



MCWD – SCADA Consulting Services. Structural support for review of existing system deficiencies and design of new equipment.

City of Sunnyvale – Advanced Floatation Tank Replacement Project. Field investigation of tank vulnerability to seismic events.

Delta Diablo Sanitation District – Bridgehead Emergency Storage Basin and Pump Station. Structural design of a sewage pumping station and a 1 million gallon cast-in-place emergency storage basin. Included a concrete building 26 feet below grade and an above grade, two story, 1,720 sq. ft. masonry block building with a metal truss built-up roof.

City of San Bruno – Reservoirs. Structural assessment of The Cunningham Water Tank No. 1, built in 1964, a 2 million gallon, welded carbon steel tank; and the Glenview Water Tank No. 3, built in 1950, a 2 million gallon, prestressed concrete tank.

Sacramento County Airport System – Domestic Water Connection and Distribution System Piping Project. Provided engineering for the design of prestressed concrete pile foundation system supporting two 1.5 MG, prestressed concrete water storage reservoirs.

Delta Diablo Sanitation District - Pittsburg Recycled Water System. Working with multiple agencies, provided structural design and construction services for a 1 MG welded steel recycled water tank, main pump station building (prefabricated masonry unit), and a booster pump station of prefabricated, fiber-reinforced plastic.

Vopak Jet Fuel Storage Facility - Tank Inspection. Performed structural assessment of three jet fuel storage tanks located in Wilmington, California. The tanks experienced some degree of damage during the October 16, 1999 Hector Mine earthquake. The inspection ascertained whether damage to the interior aluminum floating cover was attributable to the seismic event.

Dublin San Ramon Services District – Dougherty Valley Reservoir 200B. Design of structural elements associated with 1.5 MG, prestressed concrete potable water reservoir. Client elected to use Performance Specification approach for design.

City of Brentwood – Surface Water Treatment Facility, Phase I. Structural design of 30 x 35 ft., 35-foot-deep wet well and concrete masonry electrical building.

City of Pleasanton - McCloud Water Tank. Structural assessment of a prestressed concrete tank built in 1953 and development of rehabilitation recommendations.

City of Livermore – Zone 1 Water System Improvement. Structural design of a masonry block pump station and prestressed concrete water storage reservoir.

Sunnyslope County Water District – Ridgemark WWTP Expansion Project. Structural engineering support for the modification and expansion of existing facility. Included headworks, membrane bioreactors, blower building and solids handling storage tank. Project included refurbishment and modifications of two existing submersible pump stations.

Diablo Hills Reservoir: Preliminary design of a below grade, cast-in-place reservoir for the Contra Costa Water District. This structure was sited beneath the 8th hole of an existing golf course.

Calleguas Water District - Water Storage Reservoir. Preliminary design for the structural elements of this 5.0-MG water storage reservoir. Structural evaluation included alternatives for prestressed concrete, cast-in-place concrete and steel. Both circular and rectangular configurations were considered. Provided technical consultation during the final design phase of the project.



City of Pittsburgh - Water Storage Reservoir. Preliminary design for replacement of an existing 6-MG water storage reservoir at the WTP. The design included two prestressed concrete reservoirs. A 1-MG reservoir was used as finished and backwash water storage, while a second 5-MG reservoir was sited in the footprint of the existing 6-MG tank. The design required two reservoirs to minimize the impact on the WTP.

City of Seattle - Tolt Water Filtration Plant. Structural design of a 120-mgd water filtration plant sited on the Tolt River east of Seattle. Process elements of this design/build/operate project consisted of ozone, flocculation, and filtration basins. Supporting facilities included a 7.4 MG, buried concrete clearwell, chemical storage, and plant operation facilities.

CCWD - Bollman WTP Expansion. Structural design required to add ozone treatment to the existing Bollman WTP in Contra Costa County. Specific structures included ozone contactors, ozone generation buildings, various foundations, secondary containment for new chemical storage areas, and a pier foundation for the proposed backwash tank. This project included special seismic design criteria specifically tailored for CCWD's projects and seismic upgrade of an existing 11 MG, buried concrete reservoir.

Vallicitos Water District - Twin Oaks Reservoirs. Technical review of two 33 MG, prestressed concrete reservoirs for water storage. Technical review of these circular prestressed concrete reservoirs was conducted on the final design documents for the project. Emphasis was focused on the seismic design elements of the project.

City of Southgate - Westside Reservoirs & PS. Structural design of two above grade, steel water storage reservoirs along with an associated pump station. Stand-by power and chemical storage were included in the project.

