

Front of Plant Outreach Meeting

April 5, 2017



SVCW
Silicon Valley Clean Water

RESCU

Regional Environmental
Sewer Conveyance Upgrade

Agenda

- **Introduction (Teresa)**
- **Front of Plant Project – Overview (Bill)**
- **Procurement Process and Stages (Teresa)**
- **Key Parts of the RFQ (Bill)**
- **Estimates, Budgets and Pricing (Teresa)**
- **Early Focus Areas (Stage 1) (Bill)**
- **Available Information (Teresa)**
- **Questions (Please ask along the way)**

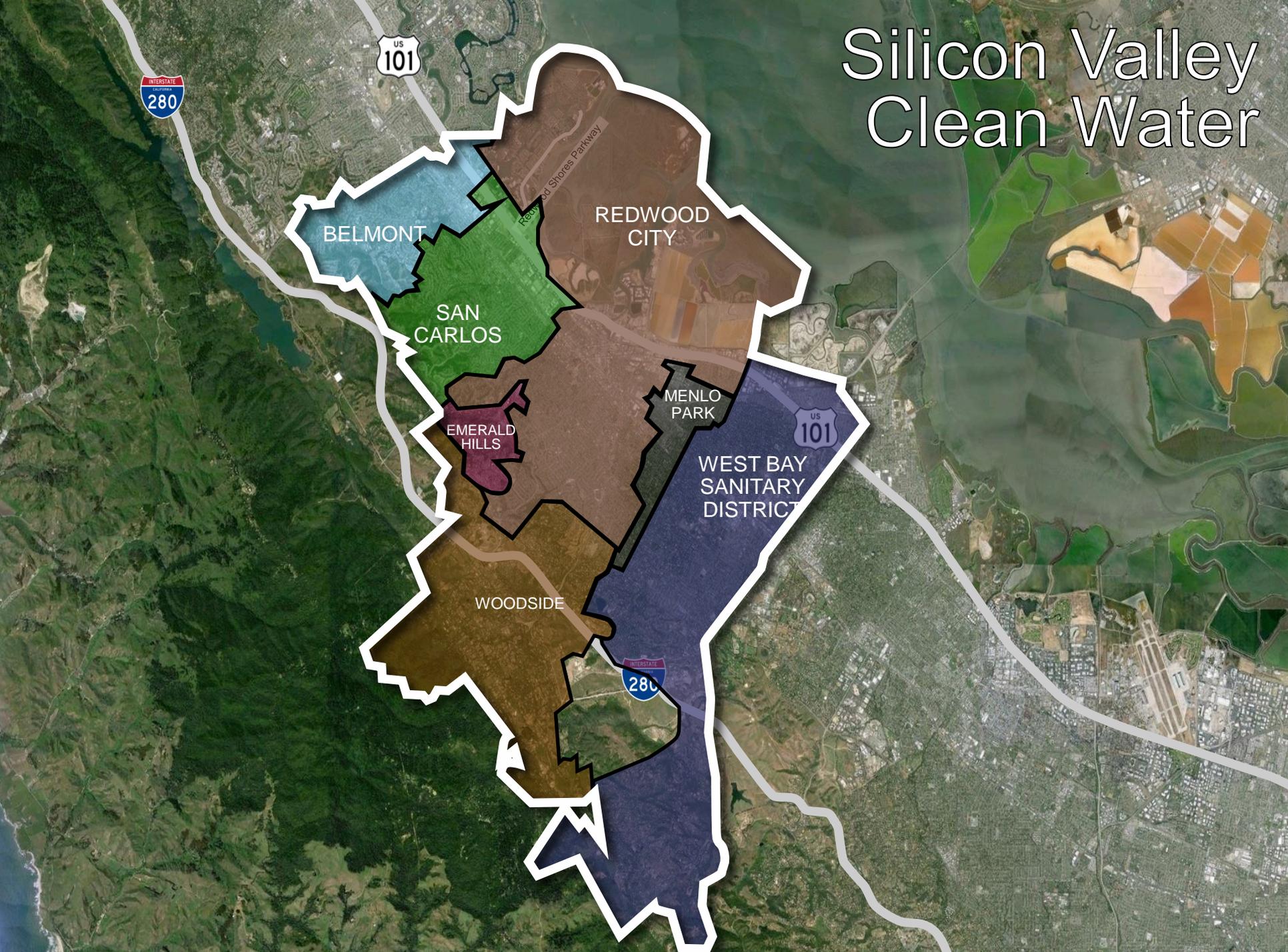
SVCW FoP Project Team

- SVCW Owner's Representative- Teresa Herrera
- Project Manager - Bill Bryan
- Owner's Advisor Charlie Joyce – Brown and Caldwell
- Connecting project – Gravity Pipeline
SVCW – Bruce Burnworth – Project Manager
Owner Advisor – Mark Minkowski, Kennedy/Jenks

Front of Plant Project – Overview

- **Background**
- **Project Elements**
- **Hydraulics**
 - **Diurnal and Seasonal Equalization**
- **Status of EIR, Permits and Easements**
- **Availability of SVCW Funding**

Silicon Valley Clean Water



BELMONT

SAN CARLOS

EMERALD HILLS

WOODSIDE

REDWOOD CITY

MENLO PARK

WEST BAY
SANITARY
DISTRICT

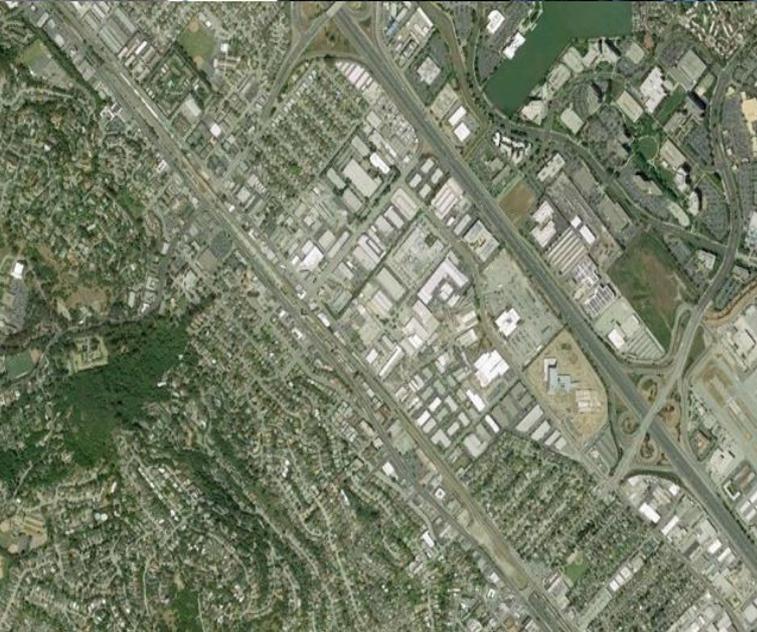


Problem we need to Solve

- ❖ 4 pump stations with a Booster Pump Station and Influent Lift Pumps
- ❖ Joints every 12' in RCP Force Main thru YBM
 - Design useful life = 25 to 50 years (ASCE; EPA)
 - Pipe is 45 years old
 - Currently operating at 2.5 times design pressure
 - 64 leaks so far; rate of failure is increasing
 - Leaks are time-consuming, disruptive and expensive to repair . . . potentially catastrophic.



