

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

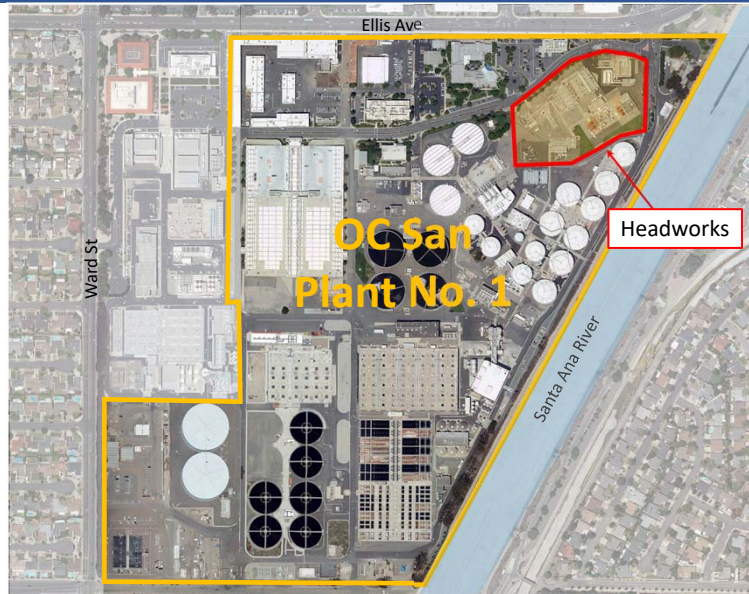
Construction Contract Award

Presented by:
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Director of
Engineering
Operations
Committee
March 3, 2021



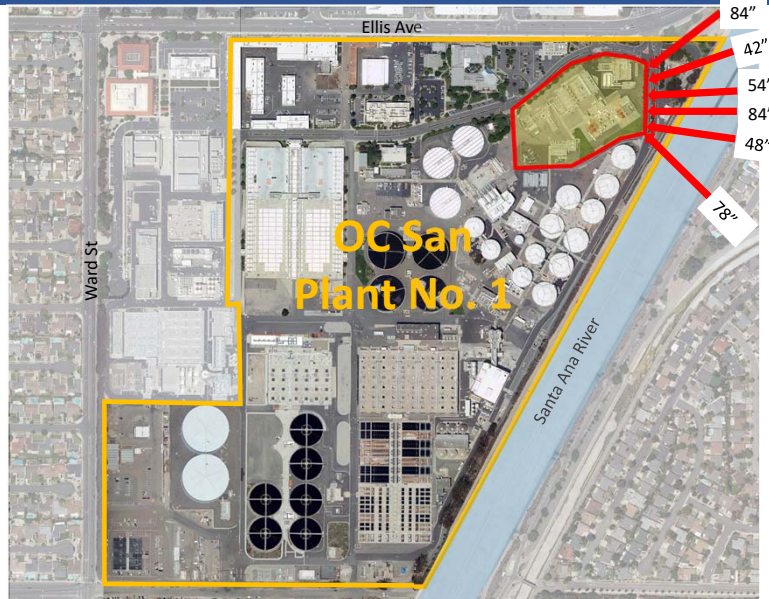
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OC San Reclamation Plant No. 1 Headworks Facilities



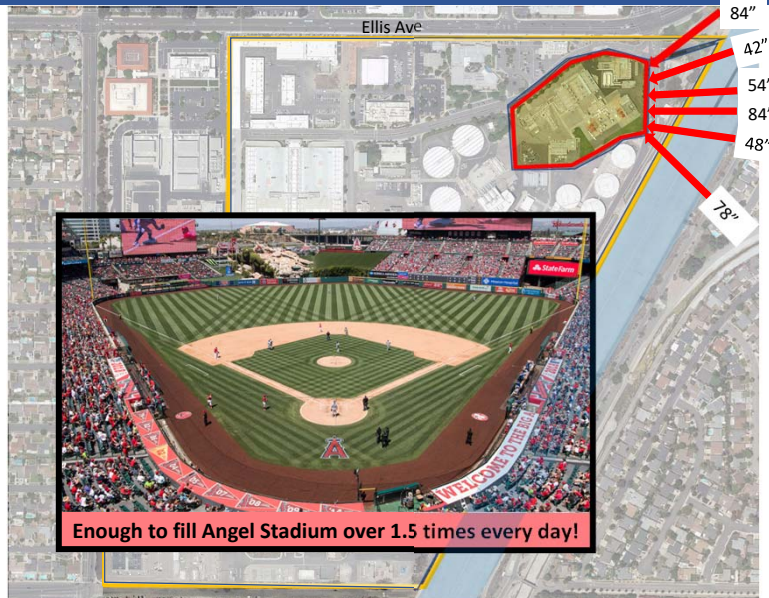
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OC San Reclamation Plant No. 1 Headworks Facilities



