



2013 LEON CREEK WRC
REHABILITATION AND PROCESS
IMPROVEMENTS PROJECT

SAWS Leon Creek WRC

SEPT 21, 2018



Topics

- I. About the Plant
- II. Purpose of Project
- III. Project Risk/Challenge Areas
- IV. Questions

Plant Ratings

SAWS Leon Creek Water Recycling Center (WRC)

- Conventional Activated Sludge Facility
- Permitted Peak Flow 92MGD
- Permitted Average Daily Flow 46MGD
- Maximum Hydraulic Peak Flow 72 MGD

Purpose of the Project

\$11.5 million Rehabilitation and Process Improvements Project

- Not a plant expansion
- Goal was to improve operations with automation
- Replace aged treatment equipment

Construction started in April 2015 and Ended in April 2018

- Project was on schedule and within budget

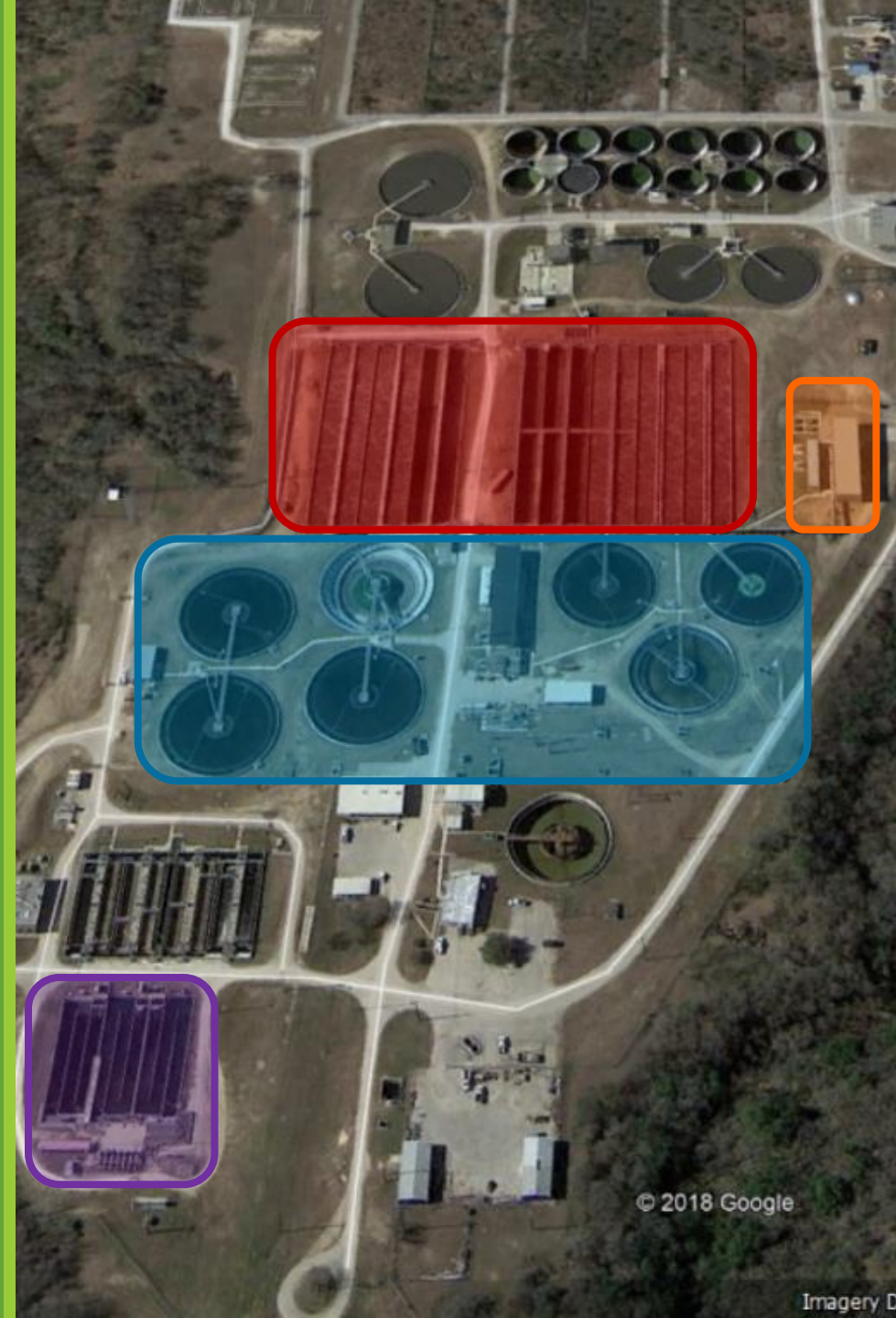
OVERALL PLANT SITE

AERATION BASINS

BLOWER BUILDING

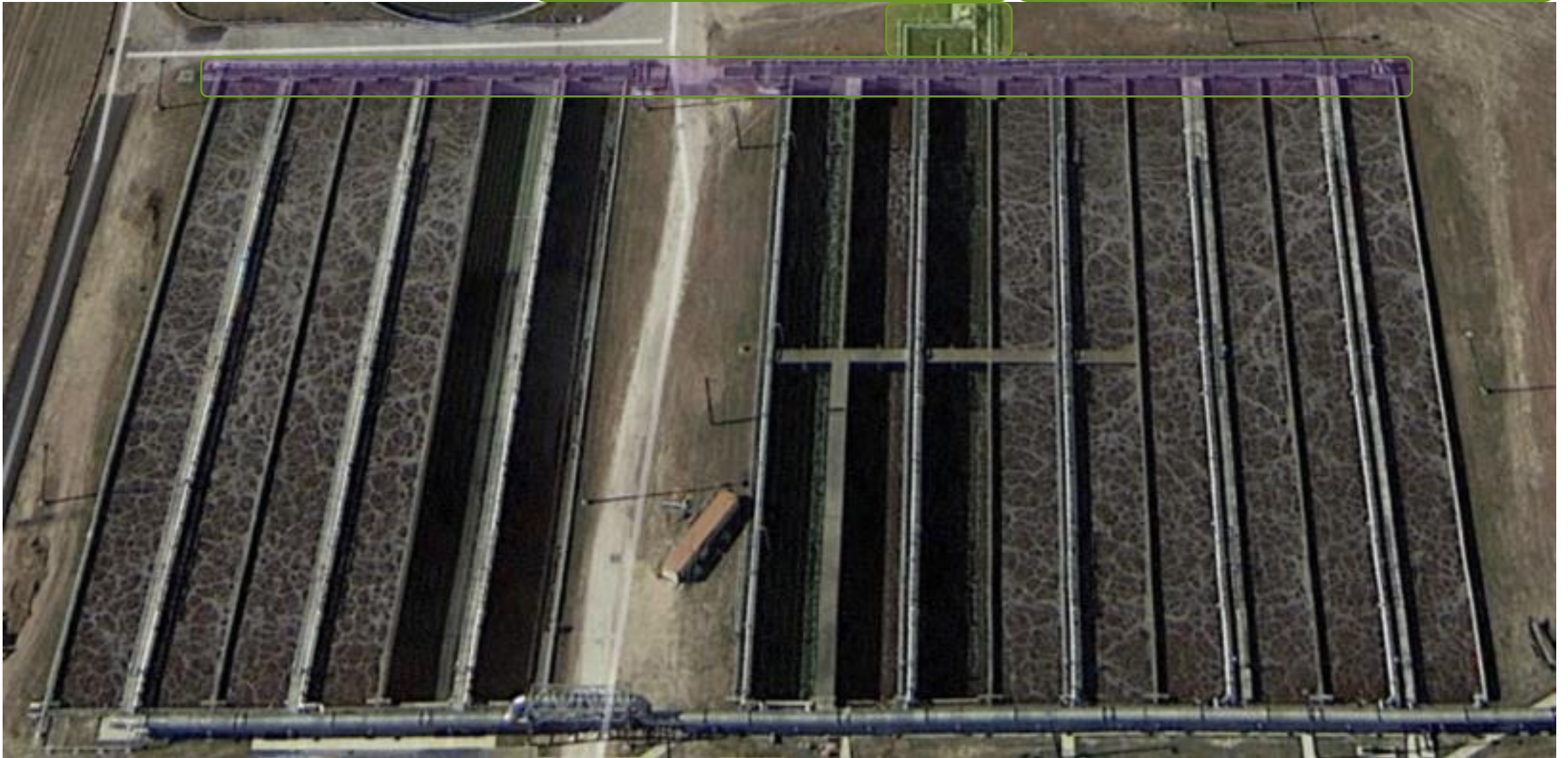
FINAL CLARIFIERS

CHLORINE CONTACT BASINS



MIXING CHAMBER

INFLUENT CHANNEL



Mixing Chamber and Influent Channel

- Needed
 - Coarse bubble diffusers were in poor condition and some areas were not working at all
- Scope
 - Installation of two new air headers
 - Replacement of drop legs, pipe grid, and coarse bubble diffusers



