East Influent Siphon Project

San Bernardino Municipal Water Department

carollo

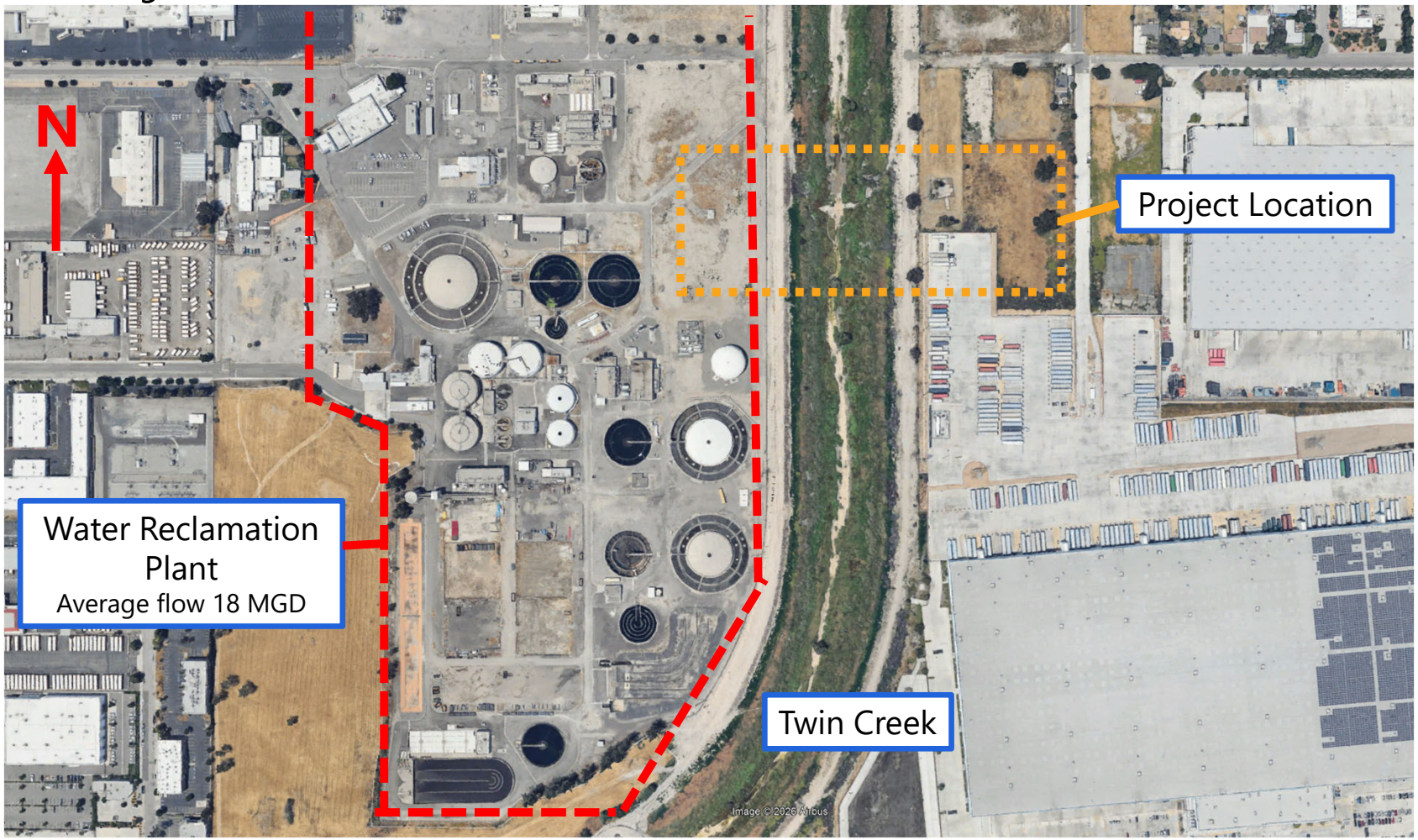
Agenda

1. Existing System / Project Goals
2. Bypass Strategy
3. New Structure
4. Existing Siphon Rehabilitation
5. Final Product