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Plant No. 1 Receives About 116 MGD of Influent Daily



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Preliminary Treatment (Headworks) Protects Subsequent Treatment Process

The diagram illustrates the wastewater treatment process. It starts with 'Influent' entering a 'Preliminary Treatment' stage, which is highlighted with a dashed orange box and contains a blue bar screen. The flow then goes to 'Primary Treatment', represented by a grey tank with a purple sediment layer at the bottom. Next is 'Secondary Treatment', shown as a grey tank with a purple and red checkered layer. The final output is 'Effluent'. Below the diagram are two photographs: 'Bar Screen' showing a close-up of the metal bars with debris caught on them, and 'Grit waste' showing a pile of brown and grey sediment in a blue container.

Bar Screen

Grit waste

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Metering and Diversion Structure

The photograph shows a complex industrial piping system, likely a metering and diversion structure. It features several large, white, curved pipes connected by various valves and fittings. A metal walkway with railings runs alongside the pipes, providing access for maintenance. The background shows more of the facility's infrastructure, including additional pipes and structural elements.

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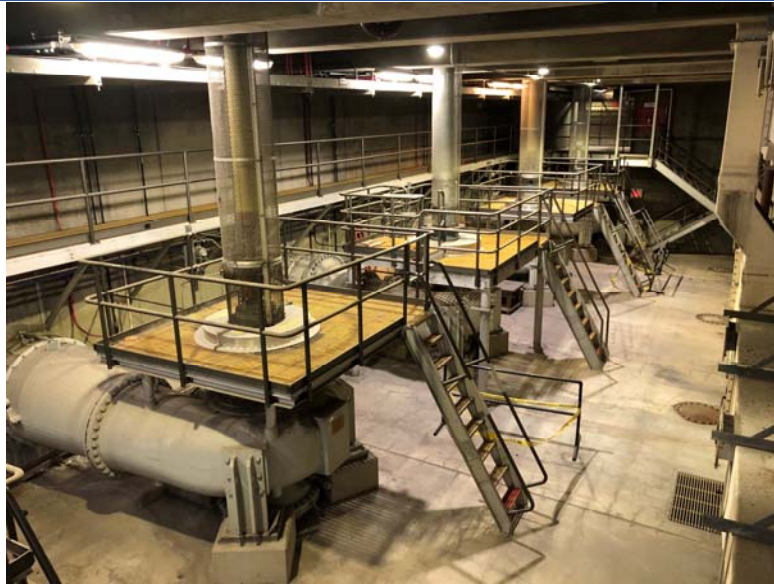
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Bar Screen Facility



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Main Sewage Pumps



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Headworks Facilities are Aging



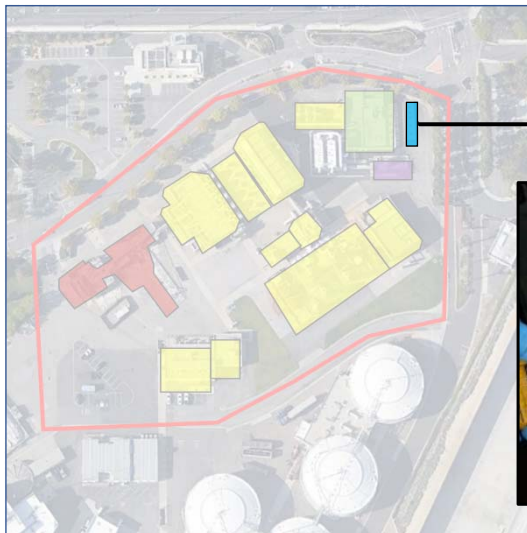
Age of Facilities

- 22 years
- 29 years
- 34 years
- 49 years
- 63 years

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Metering & Diversion Box Requires Replacement



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110 Hydraulic Gates Require Replacement

This slide illustrates the need for replacing 110 hydraulic gates. It features an aerial site map on the left with several yellow callout boxes highlighting specific areas. To the right is a technical cross-section diagram of a gate mechanism, showing various components like the gate, rollers, and structural supports. Below the diagram is a photograph of a heavily worn, dark metal gate structure, showing significant rust and deformation.

