EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: July 3, 2025

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager CCC

FROM: Serge V. Terentieff, Director of Engineering and Construction SVT

SUBJECT: Orinda Water Treatment Plant (WTP) Disinfection and Chemical Systems Safety Improvements Project Update

This memorandum provides an update on construction of the Orinda WTP Disinfection and Chemical Systems Safety Improvements Project (Project). The attached progress report includes accomplishments and progress since the March 6, 2025 update, including community outreach, fiscal status, and near-term planned work. The Project recently passed its halfway point in construction, representing a major milestone towards completion of this important project.

Construction commenced in June 2022 and is currently expected to be completed by June 2027, which represents a delay of approximately only three months from the Project's original contract completion date of March 2027. The three-month delay is due to weather-related impacts and construction challenges, primarily during installation of the large and complex shoring systems and deep excavations required for the Project. The next update will be provided in an information memo on November 6, 2025.

CCC:SVT:mjh

Attachment: 2025 Triannual Progress Report No. 2

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2025 Triannual Progress Report No. 2

Specification 2139: Orinda Water Treatment Plant (WTP) Disinfection and Chemical Safety Systems Improvement Project

The project is progressing well after initial schedule delays, with major highlights including the completing of most of the walls for the UV/CCB complex, completion of major tunnel connections, completion of three chemical systems, and continued progress on installation of new electrical systems. A detailed summary of the work progress is listed in this attachment.

Project Scope

The scope of work for this project includes:

- Construction of a new disinfection facility comprised of an underground ultraviolet (UV) disinfection and chlorine contact basin (CCB) facility and an above-ground maintenance and UV electrical building
- Construction of a grounds maintenance building and associated parking area
- Installation of new effluent piping and connections to the Claremont Tunnel and Los Altos No. 2 Pumping Plant
- Construction of two new electrical buildings
- Installation of two standby generators and fuel storage tanks
- Modifications to the raw water channel
- Demolition of existing grounds maintenance and mechanical maintenance facilities
- Demolition and replacement of the chemical storage and feed systems and other chemical systems safety improvements

Community Outreach Update

- Identified and provided notice to neighbors about upcoming construction impacts, including noise and traffic, emphasizing the pre-planned extended work hours required for concrete deliveries.

Progress Status Update

Safety

- Continued active safety culture which encourages everyone at the jobsite to identify safety hazards for immediate correction. A total of 859 contractor craft working days were completed without a lost time injury since construction began.

Raw Water Improvements

- Completed second phase of the 36-inch steel pipeline for the Lafayette Aqueduct No. 1 (LAF1) Wasteway which will reconnect it to San Pablo Creek in the future.

- Completed the third and final phase of the emergency raw water bypass connection from the Raw Water Channel to the Claremont Tunnel in abandoned Los Altos Pumping Plant No. 1 (LAPP1). This emergency bypass will become available for use when the Claremont Tunnel bulkhead wall is removed during the next winter.

Pipeline Tie-ins

- Completed connection of the 108-inch UV-CCB influent pipeline to the UV Influent Weir Structure
- Completed connection of the existing Claremont Tunnel to the CCB Effluent Weir Structure at the 108-inch stainless steel wall thimble, which will support the effluent isolation gate for the UV-CCB Facility
- Completed relocation of Los Altos Pumping Plant No. 2 (LAPP2) 30-inch discharge pipeline to allow for construction of the foundation for the future South Electrical Building (SEB).
- Began the first phase of the 48-inch steel pipeline from the CCB Effluent Weir Structure to LAPP2 which will serve as the supply line for LAPP2 in the future
- Performed extensive plant inspections of the critical welded steel piping

Underground Construction

- Completed utility relocation near the future SEB to allow installation of the retaining wall and foundation for the future SEB
- Completed installation of electrical utility vaults and underground electrical duct bank for the future SEB and Los Altos Power Building (LAPB)
- Calibrated the automated geotechnical monitoring system, which monitors ground movement and settlement during drilling, excavation, grouting, and tunneling
- Completed removal of the structural steel support system, which temporarily braced the underground retaining walls for the abandoned LAPP1, and completed backfill of the abandoned LAPP1 and structural foundation concrete for the future LAPB
- Completed selective structural demolition of LAPP2 flow control vault in preparation for pipeline tie-in during the winter 2025/2026 outages
- Completed excavation within deepest portion of the Effluent 1 excavation support system and installation of engineered jacking frame in preparation for the 90-inch tunneling from that excavation to the future Effluent 2 excavation support system

