Southern Pump Station Project

PROJECT HIGHLIGHTS

Total Investment: $17.8 million

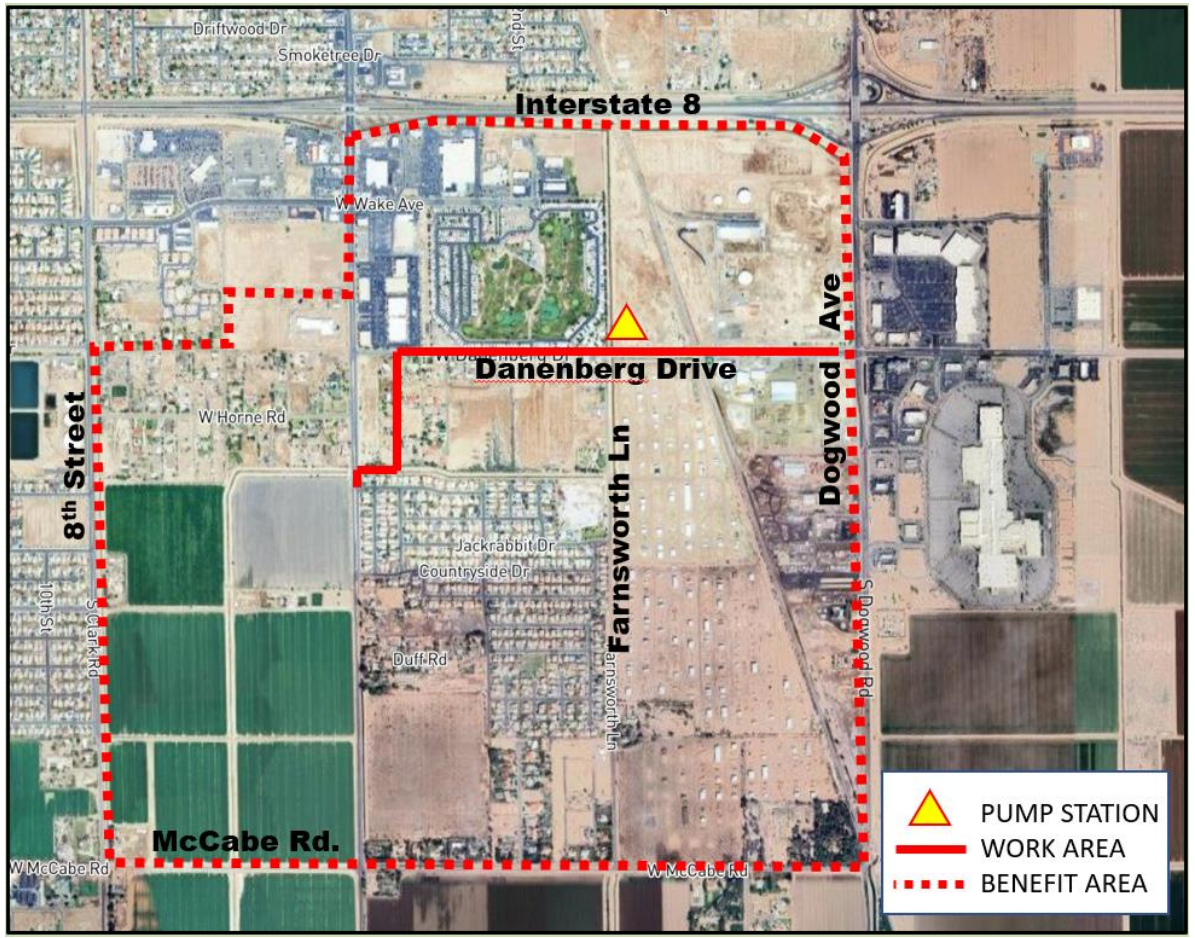
• ARPA Fund	$ 5,255,544.00
Wastewater Enterprise	$10,470,044.40
SB1 RMRA	$ 2,065,044.00

Project Scope:

- Modernizes existing sewer infrastructure
- Expands system capacity to meet future needs
- Builds over **7,500 feet** of sewer pipe
- Rebuilds Danenberg Drive

Benefits:

- Ultimately will serve over **1,200 acres**, improving and expanding local sewer systems



Technical Details

Project Overview

The project consolidates three pump stations into one duplex station designed for 1,500 gpm peak flows. Initial Pump Station flow will be 900 gpm.

