UCT UNDERGROUND CONSTRUCTION TECHNOLOGY
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Partnership & Innovation Ensure Success of Bypass Project

Jason Chambers

July 13, 2021

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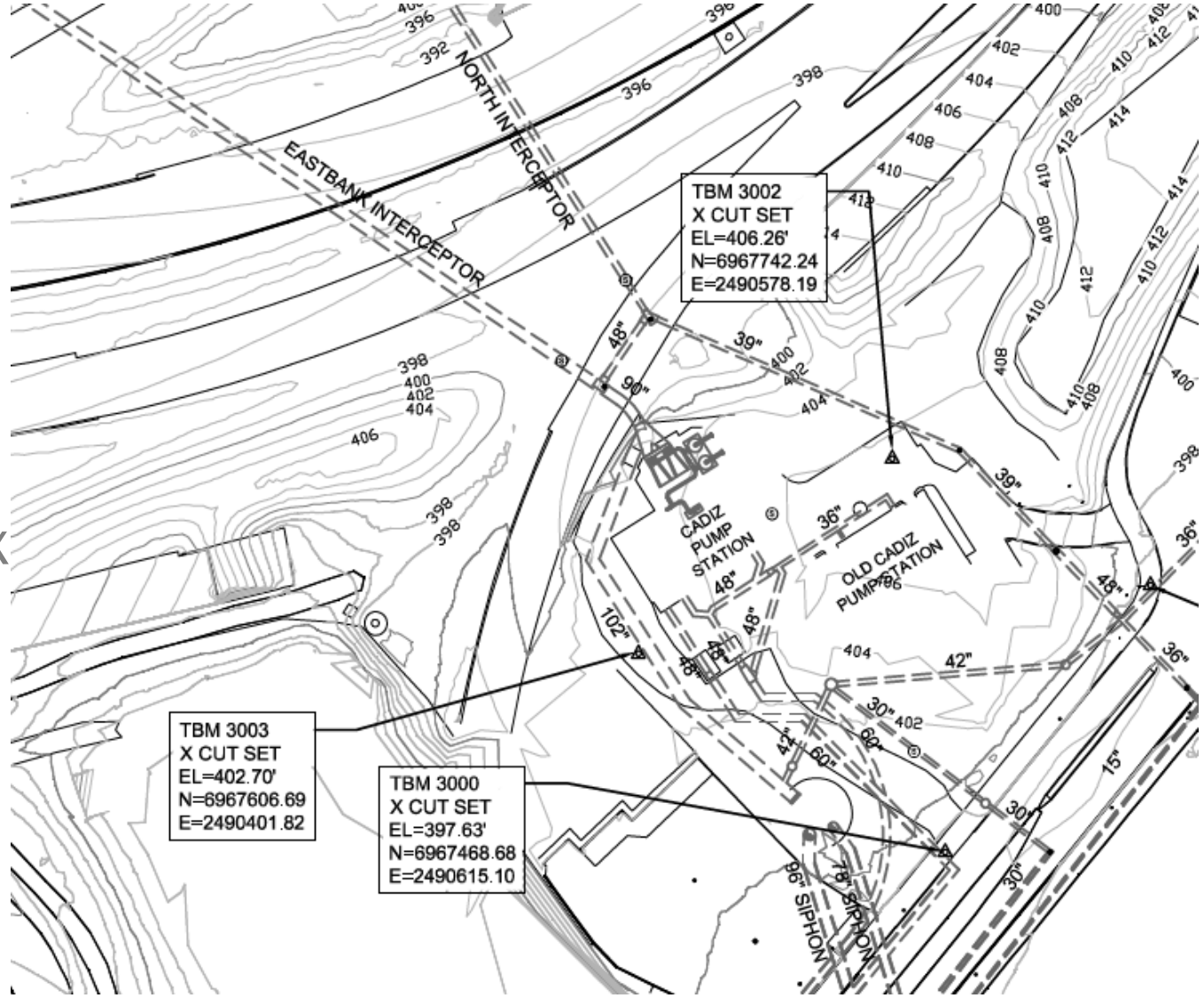
PUMP SOLUTIONS