AERATION BASINS



Aeration Basins

➤ Need

- Diffusers old/clogged/broken
- Corroded air piping
- Air distribution unbalanced
- Energy wasted

➤ Scope

- Replacement of air headers, drop legs, pipe grid, and disc diffusers
- Installation of modulating valves, flow meters, and D.O. probes on each drop leg
- Automation and control of aeration system



DROP LEGS

SHARED HEADER

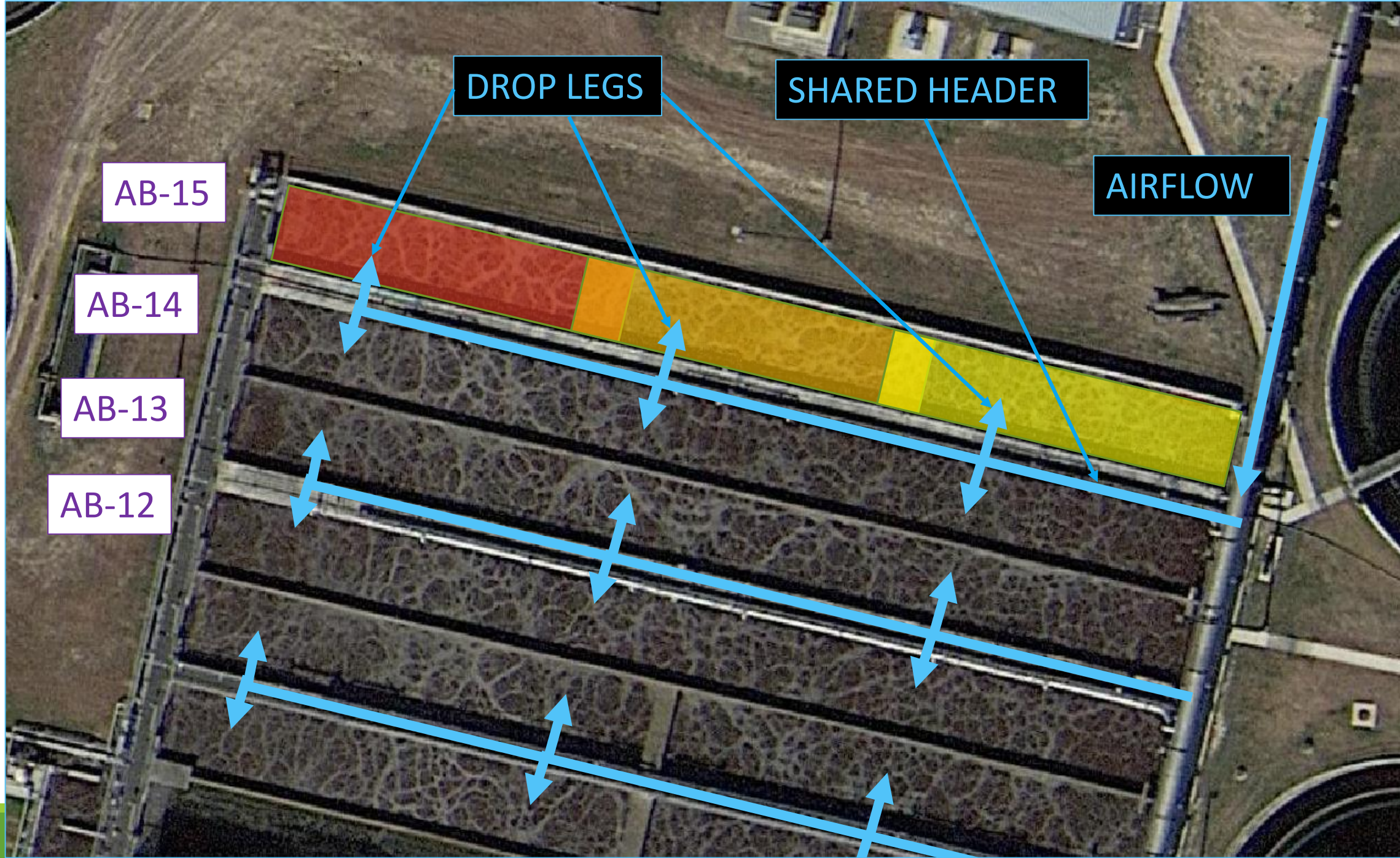
AIRFLOW

AB-15

AB-14

AB-13

AB-12



Aeration Basins



BLOWERS



Blower Enclosure

- Need
 - Blowers are exposed to atmosphere (sunlight, rock chipping from mowers, etc.)
 - Existing blowers are loud causing a nuisance and potential safety concern for plant staff
- Scope
 - Develop performance specification for the enclosure of the existing blower canopy