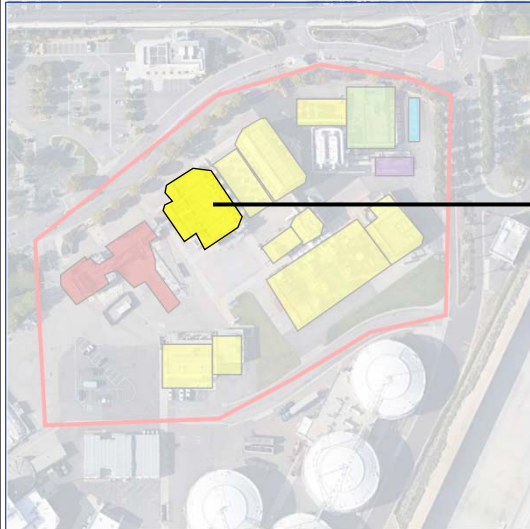
11

Existing Pumps Require Replacement

This slide illustrates the need for replacing existing pumps. It features an aerial site map on the left with several yellow callout boxes highlighting specific areas. To the right is a photograph of industrial pumps, showing large cylindrical tanks and complex piping structures within a facility.

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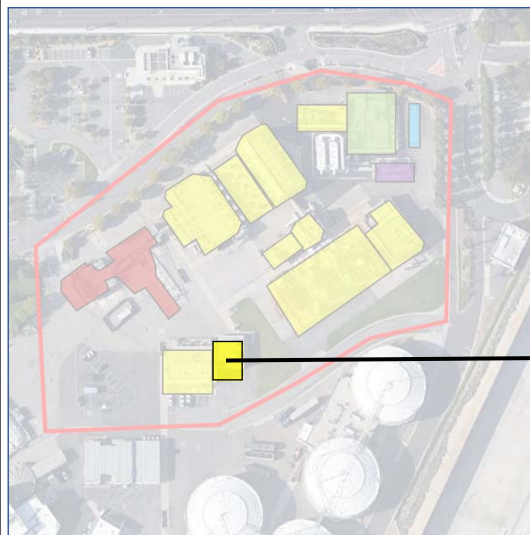
Poor Grit Removal System Requires Upgrading



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Electrical Power System Requires Replacement Due to Arc Flash Hazard and Poor Condition

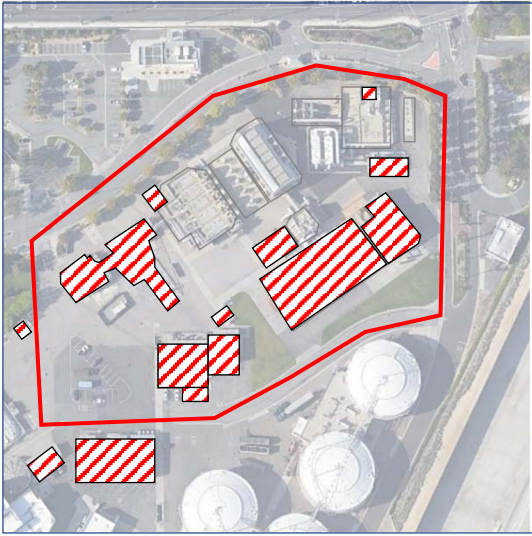



Not an OC San facility Photo

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Demolition of Unused & Replaced Facilities

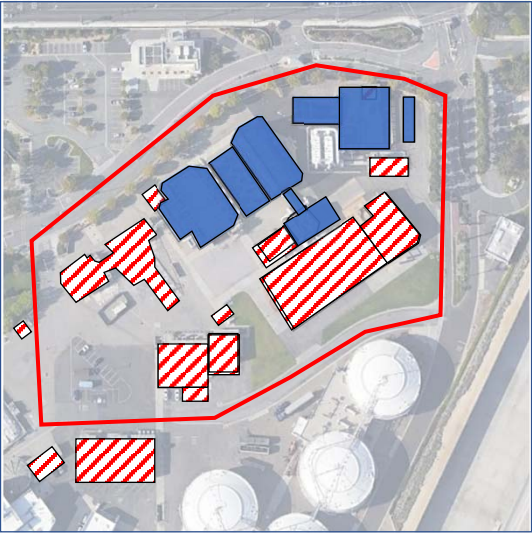




-  To be demolished
- Headworks 1
- Chlorine Building
- Hydrogen Peroxide
- Odor Control & Chemical System
- Electrical Buildings
- Office Trailers

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Rehabilitation of Facilities