**Pipe cracked
(not a joint separation)**

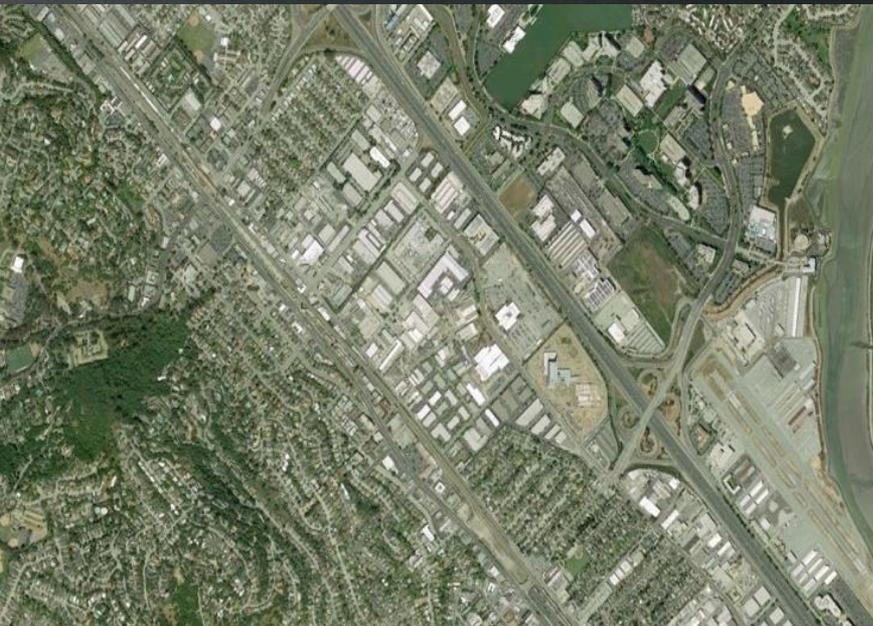


**Raw sewage flowing from
separated and offset joint**

**Adjacent to airport . . .
valve bonnet blew off . . .**



. . . raw sewage into the air



Major Failures Corrosion + Surge



Numerous Alternatives Considered

2012/2014

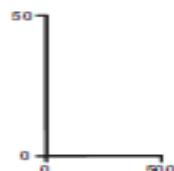
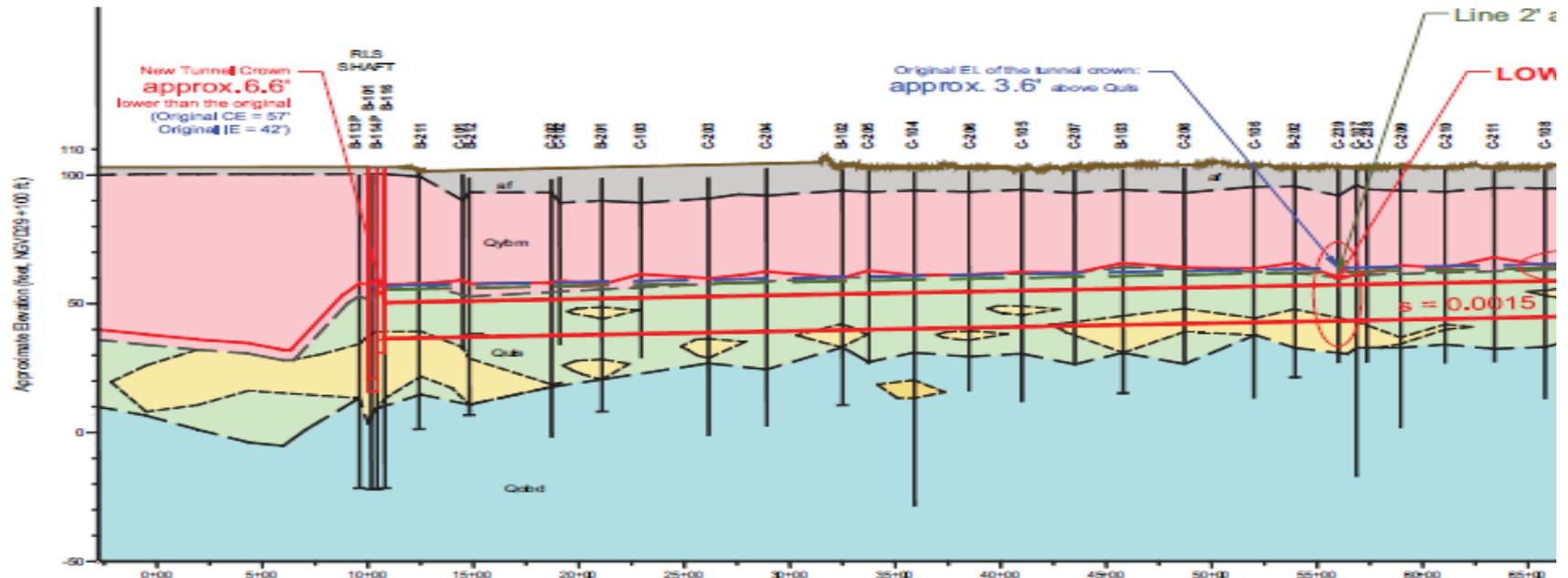
Pump Station Upgrades +
Open Cut in Street
Open Cut in Levee
Lay in Slough
Lay in Lagoon
Microtunnel (shallow)

2014/2015/2016

Microtunnel (deep)
Tunnel Boring Machine (deep)
From SVCW Plant
From near Airport
Sliplining (w/ bypass)
Parallel Smaller Pipes
Pipe Bursting (w/ bypass)
Replace in place (w/bypass)
Rehab/Replace 3 Pump Stations
New RLS



Geologic Profile



Explanation

- ARTIFICIAL FILL: Clay (CL, CH) and Sand (SP, SM)
- YOUNG BAY MUD: Very soft to medium stiff Fat Clay to Elastic Silty (CHMH)
- Bottom of very soft to stiff Young Bay Mud.
- UPPER LAYERED SEDIMENTS: Fine to stiff Clay (CL, CH)
- UPPER LAYERED SEDIMENTS: Medium dense to dense Sand (SP, SM), Gravely Sand (GP), and Sandy Gravel (GS)

Front of Plant

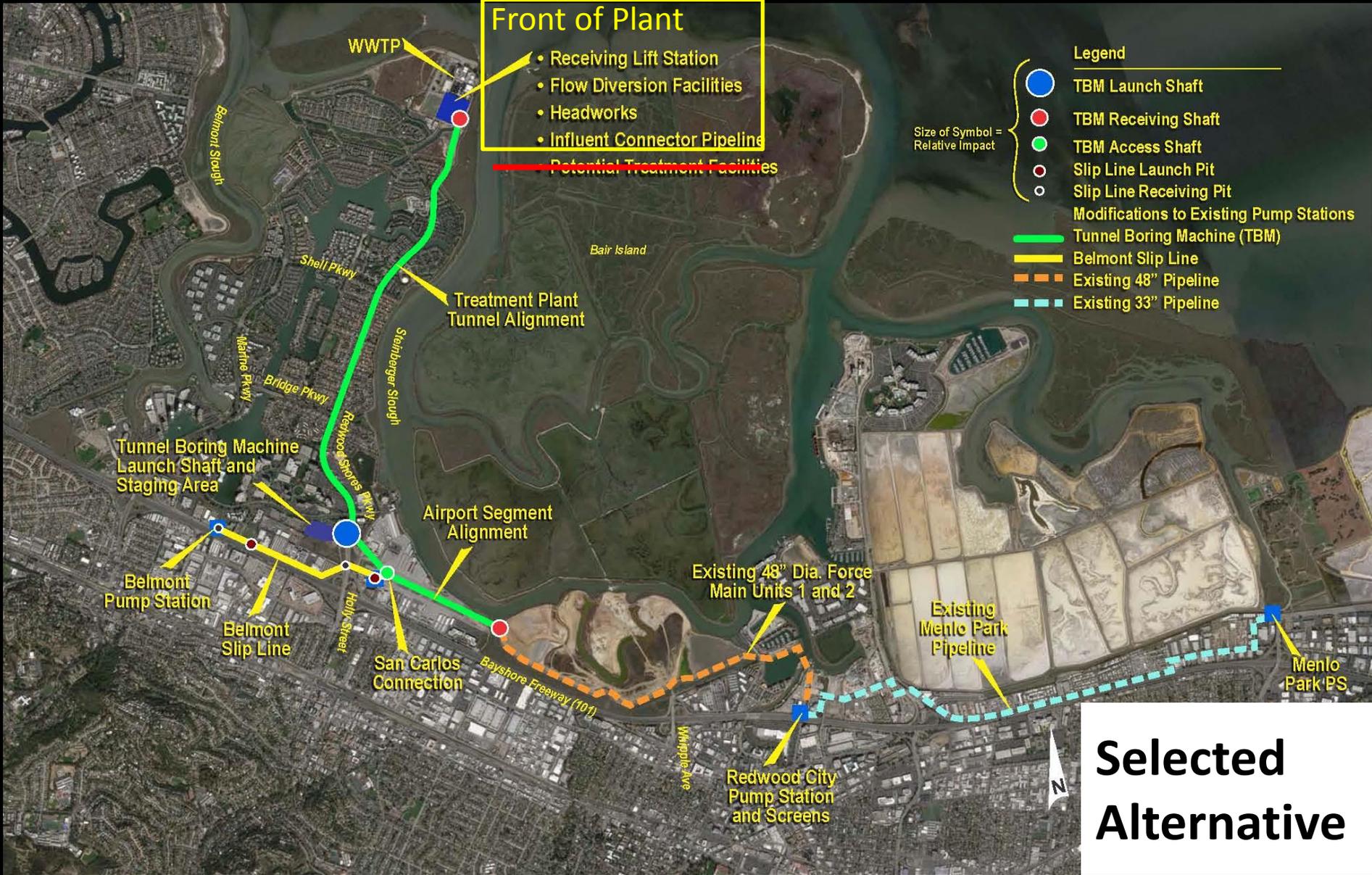
- Receiving Lift Station
- Flow Diversion Facilities
- Headworks
- Influent Connector Pipelines

~~Potential Treatment Facilities~~

Legend

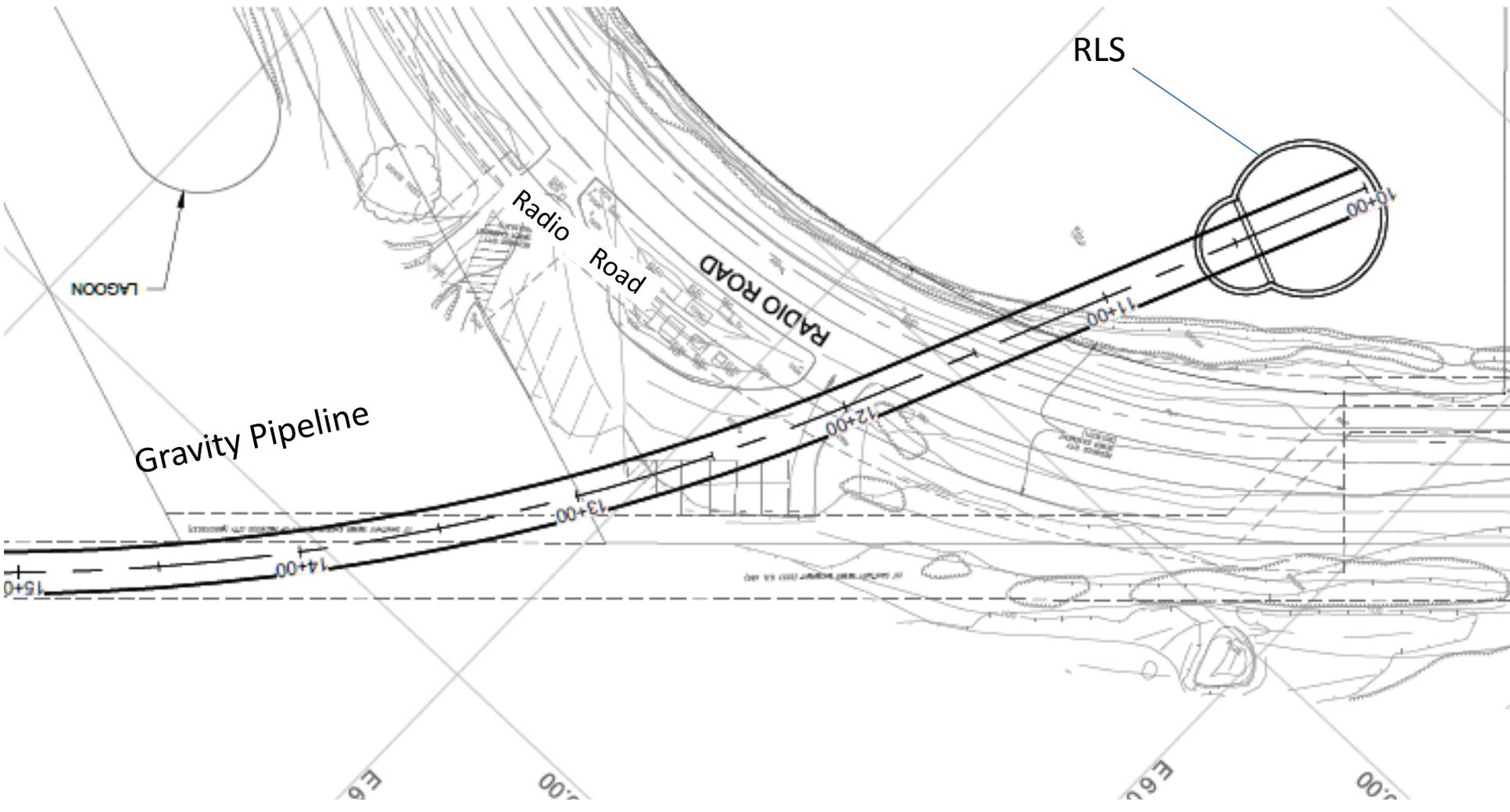
- TBM Launch Shaft
- TBM Receiving Shaft
- TBM Access Shaft
- Slip Line Launch Pit
- Slip Line Receiving Pit
- Modifications to Existing Pump Stations
- Tunnel Boring Machine (TBM)
- Belmont Slip Line
- Existing 48" Pipeline
- Existing 33" Pipeline

