

# Headworks Rehabilitation at Plant No. 1, Project No. P1-105

Presented by:

Raul Cuellar, Engineering Manager

Contingency Increase

Operations Committee  
April 2, 2025

**OC SAN**  
ORANGE COUNTY SANITATION DISTRICT

1

## Plant No. 1 Headworks Facilities



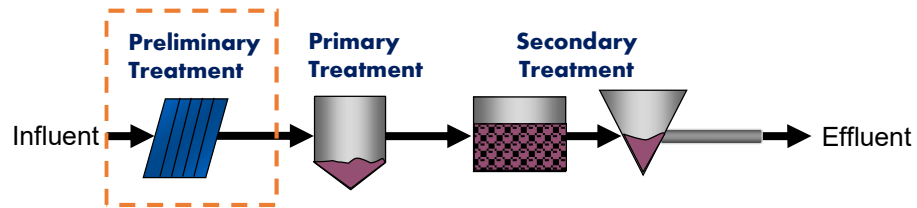
30 years in service



2

2

## Preliminary Treatment (Headworks) Protects Subsequent Treatment Process



Bar Screen

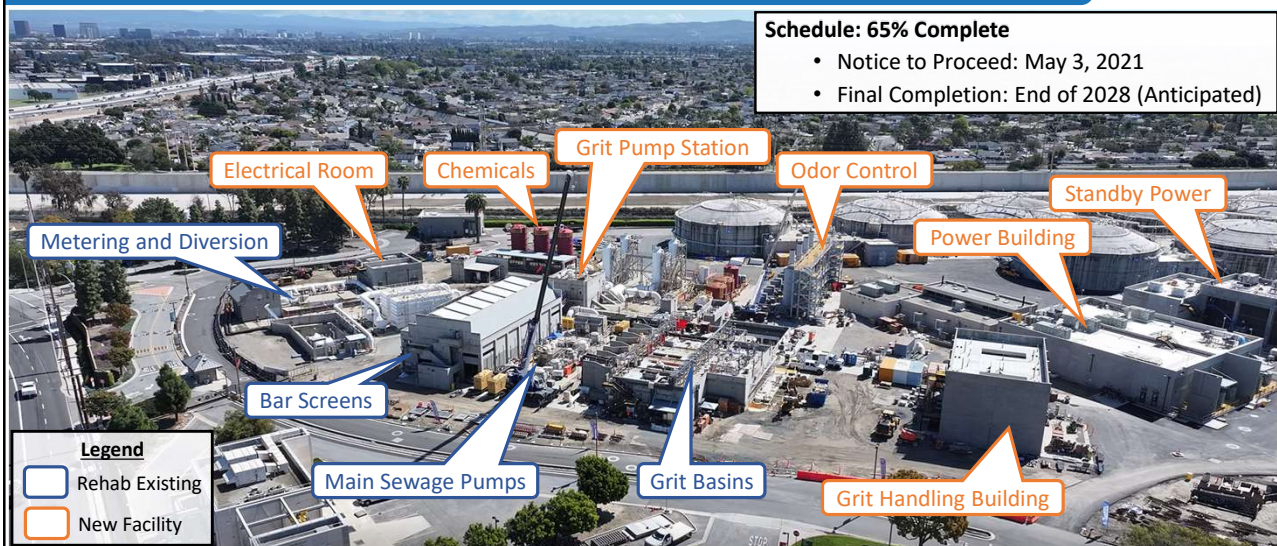


Grit waste

3

3

## Biggest Construction Contract: \$222M

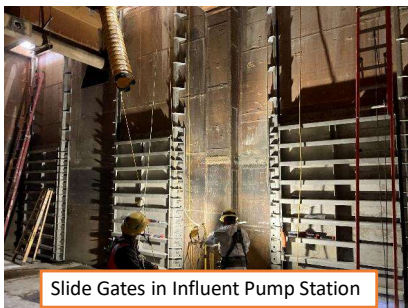


4

4



## Recent Construction Progress

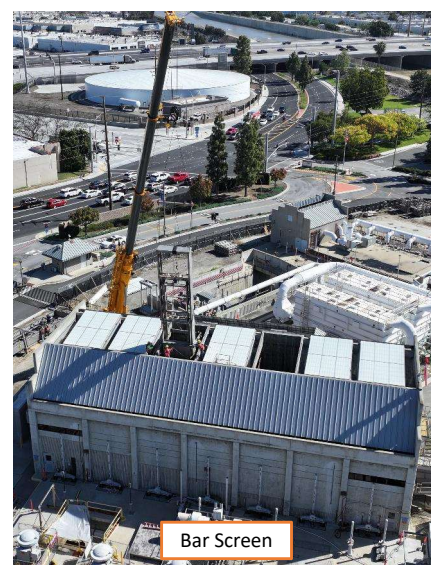


5

5

## Construction Complexities

- Must maintain facilities during construction
- Work must be performed in prescribed sequence
  - Dry weather only activities (Apr 15 to Oct 15)
- Major shutdowns
- Flow diversions required
- Rehab work involves unknown conditions
- Extensive confined space entry work



6

6

## Bid Results – January 19, 2021

Bidder	Amount of Bid