City of Wallingford - Overflow Reservoir. Structural design of a two celled, buried concrete reservoir.

SCVWD - Reservoir Evaluation. Seismic evaluation of two existing above grade water storage reservoirs. Both reservoirs were approximately 3 MG and required recommendations for mitigating potential damage caused by the design seismic event.

City of Redlands - 1350 Zone Reservoir. Structural evaluation and design of a 3.9 MG prestressed concrete water storage reservoir. Evaluation included alternatives for prestressed concrete, cast-in-place concrete, and steel.

Calleguas Water District - Springville Reservoir. Structural design of a cast-in-place access vault for the 48-inch outlet pipeline connection. Special attention was necessary to minimize the possibility of undermining the reservoir embankment and access roadway.

City of Burlingame - Donnelly Tanks. Assessment and coating design for two 50,000 gallon welded steel storage tanks.

Chino Basin Municipal Water District - Carbon Canyon WWTP. Structural design of upgrade to an existing WWTP. Included addition of a below grade, cast-in-place concrete storage reservoir and a 24-inch-diameter pipeline crossing at an existing highway bridge

City of Vallejo - Lake Chabot Spillway. Structural design of the new concrete spillway for Lake Chabot. Elements of the spillway included a required critical water elevation to maintain proper function of the water treatment facilities at Marine World Africa USA.



Santa Clara Valley Water District - Water Quality Regulation Compliance Project. Preliminary design for modifications to three WTPs. Specific project elements included recommendations for seismic upgrades to the WTPs and mitigations for limiting potential damage caused by a potentially active, 300-foot-deep landslide under the Penitencia WTP. Additional upgrade elements included the addition of ozone facilities and additional chemical storage facilities.

Alameda County Water District - WTP No. 2 (30 mgd) - \$30 million construction. Structural design of a WTP located in the seismically active south San Francisco Bay Area. The facilities include an operations building, separately housed chemical storage, and ozonation system. Unique aspects of this project included the process block concept (common wall construction) in which all of the basins were incorporated into one structure, and the special architectural requirements necessary for the residentially sensitive area in which it was constructed. Provided engineering services during construction.

City of San Francisco - San Andreas WTP Expansion Phase 2. Services during construction for the expansion and modification of the existing WTP. Expansion included addition of ozone treatment, capacity increase from 120 to 180 mgd, and an 8 MG prestressed and vertically post-tensioned concrete water storage reservoir. A unique aspect of this project was the 0.7 g lateral force requirement due to its close proximity to the San Andreas Fault.

City of Pittsburg - Water Storage Reservoir. Pittsburg WTP reservoir repair involving improvements to a 6-MG reservoir, with a wooden roof and concrete floor and sides, originally constructed in 1953. The hopper-bottom reservoir was leaking about 4,000 gal/min through cracks in the floor prior to the repair.

Contra Costa Water District - Reservoirs and Pump Station. Structural design of various water storage reservoirs and their associated pump stations for CCWD and developers within the District's management area. Projects include:

- Northgate Reservoir, 0.61 MG below ground cast-in-place concrete;
- Rancho Paraiso Reservoir, 0.4 MG below ground cast-in-place concrete;
- Oakhurst Reservoir, 0.75 MG below ground cast-in-place concrete;
- Irish Canyon Reservoir, 0.83 MG below ground cast-in-place concrete;
- Keller Ranch Reservoir, 0.48 MG below ground cast-in-place concrete;
- Power Line Reservoir, 0.4 MG below ground cast-in-place concrete;
- Eagle Peak Pump Station, concrete block with wood roof;
- Northgate Pump Station, concrete block with wood roof;
- Clubhouse Pump Station, concrete block with wood roof;
- Irish Canyon Pump Station, partially buried concrete; structure.

City of Pleasanton - Kottinger Ranch Reservoir. Structural design of a 1.0 MG, welded steel, above ground water storage reservoir with a concrete masonry pump station.

City of Rialto - Rialto Reservoir. Structural design of a 6.0 MG, partially buried, vertical post-tensioned, prestressed concrete water storage reservoir.

City of Vallejo - Clearpointe Reservoir. Engineering services during construction of an above ground, 1.6 MG, shotcrete, prestressed water storage reservoir.

City of Pittsburg - WTP Expansion. Engineering services during construction for the expansion of a WTP from 8 to 16 mgd.

Chinese Petroleum Corporation - Oil Storage EIR. Seismic evaluation portion of the environmental impact assessment for construction of ten welded steel reservoirs to store 211 MG of petroleum products in Taiwan.