The project is broken down into two phases. The first phase includes the 900gpm pump station, force main in Danenberg Drive, and sewer lines in Farnsworth Lane and Dannenberg Drive.

Key Infrastructure Elements- First Phase

900 gpm duplex submersible pump station with standby power

About 2,400 feet of 14-inch force main

About 5,600 feet of 12” gravity sewer line

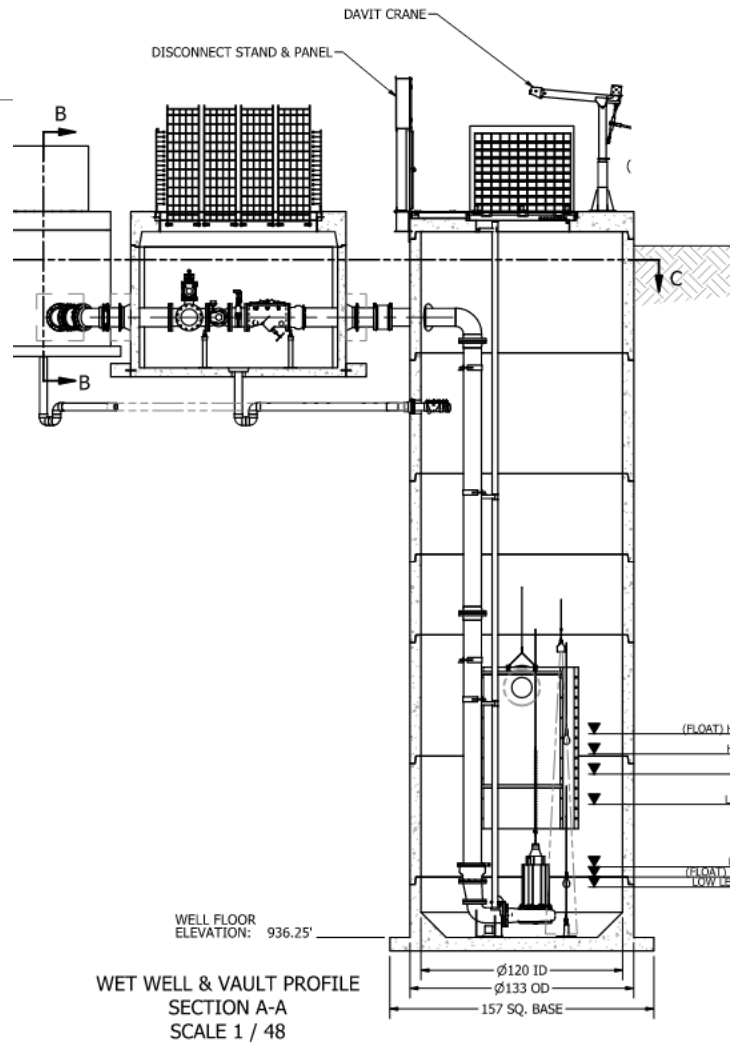
Trenchless crossings for Union Pacific Railroad and Imperial Irrigation District facilities

Geotechnical Challenges

Design addresses shallow groundwater and liquefiable soils. A dewatering study was prepared to provide dewatering criteria to the prospective bidders.

Pump Station Configuration

- The station will ultimately use two 1,500 gpm submersible pumps with one active and one standby for reliability and maintenance.
- A 10-foot diameter, 36-foot-deep concrete wet well lined with PVC T-lock liner protects against corrosion.
- Force Main- 14-inch-diameter C-900 PVC
- Natural gas-powered standby generator
- Control uses ultrasonic level sensors with float backup, and a natural gas standby generator.
- Odor control equipment will be installed to mitigate potential odors from wet well retention during low-flow periods.