01

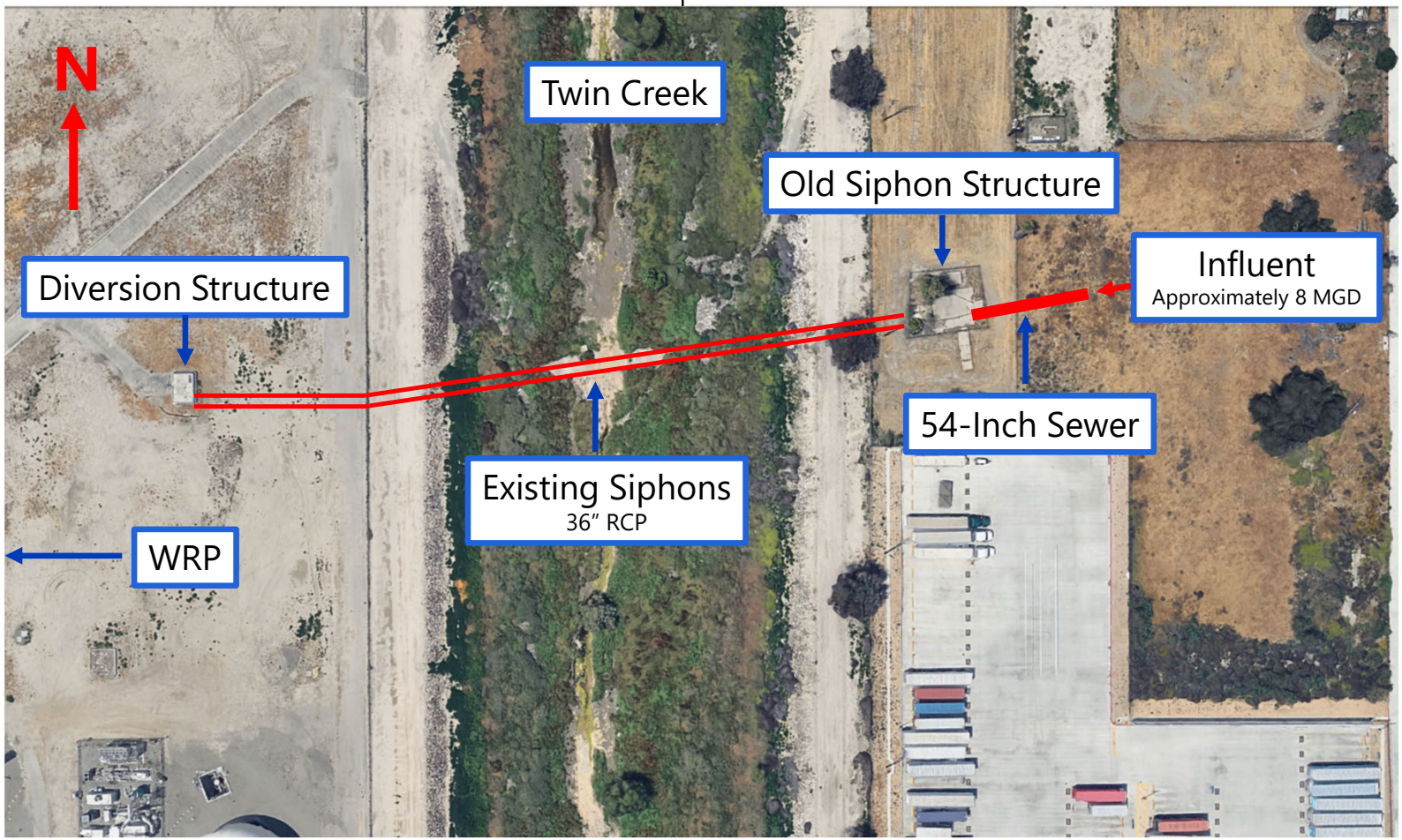
Existing System / Project Goals

Project Location

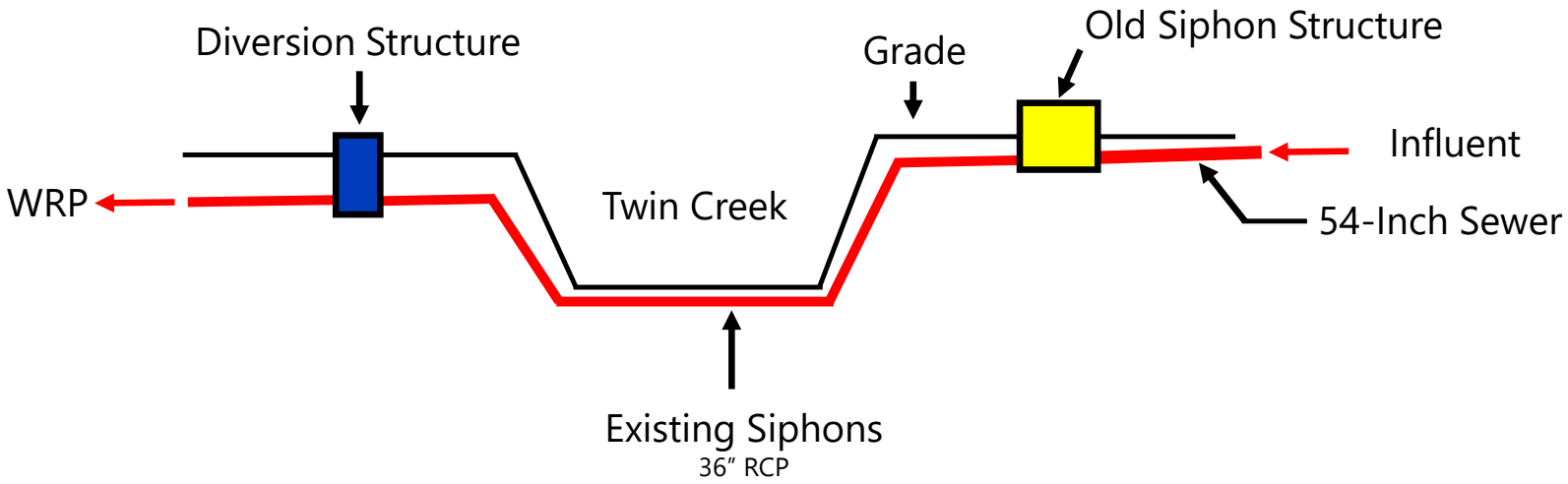


Project Site

Influent enters the siphon structure, then goes under the creek and into the treatment plant.



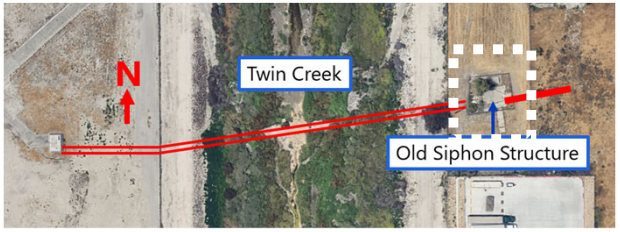
Project Site - Cross Section



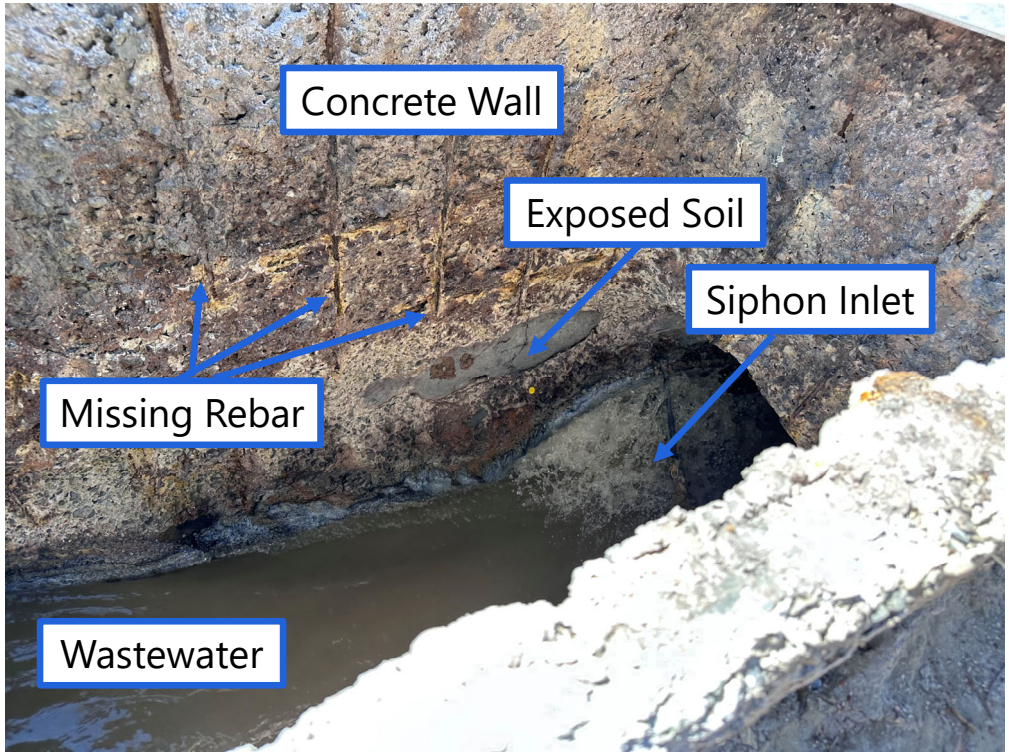
Influent enters the siphon structure, then goes under the creek and into the treatment plant.

The old siphon structure was on the verge of collapse.

"Don't so much as breathe on it."



Originally built in June of 1973



Looking into siphon inlet

Project Goals

1. Replace the siphon structure
2. Ensure the existing siphons can be used for the foreseeable future
3. Prepare for two new siphons to be installed in a future project

