

Carlos Amante, PE, GE

Principal Engineer/Managing Officer

Mr. Amante has over 26 years of broad geotechnical and earthquake engineering consulting experience where he has consistently demonstrated a wide-ranging breadth of knowledge and ability to develop innovative and cost-effective engineering solutions to numerous private and public sector clients. He has vast experience working on transportation, water/wastewater, energy, industrial, commercial, and residential projects.

Mr. Amante is highly experienced in project management and technical delivery of projects involving complex ground investigation, seismic-resilient design of earthworks and foundations, slope engineering, liquefaction assessment, construction quality assurance & material testing, and constructability/value engineering study.

Relevant Experience

Highways & Bridges

I-5 HOV Lane Extension, Cities of Dana Point, San Clemente and San Juan Capistrano, Orange County, CA. Lead Geotechnical Engineer. Preliminary geotechnical investigation for widening and improvements of approximately 5.7-mile segment of I-5 freeway from San Juan Creek Road to Avenida Pico, including new HOV lanes and auxiliary lanes, and foundation design for five bridge widening or replacement.

I-5 HOV/Gene Autry Way Interchange Improvements, Anaheim, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed HOV Bridge for OCTA, including foundation design for retaining walls up to 30-ft high, roadway extension and storm drain system.

I-10/Sunset Avenue Interchange Improvements, Banning, CA. Geotechnical Project Manager. Geotechnical investigation for proposed I-10 ramp improvements, grade separation along Sunset Avenue, foundation design of new undercrossing bridge under the existing at-grade UPRR tracks just south of and parallel to I-10 freeway, and new retaining walls and pavements at a lower grade.

I-10/Pepper Avenue Interchange Improvements, Colton, CA. Geotechnical Project Engineer. Geotechnical investigation for proposed widening of I-10 freeway and Pepper Avenue for SANBAG. The new bridge widening structure adjacent to the existing bridge consists of four-span PC/PS I-girder structure will be supported on 16-inch diameter CIDH piles.

I-10/Citrus Avenue Interchange Improvements Fontana, CA. Geotechnical Project Engineer. Preliminary geotechnical study for the SANBAG proposed widening of Citrus Avenue, construction of additional lanes for freeway on-ramps and off-ramps, and replacement of Citrus Avenue Overcrossing and UPRR Bridge.

I-10/Cherry Avenue and I-10/Cedar Avenue Interchange Improvements, San Bernardino County, CA. Lead Geotechnical Engineer. Preliminary geotechnical studies for improvements to existing interchanges including evaluation of bridge widening, retaining walls, embankment fill slopes, pavements, and preliminary foundation design.

EDUCATION

- MS, Geotechnical Engineering, University of British Columbia, Canada, 1993
- ME, Master of Engineering, Earthquake Engineering, Kanazawa University, 1991
- BS, Civil Engineering, University of the Philippines, Metro Manila, Philippines, 1984

CERTIFICATIONS

- California, Geotechnical Engineer No. 2724
- California, Professional Engineer in Civil Engineering No. C57831

AREAS OF EXPERTISE

- Geotechnical Engineering
- Quality Assurance Testing & Inspection
- Deep & Shallow Foundations
- Water/Wastewater Treatment Facilities
- Educational Facilities
- Highways & Bridge Foundations
- Site-Specific Seismic Ground Motion
- Liquefaction and Landslide Hazard Assessment, Design and Mitigation

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I-15/Duncan Canyon Road Interchange Improvements, Fontana, CA. Lead Geotechnical Engineer. Geotechnical investigation for widening of Duncan Canyon Road and new overcrossing bridge, MSE walls, and new RCB culvert storm drain below the I-15 freeway for the City of Fontana.

I-15/Cajalco Road Interchange Improvements, Corona, CA. Lead Geotechnical Engineer. Geotechnical study for proposed bridge replacement of existing Cajalco off-ramp OC with the proposed Cajalco Road OC to be constructed with a four-span, CIP/PC box girders. The abutments and bents will be supported on 20-inch and 72-inch diameter CIDH piles, respectively.

I-15/Ranchero Road Interchange Improvements, Hesperia, CA. Geotechnical Project Manager. Geotechnical study for development of a new interchange facility on I-15 at the existing Ranchero Road junction, including the addition of entrance and exit ramps, widening of Ranchero Road from two lanes to six lanes, realignment of Caliente Road and Mariposa Road, and construction of a new Ranchero Road OC.

