00   |                 |
| 124 | Lift Station Pumps - 30 cfs                                      | EA | 2      | \$ | 130,000.00   | \$ | 260,000.00   |                 |
| 125 | Lift Station Pumps - 60 cfs                                      | EA | 2      | \$ | 180,000.00   | \$ | 360,000.00   |                 |
| 126 | Lift Station Pumps - 80 cfs                                      | EA | 4      | \$ | 195,000.00   | \$ | 780,000.00   |                 |
| 127 | Lift Station Motors - 100 hp                                     | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 128 | Lift Station Motors - 200 hp                                     | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 129 | Lift Station Motors - 300 hp                                     | EA | 4      | \$ | 90,000.00    | \$ | 360,000.00   |                 |
| 130 | Lift Station 36" Discharge Piping & Appurtenances                | LS | 2      | \$ | 300,000.00   | \$ | 600,000.00   |                 |
| 131 | Lift Station 48" Discharge Piping & Appurtenances                | LS | 2      | \$ | 425,000.00   | \$ | 850,000.00   |                 |
| 132 | Lift Station 54" Discharge Piping & Appurtenances                | LS | 4      | \$ | 550,000.00   | \$ | 2,200,000.00 |                 |
| 133 | Lift Station 100 hp VFD's  | EA | 2      | \$ | 40,000.00    | \$ | 80,000.00    |                 |
| 134 | Lift Station 200 hp VFD's  | EA | 2      | \$ | 60,000.00    | \$ | 120,000.00   |                 |
| 135 | Lift Station 300 hp VFD's  | EA | 4      | \$ | 80,000.00    | \$ | 320,000.00   |                 |
| 136 | Lift Station Electrical, Controls, & Lighting                    | LS | 1      | \$ | 500,000.00   | \$ | 500,000.00   |                 |
| 137 | Lift Station Electrical Control Building                         | LS | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 138 | Lift Station Backfill & Compaction                               | CY | 6000   | \$ | 10.00        | \$ | 60,000.00    |                 |
| 139 | Lift Station Slide Gates   | EA | 1      | \$ | 55,000.00    | \$ | 55,000.00    |                 |
| 140 | Lift Station Trashracks  | LS | 8      | \$ | 25,000.00    | \$ | 200,000.00   |                 |
| 141 | Lift Station Miscellaneous Steel                                 | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 142 | Lift Station Cathodic Protection                                 | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 143 | Lift Station Site Fencing  | LF | 850    | \$ | 45.00        | \$ | 38,250.00    |                 |
| 144 | Lift Station Bypass Pipeline                                     | LF | 200    | \$ | 750.00       | \$ | 150,000.00   |                 |
| 145 | Lift Station Ground Cover  | LS | 1      | \$ | 45,000.00    | \$ | 45,000.00    | \$ 8,753,250.00 |
| 146 | Afterbay Structure Walls & Footings                              | CY | 280    | \$ | 1,200.00     | \$ | 336,000.00   |                 |
| 147 | Afterbay Earthwork   | CY | 3800   | \$ | 25.00        | \$ | 95,000.00    |                 |
| 148 | Afterbay Miscellaneous Steel                                     | LS | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 456,000.00   |
| 149 | West Basins Turnout Structure Excavation                         | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 150 | West Basins Turnout Reinforced Concrete Structure - Floor        | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 151 | West Basins Turnout Reinforced Concrete Structure - Walls        | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 152 | West Basins Turnout Reinforced Concrete Structure - Deck         | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 153 | West Basins Structure Backfill & Compaction                      | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 154 | West Basins Turnout Trashrack                                    | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 155 | West Basins Turnout Miscellaneous Steel                          | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 156 | West Basins Metering   | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 157 | West Basins Piping   | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 158 | West Basins Turnout Slide Gate                                   | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 159 | West Basins Turnout Electrical                                   | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 160 | West Basins Outlet Structure - Floor                             | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 161 | West Basins Outlet Structure - Walls                             | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 162 | West Basins Outlet Structure Rip-Rap                             | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 163 | Phase II 640 Acres Turnout Structure Excavation                  | CY | 1300   | \$ | 30.00        | \$ | 39,000.00    |                 |
| 164 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Floor | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 165 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Walls | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 166 | Phase II 640 Acres Turnout Reinforced Concrete Structure - Deck  | CY | 10     | \$ | 2,000.00     | \$ | 20,000.00    |                 |
| 167 | Phase II 640 Acres Structure Backfill & Compaction               | CY | 700    | \$ | 30.00        | \$ | 21,000.00    |                 |
| 168 | Phase II 640 Acres Turnout Trashrack                             | EA | 4      | \$ | 25,000.00    | \$ | 100,000.00   |                 |
| 169 | Phase II 640 Acres Turnout Miscellaneous Steel                   | LS | 1      | \$ | 120,000.00   | \$ | 120,000.00   |                 |
| 170 | Phase II 640 Acres Metering                                      | EA | 4      | \$ | 35,000.00    | \$ | 140,000.00   |                 |
| 171 | Phase II 640 Acres Piping  | LF | 800    | \$ | 400.00       | \$ | 320,000.00   |                 |
| 172 | Phase II 640 Acres Turnout Slide Gate                            | EA | 4      | \$ | 55,000.00    | \$ | 220,000.00   |                 |
| 173 | Phase II 640 Acres Turnout Electrical                            | LS | 1      | \$ | 150,000.00   | \$ | 150,000.00   |                 |
| 174 | Phase II 640 Acres Outlet Structure - Floor                      | CY | 30     | \$ | 800.00       | \$ | 24,000.00    |                 |
| 175 | Phase II 640 Acres Outlet Structure - Walls                      | CY | 50     | \$ | 1,200.00     | \$ | 60,000.00    |                 |
| 176 | Phase II 640 Acres Outlet Structure Rip-Rap                      | LS | 1      | \$ | 50,000.00    | \$ | 50,000.00    | \$ 1,348,000.00 |
| 177 | Phase I 640 Acres Clearing & Grubbing                            | AC | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 178 | Phase I 640 Acres Levee Over-Excavation and Re-Compaction        | CY | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 179 | Phase I 640 Acres Levee Keyway                                   | CY | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 180 | Phase I 640 Acres Levee Embankment Fill                          | CY | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 181 | Phase I 640 Acres Structure Headwalls                            | EA | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 182 | Phase I 640 Acres Structure Miscellaneous Steel & Weir Boards    | EA | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 183 | Phase I 640 Acres Interbasin Structure Piping                    | LS | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 184 | Phase I 640 Acres Interbasin Structure Rip-Rap                   | EA | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 185 | Phase I 640 Acres Interbasin Structure Cutoff Walls              | EA | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 186 | Phase I 640 Acres Site Fencing and Gates                         | LF | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |

|     |  |     |        |    |              |    |              |                 |
|-----|--|-----|--------|----|--------------|----|--------------|-----------------|
| 187 | Goose Lake Slough Turnout Structure Excavation   | CY  | 1100   | \$ | 30.00        | \$ | 33,000.00    |                 |
| 188 | Goose Lake Slough Turnout Reinforced Concrete Structure - Floor                        | CY  | 90     | \$ | 800.00       | \$ | 72,000.00    |                 |
| 189 | Goose Lake Slough Turnout Reinforced Concrete Structure - Walls                        | CY  | 90     | \$ | 1,200.00     | \$ | 108,000.00   |                 |
| 190 | Goose Lake Slough Turnout Reinforced Concrete Structure - Deck                         | CY  | 50     | \$ | 2,000.00     | \$ | 100,000.00   |                 |
| 191 | Goose Lake Slough Turnout Backfill & Compaction  | LS  | 500    | \$ | 30.00        | \$ | 15,000.00    |                 |
| 192 | Goose Lake Slough Turnout Trashracks   | LS  | 1      | \$ | 80,000.00    | \$ | 80,000.00    |                 |
| 193 | Goose Lake Slough Turnout Miscellaneous Steel  | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 194 | Goose Lake Slough Lift Station Pumps - 60 cfs  | EA  | 4      | \$ | 180,000.00   | \$ | 720,000.00   |                 |
| 195 | Goose Lake Slough Lift Station Motors - 200 hp   | EA  | 4      | \$ | 60,000.00    | \$ | 240,000.00   |                 |
| 196 | Goose Lake Slough Lift Station Discharge Piping & Appurtenances                        | LS  | 1      | \$ | 240,000.00   | \$ | 240,000.00   |                 |
| 197 | Goose Lake Slough Metering   | EA  | 1      | \$ | 90,000.00    | \$ | 90,000.00    |                 |
| 198 | Goose Lake Slough Turnout Slide Gate   | EA  | 1      | \$ | 37,500.00    | \$ | 37,500.00    |                 |
| 199 | Goose Lake Slough Turnout Electrical   | LS  | 1      | \$ | 350,000.00   | \$ | 350,000.00   |                 |
| 200 | Goose Lake Slough Electrical Shade Structure & Foundation                              | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 201 | Goose Lake Slough Pipe Outlet  | LF  | 200    | \$ | 1,750.00     | \$ | 350,000.00   |                 |
| 202 | Goose Lake Slough Turnout Outlet Structure   | LS  | 1      | \$ | 180,000.00   | \$ | 180,000.00   |                 |
| 203 | Goose Lake Slough Outlet Rip-Rap   | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 204 | Goose Lake Slough Check Structure - Earthwork  | CY  | 1      | \$ | 35,000.00    | \$ | 35,000.00    |                 |
| 205 | Goose Lake Slough Check Structure - Reinforced Concrete - Floor                        | CY  | 75     | \$ | 2,000.00     | \$ | 150,000.00   |                 |
| 206 | Goose Lake Slough Check Structure - Reinforced Concrete - Walls                        | CY  | 21     | \$ | 1,200.00     | \$ | 25,200.00    |                 |
| 207 | Goose Lake Slough Check Structure - Miscellaneous Steel                                | LS  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 208 | Goose Lake Slough Check Structure - Rip-Rap  | LS  | 1      | \$ | 75,000.00    | \$ | 75,000.00    |                 |
| 209 | Goose Lake Slough Check Structure - Appurtenances, Weir Boards                         | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    | \$ 3,125,700.00 |
|     | Phase I 640 Acres Well Drilling, Construction, & Development                           | EA  | 6      | \$ | 1,175,474.00 |    |              | \$ 7,052,844.00 |
| 210 | Mobilization, demobilization & misc. work  | LS  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 211 | Transport and dispose of drill cuttings offsite  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 212 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 213 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50     | \$ | 620.00       | \$ | 31,000.00    |                 |
| 214 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920    | \$ | 110.00       | \$ | 101,200.00   |                 |
| 215 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430    | \$ | 110.00       | \$ | 47,300.00    |                 |
| 216 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 217 | Conduct isolated aquifer zone test   | EA  | 3      | \$ | 25,000.00    | \$ | 75,000.00    |                 |
| 218 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3      | \$ | 35,000.00    | \$ | 105,000.00   |                 |
| 219 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280    | \$ | 110.00       | \$ | 30,800.00    |                 |
| 220 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660    | \$ | 110.00       | \$ | 72,600.00    |                 |
| 221 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 222 | Conduct a caliper survey of enlarged borehole  | EA  | 1      | \$ | 5,500.00     | \$ | 5,500.00     |                 |
| 223 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424    | \$ | 220.00       | \$ | 93,280.00    |                 |
| 224 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 225 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510    | \$ | 320.00       | \$ | 163,200.00   |                 |
| 226 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652    | \$ | 46.00        | \$ | 29,992.00    |                 |
| 227 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319    | \$ | 38.00        | \$ | 12,122.00    |                 |
| 228 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670    | \$ | 225.00       | \$ | 150,750.00   |                 |
| 229 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300    | \$ | 170.00       | \$ | 51,000.00    |                 |
| 230 | Perform initial well development   | HRS | 108    | \$ | 275.00       | \$ | 29,700.00    |                 |
| 231 | Provide chlorine solution for chemical development of the well                         | GAL | 255    | \$ | 26.00        | \$ | 6,630.00     |                 |
| 232 | Provide polymer dispersant for chemical development of the well                        | GAL | 40     | \$ | 110.00       | \$ | 4,400.00     |                 |
| 233 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1      | \$ | 25,000.00    | \$ | 25,000.00    |                 |
| 234 | Conduct final development by pumping and surging                                       | HRS | 60     | \$ | 500.00       | \$ | 30,000.00    |                 |
| 235 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8      | \$ | 500.00       | \$ | 4,000.00     |                 |
| 236 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28     | \$ | 500.00       | \$ | 14,000.00    |                 |
| 237 | Conduct a dynamic flow meter survey  | EA  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 238 | Conduct a color video camera survey  | EA  | 1      | \$ | 2,500.00     | \$ | 2,500.00     |                 |
| 239 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 240 | Conduct final well disinfection in newly completed wells                               | EA  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
|     | Phase I 640 Acre Well Equipping and Site Development                                   | EA  | 6      | \$ | 1,137,000.00 |    |              | \$ 6,822,000.00 |
| 241 | Mobilization, Demobilization, & Cleanup  | LS  | 1      | \$ | 60,000.00    | \$ | 60,000.00    |                 |
| 242 | Water Supply   | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 243 | Environmental Mitigation   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 244 | Construct site work  | LS  | 1      | \$ | 17,000.00    | \$ | 17,000.00    |                 |
| 245 | Furnish and install concrete foundations   | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 246 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1      | \$ | 45,000.00    | \$ | 45,000.00    |                 |
| 247 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1      | \$ | 255,000.00   | \$ | 255,000.00   |                 |
| 248 | Furnish and install well enclosures and appurtenances                                  | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 249 | Furnish and install electrical facilities and instrumentation                          | LS  | 1      | \$ | 325,000.00   | \$ | 325,000.00   |                 |
| 250 | Furnish and install pre-fabricated metal canopy  | LS  | 1      | \$ | 70,000.00    | \$ | 70,000.00    |                 |
| 251 | Furnish and install site ground cover  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 252 | Furnish and install site fencing   | LS  | 1      | \$ | 20,000.00    | \$ | 20,000.00    |                 |
| 253 | Furnish and install site painting  | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 254 | Furnish and install VFD's  | LS  | 1      | \$ | 200,000.00   | \$ | 200,000.00   |                 |
| 255 | Phase I 640 Acres Well Recovery Pipeline - 16" C905 PVC                                | LF  | 6900   | \$ | 90.00        | \$ | 621,000.00   |                 |
| 256 | Phase I 640 Acres Well Recovery Pipeline - 18" C905 PVC                                | LF  | 2400   | \$ | 120.00       | \$ | 288,000.00   |                 |
| 257 | Phase I 640 Acres Well Recovery Pipeline - 24" C905 PVC                                | LF  | 5540   | \$ | 175.00       | \$ | 969,500.00   |                 |
| 258 | Phase I 640 Acres Well Recovery Pipeline - 36" C905 PVC                                | LF  | 2000   | \$ | 275.00       | \$ | 550,000.00   | \$ 2,428,500.00 |
| 259 | RRB Intake Canal Interconnection Excavation  | CY  | 350    | \$ | 30.00        | \$ | 10,500.00    |                 |
| 260 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Floor                 | CY  | 14     | \$ | 800.00       | \$ | 11,200.00    |                 |
| 261 | RRB Intake Canal Interconnection Reinforced Concrete Structure - Walls                 | CY  | 18     | \$ | 1,200.00     | \$ | 21,600.00    |                 |
| 262 | RRB Intake Canal Interconnection Backfill & Compaction                                 | CY  | 250    | \$ | 30.00        | \$ | 7,500.00     |                 |
| 263 | RRB Intake Canal Interconnection Miscellaneous Steel                                   | LS  | 1      | \$ | 10,000.00    | \$ | 10,000.00    |                 |
| 264 | RRB Intake Canal Interconnection Butterfly Valve & Appurtenances                       | EA  | 1      | \$ | 50,000.00    | \$ | 50,000.00    |                 |
| 265 | RRB Intake Canal Interconnection Concrete Lining                                       | LS  | 1      | \$ | 15,000.00    | \$ | 15,000.00    |                 |
| 266 | RRB Intake Canal Interconnection Liner Repair  | LS  | 1      | \$ | 5,000.00     | \$ | 5,000.00     |                 |
| 267 | RRB Intake Canal Interconnection Slope Protection & Rip-Rap                            | LS  | 1      | \$ | 35,000.00    | \$ | 35,000.00    | \$ 165,800.00   |
| 268 | Phase II 640 Acres Clearing & Grubbing   | AC  | 320    | \$ | 1,200.00     | \$ | 384,000.00   |                 |
| 269 | Phase II 640 Acres Levee Over-Excavation and Re-Compaction                             | CY  | 235000 | \$ | 4.60         | \$ | 1,081,000.00 |                 |
| 270 | Phase II 640 Acres Levee Keyway  | CY  | 50000  | \$ | 4.70         | \$ | 235,000.00   |                 |
| 271 | Phase II 640 Acres Levee Embankment Fill   | CY  | 255000 | \$ | 4.20         | \$ | 1,071,000.00 |                 |
| 272 | Phase II 640 Acres Structure Headwalls   | EA  | 15     | \$ | 30,000.00    | \$ | 450,000.00   |                 |
| 273 | Phase II 640 Acres Structure Miscellaneous Steel & Weir Boards                         | EA  | 15     | \$ | 10,000.00    | \$ | 150,000.00   |                 |
| 274 | Phase II 640 Acres Interbasin Structure Piping   | LS  | 1      | \$ | 1,000,000.00 | \$ | 1,000,000.00 |                 |
| 275 | Phase II 640 Acres Interbasin Structure Rip-Rap  | EA  | 15     | \$ | 35,000.00    | \$ | 525,000.00   |                 |
| 276 | Phase II 640 Acres Interbasin Structure Cutoff Walls                                   | EA  | 15     | \$ | 25,000.00    | \$ | 375,000.00   |                 |
| 277 | Phase II 640 Acres Site Fencing and Gates  | LF  | 21120  | \$ | 7.50         | \$ | 158,400.00   | \$ 5,429,400.00 |

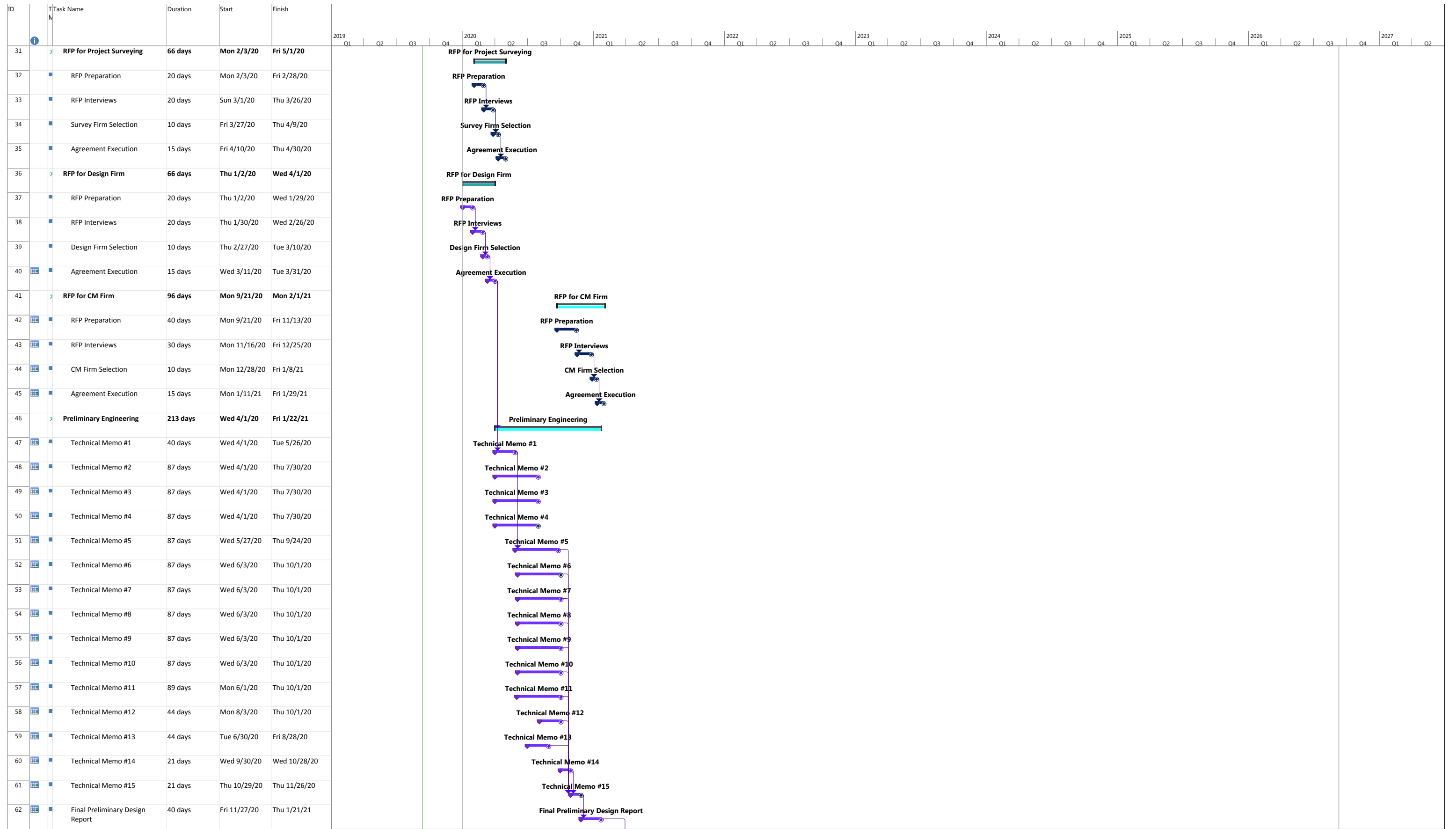
|     |  |     |      |    |              |    |                       |                 |
|-----|--|-----|------|----|--------------|----|-----------------------|-----------------|
|     | Phase II 640 Acres Well Drilling, Construction, & Development                          | EA  | 6    | \$ | 1,175,474.00 |    | \$                    | 7,052,844.00    |
| 278 | Mobilization, demobilization & misc. work  | LS  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 279 | Transport and dispose of drill cuttings offsite  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 280 | Three 20,000-gallon temporary water storage tanks and discharge piping                 | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 281 | Drill 54-inch minimum diameter surface casing/sanitary seal borehole                   | LF  | 50   | \$ | 620.00       | \$ | 31,000.00             |                 |
| 282 | Drill 17.5-inch minimum diameter pilot borehole from 50 ft to 970 ft bgs               | LF  | 920  | \$ | 110.00       | \$ | 101,200.00            |                 |
| 283 | Drill 17.5-inch minimum diameter pilot borehole from 970 ft to 1,400 ft bgs            | LF  | 430  | \$ | 110.00       | \$ | 47,300.00             |                 |
| 284 | Conduct downhole geophysical surveys and alignment/deviation survey                    | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 285 | Conduct isolated aquifer zone test   | EA  | 3    | \$ | 25,000.00    | \$ | 75,000.00             |                 |
| 286 | Conduct deep isolated aquifer zone test below 800 ft bgs                               | EA  | 3    | \$ | 35,000.00    | \$ | 105,000.00            |                 |
| 287 | Enlarge pilot borehole to 36-inch diameter from 50 ft to 330 ft bgs                    | LF  | 280  | \$ | 110.00       | \$ | 30,800.00             |                 |
| 288 | Enlarge pilot borehole to 36-inch diameter from 330 ft to 970 ft bgs                   | LF  | 660  | \$ | 110.00       | \$ | 72,600.00             |                 |
| 289 | Conduct alignment/deviation tests in enlarged borehole                                 | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 290 | Conduct a caliper survey of enlarged borehole  | EA  | 1    | \$ | 5,500.00     | \$ | 5,500.00              |                 |
| 291 | Furnish and install 20-inch I.D. by 5/16-inch wall HSLA steel blank well casing        | LF  | 424  | \$ | 220.00       | \$ | 93,280.00             |                 |
| 292 | Furnish and install HSLA steel blank well casing with reinforced "Bull Nose"           | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 293 | Furnish and install 20-inch by 5/16-inch wall Ful Flo louvered, HSLA steel well screen | LF  | 510  | \$ | 320.00       | \$ | 163,200.00            |                 |
| 294 | Furnish and install 3-inch I.D. schedule 40 mild steel sounding/camera access tube     | LF  | 652  | \$ | 46.00        | \$ | 29,992.00             |                 |
| 295 | Furnish and install 3-inch I.D. schedule 40 mild steel gravel feed tube                | LF  | 319  | \$ | 38.00        | \$ | 12,122.00             |                 |
| 296 | Furnish and install gravel pack in borehole annulus                                    | LF  | 670  | \$ | 225.00       | \$ | 150,750.00            |                 |
| 297 | Furnish and install 10.3-sack sand-cement grout upper annular seal                     | LF  | 300  | \$ | 170.00       | \$ | 51,000.00             |                 |
| 298 | Perform initial well development   | HRS | 108  | \$ | 275.00       | \$ | 29,700.00             |                 |
| 299 | Provide chlorine solution for chemical development of the well                         | GAL | 255  | \$ | 26.00        | \$ | 6,630.00              |                 |
| 300 | Provide polymer dispersant for chemical development of the well                        | GAL | 40   | \$ | 110.00       | \$ | 4,400.00              |                 |
| 301 | Mobilize, install, and demobilize test pumping equipment in newly completed wells      | EA  | 1    | \$ | 25,000.00    | \$ | 25,000.00             |                 |
| 302 | Conduct final development by pumping and surging                                       | HRS | 60   | \$ | 500.00       | \$ | 30,000.00             |                 |
| 303 | Conduct step-drawdown pumping test in newly completed wells                            | HRS | 8    | \$ | 500.00       | \$ | 4,000.00              |                 |
| 304 | Conduct constant-rate pumping test in newly completed wells                            | HRS | 28   | \$ | 500.00       | \$ | 14,000.00             |                 |
| 305 | Conduct a dynamic flow meter survey  | EA  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 306 | Conduct a color video camera survey  | EA  | 1    | \$ | 2,500.00     | \$ | 2,500.00              |                 |
| 307 | Conduct well alignment/deviation test in newly completed wells                         | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
| 308 | Conduct final well disinfection in newly completed wells                               | EA  | 1    | \$ | 5,000.00     | \$ | 5,000.00              |                 |
|     | Phase II 640 Acres Well Equipping and Site Development                                 | EA  | 6    | \$ | 1,137,000.00 |    | \$                    | 6,822,000.00    |
| 309 | Mobilization, Demobilization, & Cleanup  | LS  | 1    | \$ | 60,000.00    | \$ | 60,000.00             |                 |
| 310 | Water Supply   | LS  | 1    | \$ | 15,000.00    | \$ | 15,000.00             |                 |
| 311 | Environmental Mitigation   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 312 | Construct site work  | LS  | 1    | \$ | 17,000.00    | \$ | 17,000.00             |                 |
| 313 | Furnish and install concrete foundations   | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 314 | Furnish and install yard piping, mechanical piping and appurtenances                   | LS  | 1    | \$ | 45,000.00    | \$ | 45,000.00             |                 |
| 315 | Furnish and install vertical turbine well pumps, pump base, etc.                       | LS  | 1    | \$ | 255,000.00   | \$ | 255,000.00            |                 |
| 316 | Furnish and install well enclosures and appurtenances                                  | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 317 | Furnish and install electrical facilities and instrumentation                          | LS  | 1    | \$ | 325,000.00   | \$ | 325,000.00            |                 |
| 318 | Furnish and install pre-fabricated metal canopy  | LS  | 1    | \$ | 70,000.00    | \$ | 70,000.00             |                 |
| 319 | Furnish and install site ground cover  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 320 | Furnish and install site fencing   | LS  | 1    | \$ | 20,000.00    | \$ | 20,000.00             |                 |
| 321 | Furnish and install site painting  | LS  | 1    | \$ | 10,000.00    | \$ | 10,000.00             |                 |
| 322 | Furnish and install VFD's  | LS  | 1    | \$ | 200,000.00   | \$ | 200,000.00            |                 |
| 323 | Phase II 640 Acres Well Recovery Pipeline - 16" C905 PVC                               | LF  | 6900 | \$ | 90.00        | \$ | 621,000.00            |                 |
| 324 | Phase II 640 Acres Well Recovery Pipeline - 18" C905 PVC                               | LF  | 2400 | \$ | 120.00       | \$ | 288,000.00            |                 |
| 325 | Phase II 640 Acres Well Recovery Pipeline - 24" C905 PVC                               | LF  | 2900 | \$ | 175.00       | \$ | 507,500.00            |                 |
| 326 | Phase I 640 Acres Canal Turn-In Facilities   | EA  | 2    | \$ | 50,000.00    | \$ | 100,000.00            | \$ 1,516,500.00 |
| 327 | SCADA Communication & Appurtenances  | LS  | 1    | \$ | 300,000.00   | \$ | 300,000.00            | \$ 300,000.00   |
|     | Contract Cost:   |     |      |    |              | \$ | 120,006,198.00        |                 |
|     | 20% Construction Contingency:  |     |      |    |              | \$ | 24,001,239.60         |                 |
|     | Unlisted Items:  |     |      |    |              | \$ | 2,400,123.96          |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 26,500.00    | \$ | 16,960,000.00         |                 |
|     | Property Acquisition - 640 acres   | AC  | 640  | \$ | 21,500.00    | \$ | 13,760,000.00         |                 |
|     | Temporary Easement   | AC  | 235  | \$ | 3,750.00     | \$ | 881,250.00            |                 |
|     | Permanent Easement   | AC  | 165  | \$ | 10,750.00    | \$ | 1,773,750.00          |                 |
|     | Crop Take  | AC  | 60   | \$ | 25,000.00    | \$ | 1,500,000.00          |                 |
|     | Habitat Credit Purchase  | AC  | 200  | \$ | 16,000.00    | \$ | 3,200,000.00          |                 |
|     | Field Cost:  |     |      |    |              | \$ | 184,482,561.56        |                 |
|     | Non-Contract Costs:  |     |      |    |              | \$ | 26,360,000.00         |                 |
|     | <b>Total Construction Cost:</b>  |     |      |    |              | \$ | <b>210,842,561.56</b> |                 |



**APPENDIX D**  
**Project Schedule**

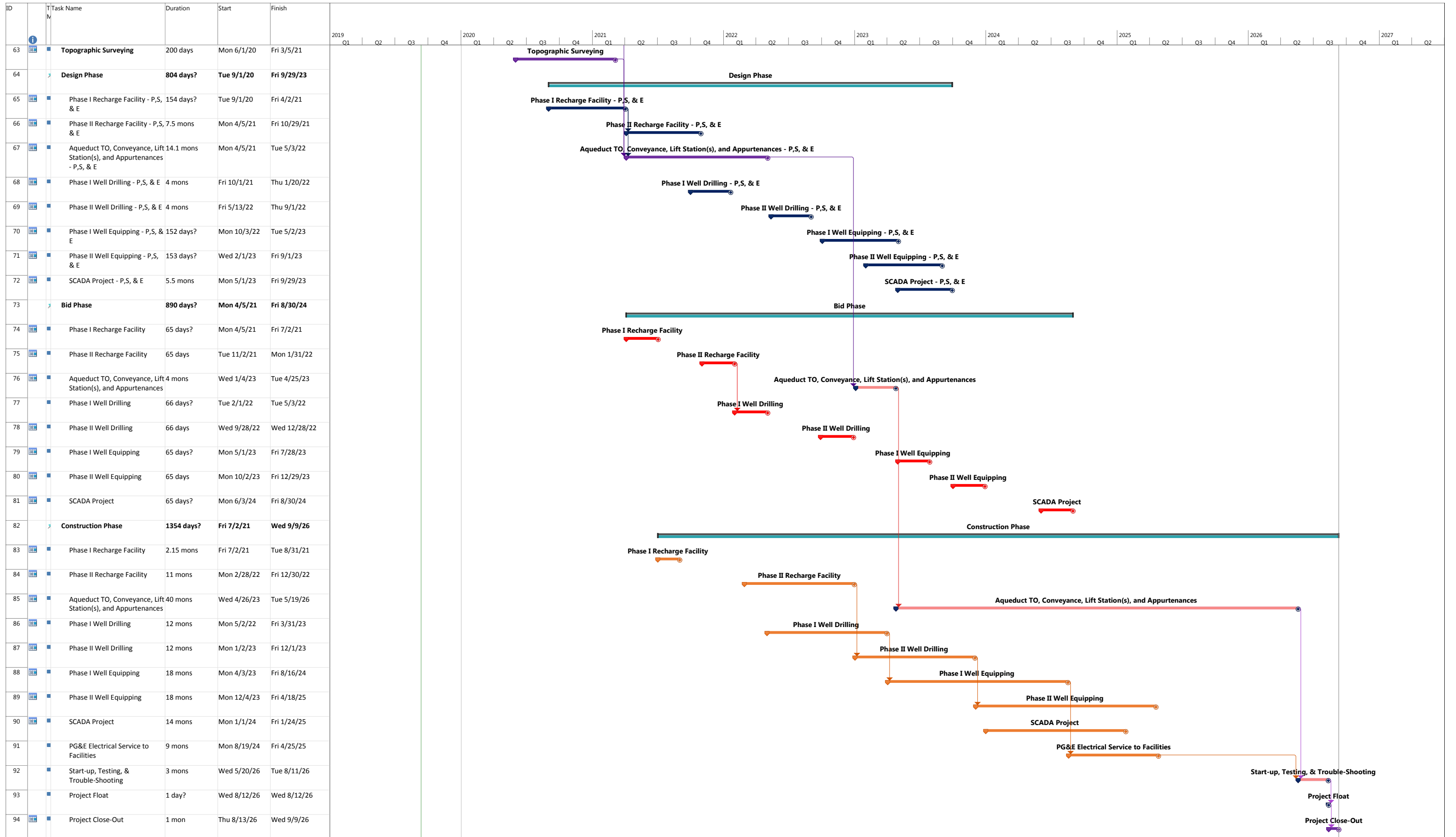


|  |           |  |                 |  |                    |  |                       |  |                |  |                               |  |                             |  |                 |  |
|--|-----------|--|-----------------|--|--------------------|--|-----------------------|--|----------------|--|-------------------------------|--|-----------------------------|--|-----------------|--|
| Project: Kern Fan Groundwater<br>Date: Thu 9/12/19 | Task      |  | Summary         |  | Inactive Milestone |  | Duration-only         |  | Start-only     |  | External Milestone            |  | Path Successor Summary Task |  | Critical Split  |  |
|  | Split     |  | Project Summary |  | Inactive Summary   |  | Manual Summary Rollup |  | Finish-only    |  | Deadline                      |  | Path Successor Normal Task  |  | Progress        |  |
|  | Milestone |  | Inactive Task   |  | Manual Task        |  | Manual Summary        |  | External Tasks |  | Path Successor Milestone Task |  | Critical                    |  | Manual Progress |  |



Project: Kern Fan Groundwater  
Date: Thu 9/12/19

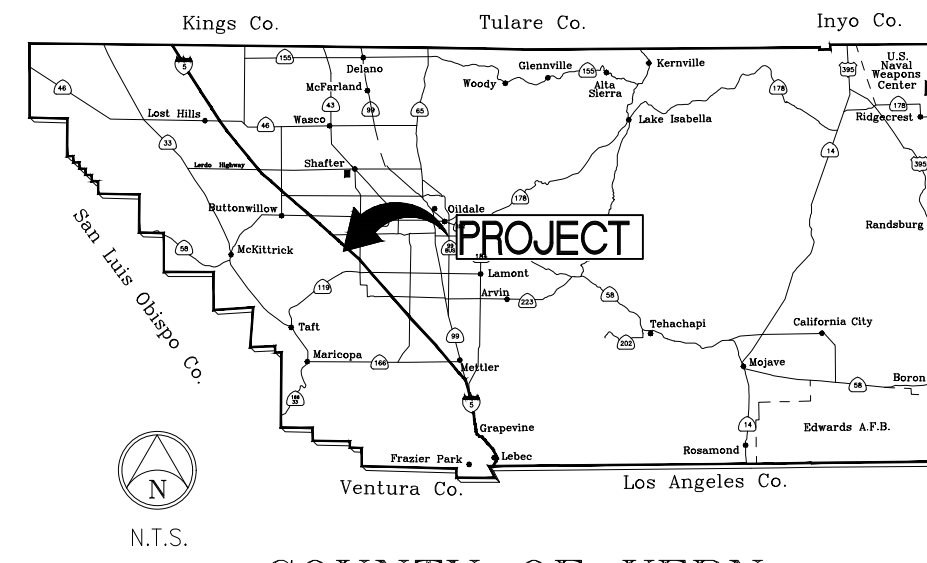
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| Task      | Summary         | Inactive Milestone | Duration-only         | Start-only     | External Milestone            | Path Successor Summary Task | Critical Split  |
| Split     | Project Summary | Inactive Summary   | Manual Summary Rollup | Finish-only    | Deadline                      | Path Successor Normal Task  | Progress        |
| Milestone | Inactive Task   | Manual Task        | Manual Summary        | External Tasks | Path Successor Milestone Task | Critical                    | Manual Progress |



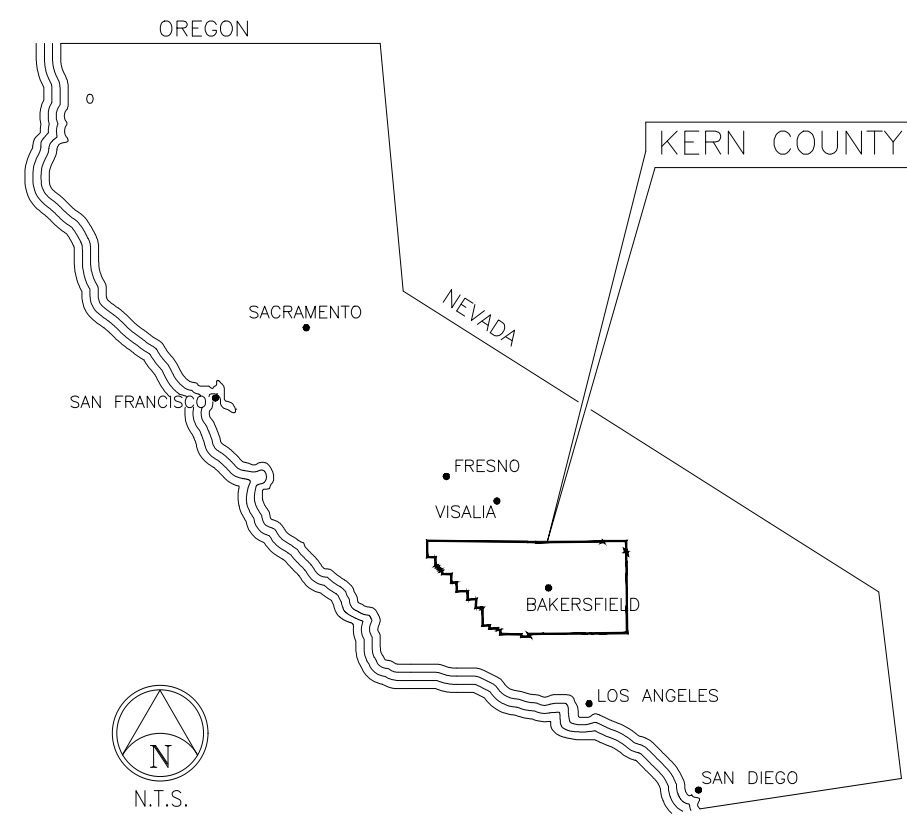
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| Project: Kern Fan Groundwater<br>Date: Thu 9/12/19 | Task      | Summary         | Inactive Milestone | Duration-only         | Start-only     | External Milestone            | Path Successor Summary Task | Critical Split  |
|  | Split     | Project Summary | Inactive Summary   | Manual Summary Rollup | Finish-only    | Deadline                      | Path Successor Normal Task  | Progress        |
|  | Milestone | Inactive Task   | Manual Task        | Manual Summary        | External Tasks | Path Successor Milestone Task | Critical                    | Manual Progress |

**APPENDIX E**  
**Preliminary Drawings**





COUNTY OF KERN



STATE OF CALIFORNIA

# PRELIMINARY CONSTRUCTION PLANS FOR IRVINE RANCH WATER DISTRICT KERN FAN GROUNDWATER STORAGE PROJECT

PROJECT NUMBER \_\_\_\_\_  
SEPTEMBER 2019

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**NOTES:**

CONTRACTOR SHALL POSSESS AN ACTIVE STATE OF CALIFORNIA CLASS A GENERAL ENGINEERING CONTRACTORS LICENSE.

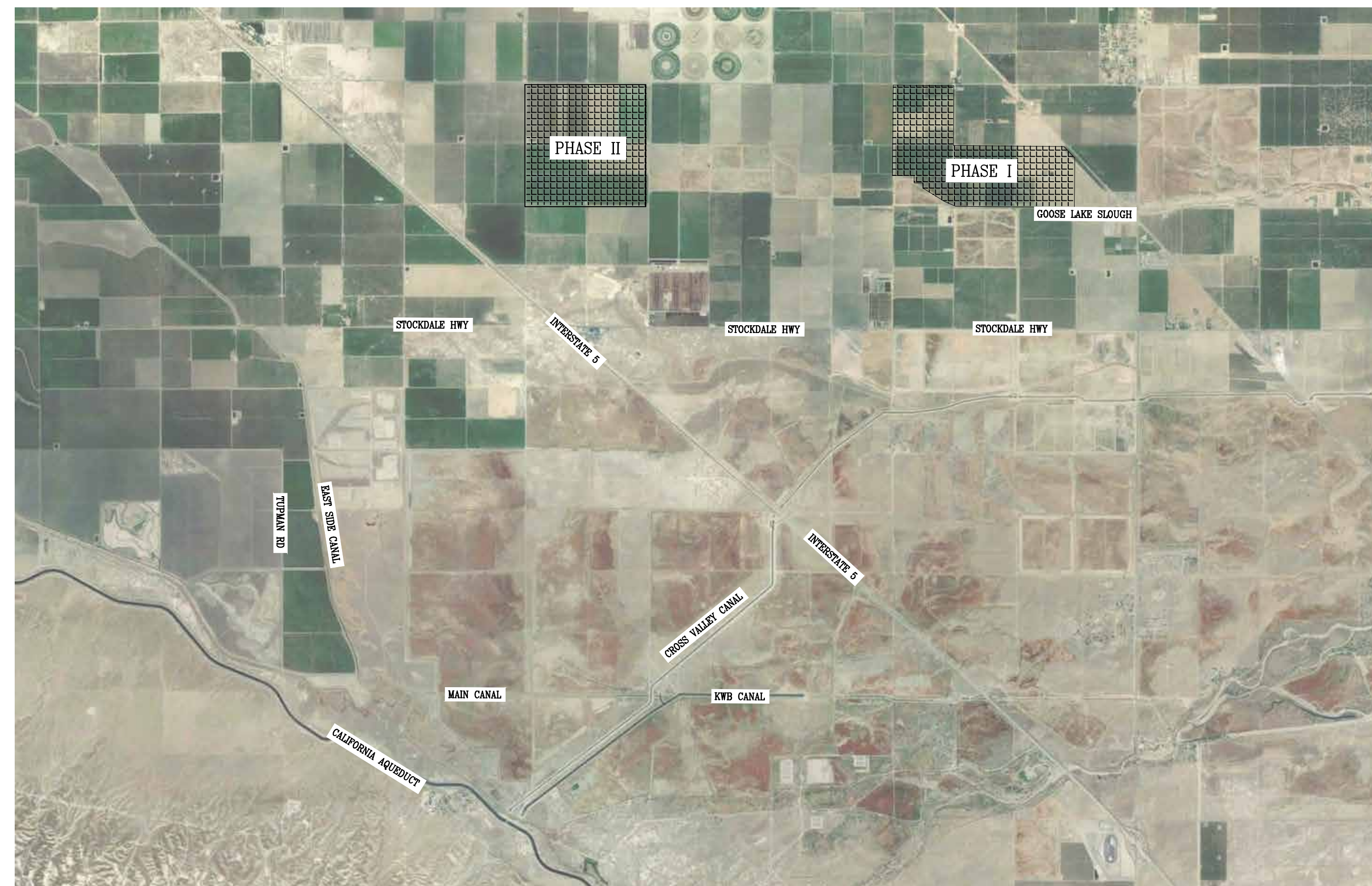
CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND COMPLYING WITH A SJVAPCD DUST CONTROL PLAN AND FOR PREPARING AND COMPLYING WITH A STORM WATER POLLUTION PREVENTION PLAN (SWPPP).



