

**SOUTH COAST  
WATER DISTRICT**

*Partnering With The Community*

# **Tunnel Stabilization & Sewer Pipeline Replacement Project**



**Chris Newton**  
Operations  
Superintendent



**Daniel Guerra**  
Collection System Supervisor



# Tunnel Overview

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- Two-miles long constructed in 1954
- Begins in lower Three Arch Bay, ends at Aliso Beach in Laguna Beach
- Contains a 24-inch sewer interceptor line with average sewage flows of 1 Million Gallons per Day (MGD)
- Hand mined & blasted to approximately 5' x 6' dimensions with some sections supported with wooden timbers
- Original Vitrified Clay Pipe (VCP) sewer line was replaced with Techite™ in 1974
- \$100 Million budget



# Project Benefits

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- 75-year-old, modernized sewer tunnel will play a vital role in protecting both the Pacific Ocean and Aliso Creek, mitigating the risk of sewage spills in this environmentally sensitive area
- Visionary infrastructure – gravity sewer line eliminates costly and unsightly infrastructure along the coast
- Eliminated the need for 6 lift stations along Pacific Coast Highway





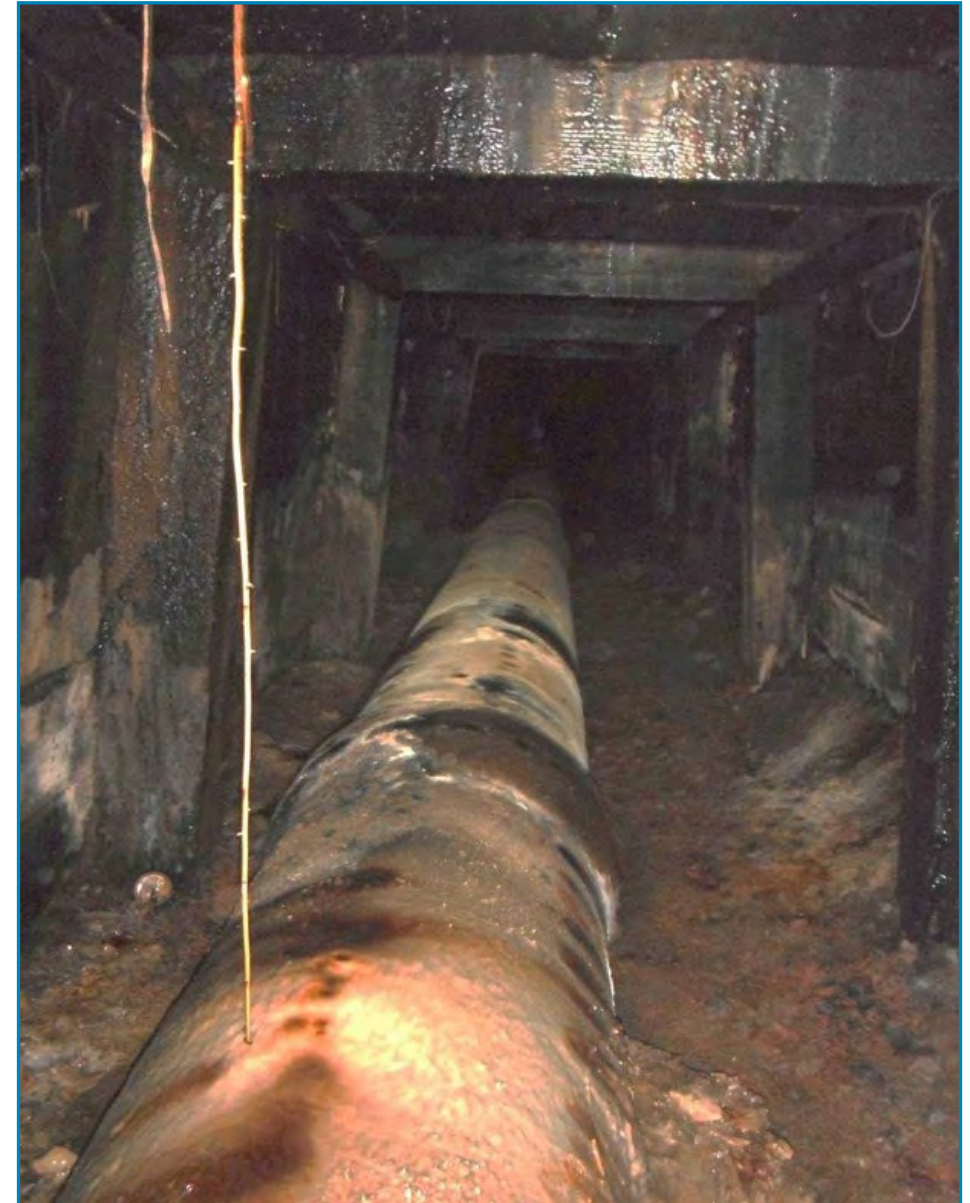
# Project Overview

Bid in four phases to ensure competition, resulting in cost savings for ratepayers