I-215/SR-60 East Junction HOV Connector, Riverside & Moreno Valley, CA. Lead Geotechnical Engineer. Geotechnical investigation for two new High Occupancy Vehicle (HOV) lane structures (bridges), HOV lane extensions, ramp widening and lowering, and Union Pacific Railroad bridge widening for the RCTC.

I-215 Segment 1 Widening and Realignment Project, San Bernardino, CA. Lead Geotechnical Engineer. Geotechnical investigation for approximately one mile of freeway improvements, including addition of new lanes, ramp realignments, and multiple pile-supported retaining walls.

I-215/Barton Road Interchange Improvements, Grand Terrace, CA. Geotechnical Project Manager. Geotechnical design study for replacing the existing Barton Road OC, West Barton Road Overhead, and Newport Avenue OC structures, widening the I-215 freeway and Barton Road, realigning the I-215 entrance and exit ramps as necessary to connect to Barton Road, and lengthening the ramps, and realigning and widening of Grand Terrace Road and Vivienda Avenue.

I-215 Bi-County HOV Gap Closure, San Bernardino and Riverside Counties, CA. Lead Geotechnical Engineer. Geotechnical investigation for widening and improvements of approximately 7.5-mile segment of I-215 freeway from SR-60/SR-91 interchange to Orange Show Interchange, including construction of new HOV lanes in both directions, foundation design for three roadway bridges crossing over Santa Ana River, I-10 freeway and Southern Pacific Railroad tracks and four railroad bridges crossing I-215 freeway and Riverside Canal.

I-405 Widening, Caltrans District 7 On-Call Services, Los Angeles, CA. Lead Geotechnical Engineer. Geotechnical investigations for proposed widening of I-405 freeway including five bridge and culvert structures (Port Road UC, Westwood Flood Control Channel Bridge, Sawtelle Boulevard UC, and two culvert extensions), and one bridge replacement (Palm Boulevard OC), and a new bridge structure (Culver Boulevard Off-Ramp Bridge).

I-405 Sepulveda Pass Widening, Los Angeles, CA. Lead Geotechnical Engineer. Geotechnical study of impact of construction of MSE wall embankment on existing MWD pipeline. Conducted numerical modelling of fill-induced settlements along the pipeline using FLAC program for LA Metro.

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SR-56, Black Mountain Road Segment, San Diego, CA. Geotechnical Project Engineer. Geotechnical investigation of a new 2-mile freeway with four bridge structures, retaining walls and sound walls.

SR-71/Mission Boulevard Interchange Improvements, Pomona, CA. Geotechnical Project Manager. Geotechnical investigation of proposed interchange improvements including a new bridge overcrossing along Mission Boulevard, ramps and MSE walls.

SR-74 Widening and Realignment, Segments 1 and 2, Riverside County, CA. Geotechnical Project Engineer. Geotechnical investigation of proposed widening and realignment of existing 8.2-mile long segments of Route 74 from Wasson Canyon Road in Lake Elsinore to 7th Street in Perris. The project included design of 12-ft high, 320-ft long masonry-block sound walls supported on trench footing for the RCTD.

SR-74/I-15 Interchange Improvements, Lake Elsinore, CA. Geotechnical Project Manager. Geotechnical design study for proposed widening of Route 15/74 Separation Bridge and reconstruction of freeway entrance and exit ramps for the RCTC.

SR-74/I-215 Interchange Improvements, Perris, CA. Geotechnical Project Manager. Geotechnical investigation for improvements to existing interchange including evaluation of bridge replacement, retaining walls, embankment slopes, pavements, and preliminary foundation design for the RCTC.

SR-91 Corridor Improvements, Riverside and Orange Counties, CA. Geotechnical Project Manager. Preliminary geotechnical investigation and aerially deposited lead (ADL) survey for proposed widening along SR-91 from SR-241 in eastern Orange County to Pierce Street in western Riverside County, and along I-15 from Cajalco Road to Hidden Valley Parkway. Major elements of this project included adding mixed-flow lanes, high-occupancy toll (HOT) lanes, and/or high-occupancy vehicle (HOV) lanes to each direction of SR-91 and I-15, new bridges, retaining walls, sound walls, widening of existing bridges, and reconstruction of existing local street interchanges to accommodate the proposed mainline improvements.

SR-91/La Sierra Interchange Improvements, Riverside, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed replacement of existing bridge with a new 10-lane bridge over the freeway and widening of existing ramps

SR-99/Mitchell Road/Service Road Interchange Improvements, Ceres, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed construction of diverging diamond interchange, four bridge replacements, 12 new MSE walls, seven detention basins, and local road improvements.