<b>Engineer's Estimate</b>	<b>\$292,299,000</b>
★ Kiewit Infrastructure West Co.	\$222,330,000
J.F. Shea Construction, Inc.	\$259,506,000
Shimmick Construction Co., Inc.	\$276,611,500

At the time of the construction contract award (March 2021) staff proposed a lower than usual contingency (4%) for a rehabilitation project and planned to present a mid-construction review to the Board, highlighting the progress and risks encountered to date.

7

7

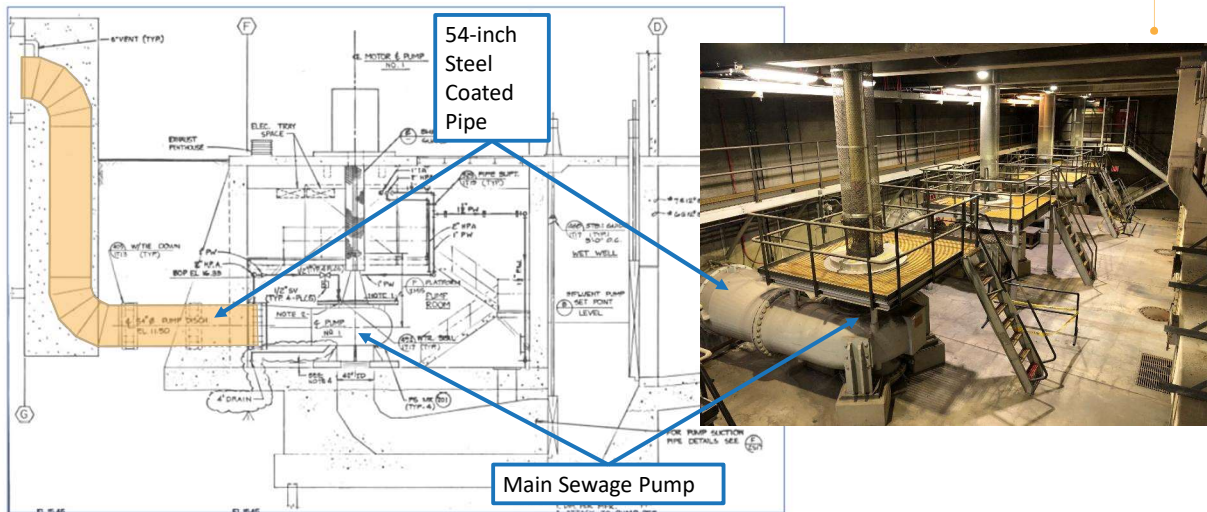
## Summary of Major Changes to Date

Change	Amount (\$)	Percentage (%)
1. Rehabilitation of five main sewage pumps 54-inch discharge pipes	\$2,000,000	0.9%
2. Power Building No. 3 electrical equipment changes	\$1,500,000	0.7%
3. Additional temporary bypass systems	\$770,000	0.3%
4. Additional polyvinyl chloride (PVC) liner repairs	\$750,000	0.3%
5. Unknown utilities and additional demolition	\$320,000	0.1%
<b>Total Major Changes</b>	<b>\$5,340,000</b>	<b>2.4%</b>
<b>Approved Construction Contingency - March 2021</b>	<b>\$8,893,200</b>	<b>4.0%</b>