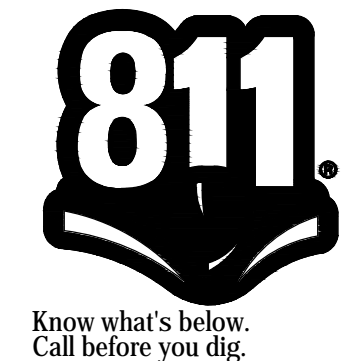
APPROVED:  
*ROSEDALE RIO BRAVO WATER STORAGE DISTRICT*  
DIRECTOR OF ENGINEERING AND PLANNING  
ERIC AVERETT \_\_\_\_\_ DATE



APPROVED:  
*IRVINE RANCH WATER DISTRICT*  
DIRECTOR OF ENGINEERING AND PLANNING  
KEVIN L. BURTON R.M.E. 28832 \_\_\_\_\_ DATE



LOCATION MAP  
NOT TO SCALE



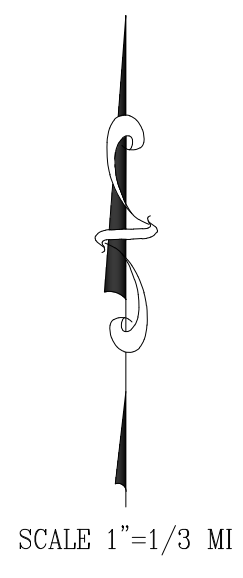
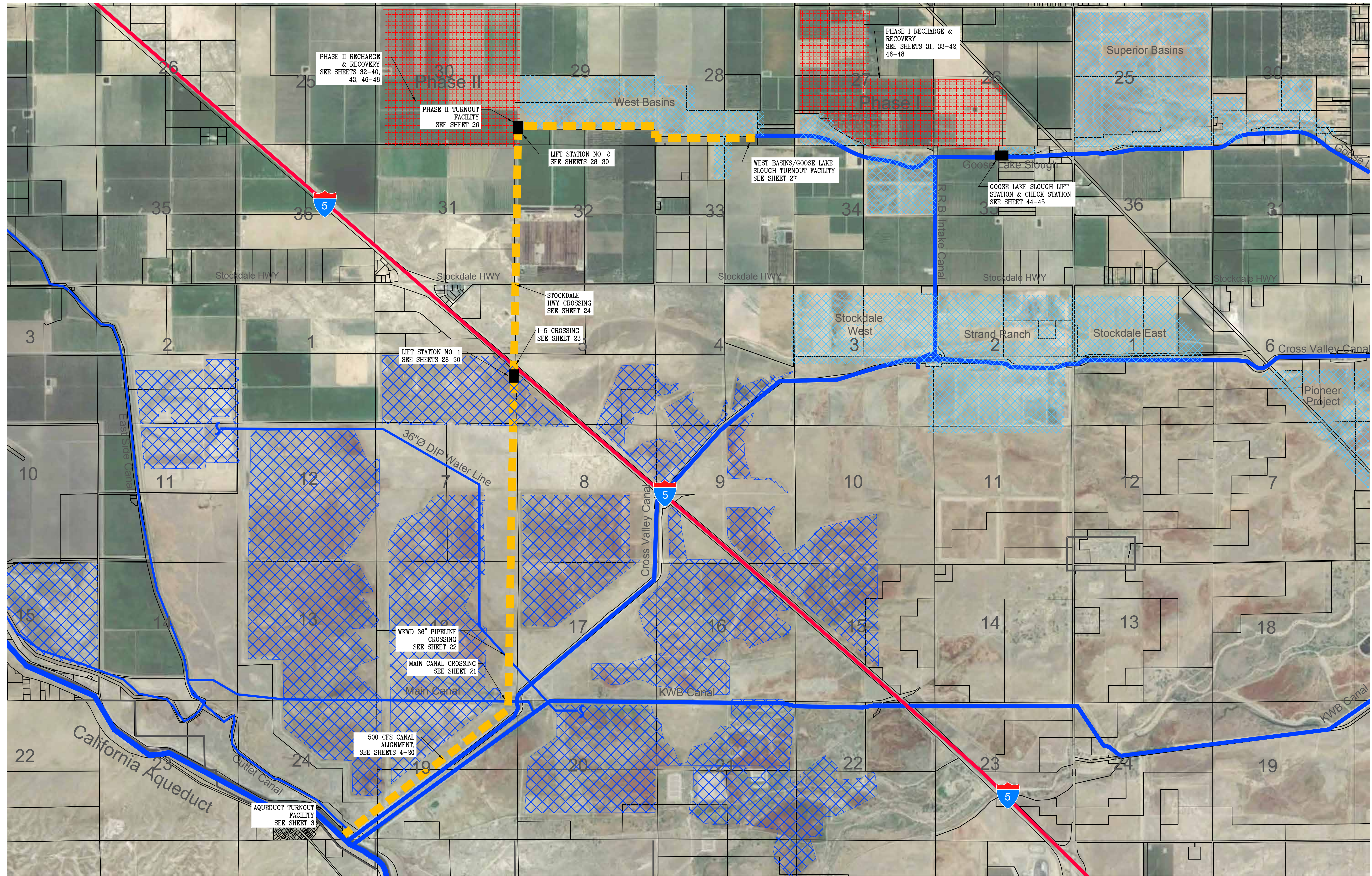
**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
3701 PEGASUS DRIVE, SUITE 121 BAKERSFIELD, CALIFORNIA 93309  
PHONE 805 393-4796 FAX 805 393-4799

DRAWN BY  
MATTHEW HOOKER

REVIEWED BY  
CURTIS M. SKAGGS  
C60960  
EXP. 12/31/20

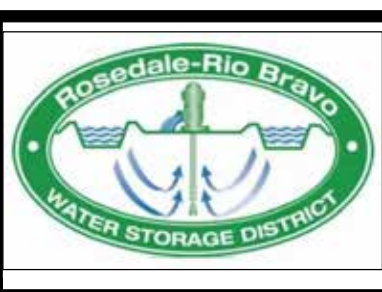
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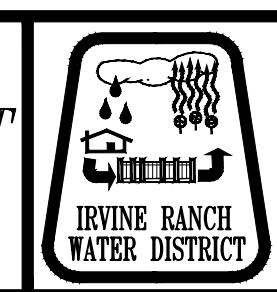
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Bakersfield, Calif.



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**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



|                            |                    |      |
|----------------------------|--------------------|------|
| CURTIS M. SKAGGS RCE 60960 | PROJECT ENGINEER   | DATE |
| KEVIN L. BURTON            | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT               | GENERAL MANAGER    |      |

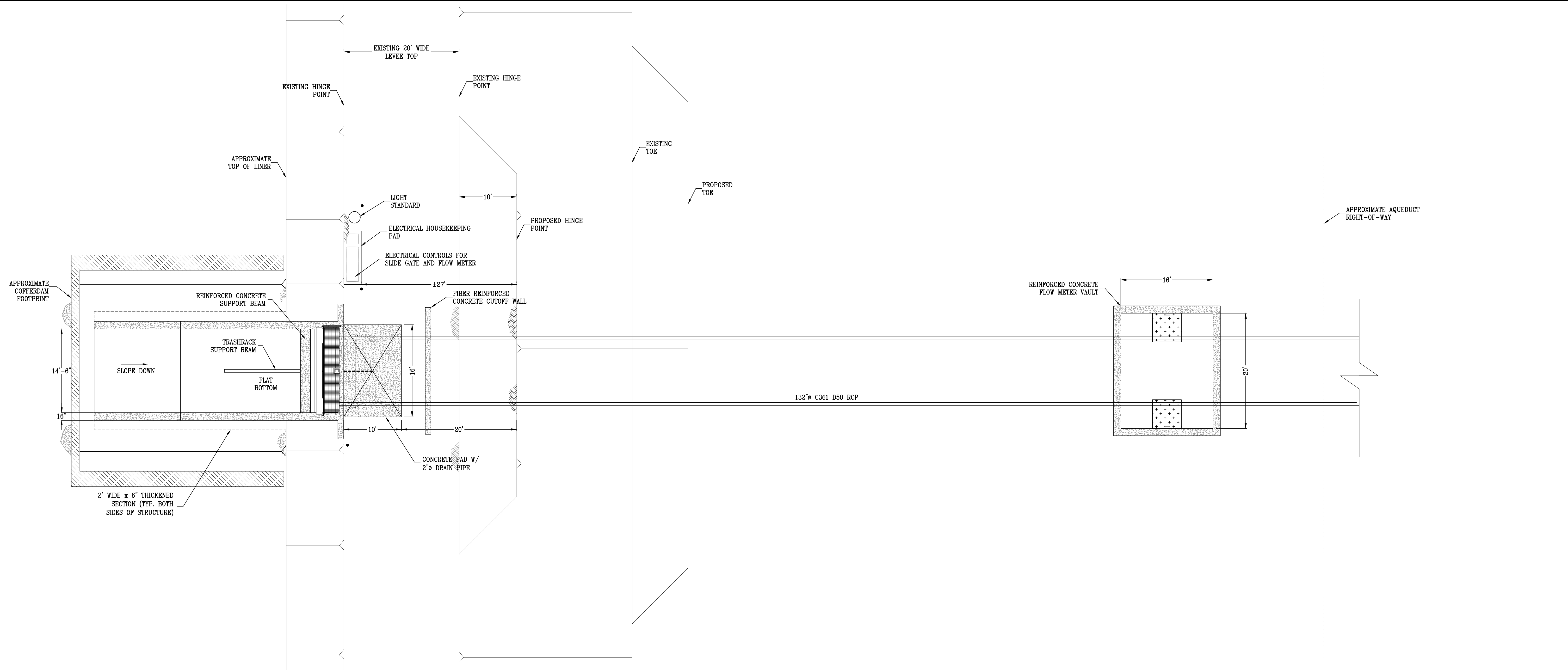
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2730 UNICORN ROAD, BLDG A  
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PHONE 559 791-9286  
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**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
SITE PLAN OVERVIEW

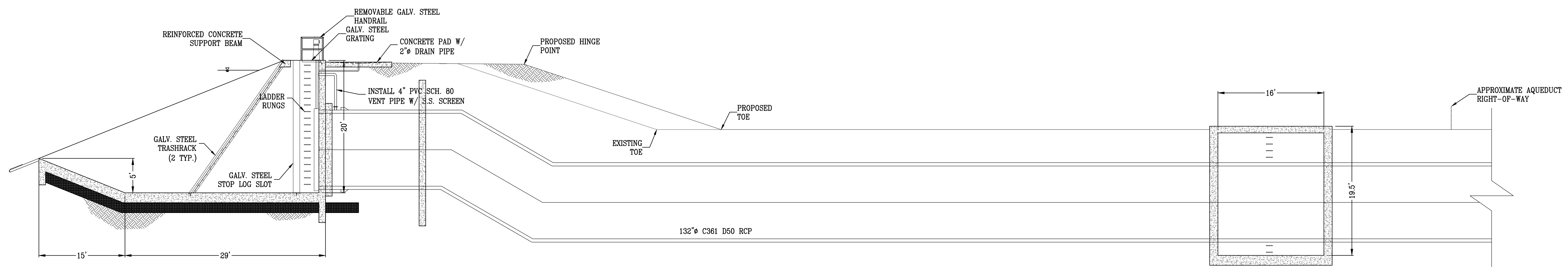
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AQUEDUCT TURNOUT  
PLAN VIEW



AQUEDUCT TURNOUT  
ELEVATION VIEW

| No. | DATE | REVISIONS | APPROVED |
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Bakersfield, Calif.



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**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



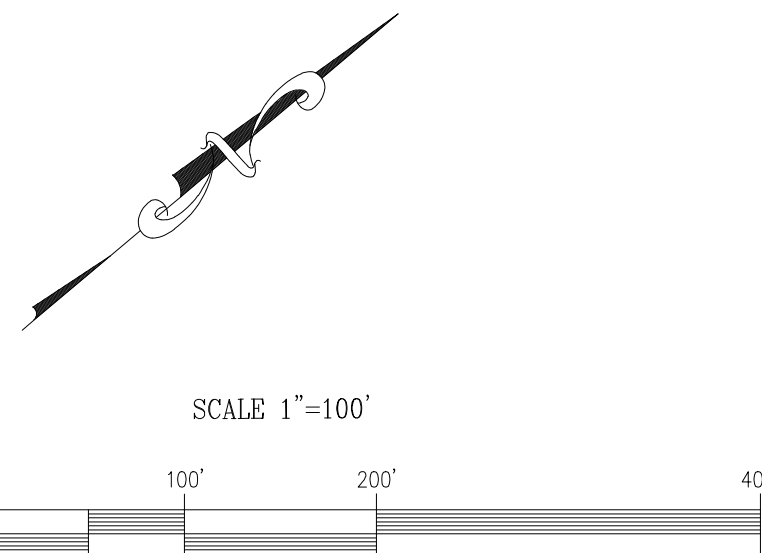
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| CURTIS M. SKAGGS | RCE 60960 | PROJECT ENGINEER   | DATE |
| KEVIN L. BURTON  |           | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT     |           | GENERAL MANAGER    |      |

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FAX 559-783-9275

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**AQUEDUCT TURNOUT FACILITY**

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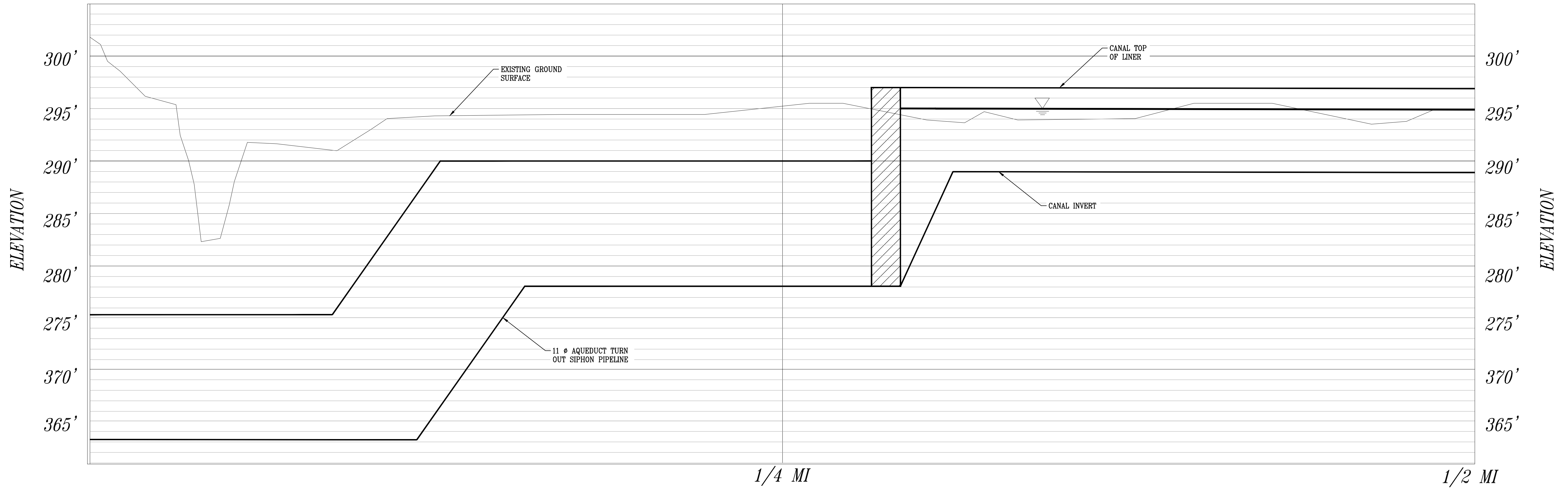




PLAN VIEW

1/4 MI

1/2 MI



PROFILE VIEW

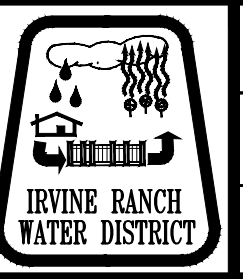
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Bakersfield, Calif.



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Irvine, Calif.



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| ERIC AVERETT               |      |
| EXECUTIVE DIRECTOR         |      |
| GENERAL MANAGER            |      |

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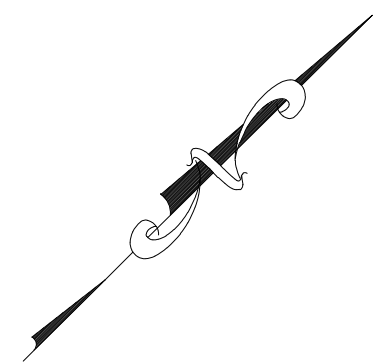
PHONE 661 393-4796  
FAX 661 393-4799  
PHONE 559 791-9286  
FAX 559 783-9275

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**PRELIMINARY CANAL PLAN & PROFILE VIEW**

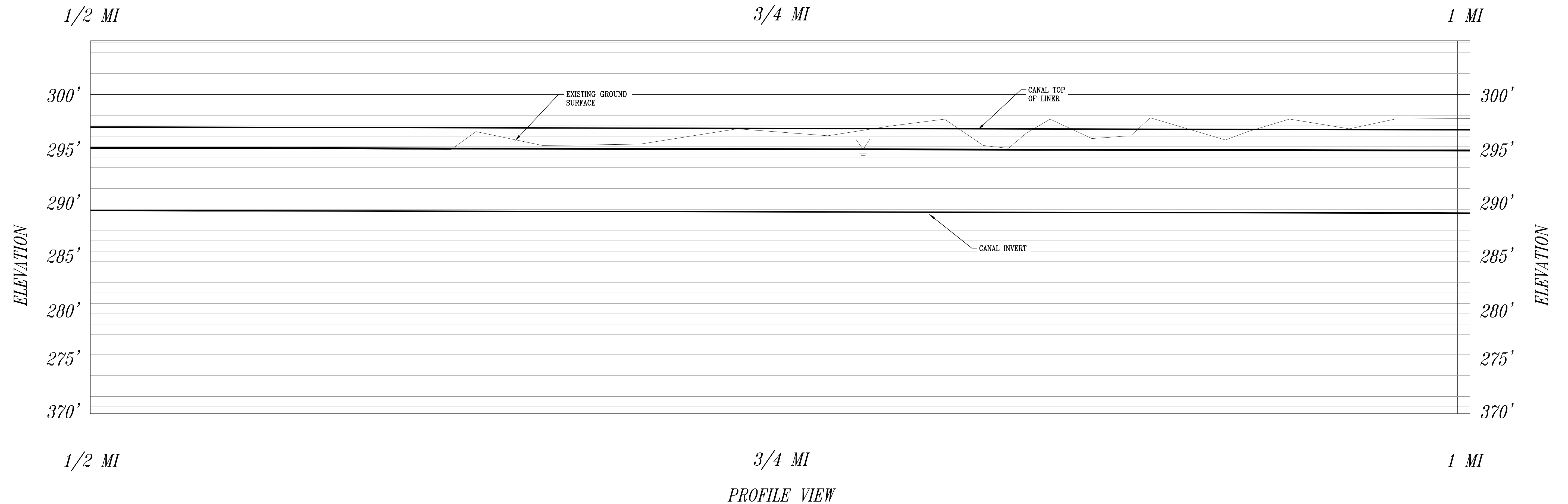
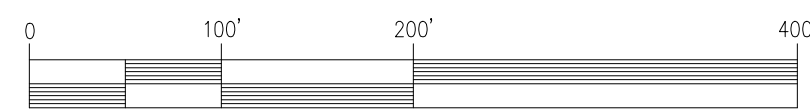




PLAN VIEW



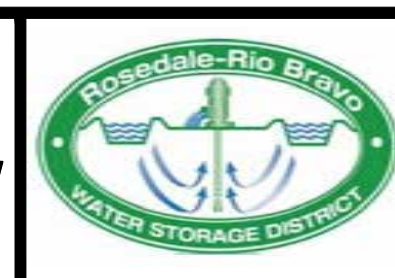
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PROFILE VIEW

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Bakersfield, Calif.



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Irvine, Calif.



| NAME                       | PROJECT ENGINEER   | DATE |
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| KEVIN L. BURTON            | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT               | GENERAL MANAGER    |      |

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BAKERSFIELD, CALIFORNIA 93309  
639 N. MAIN STREET, #B  
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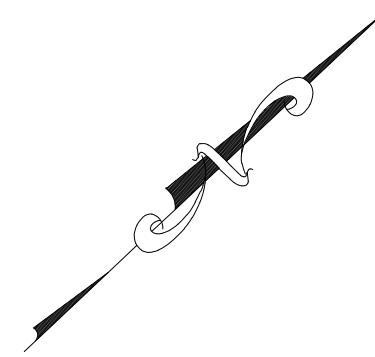
PHONE 661 393-4796  
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**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER \_\_\_\_\_  
PRELIMINARY CANAL PLAN & PROFILE VIEW

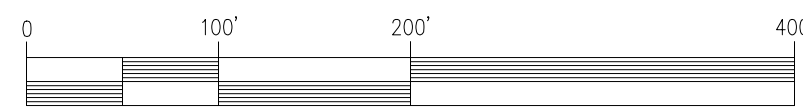




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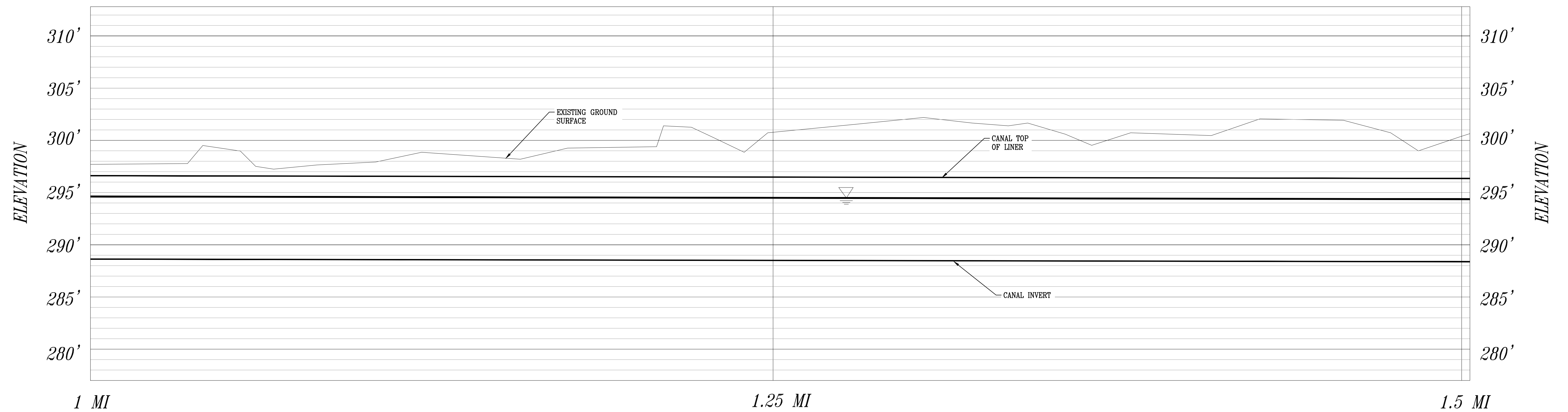
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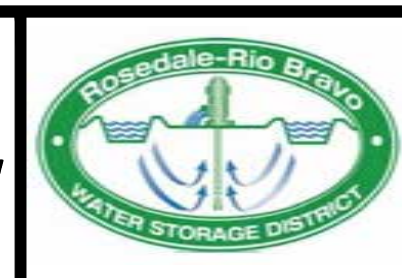
1.5 MI



PROFILE VIEW

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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:  
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**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



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|----------------------------|------|
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| KEVIN L. BURTON            |      |
| ERIC AVERETT               |      |
| EXECUTIVE DIRECTOR         |      |
| GENERAL MANAGER            |      |

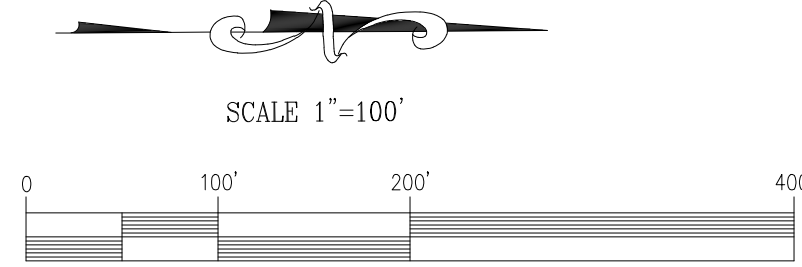
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PHONE: 559-791-9286  
FAX: 559-783-9275

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**PRELIMINARY CANAL PLAN & PROFILE VIEW**





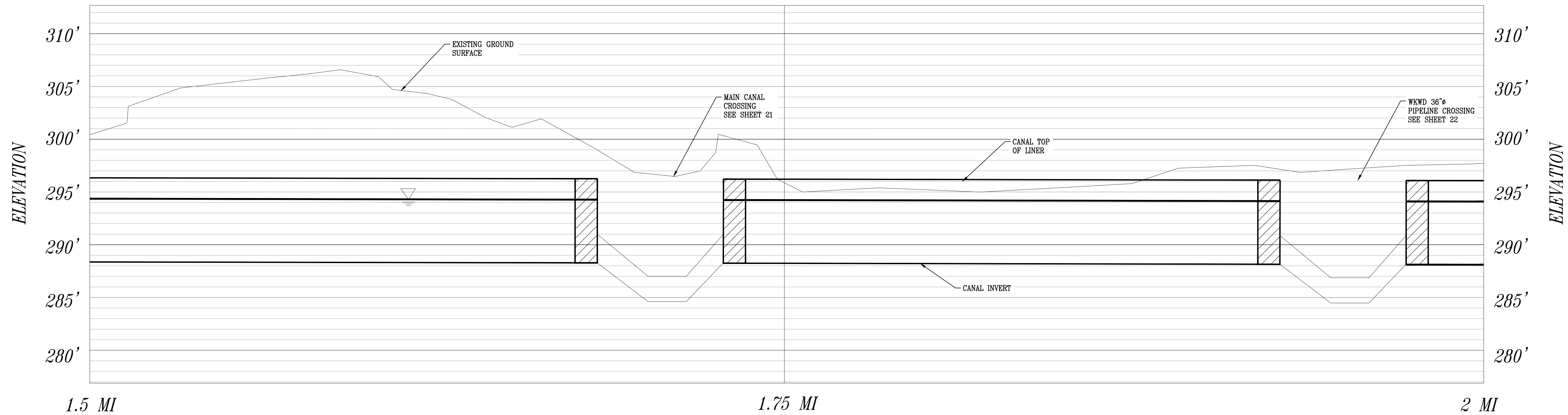
PLAN VIEW



1.5 MI

1.75 MI

2 MI



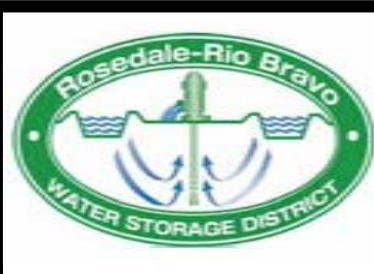
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



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**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



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| CURTIS M. SKAGGS RCE 60960 |      |
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| GENERAL MANAGER            |      |
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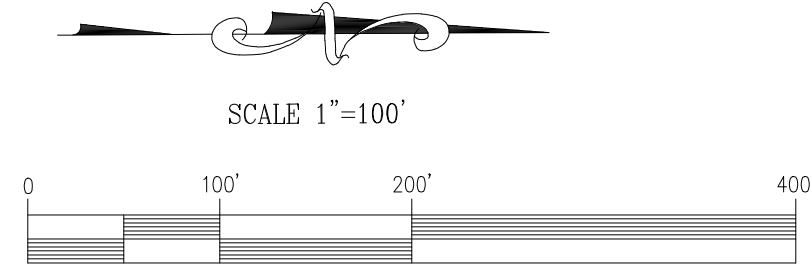
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**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**PRELIMINARY CANAL PLAN & PROFILE VIEW**





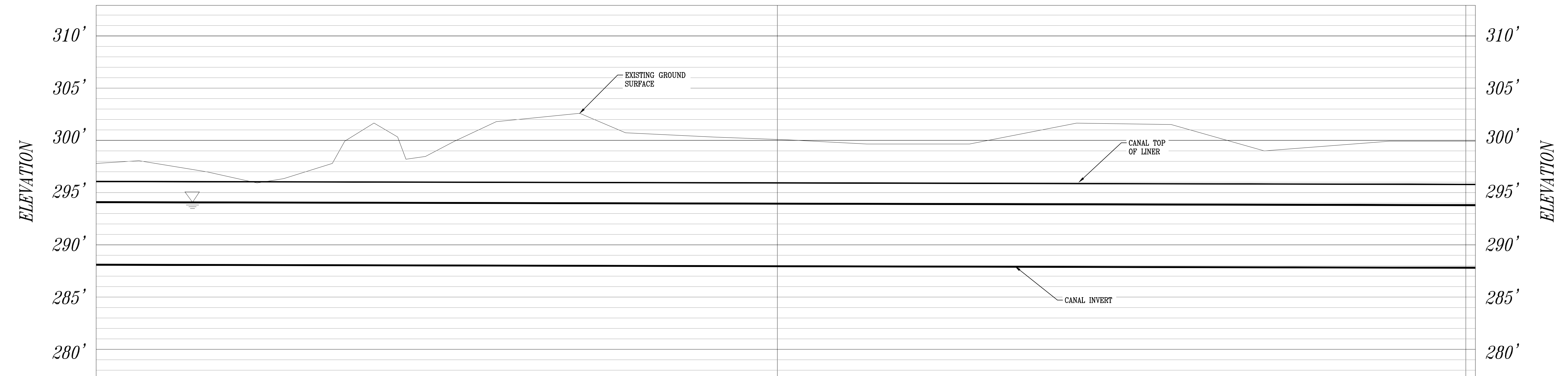
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2 MI

2.25 MI

2.5 MI



PROFILE VIEW

2 MI

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2.5 MI

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**ROSEDALE-RIO BRAVO**  
**WATER DISTRICT**  
 Bakersfield, Calif.



DESIGNED: \_\_\_\_\_  
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**IRVINE RANCH**  
**WATER DISTRICT**  
 Irvine, Calif.



| PROJECT ENGINEER           | DATE |
|----------------------------|------|
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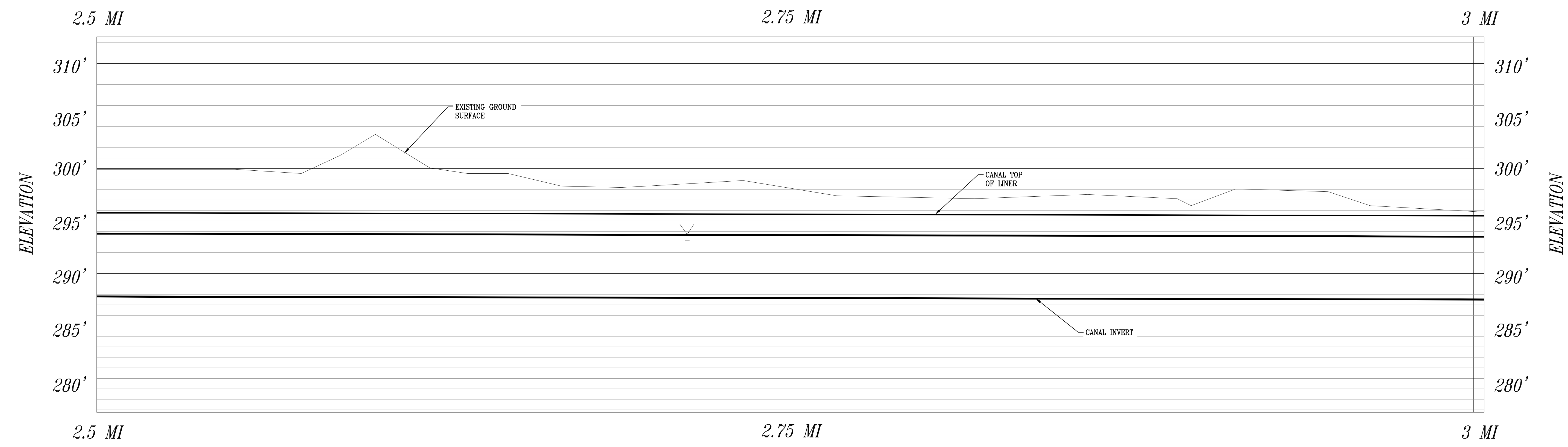
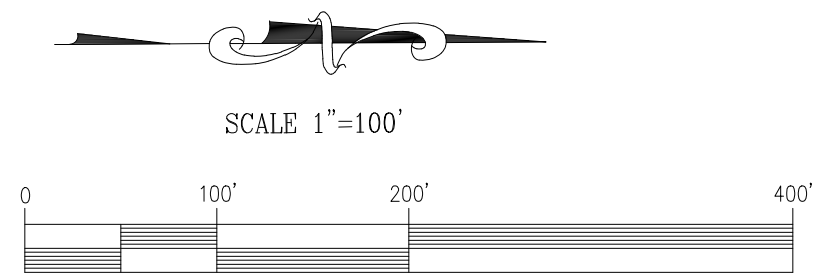
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PLAN VIEW



PROFILE VIEW

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**ROSEDALE-RIO BRAVO  
WATER DISTRICT**  
Bakersfield, Calif.



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**IRVINE RANCH  
WATER DISTRICT**  
Irvine, Calif.



|                            | PROJECT ENGINEER   | DATE |
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| ERIC AVERETT               | GENERAL MANAGER    |      |

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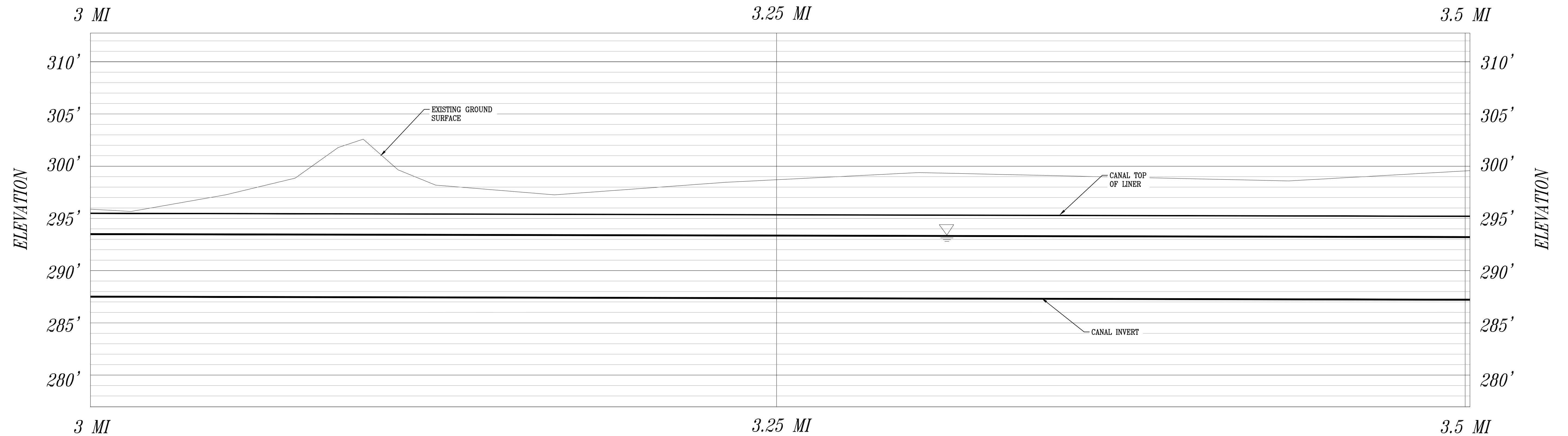
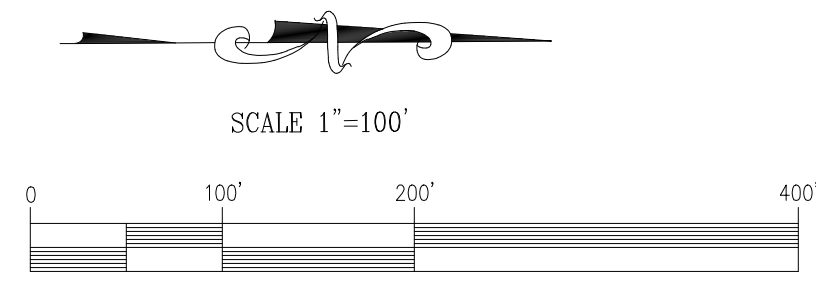
PHONE: 661 393-4796  
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**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**PRELIMINARY CANAL PLAN & PROFILE VIEW**





PLAN VIEW



PROFILE VIEW

| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



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Irvine, Calif.



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| CURTIS M. SKAGGS RCE 60960 |      |
| KEVIN L. BURTON            |      |
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| EXECUTIVE DIRECTOR         |      |
| GENERAL MANAGER            |      |



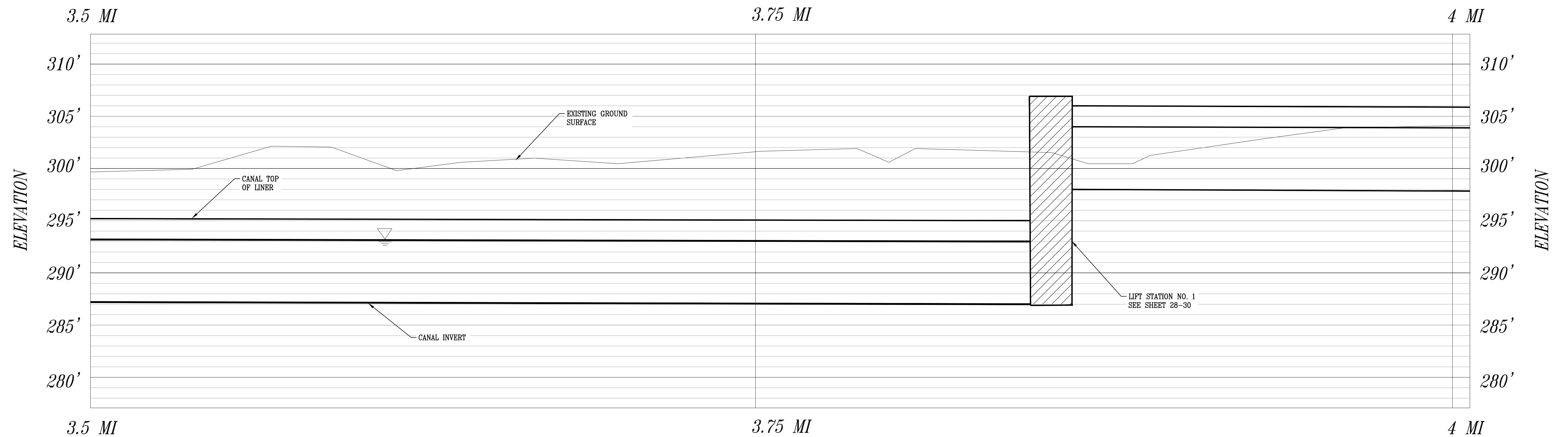
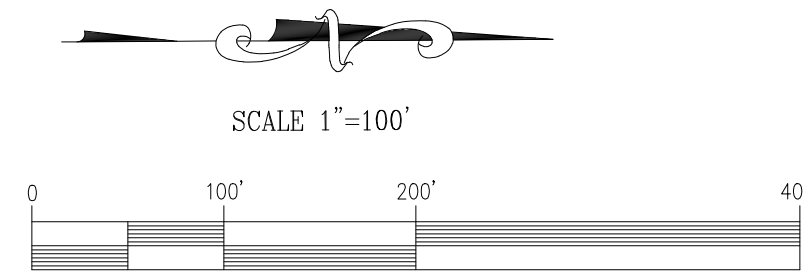
**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**PRELIMINARY CANAL PLAN & PROFILE VIEW**

SHEET  
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48





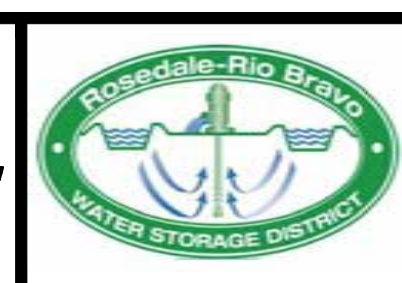
PLAN VIEW



PROFILE VIEW

| No. | DATE | REVISIONS | APPROVED |
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PHONE 661 393-4796  
FAX 661 393-4799  
PHONE 559 791-9286  
FAX 559 783-9275

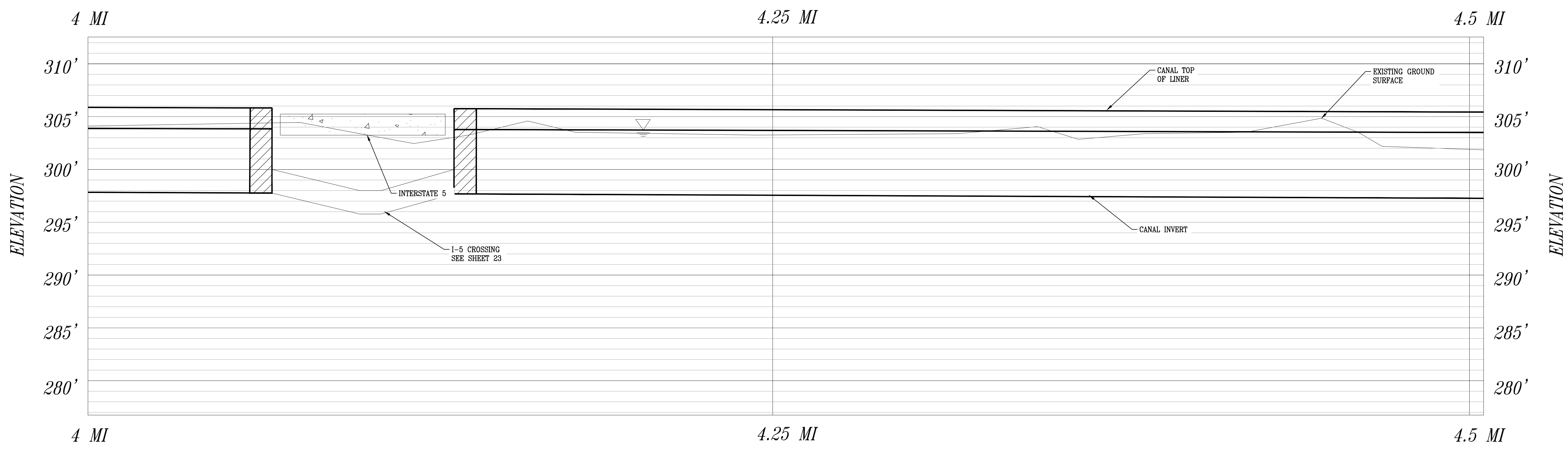
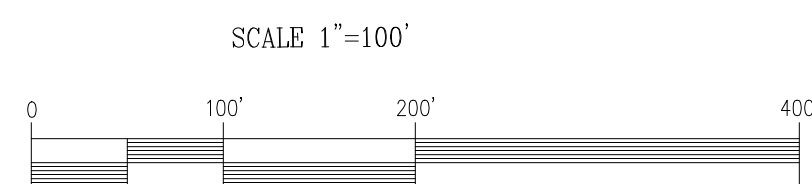
**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**PRELIMINARY CANAL PLAN & PROFILE VIEW**

SHEET  
**11**  
OF  
**48**





PLAN VIEW



PROFILE VIEW

| No. | DATE | REVISIONS | APPROVED |
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ROSEDALE-RIO BRAVO  
WATER DISTRICT  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

IRVINE RANCH  
WATER DISTRICT  
Irvine, Calif.



| NAME                       | PROJECT ENGINEER   | DATE |
|----------------------------|--------------------|------|
| CURTIS M. SKAGGS RCE 60960 |                    |      |
| KEVIN L. BURTON            | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT               | GENERAL MANAGER    |      |

DEE JASPAR & ASSOCIATES, INC.  
CIVIL ENGINEERS  
2730 LINCOLN ROAD, BLDG A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE 661 393-4796  
FAX 661 393-4799  
PHONE 559 791-9286  
FAX 559 783-9275

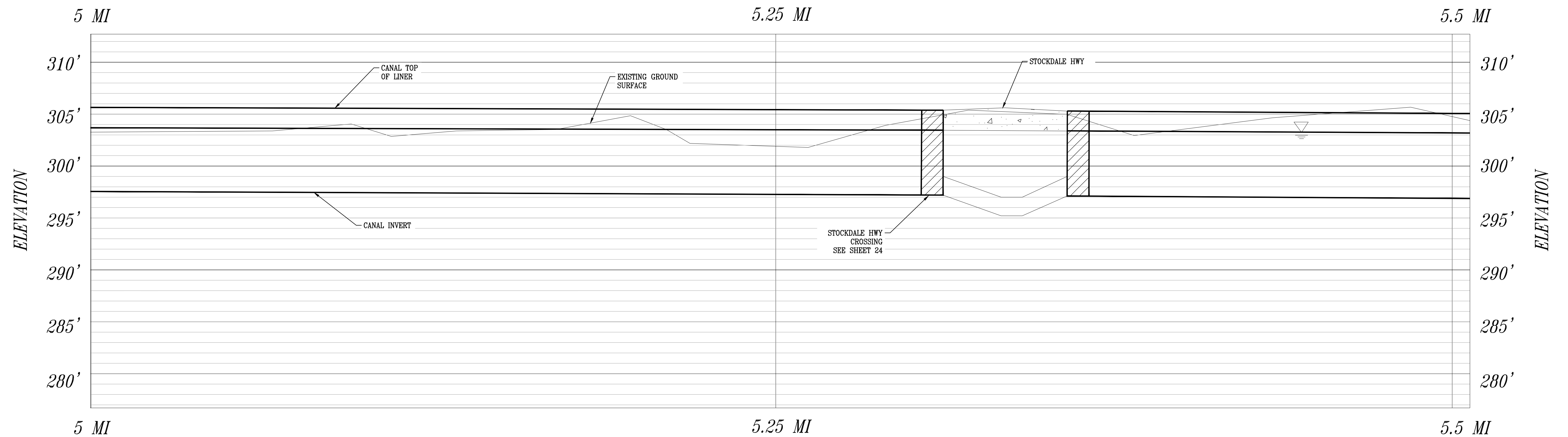
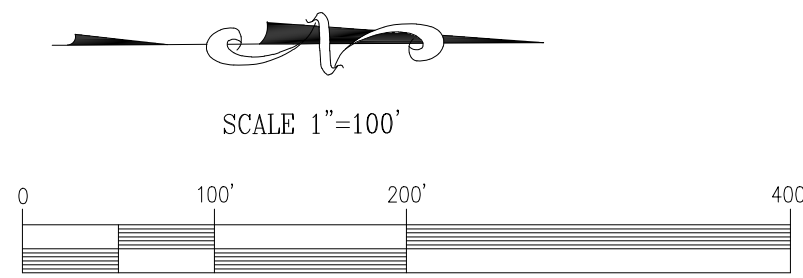
KERN FAN GROUNDWATER STORAGE PROJECT  
PROJECT NUMBER  
PRELIMINARY CANAL PLAN & PROFILE VIEW

SHEET  
12  
OF  
48





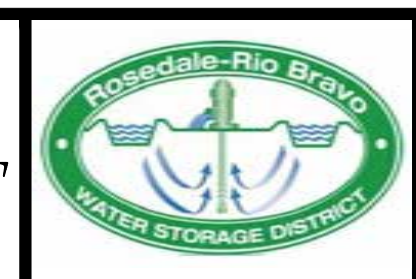
PLAN VIEW



PROFILE VIEW

| No. | DATE | REVISIONS | APPROVED |
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ROSEDALE-RIO BRAVO  
WATER DISTRICT  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

IRVINE RANCH  
WATER DISTRICT  
Irvine, Calif.



| NAME                       | PROJECT ENGINEER   | DATE |
|----------------------------|--------------------|------|
| CURTIS M. SKAGGS RCE 60960 |                    |      |
| KEVIN L. BURTON            | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT               | GENERAL MANAGER    |      |

**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 UNICORN ROAD, BLDG A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257

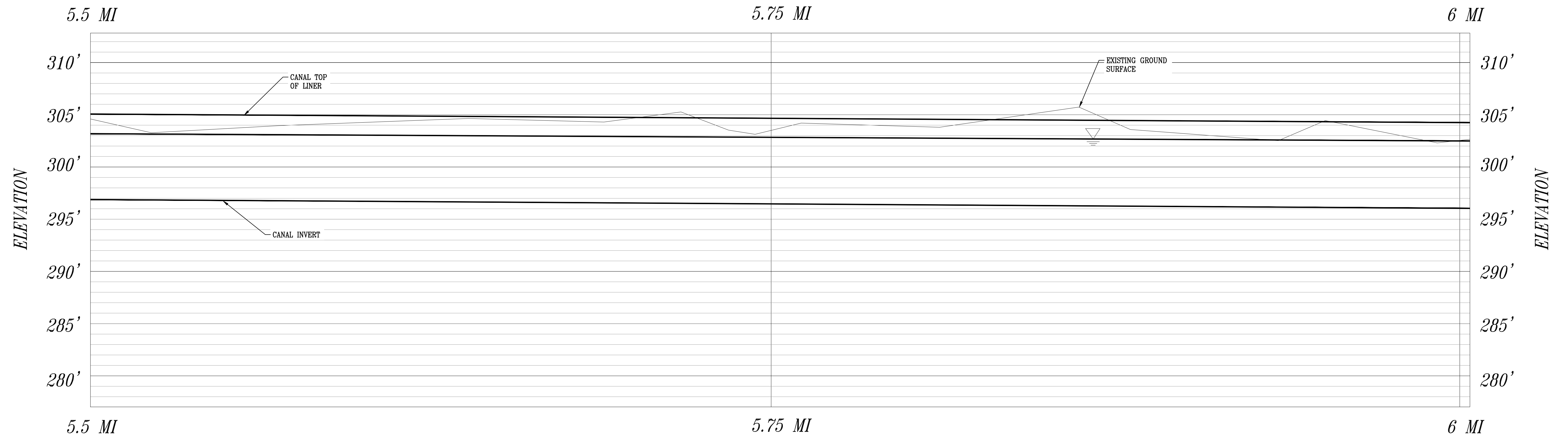
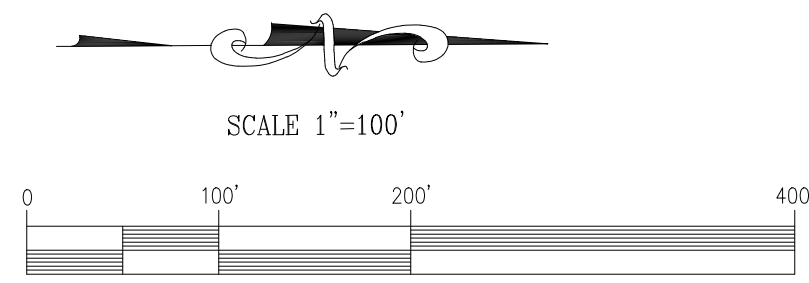
PHONE 661-931-4796  
FAX 661-933-4799  
PHONE 559-791-9286  
FAX 559-783-9275