Size of Symbol = Relative Impact

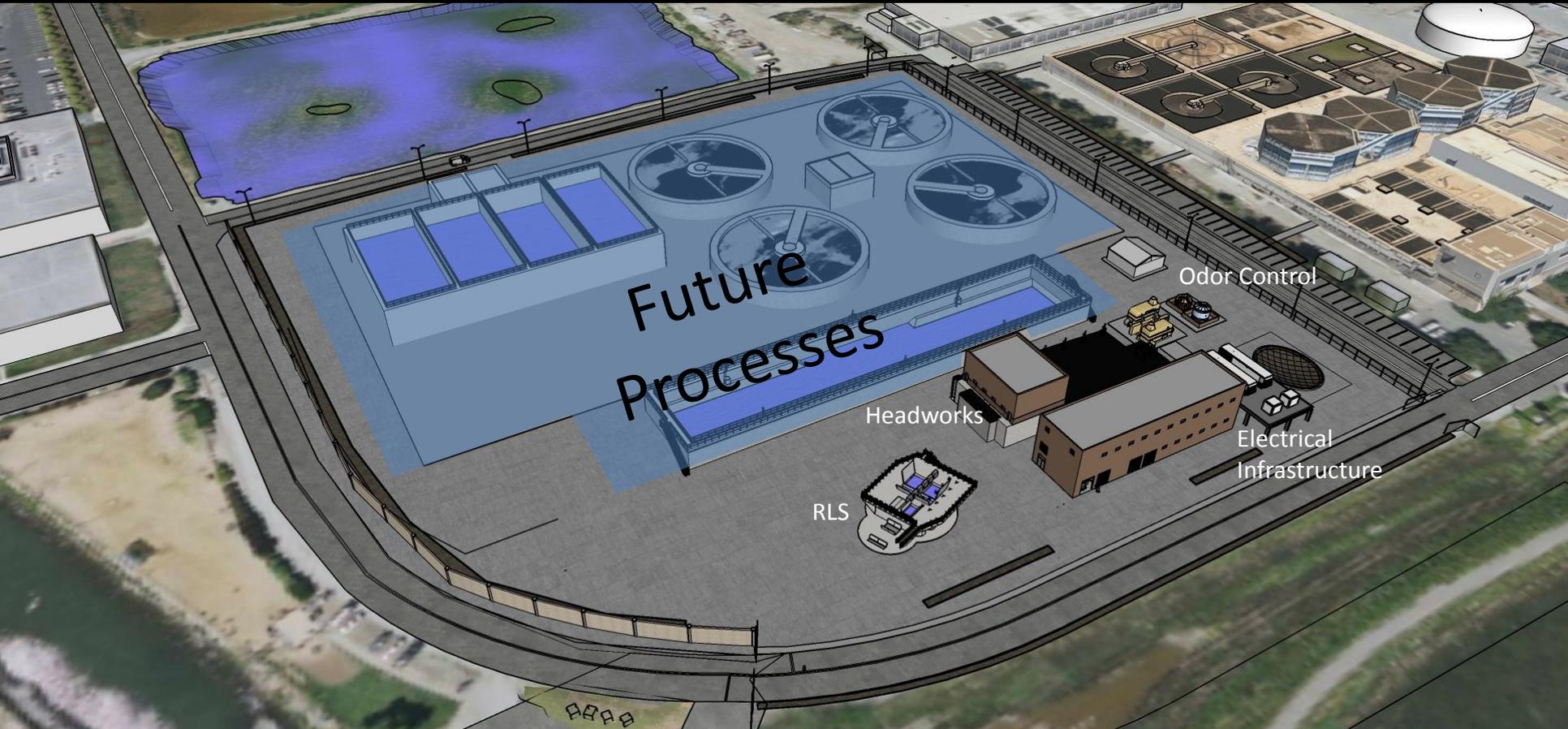


Selected Alternative

Gravity Pipeline Entering FoP



Front of Plant Facilities



FoP Facilities

- Receiving Lift Station
- Headworks
 - Screens
 - Grit Removal
- Influent Connection Pipe to WWTP
- Odor Control
- Electrical Power Infrastructure
- Civil Site Work

Front of Plant Facilities

- Receiving Lift Station
- Headworks
 - Screens
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- Influent Connection Pipe to WWTP
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2017 Site Preparation Effort

- All of the above completed under separate DBB in 2017
- PDB entity must field verify site conditions
- Electrical utilities are to be supplied by PDB entity

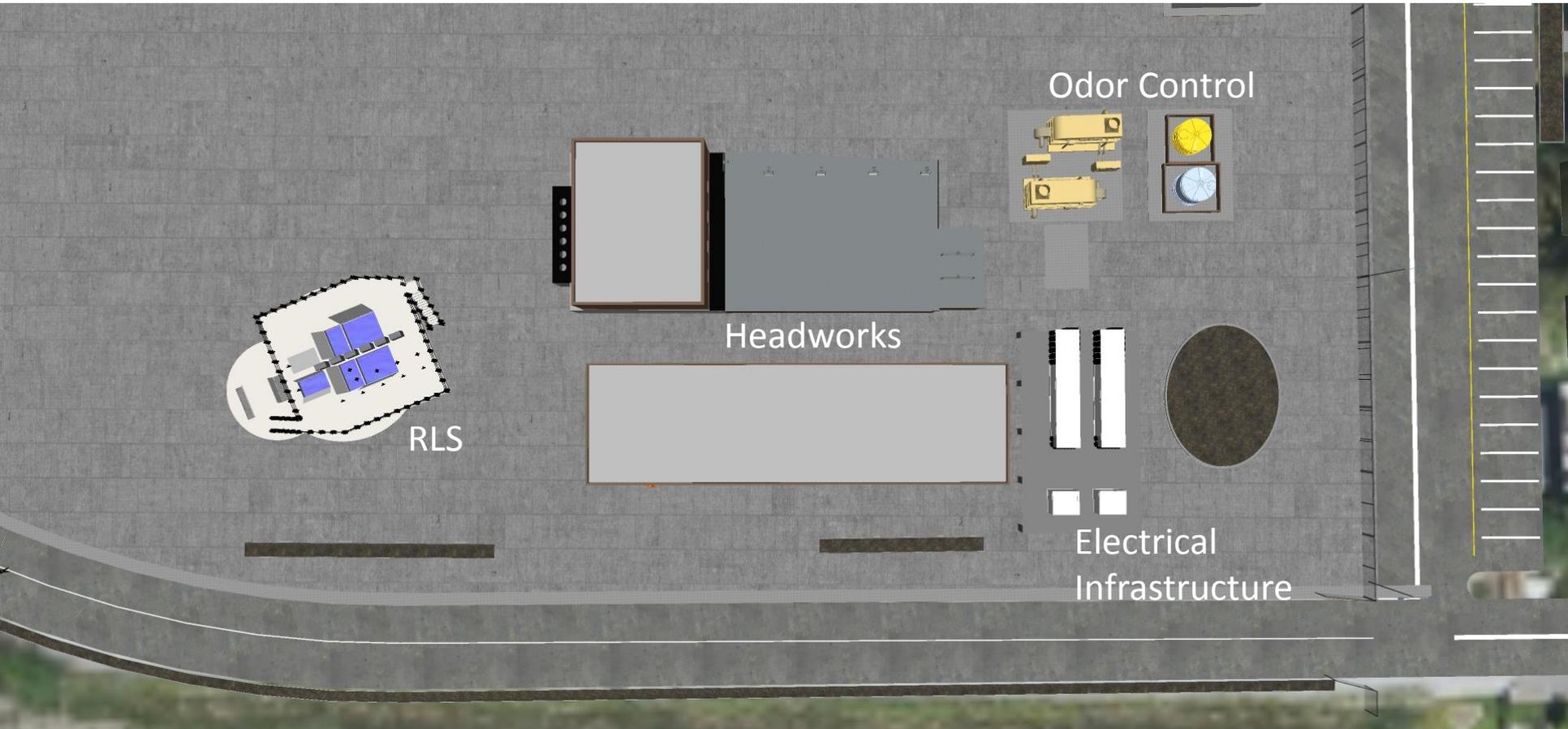
Current Project Concept

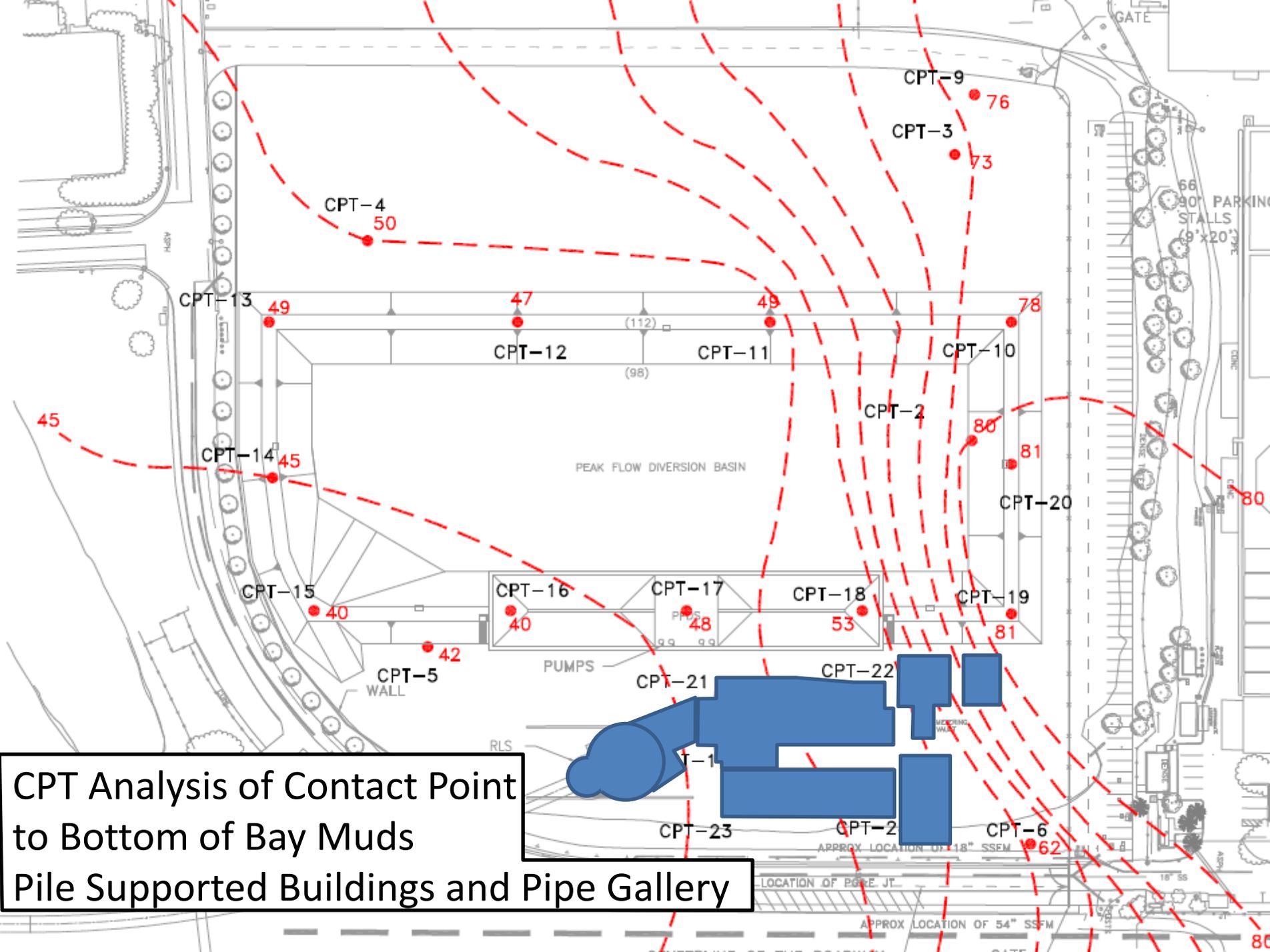
- SVCW will share the studies and alternatives developed to-date including summary planning reports
- We expect to work collaboratively with the PDB during Stage 1 to refine, revise or change these concepts to best meet SVCW objectives