8

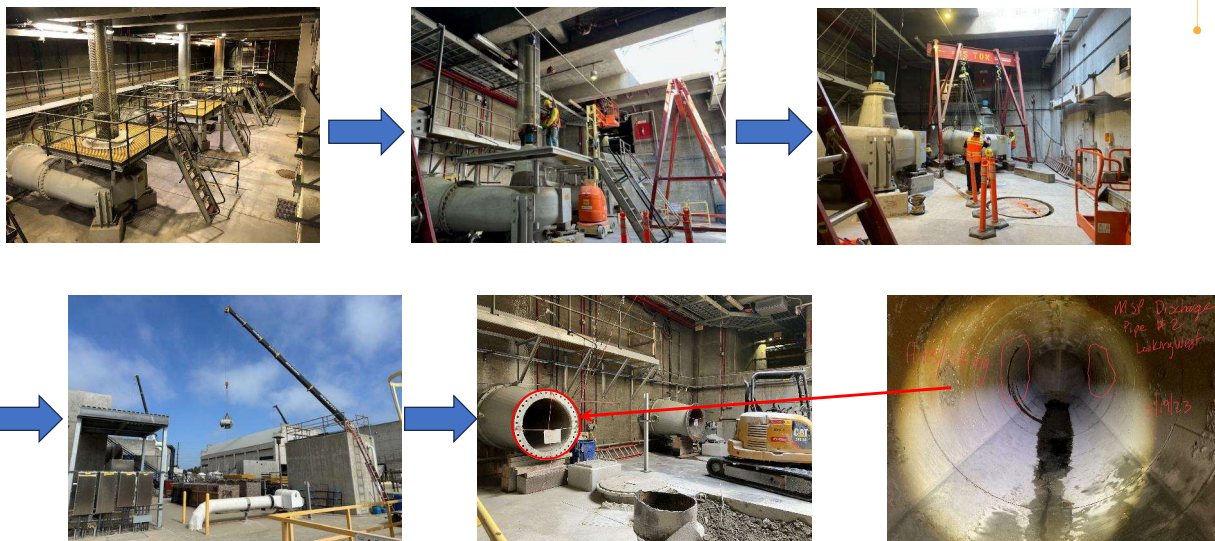
8

## 1. Main Sewage Pumps 54-in Discharge Pipes



9

## 1. Main Sewage Pumps 54-in Discharge Pipes



10

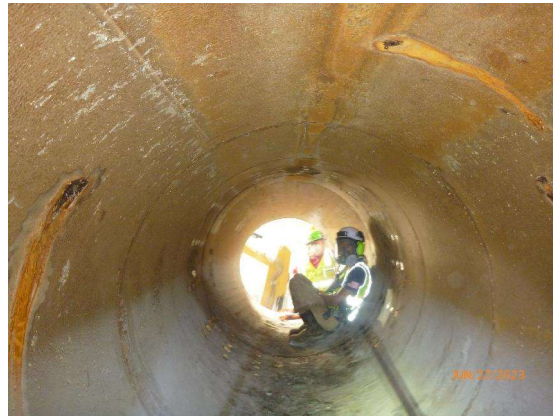
10



## 1. Main Sewage Pumps 54-in Discharge Pipes



Holes discovered in existing 54-inch steel pipe  
(3/4-inch pipe wall thickness)