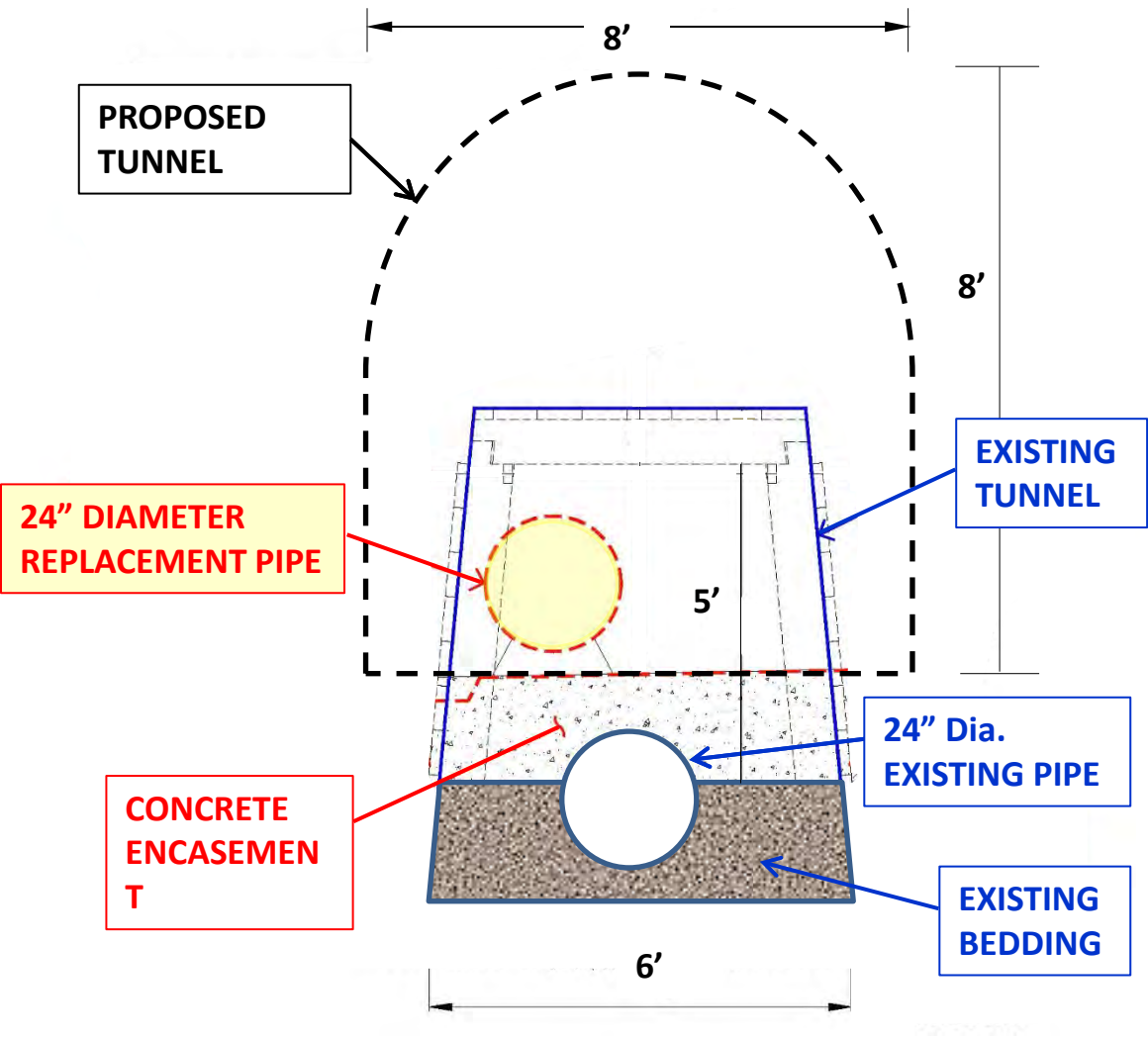


# Tunnel Condition Before Reconstruction