Design Progression during Preconstruction

- Selected PDB Entity is encouraged to propose alternative designs
- Selected PDB Entity is encouraged to propose cost savings and optimization improvements
- Selected PDB Entity must develop collaborative relations with SVCW O and M

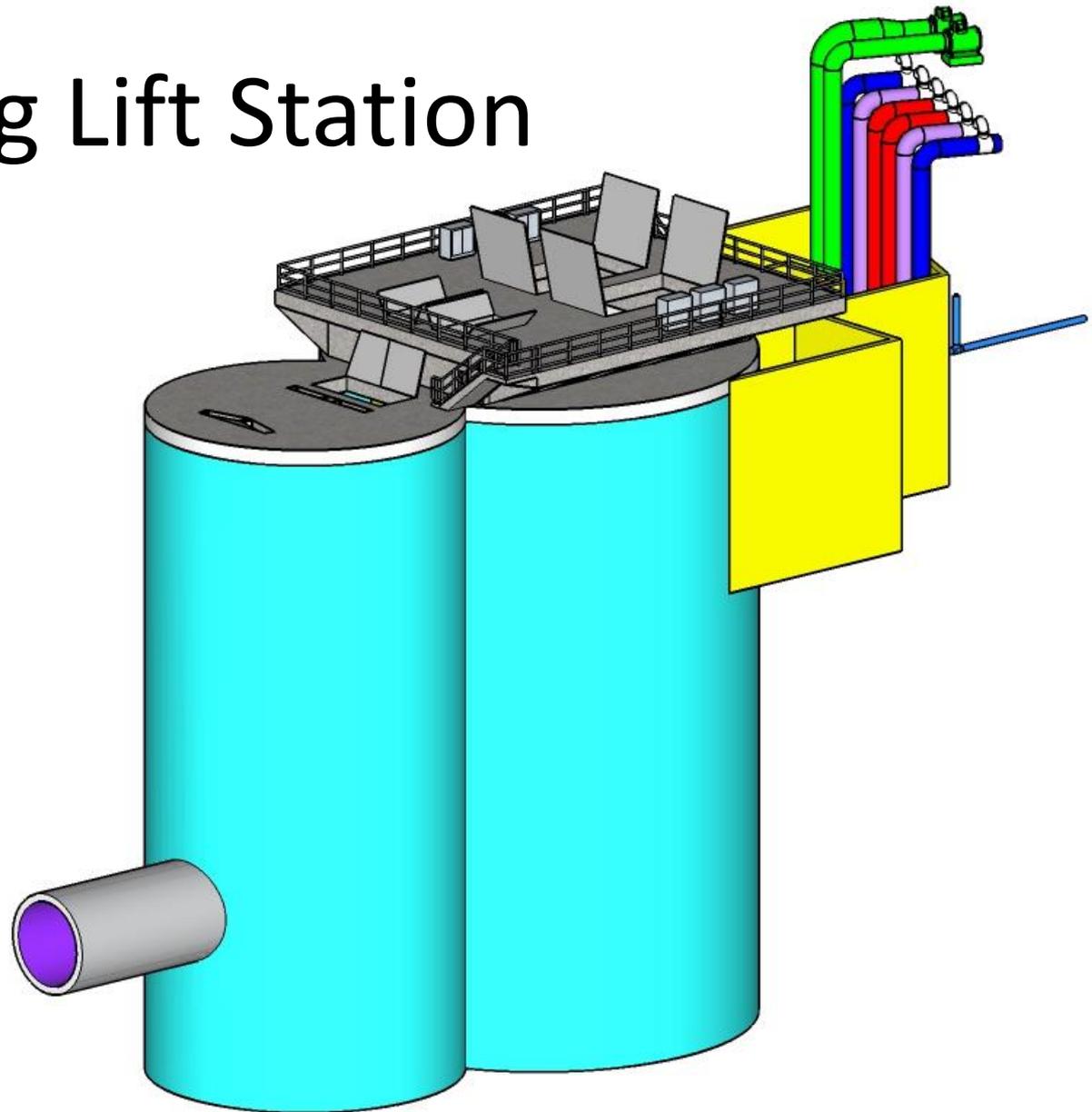
Front of Plant Facilities



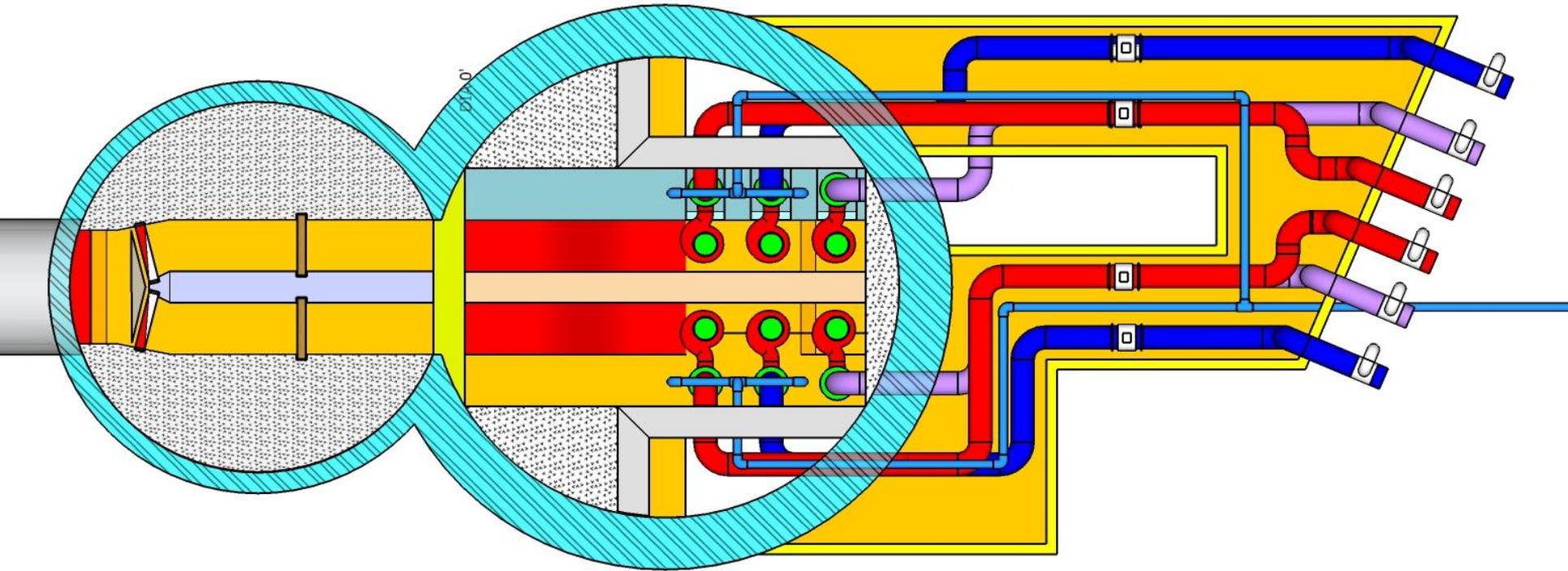


CPT Analysis of Contact Point to Bottom of Bay Mud
 Pile Supported Buildings and Pipe Gallery