UV-CCB Facility Construction

- Began waterproofing installation between UV Influent Weir Structure and the secant pile walls
- Completed waterproofing installation between CCB and secant pile walls
- Completed waterproofing installation between Effluent Weir Structure and secant pile walls

- Began second lift reinforced concrete walls in the second level of the CCB
- Completed reinforced concrete mat slab and wall placements for the UV Inlet Weir Structure and began placements for the roof slabs for the same.
- Completed reinforced concrete mat slabs for the CCB Effluent Weir Structure
- Began reinforcing concrete wall placements for the UV Room

Construction of Power Buildings (SEB and LAPB)

- Completed hillside retaining wall and over excavation for SEB in preparation for under slab piping and electrical conduits
- Began under slab electrical conduits and piping for the future SEB
- Completed soil stabilization for LAPB in preparation for under slab electrical conduits
- Completed under slab electrical conduits and structural foundation for the future LAPB

Chemical Safety System Improvements

- Completed commissioning of the new cationic polymer (CP), polyaluminum chloride (PACL), and sodium bisulfite (SBS) chemical systems
- Completed installation and commissioning of the temporary chemical piping systems for fluoride, ammonia, and caustic soda
- Began demolition of the old fluoride, ammonia, and caustic soda systems in preparation for installation of the new chemical systems
- Continued construction of chemical pipe expansion vaults and sumps
- Continued installation of the replacement heating, ventilation, and air conditioning (HVAC) systems and fire protection systems in the chemical building
- Began roof demolition on the chemical building for the retrofitted fluoride and caustic soda rooms

Scheduled Work

Raw Water Improvements

- Install third phase of the welded steel pipeline for the LAF1 wasteway which will reconnect it to San Pablo Creek in the future.

Pipeline Tie-ins

- Complete the second phase of connecting the existing Effluent 1 pipeline to the 108-inch UV-CCB influent pipeline. Begin connection of the 48-inch Effluent 1 steel pipeline and 78-inch Effluent 2 steel pipeline to the 108-inch UV influent steel pipeline within the Effluent 1 excavation support system
- Complete the first phase of the 48-inch steel pipeline from the CCB Effluent Weir Structure to LAPP2

- Begin connection of the 48-inch Effluent 1 steel pipeline and 78-inch Effluent 2 steel pipeline to the 108-inch UV Influent steel pipeline within the Effluent 1 excavation support system.

Underground Construction

- Complete construction of the expanded Effluent 1 pipeline vault

UV-CCB Facility Construction

- Installation of CCB intermediate reinforced concrete deck
- Complete reinforced concrete UV Influent Weir Structure
- Complete waterproofing installation between UV Influent Weir Structure and the secant pile walls
- Complete second lift reinforced concrete walls in the second level of the CCB
- Complete reinforcing concrete wall placements for the UV Room

Construction of Power Buildings (SEB and LAPB)

- Complete factory acceptance testing of the SEB and LAPB
- Complete under slab electrical conduits and piping for the future SEB
- Completed structural foundation for the future SEB

Chemical Safety System Improvements
Significant progress is being made on the chemical system improvements despite this portion of work being delayed approximately one year due to differing site conditions, operational constraints, and supply chain issues.

- Complete demolition of the old fluoride, ammonia, and caustic soda systems in preparation for installation of the new chemical systems
- Complete structural modifications to the chemical building for the retrofitted fluoride and caustic soda rooms
- Begin construction of new ammonia room within the chemical building
- Begin construction of the new fluoride, ammonia, and caustic soda systems