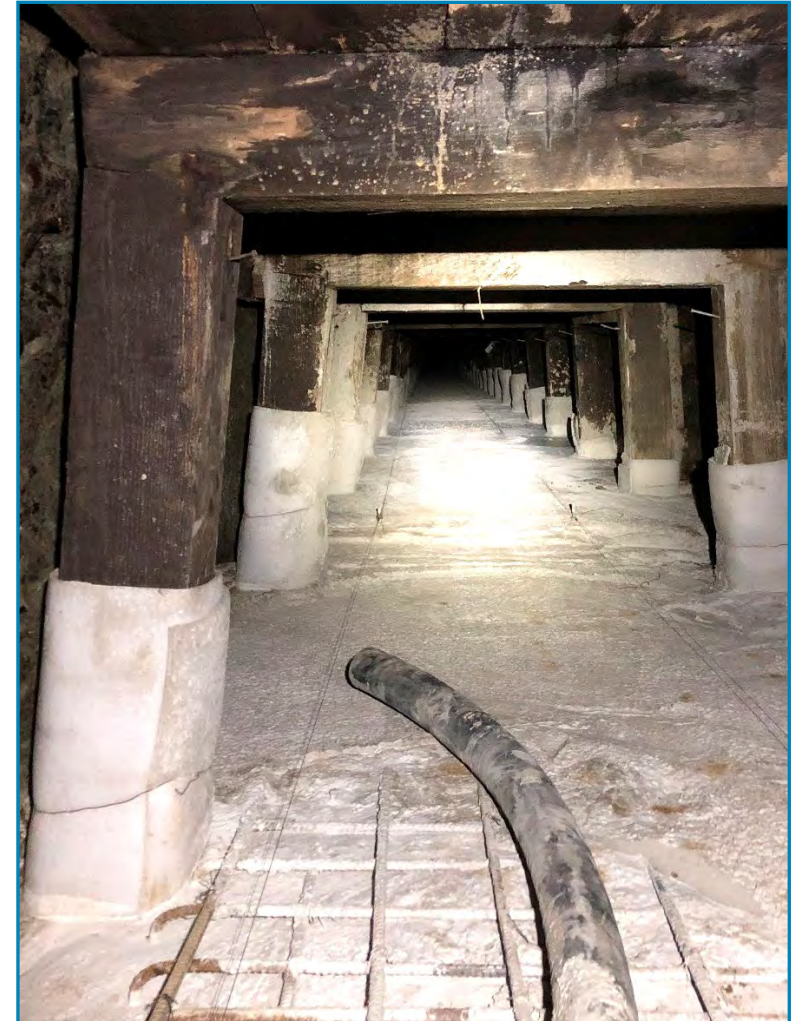
# Redesigned Tunnel Section





# Operations During Construction