SR-101/Rice Avenue Interchange Improvements, Oxnard, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed reconstruction of existing interchange including bridge replacement, widening of SR-101 and Rice Avenue, new access ramps, MSE walls and sound walls. Key issues included settlement of underlying soft clayey soils during embankment construction and foundation design to mitigate liquefaction-induced settlement and lateral spreading potential.

SR-125 South Toll Road Segments 3B and 3C, Chula Vista, CA. Geotechnical Design Engineer. Geotechnical investigation for eight new bridges along the SR-125 South Toll Road including Olympic Parkway UC, Birch Parkway UC, Otay Lakes Road UC, Eastlake Parkway OC, East H Street UC, Proctor Valley Road UC, and Mount Miguel Road OC.

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SR-210, Segment 11, San Bernardino, CA. Geotechnical Project Engineer. Geotechnical investigation for proposed improvements of existing Route 210/I-215 interchange including 10 new bridge structures, MSE walls, tieback walls, sound walls, freeway, and 1.3-mile long storm drain along State Street for SANBAG.

SR-210, Segment 2, Upland, CA. Geotechnical Project Engineer. Geotechnical investigation for a new freeway segment including three new bridge structures (San Antonio Avenue, Euclid Avenue, and Campus Avenue), retaining walls, tieback walls, sound walls, freeway, and storm drain. Approximately 16-ft high, 2.7-mile long masonry-block sound walls supported on trench footing along both sides of the Route 210 freeway.

SR-210, Segment 10, Rialto, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed infiltration basins including field percolation testing to measure infiltration rate of soils.

Mid-County Parkway Corridor, Riverside County, CA. Lead Geotechnical Engineer. Preliminary geotechnical investigation for a new 32-mile long alignment from SR-79 on the east to I-15 on the west. The studies included identifying geologic and geotechnical constraints along the corridor, borrow site evaluation, pavement design, geotechnical analyses, and preparation of Preliminary Geotechnical Design Report and Materials Report, and 75 Preliminary Foundation Reports for advanced planning study of over 100 bridges for the new transportation corridor for the RCTC.

Riverside Drive Bridge Widening Near Zoo Drive over Los Angeles River, Los Angeles, CA. Geotechnical Project Manager. Construction quality assurance during site grading and pile driving inspection, pile driving analyzer (PDA) testing, and noise and vibration monitoring.

First Street Viaduct over Glendale Boulevard, Los Angeles, CA. Geotechnical Project Manager. Geotechnical investigation, preparation of Final Bridge Foundation Report, review of plans and technical specifications.

Queensway Bridge Over Shoreline Drive, Long Beach, CA. Geotechnical Project Engineer. Geotechnical investigation for seismic retrofit of the existing bridge. Analysis of dynamic response of the site and development of site-specific design spectra for liquefied condition. Foundation retrofit included use of large-diameter CIDH piles and compaction grouting of existing abutment slopes.

Overland Drive Bridge over Murrieta Creek, Temecula, CA. Lead Geotechnical Engineer. Geotechnical design investigations for the proposed three-span cast-in-place concrete girder bridge over Murrieta Creek; foundation design of proposed 36-inch and 72-inch diameter CIDH piles at the abutments and bents, respectively. Design of stone columns at the abutments to mitigate liquefaction-induced lateral spreading.

Ivy Street Bridge Replacement over Murrieta Creek, Murrieta, CA. Geotechnical Project Manager. Geotechnical investigation for the proposed four-span cast-in-place concrete girder bridge over Murrieta Creek. Conducted seismic hazard and foundation design of proposed 30-inch and 60-inch diameter CIDH piles at the abutments and bents, respectively. Developed site-specific design response spectra for liquefied condition (Soil Profile Type F). Recommended compaction grouting at the abutments to mitigate liquefaction-induced lateral spreading.

La Tijera Boulevard Bridge Widening over I-405 and Centinela Creek Channel, Los Angeles, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed widening of existing La Tijera Boulevard OC, La Tijera Overhead, and access ramps.

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Local Agency Seismic Retrofit Projects, Southern and Northern California, Geotechnical Project Engineer. Geotechnical investigations for seismic retrofit of over 40 existing bridges jointly undertaken by Caltrans and various local cities and counties in Southern and Northern California. Foundation retrofit strategies included use of large-diameter CIDH and CISS piles, cut-off walls, compaction grouting, and stone column remediation for Caltrans.