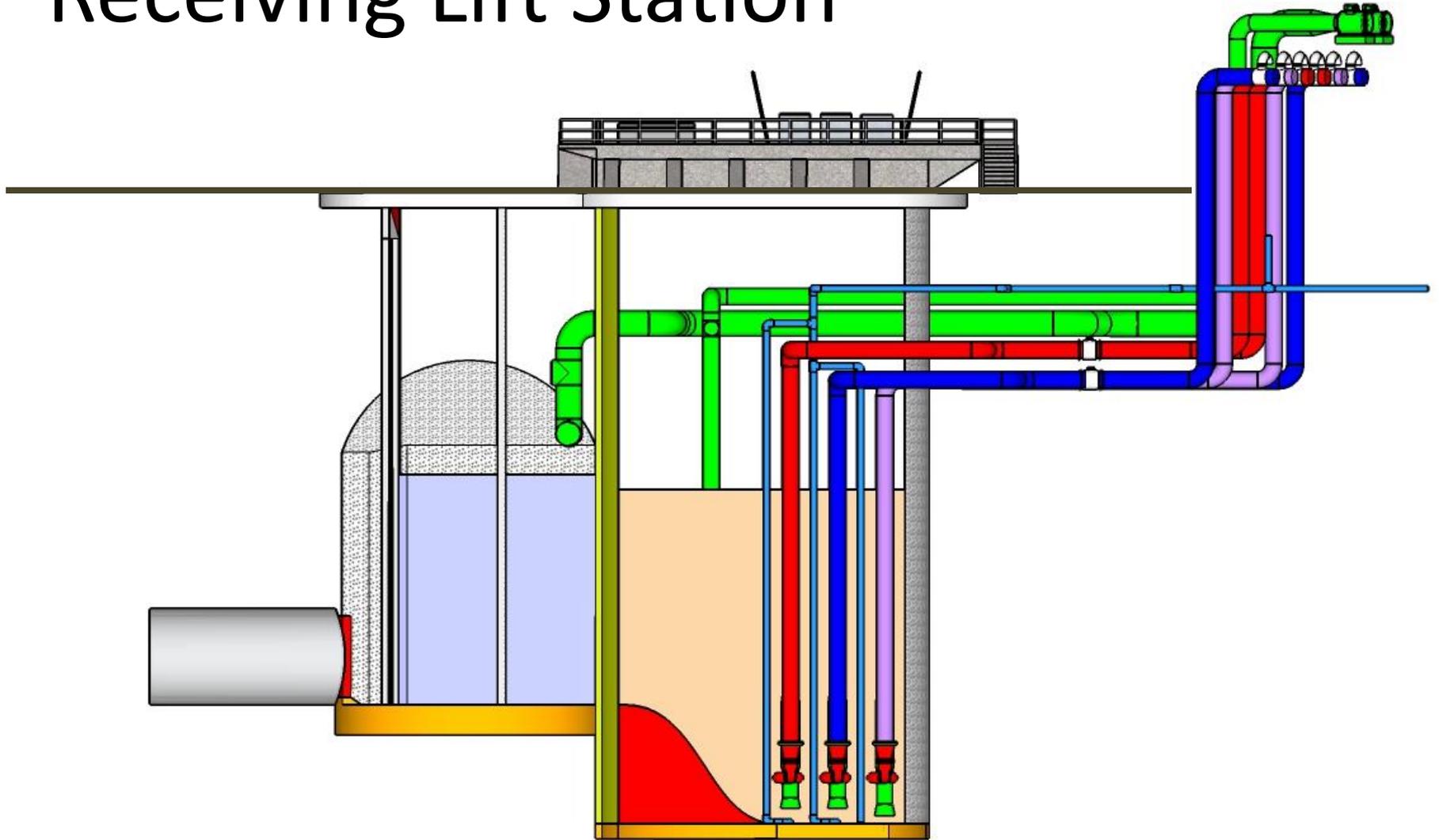
Receiving Lift Station



Receiving Lift Station



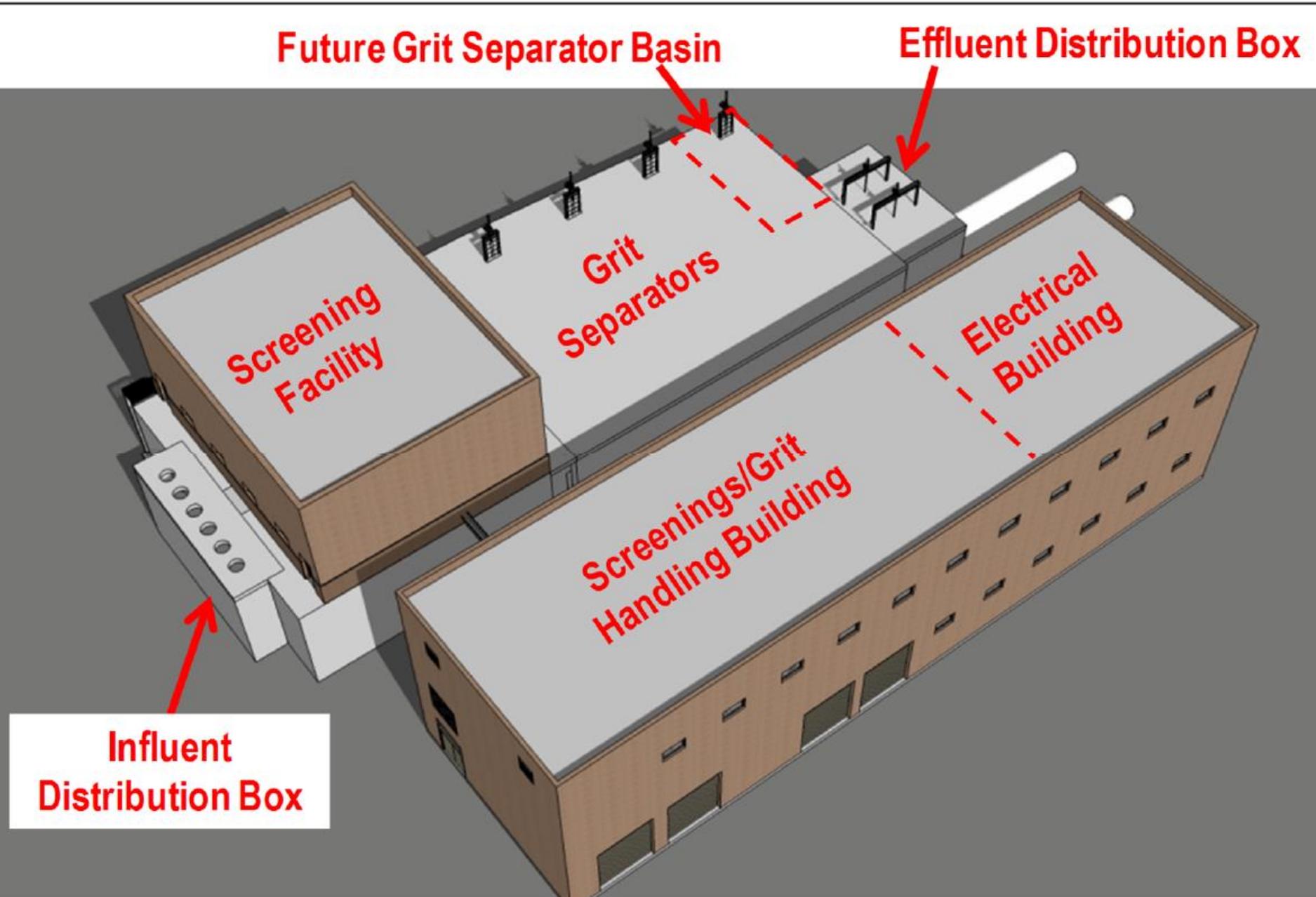
Receiving Lift Station



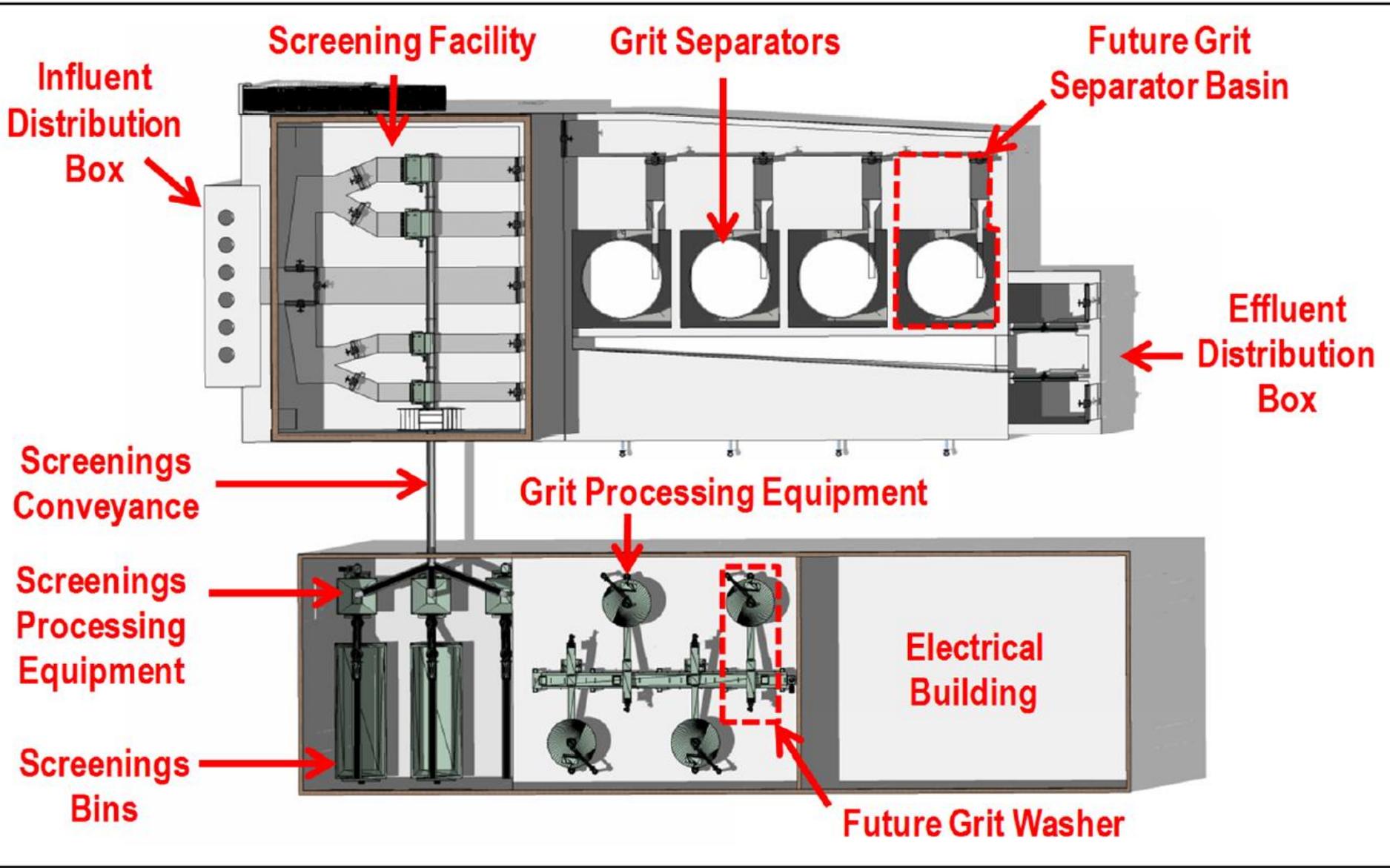
Headworks



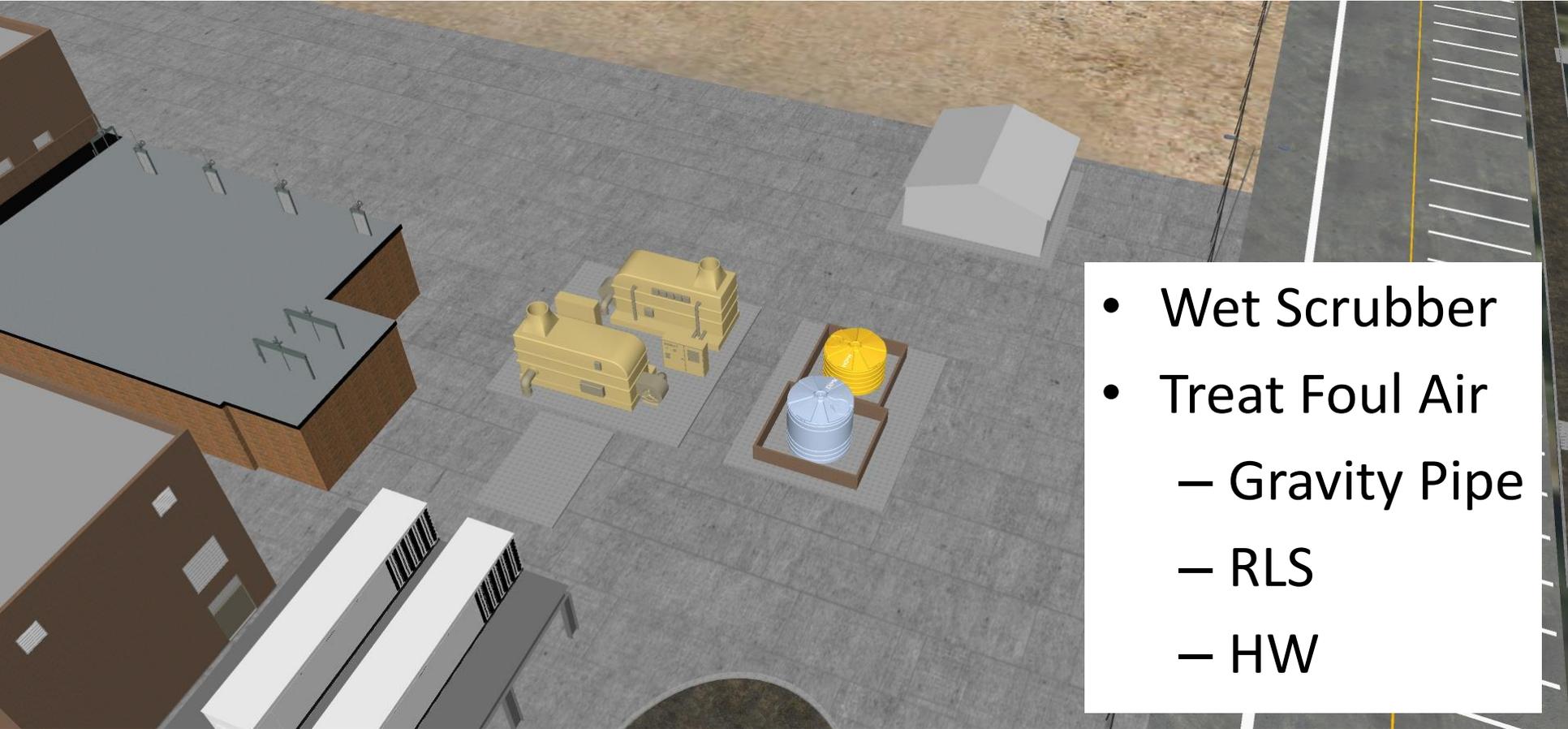