KERN FAN GROUNDWATER STORAGE PROJECT  
PROJECT NUMBER  
PRELIMINARY CANAL PLAN & PROFILE VIEW





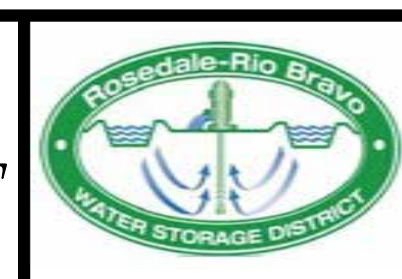
PLAN VIEW



PROFILE VIEW

| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO  
WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH  
WATER DISTRICT**  
Irvine, Calif.



| NAME                       | PROJECT ENGINEER   | DATE |
|----------------------------|--------------------|------|
| CURTIS M. SKAGGS RCE 60960 |                    |      |
| KEVIN L. BURTON            | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT               | GENERAL MANAGER    |      |

**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 UNICORN ROAD, BLDG. A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE 661-393-4796  
FAX 661-393-4799  
PHONE 559-791-9286  
FAX 559-783-9275

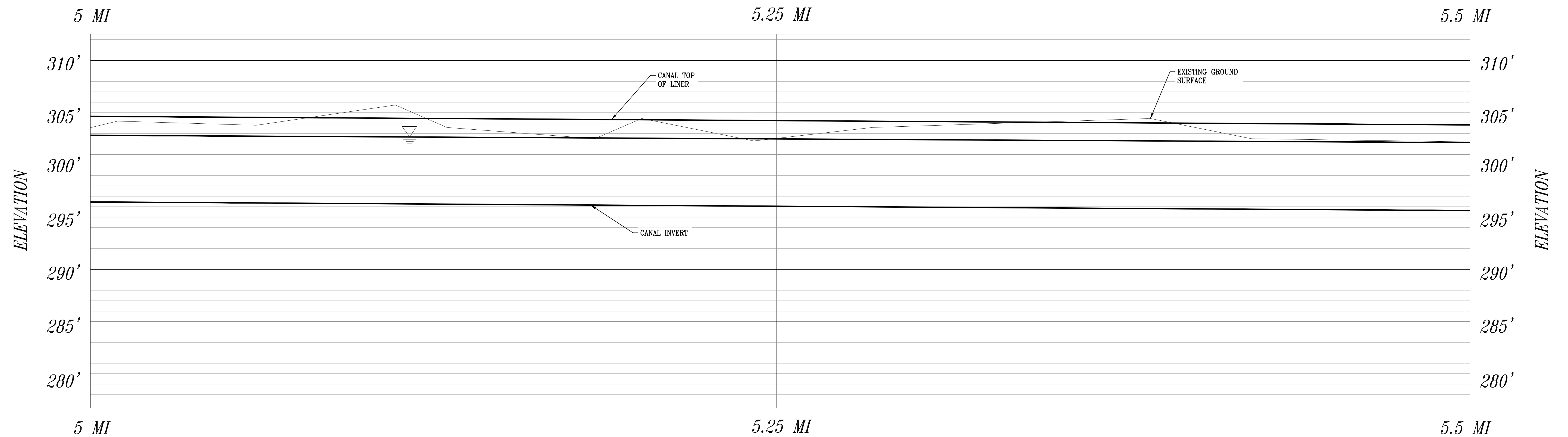
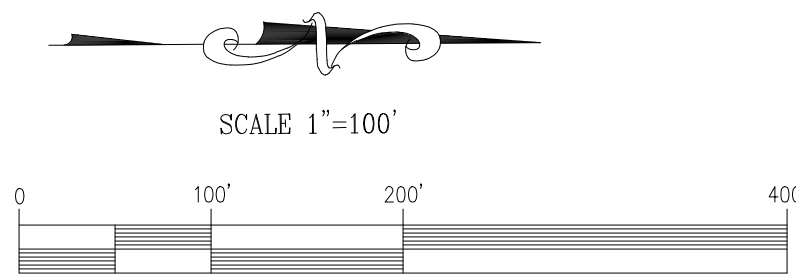
**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**PRELIMINARY CANAL PLAN & PROFILE VIEW**

SHEET  
14  
OF  
48





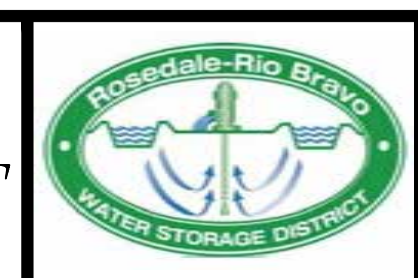
PLAN VIEW



PROFILE VIEW

| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:   
DRAWN: CCH   
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



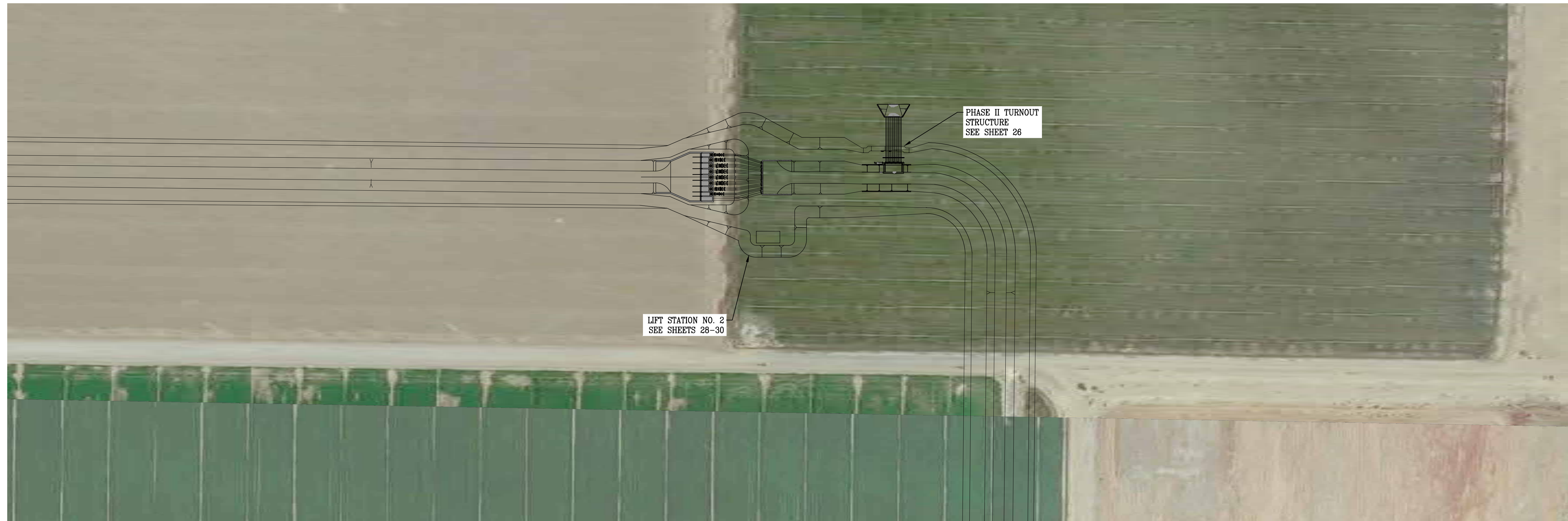
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| CURTIS M. SKAGGS | RCE 60960 | PROJECT ENGINEER   | DATE |
| KEVIN L. BURTON  |           | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT     |           | GENERAL MANAGER    |      |

**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 LINCOLN ROAD, BLDG A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE 861 393-4796  
FAX 861 393-4799  
PHONE 559 791-9286  
FAX 559 783-9273

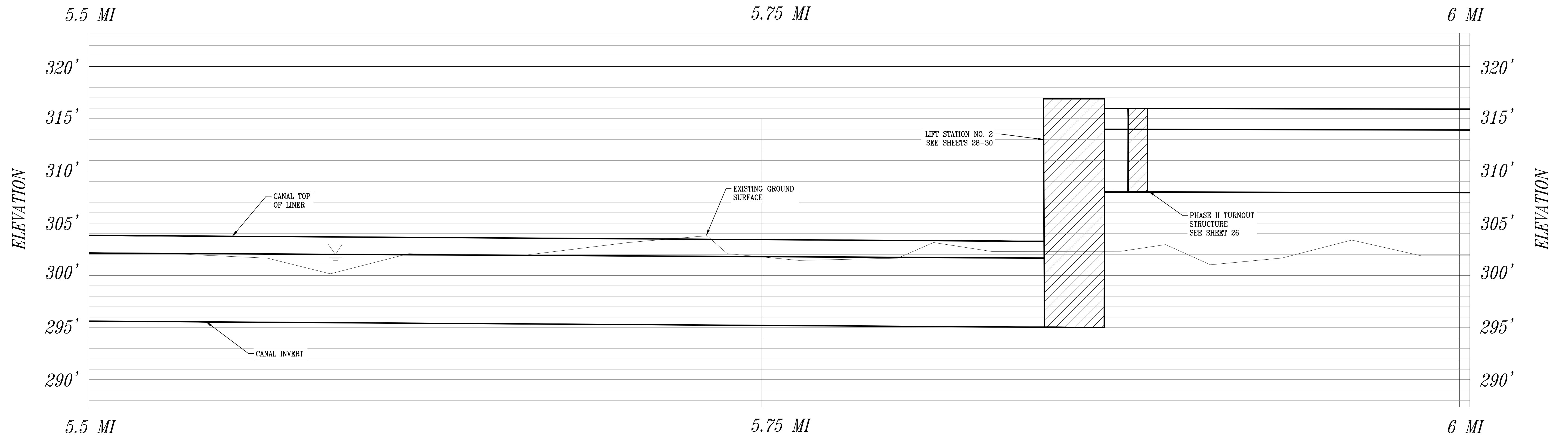
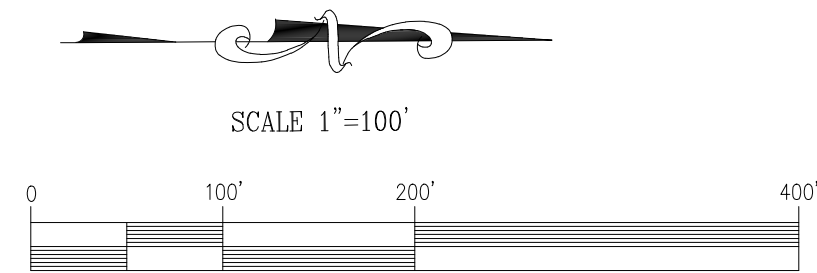
**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**PRELIMINARY CANAL PLAN & PROFILE VIEW**

SHEET 15 OF 48





PLAN VIEW



PROFILE VIEW

| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:   
DRAWN: CCH   
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



| NAME                       | PROJECT ENGINEER   | DATE |
|----------------------------|--------------------|------|
| CURTIS M. SKAGGS RCE 60960 |                    |      |
| KEVIN L. BURTON            | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT               | GENERAL MANAGER    |      |

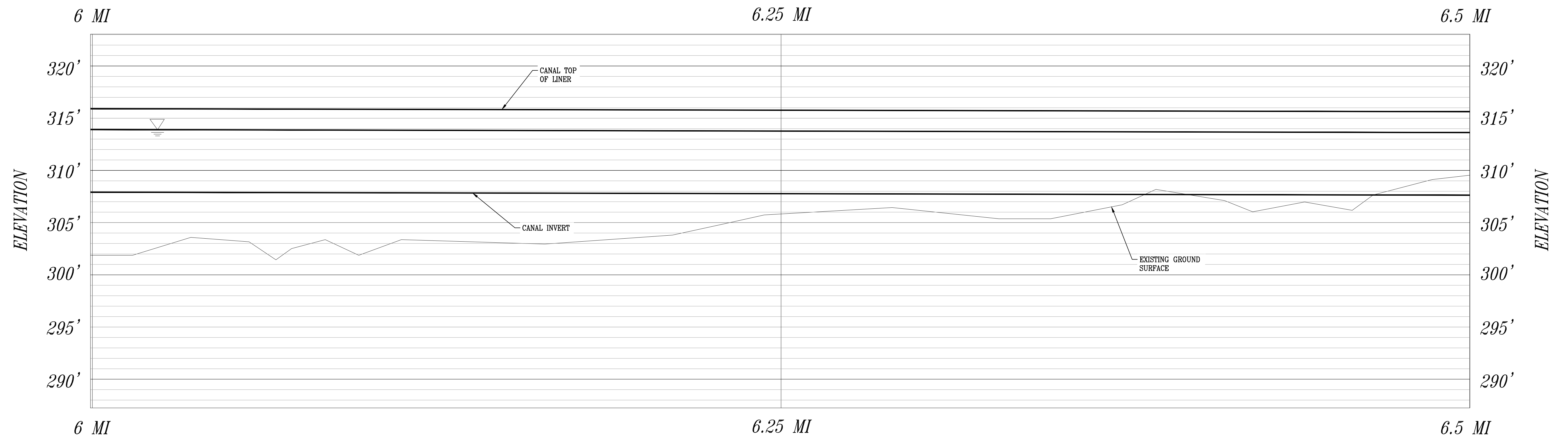
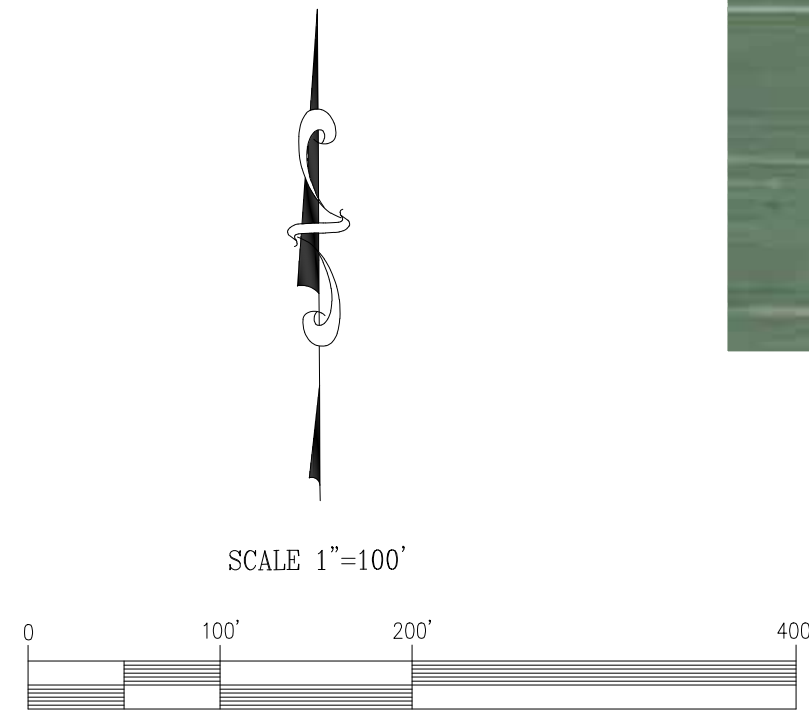
**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 UNICORN ROAD, BLDG A  
BAKERSFIELD, CALIFORNIA 93308  
PHONE 661 333-4796  
FAX 661 333-4799  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE 559 791-9286  
FAX 559 783-9275

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**PRELIMINARY CANAL PLAN & PROFILE VIEW**





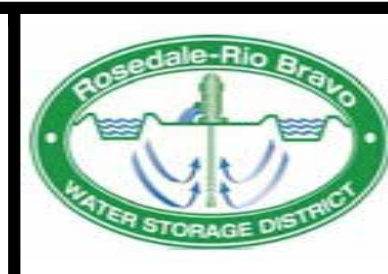
PLAN VIEW



PROFILE VIEW

| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



| NAME                       | PROJECT ENGINEER   | DATE |
|----------------------------|--------------------|------|
| CURTIS M. SKAGGS RCE 60960 |                    |      |
| KEVIN L. BURTON            | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT               | GENERAL MANAGER    |      |

**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 LINCOLN ROAD, BLDG A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257

PHONE 561 393-4796  
FAX 561 393-4799  
PHONE 559 791-9286  
FAX 559 783-9275

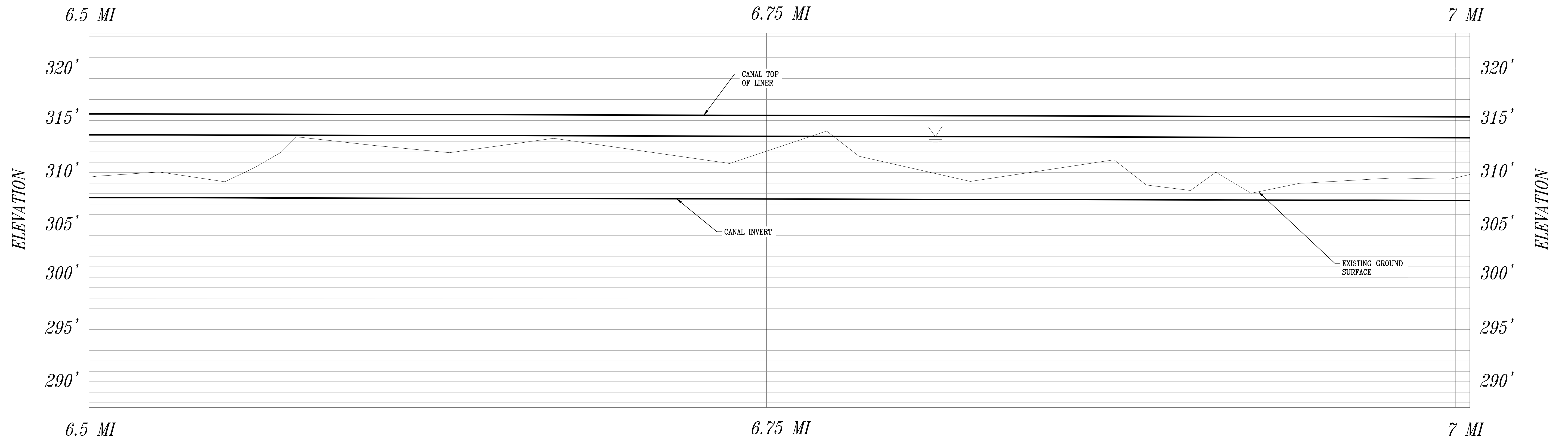
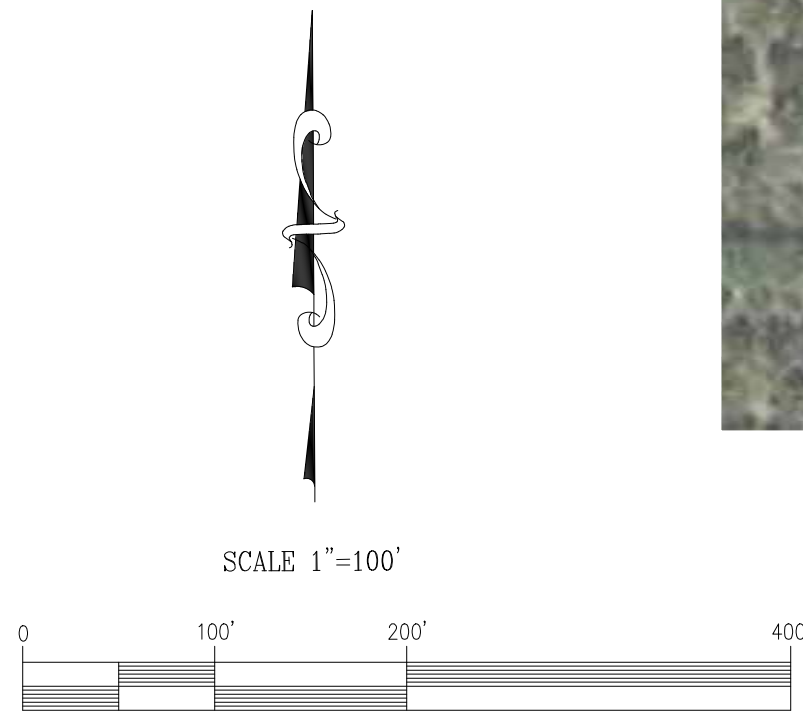
**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**PRELIMINARY CANAL PLAN & PROFILE VIEW**

SHEET  
17  
OF  
48





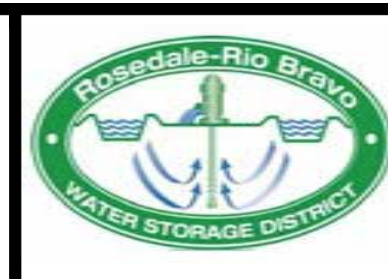
PLAN VIEW



PROFILE VIEW

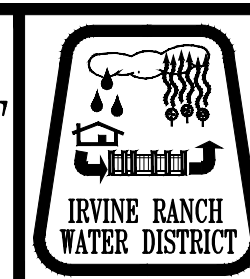
| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



| PROJECT ENGINEER           | DATE |
|----------------------------|------|
| CURTIS M. SKAGGS RCE 60960 |      |
| KEVIN L. BURTON            |      |
| ERIC AVERETT               |      |

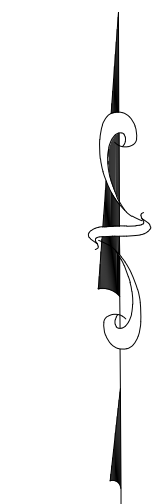
**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
6730 UNIFORM ROAD, BLDG A BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #8 PORTERVILLE, CALIFORNIA 93257  
PHONE 661 393-4796  
FAX 661 393-4799  
PHONE 559 791-9286  
FAX 559 783-9275

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**PRELIMINARY CANAL PLAN & PROFILE VIEW**

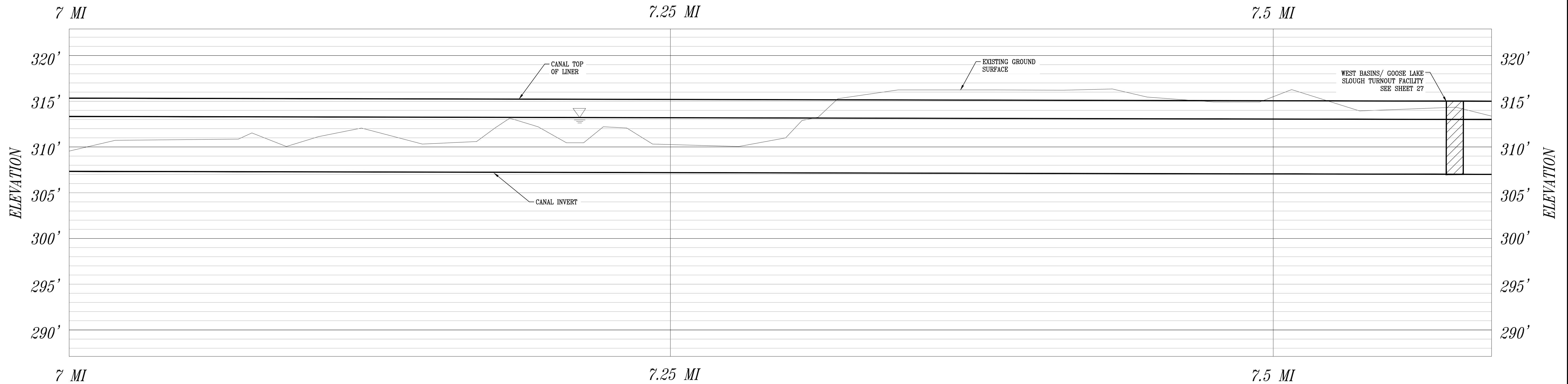
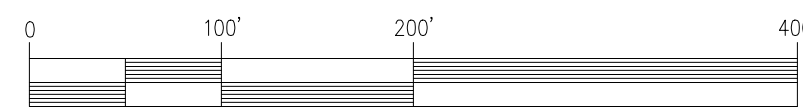




PLAN VIEW



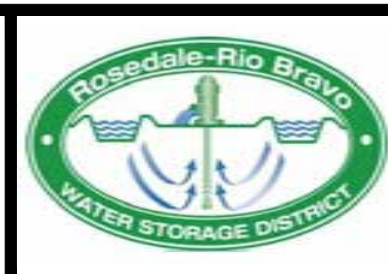
SCALE 1"=100'



PROFILE VIEW

| No. | DATE | REVISIONS | APPROVED |
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ROSEDALE-RIO BRAVO  
WATER DISTRICT  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

IRVINE RANCH  
WATER DISTRICT  
Irvine, Calif.



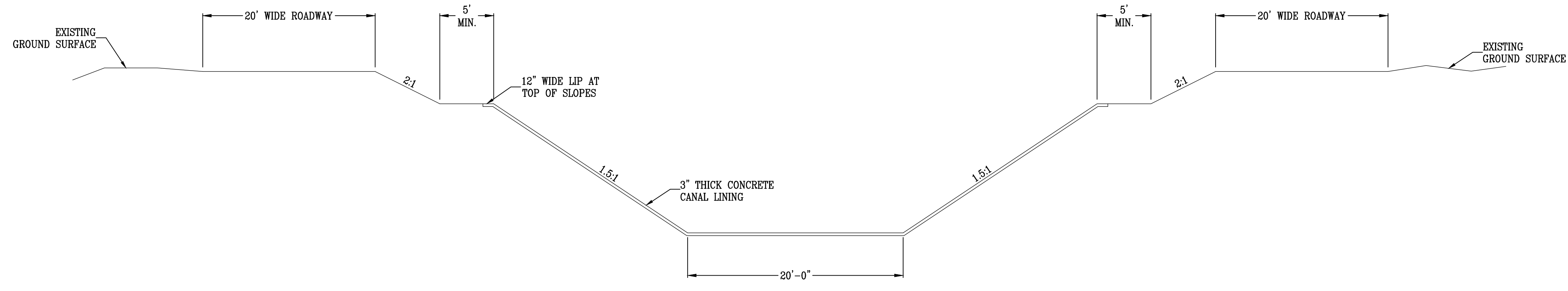
| NAME                       | PROJECT ENGINEER   | DATE |
|----------------------------|--------------------|------|
| CURTIS M. SKAGGS RCE 60960 |                    |      |
| KEVIN L. BURTON            | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT               | GENERAL MANAGER    |      |

**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 UNICORN ROAD, BLDG. A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE: 661-333-4796  
FAX: 661-333-4799  
PHONE: 559-781-9286  
FAX: 559-783-9275

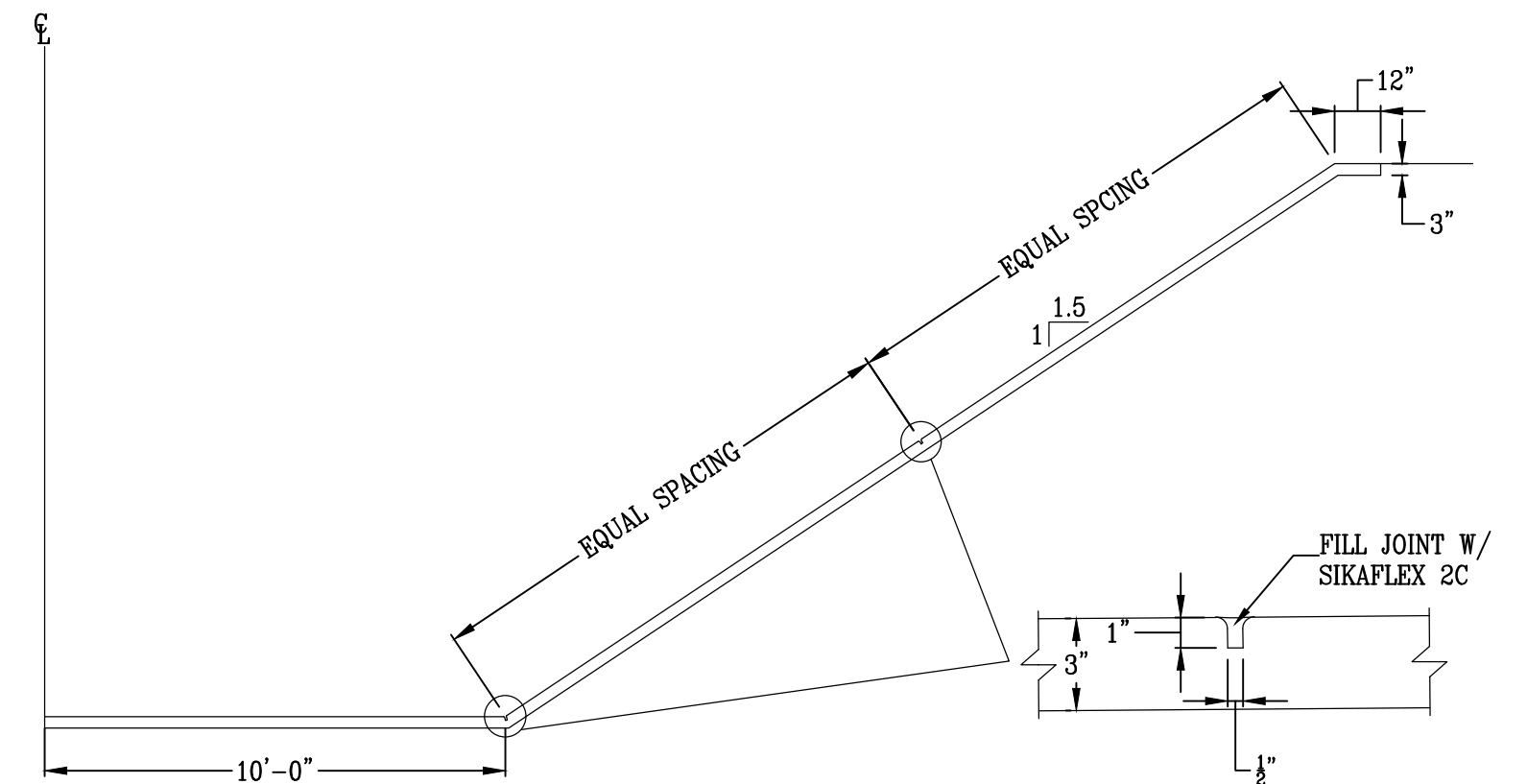
KERN FAN GROUNDWATER STORAGE PROJECT  
PROJECT NUMBER  
PRELIMINARY CANAL PLAN & PROFILE VIEW

SHEET  
19  
OF  
48

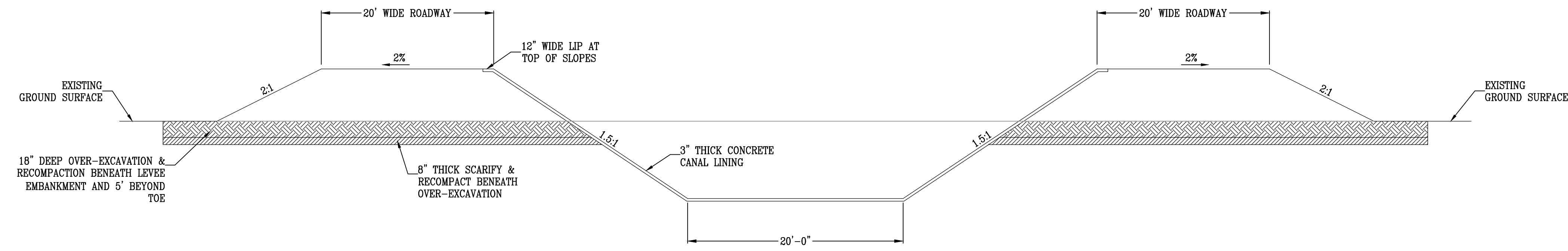




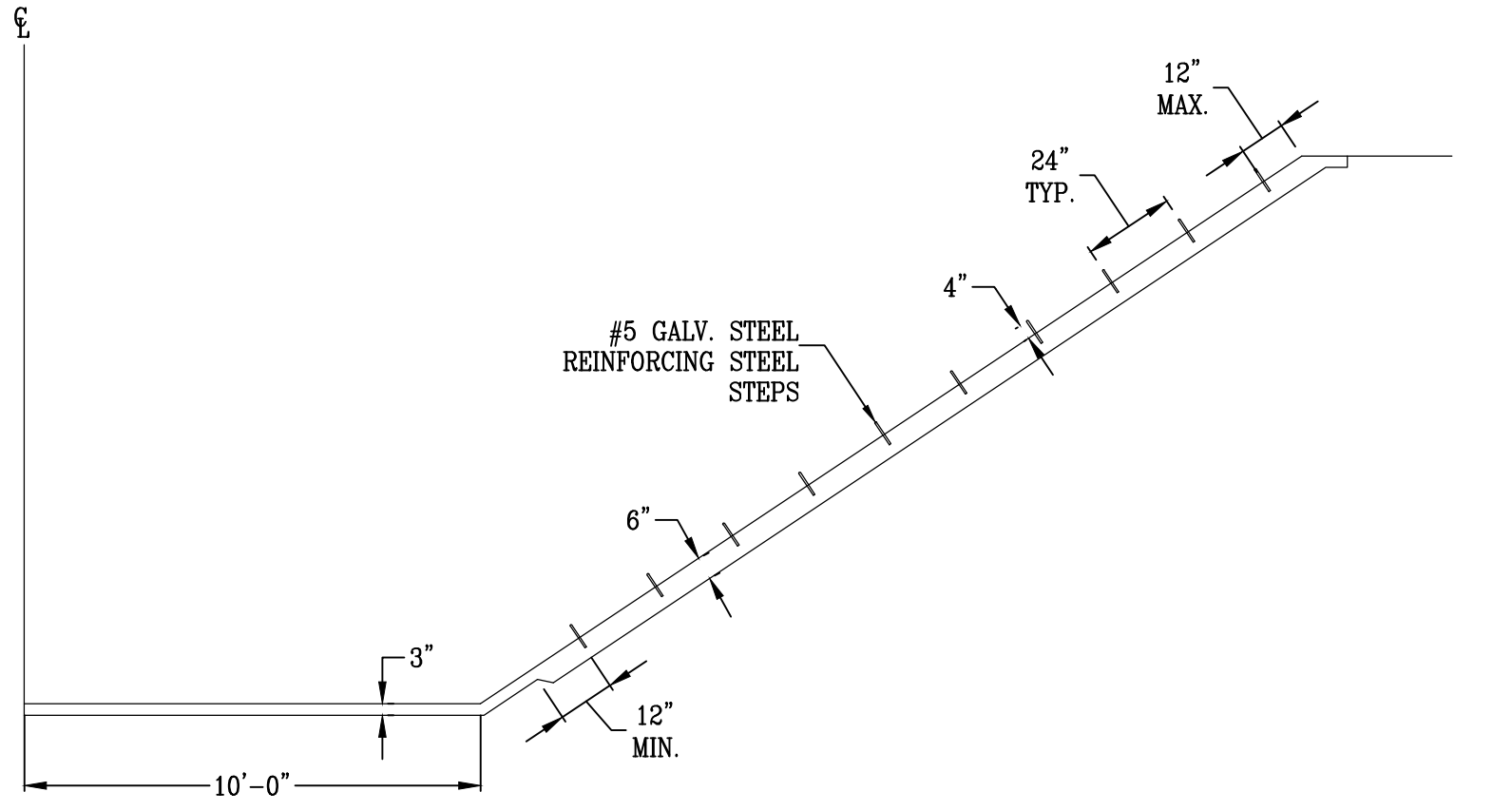
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(IN CUT)



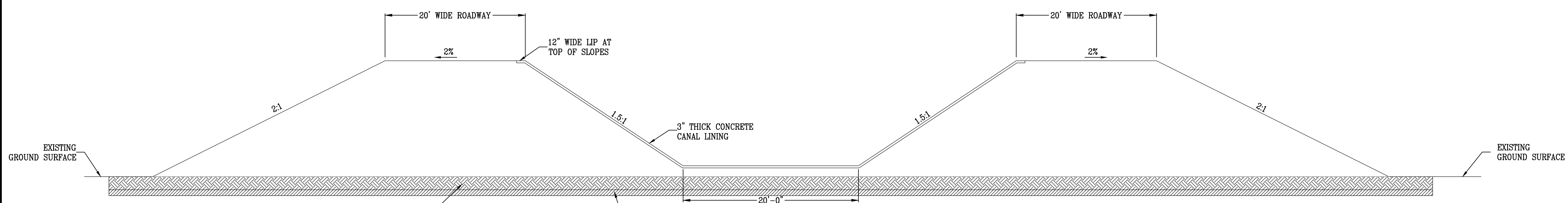
CANAL LINER JOINT DETAIL  
NTS



TYPICAL CANAL CROSS SECTION  
(PARTIAL CUT & PARTIAL FILL)



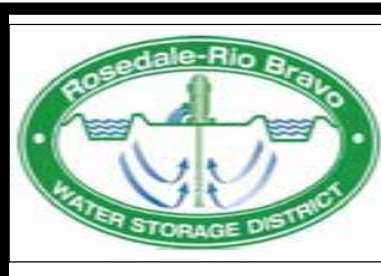
CANAL LADDER DETAIL  
NTS



TYPICAL CANAL CROSS SECTION  
(IN FILL)

| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO  
WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH  
WATER DISTRICT**  
Irvine, Calif.

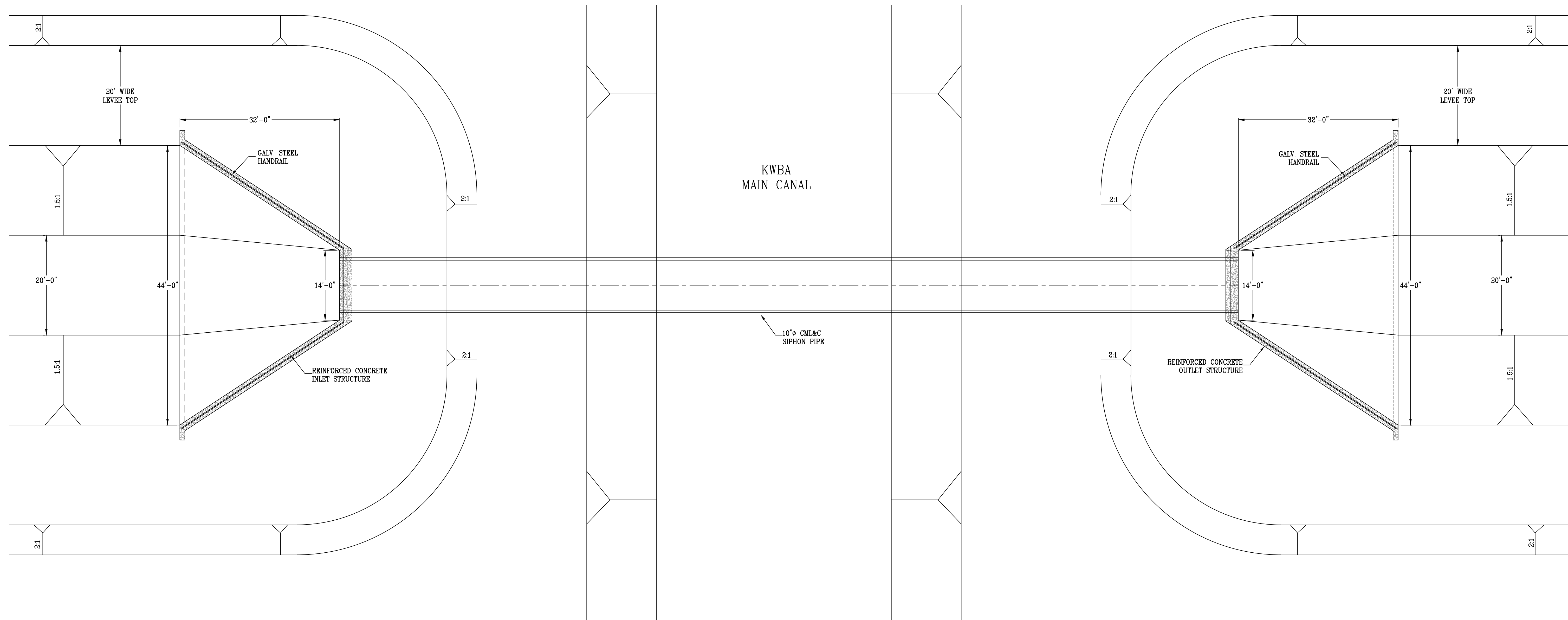


PROJECT ENGINEER: CURTIS M. SKAGGS RCE 60960  
EXECUTIVE DIRECTOR: KEVIN L. BURTON  
GENERAL MANAGER: ERIC AVERETT

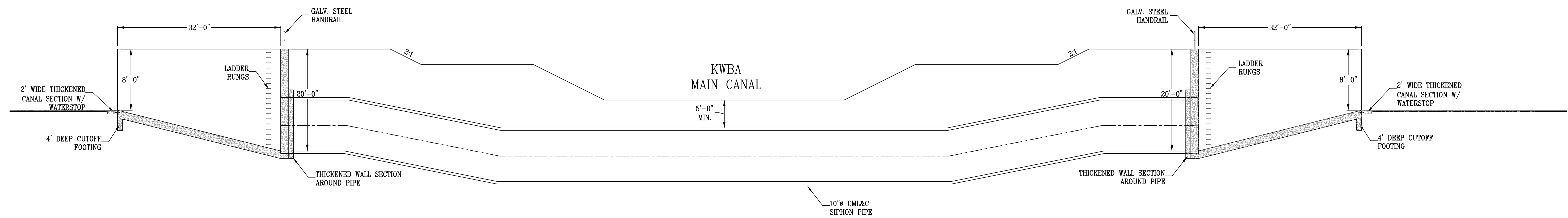
**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 UNICORN ROAD, BLDG. A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE 861 393-4796  
FAX 861 393-4799  
PHONE 559 791-9286  
FAX 559 783-9275

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**CANAL DETAILS**

SHEET  
**20**  
OF  
**48**



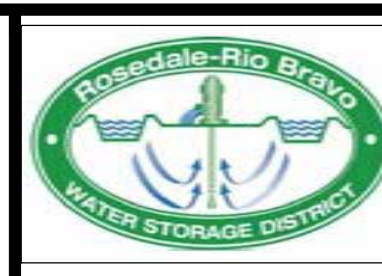
PLAN VIEW  
NTS



ELEVATION VIEW  
NTS

| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.

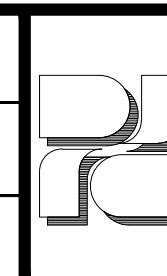


DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



|                  |           |                    |      |
|------------------|-----------|--------------------|------|
| CURTIS M. SKAGGS | RCE 60960 | PROJECT ENGINEER   | DATE |
| KEVIN L. BURTON  |           | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT     |           | GENERAL MANAGER    |      |

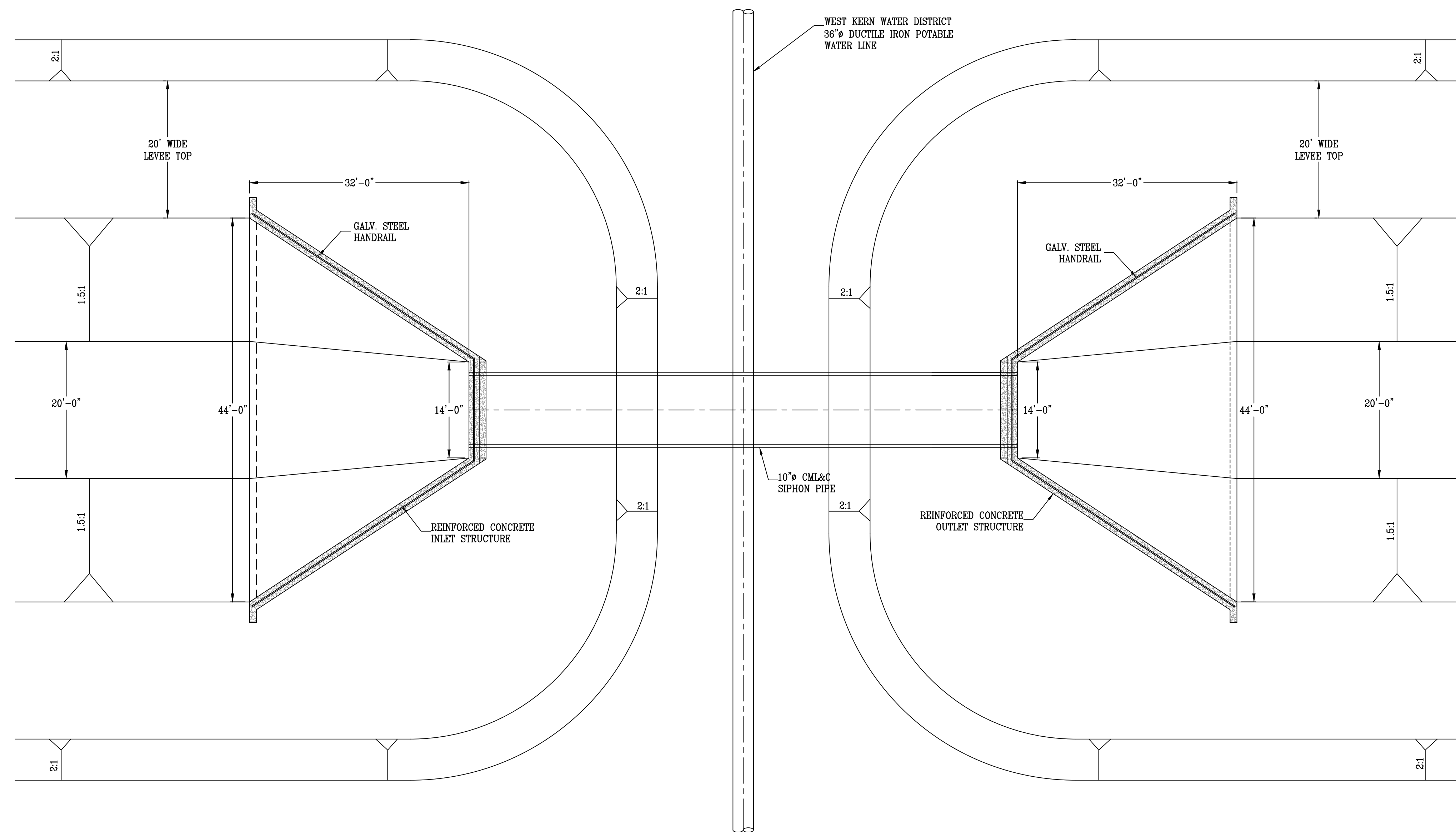


**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 UNICORN ROAD, BLDG. A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE 661 393-4796  
FAX 661 393-4799  
PHONE 559 791-9286  
FAX 559 783-9275

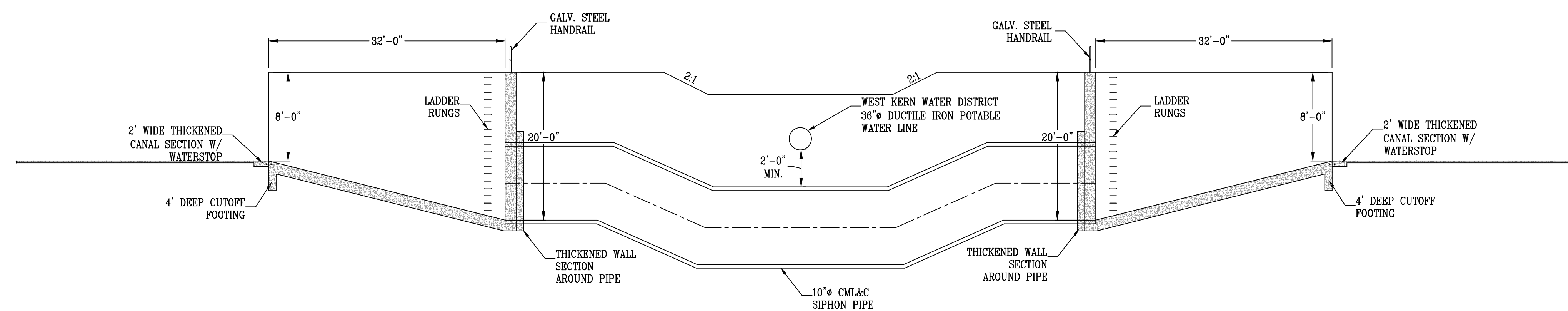
**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**MAIN CANAL CROSSING**

SHEET  
21  
OF  
48





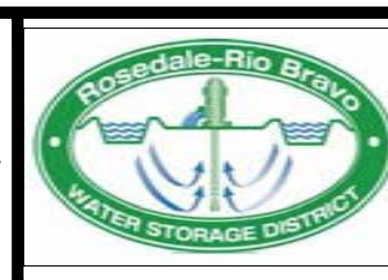
PLAN VIEW  
NTS



ELEVATION VIEW  
NTS

| No. | DATE | REVISIONS | APPROVED |
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ROSEDALE-RIO  
BRAVO  
WATER DISTRICT  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

IRVINE RANCH  
WATER DISTRICT  
Irvine, Calif.