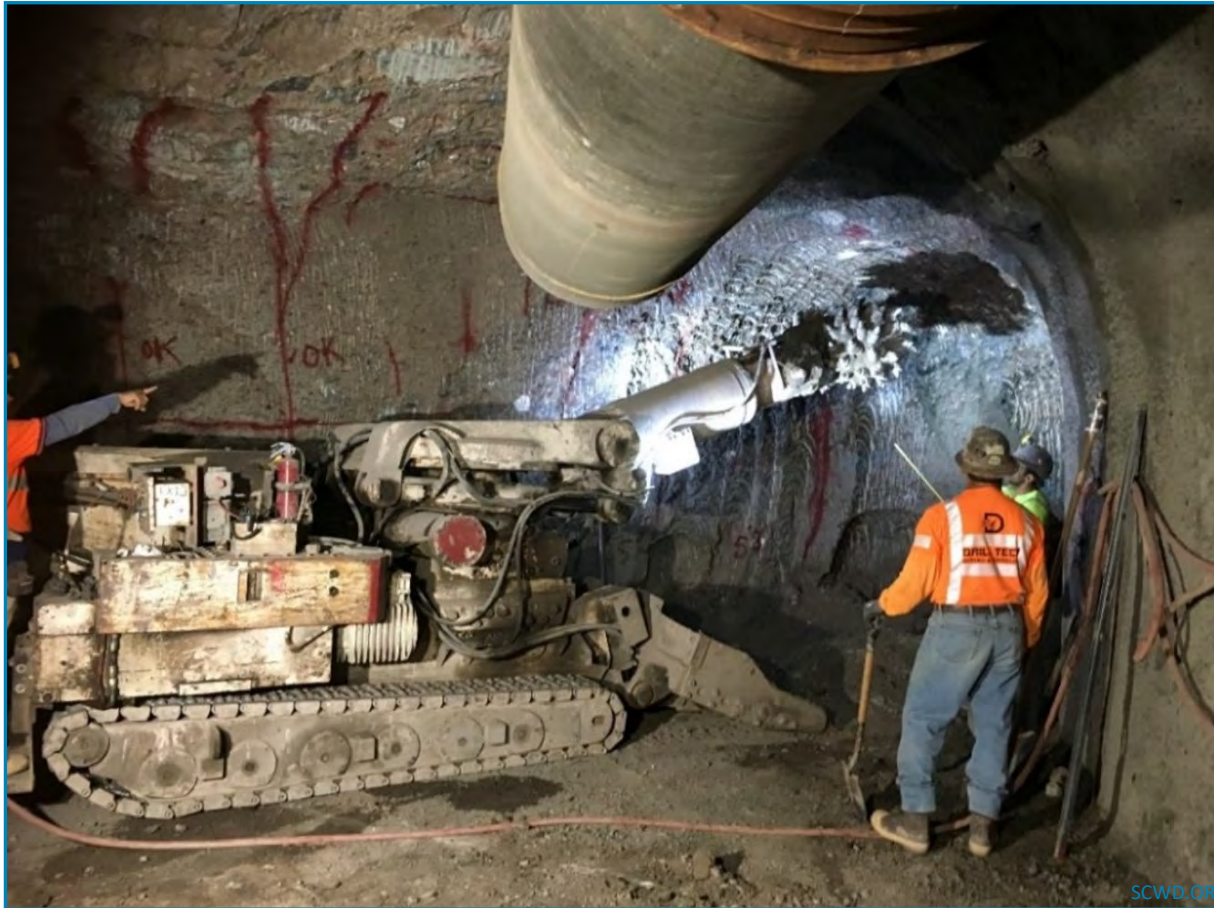
## Existing Pipe Encased in Concrete for Protection