Fiscal Update

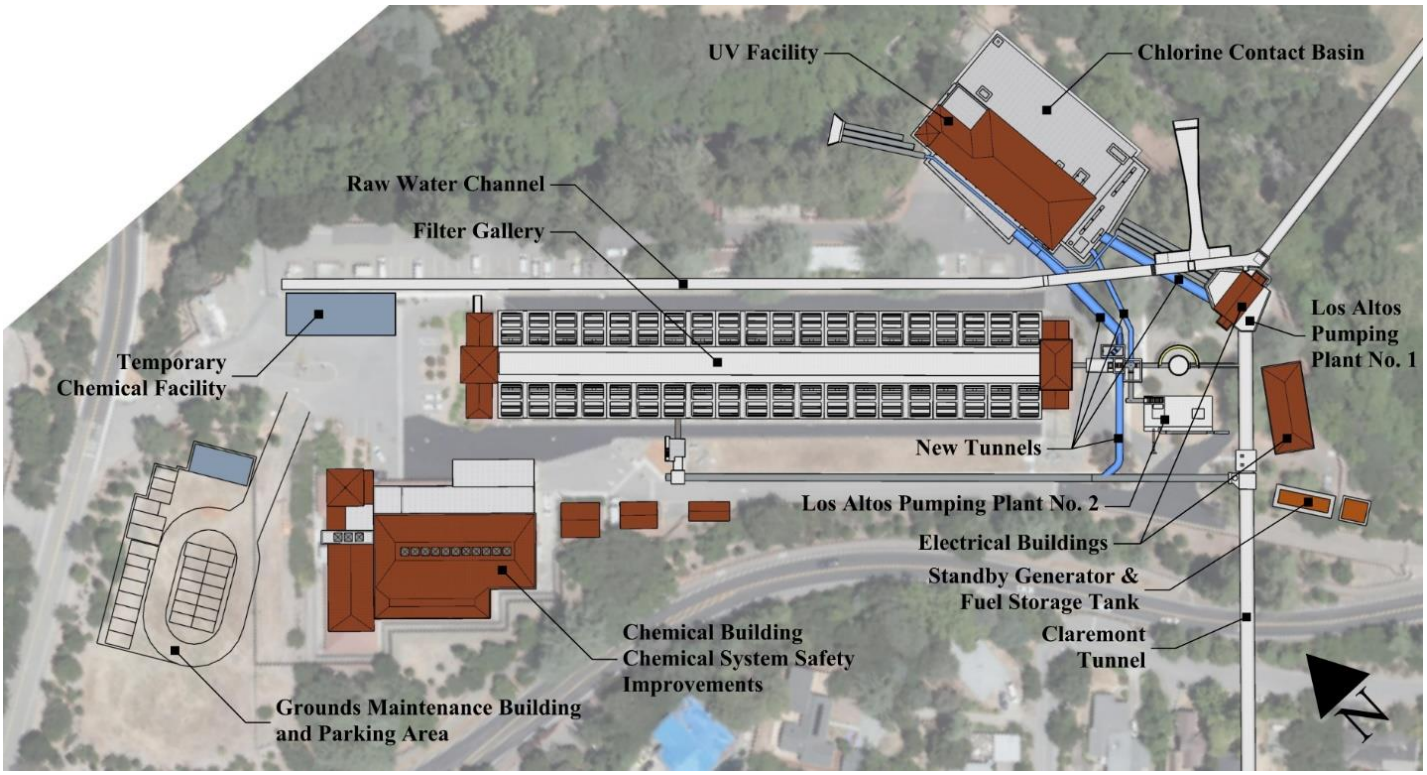
Budget Category	To-date	Budget	% Spent
Construction Contract (base)	$179,104,875	$267,721,132	66.9%
Construction Contract (change orders)	$6,821,542	$13,386,057	51.0%

Engineering Support and Construction Management Costs	$ 25,858,554	$46,653,553	55.4%

Schedule Update

Schedule Category	Days Elapsed	Contract Days	% Elapsed
Construction Contract Calendar Days	1,170	1,837	63.7%

Overall Site Plan



Construction Progress Photos

Photo 1 – Masons applying architectural finish to the shotcrete retaining wall.

Photo 2 – Masons covering the fresh architectural finish on the shotcrete wall with plastic for curing. The completed retaining wall will support the hillside and allow for the installation of a foundation for the future South Electrical Building (SEB).

Photo 3 – Aerial view of former Los Altos Pumping Plant No. 1 backfilled with slurry. Emergency 48-inch raw water bypass piping is shown aboveground in this photo.