02

Bypass Strategy

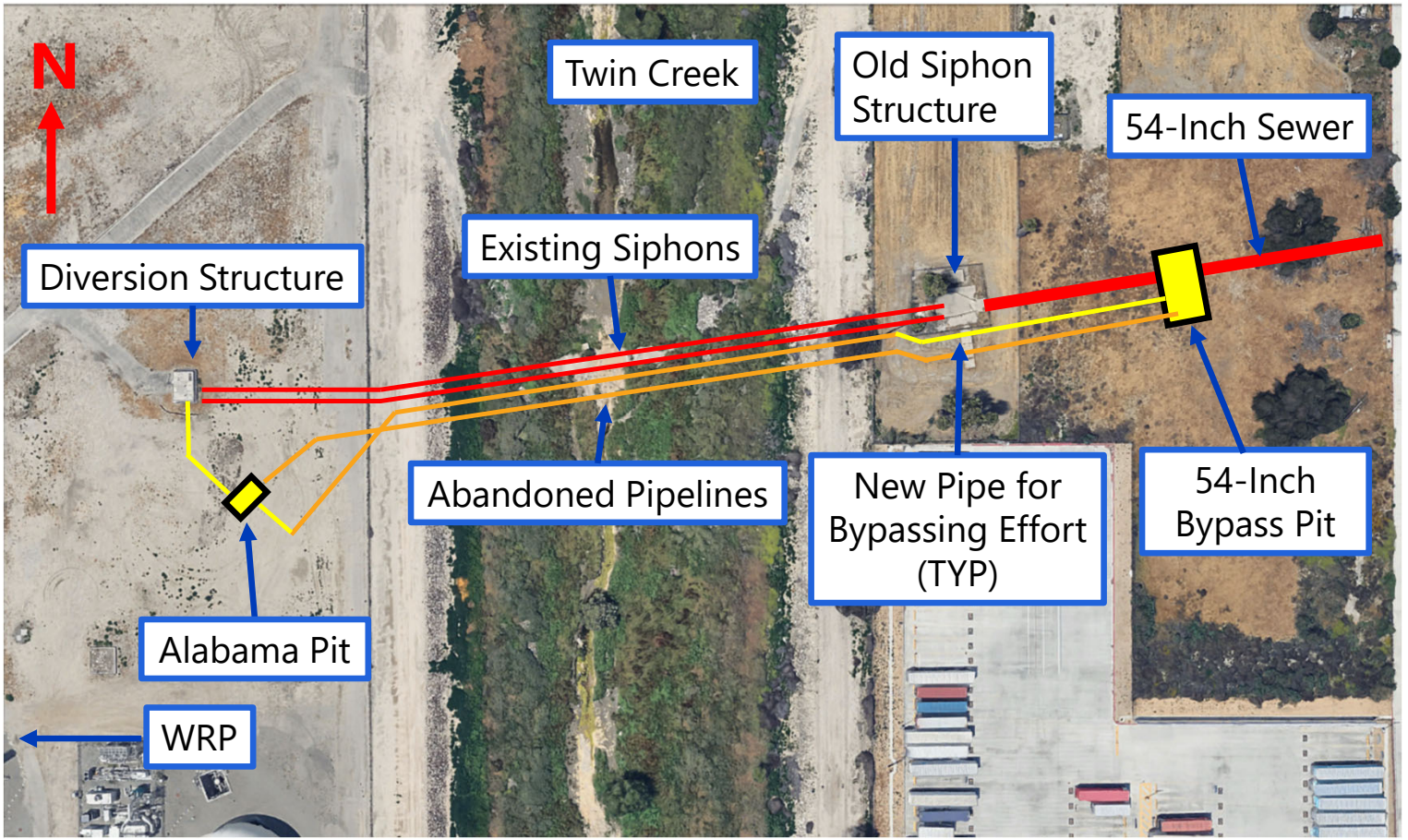
Bypass System

Step 1 – Capture the influent upstream of the old siphon structure. (Bypass Pit)

Step 2 – Send flow through existing abandoned pipes under Twin Creek.

Step 3 – Capture the flow within the WRP. (Alabama Pit)

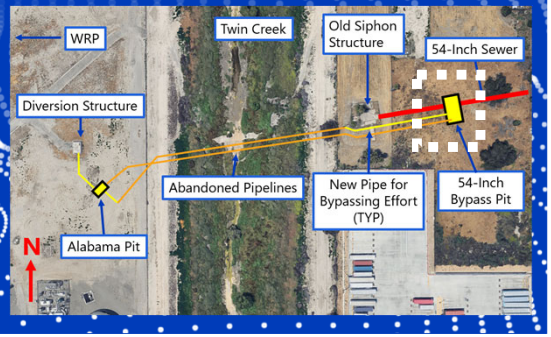
Step 4 – Send flow to the start of the plant (Diversion Structure)



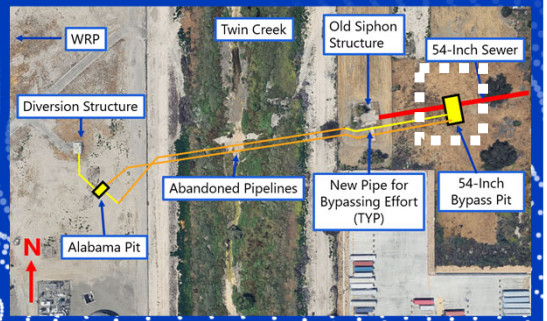
54-Inch Bypass Pit
(During Construction)

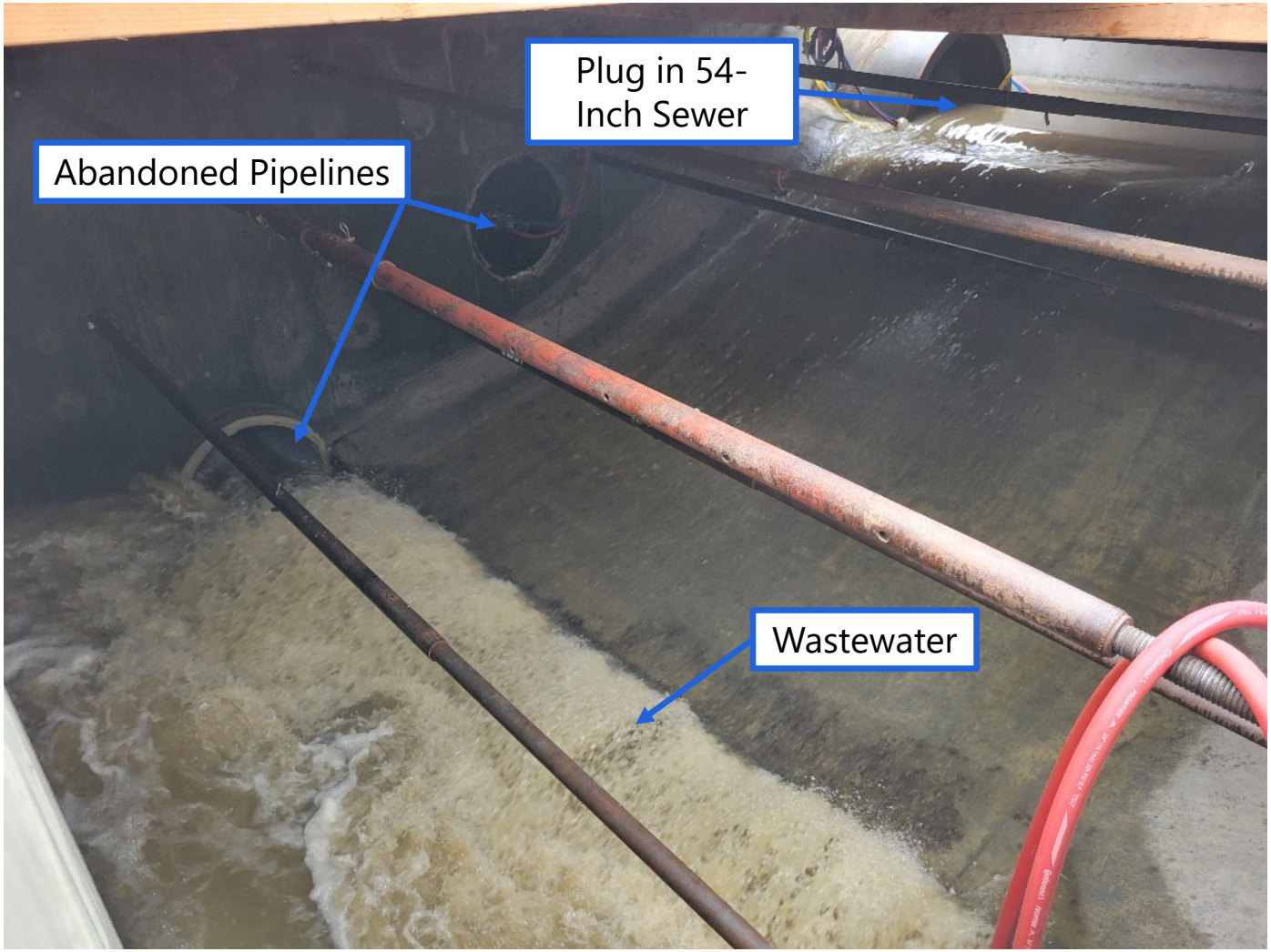
Flow from the 54-inch sewer had to be redirected to the two abandoned pipelines.