Key Design Criteria

GRAVITY PIPE HYDRAULICS

- Gravity Sewer Pipe Material: PVC SDR 35, ASTM D3034
- Depth to diameter ratio (d/D)
  - 0.50 (Pipes <12” diameter)
  - 0.75 (Pipes 12” diameter and greater)
- Minimum Velocity:
  - 2 fps during average daily flow (where practical)
  - 2 fps during peak flow (when ADF not practical)
- Maximum Velocity: 10 fps
- Manning’s n = 0.011 (For aged PVC)

Alignment Revision and Easements Realignment through Desert Trails Park avoids private easements, requiring permanent and temporary easements for construction.

GEOMETRICS

- Gravity System
  - Horizontal separation
    - Water: 10’ from outside of pipe (preferred). Department of health services allows 4’ with rubber gasketed pipe and if the new sewer is below the waterline.
  - Vertical separation
    - 12” clear
  - Manholes will be located in center of travel lane when possible
- Sewer Forcemain
  - Horizontal separation
    - Water: 10’ from outside of pipe
  - Vertical separation
    - Water: 12” or more below existing water line

Trenchless Methods and Constraints

Need for Trenchless Methods

UPRR and IID (four crossings) required trenchless methods to protect infrastructure and avoid service disruptions.

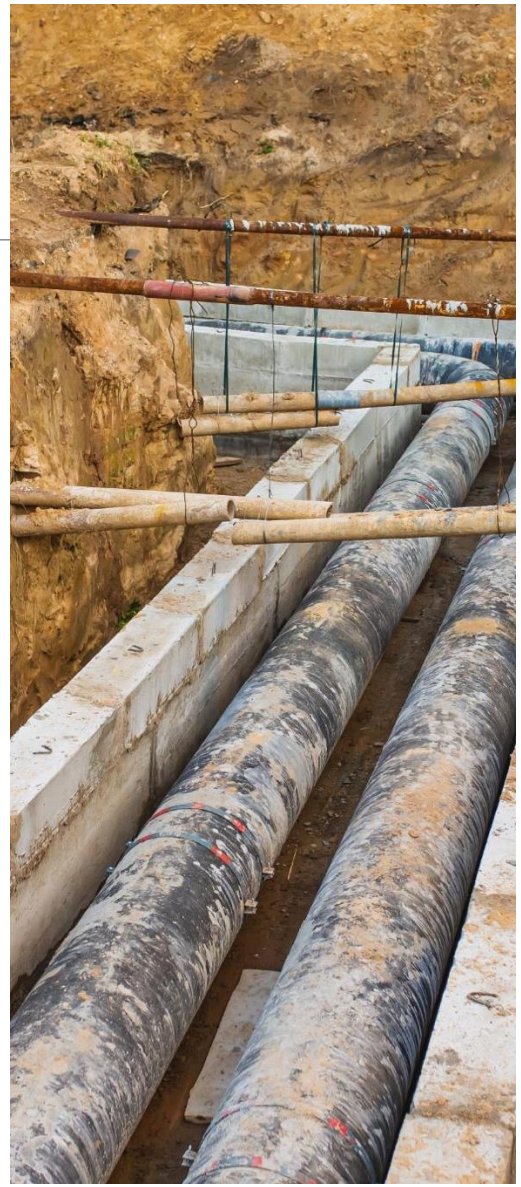
Issues included groundwater control and maintaining grade and alignment and minimizing settlement especially for the UPRR crossing.

Settlement monitoring required for the UPRR crossing

Contractor Selection and Contingency

The presence of groundwater would suggest microtunneling, but jack and bore could also be suitable. The final choice was left up to the contractor

Geotechnical Considerations



Subsurface Soil Conditions

The site has clayey fill over lacustrine deposits with groundwater found 13 to 17 feet deep.

Dewatering and Water Treatment

Dewatering is required during excavation, with water testing and treatment before discharge to protect the environment.