Photo 4 – Ironworkers installing rebar for the future Los Altos Power Building foundation which is located on top of the former Los Altos Pumping Plant No. 1 (LAPP1). All remnants of the intricate underground piping installed in the former LAPP1 are backfilled below the foundation in the photo.

Photo 5 – Aerial view of the Effluent 1 excavation pit with the temporary construction bridge to the left of the photo.

Photo 6 – Excavation 40-feet below ground surface in the Effluent 1 excavation pit in preparation for the 90-inch Effluent 2 tunnel. This pit is partially covered by the temporary construction bridge shown in the lower right-hand corner of the photo. The pit will have four piping tunnels and will serve as the key hydraulic connection point for connecting the existing filter plant to the new UV-CCB Facility.

Photo 7 – Closeup of Effluent 1 excavation pit showing the complex welded steel pipe and beam shoring system. The lower left tunnel has the 108-inch UV-CCB influent pipe and the upper right tunnel has the 48-inch effluent pipe for Los Altos Pumping Plant No. 2.

Photo 8 – District employees on a tour of the project showing the scale of the 108-inch piping which will serve as the new terminus for the Claremont Tunnel within the UV-CCB Facility.

Photo 9 – The 108-inch piping and wall gate thimble being lowered into the UV-CCB with the aid of the 210-foot-tall tower crane.

Photo 10 – Pipefitters pushing the 108-inch piping and wall gate thimble into place within the UV-CCB Facility with the aid of the tower crane.