Presentation Overview

- Background Cadiz Lift Station Rehabilitation project in Dallas Tx
- Success of Bypass Predesign
- Overcoming exceptional challenges with teamwork



The Project

- 2017 Freese and Nichols reached out to discuss the Cadiz Lift Station project
- Extensive 150MGD bypass required to support the rehabilitation of the Cadiz pump station

dallas water utilities
city of dallas

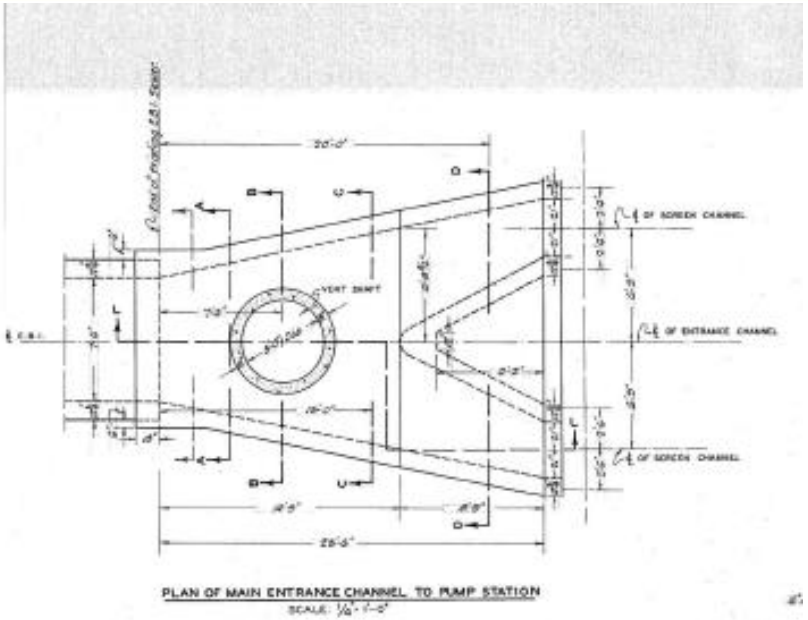
FREESE AND NICHOLS

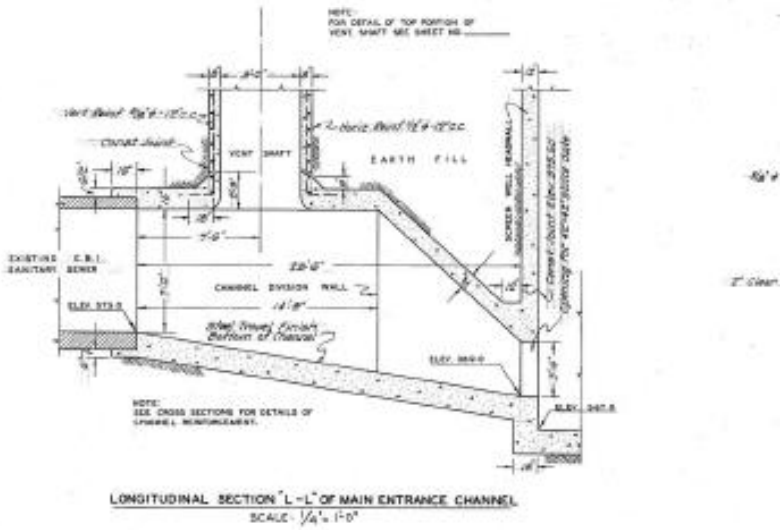
BAR CONSTRUCTORS, INC.

The Scope

- Contactor Scope:
  - Rehab of Cadiz Lift Station and Y-Inlet
  - Built in 1952
  - Collects over 65 square miles of sewer shed

- Bypass Scope:
  - 90” Sewer Bypass
  - 51” & 54” Sewer Bypass
  - 39” Sewer Bypass