Seismic Liquefaction Risk

Saturated sands and silts pose liquefaction risks during earthquakes, with potential differential settlements between 0.5 and 2.5 inches.

Mitigation and Material Use

Mitigation includes over-excavation, geogrid reinforcement, and use of corrosion-resistant materials in construction.

Regulatory and Agency Permits

Multi-Agency Permit Coordination

The project requires coordinated permits from various agencies including RWQCB, UPRR, IID, and Imperial County.

Environmental and Water Quality Permits

Obtaining NPDES permits under RWQCB is essential due to land disturbance exceeding one acre, ensuring water quality protection.

Specialized Encroachment Permits

Trenchless railroad crossings and IID drain crossings require encroachment permits after engineering reviews and fee payments.

Permit Impact on Project Schedule

Effective permit coordination is vital as agency reviews can take several months, impacting the overall project timeline.

IID ENCROACHMENT ITEMS TO BE INCLUDED IN PHASE 1 CONSTRUCTION (HIGHLIGHTED YELLOW)

IMPERIAL IRRIGATION DISTRICT
Water Engineering Services
ENCROACHMENT PERMIT NOTIFICATION

RECEI
Imperial Irrigation Dis
Real Estate

mit No.: 3334 AMENDMENT NO. 1
lication No.: 2013-0088 Applicant: City of El Centro
Owner: City of El Centro

ect Name: Southern Pump Station
ect Dwgs: "City of El Centro Southern Pump Station" dated 9/25/13

roachment: Proposed New Sewer Pipelines Crossing IID Canal and Drain Facilities
Facilities: Date Drain #3, IID Dwg E-7525
Date Drain #3D, IID Dwg E-6834
Dogwood Lateral 2, IID Dwg E-5736

Project No. 40252057

APPROVED
APPROVED, WITH THE FOLLOWING CONDITIONS
REVISE AND RESUBMIT
REJECTED

MMENTS:

Encroachment Permit No. 3334 was issued to the City of El Centro on April 8, 2009 a portion of the Southern Pump Station Project. New sewer pipelines crossing IID ities in four (4) locations were approved in the permit. The sewer pipelines were not structed, and the project was postponed. In 2012, the City hired a different ineering consultant (Psomas) to revise the project design plans. Revised design ıs were submitted to IID for review and amendment of Permit No. 3334. The new 2 project design plans are similar in concept to the 2009 plans. Nevertheless, the posed sewer pipeline alignments are revised, and additional encroachments are uded on the new project design plans.

new revised sewer pipeline project design plans indicate the following roachments:
- Six (6) IID canal and drain crossings
- Two (2) parallel encroachments along canals and drains
- One (1) modification of canal delivery gate, and pipelining private ditch

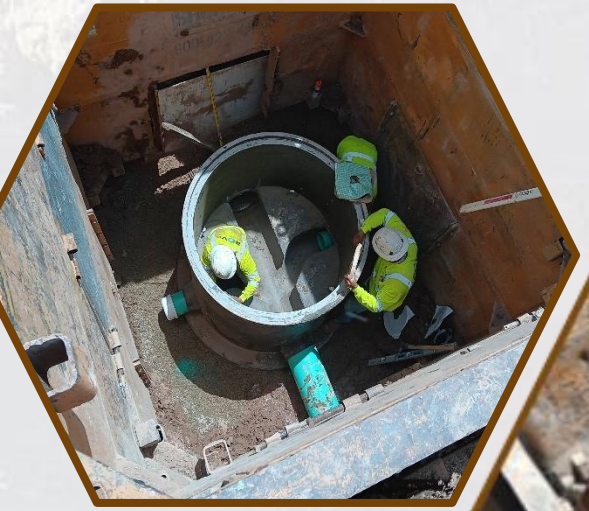
Dewatering Operations

- Subcontractor started activities 01/06/2025
- The existing groundwater level was between 13 and 17 ft deep
- Casing depth at the wet well is 40 ft, and along Danenberg is 20 ft deep for the 18” line run
- Discharge Locations: On Danenberg, at the south corner of the Desert Trail Park, and at the corner of Farnsworth and Danenberg