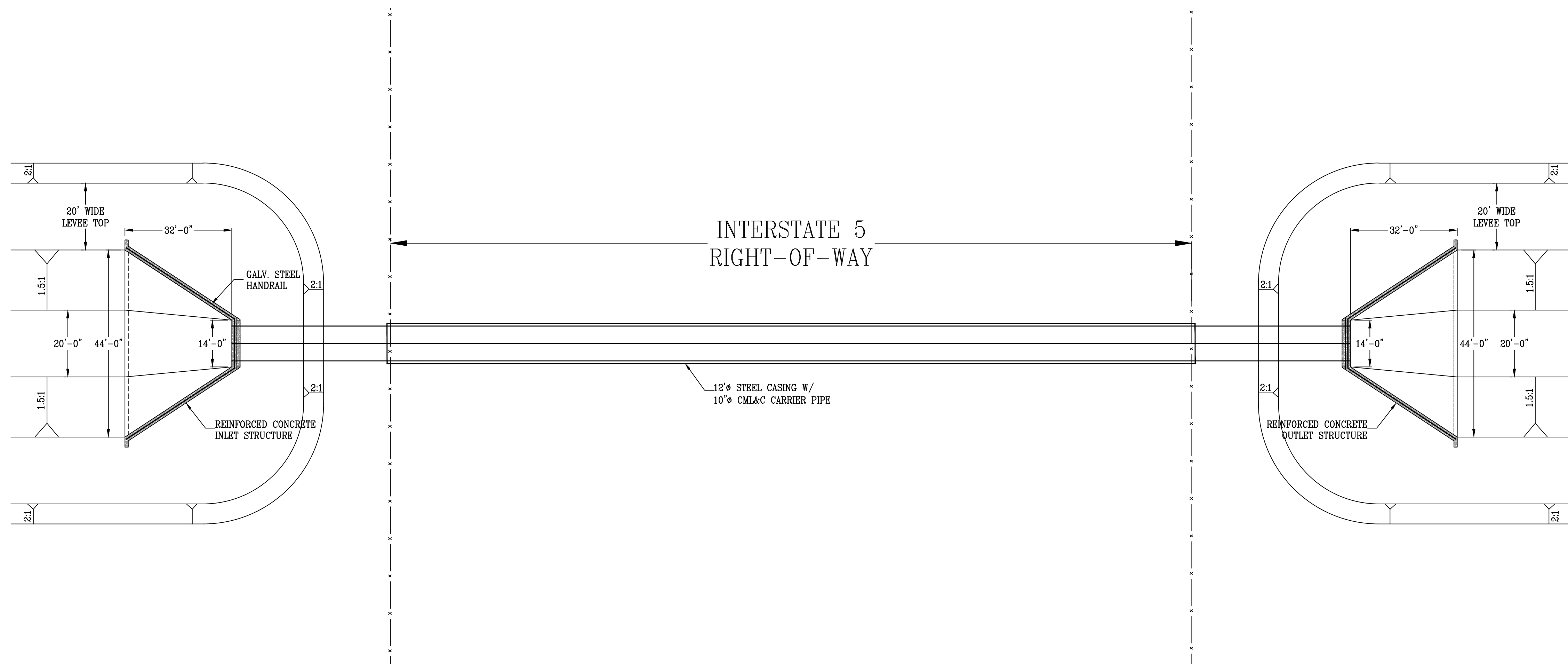
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| CURTIS M. SKAGGS | RCE 60960 | PROJECT ENGINEER   | DATE |
| KEVIN L. BURTON  |           | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT     |           | GENERAL MANAGER    |      |

DEE JASPAR & ASSOCIATES, INC.  
CIVIL ENGINEERS  
2730 LINCOLN ROAD, BLDG. A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257

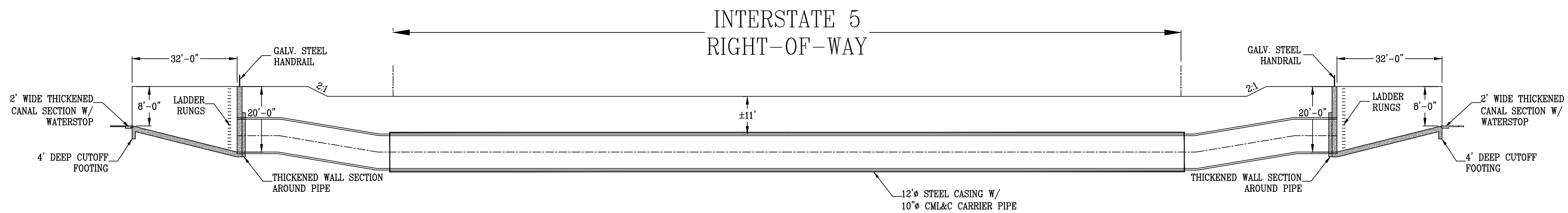
PHONE 661-393-4796  
FAX 661-393-4799  
PHONE 559-791-9286  
FAX 559-783-9275

KERN FAN GROUNDWATER STORAGE PROJECT  
PROJECT NUMBER  
WKWD PIPELINE CROSSING

SHEET  
22  
OF  
48



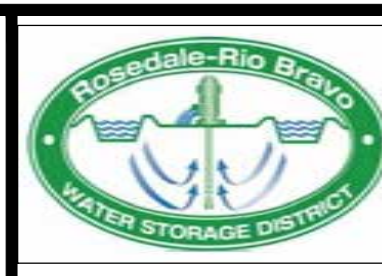
PLAN VIEW  
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ELEVATION VIEW  
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| No. | DATE | REVISIONS | APPROVED |
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ROSEDALE-RIO  
BRAVO  
WATER DISTRICT  
Bakersfield, Calif.

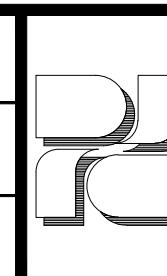


DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

IRVINE RANCH  
WATER DISTRICT  
Irvine, Calif.



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|------------------|-----------|--------------------|------|
| CURTIS M. SKAGGS | RCE 60960 | PROJECT ENGINEER   | DATE |
| KEVIN L. BURTON  |           | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT     |           | GENERAL MANAGER    |      |

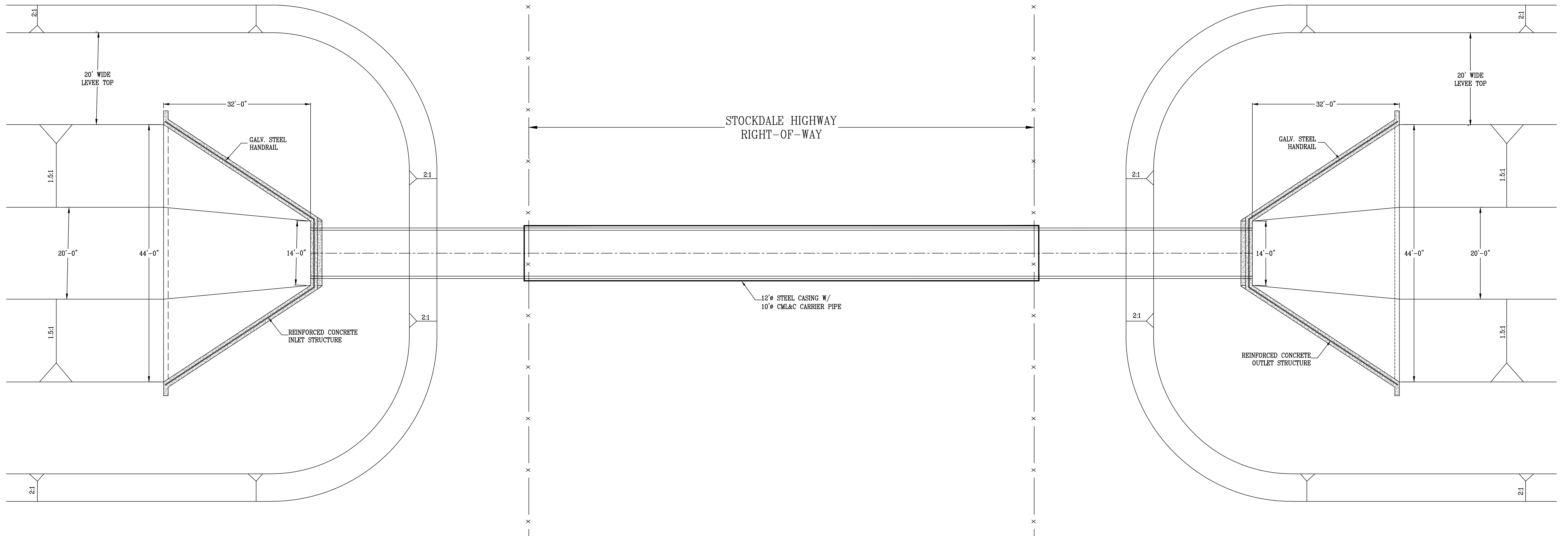


DEE JASPAS & ASSOCIATES, INC.  
CIVIL ENGINEERS  
2730 UNICORN ROAD, BLDG A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE 661 393-4796  
FAX 661 393-4799  
PHONE 559 791-9285  
FAX 559 783-9275

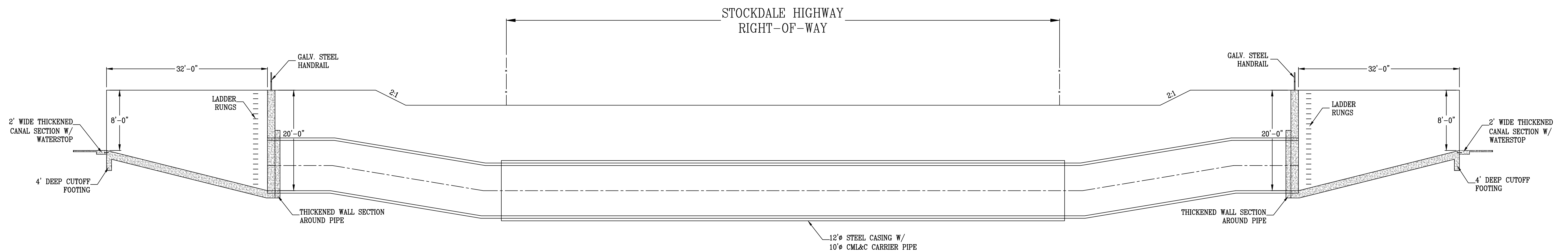
KERN FAN GROUNDWATER STORAGE PROJECT  
PROJECT NUMBER  
INTERSTATE 5 FREEWAY CROSSING

SHEET  
23  
OF  
48





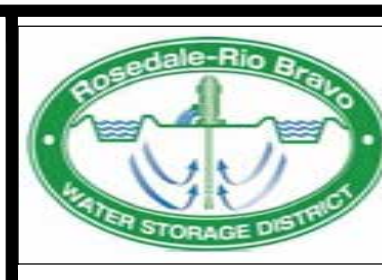
PLAN VIEW  
NTS



ELEVATION VIEW  
NTS

| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



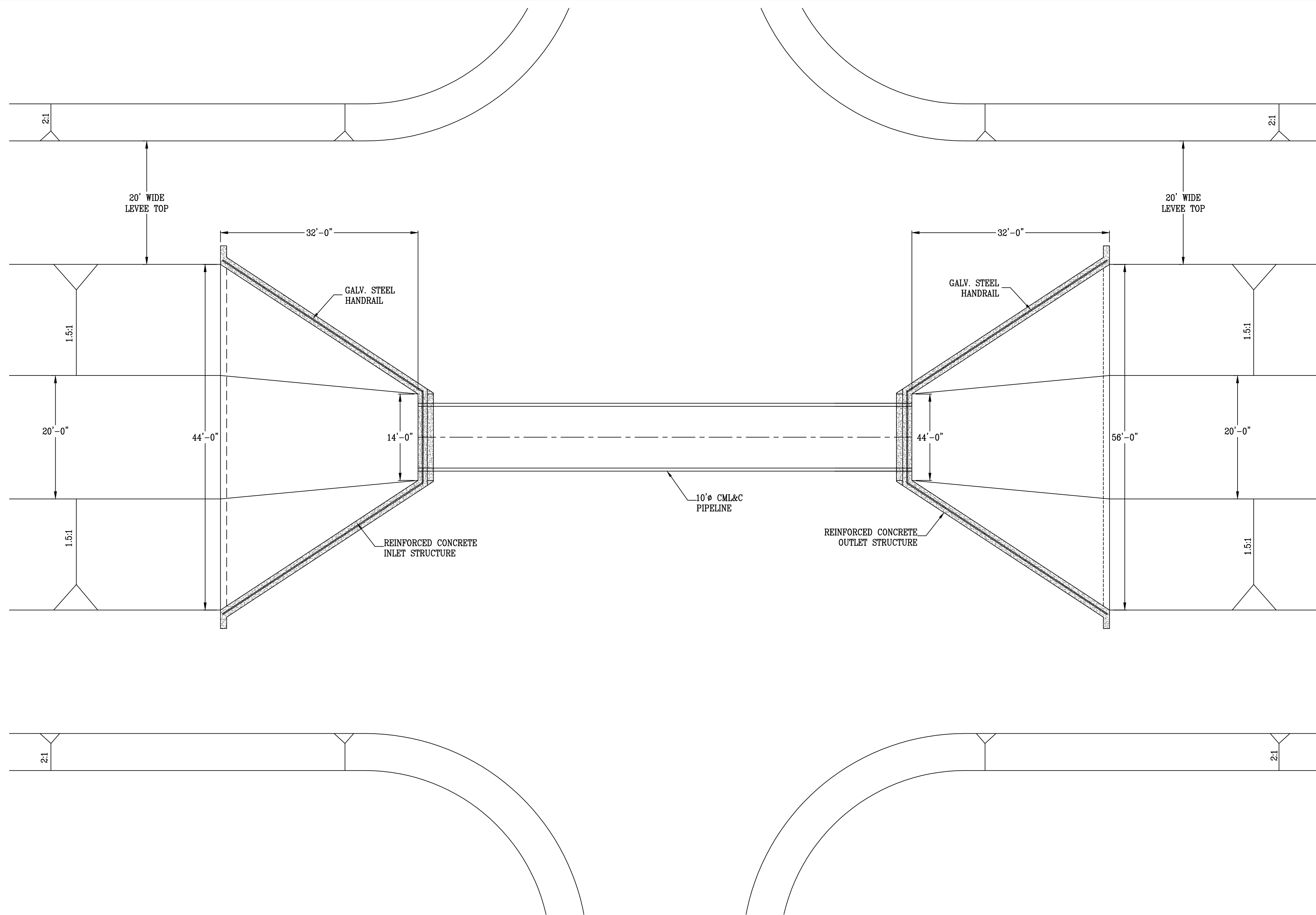
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| CURTIS M. SKAGGS | RCE 60960 | PROJECT ENGINEER   | DATE |
| KEVIN L. BURTON  |           | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT     |           | GENERAL MANAGER    |      |



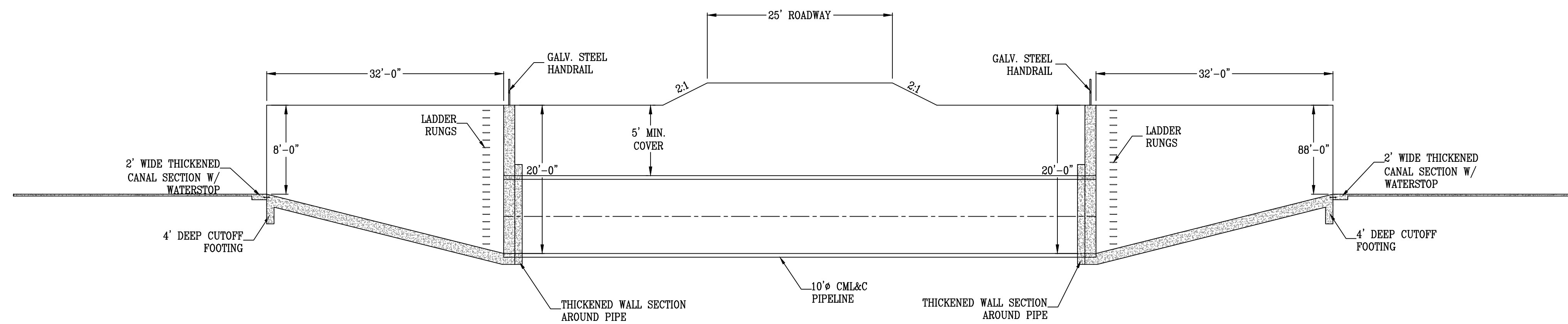
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PROJECT NUMBER  
**STOCKDALE HIGHWAY CROSSING**

SHEET  
24  
OF  
48





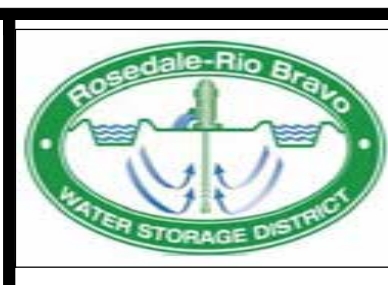
PLAN VIEW  
NTS



ELEVATION VIEW  
NTS

| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO  
WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH  
WATER DISTRICT**  
Irvine, Calif.

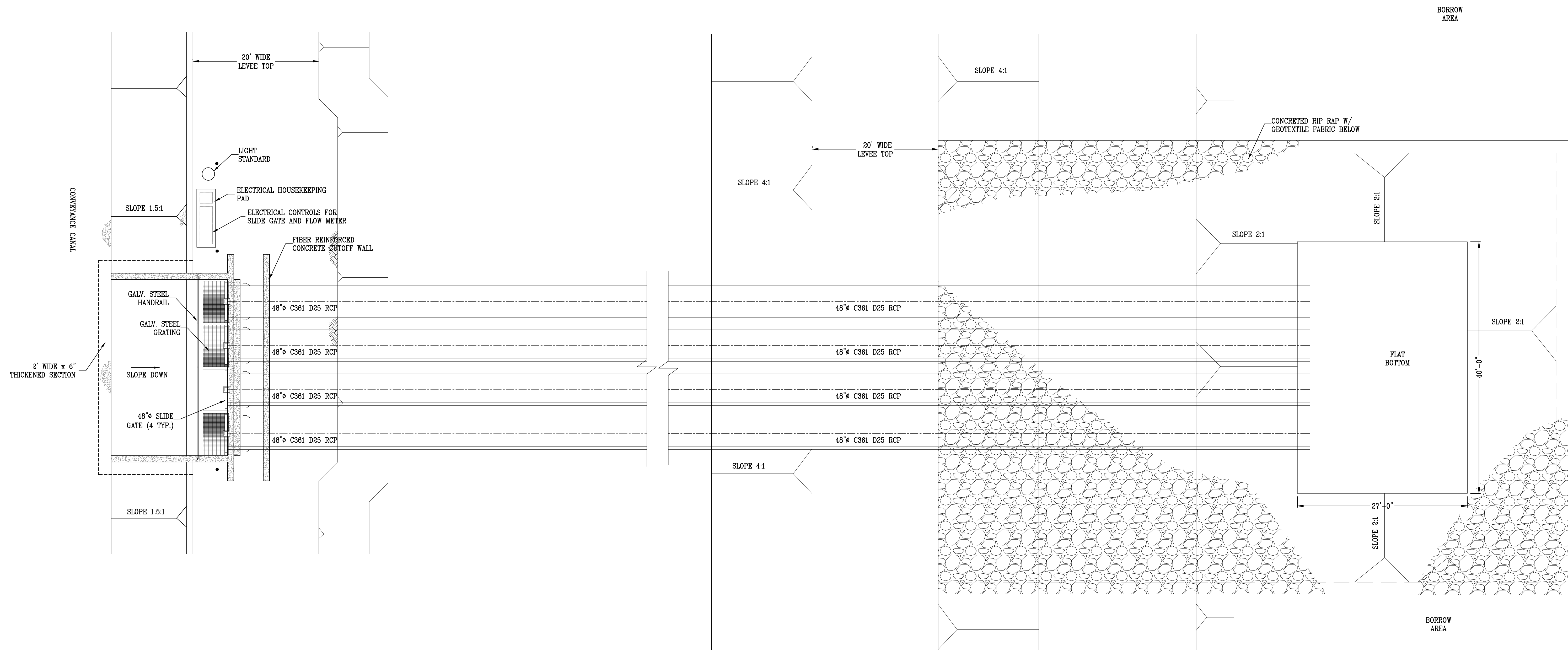


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|------------------|-----------|--------------------|------|
| CURTIS M. SKAGGS | RCE 60960 | PROJECT ENGINEER   | DATE |
| KEVIN L. BURTON  |           | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT     |           | GENERAL MANAGER    |      |

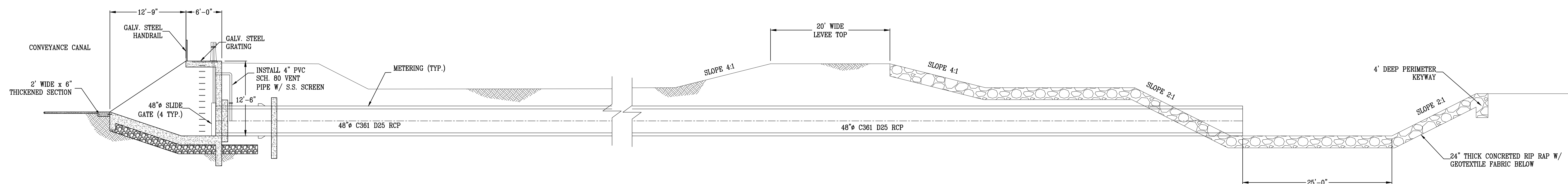
**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 UNICORN ROAD, BLDG A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE 661-393-4796  
FAX 661-393-4799  
PHONE 559-791-9286  
FAX 559-783-9275

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**TYPICAL FARM ROAD CROSSING**

SHEET  
25  
OF  
48



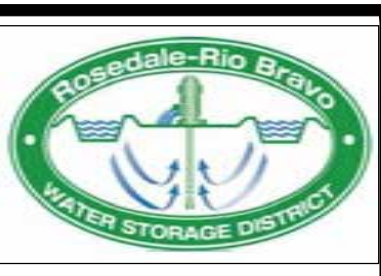
PHASE II RECHARGE FACILITY TURNOUT  
PLAN VIEW



PHASE II RECHARGE FACILITY TURNOUT  
ELEVATION VIEW

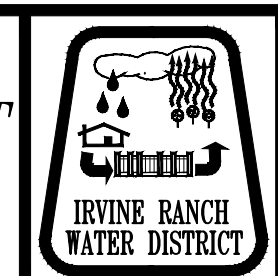
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**ROSEDALE-RIO BRAVO**  
**WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH**  
**WATER DISTRICT**  
Irvine, Calif.



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| CURTIS M. SKAGGS | RCE 60960 | PROJECT ENGINEER   | DATE |
| KEVIN L. BURTON  |           | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT     |           | GENERAL MANAGER    |      |

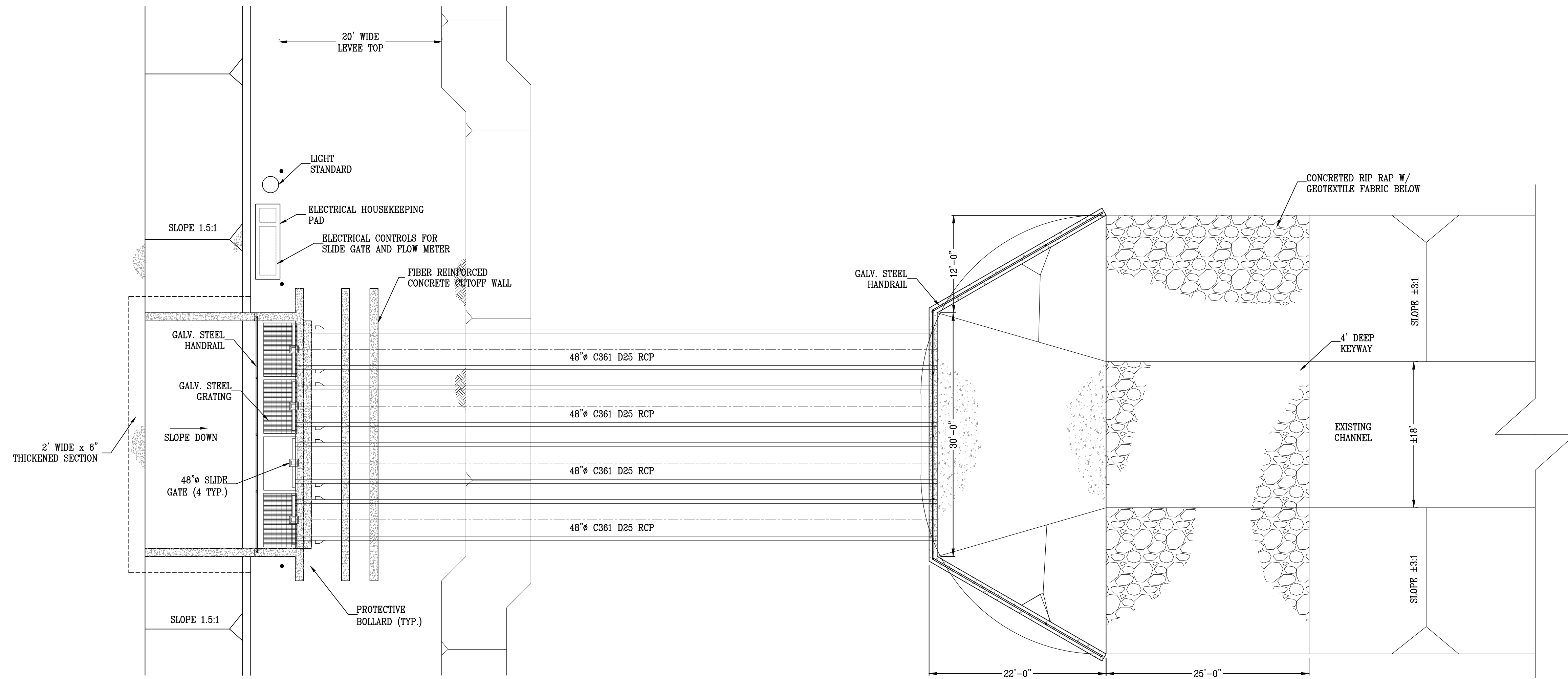
**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 UNICORN ROAD, BLDG. A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257

PHONE 661-393-4796  
FAX 661-393-4799  
PHONE 559-791-9286  
FAX 559-783-9275

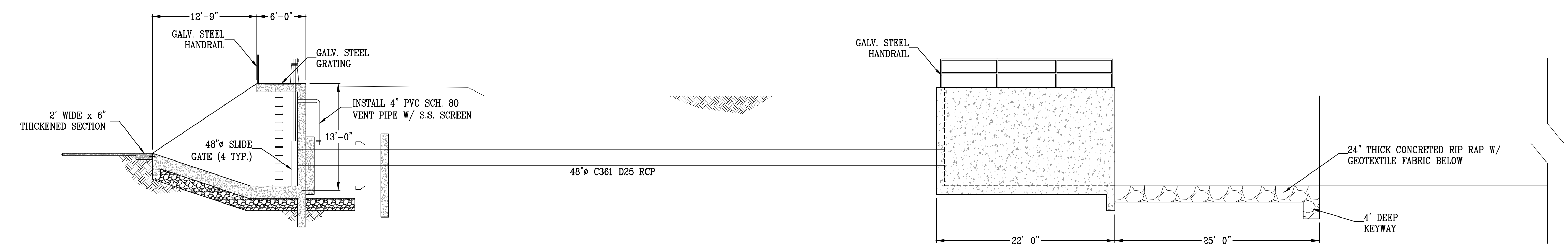
**KERN FAN GROUNDWATER STORAGE PROJECT**  
**PROJECT NUMBER**  
**PHASE II RECHARGE FACILITY TURNOUT**

SHEET  
26  
OF  
48





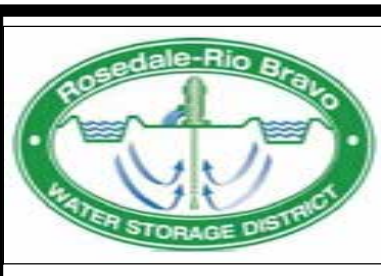
WEST BASINS / GOOSE LAKE SLOUGH TURNOUT STRUCTURE  
PLAN VIEW



WEST BASINS / GOOSE LAKE SLOUGH TURNOUT STRUCTURE  
ELEVATION VIEW

| No. | DATE | REVISIONS | APPROVED |
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ROSEDALE-RIO BRAVO  
WATER DISTRICT  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

IRVINE RANCH  
WATER DISTRICT  
Irvine, Calif.



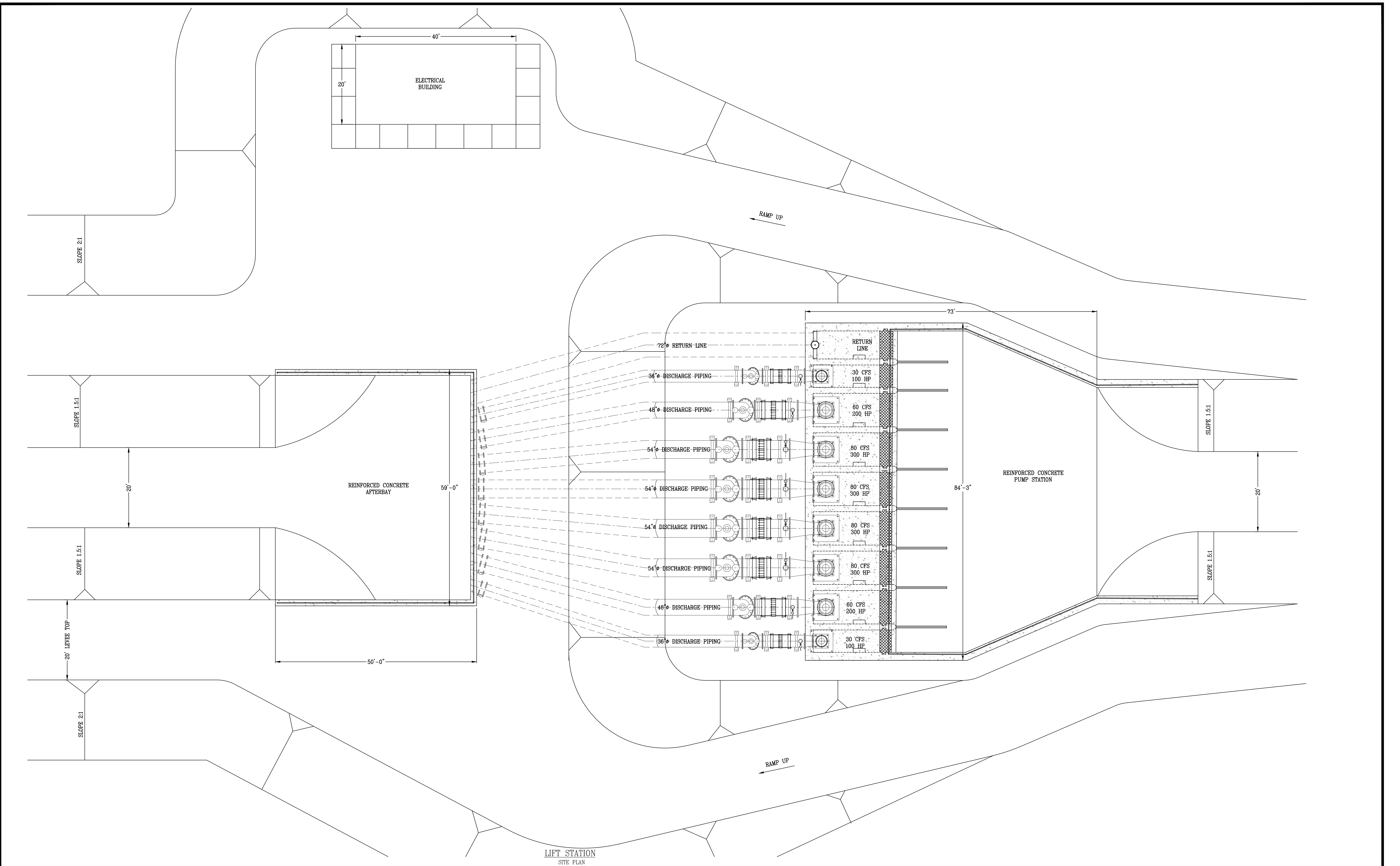
| PROJECT ENGINEER           | DATE |
|----------------------------|------|
| CURTIS M. SKAGGS RCE 60960 |      |
| EXECUTIVE DIRECTOR         |      |
| KEVIN L. BURTON            |      |
| GENERAL MANAGER            |      |
| ERIC AVERETT               |      |

DEE JASPAR & ASSOCIATES, INC.  
CIVIL ENGINEERS  
2730 UNICORN ROAD, BLDG A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE 661-393-4796  
FAX 661-393-4799  
PHONE 559-791-9266  
FAX 559-783-9275

KERN FAN GROUNDWATER STORAGE PROJECT  
PROJECT NUMBER  
WEST BASIN/GOOSE LAKE SLOUGH  
TURNOUT STRUCTURE

SHEET  
27  
OF  
48

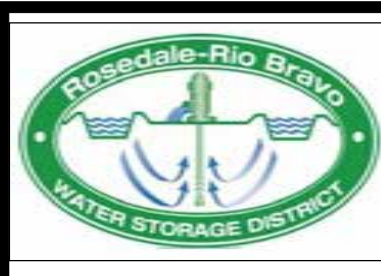




LIFT STATION  
SITE PLAN

| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



| PROJECT ENGINEER           | DATE |
|----------------------------|------|
| CURTIS M. SKAGGS RCE 60960 |      |
| EXECUTIVE DIRECTOR         |      |
| KEVIN L. BURTON            |      |
| GENERAL MANAGER            |      |
| ERIC AVERETT               |      |

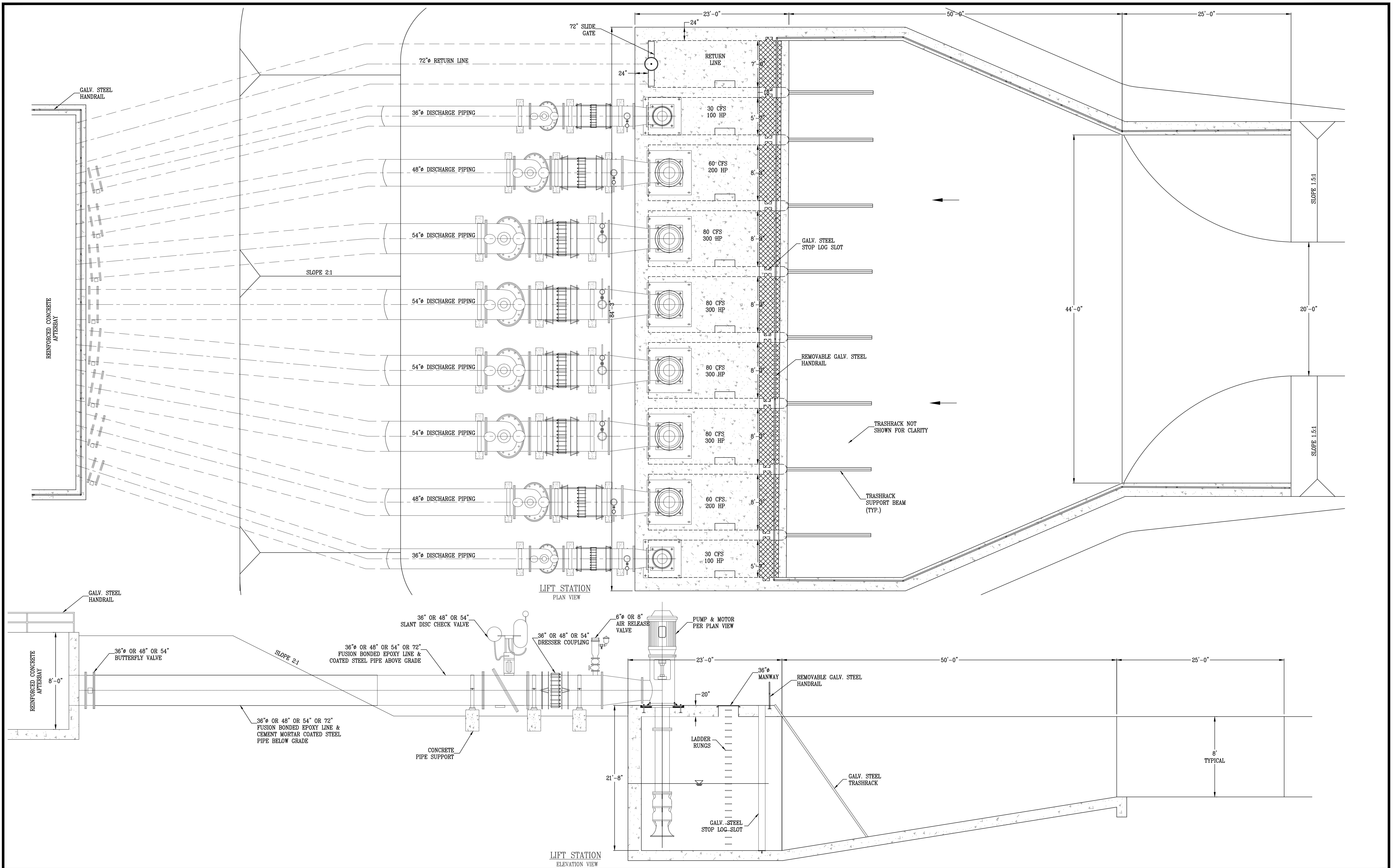
**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 LINCOLN ROAD, BLDG. A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257

PHONE 661 393-4796  
FAX 661 393-4799  
PHONE 559 791-9286  
FAX 559 783-9275

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**LIFT STATION - SITE PLAN**

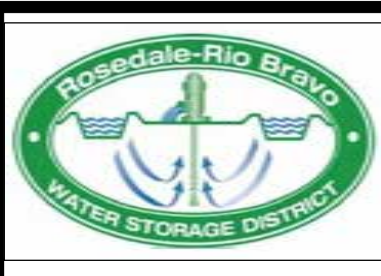
SHEET  
28  
OF  
48





| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



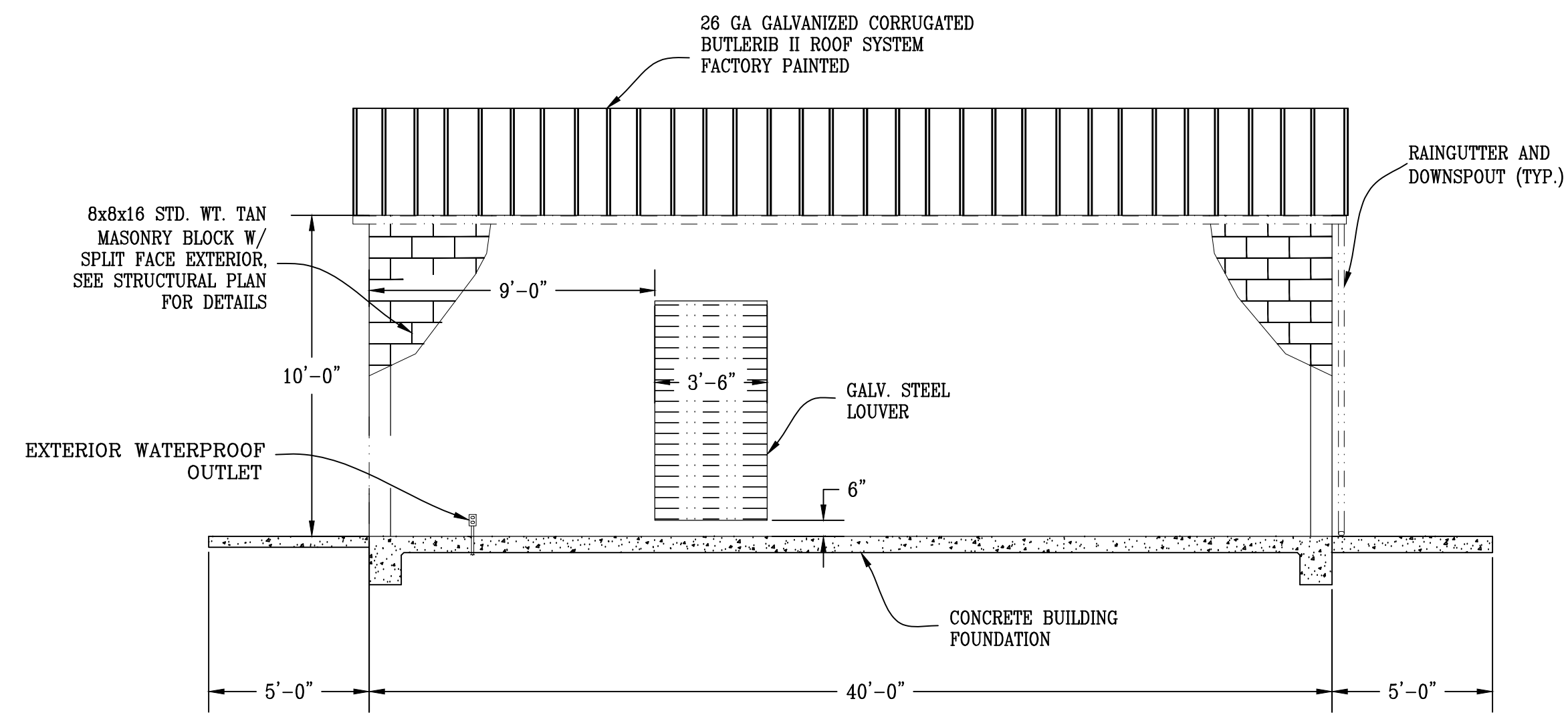
PROJECT ENGINEER: CURTIS M. SKAGGS RCE 60960  
EXECUTIVE DIRECTOR: KEVIN L. BURTON  
GENERAL MANAGER: ERIC AVERETT

**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 LINCOLN ROAD, BLDG. A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE: 661-393-4796  
FAX: 661-393-4799  
PHONE: 559-791-9288  
FAX: 559-783-9275

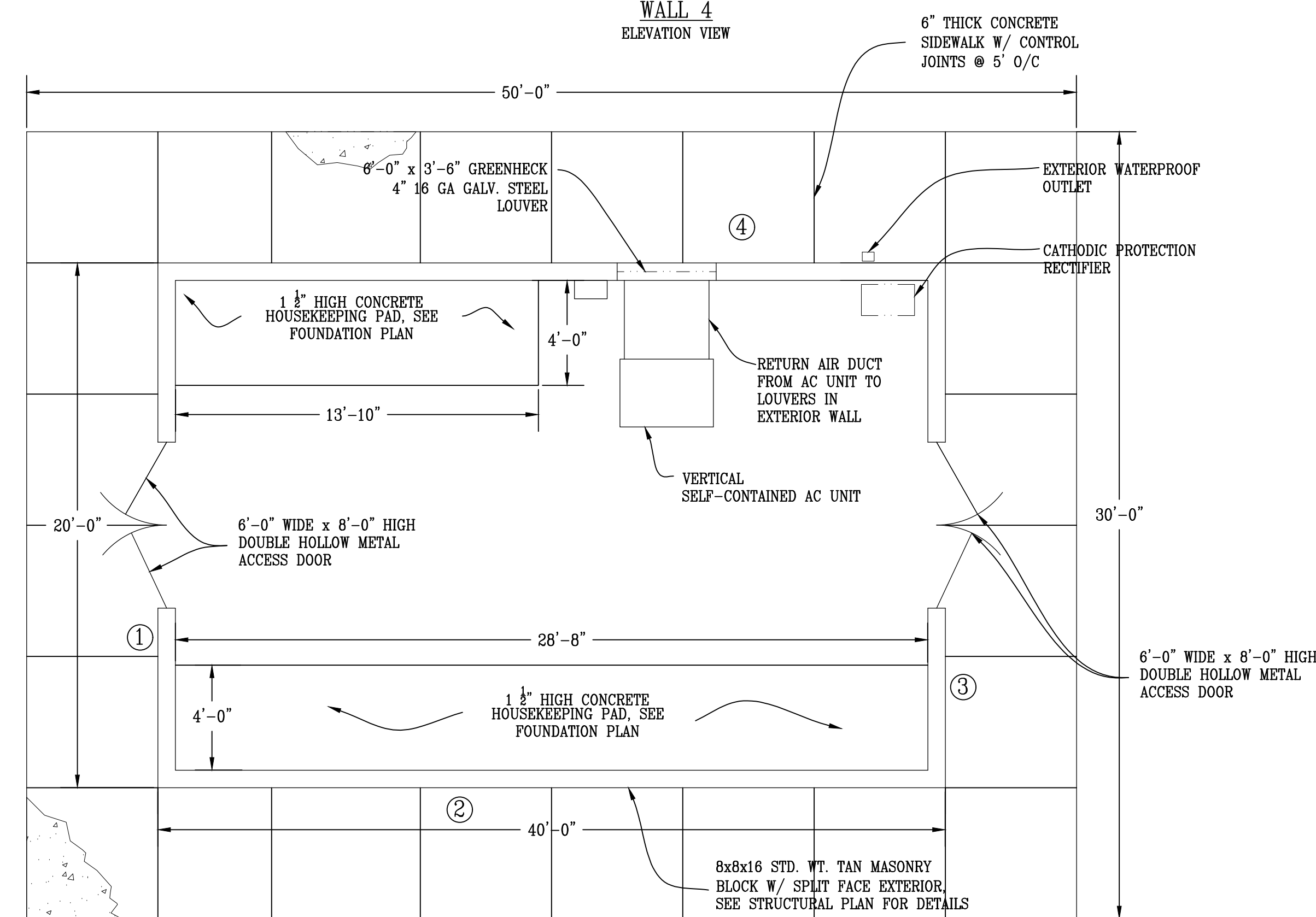
**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**LIFT STATION PLAN & ELEVATION STRUCTURE**