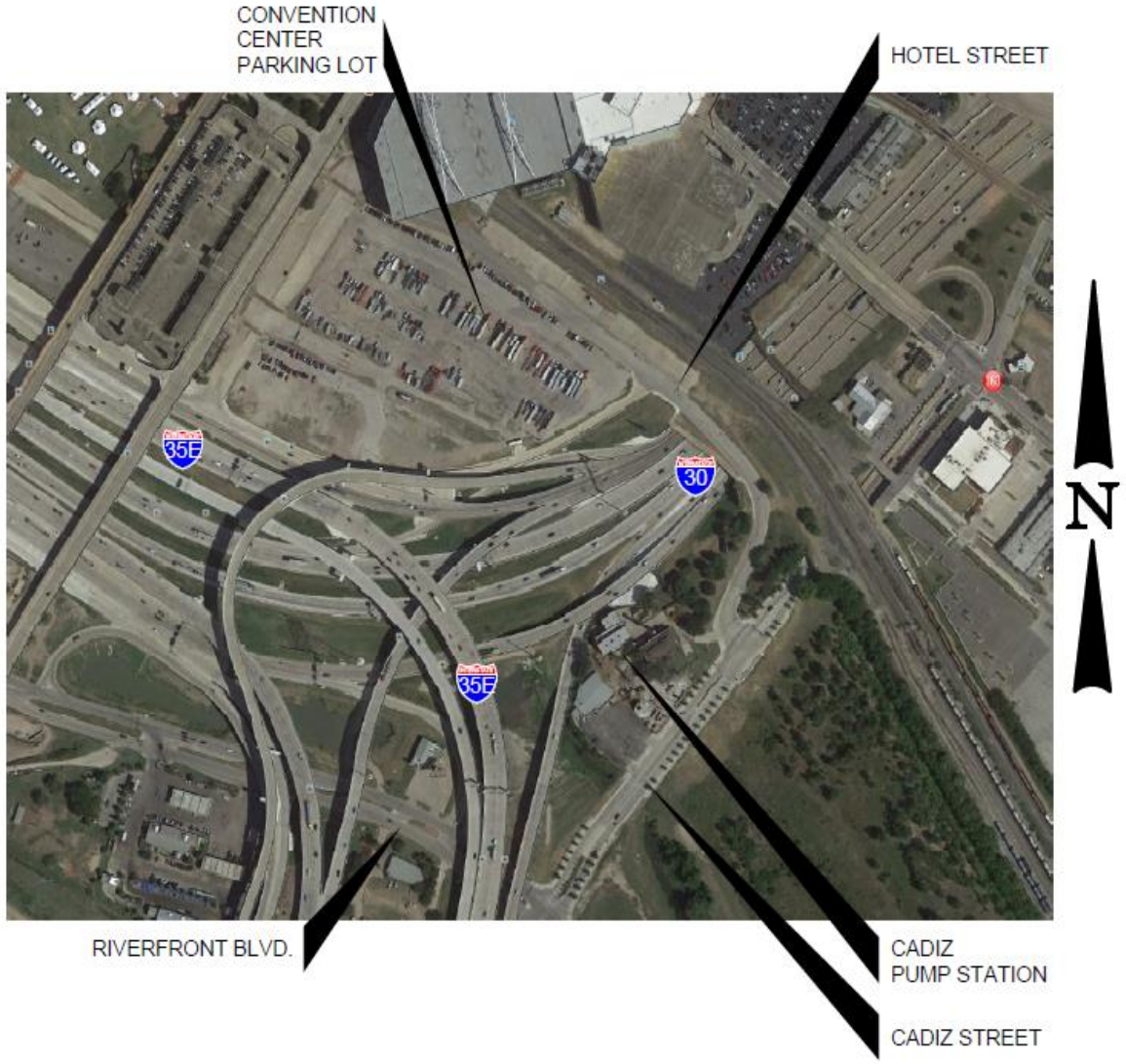




The Design Challenges

Priority: Reduce the owner's risk of SSO

- 150MGD bypass flow requirement
- Location & Space
- 28' – 37' depths at proposed suction points
- Pipe route
- Hotel street bridge crossing
- Remote Liquid Level Monitoring
- Plugging the 90" Horseshoe Sewer line
- Bypass Experience