The 54-inch sewer was to be opened and plugged to force water into the concrete box and flow down into the existing abandoned pipes.



54-Inch Bypass Pit (In Use)



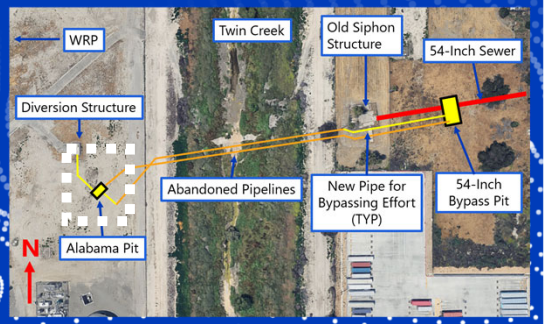


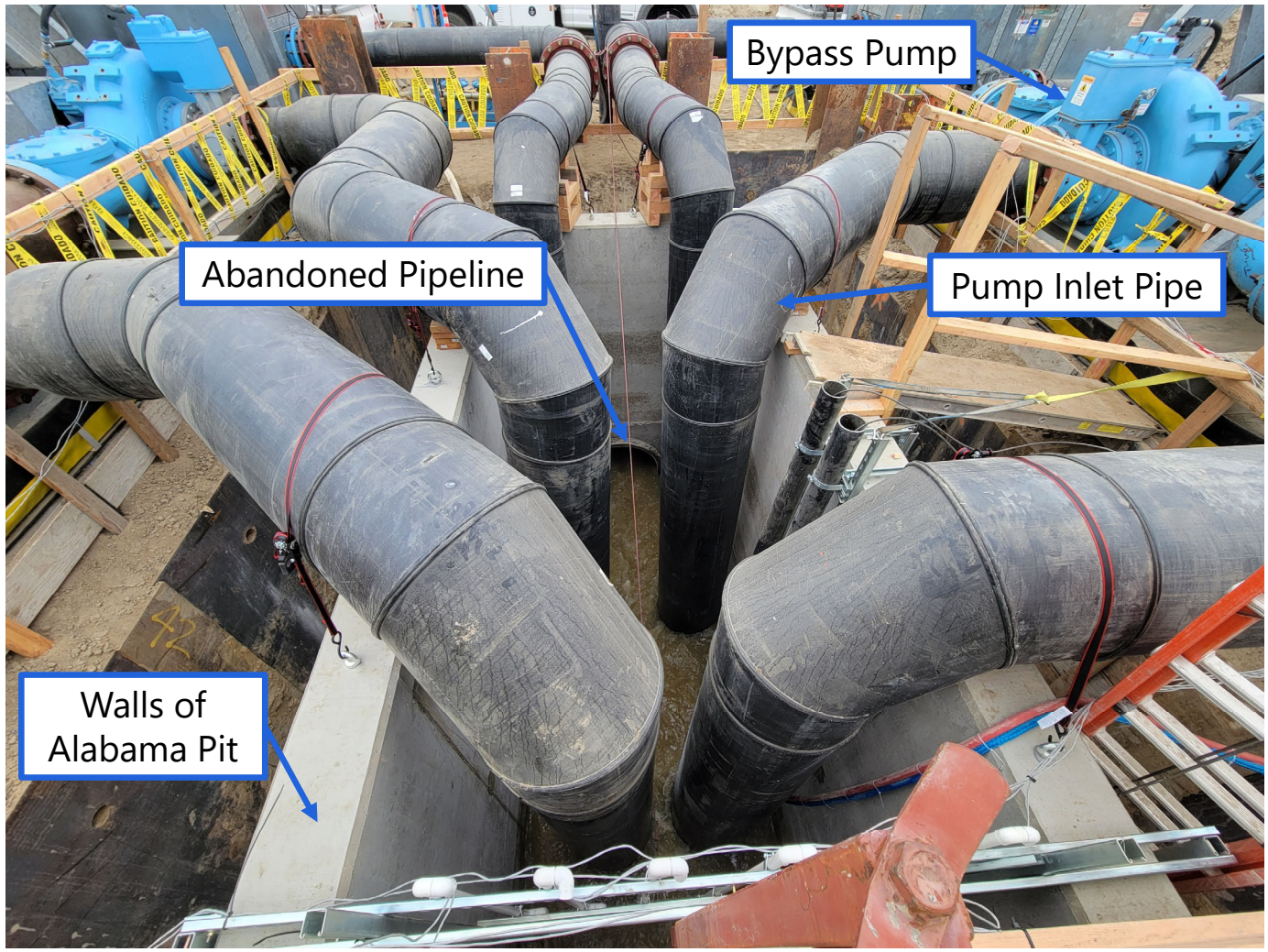
Alabama Pit

Flow from the abandoned pipelines was collected in the Alabama Pit.

Pumps took the water and sent it to the start of the treatment plant.