Traffic Control

- Coordination with the residents and other local agencies
- Coordination with the school bus system
- Permits required from other local agencies

Installation of Sewer Lines/Manholes



- Gravity sewer line installed: 5028 Linear ft
- Force main sewer installed: 2366 Linear ft
- Total deep manholes installed: 13 manholes
- Total shallow manholes installed: 3 manholes
- Total drop manholes installed: 4 manholes

Jack and Bore Operations

- Linear feet of Jack and Bore Casing installed: 270 Linear ft
- Crossings at:
  - IID Date Drain #3D at Countryside decommissioned pump station
  - IID Date Drain #3 by Farnsworth Lane
  - At UPRR (Railroad) crossing
- Depth of Operations: 20 ft

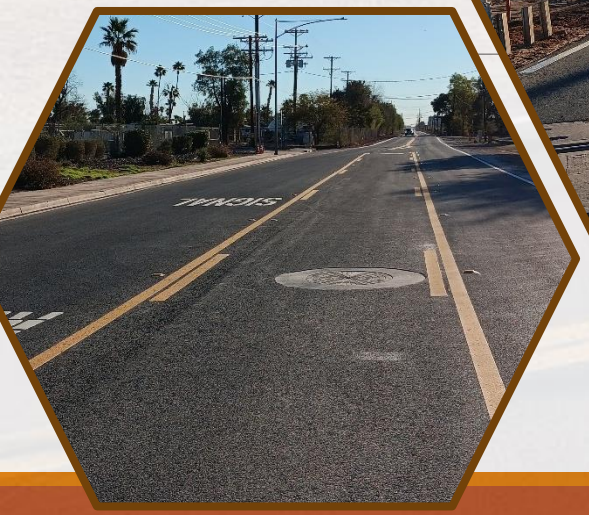
Decommissioning of Old Pump Station

- The Countryside Pump Station was decommissioned as part of this project
- Coordination with the IID power department for site disconnection
- All equipment, wiring, and conduits removed and returned to the City of El Centro

Installation of New Pump Station

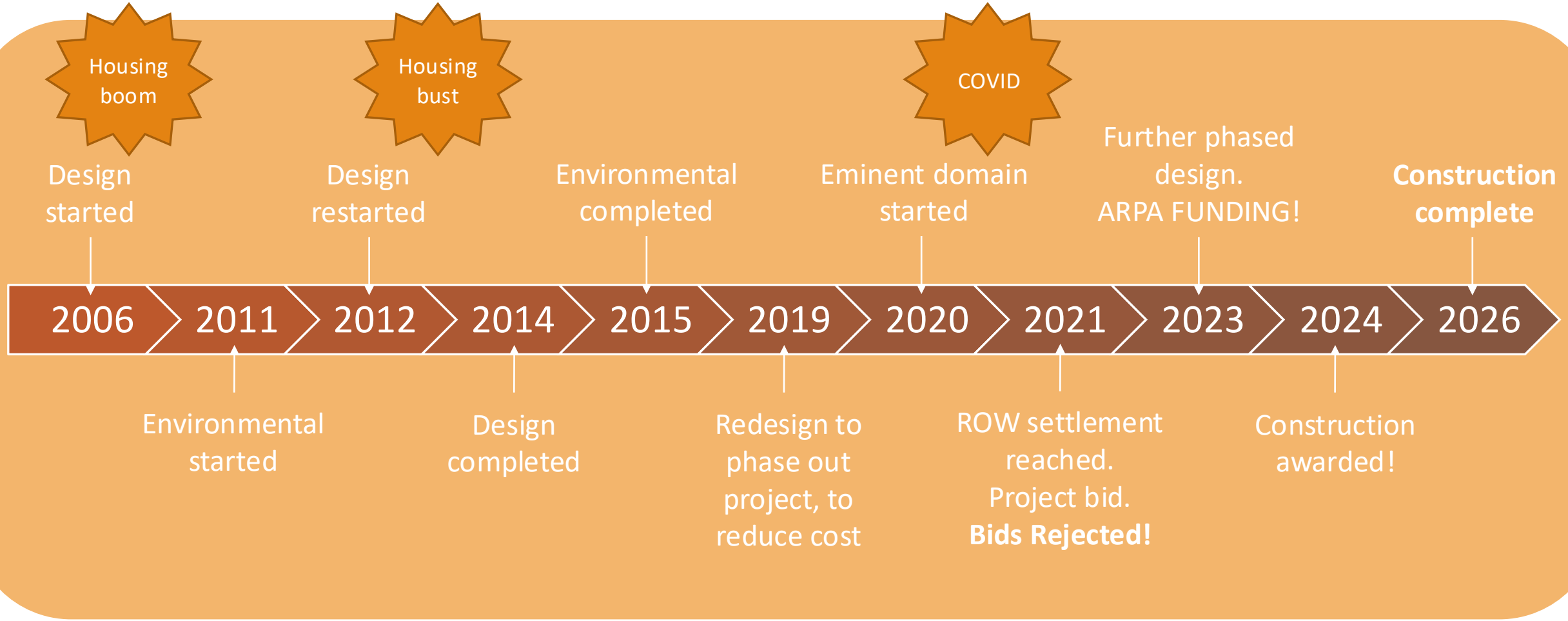
- Coordination with the IID Power Department for site connection
- Coordination with SOCALGAS for backup generator, natural gas connection
- Installation of wet well, valve vault, meter vault, two-post shelter, transformer with pad, and two 40 HP pumps