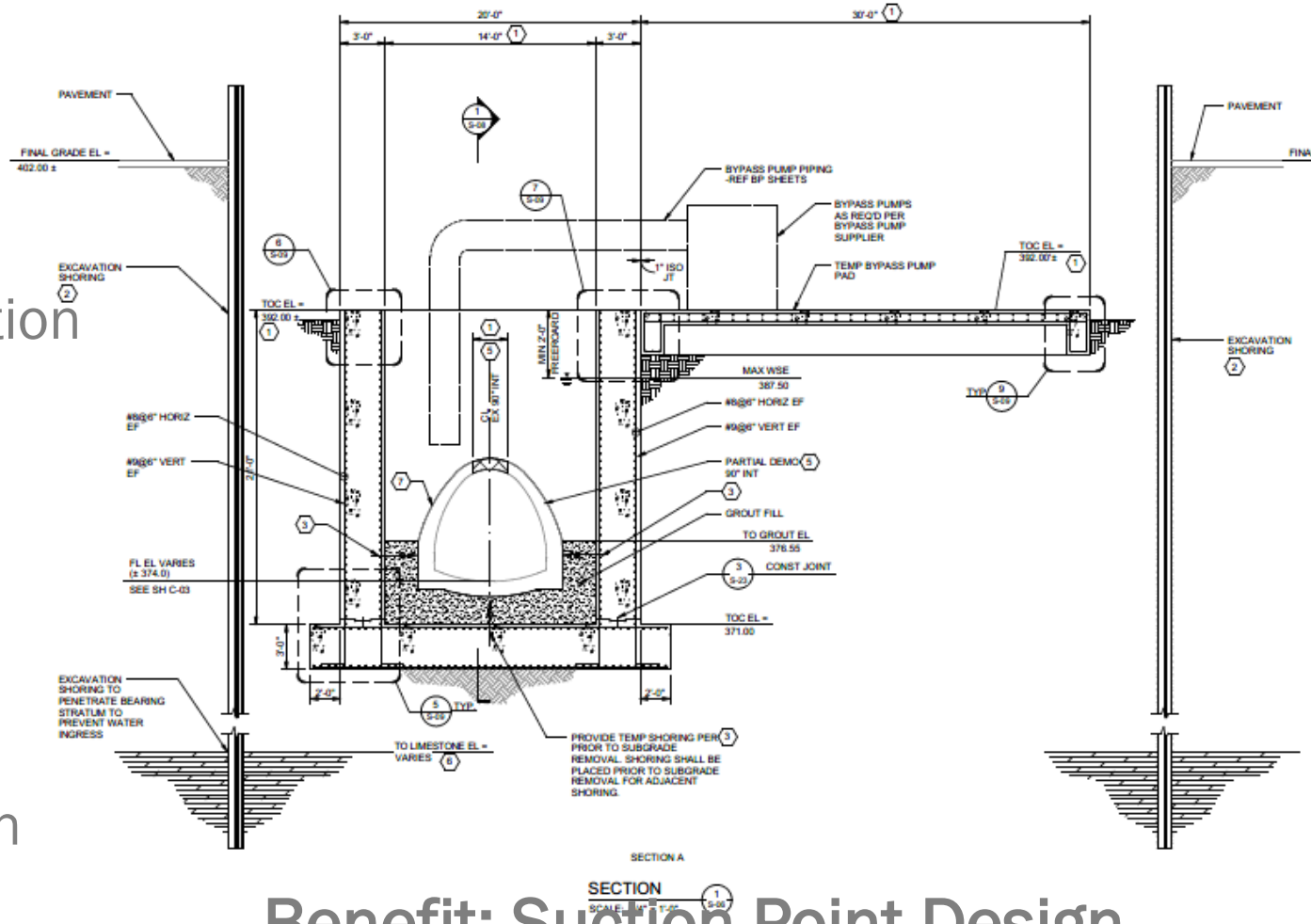
Overcoming Obstacles

Challenge 1: Suction points

Unmanageable depths required large excavations lowering the required suction lifts

Based off flow data we recommended the size pumps along with several different layout options for pump placement allowing the design engineering team to design the suction excavations for the bid documents.