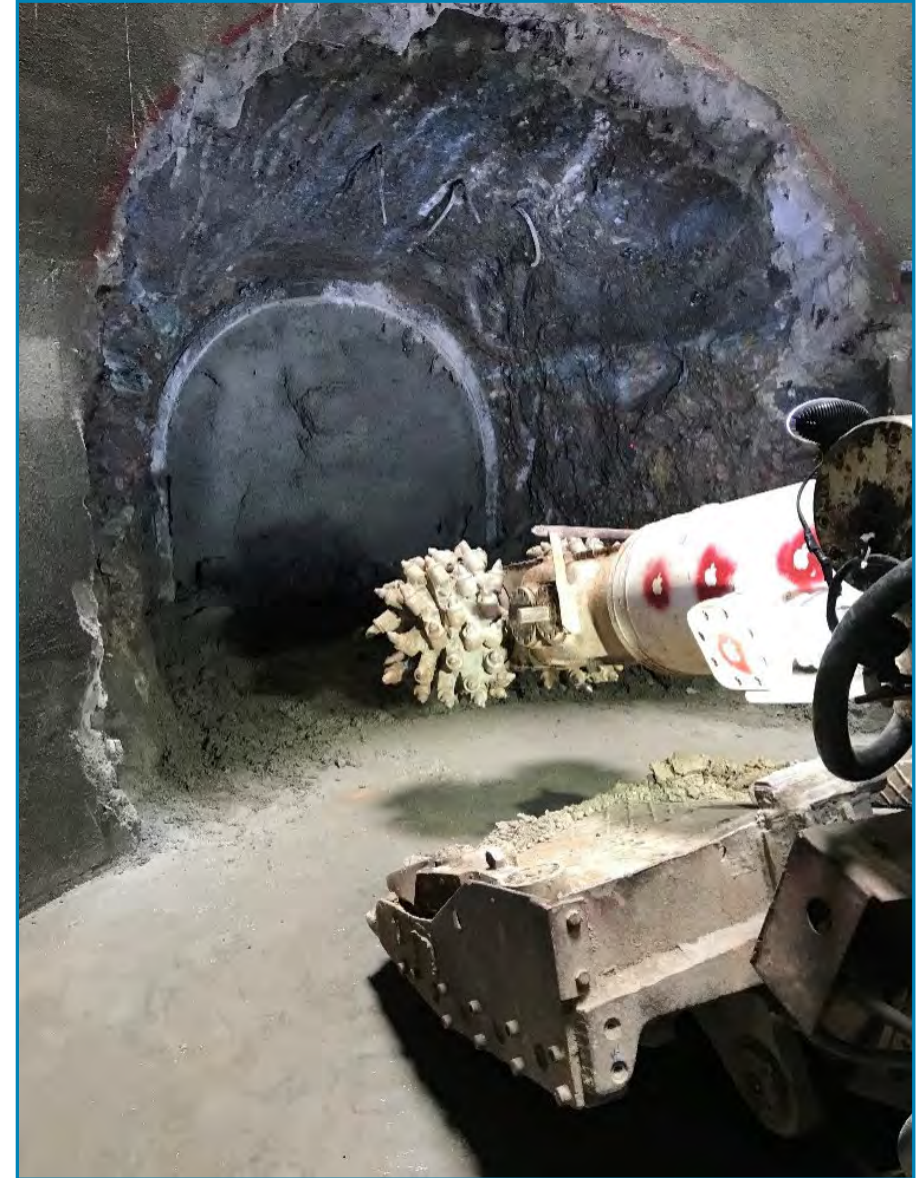


# Excavation

- Excavation of the entire tunnel spanned 10,414 feet
- Installation of C900 pipe (AWWA standard) covered 9,737 feet