Rehabilitation of Danenberg Drive



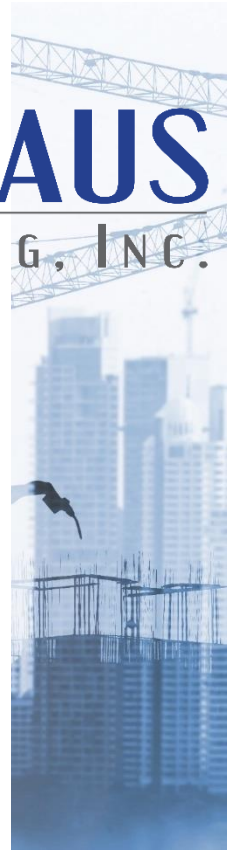
- From Fourth St. to the railroad, the pavement section is AC asphalt over Class II Base with geogrid
- From the railroad to Dogwood Rd. , the pavement section is AC asphalt over Class II Base and reclaimed cement-treated base
- All striping installed is CALTRANS approved Thermoplastic

Behind the scenes…. 20 years in the making!



PSOMAS

NICKLAUS ENGINEERING, INC.



Prime Contractor

ROVE ENGINEERING

Subcontractors

- ROMTEC
- GRIFFIN
- VISION
- T&D SERVICES
- STI
- IMPERIAL VALLEY FENCE
- DONAHUE PAINTS
- SIERRA MATERIALS
- DESERT SURVEYING
- FIVE STAR ELECTRICAL
- SUPERIOR PAVEMENT MARKINGS
- LCCSC

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SoCalGas

Thank you!

Questions?