55 MGD Bypass Pump Station

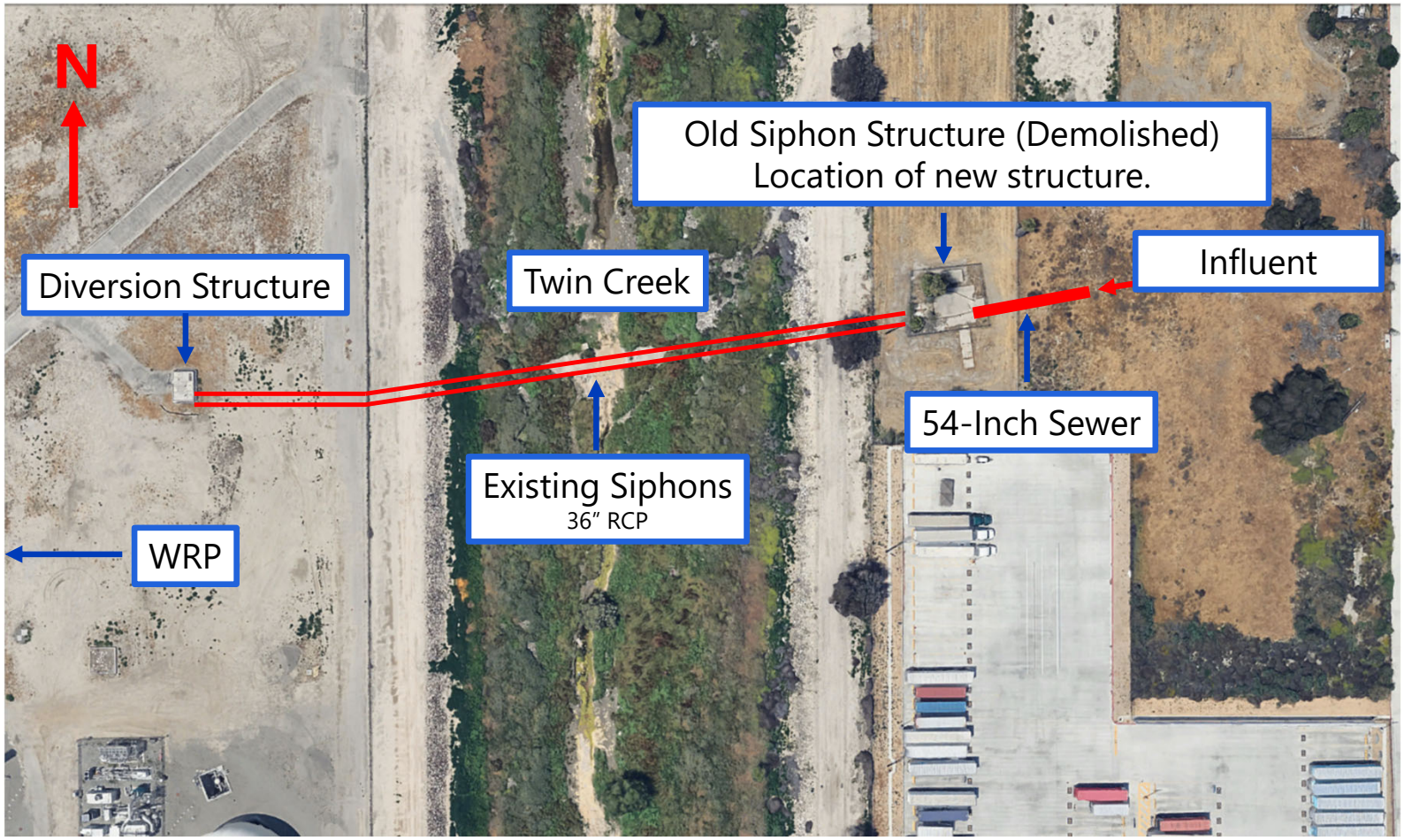




03

New Structure

Old structure was demolished to make way for new structure.

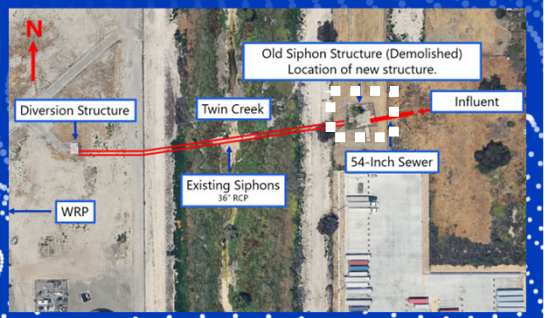


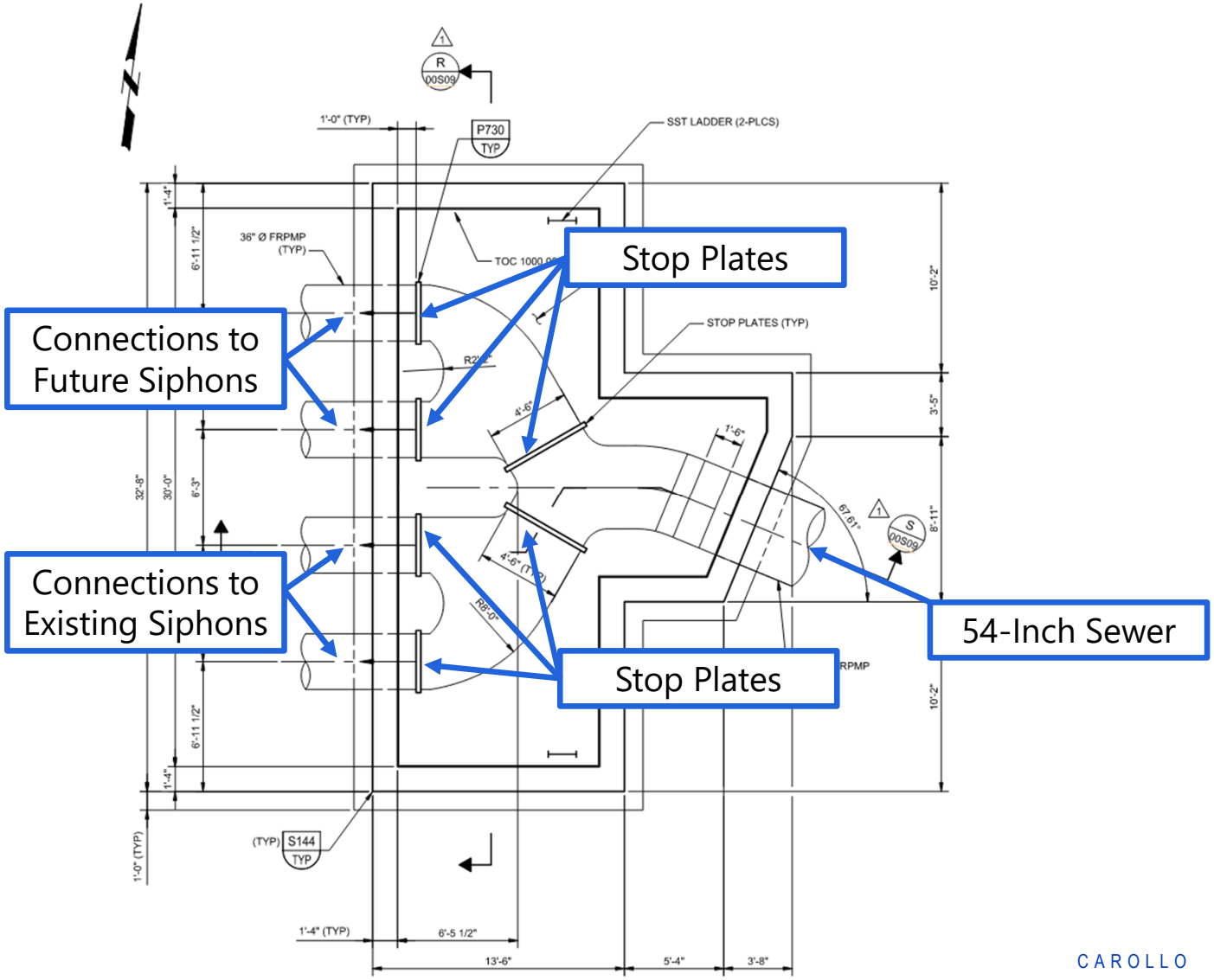
New Siphon Structure

Requirements

1 – Connect to the existing siphons.

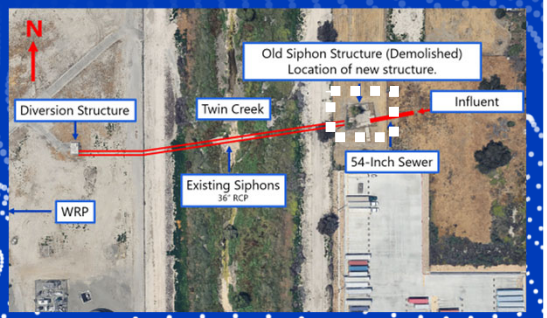
2 – Connect to two future siphons.