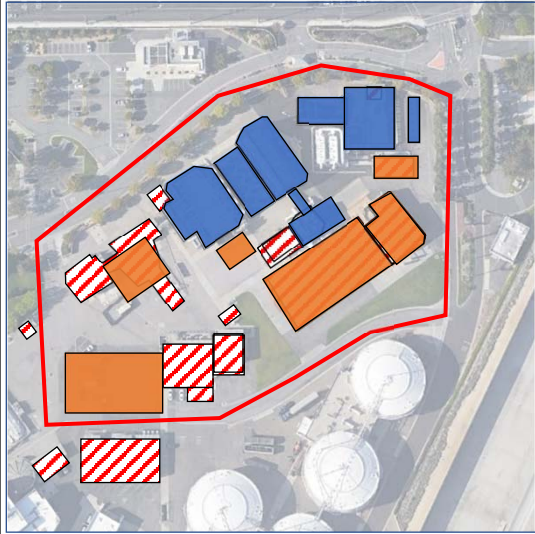





-  To be demolished
- Headworks 1
- Chlorine Building
- Hydrogen Peroxide
- Odor Control & Chemical System
- Electrical Buildings
- Office Trailers
-  To be rehabilitated
- M&D Structure
- Bar Screens
- Bin Loading
- Main Sewage PS
- Grit Basins
- Sunflower PS

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Construction of New Structure



-  To be demolished
 - Headworks 1
 - Chlorine Building
 - Hydrogen Peroxide
 - Odor Control & Chemical System
 - Electrical Buildings
 - Office Trailers
-  To be rehabilitated
 - M&D Structure
 - Bar Screens
 - Bin Loading
 - Main Sewage PS
 - Grit Basins
 - Sunflower PS
-  New Structures
 - Grit pumping & handling
 - Odor control & chemical facilities
 - Electrical buildings

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P1-105 is OC San's Biggest Construction Contract

Final Design Phase: 3.5 years
Construction Duration: 6.5 years



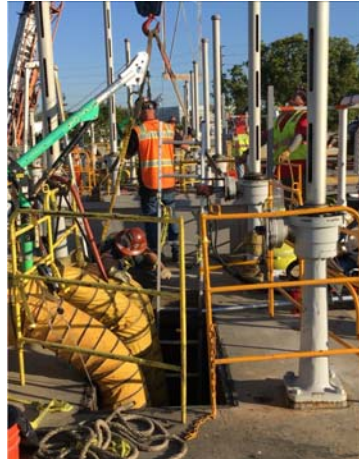
300 Specification Sections
2,000 sheets of Drawings

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Construction Complexities

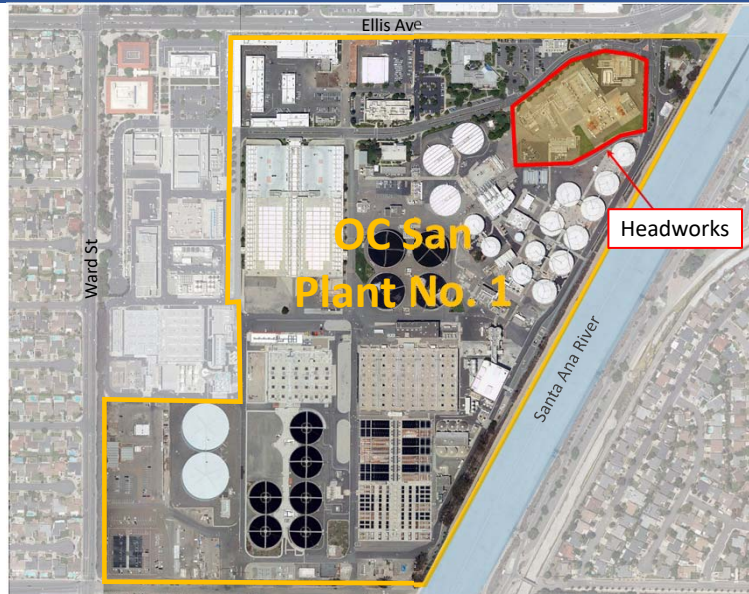
- Must maintain facilities during construction
- Work must be performed in prescribed sequence
 - Dry weather only activities (Apr 15 to Oct 15)
- Major shutdowns & flow diversions are required
- Rehab work involves unknown issues & unanticipated delays
- Extensive confined space entry work



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Must Rehabilitate in Place




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Bid Results

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



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Construction Contingency

Construction Cost	\$222,330,000
Contingency	\$8,893,200
% of Construction Cost	4%

Staff will report on progress & risks
 midway through construction.

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Recommendation: Construction Contract

- Receive and file Bid Tabulation and Recommendation for Headworks Rehabilitation at Plant No. 1, Project No. P1-105;
- Award a Construction Contract to Kiewit Infrastructure West Co. for Headworks Rehabilitation at Plant No. 1 for a total amount not to exceed \$222,330,000; and
- Approve a contingency of \$8,893,200 (4%).

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Questions



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