Delta Conveyance Project Overview

December 2021
Outline

1. Overview
2. Intakes
3. Tunnels and Shafts
4. Southern Complex
5. Bethany Reservoir Alternative
1. Overview
Delta Conveyance – Engineering Summary

Three Alignments
- Central
- Eastern
- Bethany

Two Engineering Project Reports
- Eastern/ Central Corridors
- Bethany Reservoir Alternative

Four Capacity Options
- 3,000 cfs
- 4,500 cfs
- 6,000 cfs  (only capacity option for Bethany Res Alt)
- 7,500 cfs

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2. Intakes
### Intake Sites Relative to Capacity Options

<table>
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<th>Capacity</th>
<th>Intake Site</th>
<th>Option</th>
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<td>7500 cfs</td>
<td>1500 cfs</td>
<td>3000 cfs</td>
</tr>
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</table>

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2. PROJECT FEATURES

Intake – Typical

Sediment Drying Basins

Flow Control Structure

Outlet Shaft

Sedimentation Basins

Gates

Training Wall

Hwy 160 & Sacramento River Project levee

Intake Structure with Fish Screens

Sacramento River

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3. Tunnels and Shafts
3. TUNNELS AND SHAFTS

Key Components of a Tunnel Drive

10-15 mile tunnel drive lengths acceptable based on Delta soil conditions

4-6 mile shaft spacing

Launch Shaft
Where the tunnel boring machine (TBM) is lowered into the tunnel. Where the concrete liners are transported into the tunnel. Where the excavated material (RTM) is removed.

Maintenance Shaft
Provides direct access to the TBM for routine maintenance work. Needed approximately every 4 to 6 miles.

Reception Shaft
Termination point of tunnel drive. Where TBM is disassembled and lifted out of the tunnel.

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 Current Project Overview

• **Main Tunnel Shafts:**
  - Central: 3 Launch Shafts (1 double + 2 singles), 3 Maintenance Shafts, and 3 Reception Shafts
  - Eastern: 3 Launch Shafts (1 double + 2 singles), 4 Maintenance Shafts, and 3 Reception Shafts
  - Bethany: 2 Launch Shafts (2 doubles), 5 Maintenance Shafts, and 3 Reception Shafts

• **Tunnel Drive Distances:**
  - Central: 42.9 miles
  - Eastern: 45.6 miles
  - Bethany: 44.6 miles

• **South Delta Connections:**
  - Central/Eastern connects to SWP upstream of Banks PP; requires add’l tunnels and shafts to connect from Southern Forebay
  - Bethany requires 3 miles of aqueduct pipelines and discharge structure directly into Bethany Reservoir

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3. TUNNELS AND SHAFTS

Reusable Tunnel Material (RTM) Overview

- Massive volumes to manage: ~6 to 15 Mil CYs
- RTM Basics: comprised of clays, sands, and silts
- Reusability:
  - Performed project-wide assessment to maximize reuse potential
  - Consideration of material characteristics; Pre- and Post-conditioned samples meet State and Federal embankment requirements
  - Needs drying for project reuse
- Management of Surplus: Central/Eastern Corridors uses ~6 Mil CYs for project use; Bethany uses <1 Mil CYs

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3. TUNNELS AND SHAFTS

Lower Roberts Launch Shaft - EXAMPLE

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3. TUNNELS AND SHAFTS

Post-Construction Sites (Typical)

- RTM Stockpile
  - 123 ac 15 ft height
  - (e.g. Central option at 6,000 cfs)

- Twin Cities Complex Dual Launch Shaft

- Terminous Reception Shaft

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4. Southern Complex / Central and Eastern Corridors
Southern Complex Overview

• Summary
  • Only for Central/Eastern Corridors
  • Adjacent to existing Clifton Court Forebay
  • Uses existing SWP Banks Pumping Plant

• Facility Description
  • 6,000 cfs Pumping Plant
  • 9,000 acre-foot Southern Forebay (750 acres surface area)
  • Two 40-ft diameter tunnels delivering 10,670 cfs to existing Banks Pumping Plant
  • Outlet and control structures at inlet to Banks Approach Channel

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Southern Complex Overview

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5. Bethany Reservoir Alternative
Bethany Alternative Overview

- Originates from Eastern Corridor at Lower Roberts Island Launch Shaft
- Pumping Plant delivers water directly up to Bethany Reservoir
- Eliminates Southern Complex Facilities including Forebay and connecting Hydraulic Control Structures to California Aqueduct
- Minimal use for RTM within Project (no Southern Forebay)

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Bethany Reservoir Alternative Overview

- Originates from Eastern Corridor at Lower Roberts Island Launch Shaft
- Pumping Plant delivers water directly up to Bethany Reservoir
- Eliminates Southern Complex Facilities including Forebay and connecting Hydraulic Control Structures to California Aqueduct
- Minimal use for RTM within Project (no Southern Forebay)
5. BETHANY ALTERNATIVE

Bethany Pumping Plant

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Bethany Complex – Aqueduct Route

• Avoids conflict with existing surface structures and conservation easements

• Alignment requires two tunneled sections:
  • Under federal aqueduct (Delta-Mendota Canal)
  • Under conservation easement along southern perimeter of Bethany Reservoir

• Terminates at Bethany Reservoir Discharge Structure

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Q&A