Headworks



Headworks



Odor Control



- Wet Scrubber
- Treat Foul Air
 - Gravity Pipe
 - RLS
 - HW

RLS shaft configuration— coordination with Gravity Pipeline

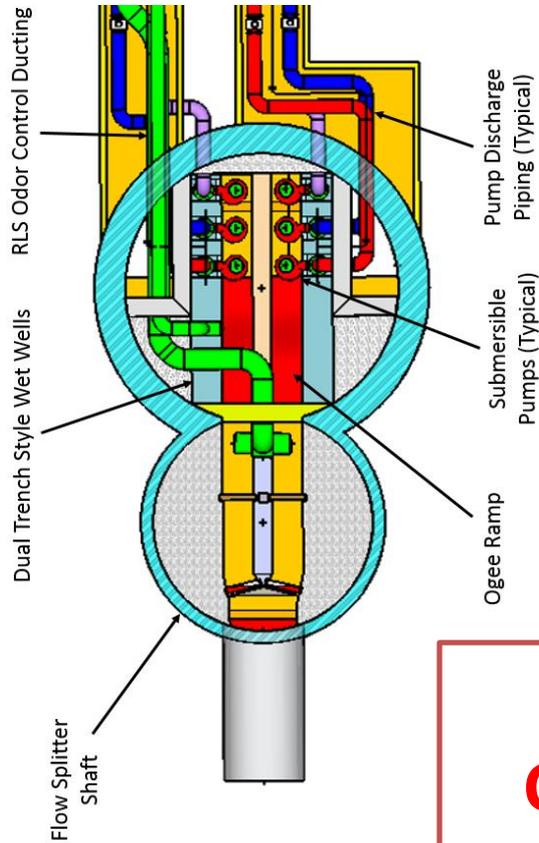
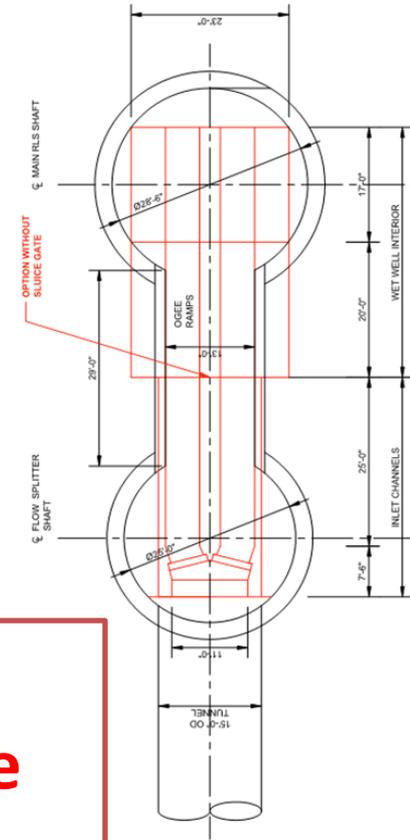