SHEET 29 OF 48

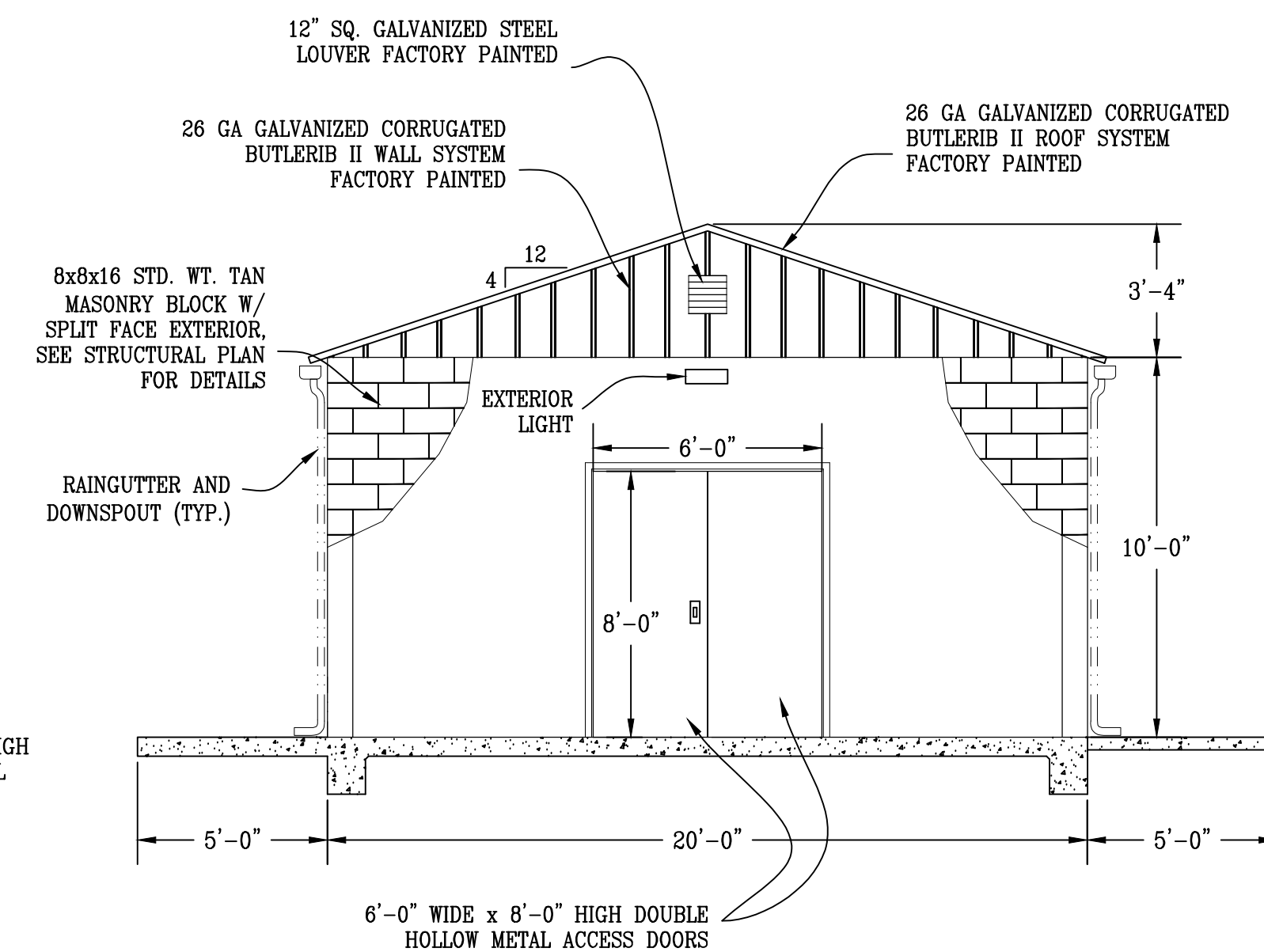




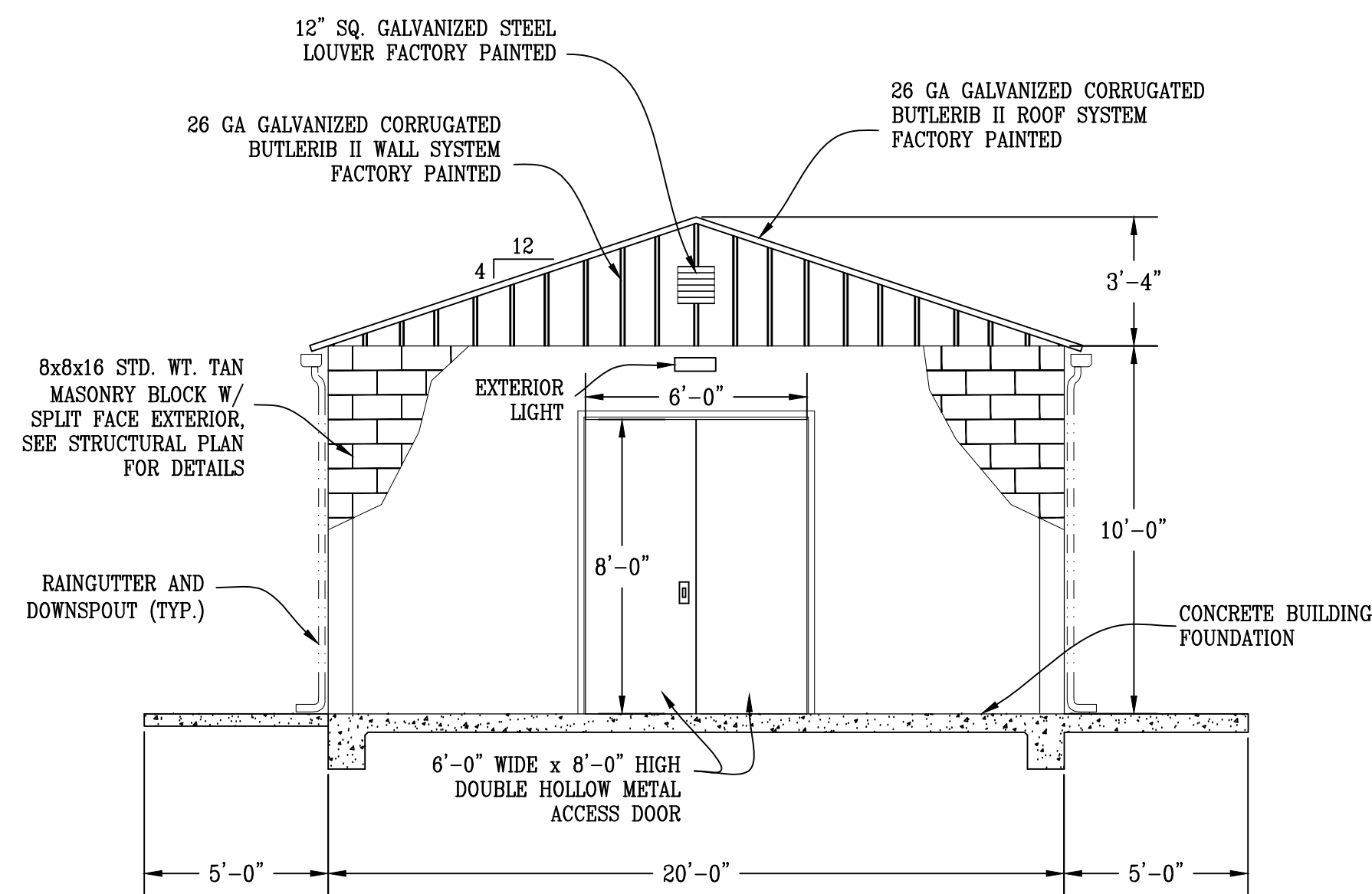
WALL 4  
ELEVATION VIEW



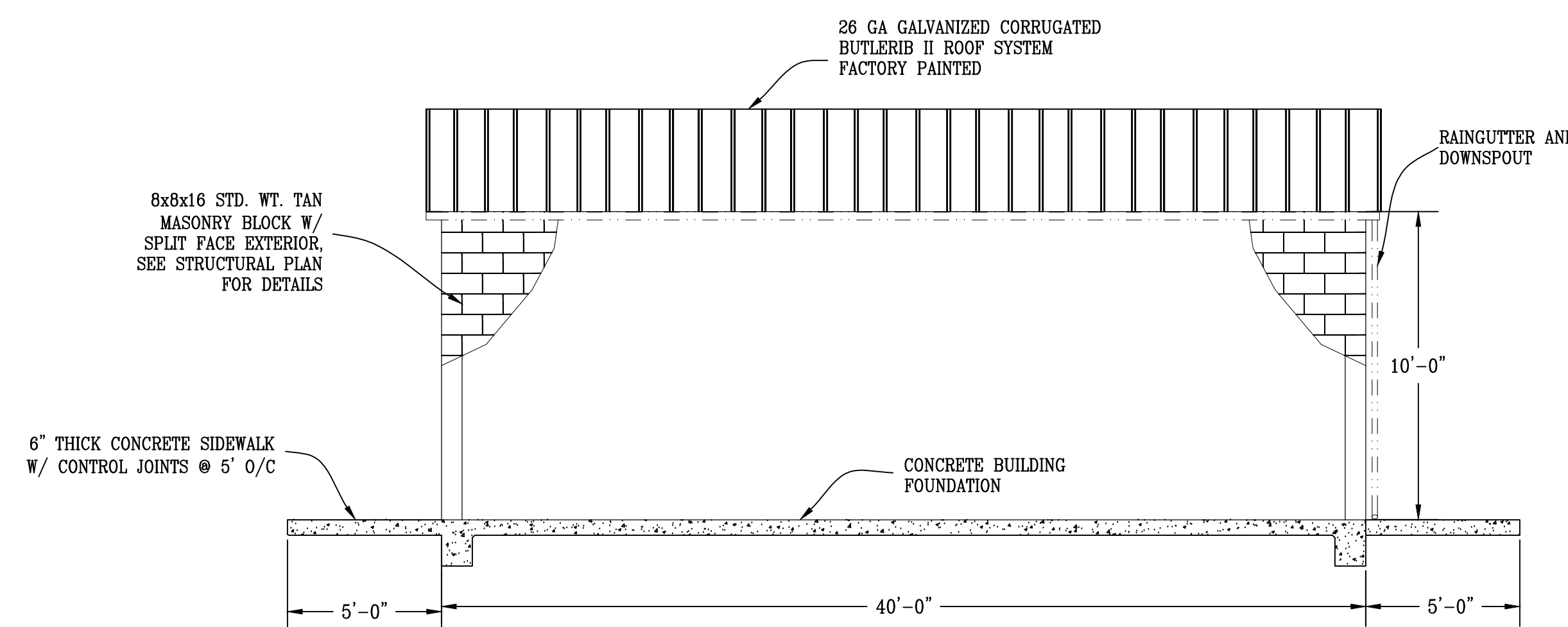
BUILDING PLAN LAYOUT  
PLAN VIEW



WALL 3  
ELEVATION VIEW



WALL 1  
ELEVATION VIEW



WALL 2  
ELEVATION VIEW

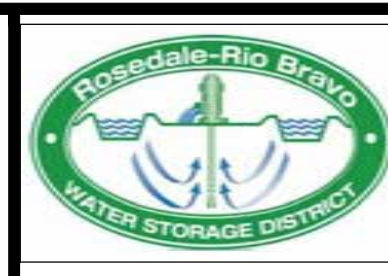
NOTE: CONTRACTOR SHALL OVEREXCAVATE AND RECOMPACT SUBGRADE TO 92% RELATIVE COMPACTION FOR A DEPTH OF 18", FIVE FEET BEYOND ALL CONCRETE.

CONTRACTOR TO VERIFY SIZE OF SWITCHGEAR AND ENLARGE 1 1/2" HIGH HOUSEKEEPING PADS IF NECESSARY.

CONTRACTOR SHALL DRYWALL CEILING OF BUILDING W/ 5/8" TYPE X DRYWALL AND A MINIMUM R38 INSULATION ABOVE. CONTRACTOR TO TAPE AND PLASTER CEILING FOR FINISHED APPEARANCE.

| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



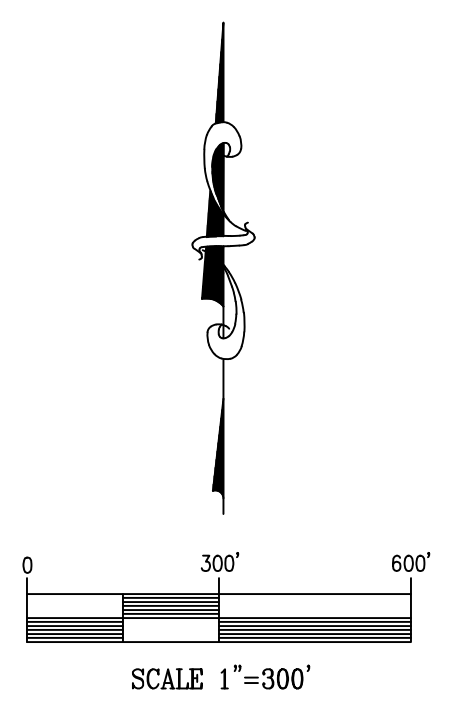
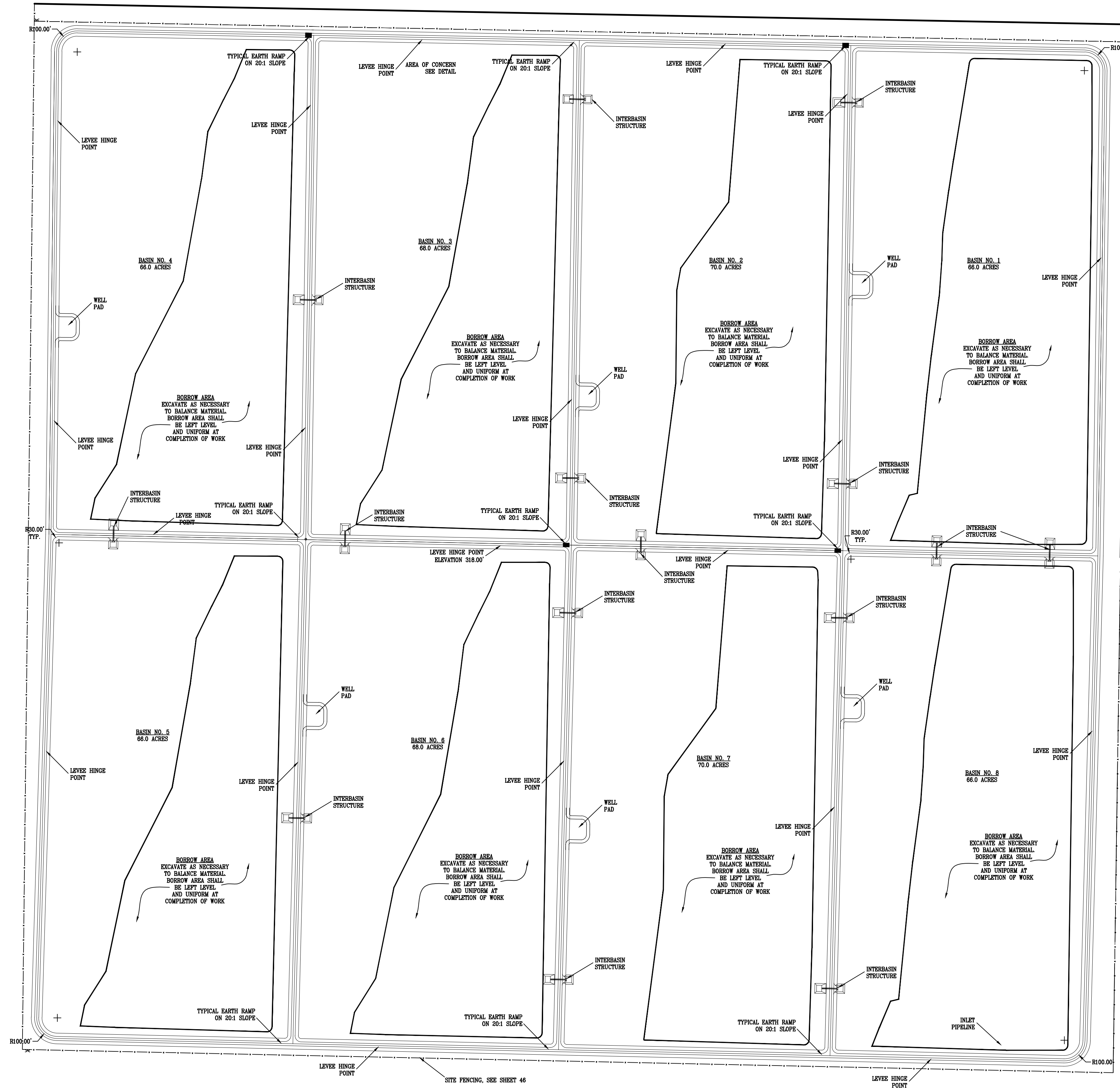
PROJECT ENGINEER: CURTIS M. SKAGGS RCE 60960  
EXECUTIVE DIRECTOR: KEVIN L. BURTON  
GENERAL MANAGER: ERIC AVERETT

**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
5730 UNICORN ROAD, BLDG A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE: 661-393-4796  
FAX: 661-393-4799  
PHONE: 559-791-9286  
FAX: 559-783-9275

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**ELECTRICAL CONTROL BUILDING**

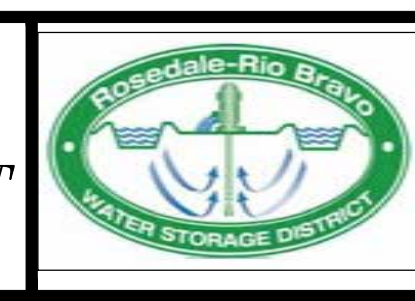
SHEET  
30  
OF  
48





| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED: \_\_\_\_\_  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



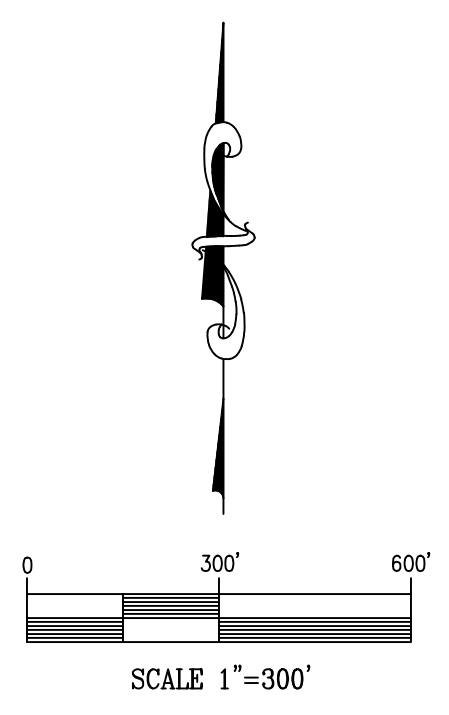
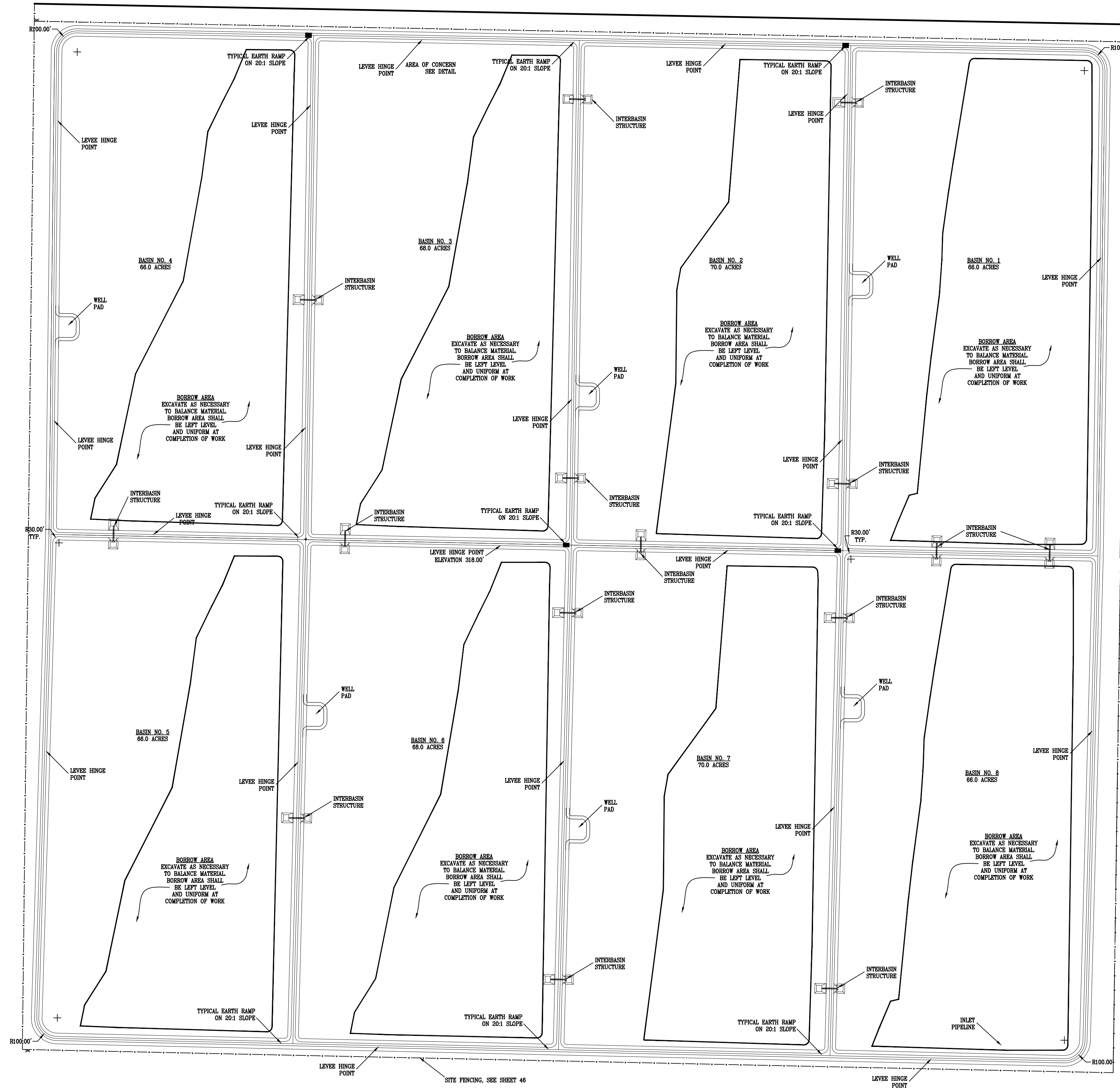
CURTIS M. SKAGGS RCE 60960 PROJECT ENGINEER DATE \_\_\_\_\_  
KEVIN L. BURTON EXECUTIVE DIRECTOR \_\_\_\_\_  
ERIC AVERETT GENERAL MANAGER \_\_\_\_\_

**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 UNICORN ROAD, BLDG. A  
BAKERSFIELD, CALIFORNIA 93308  
PHONE 661-393-4795  
FAX 661-393-4799  
559 N. MAIN STREET, #8  
PORTERVILLE, CALIFORNIA 93257  
PHONE 559-791-9596  
FAX 559-783-9275

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**PHASE I RECHARGE FACILITY SITE PLAN**

SHEET  
31  
OF  
48

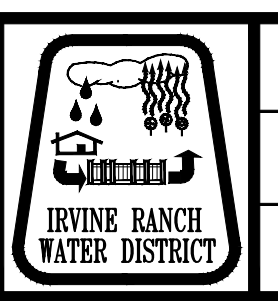
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| No. | DATE | REVISIONS | APPROVED |
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DESIGNED:  
DRAWN: MTH  
CHECKED: CMS

**IRVINE RANCH  
WATER DISTRICT**  
Irvine, Calif.



MATTHEW HOOKER PROJECT ENGINEER DATE  
CURTIS M. SKAGGS RCE 60960 PROJECT MANAGER  
PRINCIPAL ENGINEER

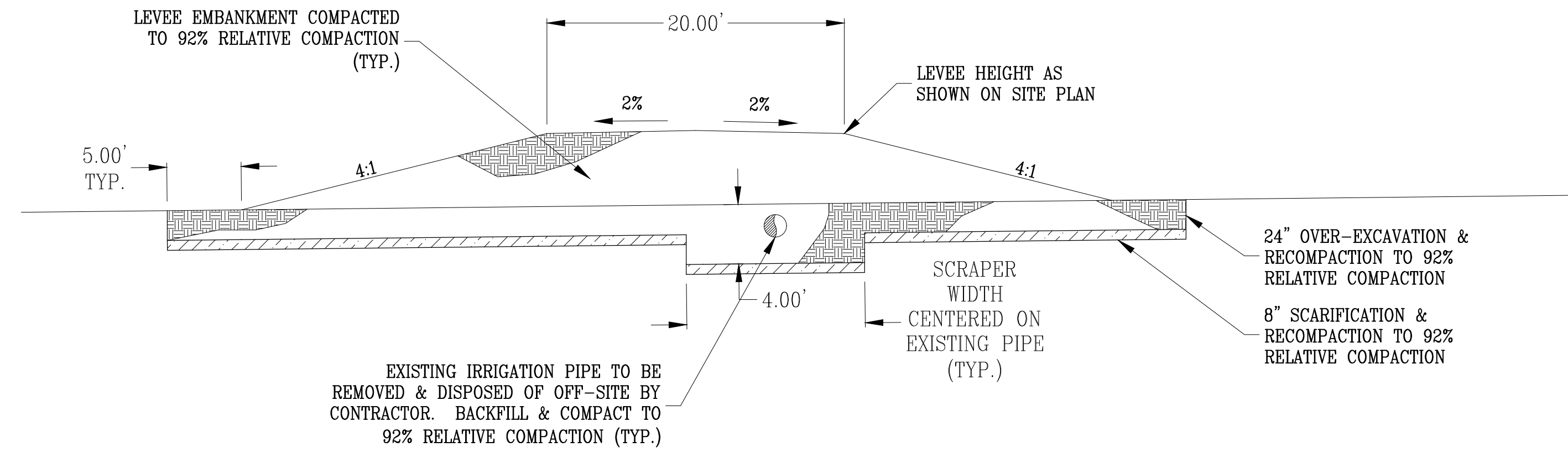
**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
3701 PEGASUS DRIVE, SUITE 121 BAKERSFIELD, CALIFORNIA 93308  
PHONE 805 393-4796 FAX 805 393-4799

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**PHASE II RECHARGE FACILITY SITE PLAN**

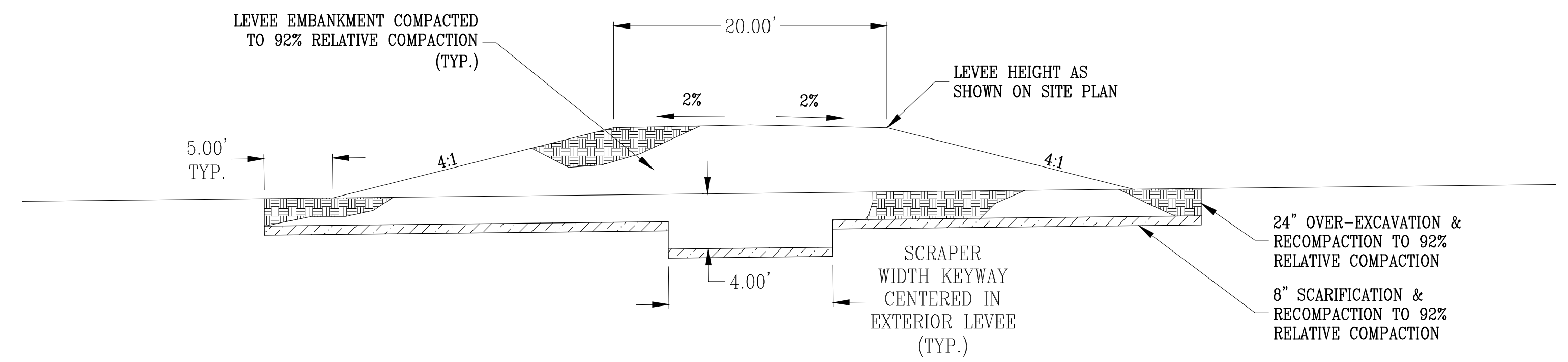
SHEET  
**32**  
OF  
**48**

**NOTES:**

1. CONTRACTOR SHALL CLEAR AND GRUB ENTIRE POND BOTTOMS, BENEATH ALL LEVEES EMBANKMENTS, AND 5- FEET BEYOND TOE OF LEVEE EMBANKMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR HAULING AND DISPOSING OFF SITE OF ALL TUMBLEWEEDS, BRANCHES, AND OTHER ORGANIC MATERIAL WITH THE EXCEPTION OF TOPSOIL AND GRASS MATERIAL. TOPSOIL AND GRASS MATERIAL MAY BE STOCKPILED AND SPREAD IN BASIN BOTTOMS AT THE COMPLETION OF EARTHWORK, HOWEVER NONE MAY BE USED AS ENGINEERED FILL.
2. CONTRACTOR, AT A MINIMUM, SHALL OVER-EXCAVATE TO A DEPTH OF 24-INCHES, SCARIFY 8-INCHES AND RECOMPACT BENEATH ALL LEVEE EMBANKMENTS EXTENDING 5- FEET BEYOND THE TOE OF LEVEE EMBANKMENTS. SEE CROSS-SECTIONS FOR SPECIAL REQUIREMENTS.
3. ALL ENGINEERED FILL SHALL BE COMPACTED TO A MINIMUM 92% RELATIVE COMPACTION. ALL ENGINEERED FILL SHALL BE PLACED WITH A MOISTURE CONTENT AT OPTIMUM MOISTURE CONTENT OR UP TO 2% GREATER THAN OPTIMUM MOISTURE CONTENT. MAXIMUM DENSITY AND OPTIMUM MOISTURE CONTENT SHALL BE OBTAINED USING ASTM D1557.
4. BORROW AREAS SHOWN HEREON WERE SIZED TO BALANCE CUT AND FILL. IF UNSUITABLE MATERIAL IS ENCOUNTERED IN BORROW AREAS CONTRACTOR MAY RELOCATE BORROW AREAS AS NECESSARY AND AS APPROVED BY THE ENGINEER. REGARDLESS OF LOCATION OF BORROW AREAS, CONTRACTOR WILL BE RESPONSIBLE FOR ENSURING THAT POND BOTTOMS ARE LEVEL, UNIFORM, AND FREE OF MOUNDS, DEPRESSIONS, OR HIGH SPOTS AT THE COMPLETION OF THE PROJECT.
5. CONTRACTOR SHALL GRADE POND BOTTOMS AND BORROW AREAS TO RESULT IN A SMOOTH SURFACE WITH NO HIGH OR LOW AREAS GREATER THAN 0.1- FEET. BORROW AREAS SHALL BE GRADED TO THE GRADE INDICATED ON THE PLANS UNLESS OTHERWISE APPROVED BY THE ENGINEER. POND BOTTOMS SHALL BE GRADED TO THE NATURAL SLOPE OF THE LAND.
6. STRUCTURES AND PIPES INSTALLED AFTER CONSTRUCTION OF THE EMBANKMENT LEVEES SHALL BE CONSTRUCTED AS SHOWN HEREIN. ALL BACKFILL SHALL BE BENCHED AND KEYED INTO THE EXISTING EMBANKMENT LEVEES AND COMPACTED TO 92% RELATIVE COMPACTION.



**DETAIL A**



**DETAIL B**

| No. | DATE | REVISIONS | APPROVED |
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DESIGNED:  
DRAWN: MTH  
CHECKED: CMS

**IRVINE RANCH  
WATER DISTRICT**  
Irvine, Calif.



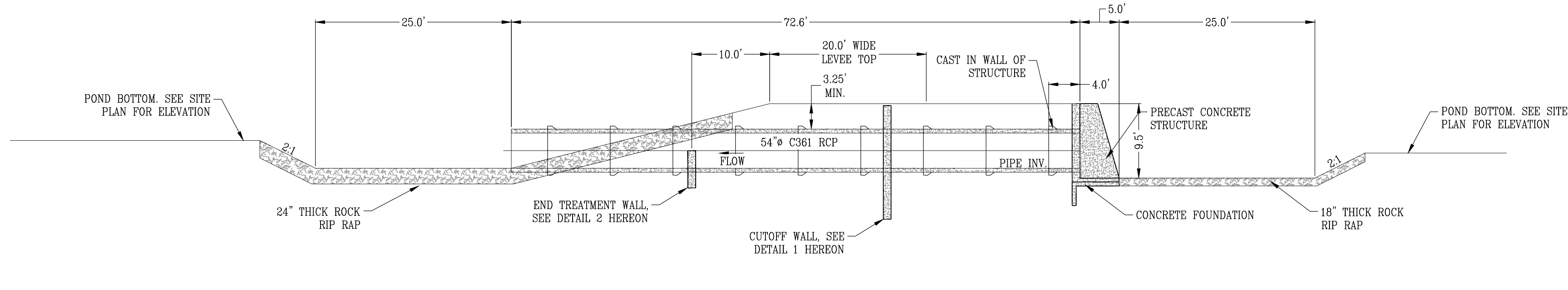
MATTHEW HOOKER PROJECT ENGINEER DATE  
CURTIS M. SKAGGS RCE 60960 PROJECT MANAGER  
PRINCIPAL ENGINEER

**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
3701 PEGASUS DRIVE, SUITE 121 BAKERSFIELD, CALIFORNIA 93308  
PHONE 805 393-4796 FAX 805 393-4799

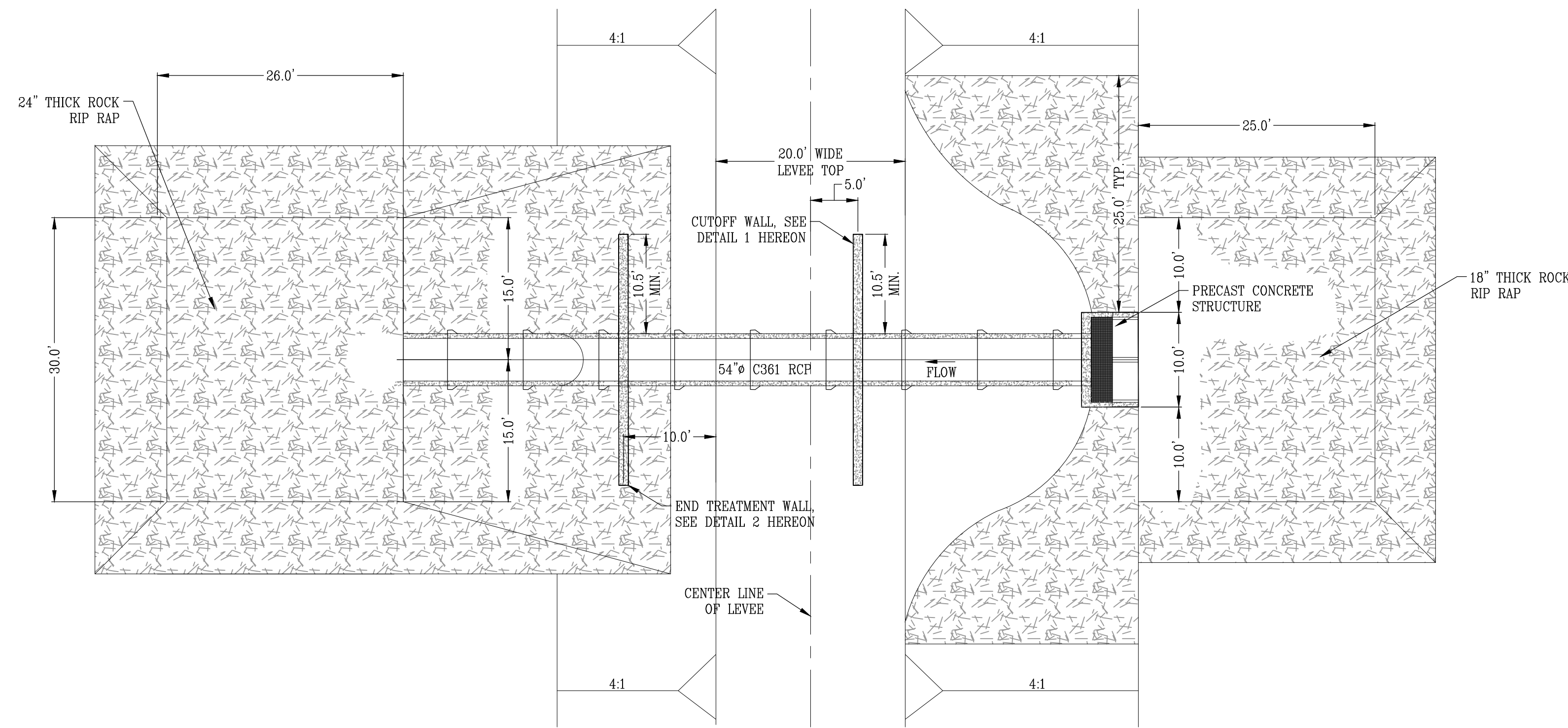
**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
TYPICAL LEVEE CROSS SECTIONS

SHEET  
33  
OF  
48





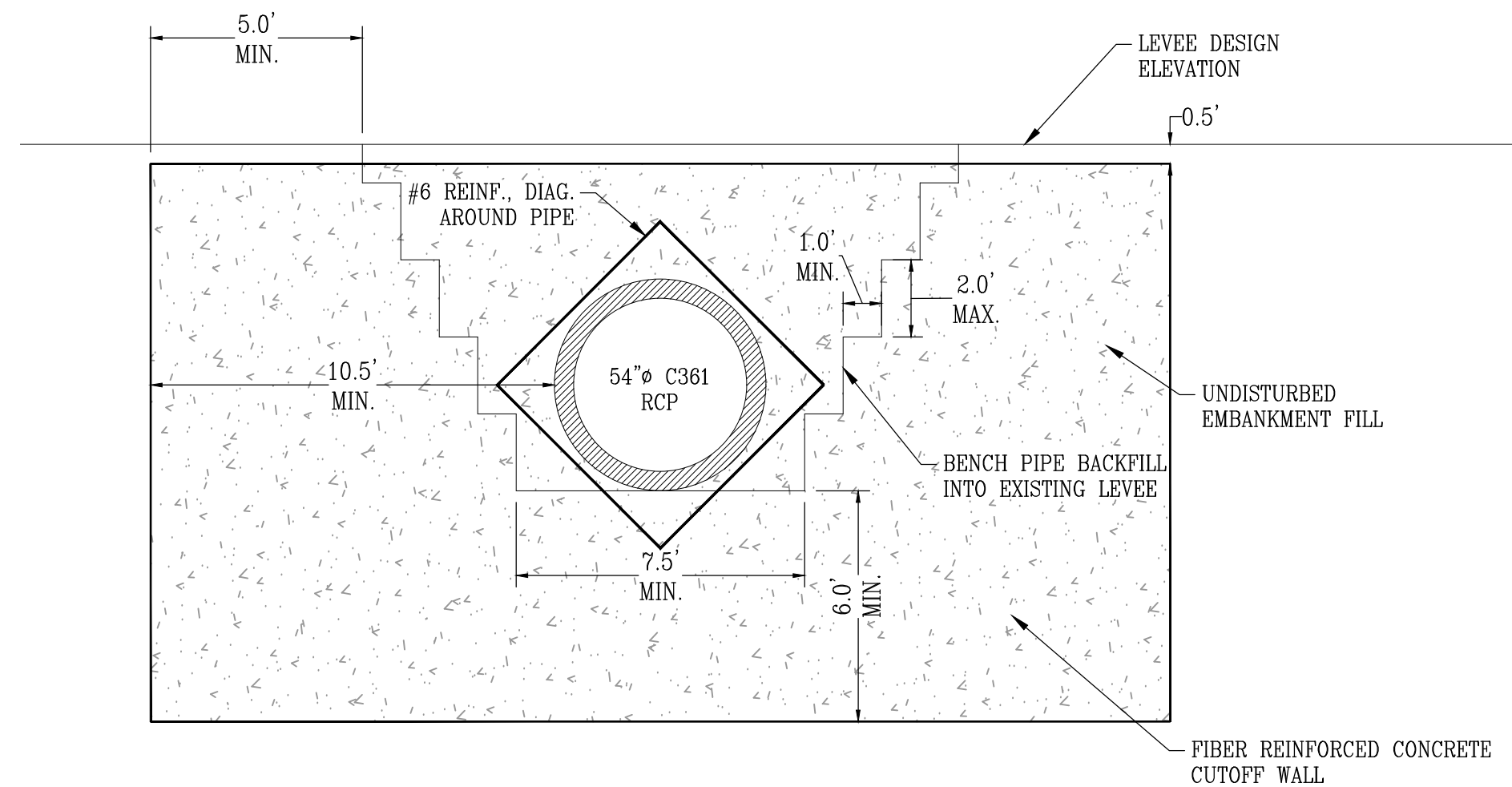
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SCALE: 1" = 10'



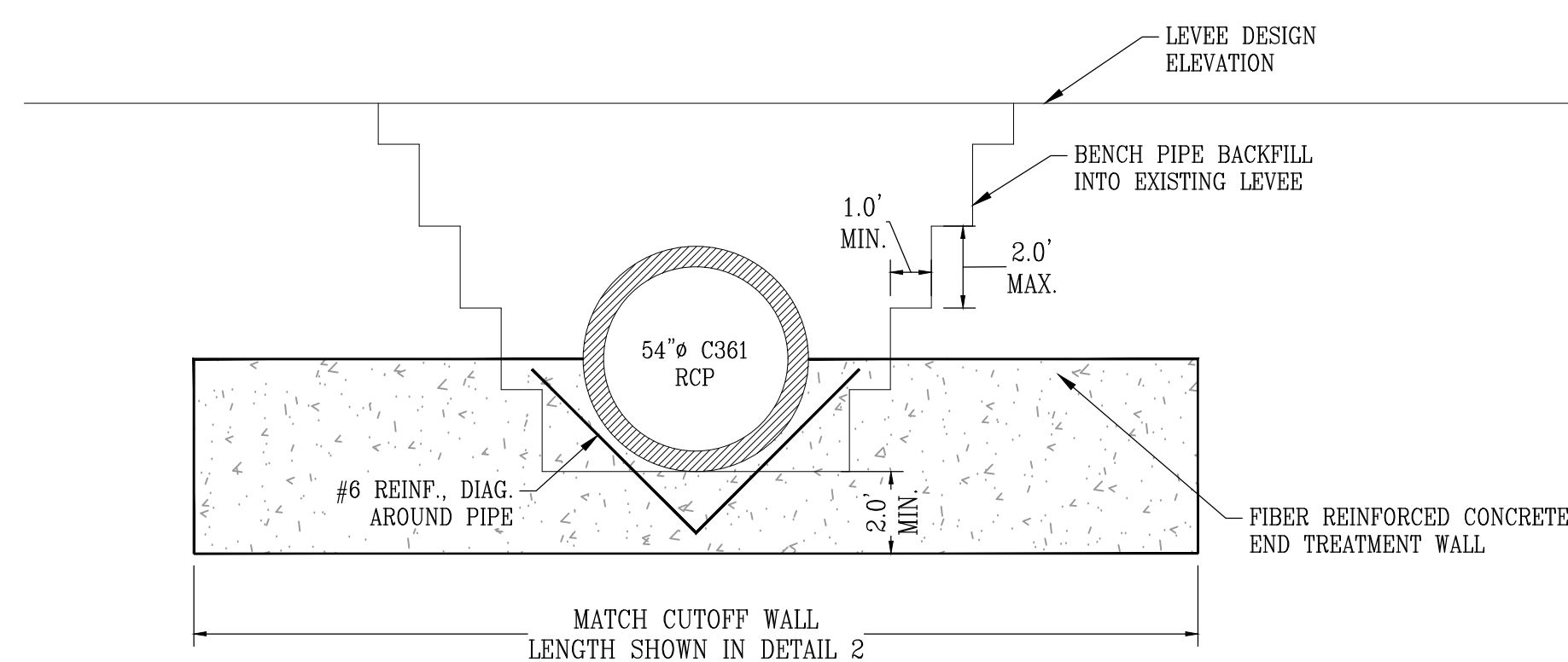
PLAN VIEW  
SCALE: 1" = 10'

NOTES:

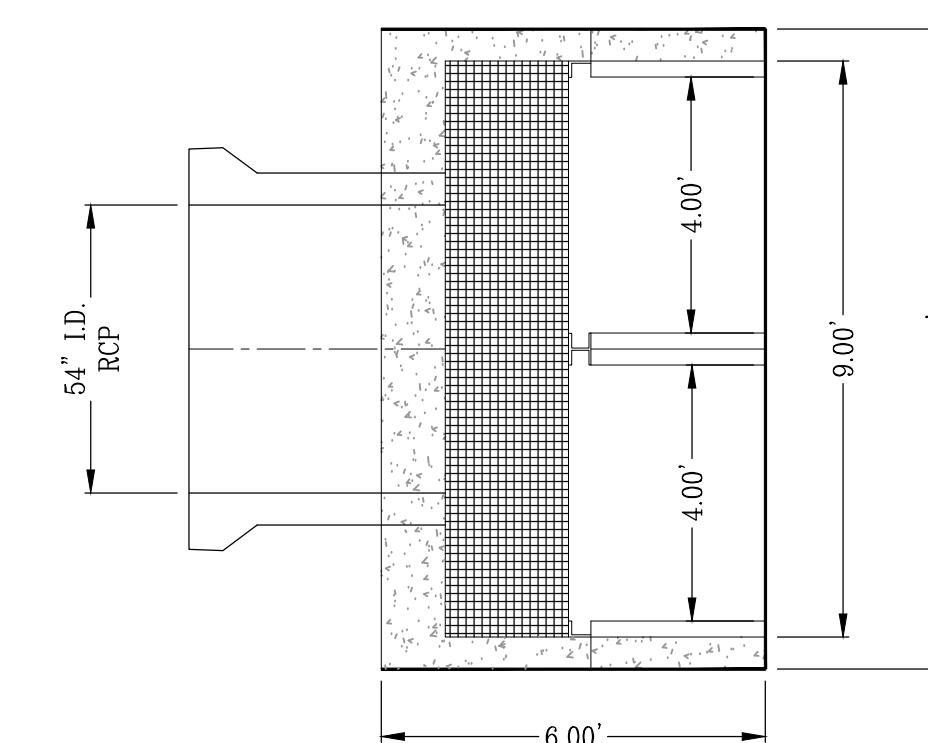
- TRANSFER STRUCTURES SHALL BE INSTALLED AFTER LEVEES HAVE BEEN CONSTRUCTED.
- CONTRACTOR SHALL OVER-EXCAVATE 18-INCHES DEEP 5-FT BEYOND THE LIMITS OF THE PRE-CAST CONCRETE STRUCTURE AND RECOMPACT THE AREA TO A MINIMUM 92% RELATIVE COMPACTION AS DETERMINED BY ASTM D1557.
- CONTRACTOR SHALL BACKFILL STRUCTURE AND PIPE TO A MINIMUM 92% RELATIVE COMPACTION AS DETERMINED BY ASTM D1557. BACKFILL MATERIAL SHALL BE MOISTURE CONDITIONED TO OPTIMUM MOISTURE CONTENT OR UP TO 2% GREATER. CONTRACTOR SHALL TAKE CARE TO ENSURE HAUNCHES OF PIPE ARE COMPACTED. ALL BACKFILL SHALL BE BENCHED INTO EXISTING LEVEE EMBANKMENTS.
- UPON COMPLETION OF BACKFILLING, CONTRACTOR SHALL EXCAVATE FOR THE ANCHOR WALL, CUTOFF WALL, AND END TREATMENT WALL AS SHOWN HEREON. A VACUUM TRUCK SHALL BE USED AS NECESSARY.
- THE RCP SHALL BE FREE OF ANY SOIL OR OTHER RESIDUE PRIOR TO PLACING CONCRETE. EACH JOINT SHALL BE CHECKED WITH A FEELER GAUGE TO MAKE SURE THE GASKET HAS NOT ROLLED.
- CONCRETE FOR CUTOFF WALLS SHALL HAVE A MINIMUM 4,000 PSI 28-DAY COMPRESSIVE STRENGTH. CONCRETE SHALL HAVE A MINIMUM OF 25% FLY ASH AND 1 POUND PER CUBIC YARD OF SYNTHETIC FIBER REINFORCEMENT.
- DURING PLACEMENT OF CONCRETE, CONCRETE SHALL BE VIBRATED IN PLACE IN ORDER TO ENSURE THAT CONCRETE FLOWS AROUND THE PIPES. CONCRETE SHALL NOT BE EXCESSIVELY VIBRATED SUCH THAT CONCRETE COMPONENTS BEGIN TO SEPARATE. CARE SHALL BE TAKEN DURING CONCRETE PLACEMENT TO PREVENT DEBRIS FROM FALLING INTO THE TRENCH OR CONCRETE. IF CONCRETE IS CONTAMINATED BY FALLING DEBRIS OR SOIL, IT SHALL BE IMMEDIATELY REMOVED AND REPLACE WITH NEW CONCRETE. ALL CONTAMINATED CONCRETE SHALL BE DISPOSED OF AT DESIGNATED DISPOSAL AREAS OR, IF NONE ARE AVAILABLE, DISPOSED OF OFF SITE.
- IF MULTIPLE TRUCKS WILL BE REQUIRED IN ORDER TO DELIVER THE NECESSARY CONCRETE, TRUCKS SHALL BE SCHEDULED ADEQUATELY SUCH THAT SUCCESSIVE POURS ARE NOT ALLOWED TO BEGIN CURING. COLD JOINTS WITHIN CUTOFF WALLS WILL NOT BE ALLOWED.
- CONCRETE WILL BE ALLOWED TO CURE FOR SEVEN DAYS PRIOR TO ANY EQUIPMENT ACTIVITY BEING ALLOWED OVER THE TOP OF THE CONCRETE.