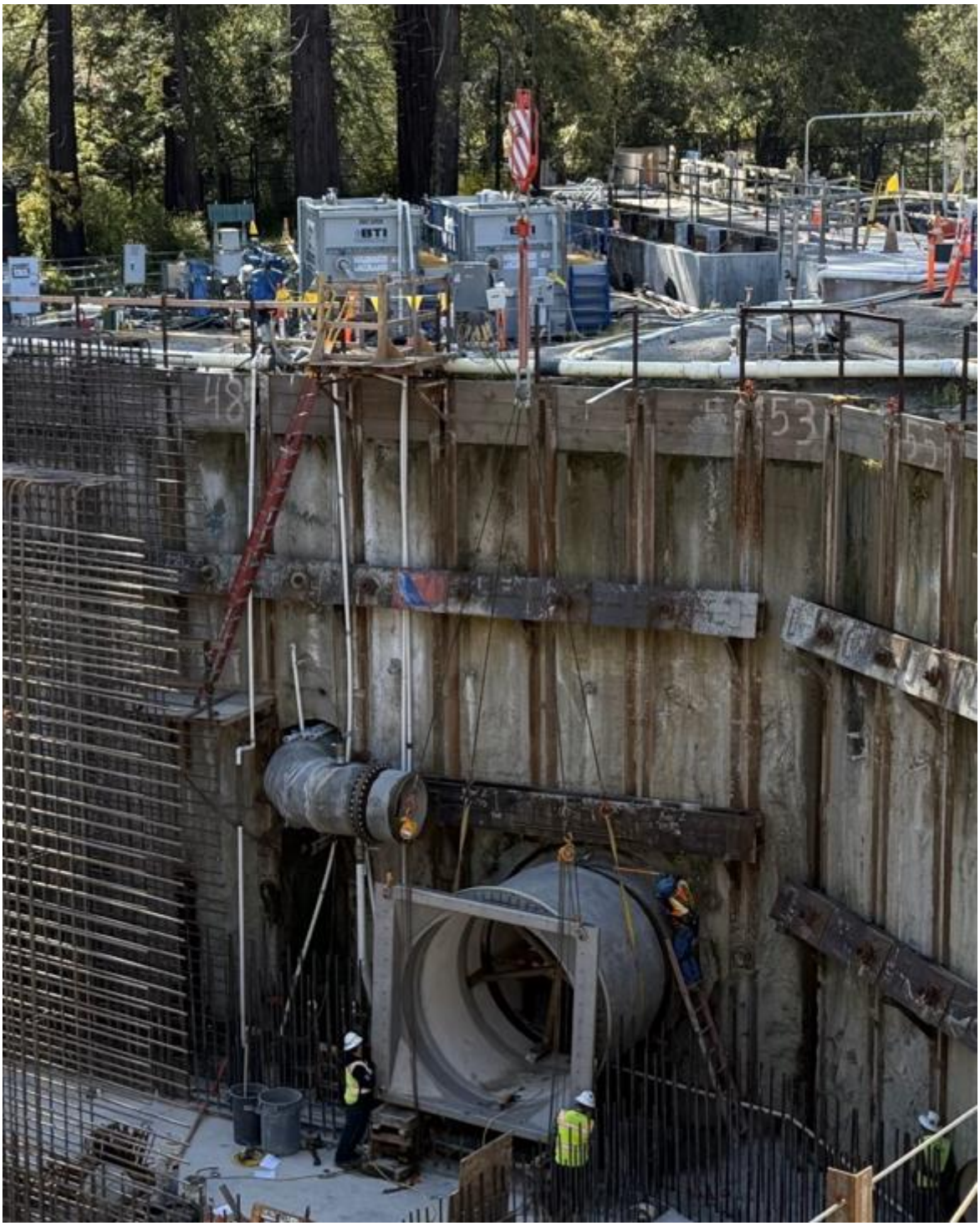


Photo 11 – Welder on ladder connecting the 108-inch piping to the tunnel with the aid of pipefitters and the tower crane. This step completes nearly two years of complex underground construction to extend the Claremont Tunnel to the future UV-CCB Facility. The 36-inch wasteway piping which drains Lafayette Aqueduct No. 1 is located above the tunnel.

Photo 12 – Pipefitter positioning the 36-inch wasteway piping within the valve vault of the UV-CCB Facility with the aid of the tower crane.

Photo 13 – Pipefitter positioning a section of the 36-inch wasteway piping within the valve vault of the UV-CCB Facility with the aid of the tower crane. The photo shows the complexity of the piping and valving in the valve vault.

Photo 14 – Pipefitter positioning a flexible coupling on the 36-inch wasteway piping within the valve vault of the UV-CCB Facility with the aid of the crane.

Photo 15 – Aerial view of the UV-CCB excavation pit with the underground structures starting to take shape. The foundation for structures are 65-feet below the ground surface.

Photo 16 – View of the UV Room in the UV-CCB Facility starting to take shape. The effluent piping for the new UV disinfection vessels can be seen on the left wall. The valve vault can be seen in the far background of the UV Room.

Photo 17 – Ironworkers lowering a prefabricated rebar curtain into position at the divider wall between the Chlorine Contact Basin and the UV Room in the UV-CCB Facility.