City of Benicia - Reservoir Upgrade. Seismic evaluation and repair of an existing 2.3-MG water reservoir. The reservoir is an above grade, steel tank originally designed and built in 1970. Replacement of the ringwall foundation was required as part of the seismic mitigation measures.

City of San Bernardino - Devil Canyon WTP. Preliminary design of a 20-mgd WTP on a site divided by the San Andreas Fault. Preliminary information provided anticipated ground accelerations in excess of 1.0 g. The structural portion of the work included estimating preliminary sizes of this 20 mgd, modular design water treatment facility.

City of Corona, Water Storage Reservoir. Structural engineering for the design of a 4.7 MG prestressed concrete reservoir.

Oakley Water District - WTP Upgrades. Structural design of a concrete block pump station over the wet well of this 16-mgd WTP. Project also included a 2.5 MG, welded steel reservoir and minor modifications to the operations building and chlorine storage area.

Dublin-San Ramon Services District, CA - Seismic Evaluation. Seismic evaluation and design of upgrades for four steel reservoirs. The reservoir sizes ranged from 0.5 MG to 4 MG.

City of Petaluma - C Street Pump Station. Structural analysis of pump station design.

Monterey Water and Sanitation District - Analysis of Reservoir Roof Failure. Analysis of a prestressed concrete tank and development of recommendations

Sausalito Marin City Sanitary District – Wet Weather Storage Facility. Feasibility-level design for a 4.5 MG wet weather storage tank to be sited within Young's Bay Mud in the Marina District in Sausalito, CA

Monterey Water and Sanitation District - Analysis of Reservoir Roof Failure. Analysis of a prestressed concrete tank and development of recommendations.



Cucamonga Valley Water District - 1630 East Recycled Water Pump Station. Structural design of a 40'x74' concrete masonry unit pump station housing 5 pumps and an electrical room for equipment. Structure consisted of masonry slumpstone walls with metal truss pitched roof and asphalt shingles.

City of Pleasanton - Vineyard Avenue Pump Station. Provided engineering and construction services for the design of a 2,176 sq. ft. concrete masonry unit pump station/electrical building on a constricted site with strict architectural/aesthetic requirements.

Ironhouse Sanitary District – Ironhouse WWTP Expansion Project. Structural design of a 9-mgd expansion, including an influent pump station, headworks, anoxic/aeration basins, membrane bioreactors, backpulse tank, blower/electrical/generator/chemical building, UV/Effluent pump station, and a solids handling building

Napa Sanitation District - Recycled Water Pipeline and Pump Station Design. Design of booster pump station and support structures for pipeline crossings.

MCWD – SCADA Consulting Services. Structural support for review of existing system deficiencies and design of new equipment

Redwood City Glenwood Pump Station Improvements Project. Design of modifications to existing outdoor pump station to add a building and standby generator.

Delta Diablo Sanitation District – Bridgehead Emergency Storage Basin and Pump Station. Structural design of a sewage pumping station and a 1 million gallon cast-in-place emergency storage basin. Included a concrete building 26 feet below grade and an above grade, two story, 1,720 sq. ft. masonry block building with a metal truss built-up roof.

Monte Vista Water District - Pump Station. Provided engineering for the design of concrete masonry block pump station. The project was performed under an aggressive schedule, completed within four weeks from start to finish.

Delta Diablo Sanitation District - Pittsburg Recycled Water System. Working with multiple agencies, provided structural design and construction services for a 1 MG welded steel recycled water tank, main pump station building (prefabricated masonry unit), and a booster pump station of prefabricated, fiber-reinforced plastic.

City of Livermore - Airport Avenue Pump Station. Structural engineering consultation in support of the refurbishment of an existing pump station.

Contra Costa County Sanitation District – Acacia Avenue Pump Station. Structural engineering consultation in support of the refurbishment of an existing pump station with a capacity of 4 mgd.

Contra Costa County Sanitation District - Fairview Avenue Pump Station. Structural engineering support for the modification and expansion of an existing submersible pump station with a capacity of 12 mgd.

Central Sanitation District, Orinda - Storm Water Pump Station Refurbishment. Prepared seismic evaluations and retrofit designs for the upgrade of the Lower Orinda Pump Station. The expansion of this circa 1950 pump station increased the flow capacity from 14 mgd up to 21 mgd - the estimated capacity required for operation through 2035.