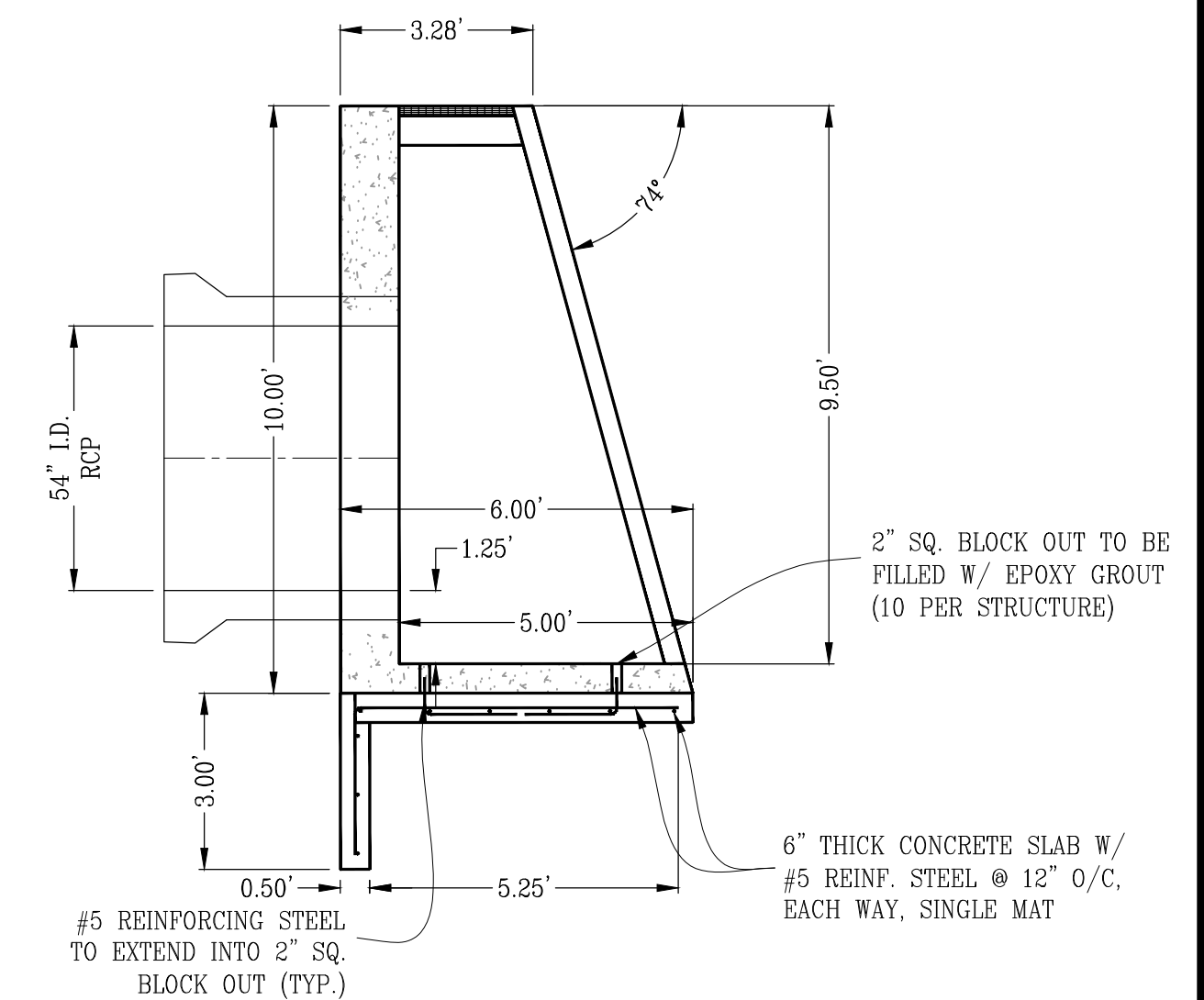
DETAIL 1 - CUTOFF WALL  
SCALE: 1" = 4'



DETAIL 2 - END TREATMENT WALL  
SCALE: 1" = 4'



PLAN VIEW



ELEVATION VIEW

PRECAST TRANSFER STRUCTURES  
NTS

| No. | DATE | REVISIONS | APPROVED | DESIGNED:    |
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IRVINE RANCH  
WATER DISTRICT  
Irvine, Calif.

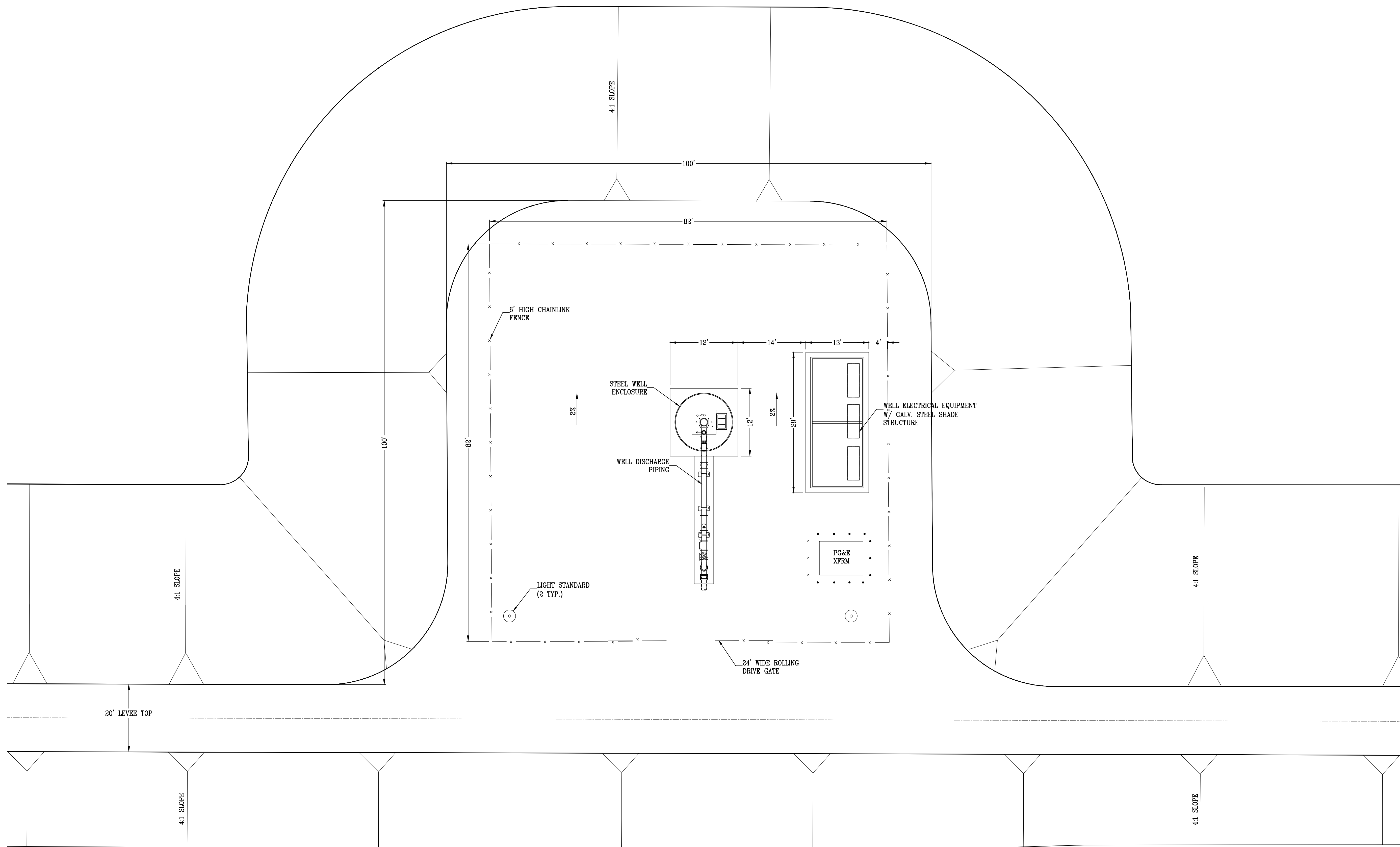


| PROJECT ENGINEER           | DATE |
|----------------------------|------|
| MATTHEW HOOKER             |      |
| CURTIS M. SKAGGS RCE 60960 |      |
| PROJECT MANAGER            |      |
| PRINCIPAL ENGINEER         |      |

DEE JASPAR & ASSOCIATES, INC.  
CIVIL ENGINEERS  
3701 PEGASUS DRIVE, SUITE 121  
BAKERSFIELD, CALIFORNIA 93308  
PHONE 805 393-4796  
FAX 805 393-4799

KERN FAN GROUNDWATER STORAGE PROJECT  
PROJECT NUMBER  
INTERBASIN STRUCTURES

SHEET  
34  
OF  
46



ELECTRICAL SYSTEM SHADE STRUCTURE  
NOT TO SCALE

| No. | DATE | REVISIONS | APPROVED |
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 CHECKED: CMS

**IRVINE RANCH  
WATER DISTRICT**  
Irvine, Calif.

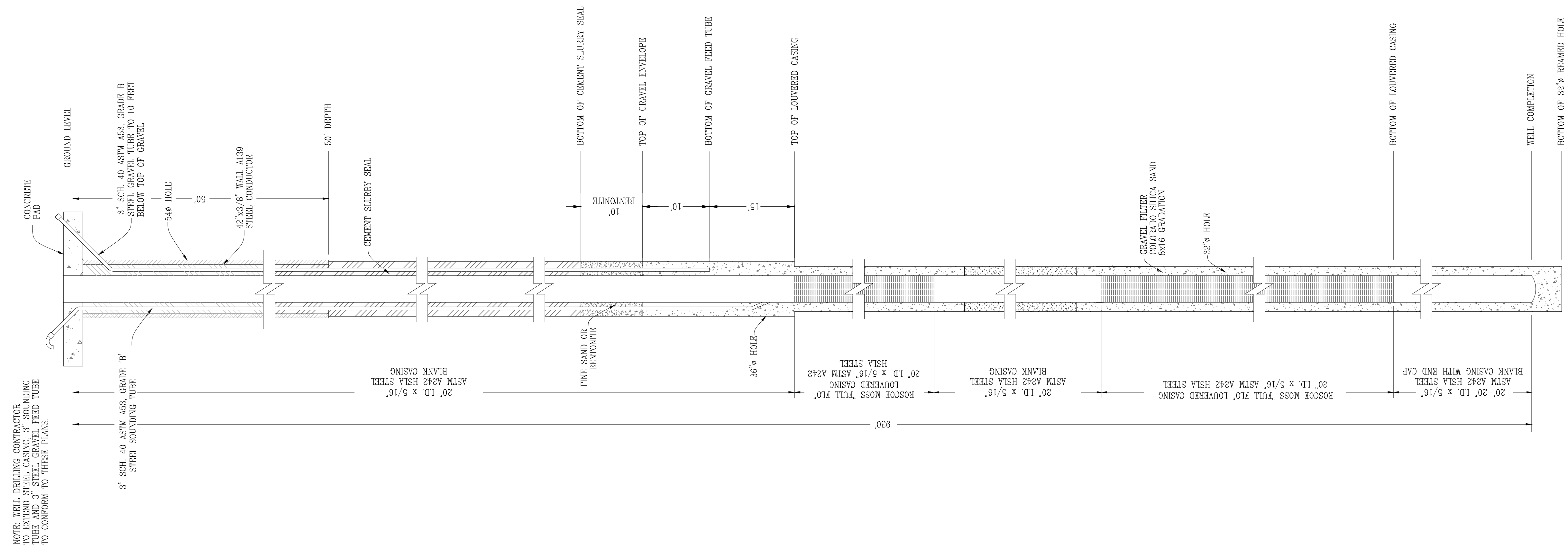


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|----------------------------|--------------------|------|
| MATTHEW HOOKER             | PROJECT ENGINEER   | DATE |
| CURTIS M. SKAGGS RCE 60960 | PROJECT MANAGER    |      |
|                            | PRINCIPAL ENGINEER |      |

**DEE JASPAR & ASSOCIATES, INC.**  
 CIVIL ENGINEERS  
 3701 PEGASUS DRIVE, SUITE 121 BAKERSFIELD, CALIFORNIA 93309  
 PHONE 805 353-4796 FAX 805 353-4798

**KERN FAN GROUNDWATER STORAGE PROJECT**  
 PROJECT NUMBER  
 TYPICAL WELL SITE PLAN

SHEET  
35  
OF  
48



NOTE: WELL DRILLING CONTRACTOR  
 TO VERIFY STEEL SOUNDING  
 TUBE AND 3" STEEL GRAVEL FEED TUBE  
 TO CONFORM TO THESE PLANS.

| No. | DATE | REVISIONS | APPROVED |
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DESIGNED:  
 DRAWN: MTH  
 CHECKED: CMS

**IRVINE RANCH  
 WATER DISTRICT**  
 Irvine, Calif.



MATTHEW HOOKER PROJECT ENGINEER DATE  
 CURTIS M. SKAGGS RCE 60960 PROJECT MANAGER  
 PRINCIPAL ENGINEER

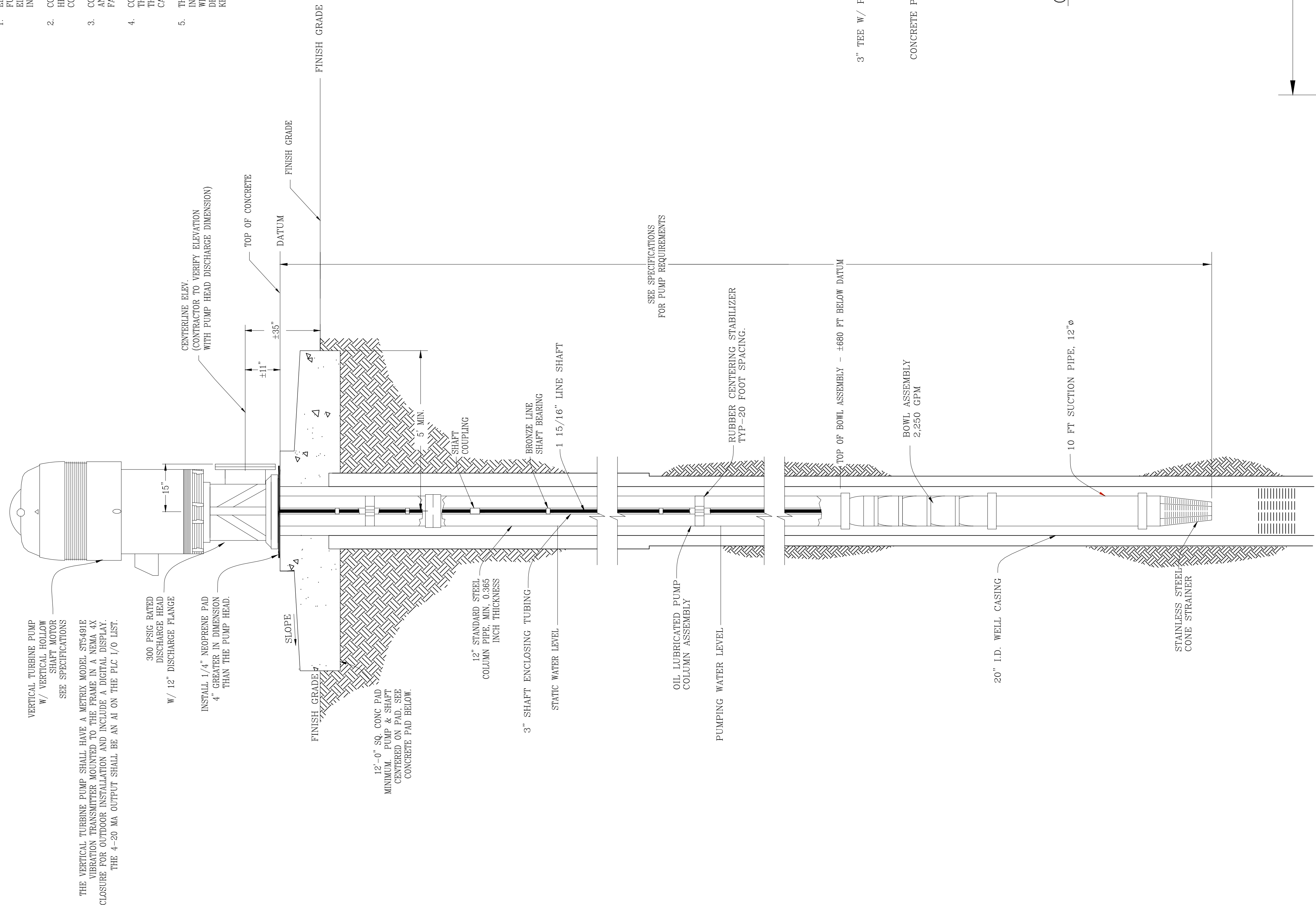
**DEE JASPAR & ASSOCIATES, INC.**  
 CIVIL • ENGINEERS  
 3701 PEGASUS DRIVE, SUITE 121 BAKERSFIELD, CALIFORNIA 93308  
 PHONE 805 393-4786 FAX 805 393-4799

**KERN FAN PROJECT**  
 PROJECT NUMBER  
**TYPICAL WELL CROSS SECTION**

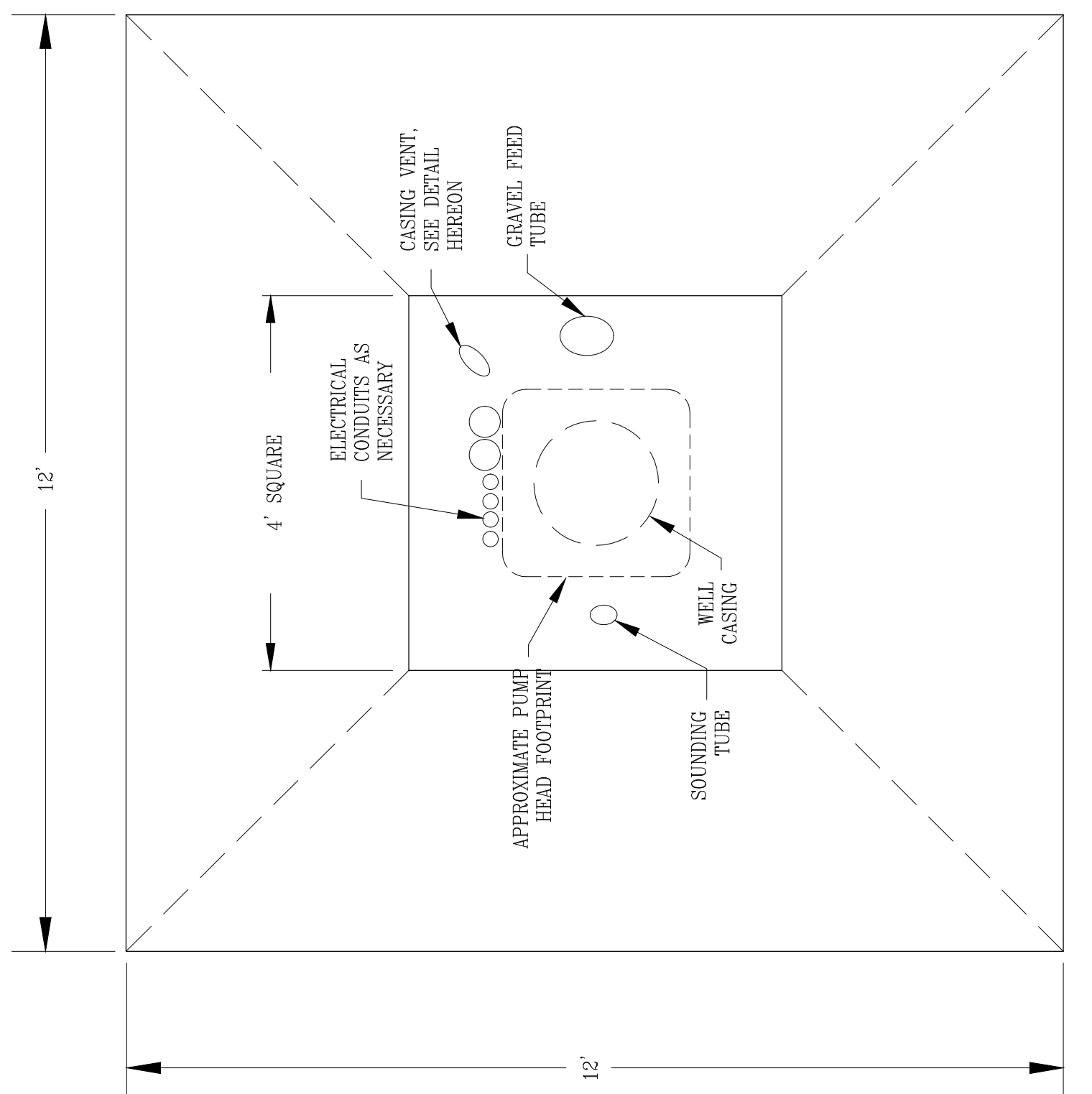
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 36  
 OF  
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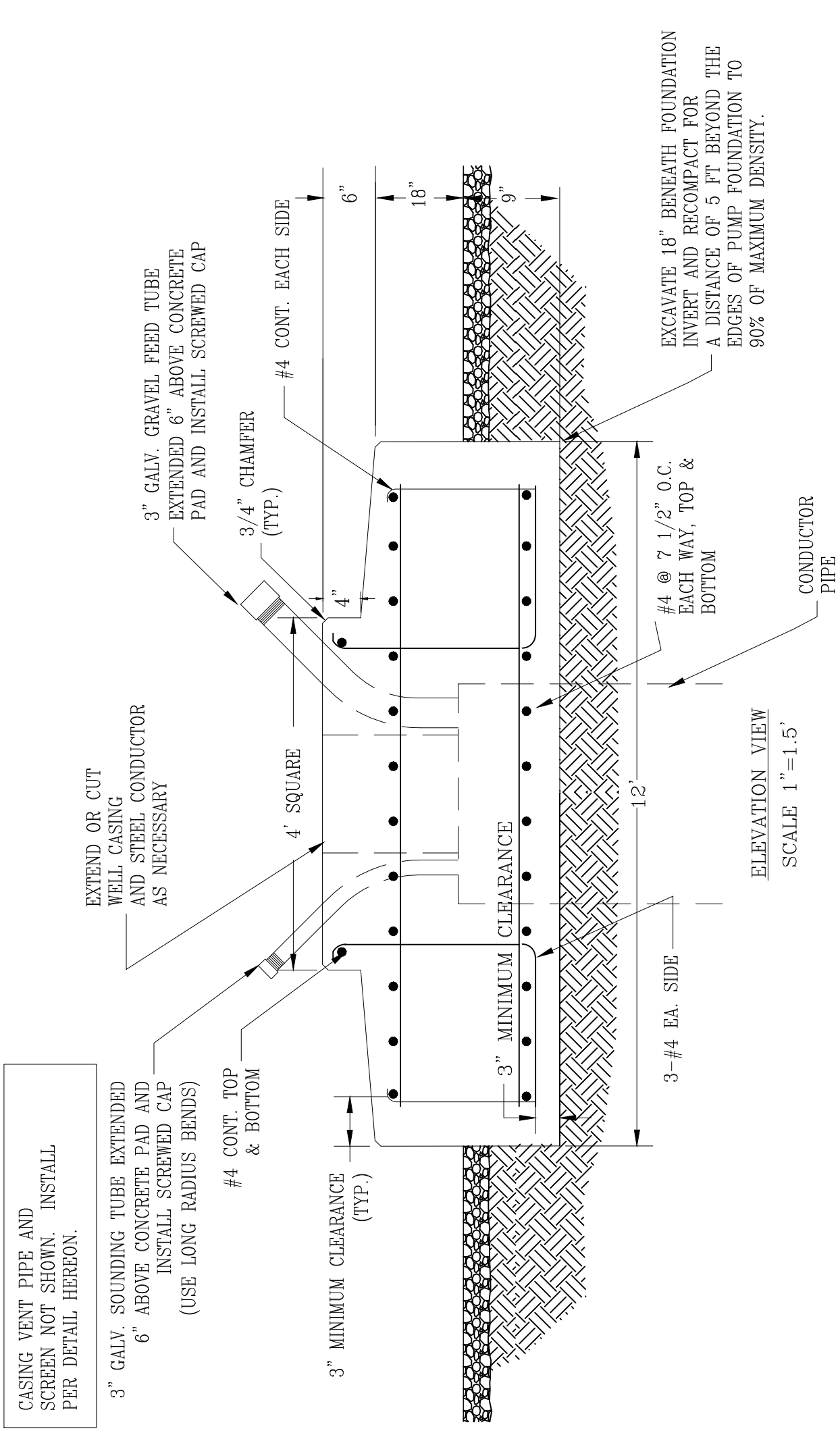
- NOTE:**
- ELECTRICAL CONDUITS ARE NOT SHOWN HEREON. CONTRACTOR SHALL FURNISH A DRAWING SHOWING THE PROPOSED LOCATION OF ALL ELECTRICAL CONDUITS AT THE WELL HEAD FOR APPROVAL PRIOR TO INSTALLATION OF CONDUITS.
  - CONTRACTOR SHALL INSTALL A 3" GALV. STEEL CASING VENT AS SHOWN HEREON. INSTALL NECESSARY ELECTRICAL CONDUIT PENETRATIONS, INSTALL CONCRETE FOUNDATION, AND PUMP BASE PLATE.
  - CONTRACTOR SHALL VERIFY HEIGHT TO CENTERLINE OF PUMP DISCHARGE AND DISTANCE OF FLANGE FROM CENTERLINE OF PUMP PRIOR TO FABRICATION OF STEEL DISCHARGE PIPING.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THE PUMP HEAD CONDUIT PIPE ENDS IN THE CONCRETE FOUNDATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MODIFYING THE STEEL CASING IF NECESSARY.
  - THE TRANSDUCER CABLE INSTALLED IN THE 3" SOUNDING TUBE SHALL BE INSTALLED WITHOUT ANY SPLICES AND BE MARKED AT 50-FT INTERVALS WITH COLORED TAPE AND PERMANENT MARKER TO INDICATE THE ACTUAL DEPTH OF THE CABLE. THE TRANSMITTER SHALL BE PROVIDED WITH A KEVLAR REINFORCED CABLE AND STAINLESS STEEL SUPPORT CABLE.



**CASING VENT DETAIL**  
ELEVATION VIEW  
NOT TO SCALE



**DEEP WELL PUMP**  
ELEVATION VIEW  
NOT TO SCALE



**CONCRETE PUMP FOUNDATION**

| No. | DATE | REVISIONS | APPROVED |
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DRAWN: MTH  
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.

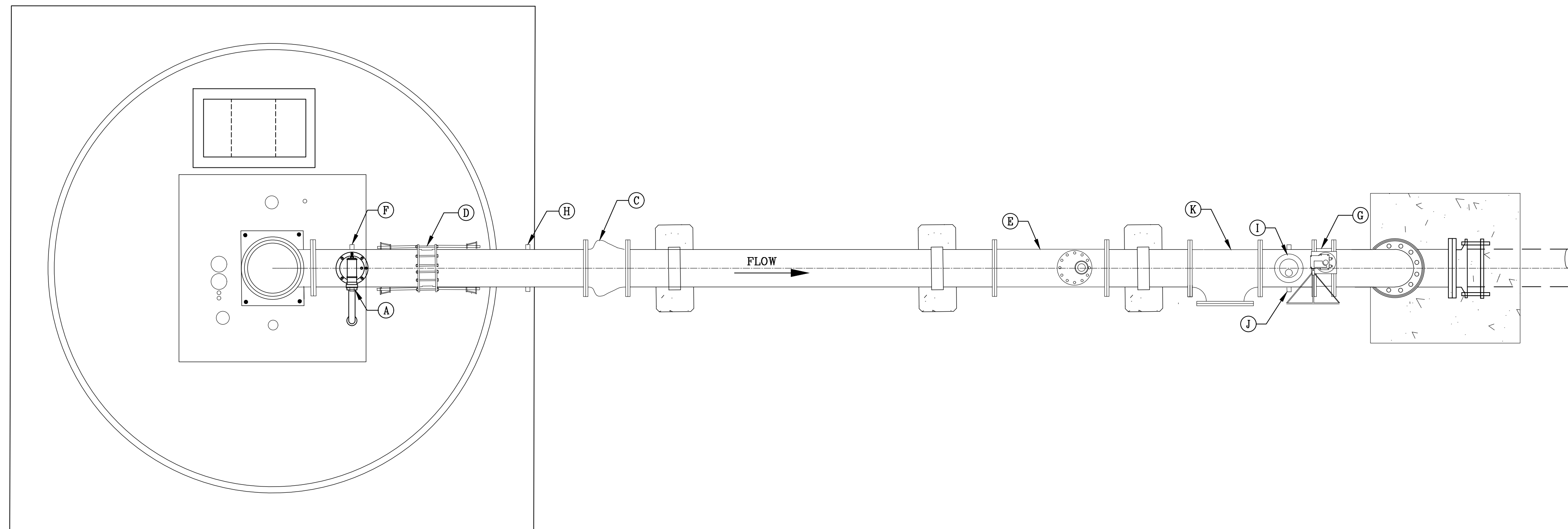


PROJECT ENGINEER: MATTHEW HOOKER  
PROJECT MANAGER: CURTIS M. SKAGGS RCE 60960  
PRINCIPAL ENGINEER: DATE

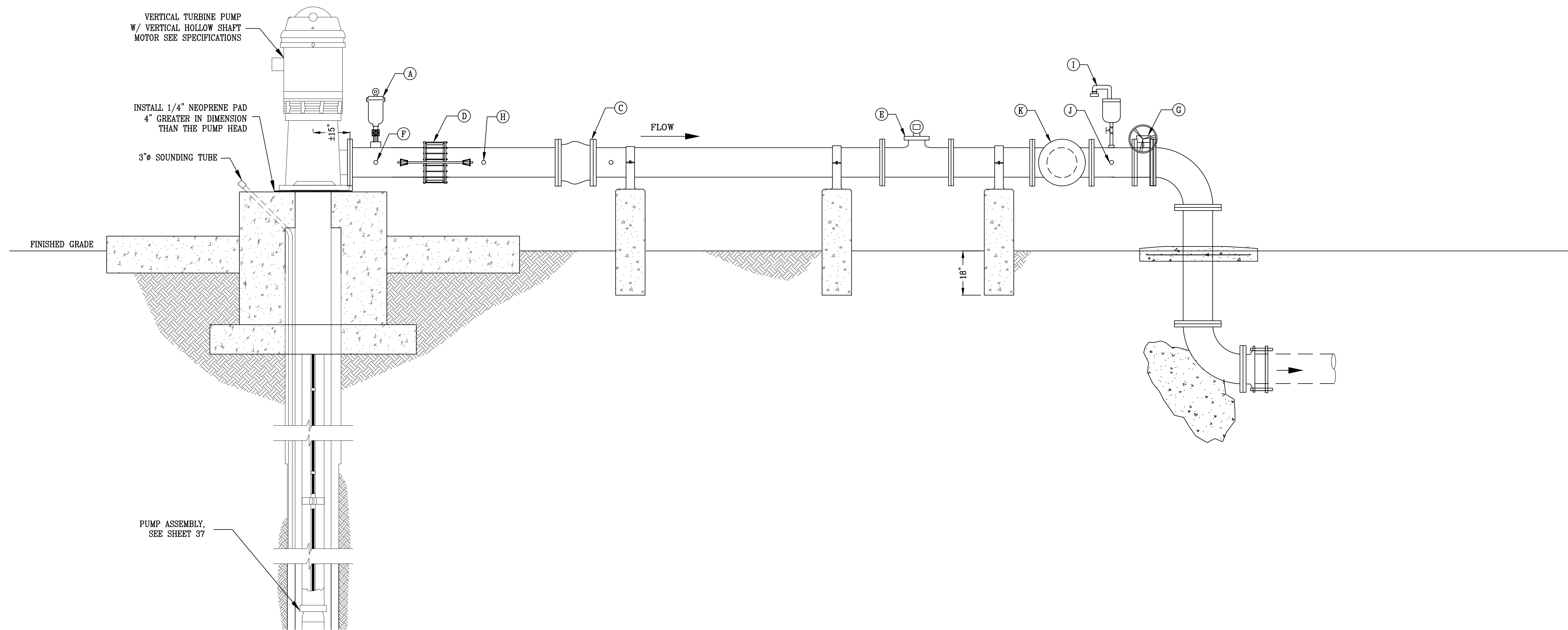
**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
3701 PEGASUS DRIVE, SUITE 121  
SAKERSFIELD, CALIFORNIA 93308  
PHONE 805 393-4796  
FAX 805 393-4798

**KERN FAN PROJECT**  
PROJECT NUMBER  
**TYPICAL WELL PUMP & MOTOR**

SHEET  
37  
OF  
48



| LETTER DESIGNATION | ITEM                               | ITEM SPECIFICATION  |
|--------------------|------------------------------------|---|
| (A)                | 3" APCO DEEP WELL ARV              | 3" APCO VERTICAL TURBINE ARV MODEL 146DAT W/DOUBLE ACTING THROTTLING DEVICE, ISOLATION VALVE, AND SCREENED OUTLET, 300 PSI RATING                             |
| (B)                | 12"x12"x6" TEE                     | 12"x12"x6" FUSION BONDED EPOXY LINED & COATED STEEL TEE WITH PUMP CONTROL VALVE MODEL 61-02, AND PIPING TO DRY WELL   |
| (C)                | CHECK VALVE                        | 12" CHECK VALVE, APCO SERIES 600, GLOBE STYLE, 300 LB A.S.A. PRESSURE CLASS   |
| (D)                | DRESSER COUPLING W/ JOINT HARNESES | 12" STYLE 38 DRESSER COUPLING FOR STEEL PIPE, W/AWWA M11 JOINT HARNESES, 300 PSI RATING   |
| (E)                | 12" FLOW METER                     | 300 PSI FLANGED WATER SPECIALTIES UM-08 MAG METER WITH ABOVE GROUND DISPLAY ENCLOSURE   |
| (F)                | 3/4" HALF COLLARS                  | 3/4" THREAD-O-LET COUPLINGS W/PRESSURE GAUGE (0-300 PSI) THIS SIDE, HIGH PRESSURE SWITCH OTHER SIDE.  |
| (G)                | 12" BUTTERFLY VALVE                | 12" AWWA C504 FLANGED BUTTERFLY VALVE W/12" HANDWHEEL OPERATOR, 300 PSI RATING  |
| (H)                | 3/4" HALF COLLARS                  | 3/4" THREAD-O-LET COUPLINGS W/SAMPLE PORT THIS SIDE, PLUG OTHER SIDE.   |
| (I)                | 2" COMBINATION ARV                 | 2" ARI COMBINATION AIR RELEASE VALVE MODEL D040 W/ISOLATION VALVE, SCREENED OUTLET (20-150 PSI OPERATING PRESSURE), 150 PSI RATING                            |
| (J)                | 3/4" HALF COLLARS                  | 3/4" THREAD-O-LET COUPLINGS W/PRESSURE GAUGE (0-150 PSI) AND PRESSURE TRANSMITTER THIS SIDE, SAMPLE PORT OTHER SIDE.  |
| (K)                | 12" TEE                            | 12" FUSION BONDED EPOXY LINED & COATED STEEL TEE WITH 12" AWWA C504 FLANGED BUTTERFLY VALVE W/12" HANDWHEEL OPERATOR, 300 PSI RATING                          |
| (L)                | 15 GAL. OIL RESERVOIR              | FURNISH AND INSTALL A 15 GALLON OIL RESERVOIR WITH GALVANIZED SECONDARY CONTAINMENT PAN, SOLENOID VALVE, SIGHT GLASS TUBE FOR DRIP LINE, AND ISOLATION VALVE. |



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**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.

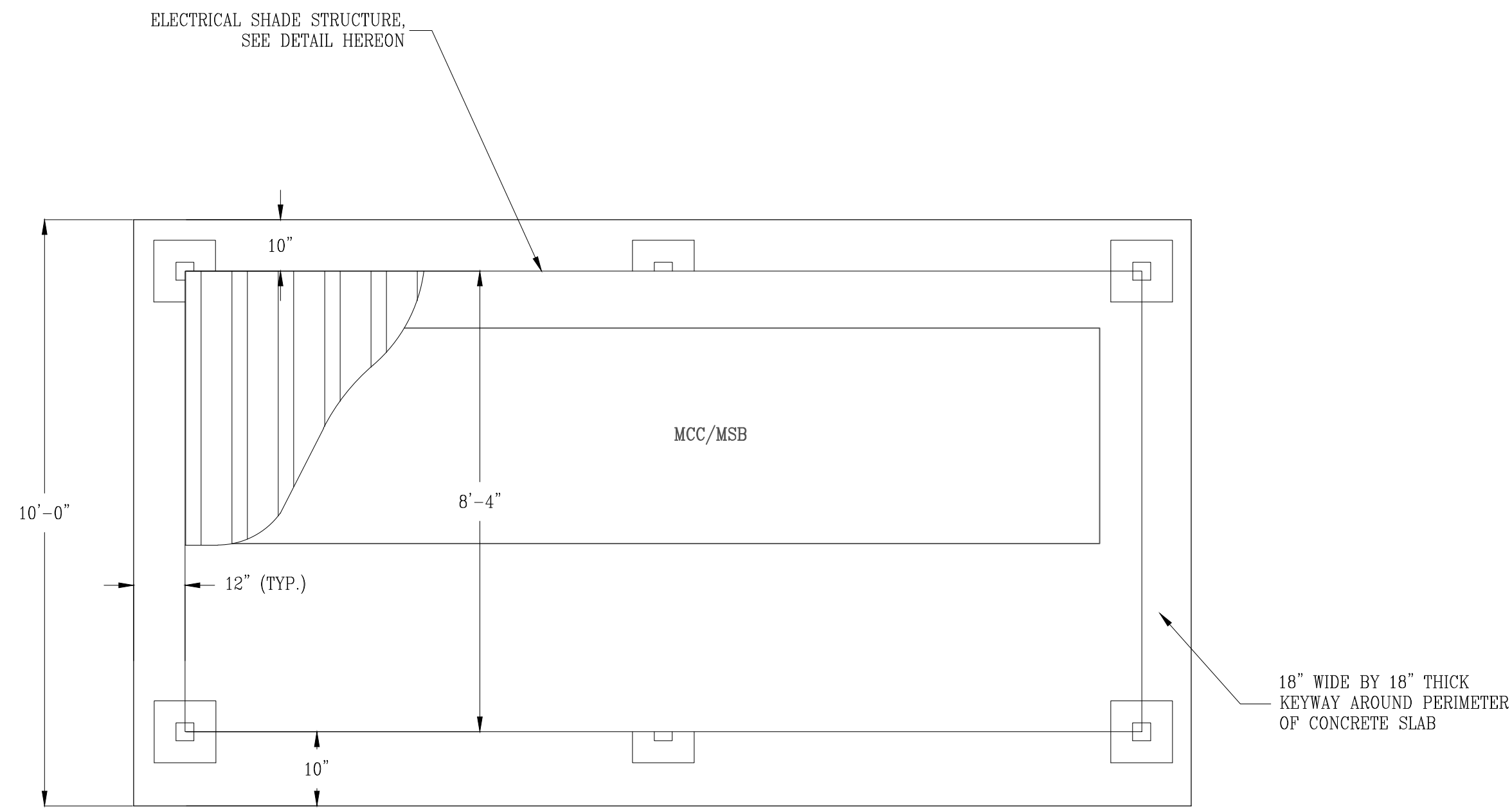


MATTHEW HOOKER PROJECT ENGINEER  
CURTIS M. SKAGGS RCE 60960 PROJECT MANAGER  
PRINCIPAL ENGINEER

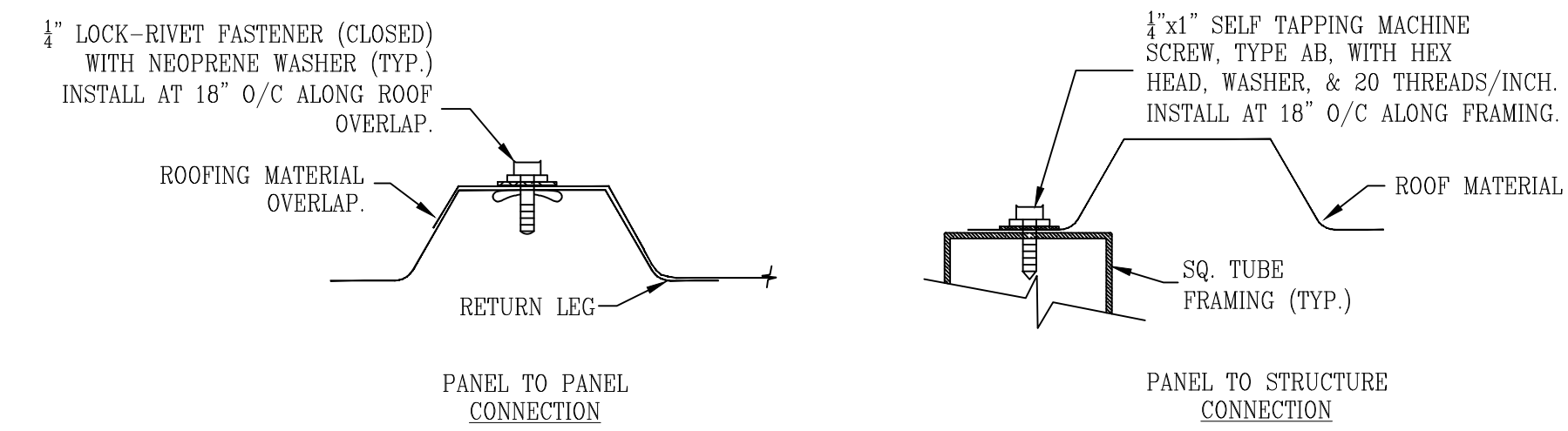
**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
3701 PEBASUS DRIVE, SUITE 121 BAKERSFIELD, CALIFORNIA 93308  
PHONE 805 393-4796 FAX 805 393-4799

**KERN FAN PROJECT**  
PROJECT NUMBER  
**TYPICAL WELL DISCHARGE PIPING**

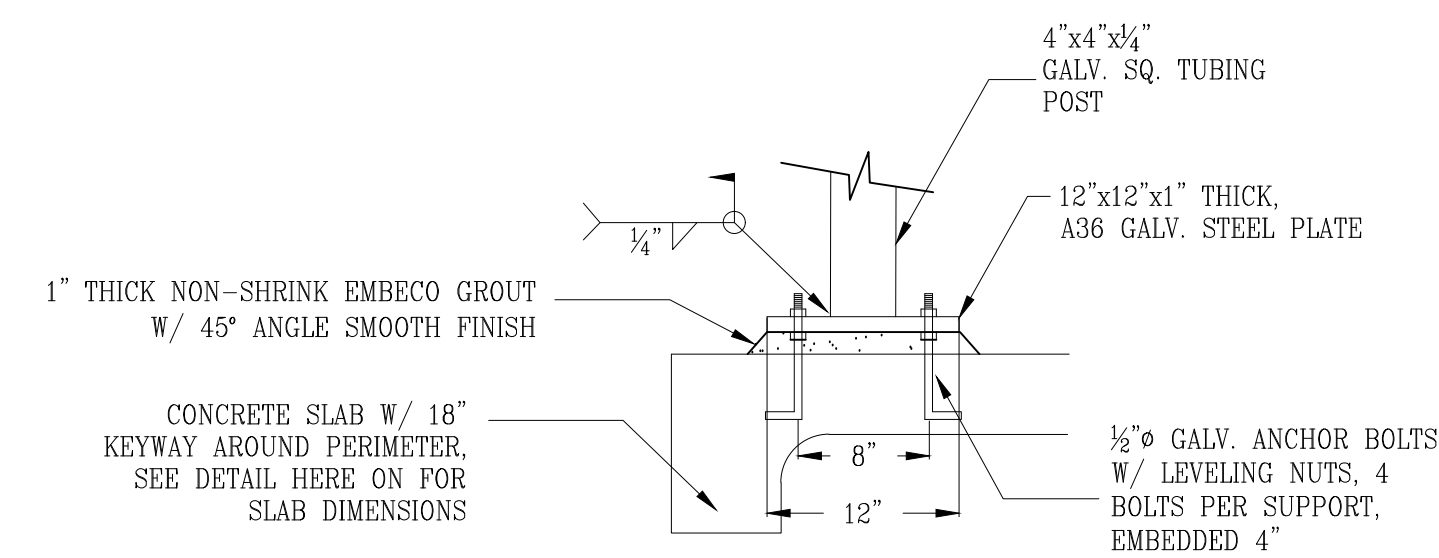
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38  
OF  
48