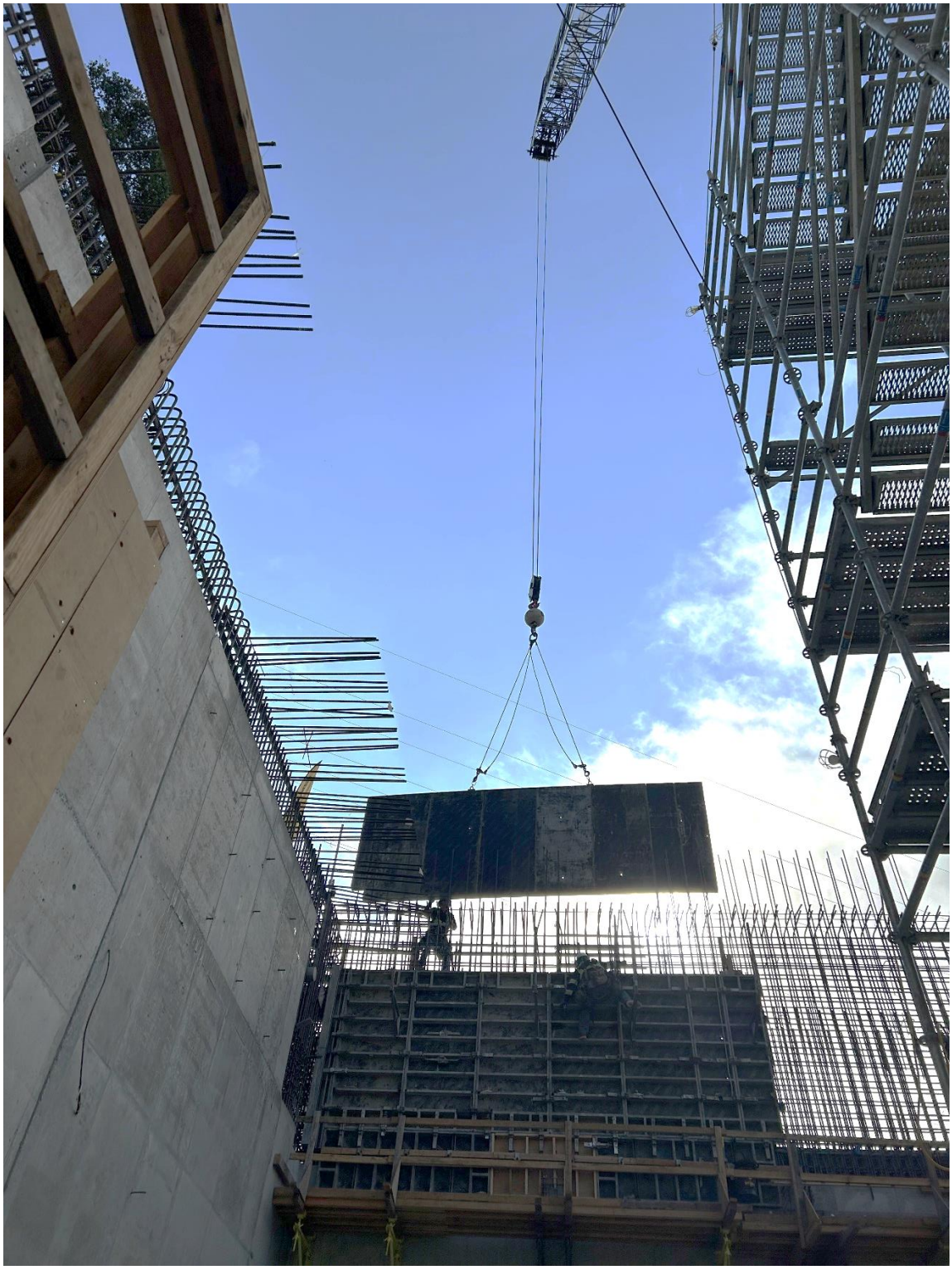


Photo 18 – Carpenters lowering an engineered concrete form into position at the divider wall between the Chlorine Contact Basin and the UV Room in the UV-CCB Facility.

Photo 19 – Ironworkers tying rebar for the second level CCB wall. The first level of the CCB is located below the concrete floor in the photo. The round portal in the left wall is the piping for water entering the CCB from the adjacent UV Room.

Photo 20 – View looking upward from the UV-CCB Facility showing the two cranes at work within the same work area. The close quarters on the construction site require constant communication and vigilance by construction personnel to maintain a safe worksite.

Photo 21 – Carpenters setting down a massive steel bracing with the aid of the tower crane. These bracing segments are engineered to support the 25-feet tall concrete wall forms.

Photo 22 – Carpenters setting steel bracing for support the 25-feet tall concrete wall forms from buckling under the extreme pressure of the concrete placed into them.

Photo 23 – Placing concrete into the first exterior UV Room wall. The green concrete pumping truck with its articulating boom can be seen at the top of the photo placing concrete into the 25-feet tall concrete wall forms.

Photo 24 – Portal from the 108-inch UV-CCB influent piping into the UV Influent Weir Structure. The aluminum shoring and decking shown in the photo supports the weight of the concrete roof until it attains proper strength after curing. The UV Influent Weir Structure will provide even flow to each of the UV vessels located in the UV Room to the right of the photo.

Photo 25 – Finishers placing concrete for the UV Influent Weir Structure roof deck. The rebar for the exterior wall of the UV Room is on the left side of the photo and the excavation support system is shown on the right side of the photo.

Photo 26 –A crane placing a steel beam to support the construction of a new chemical sump.

Photo 27 – Aerial view of excavation and concrete foundation for the new chemical sump which safely contain chemical spills.

Photo 28 – Closeup view of concrete formwork for the new chemical sump 2 which will contain future chemical spills that arise from leaking pipes in the adjacent chemical trenches.

Photo 29 – Newly formed reinformed concrete chemical sump.

Photo 30 – Laborers applying waterproofing to new chemical sump 2 prior to backfill.