Figure 8

Early Collaborative Decisions



Dog Bone

RLS Submersible Wet Wells

Early Collaborative Decisions

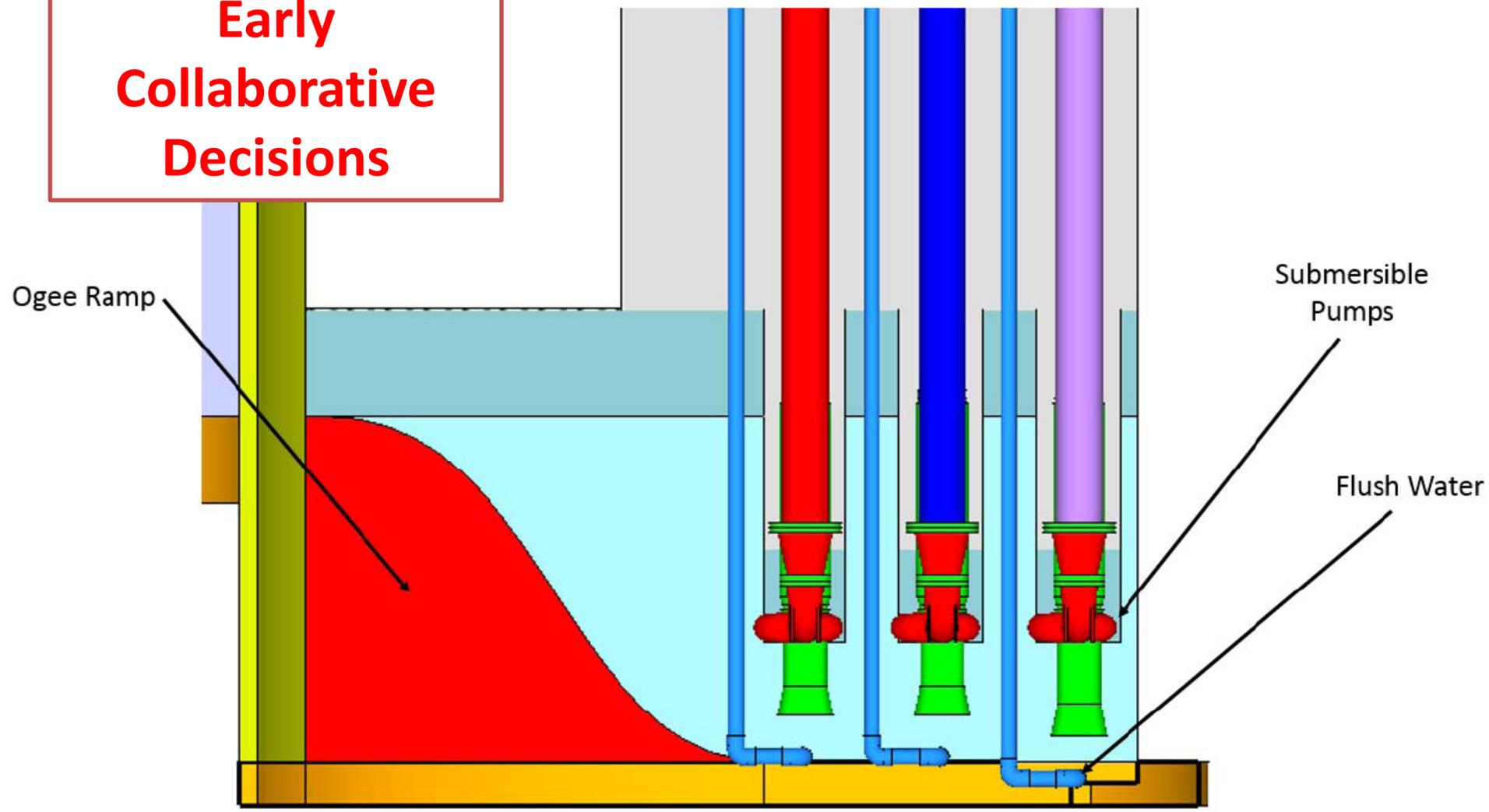


Figure 5-6. RLS wet well concept - section view

FoP Conceptual Flow Conditions

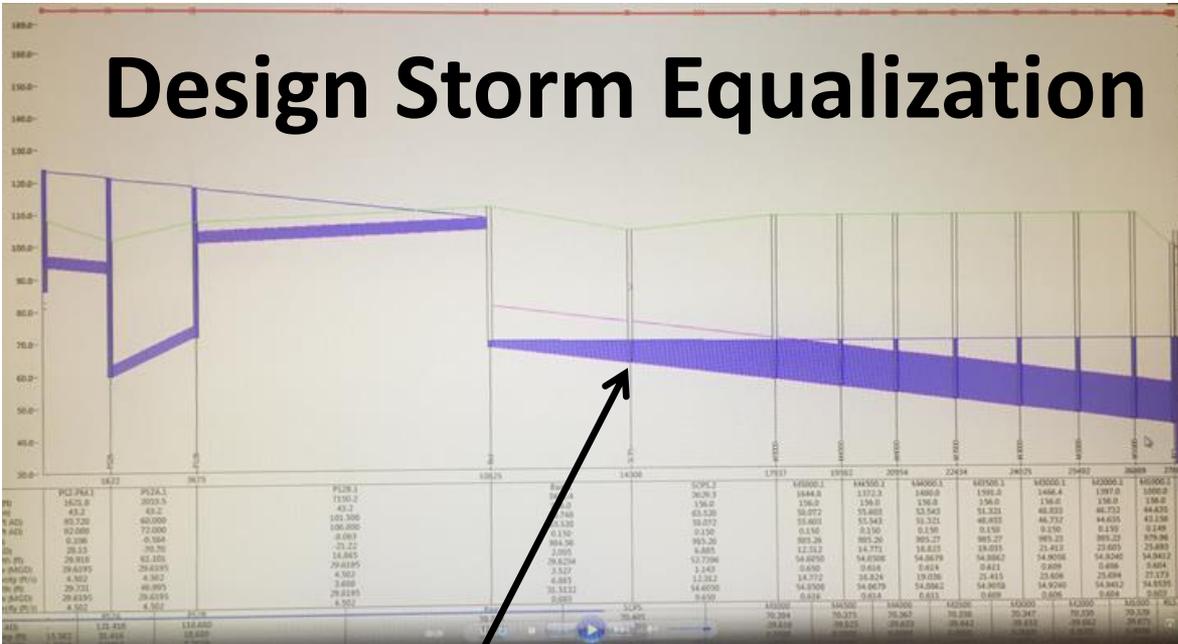
Flow Condition	Influent (mgd)		Existing (mgd)	Future (mgd)
	Exist	Future		
Average DWF	11.8	17.9	12-14	13-15
Peak DWF – hourly	22.5	33.9	22(1)	22(1)
Min DWF – hourly	2.7	3+	10-12	10-13
PWWF	90+	103	80	80

(1) Wet well cleaning cycle

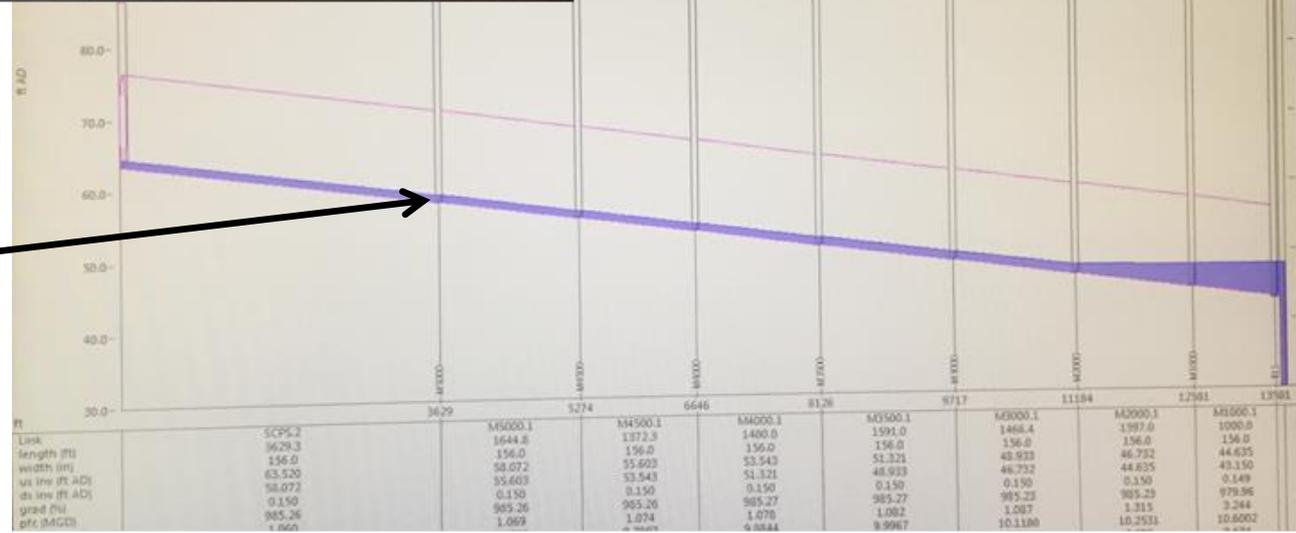
- Gravity Pipeline flow storage
 - Dry weather diurnal flows
 - Wet weather storage above RLS Capacity

Hydraulics

Design Storm Equalization

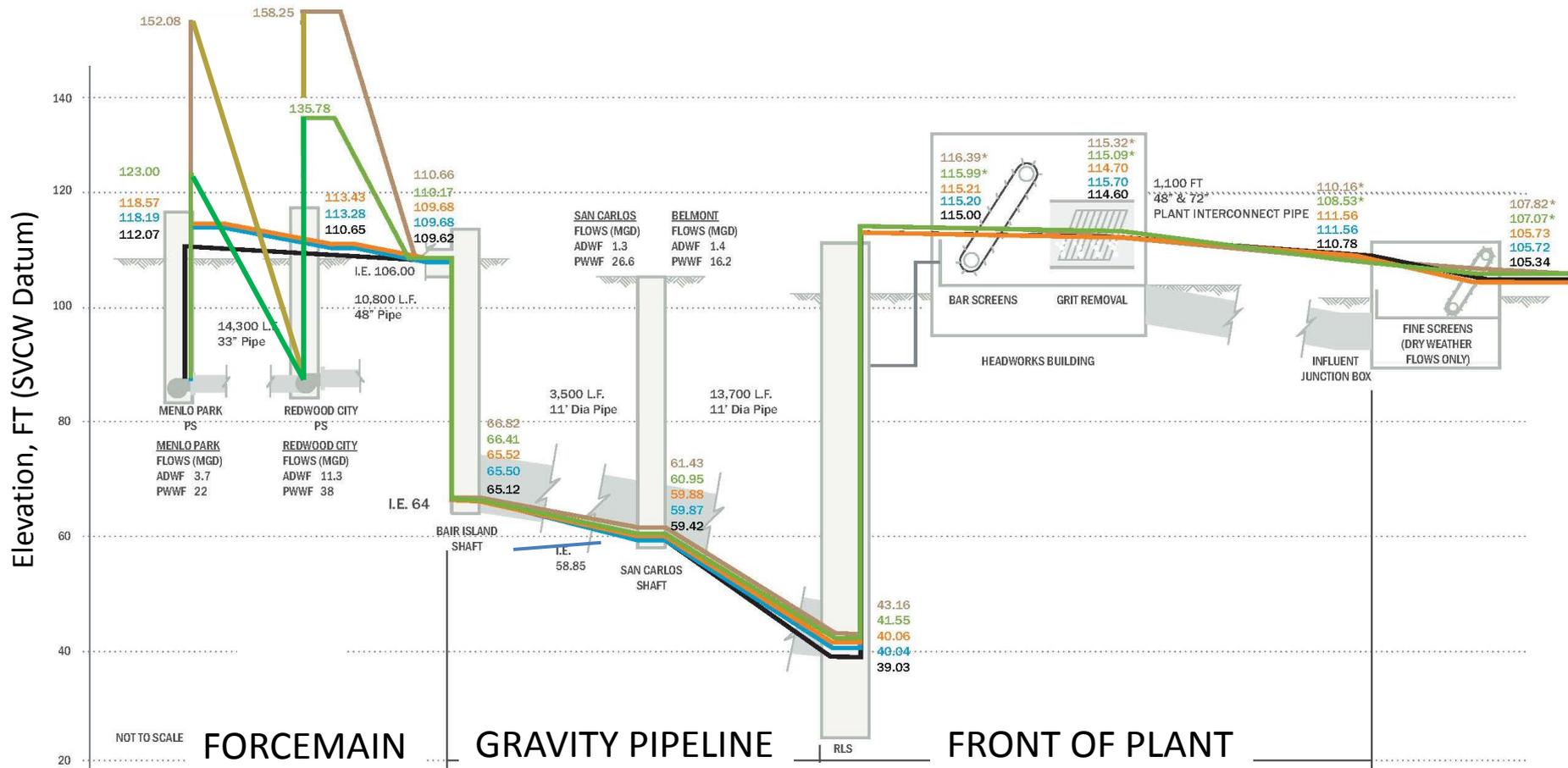


Diurnal Equalization



San Carlos Drop Structure

FoP Conceptual Hydraulic Gradeline



- 80 MGD PWWF
- 60 MGD Peak Process Flow
- 23 MGD 72-inch ICP Used
- 22.5 MGD 48-inch ICP Used
- 12.5 MGD Equalized ADWF

* Fine screens bypassed in this scenario

EIR Status

- Draft EIR November 2016
- Comments Due January 2017 (very few comments)
- Adoption expected April 2017

Environmental Permits

- Environmental Permit Applications submitted December 2016
 - BCDC
 - California F&WS
- Expected October 2017
- SVCW anticipates obtaining its own Air Permit to construct

Funding

- SVCW has bonding capacity to obtain bonds for entire program
- SVCW is pursuing less expensive funding
 - SRF
 - WIFIA

Procurement Process and Stages of Design-Build

- Why Progressive Design Build
- RFQ/RFP
- Stage 1/Stage 2 with Phases
- Schedule

Why Progressive Design Build

- Coordinate and accelerate completion of overall Project relative to DBB delivery
- Promote a cooperative and collaborative relationship between SVCW and the PDB team
- Incorporate ongoing cost modeling and take a “design-to-budget” approach
- Flexibility for phased design and construction
- Early and ongoing staff involvement and training

RFQ/RFP Process

- Step 1:
 - RFQ issuance,
 - Pre-submittal meeting
 - Reference checking
 - Interviews with selected Respondents,
 - Shortlisting of three (or up to four) Respondents.
- Step 2:
 - RFP issuance to short-listed Respondents,
 - Pre-Proposal Meeting
 - Confidential Meetings with each short-listed Respondent
 - Reference checking
 - Interviews
 - Selection of winning Respondent
 - Negotiation of Progressive Design Build Contract
(Stage 2 pricing via amendment)

Stage 1/Stage 2 with Phases

- Stage 1
 - Collaboratively bring the design from a 5% to 10% level to a 60% to 70% level
 - Negotiate Stage 2 Contract Pricing and Schedule
- Stage 2
 - Final design (100%)
 - Construction
 - Testing and Start-up including 3-6 month cooperation of facilities.
- Phases
 - As needed to move project forward