New Siphon Structure

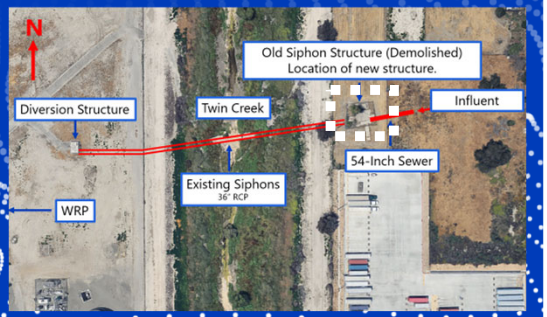
(During Construction)

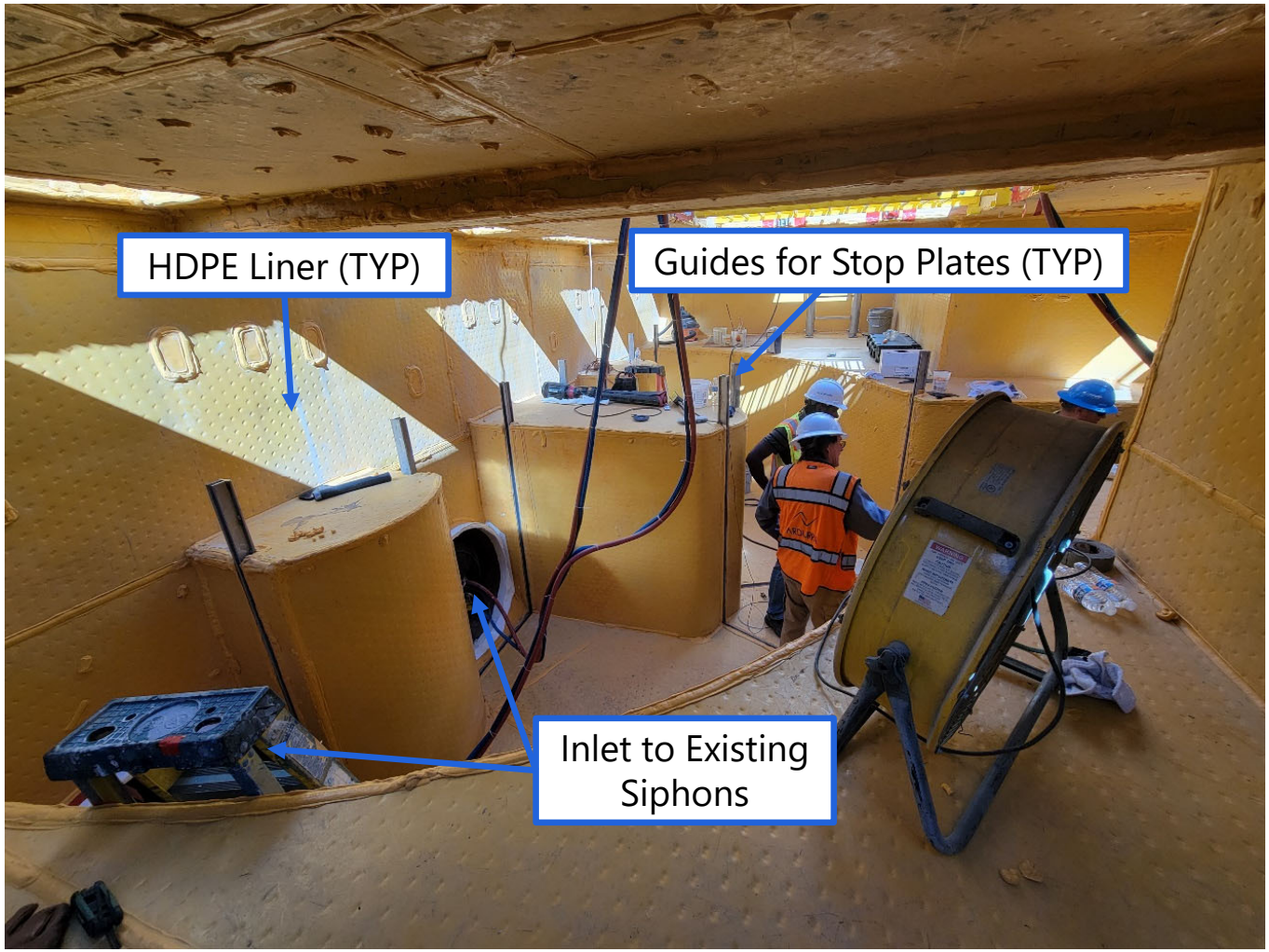


Interior of New Siphon Structure

HDPE liner was used to provide corrosion protection.

The new structure must always remain in service.

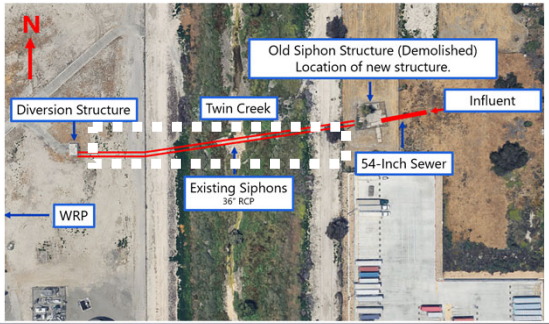


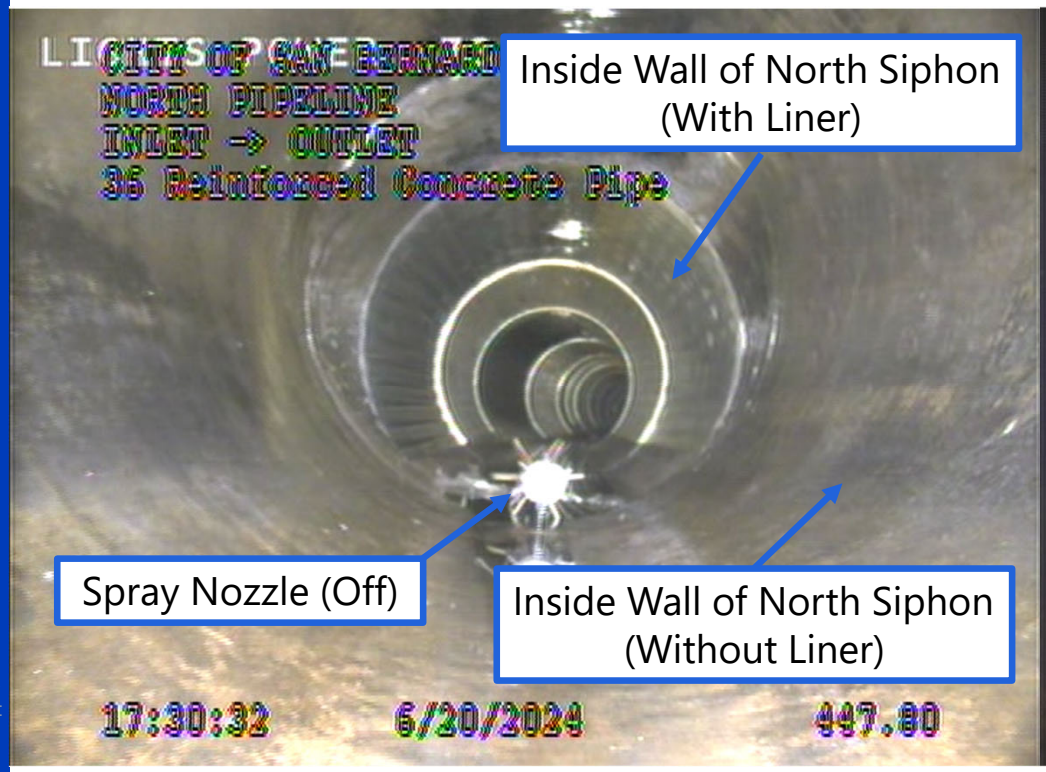


04

Existing Siphon Rehabilitation

Pipeline Cleaning - North Siphon





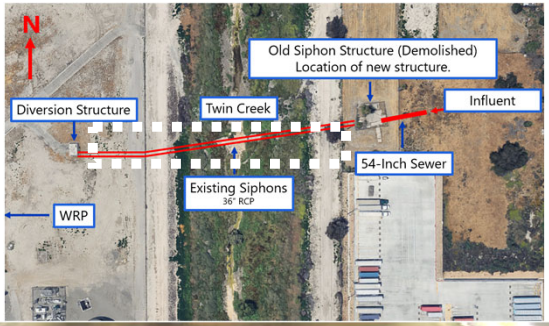
Inside Wall of North Siphon (With Liner)