Offered solution to combine PS2 & PS3



Benefit: Suction Point Design

Reduced Owner and Contractor Risk

Overcoming Obstacles

Challenge 2: Discharge pipe route

keeping hotel street open (7) 24” &
(3) 18” HDPE discharge pipes

Allowing access to Cadiz Lift station for Bar Constructors and the City of Dallas

Pipe Layout Design Benefit:
Reduced Bypass impact on the community

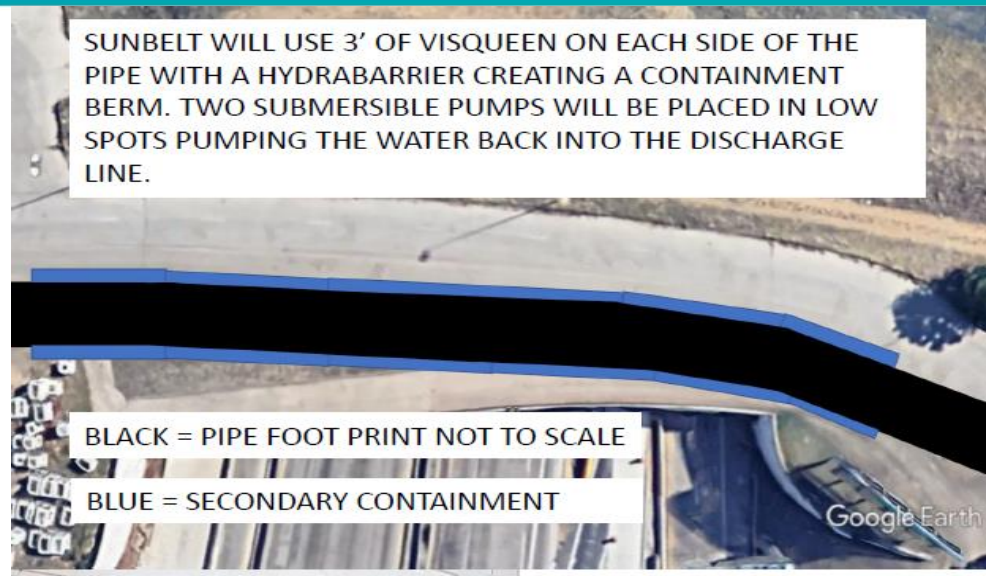
Overcoming Obstacles

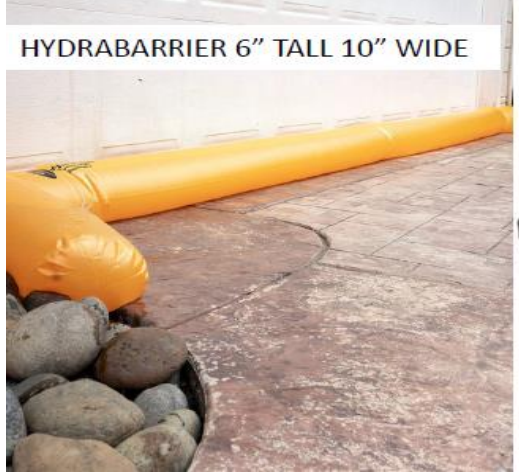
Challenge 2 continued: Discharge pipe route

Hotel street bridge crossing with secondary containment berm

3’ of 10 mil poly sheeting on both sides of the pipe along with hydra barriers to direct the runoff to collection pools off the bridge

Submersible pumps to return potential leaked sewer back into the redundant discharge pipe