Aeration Basin System

- Automating airflow for monitoring and control of the Dissolved Oxygen (D.O.) level
 - Air flow meters
 - Modulating airflow control valves
 - D.O. analyzer/monitors

- MARRIED WITH -

- Turblex Blowers installed in early 2012

SAWS has energy and labor savings



Final Clarifiers

- Need
 - Clarifier mechanisms on 1-4 were old and failing
 - Clarifiers 5-7's weirs were hydraulically imbalanced
- Scope
 - Complete rehabilitation of Final Clarifiers No. 1-4
 - Replacement and resetting of weirs and baffles of Clarifiers No. 5-7



Final Clarifiers 1 thru 4



Final Clarifiers 5 thru 7

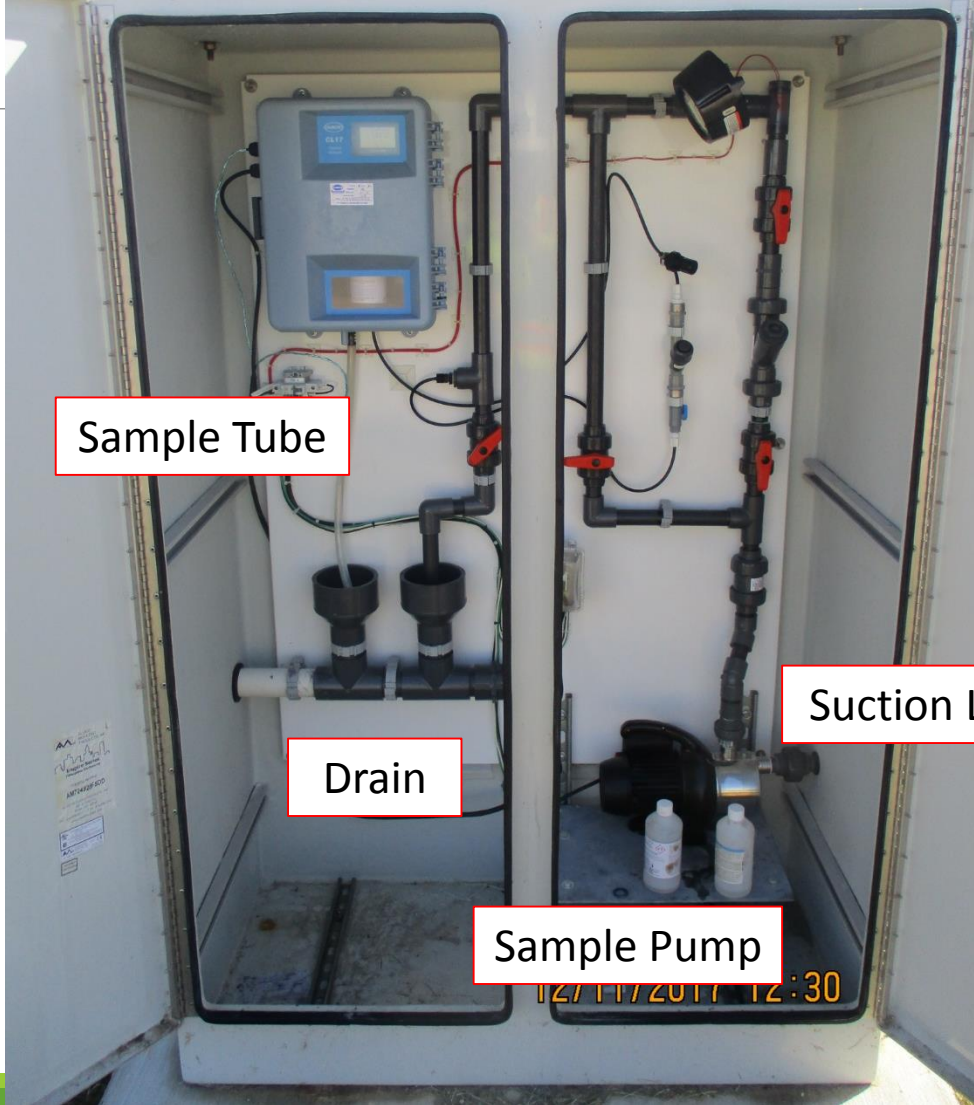
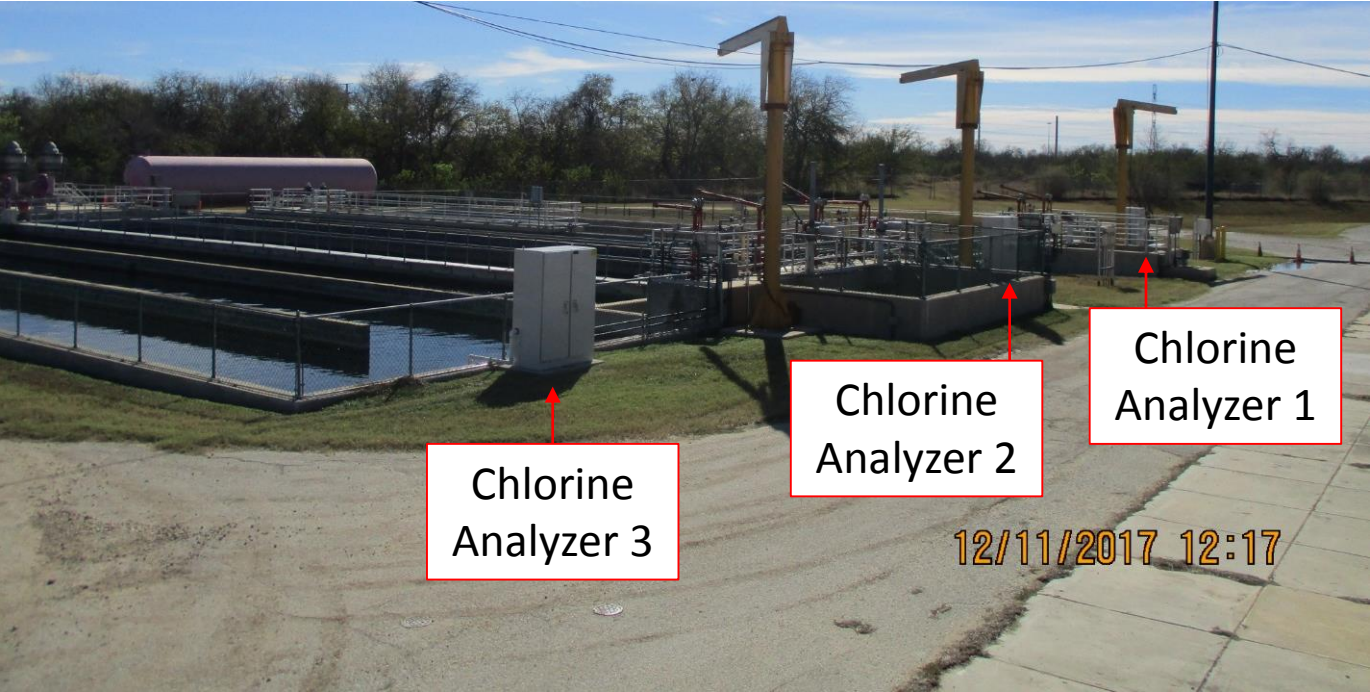


Chlor/Dechlor Area

- Need
 - Existing system is not paced so chemicals are being overfed (\$)
 - Requires manual operator monitoring and adjustment
- Scope
 - Installation of chlorine residual analyzers and automation of chlorination and dechlorination systems.



Project Overview – Chlorination/De-chlorination System



Challenge Areas

The following areas were the expected the largest risks/challenges to the success of the project:

- Influent channel air header construction sequencing
- Coordination and start-up of automated aeration system (programming/integration)
 - Handshaking between Siemens Turbplex control system and Emerson Ovation DCS system





Project Team

➤ **SAWS Team**

- Ila Drzymala
- Angel Morales-Vazquez
- Joe Daggs
- Daniel Rodriguez

➤ **Freese and Nichols Team**

- Trooper Smith – Project Manager
- Leonard Ripley – Senior Process Engineer
- John Manning – Electrical Design Lead
- Brent Millar – Construction Rep
- Coby Gee – Project Engineer
- Jackie McMahon – Project Engineer

Questions