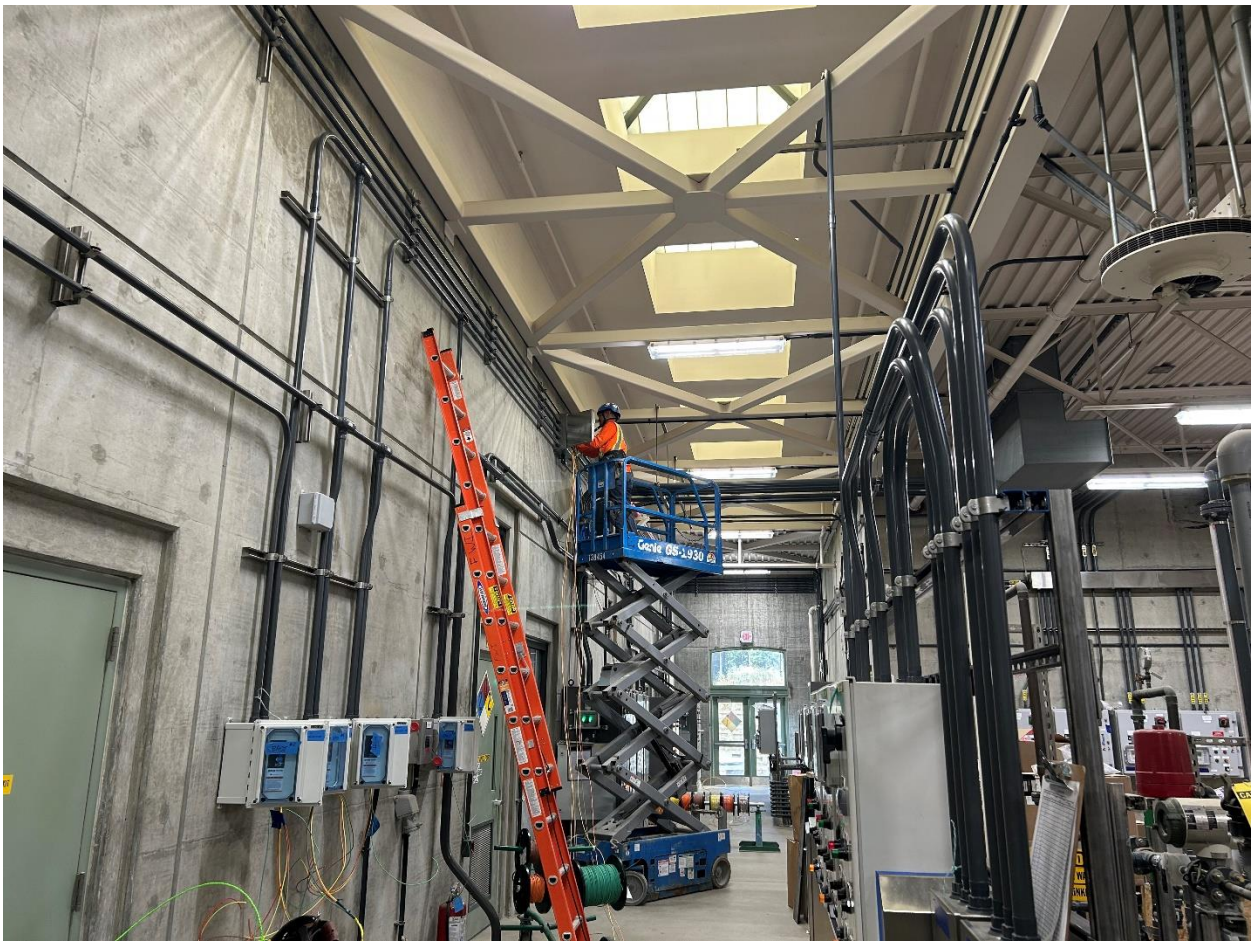


Photo 31 – Electrician on scissor lift in Chemical Building pulling electrical wires into conduits and pullboxes.

Photo 32 – Barrier wall installed in the Chemical Building to protect existing operations from dust and debris during demolition of old caustic soda systems as part of the Chemical Safety Systems Improvements portion of the project.

Photo 33 – Laborers performing selective demolition of the roofing system to install new skylights for the fluoride and ammonia rooms in the Chemical Building.