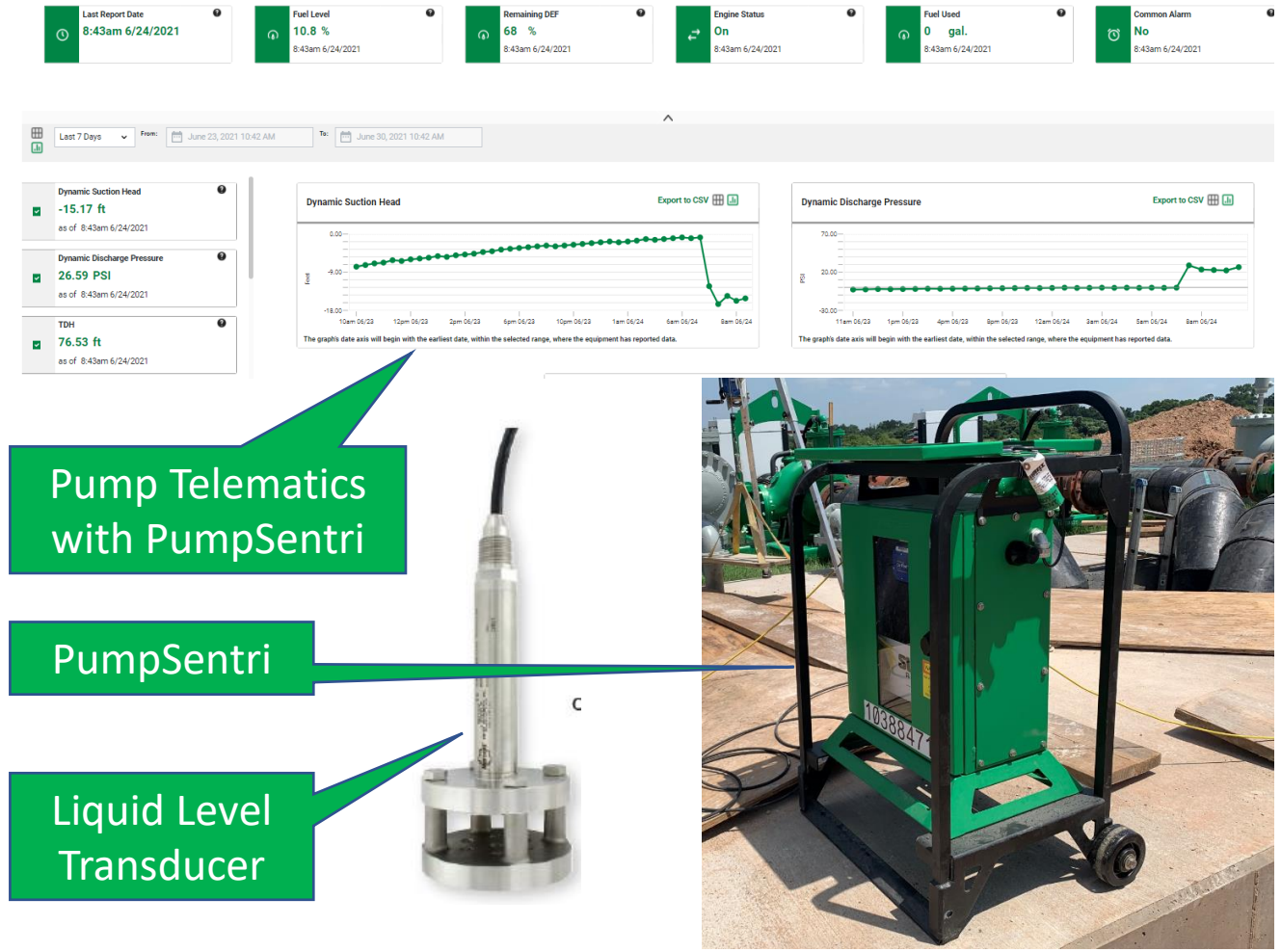
Pipe Layout Design Benefit: Satisfied the Local DOT

Overcoming Obstacles

Challenge 3: Remote Monitoring

The City required suction and discharge pit water levels along with a live feed of pumps running at each pump station

Sunbelt developed PumpSentri an internet-based website providing the required information with personal logins.



Telematics Benefit: Real Time intel & Constant Data Logging

Overcoming Obstacles

Challenge 4: Plugging the 90” horseshoe sewer line

The sewer line was odd shaped normal sewer plugging methods would not work

Bar fabricated a steel plate with a rubber seal to block the flow.