SCWD.ORG/Tunnel





# New Tunnel Concrete Floor Placement - ~200 feet per day





# New Sewer Pipe Installation - ~ 300 feet per day







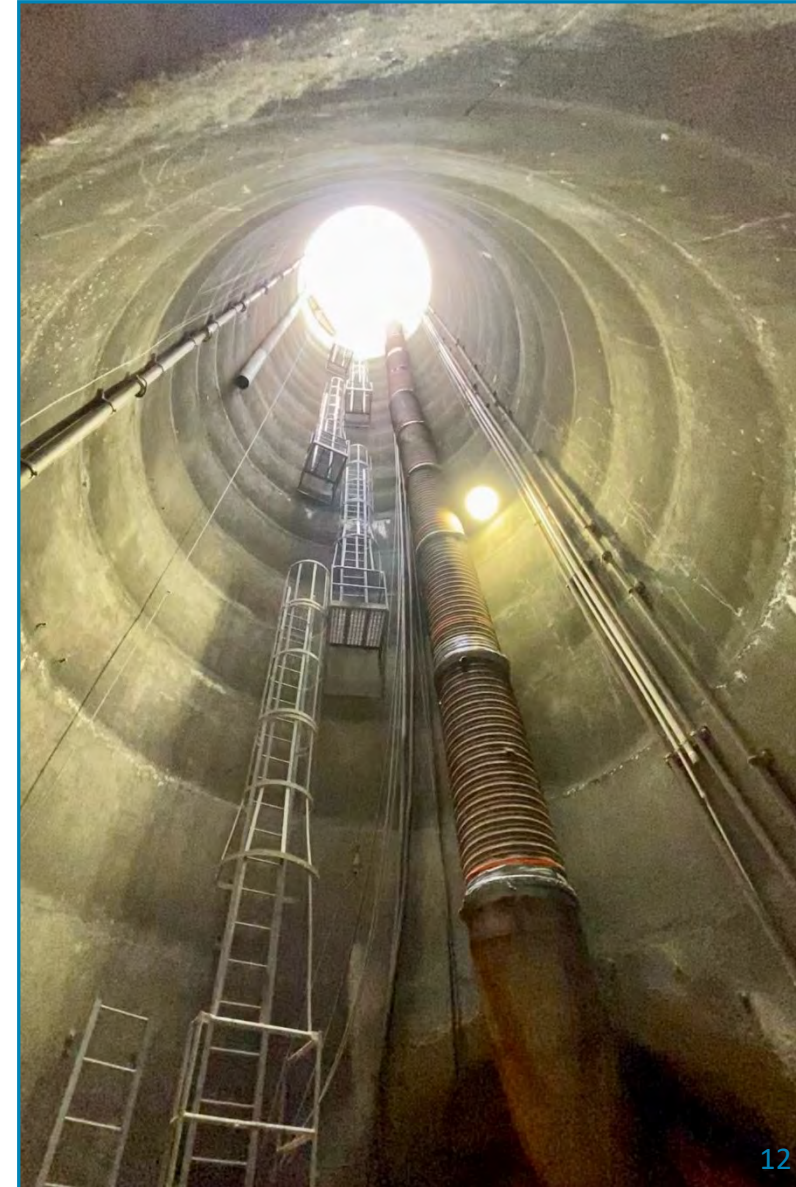
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## **OPERATIONS & MAINTENANCE**