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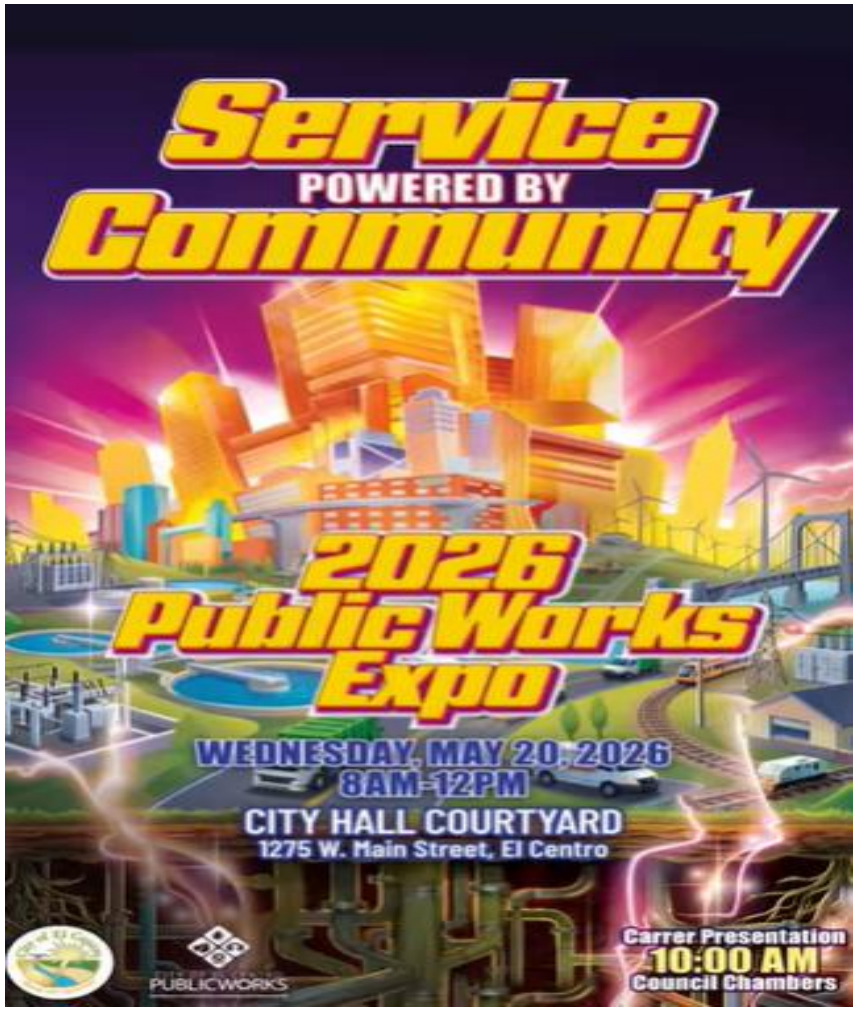

Thank you!

Project Milestones

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- **Notice to Proceed:** September 16, 2024
- **Contract Start Date:** September 26, 2024
- **Mutual Suspension (Value Engineering):** September 26, 2024 – January 4, 2025
- **Dewatering Began:** January 6, 2025
- **Groundbreaking Ceremony:** January 27, 2025
- **Construction Staking Began:** February 12, 2025
- **Full Road Closure (Danenberg Drive) Implemented:** March 17, 2025
- **Pump Station & Wet Well Construction Began:** April 14, 2025
- **Gravity Sewer & Manhole Installation Began:** April 25, 2025
- **Force Main Installation Began:** September 23, 2025
- **Dewatering Removed (except Beverly Lane):** October 3, 2025
- **Existing Force Main Hydrostatic Test Completed:** October 29, 2025
- **Drop Manhole #16 Installed (Final Manhole Before Pump Station):** November 4, 2025
- **Force Main Installation Completed:** November 13, 2025
- **Pump Station Energized (IID):** December 4, 2025
- **Full-Depth Reclamation (Danenberg Drive) Began:** January 6, 2026
- **Gas Service Installed (SoCalGas):** January 7, 2026
- **Pump Station Startup & Training Completed:** January 22, 2026
- **Old Station Decommissioned / New Station Operational:** January 26, 2026
- **Danenberg Drive Reopened & Striping Completed:** February 26, 2026
- **Substantial Completion Walkthrough / Punch List Issued:** February 27, 2026

Danenberg Drive Improvements

Sewer line work required full width of existing roadway to be removed due to trench width

Pavement replacement profile conformed to profile established for future build-out of the roadway

Pavement design utilized thinner section with geogrid, where needed, to avoid shallow 20” water line

Temporary surface drainage improvements provided will be replaced with storm drains/curb inlets at future build-out

Limits of asphalt extended on edges to meet up with private driveway improvements