The plate was designed with a 39” emergency bypass port providing a back up plan for bypass pumping failure

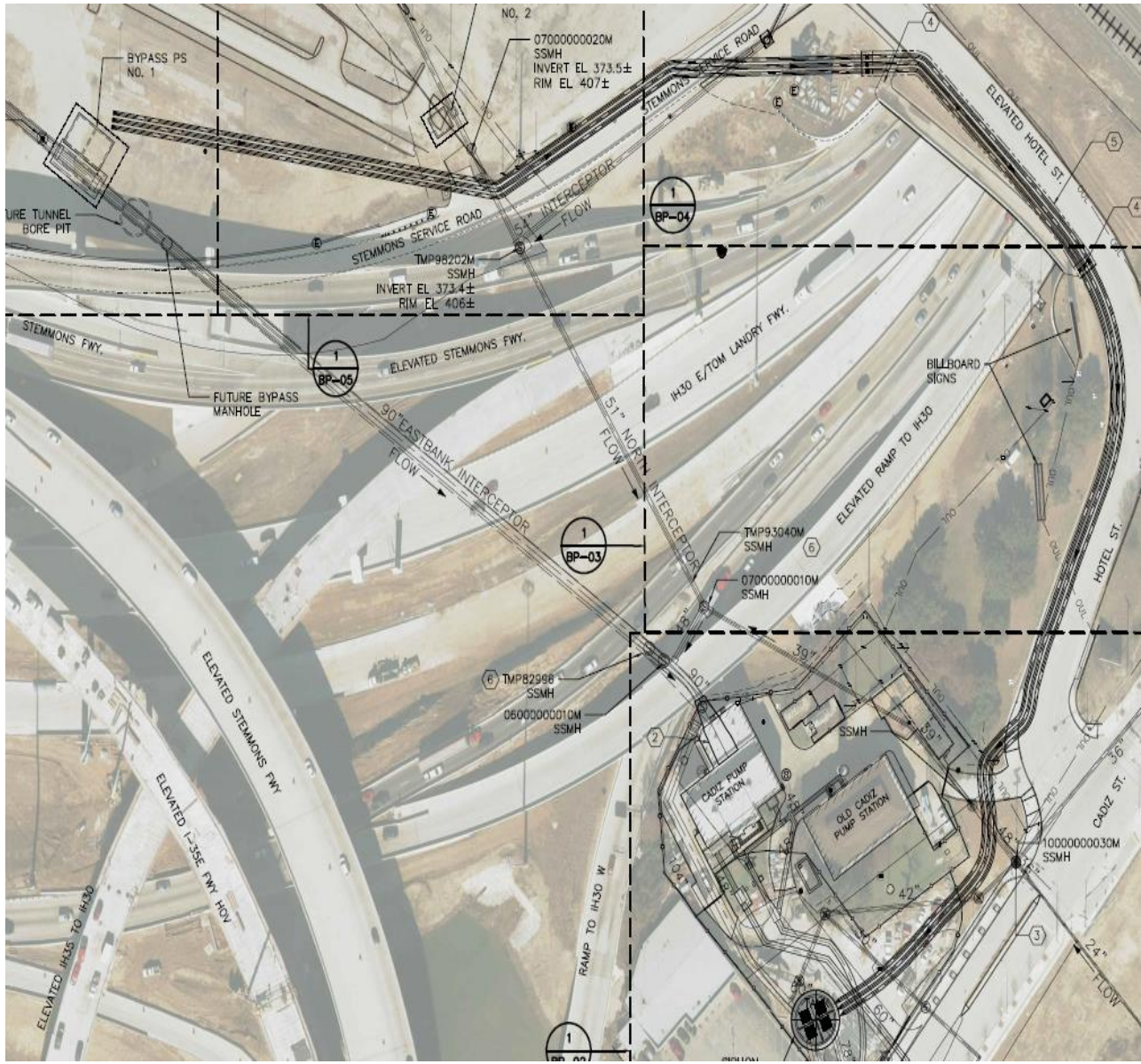
Bypass Pump Station Details

Pump Station 1

- 130 MGD
- Fourteen 18” Quiet Flow™ pumps
- 16,000’ of 24” HDPE discharge pipe

Combined Pump Station 2 & 3

- 20 MGD
- Four 12” Quiet Flow™ pumps
- 4000’ of 18” HDPE discharge pipe



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Success Factors

1. Engineer Field engagement ensuring constructability
2. Thorough prime contractor
3. Ingenuity and adaptability

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Questions?