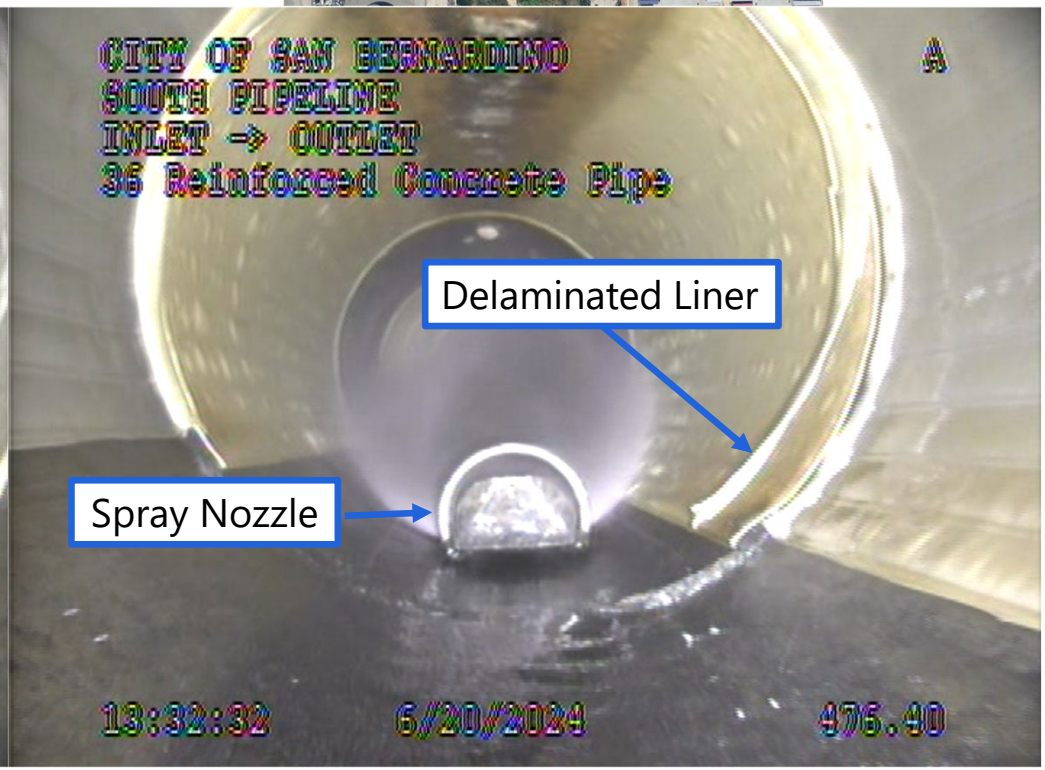
Spray Nozzle (Off)

Inside Wall of North Siphon (Without Liner)

Spray Nozzle (On)

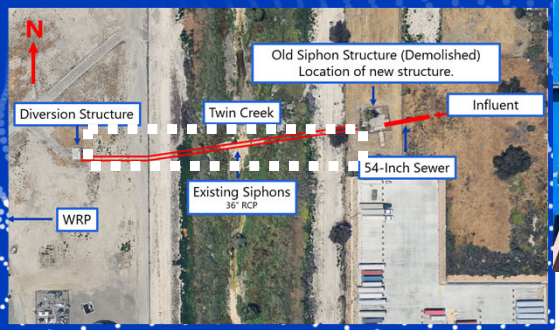
Pipeline Cleaning
South Siphon Notable Issues





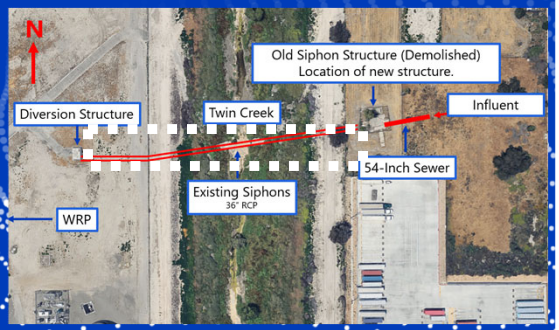
Cured-In-Place-Pipe (CIPP) Installation

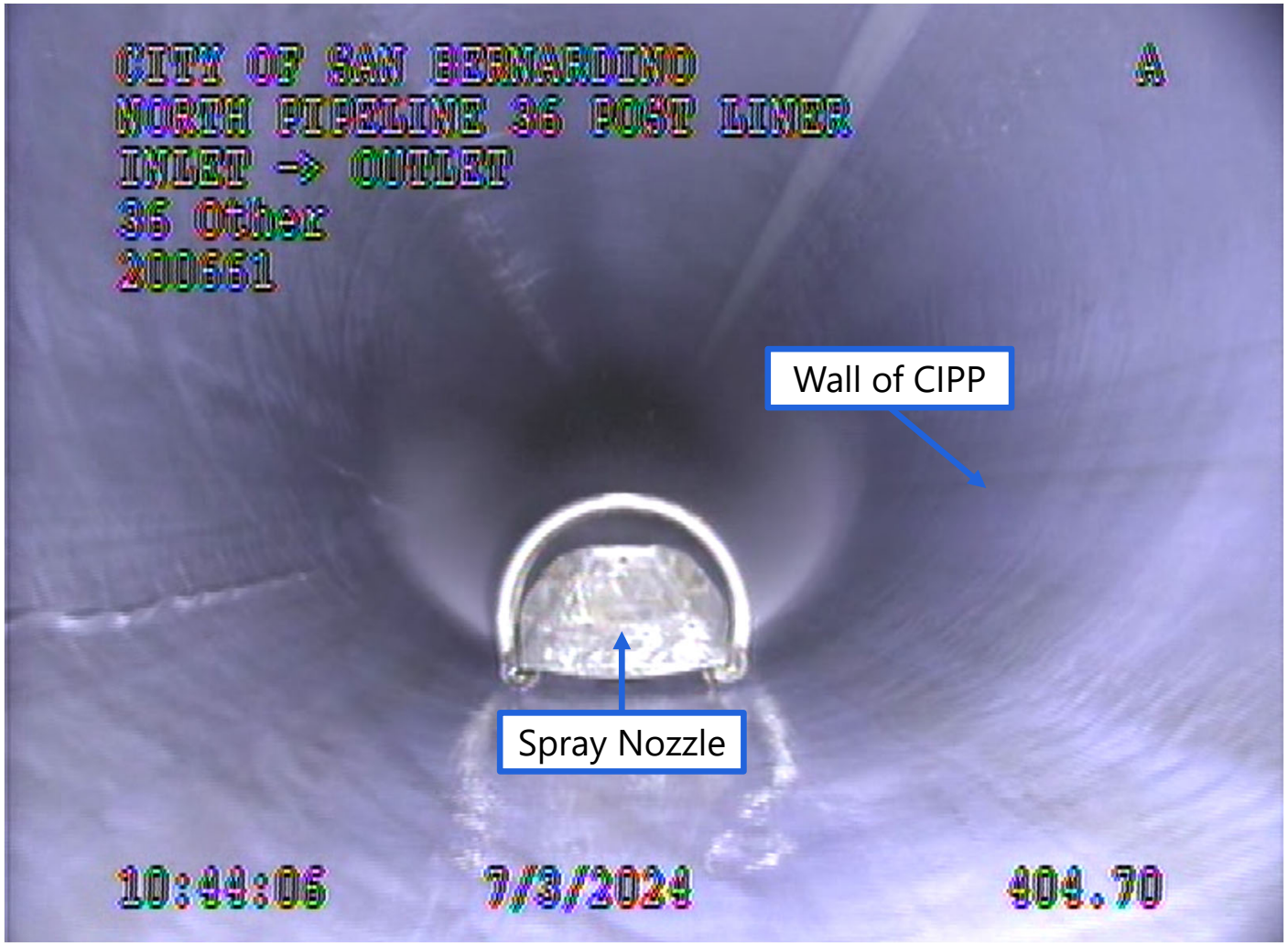
CIPP was used to strengthen the existing siphons.