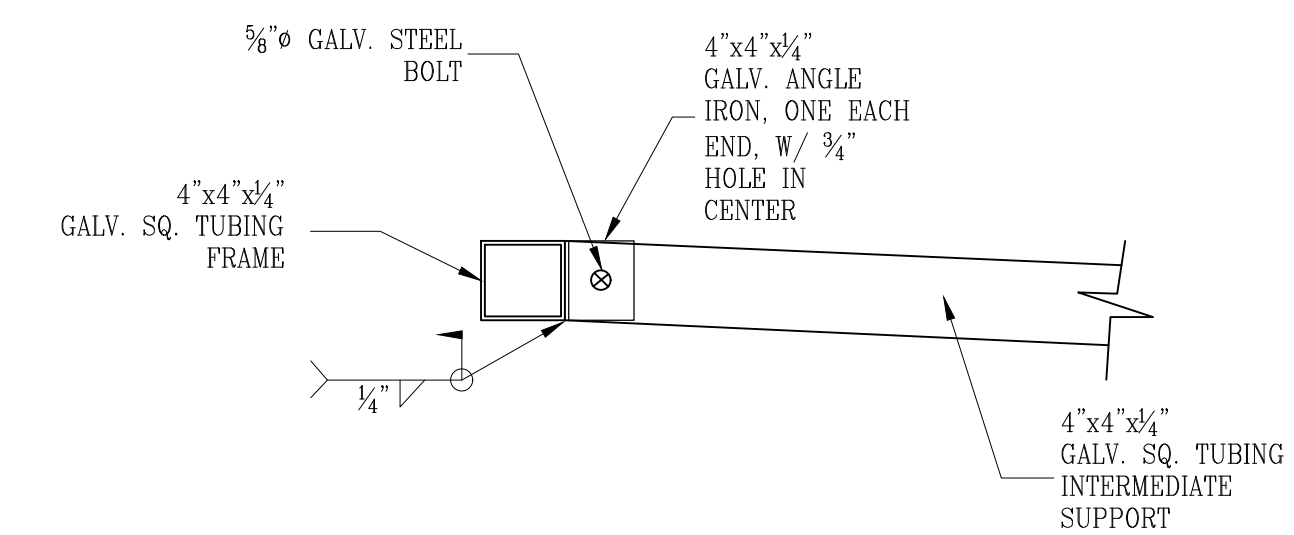
ELECTRICAL SYSTEM CONCRETE SLAB  
NOT TO SCALE



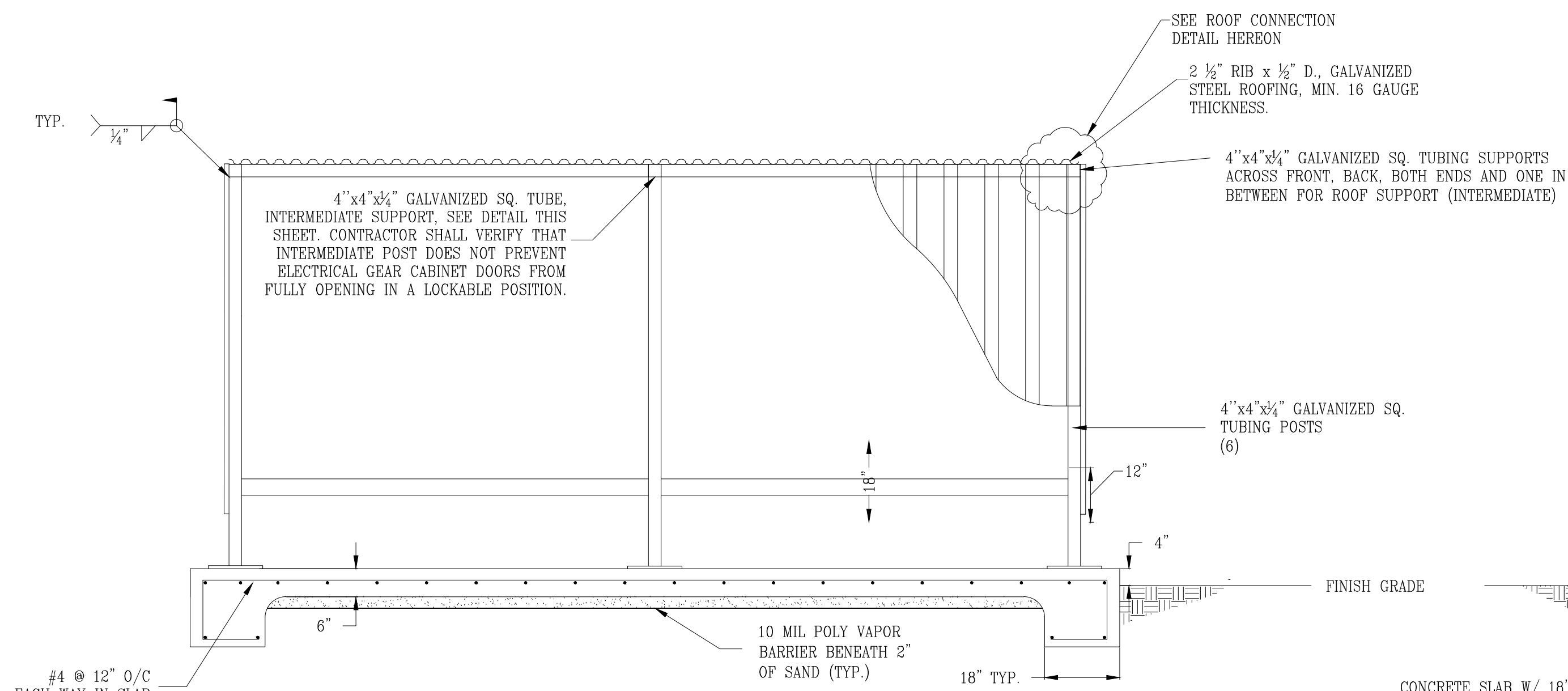
ROOF CONNECTION DETAIL  
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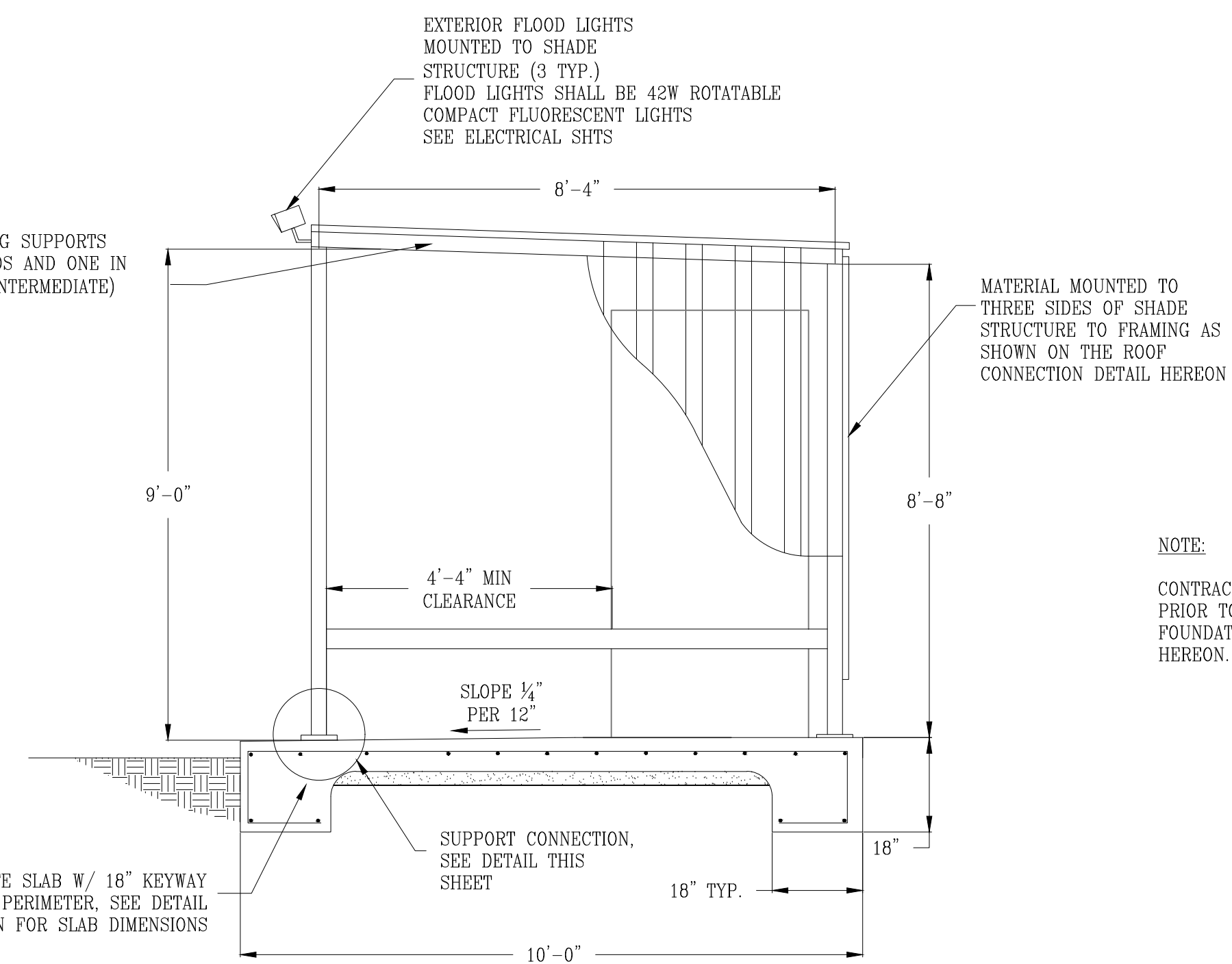
SUPPORT CONNECTION DETAIL  
NOT TO SCALE



INTERMEDIATE SUPPORT DETAIL  
NOT TO SCALE



ELECTRICAL SYSTEM SHADE STRUCTURE  
NOT TO SCALE



NOTE:  
CONTRACTOR SHALL VERIFY ELECTRICAL GEAR HEIGHT AND DIMENSIONS PRIOR TO BIDDING AND MAKE PROVISIONS IN HIS BID IF THE CONCRETE FOUNDATION AND SHADE STRUCTURE MUST BE LARGER THAN SHOWN HEREON. DIMENSIONS SHOWN HEREON ARE MINIMUM REQUIREMENTS.

| No. | DATE | REVISIONS | APPROVED |
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DRAWN: MTH  
CHECKED: CMS

IRVINE RANCH  
WATER DISTRICT  
Irvine, Calif.



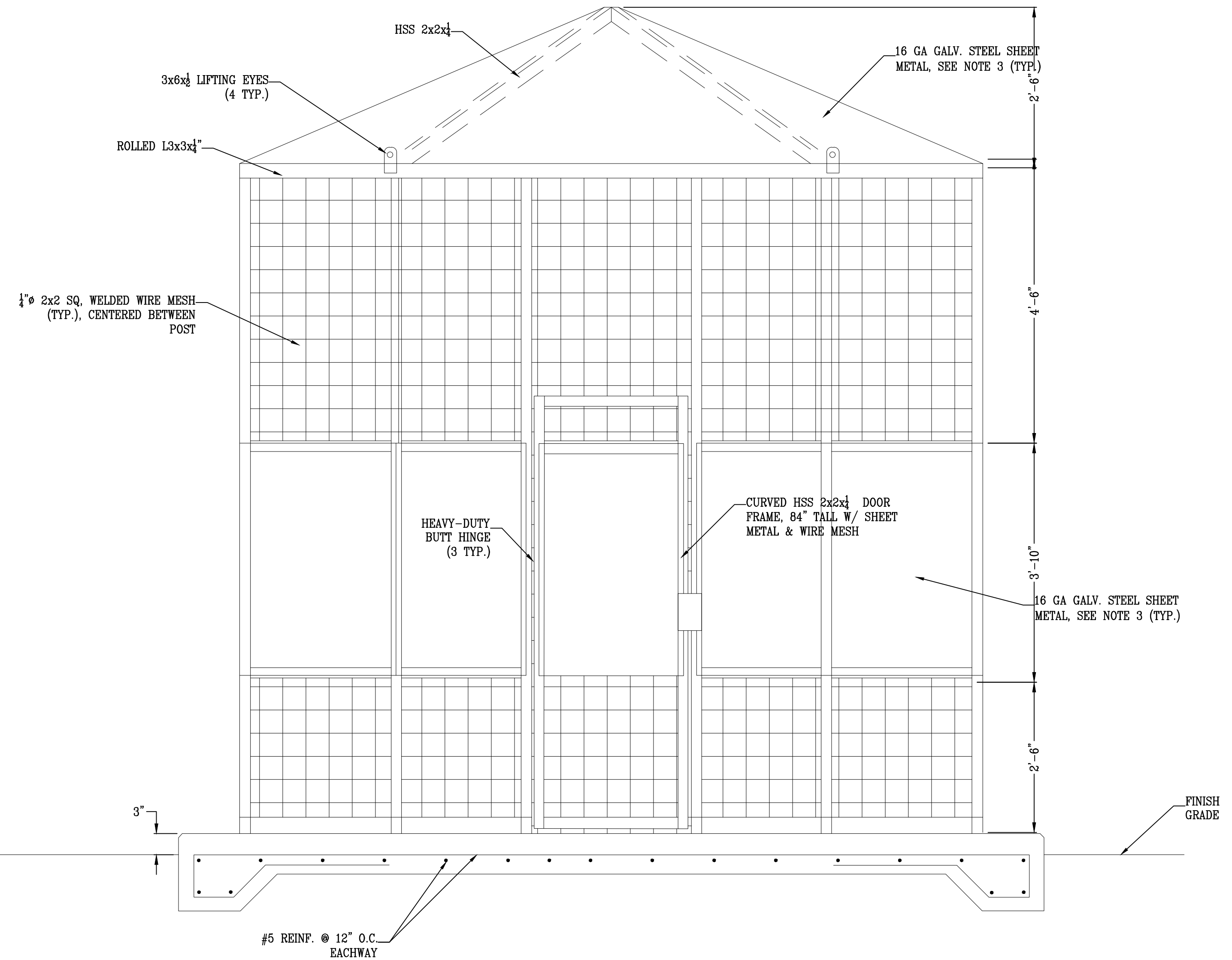
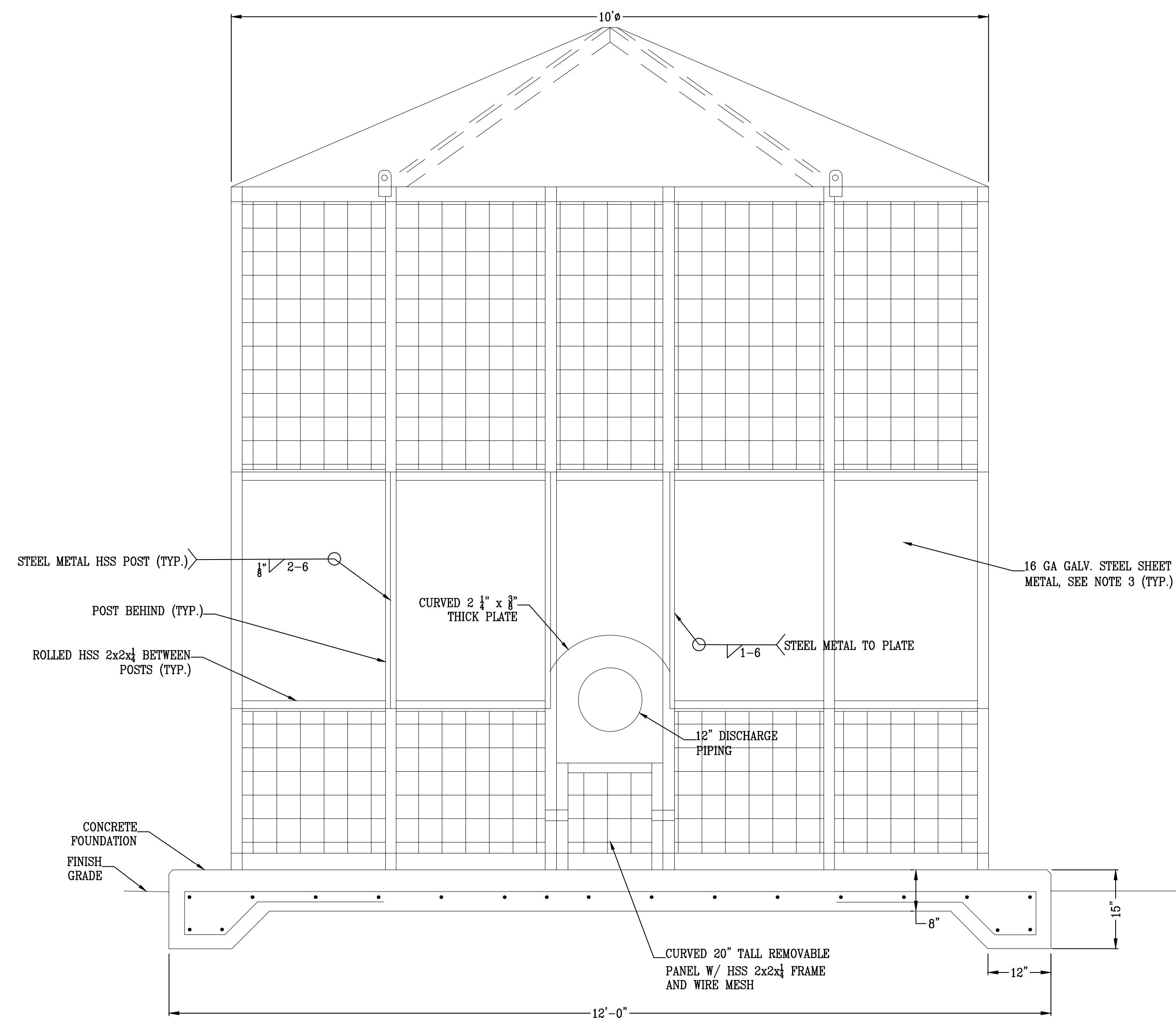
MATTHEW HOOKER PROJECT ENGINEER  
CURTIS M. SKAGGS RCE 60960 PROJECT MANAGER  
PRINCIPAL ENGINEER

DEE JASPAR & ASSOCIATES, INC.  
CIVIL ENGINEERS  
3701 PESASUS DRIVE, SUITE 121  
BAKERSFIELD, CALIFORNIA 93309  
PHONE 805 353-4796  
FAX 805 353-4795

KERN FAN GROUNDWATER STORAGE PROJECT  
PROJECT NUMBER  
ELECTRICAL SHADE STRUCTURE

SHEET  
39  
OF  
48

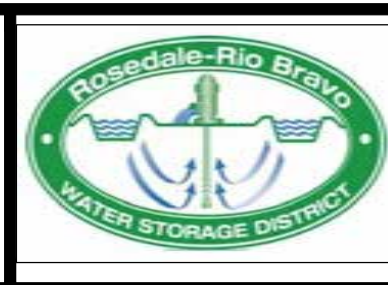




WELL ENCLOSURE  
NTS

| No. | DATE | REVISIONS | APPROVED |
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ROSEDALE-RIO  
BRAVO  
WATER DISTRICT  
Bakersfield, Calif.

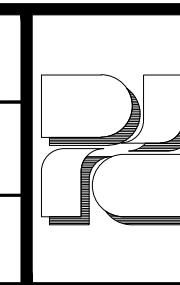


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IRVINE RANCH  
WATER DISTRICT  
Irvine, Calif.



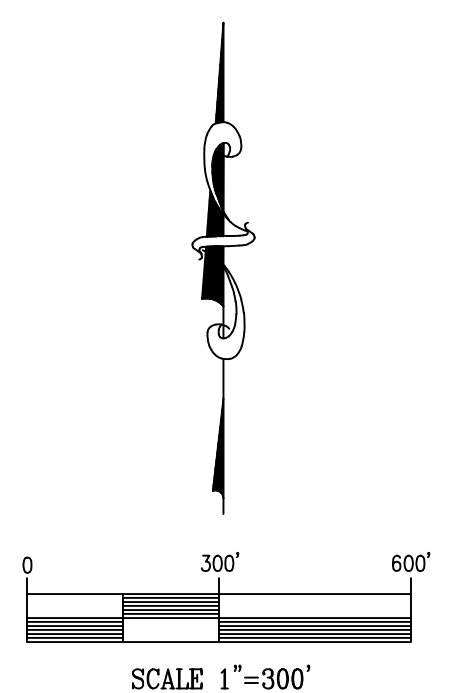
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|------------------|-----------|--------------------|------|
| CURTIS M. SKAGGS | RCE 60960 | PROJECT ENGINEER   | DATE |
| KEVIN L. BURTON  |           | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT     |           | GENERAL MANAGER    |      |



DEE JASPAS & ASSOCIATES, INC.  
CIVIL ENGINEERS  
2730 LINCOLN ROAD, BLDG. A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE 861 393-4796  
FAX 861 393-4799  
PHONE 559 791-9286  
FAX 559 783-9275

KERN FAN GROUNDWATER STORAGE PROJECT  
PROJECT NUMBER  
WELL ENCLOSURE

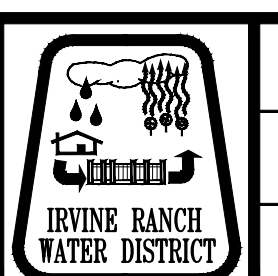
SHEET  
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OF  
48



| No. | DATE | REVISIONS | APPROVED |
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**IRVINE RANCH  
WATER DISTRICT**  
Irvine, Calif.

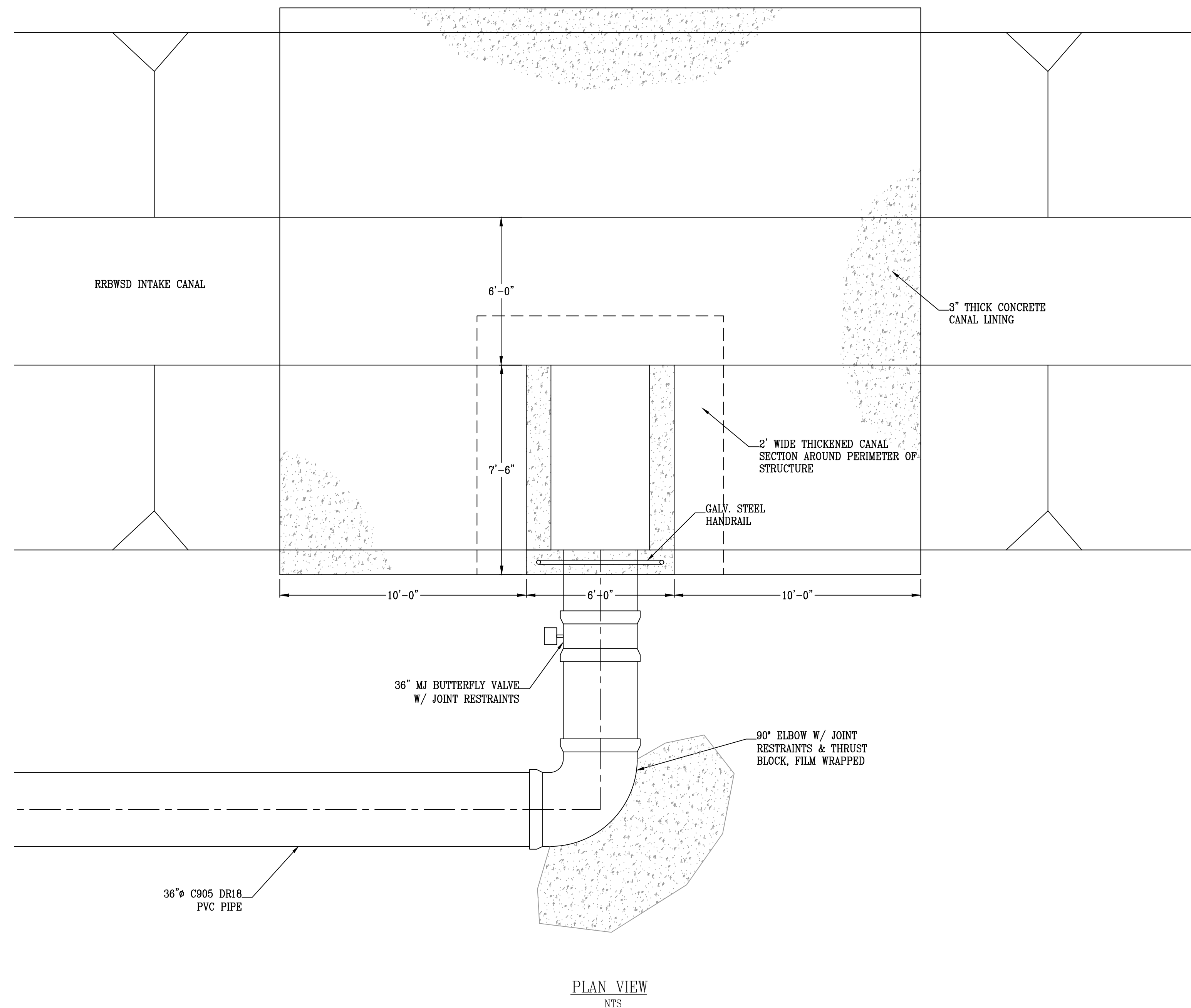


MATTHEW HOOKER PROJECT ENGINEER DATE  
CURTIS M. SKAGGS RCE 60960 PROJECT MANAGER  
PRINCIPAL ENGINEER

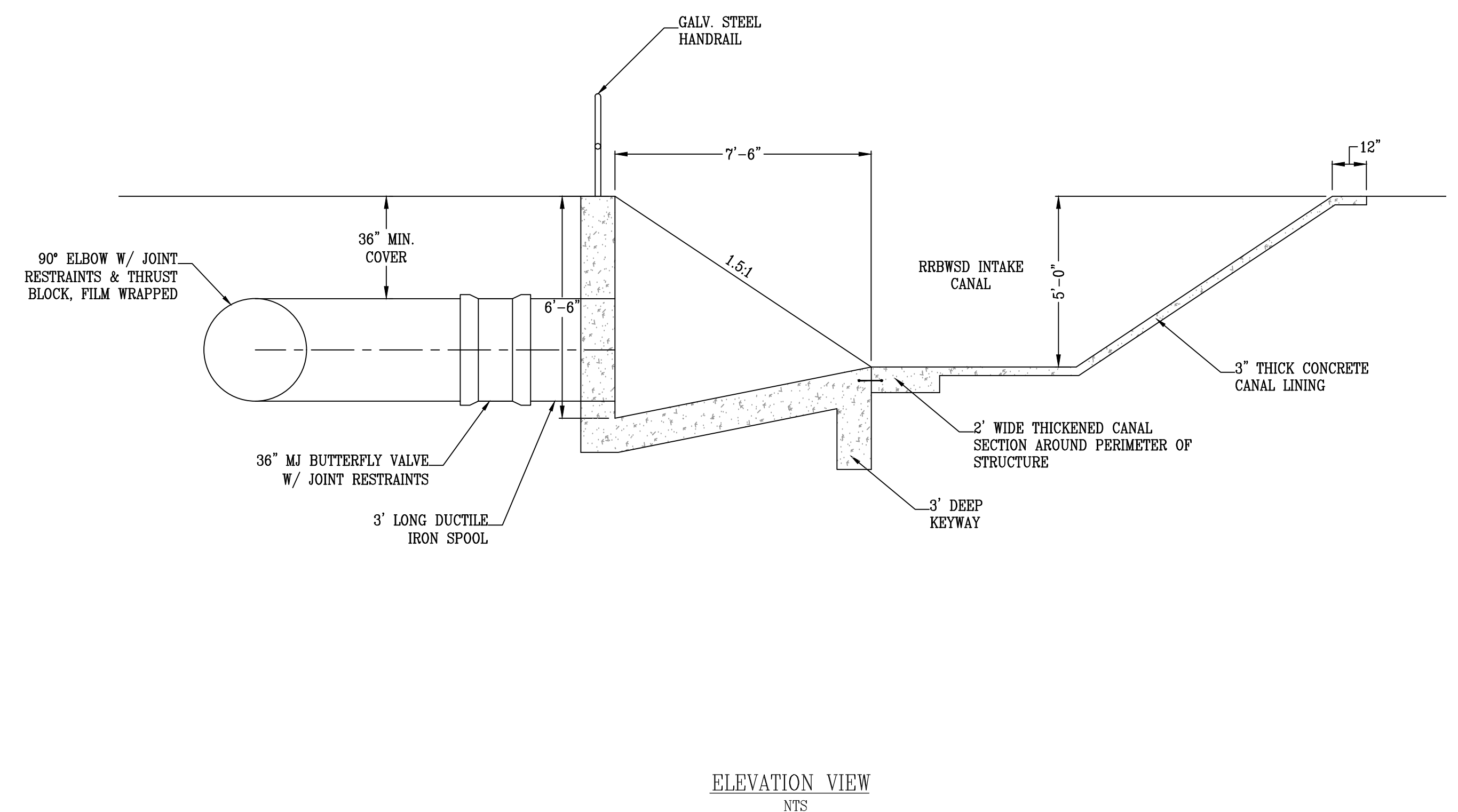
**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
3701 PEGASUS DRIVE, SUITE 121 BAKERSFIELD, CALIFORNIA 93308  
PHONE 805 393-4796 FAX 805 393-4799

**KERN FAN PROJECT  
PROJECT NUMBER  
PHASE 1 RECOVERY FACILITY**

SHEET  
41  
OF  
48



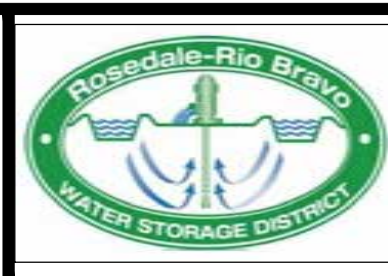
PLAN VIEW  
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ELEVATION VIEW  
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| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.

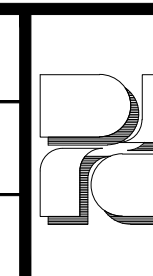


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**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



|                  |           |                    |      |
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| CURTIS M. SKAGGS | RCE 60960 | PROJECT ENGINEER   | DATE |
| KEVIN L. BURTON  |           | EXECUTIVE DIRECTOR |      |
| ERIC AVERETT     |           | GENERAL MANAGER    |      |

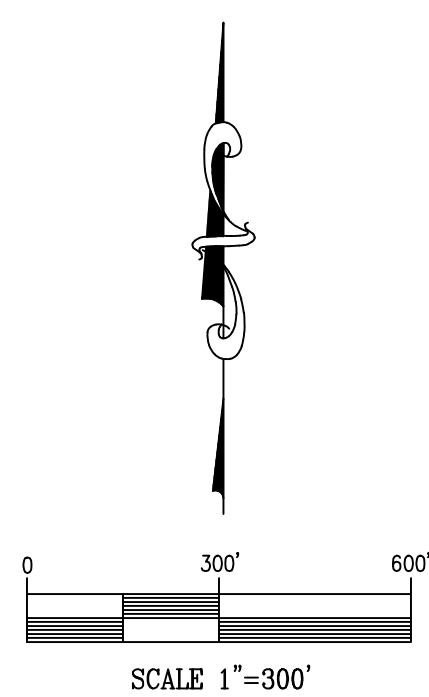


**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 UNICORN ROAD, BLDG A  
BAKERSFIELD, CALIFORNIA 93309  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257  
PHONE 661 393-4796  
FAX 661 393-4799  
PHONE 559 791-9286  
FAX 559 783-9275

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**RRBSD CANAL INTAKE CANAL INTERTIE**

SHEET  
42  
OF  
48

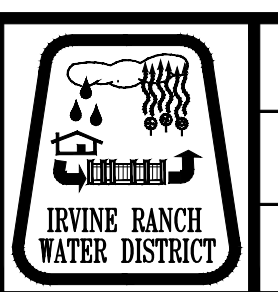




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**IRVINE RANCH  
WATER DISTRICT**  
Irvine, Calif.

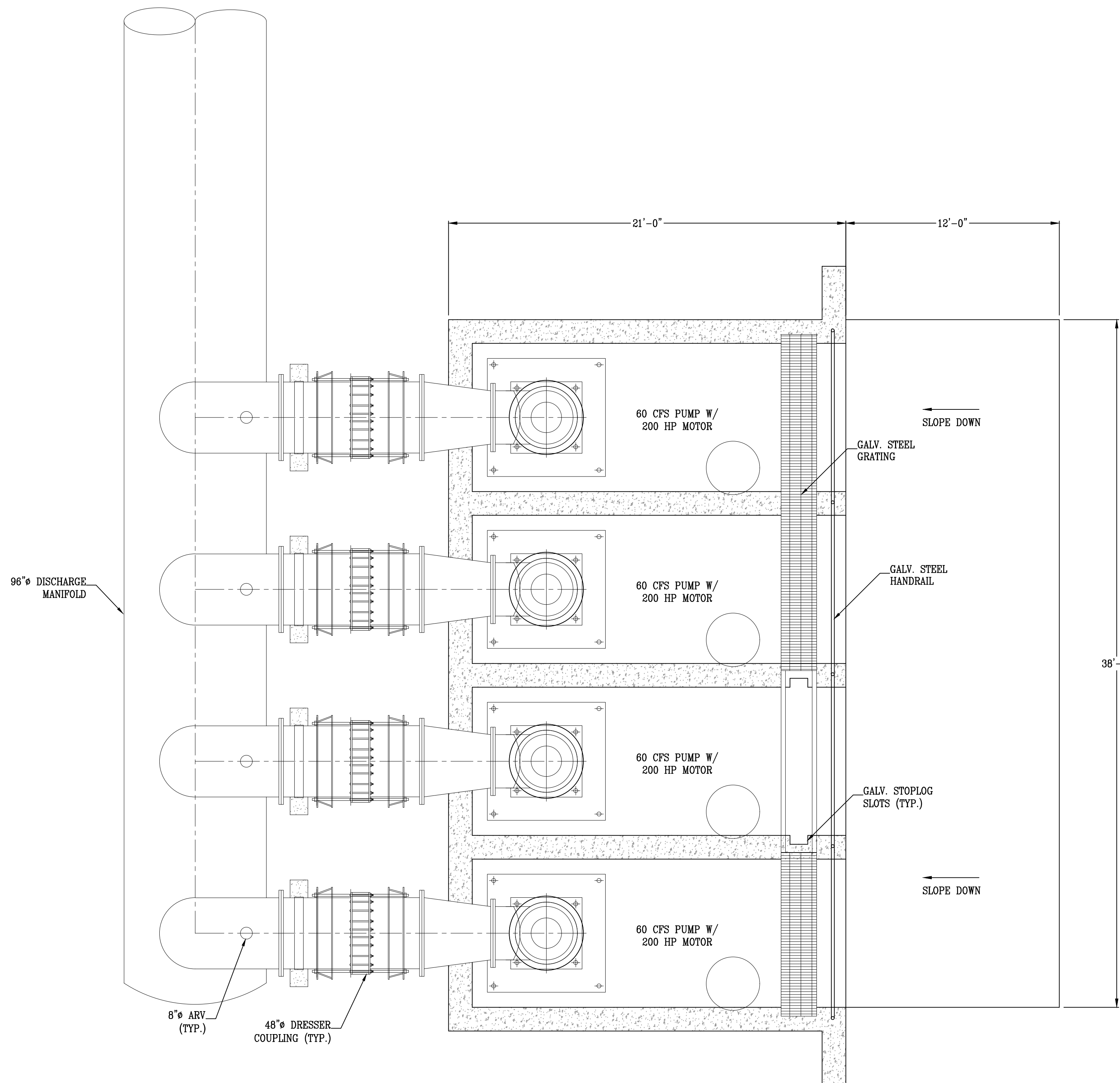


MATTHEW HOOKER PROJECT ENGINEER DATE  
CURTIS M. SKAGGS RCE 60960 PROJECT MANAGER  
PRINCIPAL ENGINEER

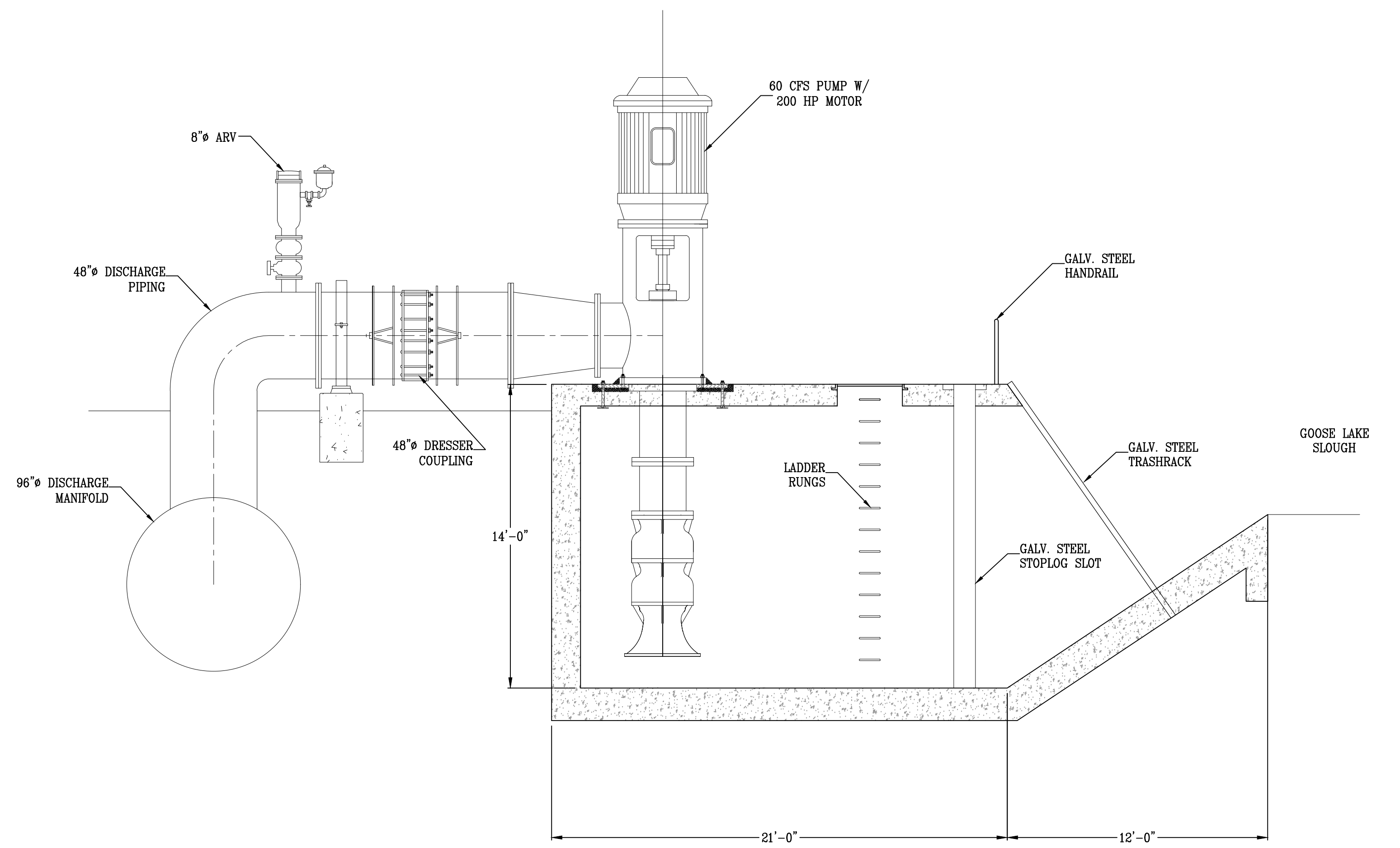
**DEE JASPAR & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
3701 PEGASUS DRIVE, SUITE 121 BAKERSFIELD, CALIFORNIA 93308  
PHONE 805 393-4796 FAX 805 393-4799

**KERN FAN PROJECT**  
PROJECT NUMBER  
**PHASE 1 RECOVERY FACILITY**

SHEET  
**43**  
OF  
**48**



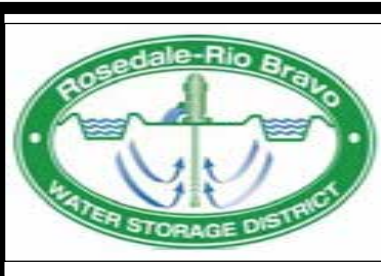
PLAN VIEW  
NTS



ELEVATION VIEW  
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| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



| PROJECT ENGINEER           | DATE |
|----------------------------|------|
| CURTIS M. SKAGGS RCE 60960 |      |
| EXECUTIVE DIRECTOR         |      |
| KEVIN L. BURTON            |      |
| GENERAL MANAGER            |      |
| ERIC AVERETT               |      |

**DEE JASPAR & ASSOCIATES, INC.**  
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2730 LINCOLN ROAD, BLDG. A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
PORTERVILLE, CALIFORNIA 93257

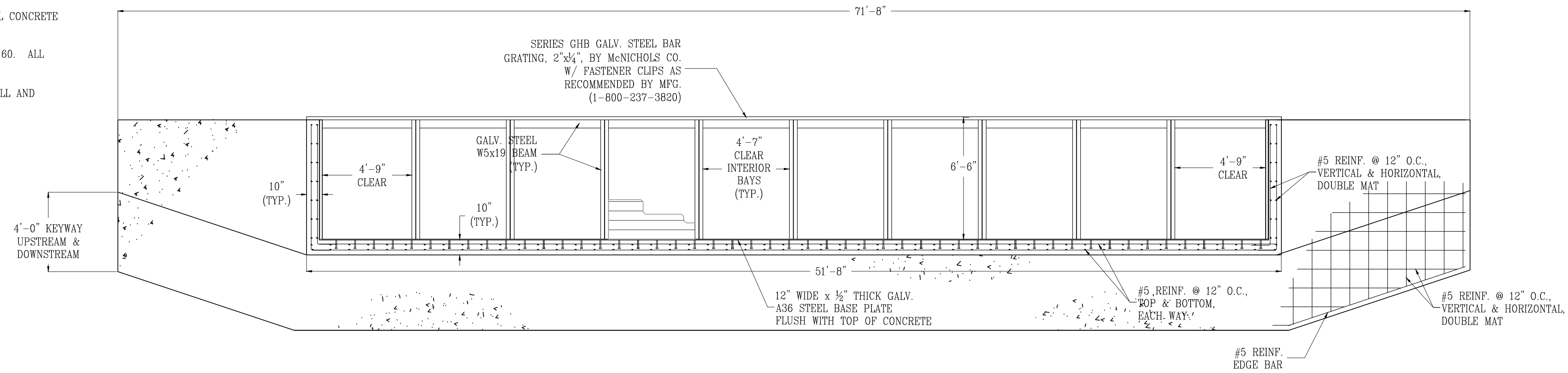
PHONE 661 393-4795  
FAX 661 393-4799  
PHONE 559 791-9288  
FAX 559 783-9275

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**GOOSELAKE SLOUGH LIFT STATION**

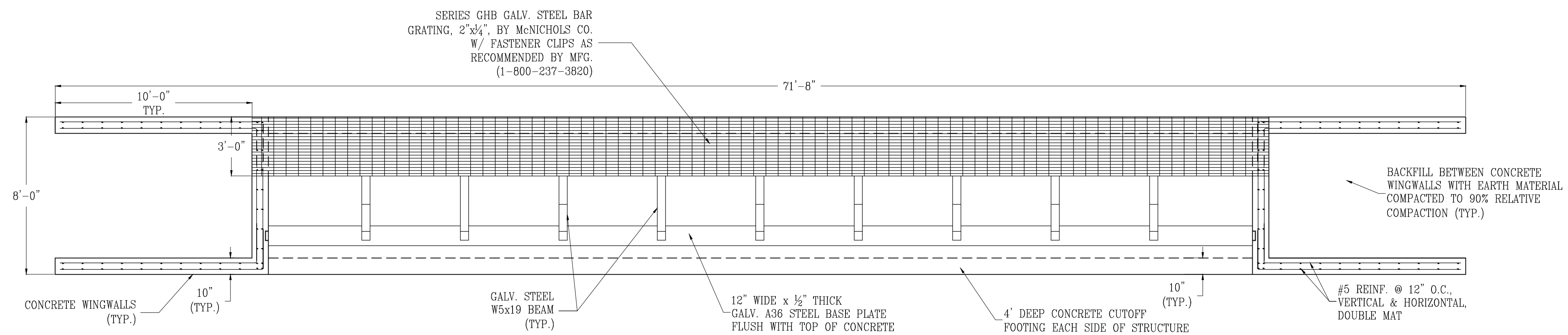
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48

**NOTES:**

1. ALL STRUCTURAL STEEL SHAPES, AND PLATES SHALL BE IN ACCORDANCE WITH ASTM A36.
2. ALL WELDS SHALL BE FULL PENETRATION WELDS.
3. CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI. ALL CONCRETE WORK SHALL CONFORM TO ACI 310 AND THE CONTRACT SPECIFICATIONS.
4. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM GRADE 60. ALL REINFORCEMENT SHALL HAVE A MINIMUM OF 3-INCHES OF COVER.
5. CONTRACTOR SHALL OVEREXCAVATE 18", 5 FT BEYOND STRUCTURE AND BACKFILL AND RECOMPACT TO 95% RELATIVE COMPACTION.
6. ALL BACKFILL SHALL BE COMPACTED TO 90% RELATIVE COMPACTION.



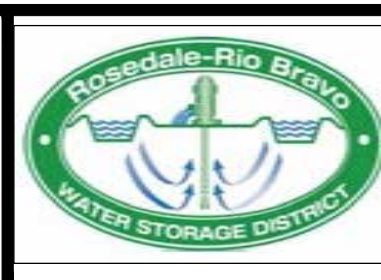
**ELEVATION VIEW**  
NTS



**PLAN VIEW**  
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| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.