Monte Vista Water District, Montclair, CA – Aquifer Storage and Recovery Well No.30: Structural design of 32'x32' concrete masonry building. Project was performed under a very aggressive schedule, completed within four weeks.



Orange County Water District – Groundwater Replenishment Project. Pile foundation consulting services for the Groundwater Replenishment Project (GWR). GWR is a water reuse project funded jointly by the Orange County Water District and the Orange County Sanitation District, and is planned to ultimately reuse approximately 140,000 acre-feet per year of advanced treated wastewater. The project supplements existing water supplies by recharging the Orange County Groundwater Basin with a new, reliable, high quality source. The project augments County supply for irrigation and industrial use. Protecting the Basin from further seawater intrusion is another goal of the project

City of Livermore – Zone 1 Water System Improvement. Structural design of a masonry block pump station and prestressed concrete water storage reservoir.

Delta Diablo Sanitation District - Calpine Recycled Water Facility - \$11 million construction. Design of structural elements for a 13-mgd recycled water facility. This facility provides cooling tower water for two new power generation facilities. Process elements included influent pump station, clarifiers, filters, chlorine contact basins, effluent pump station, and a 2 MG, welded steel reservoir. Additional facilities include a chemical storage area and electrical building. Provided engineering services during construction.

Montebello Land and Water Company - Well No 14 Pump Station. Structural design of a concrete masonry building to house the equipment associated with this well head and pump station.

Fountain Valley Pump Station - Upgrades. Preliminary design for seismic upgrade and minor modifications for two existing pumps stations.

Zoe Avenue Pump Station. This 34-mgd pump station consists of a large wet well with the bottom invert depth at 50 feet below grade. Stormwater pumps are contained within a 2,360 sq. ft., masonry block building constructed atop the wet well. The pump station wet well walls are constructed of 36-inch diameter cast-in-drilled-hole piles with an internal coating of shotcrete.

City of Mountain View – Shoreline Sailing Lake Project. Design of structural elements for wet well submersible pump station for transferring water from the delta into the sailing lake.

Sunnyslope County Water District – Ridgemark WWTP Expansion Project. Structural engineering support for the modification and expansion of existing facility. Included headworks, membrane bioreactors, blower building and solids handling storage tank. Project included refurbishment and modifications of two existing submersible pump stations.

City of Pacific Grove - Reconstruction of Wastewater Pump Station 12. Design for relocation of an above grade emergency generator into a below grade, precast vault. Structure had to meet strict aesthetic requirements.

City of Stockton – River Island Sewage Pump Station. Structural design of a 15'x35' cast-in-place concrete wet well submersible pump station, approximately 30 feet below grade. With 50'x40' masonry block electrical and chemical storage building.

Moulton Niguel Water District - Crown Valley Highland Pump Station. Structural design of a 400 sq. ft., 12 mgd, below grade, concrete vault housing three recycled water pumps and associated instruments and controls.

Moulton Niguel Water District - Alicia Recycled Water Pump Station. Structural design of a 770 sq. ft., 9 mgd, concrete masonry building to house two recycled water pumps and associated instruments and controls.

North Open Space Well. Structural design of 850 sq. ft., masonry block building to house a well head pump station. Building was designed and constructed to look like a house.



South Montebello Irrigation District - Well No. 7. Structural design of a concrete masonry building to house a 700 bhp gas engine and pump system associated with a wellhead pump station.

Montebello Land and Water Company - Well No 14 Pump Station. Structural design of a concrete masonry building to house the equipment associated with this well head and pump station.

Department of the Navy, Camp Pendleton - \$8.5 million construction. Structural modifications to seven existing WWTPs and two existing lift stations for the Navy in Camp Pendleton, CA. Upgrades included addition of clarifiers, digesters and pump stations. Additional modifications include improving accessibility to various process units and upgrading existing operations buildings. Provided engineering services during construction.

City of Mesa, AZ - Gilbert/Mesa South WRF Lift Station. Structural design of a 14.33-mgd reclaimed water lift station. This facility included circular equalization basins, a 30 x 100 ft., 40-foot-deep dry well and provisions for future expansion, and addition of treatment facilities.

CCWD - Bollman WTP Expansion. Structural design required to add ozone treatment to the existing Bollman WTP in Contra Costa County. Specific structures included ozone contactors, ozone generation buildings, various foundations, secondary containment for new chemical storage areas, and a pier foundation for the proposed backwash tank. This project included special seismic design criteria specifically tailored for CCWD's projects and seismic upgrade of an existing 11 MG, buried concrete reservoir.