Post CIPP Installation

CIPP was used to strengthen the existing siphons.



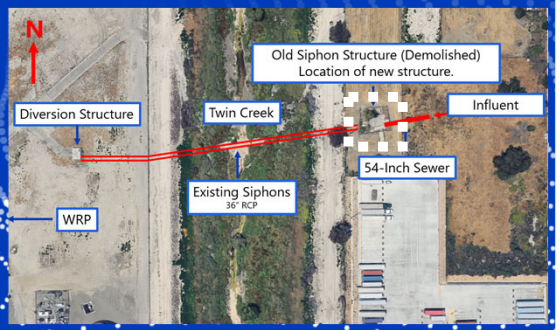


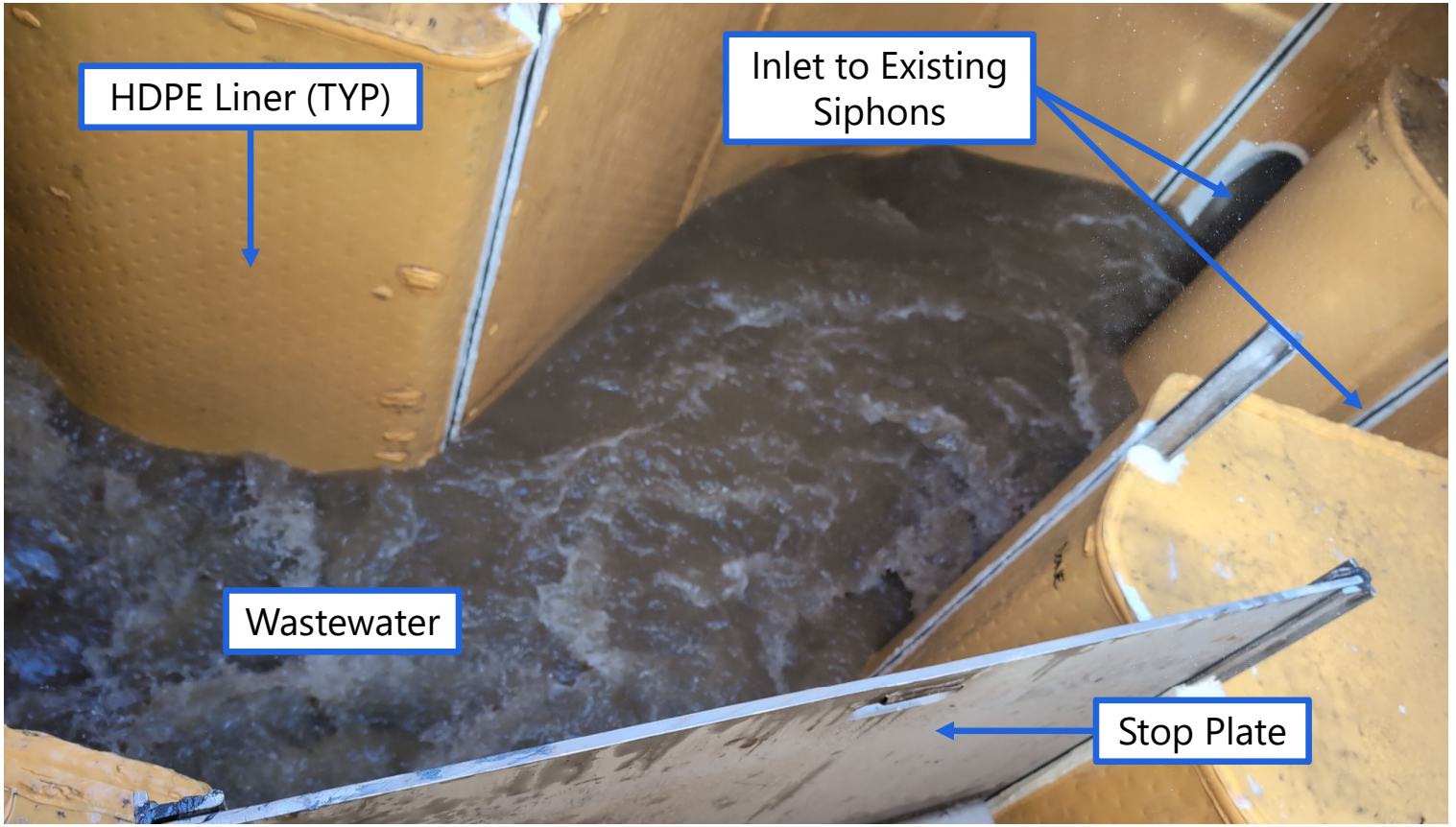
05

Final Product

New Siphon Structure In Operation

316 stainless steel stop plates and guides divert water to the two existing siphons.





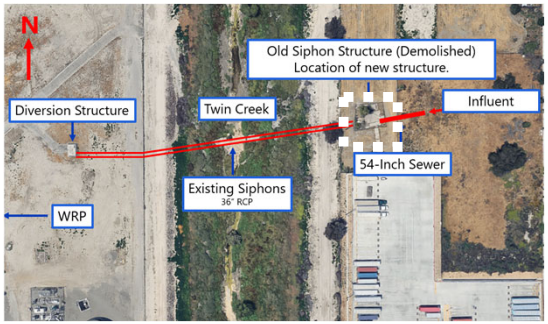
New Siphon Structure

- Carollo was first contacted about the siphon August 2023. Bid documents were advertised 2 months later.
- Construction took approximately 1 year. The contractor finished construction spring of 2025.
- $12,000,000 construction cost.

Close coordination between SBMWD, the consultant, the construction manager, and the contractor kept change orders below 2.5% of the project cost.

Before (Demolished)

After



- $12,000,000 construction cost.
- Close coordination between SBMWD, the consultant, the construction manager, and the contractor kept change orders below 2.5% for the project.

Questions?