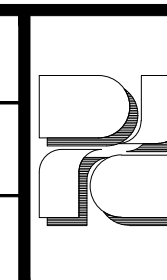


DESIGNED:  
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



PROJECT ENGINEER: CURTIS M. SKAGGS RCE 60960  
EXECUTIVE DIRECTOR: KEVIN L. BURTON  
GENERAL MANAGER: ERIC AVERETT

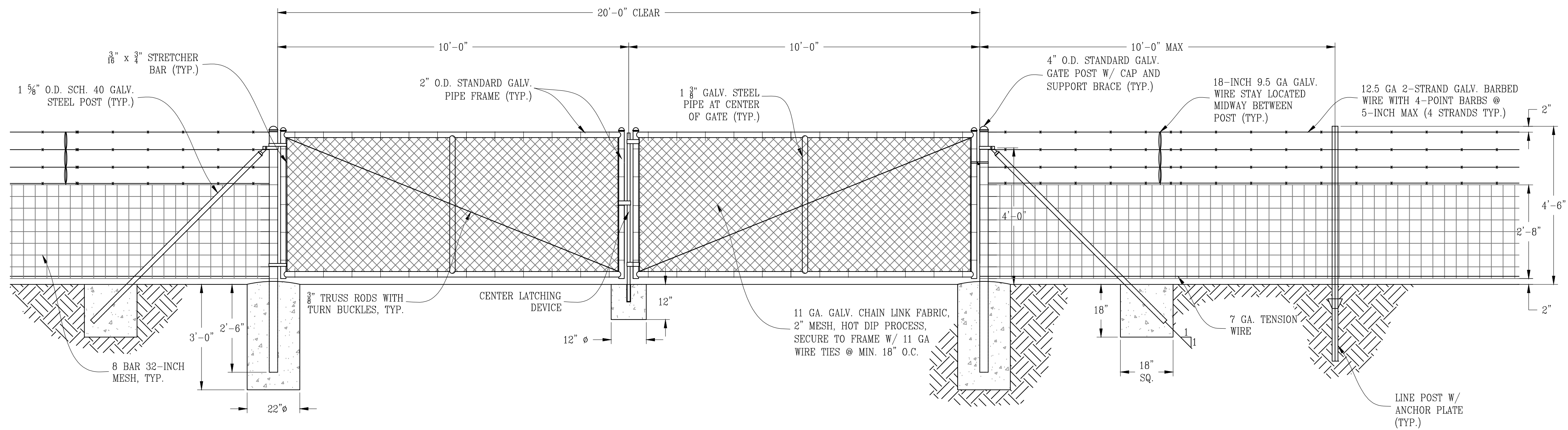


**DEE JASPAS & ASSOCIATES, INC.**  
CIVIL ENGINEERS  
2730 UNICORN ROAD, BLDG A  
BAKERSFIELD, CALIFORNIA 93308  
639 N. MAIN STREET, #B  
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PHONE 661 393-4796  
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PHONE 559 791-9286  
FAX 559 783-9275

**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
CHECK STRUCTURE TYP.

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OF  
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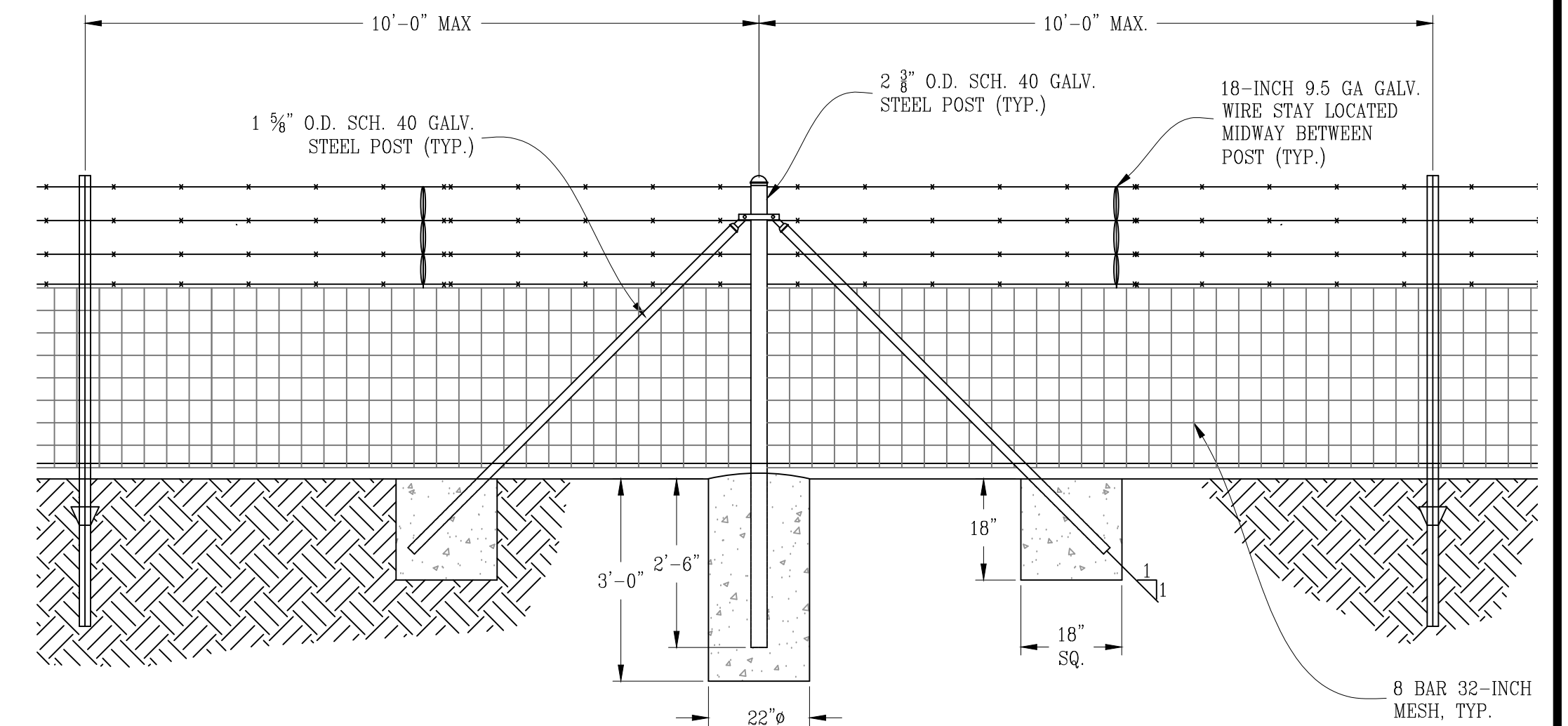




MESH FENCE & DRIVE GATE DETAIL  
NTS

CHAINLINK FENCE NOTES:

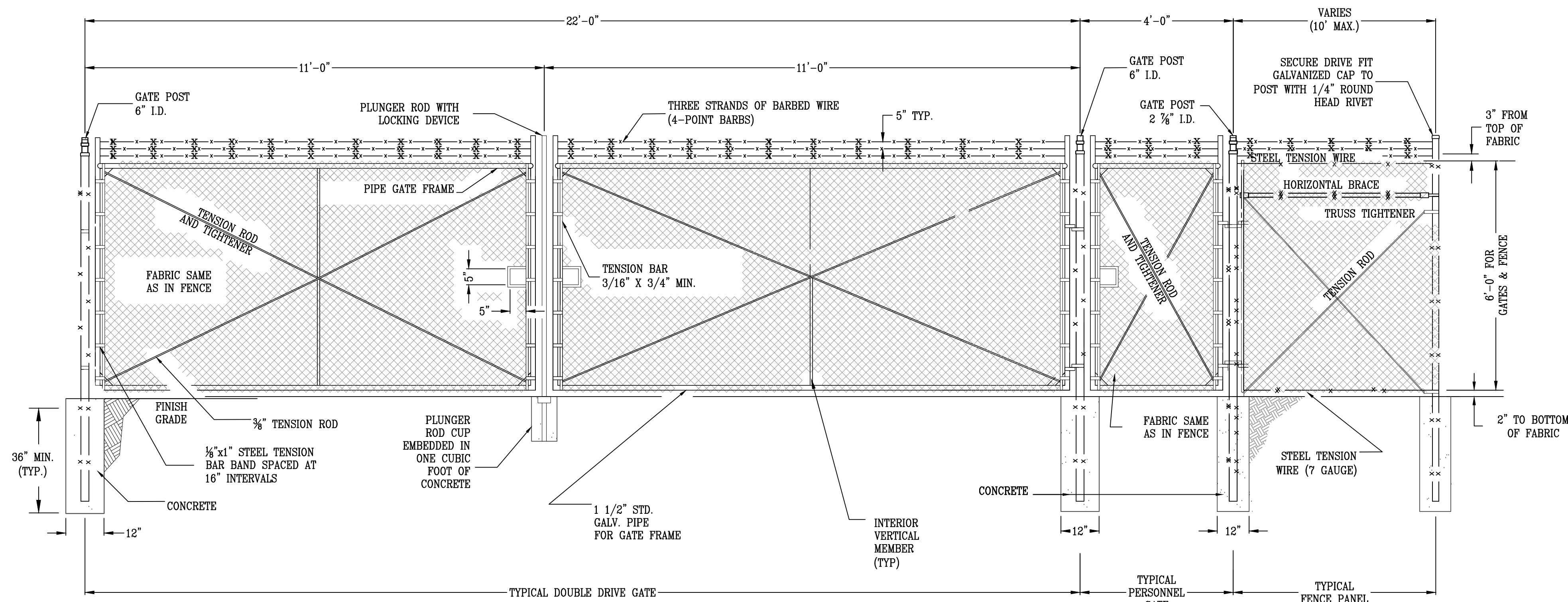
- GATE POSTS FOR DRIVE GATES SHALL BE 6" I.D. SCH. 40 W/CAP GALVANIZED STEEL PIPE, 18.97#/FT.
- GATE POSTS FOR PERSONNEL GATES SHALL BE 2 1/2" I.D. W/CAP SCH. 40 GALVANIZED STEEL PIPE, 5.79#/FT.
- CORNER POSTS SHALL BE 2" I.D. SCH. 40 GALVANIZED STEEL PIPE, 3.65#/FT.
- CORNER POSTS SHALL HAVE DIAGONAL BRACING IN BOTH DIRECTIONS. LINE POSTS SHALL BE 1 1/2" I.D. SCH. 40 GALVANIZED STEEL PIPE, 2.72#/FT. HORIZONTAL BRACES SHALL BE 1 1/4" I.D. SCH. 40 GALVANIZED STEEL PIPE, 2.27#/FT.
- FENCE FABRIC SHALL BE 9 GAUGE, 2-INCH MESH, GALVANIZE AFTER WEAVING.
- FENCING SHALL BE INSTALLED TRUE AND TAUT AND BE SUCH THAT THE BOTTOM OF THE FABRIC IS 1-INCH ABOVE FINISHED GRADE. THE TOP OF SITE FENCING SHALL BE LEVEL, UNIFORM, AND AT THE SAME ELEVATION AROUND THE ENTIRE PERIMETER.
- VINYL SLATS TO BE INSTALLED ON ALL CHAINLINK FENCING AND ACROSS THE FULL WIDTH OF ALL DRIVE GATES AND PERSONNEL GATES. CONTRACTOR SHALL PROVIDE THE DISTRICT WITH COLOR SAMPLES FOR THE VINYL SLATS. COLOR TO BE CHOSEN BY THE DISTRICT.



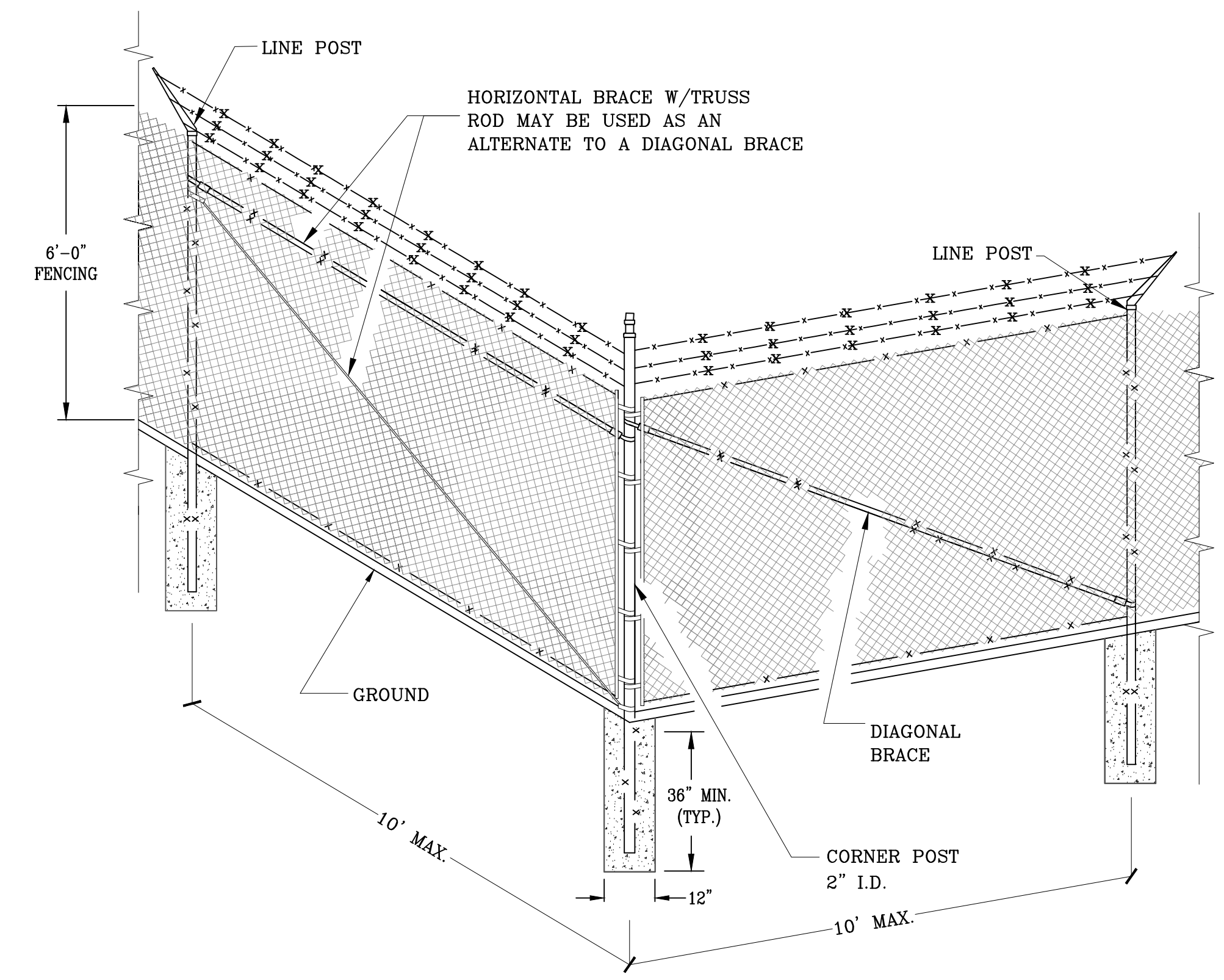
PULL POST DETAIL  
NTS

MESH FENCE NOTES:

- INSTALL GATES WITH STANDARD TOP AND BOTTOM HINGES AND CENTER LATCHING DEVICE SUITABLE FOR A PADLOCK. ALL HINGES AND LATCHING DEVICES SHALL BE GALVANIZED.
- CHAINLINK FABRIC, WIRE MESH AND BARBED WIRE SHALL BE ATTACHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- ALL FIELD FENCING AND BARB WIRE STRANDS SHALL BE TRUE AND TAUGHT.
- CORNER AND END POST SHALL BE BRACED IN DIRECTION OF PULL.
- PULL POST SHALL BE INSTALLED AT A MAXIMUM OF 500-FT INTERVALS.
- FENCING SHALL BE GROUNDED WHEN PASSING UNDER POWER LINES IN ACCORDANCE WITH THE MANUFACTURERS AND POWER COMPANY RECOMMENDATIONS.



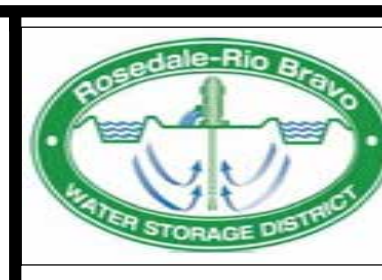
CHAINLINK FENCE GATE DETAIL  
NTS



CHAINLINK FENCE DETAIL  
NTS

| No. | DATE | REVISIONS | APPROVED |
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**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED: **CCH**  
DRAWN: **CCH**  
CHECKED: **CMS**

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



PROJECT ENGINEER: **CURTIS M. SKAGGS** RCE 60960  
EXECUTIVE DIRECTOR: **KEVIN L. BURTON**  
GENERAL MANAGER: **ERIC AVERETT**

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**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**STOCKDALE HIGHWAY CROSSING**

SHEET  
46  
OF  
48



**ABBREVIATIONS**

|          |   |                               |   |       |                                    |
|----------|---|-------------------------------|---|-------|------------------------------------|
| a        | CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS CLOSED | FLUOR                         | FLUORESCENT                               | OL    | THERMAL OVERLOAD RELAY             |
| A        | AMMETER, AMPERES  | FO                            | FIBER OPTIC                               | PB    | PULLBOX, PUSHBUTTON                |
| AC       | ALTERNATING CURRENT   | FREQ                          | FREQUENCY                                 | PD    | POSITIVE DISPLACEMENT              |
| ADJ      | ADJUSTABLE  | FT                            | FEET, FOOT                                | PE    | PHOTOELECTRIC                      |
| AF       | AMPERE FRAME  | FU                            | FUSE                                      | PEC   | PHOTOELECTRIC CELL                 |
| AFD      | ADJUSTABLE FREQUENCY DRIVE                                  | (F)                           | FUTURE                                    | PF    | POWER FACTOR                       |
| AFV      | ABOVE FINISHED FLOOR  | FVNR                          | FULL VOLTAGE, NON REVERSING               | pH    | MEASURE OF ACIDITY OR ALKALINITY   |
| AIC      | AMPERES INTERRUPTING CAPACITY                               | FVR                           | FULL VOLTAGE, REVERSING                   | PH    | PHASE                              |
| AL       | ALUMINUM  | FWD                           | FORWARD                                   | PLC   | PROGRAMMABLE LOGIC CONTROLLER      |
| ALT      | ALTERNATOR  | GALV                          | GALVANIZED                                | PNL   | PANEL                              |
| AM       | AUTOMANUAL CONTROLLER                                       | GEN                           | GENERATOR                                 | PNLBD | PANELBOARD                         |
| ANN      | ANNUNCIATOR   | GFI                           | GROUND FAULT INTERRUPTER                  | PR    | PRIMARY                            |
| APPROX   | APPROXIMATE   | GND                           | GROUND                                    | PS    | PRESSURE SWITCH                    |
| AS       | AMMETER SWITCH  | GRS                           | GALVANIZED RIGID STEEL                    | PSI   | POUNDS PER SQUARE INCH             |
| AT       | AMMETER TRIP  | H <sub>2</sub> O <sub>2</sub> | HYDROGEN PEROXIDE                         | PVC   | POLYVINYL CHLORIDE                 |
| ATS      | AUTOMATIC TRANSFER SWITCH                                   | H <sub>2</sub>                | HANDHOLE                                  | PWR   | POWER                              |
| AUTO     | AUTOMATIC   | HMI                           | HUMAN MACHINE INTERFACE                   | REQD  | REQUIRED                           |
| AUX      | AUXILIARY   | HOA                           | HAND-OFF-AUTOMATIC                        | RM    | REVOLUTIONS PER MINUTE             |
| AWG      | AMERICAN WIRE GAGE  | HOR                           | HAND-OFF-REMOTE                           | RFM   | RESET TIMER                        |
| b        | CIRCUIT BREAKER AUX. CONTACT, CLOSED WHEN BREAKER IS OPEN   | HORIZ                         | HORIZONTAL                                | RT    | RECTIFIER                          |
| BCG      | BARE COPPER GROUND  | HP                            | HORSEPOWER                                | RCT   | REPEAT CYCLE TIMER                 |
| BLDG     | BUILDING  | HPS                           | HIGH PRESSURE SODIUM                      | REQD  | REQUIRED                           |
| C        | CONDUIT, CONTACTOR  | HTR                           | HEATER                                    | RM    | REVOLUTIONS PER MINUTE             |
| CAB      | CABINET   | HV                            | HIGH VOLTAGE                              | RT    | RECTIFIER                          |
| CAP      | CAPACITOR   | HZ                            | HERTZ (CYCLES PER SECOND)                 | SCR   | SILICON CONTROLLED RECTIFIER       |
| CB       | CIRCUIT BREAKER   | IND LT                        | INDICATING LIGHT                          | SD    | SMOKE DETECTOR                     |
| CC       | CONTROL CABLE, CLOSING COIL                                 | INCAND                        | INCANDESCENT                              | SEC   | SECONDS, SECONDARY                 |
| CHH      | COMMUNICATION HANDHOLE                                      | INSTR                         | INSTRUMENT, INSTRUMENTATION               | SECT  | SECTION                            |
| CL       | CHLORINE  | IO                            | INPUT/OUTPUT                              | SF    | SUPPLY FAN                         |
| CKT      | CIRCUIT   | JB                            | JUNCTION BOX                              | SHH   | SIGNAL HANDHOLE                    |
| CO       | CONDUIT ONLY  | KA                            | KILOAMPERES                               | SHT   | SHEET                              |
| COMM     | COMMUNICATION   | KCMIL                         | THOUSANDS OF CIRCULAR MILS                | SIG   | SIGNAL                             |
| COND     | CONDUCTOR   | KV                            | KILOVOLTS                                 | SN    | SOLID NEUTRAL                      |
| CONT     | CONTINUED, CONTINUATION                                     | KVA                           | KILOVOLT AMPERES                          | SPECS | SPECIFICATIONS                     |
| CPT      | CONTROL POWER TRANSFORMER                                   | KVAR                          | KILOVOLT AMPERES REACTIVE                 | SPDT  | SINGLE POLE, DOUBLE THROW          |
| CP       | CONTROL PANEL   | KW                            | KILOWATTS                                 | SS    | STAINLESS STEEL, SOLID STATE       |
| CR       | CONTROL RELAY   | KWH                           | KILOWATT HOURS                            | SV    | SOLENOID VALVE                     |
| CS       | CONTROL SWITCH  | LCP                           | LIGHTING CONTROL PANEL                    | SW    | SWITCH                             |
| CT       | CURRENT TRANSFORMER   | LP                            | LIGHTING PANEL                            | SWBD  | SWITCHBOARD                        |
| CWP      | COLD WATER PIPE   | LPS                           | LOW PRESSURE SODIUM                       | SWGR  | SWITCHGEAR                         |
| DC       | DIRECT CURRENT  | LTG                           | LIGHTING                                  | SYNC  | SYNCHRONIZING                      |
| DIA      | DIAMETER  | LT(S)                         | LIGHT(S)                                  | TB    | TERMINAL BOX, TERMINAL BOARD       |
| DIAG     | DIAGRAM   | (M)                           | MODIFIED                                  | TC    | TELEPHONE CABINET                  |
| DISC     | DISCONNECT  | mA                            | MILLIAMPERES                              | TEL   | TELEPHONE                          |
| DISTR    | DISTRIBUTION  | MAX                           | MAXIMUM                                   | TEMP  | TEMPERATURE                        |
| DN       | DOWN  | MCC                           | MOTOR CONTROL CENTER                      | TSP   | TWISTED SHIELDED PAIR              |
| DP       | DISTRIBUTION PANEL  | MCP                           | MOTOR CIRCUIT PROTECTOR                   | TVSS  | TRANSIENT VOLTAGE SURGE SUPPRESSOR |
| DPDT     | DOUBLE POLE, DOUBLE THROW                                   | MFR                           | MANUFACTURER                              | TYP   | TYPICAL                            |
| DPST     | DOUBLE POLE, SINGLE THROW                                   | MH                            | MANHOLE                                   | UG    | UNDERGROUND                        |
| DWG      | DRAWING   | MIN                           | MINIMUM                                   | UH    | UNIT HEATER                        |
| (E)      | EXISTING  | MISC                          | MISCELLANEOUS                             | UV    | ULTRA VIOLET                       |
| EA       | EACH  | MOV                           | MOTOR OPERATED VALVE                      | V     | VOLTS                              |
| EF       | EXHAUST FAN   | MS                            | MOTOR STARTER                             | VA    | VOLT-AMPERES                       |
| EHH      | ELECTRICAL HANDHOLE   | MTD                           | MOUNTED                                   | VFD   | VARIABLE FREQUENCY DRIVE           |
| EL, ELEV | ELEVATION   | MTG                           | MOUNTING                                  | VAR   | VOLT AMPERES REACTIVE              |
| ELEC     | ELECTRIC, ELECTRICAL  | MTS                           | MANUAL TRANSFER SWITCH                    | VERT  | VERTICAL                           |
| ELEM     | ELEMENTARY  | (N)                           | NEW                                       | VH    | VAR-HOUR                           |
| EMERG    | EMERGENCY   | NC                            | NORMALLY CLOSED                           | VS    | VOLTMETER SWITCH                   |
| ENCL     | ENCLOSURE   | NEC                           | NATIONAL ELECTRICAL CODE                  | W     | WIRE, WATTS                        |
| EFFL     | EFFLUENT  | NEMA                          | NATIONAL ELECTRICAL MANUFACTURER'S ASSOC. | WHM   | WATTHOUR METER                     |
| EQ       | EQUAL   | NEUT                          | NEUTRAL                                   | WHDM  | WATTHOUR DEMAND METER              |
| EQPT     | EQUIPMENT   | NIC                           | NOT IN CONTRACT                           | WP    | WEATHERPROOF                       |
| ETM      | ELAPSED TIME METER  | NO                            | NORMALLY OPEN, NUMBER                     | WT    | WATER TIGHT                        |
| FACP     | FIRE ALARM CONTROL PANEL                                    | NTS                           | NOT TO SCALE, NUMBER                      | WTP   | WATER TREATMENT PLANT              |
| FDR      | FEEDER  | OH                            | OVERHEAD                                  | XFMR  | TRANSFORMER                        |
| FF       | FINISHED FLOOR  | OT                            | OVER TEMPERATURE                          |       |                                    |
| FLEX     | FLEXIBLE  |                               |   |       |                                    |

**GENERAL NOTES:**

G1. THESE DRAWINGS ARE DIAGRAMMATIC ONLY; EXACT LOCATIONS OF ELECTRICAL EQUIPMENT SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. THE INSTALLATION OF ALL EQUIPMENT SHOWN ON THESE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE LATEST EDITIONS OF ALL APPLICABLE CODES AND UTILITY COMPANY STANDARDS. CONTACT THE UTILITY COMPANY REPRESENTATIVES AND VERIFY THEIR REQUIREMENTS.

G2. THIS IS A GENERALIZED LEGEND SHEET. THIS CONTRACT MAY NOT USE ALL INFORMATION SHOWN.

G3. NOTIFY THE ENGINEER IMMEDIATELY IF CONFLICTS IN EQUIPMENT LOCATIONS ARE DISCOVERED OR IF PROBLEMS ARISE DUE TO FIELD CONDITIONS, LACK OF INFORMATION OR ANY OTHER REASON. NO PAYMENT WILL BE MADE FOR CHANGES WHICH HAVE NOT BEEN FAVORABLY REVIEWED BY THE ENGINEER.

**PLAN NOTES:**

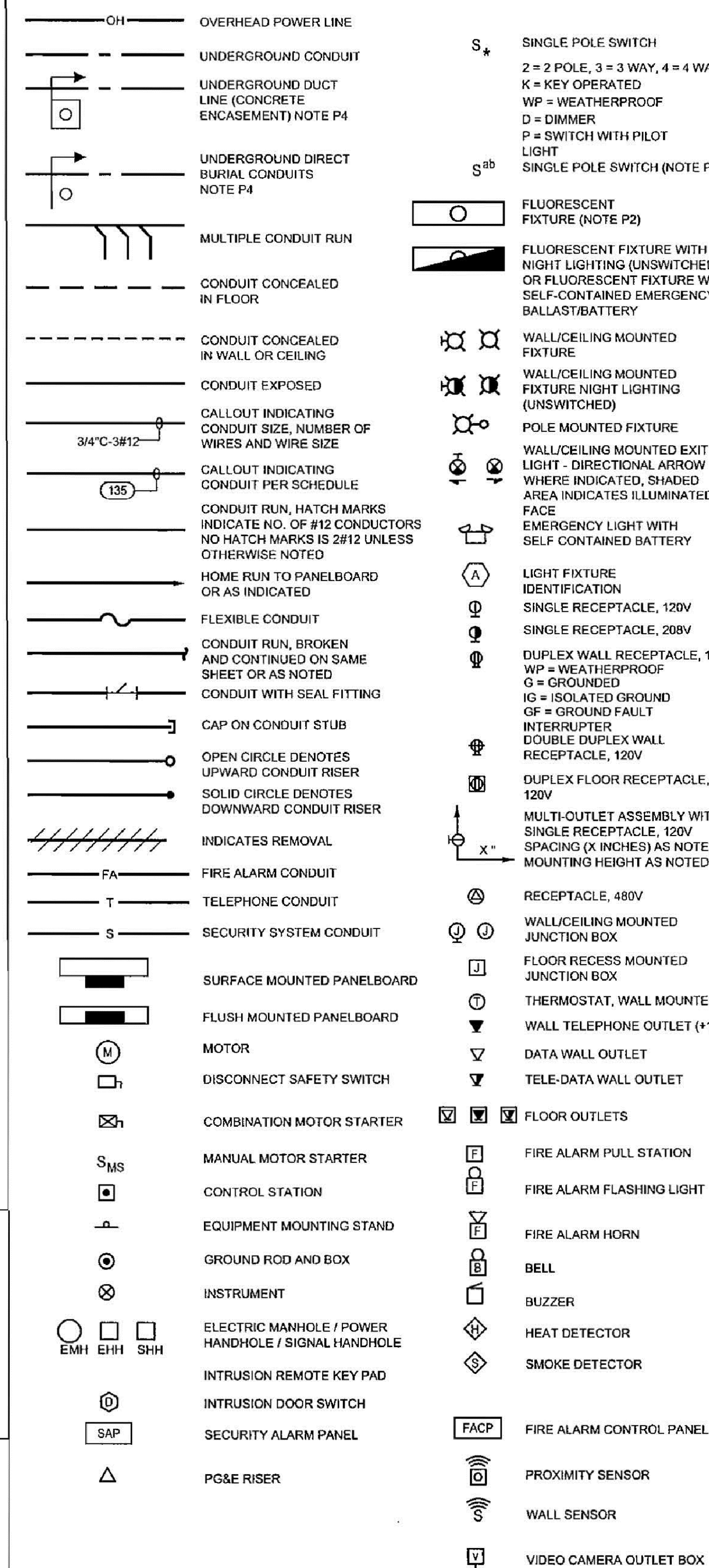
P1. CONDUIT SIZE AND FILL SHALL BE AS INDICATED. WHERE NO SIZE IS SHOWN, THE CONDUIT SHALL BE SIZED IN ACCORDANCE WITH THE EDITION OF THE NATIONAL ELECTRICAL CODE ADOPTED BY THE AUTHORITY HAVING CODE ENFORCEMENT JURISDICTION. WHERE NO FILL IS INDICATED, THE FILL SHALL BE 2#12. PROVIDE 3/16 INCH NYLON PULL ROPE IN EACH EMPTY CONDUIT.

P2. LOWER CASE LETTERS ADJACENT TO A SWITCH OR LIGHT FIXTURE INDICATE A SWITCHED CIRCUIT. FOR FOUR LAMP FLUORESCENT FIXTURES WIRED IN PAIRS WITHIN EACH FIXTURE, THE "a" SWITCH CONTROLS THE OUTER LAMPS AND THE "b" SWITCH CONTROLS THE INNER LAMPS; WIRE 3 LAMP FIXTURES SIMILARLY.

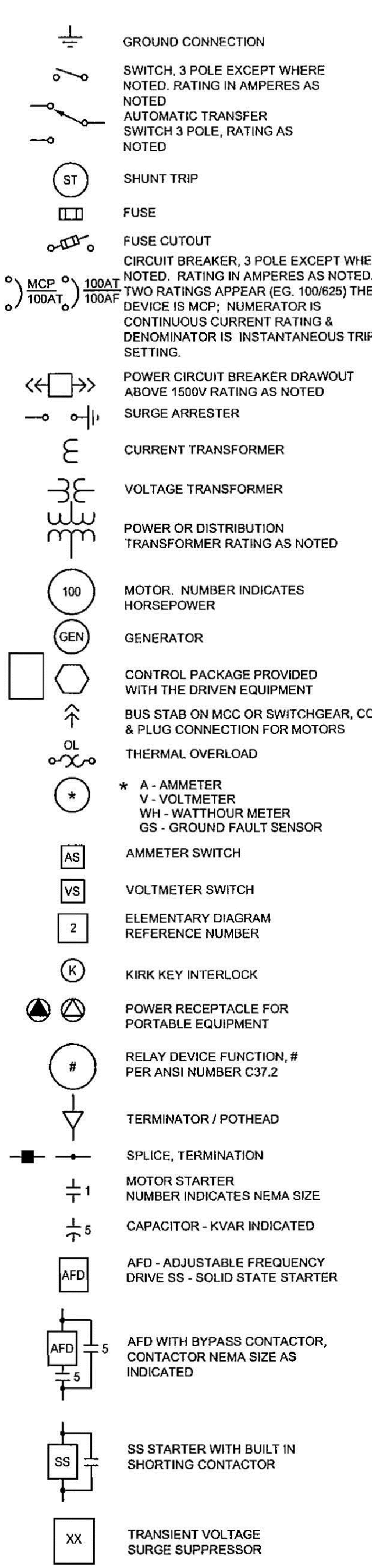
P3. CONDUIT AND WIRE LAYOUT FOR LIGHTING AND RECEPTACLES NOT SHOWN. PROVIDE PER NEC.

P4. NUMBER OF CIRCLES DOES NOT REPRESENT THE NUMBER OF CONDUITS IN THE ENCASMENT.

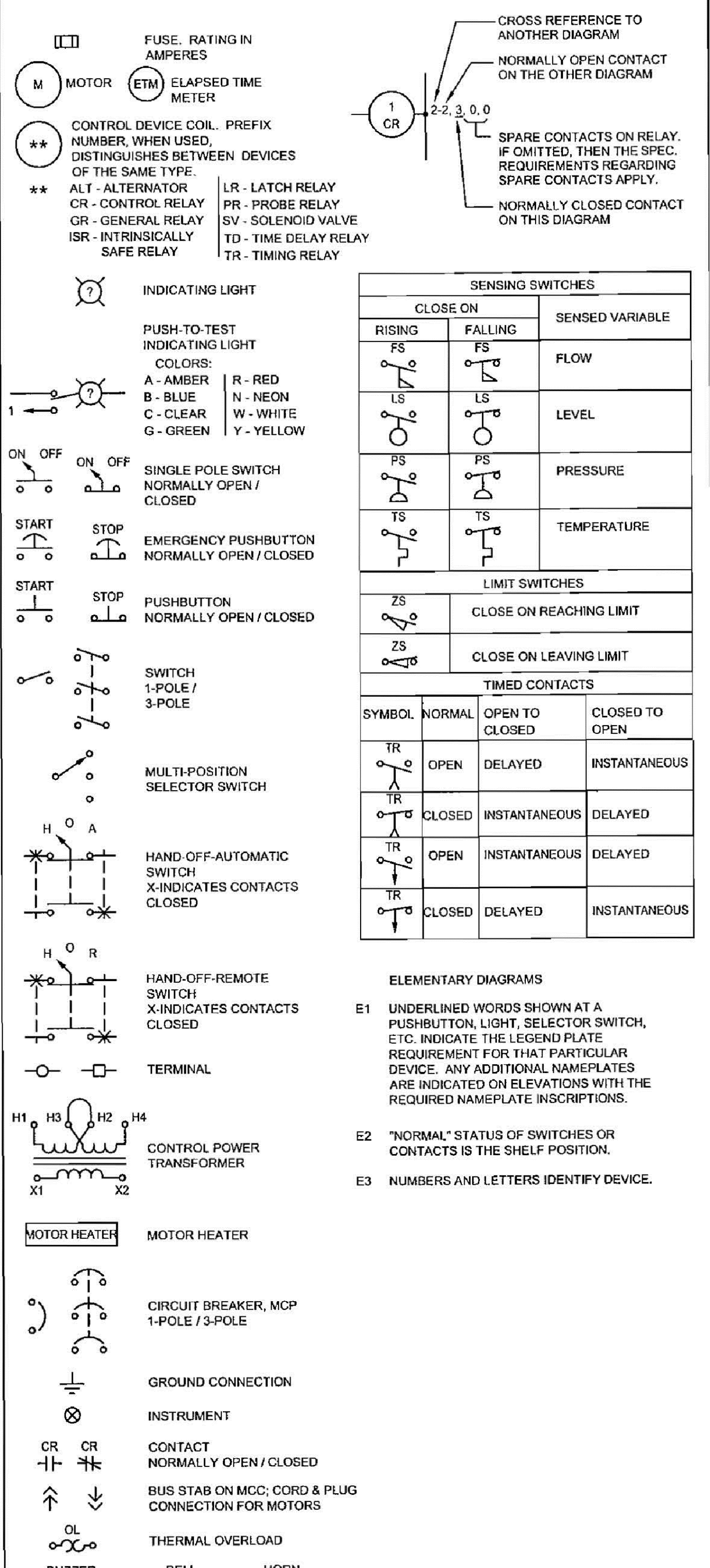
**PLAN SYMBOLS**



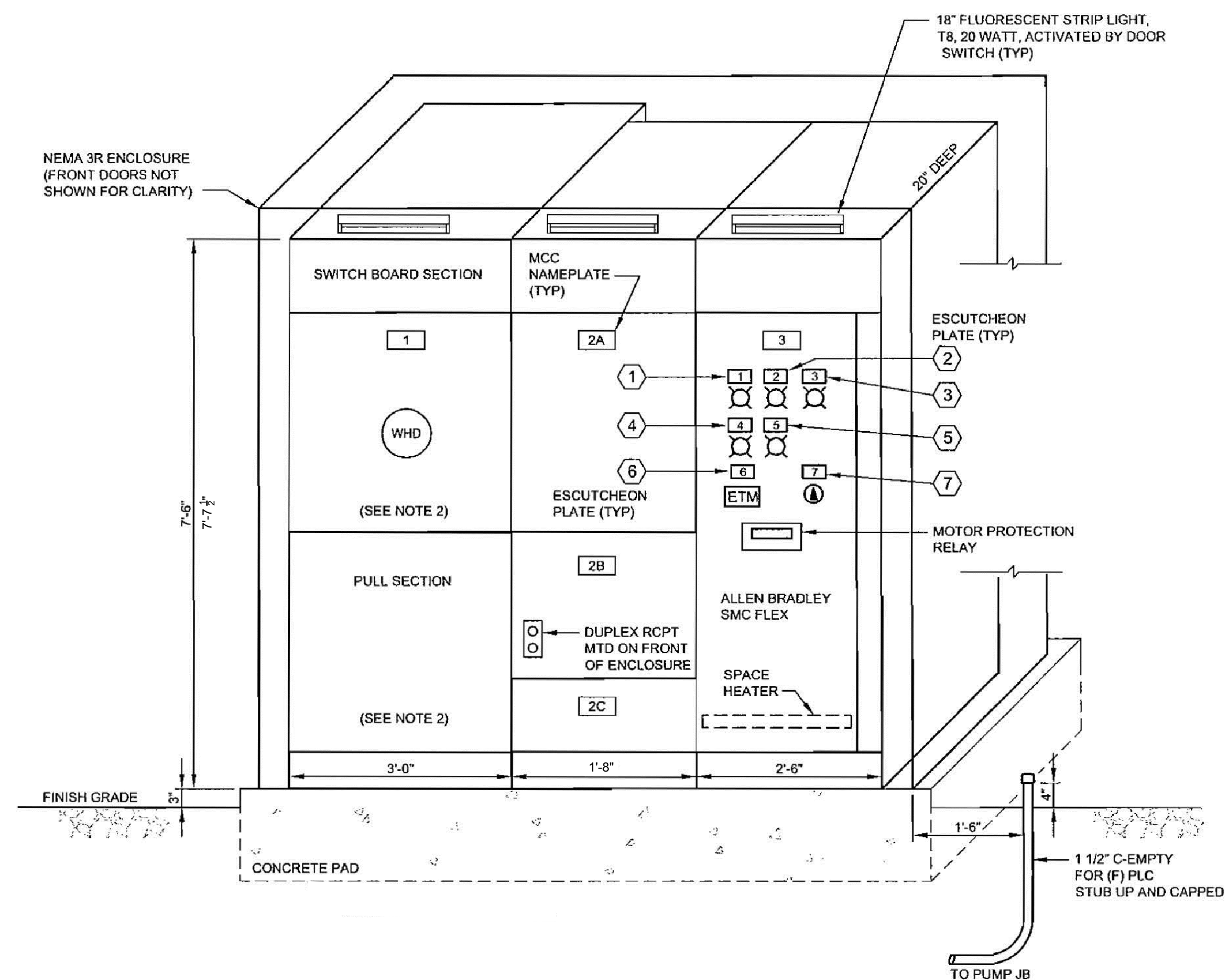
**SINGLE LINE SYMBOLS**



**ELEMENTARY DIAGRAM SYMBOLS**



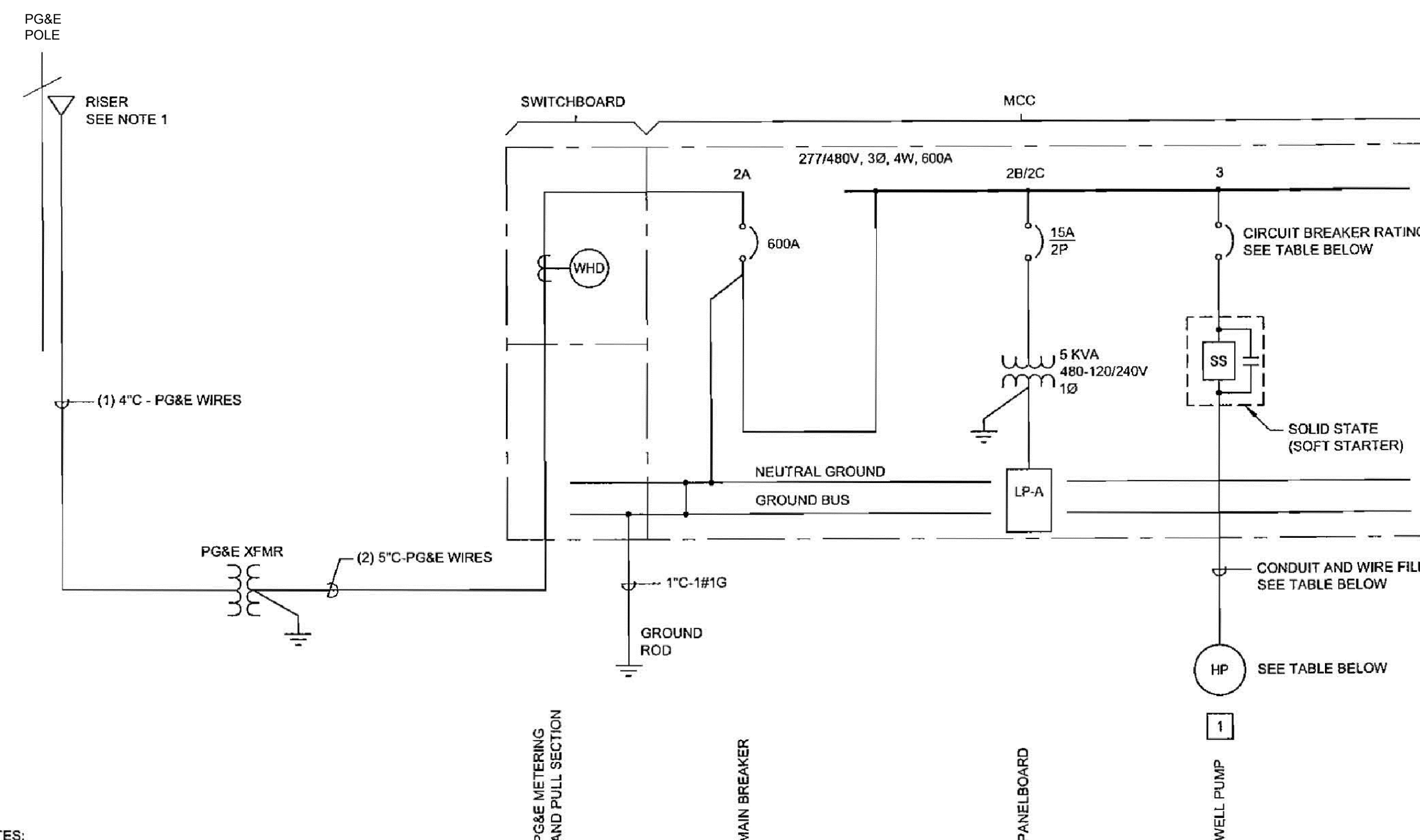




| MCC (SWITCHBOARD) NAMEPLATE SCHEDULE |                              |
|--------------------------------------|------------------------------|
| Symbol                               | DESCRIPTION                  |
| 1                                    | WELL SITE NUMBER AND ADDRESS |
| 2A                                   | MCC MAIN BREAKER             |
| 2B                                   | LIGHTING PANELBOARD LP-A     |
| 2C                                   | XFMR-A                       |
| 3                                    | WELL PUMP                    |

| ESCUTCHEON PLATE SCHEDULE |                           |
|---------------------------|---------------------------|
| Symbol                    | DESCRIPTION               |
| 1                         | ON (WHITE)                |
| 2                         | RUN (GREEN)               |
| 3                         | HIGH TEMP ALARM (RED)     |
| 4                         | HIGH PRESSURE ALARM (RED) |
| 5                         | LOW LUBE OIL ALARM (RED)  |
| 6                         | ETM - ELAPSED TIME METER  |
| 7                         | H-O-A (HAND-OFF-AUTO)     |

**TYPICAL MCC (SWITCHBOARD) ELEVATION**  
NO SCALE



- NOTES:**
- SEE ELECTRICAL DRAWINGS SITE PLANS FOR ORIENTATION OF RISER ON POLE.
  - GENERAL ELECTRIC, SQUARE D OR CUTLER-HAMMER.

**TYPICAL SINGLE LINE DIAGRAM**

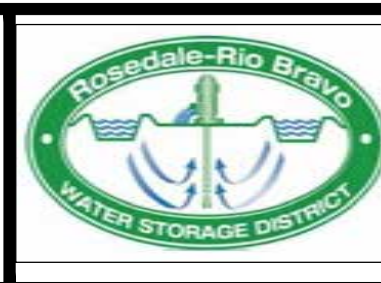
| WELL PUMP TABLE |     |                 |                 |              |
|-----------------|-----|-----------------|-----------------|--------------|
| WELL No.        | HP  | CIRCUIT BREAKER | CONDUIT SIZE X" | WIRE FILL    |
| WELL-1          | 400 | 600A            | 4               | 6 #350, 1#2G |
| WELL-2          | 400 | 600A            | 4               | 6 #350, 1#2G |
| WELL-3          | 400 | 600A            | 4               | 6 #350, 1#2G |
| WELL-4          | 400 | 600A            | 4               | 6 #350, 1#2G |
| WELL-5          | 400 | 600A            | 4               | 6 #350, 1#2G |
| WELL-6          | 400 | 600A            | 4               | 6 #350, 1#2G |

| PANELBOARD "LP-A" SCHEDULE |                               |             |    |             |         |             |             |      |
|----------------------------|-------------------------------|-------------|----|-------------|---------|-------------|-------------|------|
| CKT No.                    | DESCRIPTION                   | 100 AMP BUS |    | AMPS/ POLES | CKT No. | DESCRIPTION | MOUNTING:   |      |
|                            |                               | VOLT-AMPS A | B  |             |         |             | VOLT-AMPS A | B    |
| 1                          | RECEPTACLE                    | 180         | -  | 20/1        | 2       | SPARE       | -           | 20/1 |
| 3                          | MCC (SWBD) ENCLOSURE LIGHTING | -           | 60 | 20/1        | 4       | SPARE       | -           | 20/1 |
| 5                          | SPARE                         | -           | -  | 20/1        | 6       | SPARE       | -           | 20/1 |
| 7                          | SPACE                         | -           | -  | -           | 8       | SPACE       | -           | -    |
| 9                          | SPACE                         | -           | -  | -           | 10      | SPACE       | -           | -    |
| 11                         | SPACE                         | -           | -  | -           | 12      | SPACE       | -           | -    |
| SUBTOTALS                  |                               | 180         | 60 |             |         |             | -           | -    |
| PHASE TOTALS               |                               |             |    |             |         |             | 180         | 60   |
| TOTAL VOLT-AMPS            |                               |             |    |             |         |             | 240         |      |

▲ = GFI CIRCUIT BREAKER

| No. | DATE | REVISIONS | APPROVED |
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|     |      |           |          |

**ROSEDALE-RIO BRAVO WATER DISTRICT**  
Bakersfield, Calif.



DESIGNED:   
DRAWN: CCH  
CHECKED: CMS

**IRVINE RANCH WATER DISTRICT**  
Irvine, Calif.



CURTIS M. SKAGGS RCE 60960 PROJECT ENGINEER  
KEVIN L. BURTON EXECUTIVE DIRECTOR  
ERIC AVERETT GENERAL MANAGER

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**KERN FAN GROUNDWATER STORAGE PROJECT**  
PROJECT NUMBER  
**ELECTIRCAL - TYPICAL SINGLE LINE DIAGRAM, ELEVATION AND PANELBOARD SCHEDULE**

SHEET  
48  
OF  
48