# Access Improvements - Shaft Site – 105' deep





# Access Improvements: Shaft Site Today



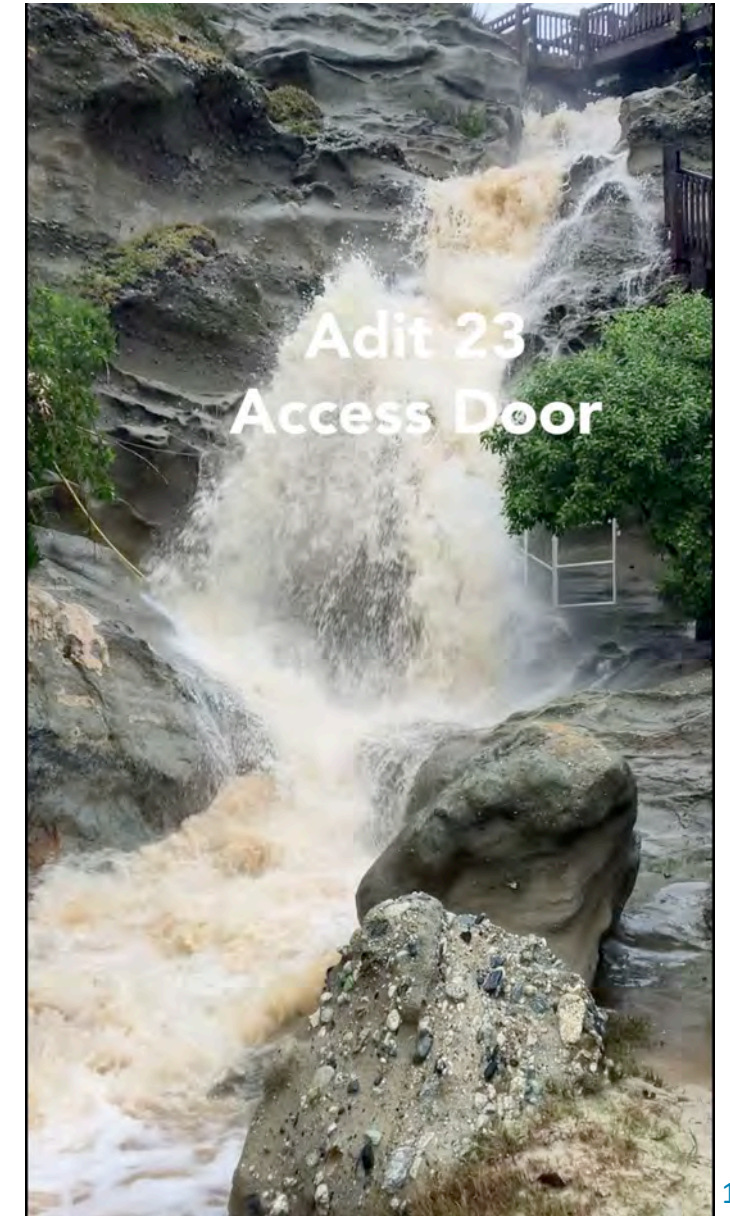


# Access Improvements: Bay Drive Realignment





# Access Improvements: Adit 23 (External)





# Access Improvements: Adit 23 (Internal)





# Access Improvements: Adit 22





# Access Improvements: Portal 4





# Access Improvements: Ventilation

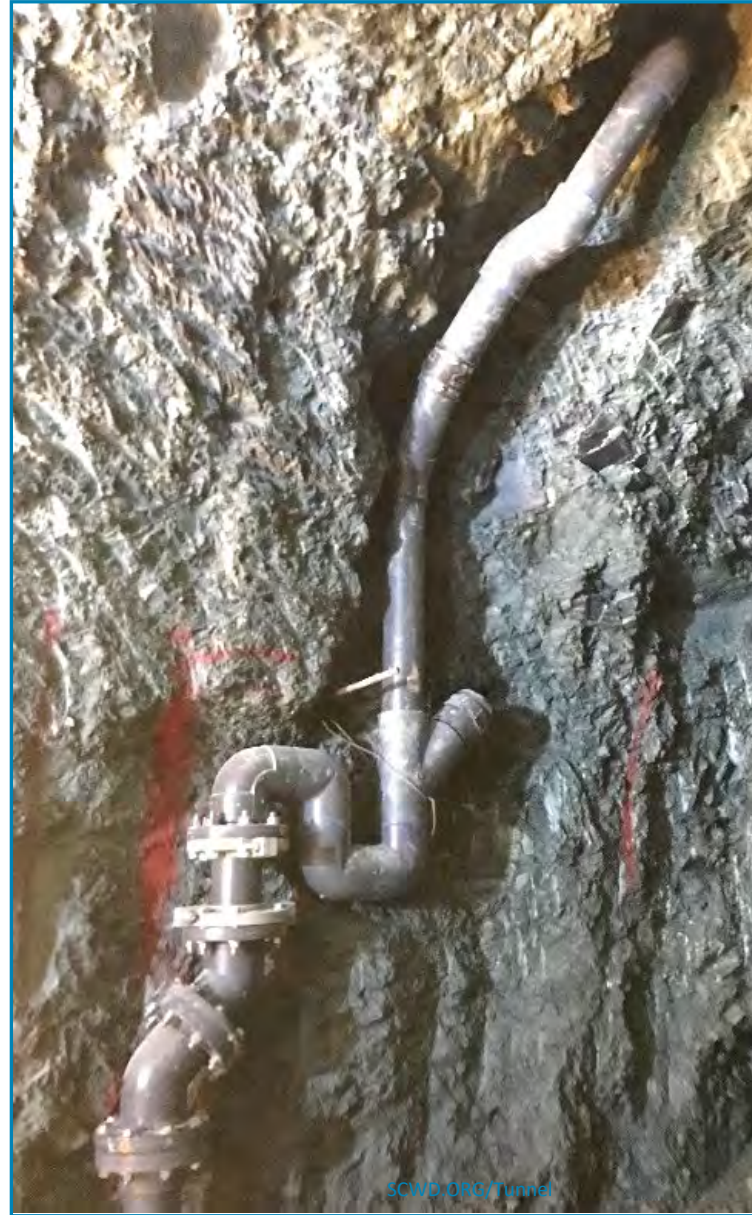