Extensive corrosion and pipe wall loss in  
existing 54-inch steel pipe

11

11

## 1. Main Sewage Pumps 54-in Discharge Pipes



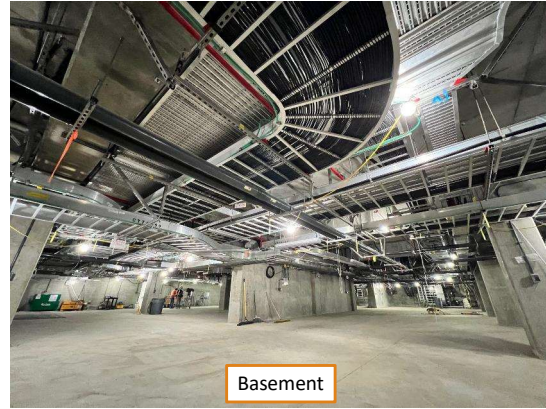
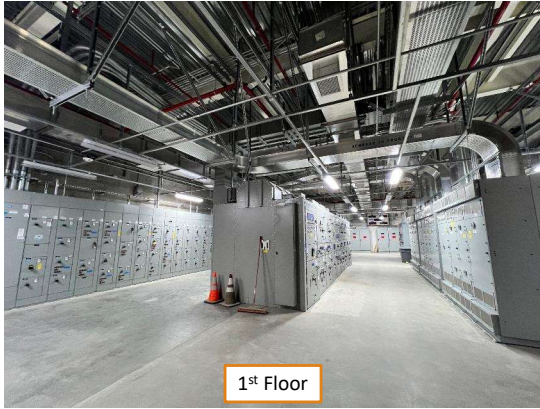
Full structural rehabilitation – Carbon fiber and fiberglass reinforced plastic with protective coating

Cost: \$2,000,000

12

12

## 2. Power Bldg No. 3 Electrical Equipment Changes



Project includes approximately 25% electrical work = \$56,000,000

Cost: \$1,500,000

13

13

## 3. Additional Temporary Bypass Systems



30 MGD bypass pump system for Influent Pump Station required to perform flow isolations and required redundancy

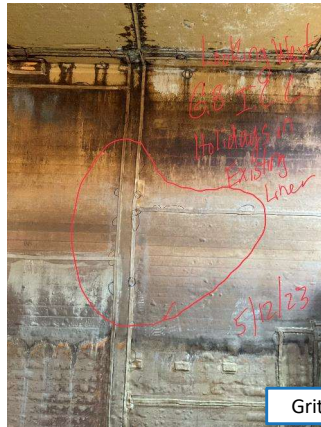
Cost: \$770,000

14

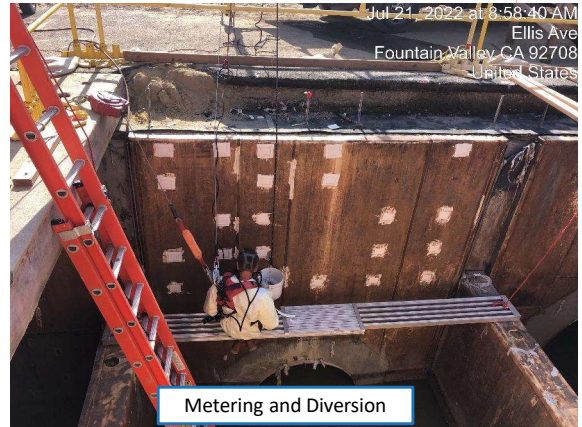
14



## 4. Additional Polyvinyl Chloride (PVC) Liner Repairs



Grit Basins



Metering and Diversion

PVC liner repairs in-progress at Grit Basins and Metering and Diversion concrete box

Cost: \$750,000

15

15

## 5. Unknown Utilities and Additional Demolition



Unknown pipes, concrete structures (manholes/vaults) and electrical ductbanks

Cost: \$320,000

16

16



## Remaining Work

### Rehabilitation

1. Influent sewage pump station
2. Grit basins
3. Metering and Diversion structure
4. One primary influent channel

### Construction and Commissioning

1. Power Building No. 3
2. Headworks electrical room
3. Headworks standby power building
4. Headworks odor control and chemical facilities
5. Grit pump station
6. Grit handling building



17

17

## Construction Contract Status

Construction Contract	Amount (\$)	Percentage (%)
Original Contract Amount	\$222,330,000	
Board Approved Contingency	\$8,893,200	4.0%
Known Changes to Date	\$8,351,499	3.8%
<b>Remaining Contingency</b>	<b>\$541,701</b>	<b>0.2%</b>
<b>Requested Contingency Increase</b>	<b>\$8,893,200</b>	<b>4.0%</b>

### Anticipated Future Changes:

- Additional PVC repairs
- Additional rehabilitation repairs
- Pump bypass

18

18

## Recommendation

Recommend to the Board of Directors to:

Approve a contingency increase of \$8,893,200 (4%) to the existing Construction Contract with Kiewit Infrastructure West Co. for Headworks Rehabilitation at Plant No. 1, Project No. P1-105, for a new total contingency of \$17,786,400 (8%).



19

19

# Questions?

20

20