City of Mt View - Crittenden Pump Station. Structural design of a concrete, CMU pump station for this 600-hp pump station and set sell facility. The project included a standby power generation and fuel storage facilities.

Leucadia Water District - Bataquitos Pump Station. Structural design of a concrete block building to house electrical and control equipment for an existing 750-hp pump station.

Vallicitos Water District - Twin Oaks Reservoirs. Technical review of two 33 MG, prestressed concrete reservoirs for water storage. Technical review of these circular prestressed concrete reservoirs was conducted on the final design documents for the project. Emphasis was focused on the seismic design elements of the project.

City of Southgate - Westside Reservoirs & PS. Structural design of two above grade, steel water storage reservoirs along with an associated pump station. Stand-by power and chemical storage were included in the project.

City of Allentown, PA - WWTP Upgrades. Structural design for various upgrades to an existing WWTP designed in the 1920s. The project site was in a floodplain and required the use of rock anchors to prevent floatation of the basin foundations.

City of San Buenaventura, WRF Upgrades Project - \$11 million construction. Seismic evaluation of existing structures within this 14-mgd WWTP. Due to the close proximity of the facility to an active fault, the design level earthquake for the project was approximately 50 percent higher than typical UBC criteria. Modifications were designed to upgrade the existing structures to withstand the design level earthquake. Provided engineering services during construction.

City of Livermore - Pump Station Technical Review. Technical review of the structural design portion of a proposed concrete masonry pump station.

City of Tustin - Tustin Desalter. Structural design of a concrete masonry building for housing a desalting facility. The project included chemical storage, wet-well, and a mechanical room for the RO equipment.



Chino Basin Municipal Water District - Carbon Canyon WWTP. Structural design of upgrade to an existing WWTP. Included addition of a below grade, cast-in-place concrete storage reservoir and a 24-inch-diameter pipeline crossing at an existing highway bridge.

City of Glendale, CA - Groundwater Remediation. Structural design of facilities associated with groundwater remediation. Elements included seismic anchorage, operations facilities, chemical storage, groundwater well vaults, and a 240 foot, clear span pipe crossing over an existing water channel. Required mat foundations to accommodate potential settlement from the existing unconsolidated soils.

Contra Costa Water District - Reservoirs and Pump Station. Structural design of various water storage reservoirs and their associated pump stations for CCWD and developers within the District's management area. Projects include:

- Northgate Reservoir, 0.61 MG below ground cast-in-place concrete;
- Rancho Paraiso Reservoir, 0.4 MG below ground cast-in-place concrete;
- Oakhurst Reservoir, 0.75 MG below ground cast-in-place concrete;
- Irish Canyon Reservoir, 0.83 MG below ground cast-in-place concrete;
- Keller Ranch Reservoir, 0.48 MG below ground cast-in-place concrete;
- Power Line Reservoir, 0.4 MG below ground cast-in-place concrete;
- Eagle Peak Pump Station, concrete block with wood roof;
- Northgate Pump Station, concrete block with wood roof;
- Clubhouse Pump Station, concrete block with wood roof;
- Irish Canyon Pump Station, partially buried concrete; structure.

City of Pleasanton - Kottinger Ranch Reservoir. Structural design of a 1.0 MG, welded steel, above ground water storage reservoir with a concrete masonry pump station.

City of Pleasanton - Canyon Meadow Pump Station. Structural design of a concrete masonry building for this 6-mgd pump station.

City of Vallejo - Shadow Ridge Pump Station. Structural design of a concrete masonry structure for a 60-hp pump station.

City of Poway - Poway Pump Station. Structural review of the design for a concrete masonry pump station.

City of Santa Cruz - Neary Lagoon Pump Station. Engineering services provided during the construction of an outfall structure, a new 150 mgd, 750-hp pump station with a full stand-by power facility, and a seawall. The majority of the project was next to the municipal wharf in Santa Cruz.

City of Fontana - WWTP Preliminary Design. Predesign for the Fontana WWRF, a proposed 30-mgd WWTP in Southern CA. Included measures to mitigate potential impacts of a contaminated site.

Oakley Water District - WTP Upgrades. Structural design of a concrete block pump station over the wet well of this 16-mgd WTP. Project also included a 2.5 MG, welded steel reservoir and minor modifications to the operations building and chlorine storage area.

Monte Vista Water District – Well 32 and 33. Provided engineering for the design of a concrete masonry block pump station and a concrete slab on grade. The design for the building was required to meet strict aesthetic requirements for a residential area.