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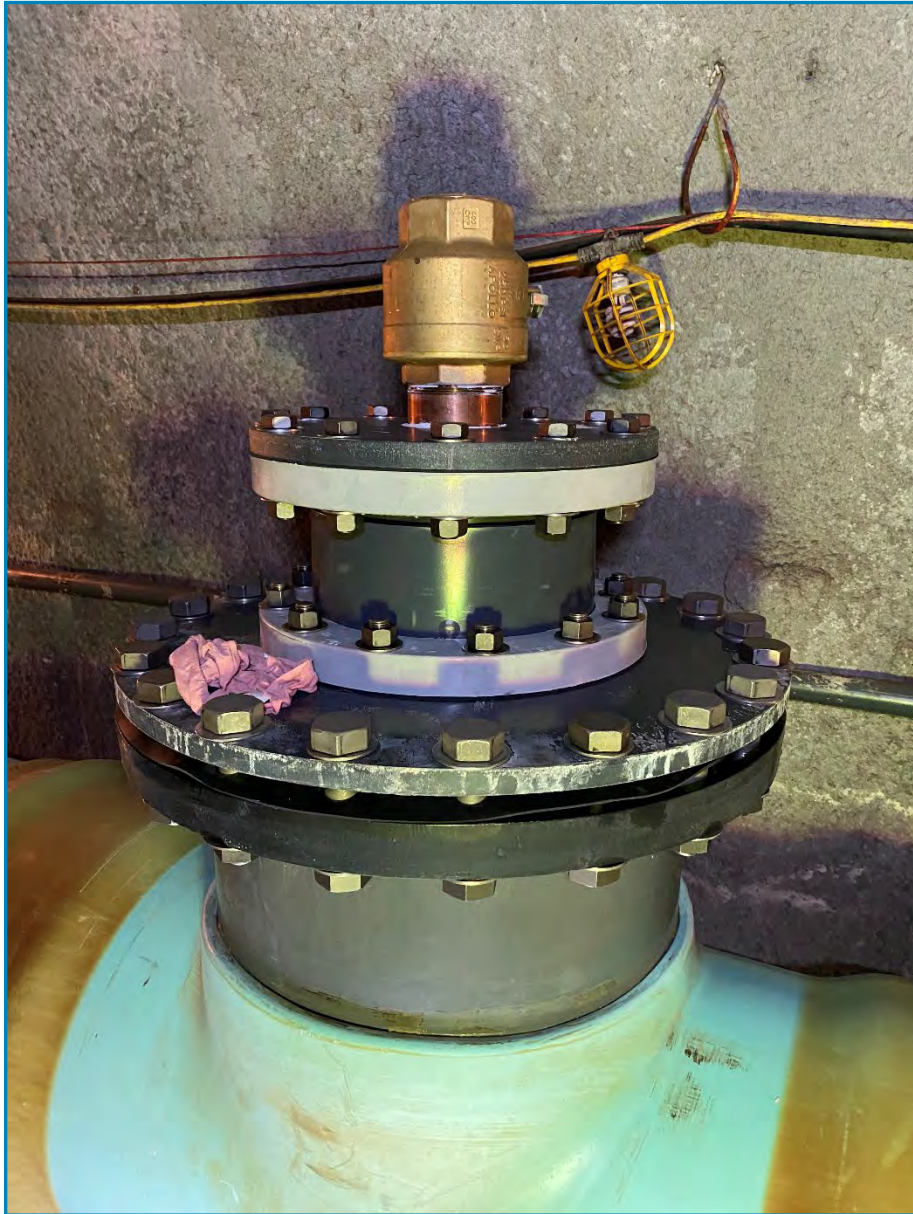


# Access Improvements: Lateral Replacements & Relocations





# Maintenance & Access to Redundant Line for Emergencies



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# Complete Tunnel and Maintenance





# THANK YOU! Questions?



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**PARSONS**



**M**  
**MOTT  
MACDONALD**

**m**onument



SCWD OR6/Tunnel



**BEFORE**



**AFTER**