Anticipated Schedule

- Issue RFQ Shortly after April 13
- SOQ Submission End of May
- Shortlist and RFP Early June
- Proposals Due Late August
- Stage 1 Approval September or October
- Stage 1 NTP October or November
- Stage 2 Approval Late 2018

Construction: Two to three years

Key Parts of the RFQ

- Project or RESCU Success Factors
 - A successful project is a balance of these
- Front of Plant Project Objectives
 - Collaboration and O and M involvement are key
- Availability and use of background information
 - SVCW Website Based
 - Planning reports and the EIR
 - Proposers should not be limited by the concepts shown
- Required elements of SOQ

RESCU Success Factors

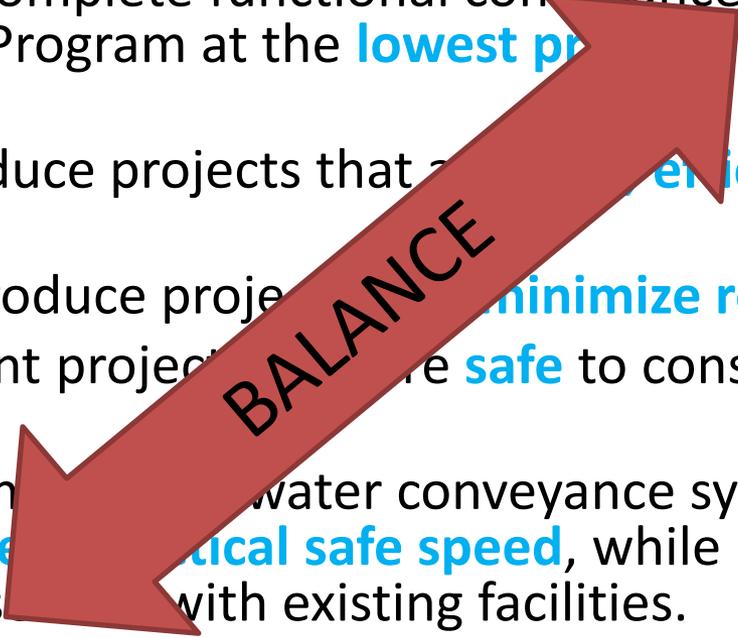
“Success” - **collaboratively** implementing an **appropriate balance** of the following:

- **Cost:** Provide a complete functional conveyance system that meets the goals of the Program at the **lowest practical capital and lifecycle cost.**
- **Operations:** Produce projects that are **easy, efficient, and effective to operate.**
- **Maintenance:** Produce projects that **minimize required maintenance.**
- **Safety:** Implement projects that are **safe** to construct, operate, and maintain.
- **Schedule:** Place new wastewater conveyance system projects into operation with **best practical safe speed**, while maintaining the present level of service with existing facilities.
- **Stakeholder Impacts:** Solicit, evaluate, and respond to stakeholder’s concerns, and implement a Program that **best meets the combined needs of stakeholders while reaching the Program’s goals.**

RESCU Success Factors

“Success” - **collaboratively** implementing an **appropriate balance** of the following:

- **Cost:** Provide a complete functional conveyance system that meets the goals of the Program at the **lowest possible capital and lifecycle cost.**
- **Operations:** Produce projects that are **efficient, and effective to operate.**
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- **Stakeholder Impacts:** Solicit, evaluate, and respond to stakeholder’s concerns, and implement a Program that **best meets the combined needs of stakeholders while reaching the Program’s goals.**



BALANCE

Front of Plant Project Objectives

- **Quality:** Provide a FoP that will be sustainable over **50 years** and will reliably receive, convey and **wastewater flows** ranging from 2 mgd to 103 mgd in full compliance with environmental requirements.
- **Cost:** Provide complete functional facilities that meet the goals of the Project at the **lowest practical capital and lifecycle cost**. Provide early and ongoing **cost predictability**.
- **Schedule:** Bring new facilities online as soon as practicable so that the **existing failing pipeline and pump stations** can be taken out of operation as early as reasonably possible.
- **Risk:** Generally assign to the Design-Builder the **risks that the Design-Builder can reasonably anticipate and control**. Assign to SVCW the risks that the Design-Builder cannot reasonably anticipate and control.
- **Safety:** Implement an effective safety program incorporating **best practice industry practices**.
- **Accountability:** Design-Builder to provide for **a single point of accountability** for performance of all services under Stage 1 and Stage 2. SVCW to provide a single point of accountability for all direction to the Design-Builder.
- **Collaboration:** Implement an **integrated design process** that collaboratively includes SVCW management, engineering, **operations and maintenance** as well as the Design-Build contractor and engineer to develop a design that **optimally achieves SVCW success factors and FoP requirements**.
- **Innovation:** **Apply proven technology** from other locations to **uniquely achieve FoP goals**.

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BALANCE

Required Elements in RFQ

- Team structure
 - (responsible designers and construction principles for the RLS, Headworks and Odor Control Systems)
- Key personnel and resumes for above
- Experience collaborating with owners
- Experience coordinating with other projects
- Experience collaborating with Operations and Maintenance
- Demonstrated methods of delivered project safety

Pass fail items, financial, insurance, bonding, etc.

Estimates, Budgets and Pricing

- Budget vs Current Cost Estimate
 - Design to budget
- Firm Lump Sum for Stage 1-Preconstruction
- Markups for Stage 2
- Indicative Pricing for Stage 2-Construction
 - Based on project as currently defined in EIR
 - Indicative pricing not planned to be used in scoring

Focus Areas during early PDB Preconstruction Services (Stage 1)

- RLS shaft – coordination with Gravity Pipeline
- Equipment configuration and sizing
- Hydraulic conditions
- Final Diameter of Gravity Pipeline
- Shaft configuration, structural needs, construction timing and access
- Connection point to WWTP
- Early online use of Headworks
- Project cost and schedule

Project Cost and Schedule

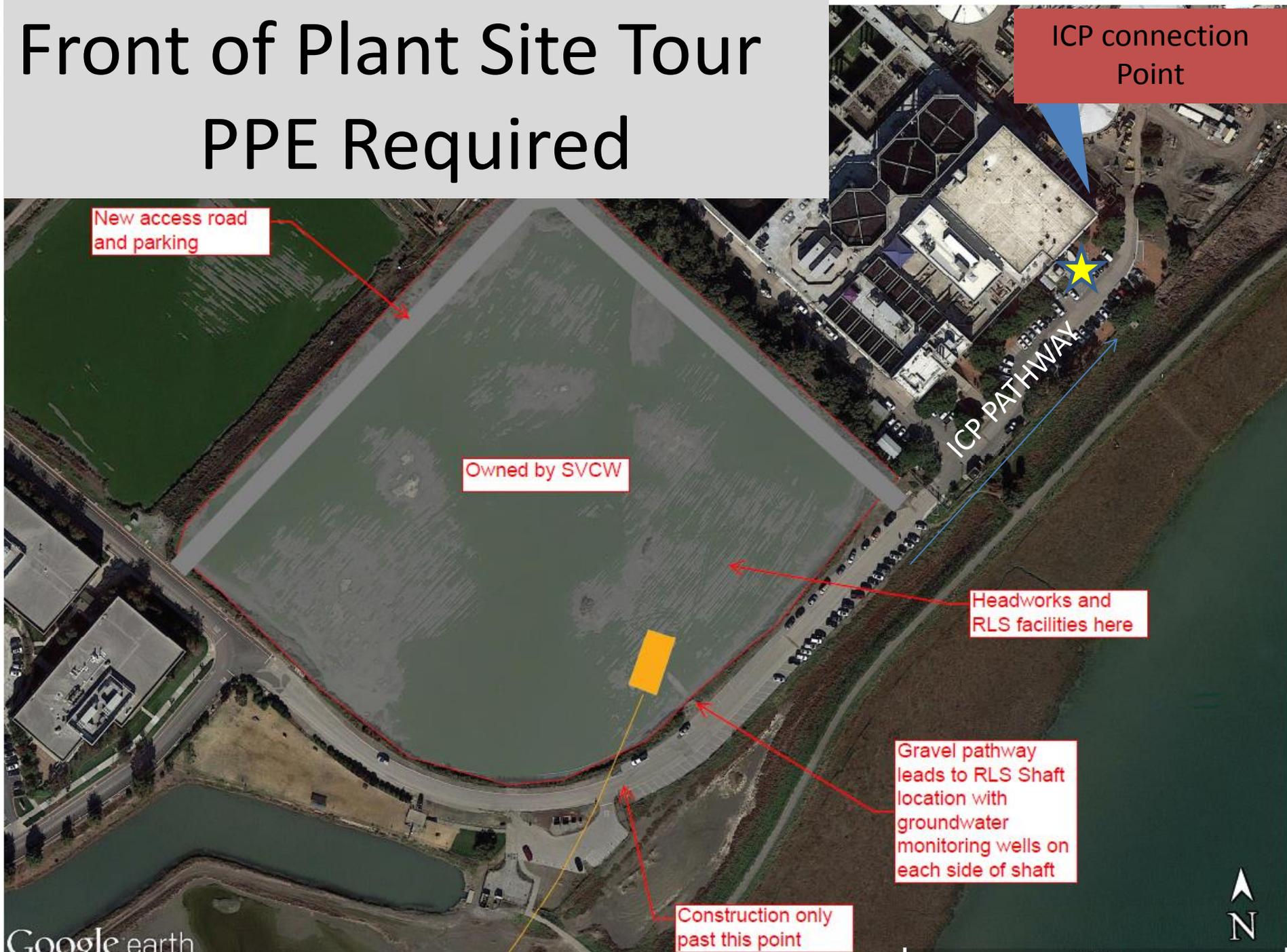
- Reduce FoP cost
- Accelerate FoP schedule
- Achieve 50 year service life
- Achieve diurnal and wet weather equalization

Available at SVCW.ORG

- Now
 - Draft EIR
 - Previous (and Today's) Presentations
 - Notice to Prospective Designers and Contractors
 - List of Ineligible Firms and Required Firm
- At RFQ Issuance
 - Project Planning Reports
 - Geotechnical Data
 - Includes detailed cost estimates; capital and life cycle
 - Details current outstanding issues

Front of Plant Site Tour

PPE Required



ICP connection Point

New access road and parking

Owned by SVCW

ICP PATHWAY

Headworks and RLS facilities here

Gravel pathway leads to RLS Shaft location with groundwater monitoring wells on each side of shaft

Construction only past this point



More questions?

FrontofPlant@svcw.org

Thank you for your interest!



SVCW
Silicon Valley Clean Water

RESCU

Regional Environmental
Sewer Conveyance Upgrade