Seismic Evaluation of Historic Bridges in the City of Los Angeles, Los Angeles, CA. Lead Geotechnical Engineer. Geotechnical seismic evaluation of four historic bridge structures crossing Arroyo Seco Channel at Avenue 26, Avenue 43, Avenue 60, and York Boulevard; development of site-specific response spectra, field and laboratory testing, liquefaction evaluation, dynamic soil-structure interaction, as-built capacities, and foundation recommendations for widening. The historic concrete arch structures required complex seismic analyses and innovative retrofit schemes.

Cebu-Cordova Link Expressway Project, Cebu, Philippines. Lead Geotechnical Engineer. Seismic hazard evaluation for proposed Main Bridge, consisting of a three-span, cable-stayed bridge, approximately 1,300-ft long, 89-ft wide and 476-ft high. Scope of work included development of site-specific design response spectra and spectrum-compatible 3-D rock site, earthquake accelerograms to be used for non-linear dynamic analysis of the bridge.

Plaridel Bypass Toll Road Project, Bulacan, Philippines. Lead Geotechnical Engineer. Geological and geotechnical feasibility study funded by the Asian Development Bank for the proposed 15-mile long toll road. The project consists of development of an existing two-lane local bypass road into a four-lane toll expressway located on rice farmlands. The project includes expansion of 10 existing bridges and construction of five new overpasses, three interchanges, service roads, and toll plazas.

Transmission Gully Motorway Project, Wellington, New Zealand. Lead Geotechnical Engineer. Geotechnical investigation and detailed design review of proposed 16.8-mile long, four-lane (two in each direction) median-divided motorway from MacKays to Linden (through Transmission Gully), with interchanges connecting the route to MacKays, SH58, eastern Porirua and Kenepuru. The project, which was implemented under a Public-Private Partnership (PPP) model, consists of design and construction of 28 bridges and several high cut slopes, MSE embankments, culverts and retaining walls. The ground investigation consists of approximately 50 boreholes, 38 test pits and 10 CPT investigations.

SH3 Corridor Improvements, Vickers Road to New Plymouth City, New Zealand. Lead Geotechnical Engineer. Detailed design of bridge foundations, retaining walls and embankments of proposed highway widening of 3.3-mile long segment of SH3, including Te Henui and Waiwhakaiho River Bridge Crossings. Provided review and recommendations during construction and embankment settlement monitoring at Te Henui Bridge and installation of anchored retaining wall at Paynter's Avenue.

SH2 Rimutaka Hill Road Stage 3 Improvements, Rimutaka, New Zealand. Lead Geotechnical Engineer. Geotechnical design for reconstruction of landslide-damaged slopes along Rimutaka Hill Road using MSE and cantilever soldier pile retaining walls.

Bridge 2217 Vunivaivai Bridge Replacement, Viti Levu, Fiji. Lead Geotechnical Engineer. Geotechnical peer review of proposed detailed design and construction of a two-span bridge replacement to be supported on driven cast-in-steel shell pile foundations.

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SH1 Corridor Improvements, Otaki to North Levin, New Zealand. Lead Geotechnical Engineer. Geotechnical investigation including assessment of geologic and seismic hazards constraints and preparation of Project Feasibility Reports (PFRs) and Geotechnical Investigation Report for the proposed 18.6-mile long highway improvements, located north of Wellington region.

Carnarvon Highway 24E, Chainage 75.10-75.20, TNRP Project, Fitzroy Region, Queensland, Australia. Lead Geotechnical Engineer. Geotechnical studies for repair of the highway damaged by extreme rain and flooding, including a review of site geologic/seismic hazards, assessment of slope stability risk and proposed remedial works.

Bridge Foundation Design Assessment, TNRP Project, Fitzroy Region, Queensland, Australia. Geotechnical Design Engineer. Geotechnical studies and analysis of vertical and lateral pile capacities of four existing concrete bridges across Alderbran Creek, Bullaroo Creek, Palm Tree Creek and Woolein Creek, which have been damaged by flood-induced scour and stream impact forces.

NZTA Woodend Bypass Project, Christchurch, New Zealand. Lead Geotechnical Engineer. Preliminary foundation design for proposed permanent two-span concrete bridge across Kaiapoi River and temporary single-span Bailey bridge across Cam River which are subject to liquefaction-induced settlement and lateral spreading in future earthquakes.

Reconstruction of Manawatu Gorge Bridges 7, 8 and 9, Wanganui, New Zealand. Lead Geotechnical Engineer. Geotechnical evaluation of proposed reconstruction of Manawatu Gorge bridges damaged by the 2011 landslide. The review was performed to check for consistency with knowledge of site geology and project experience.

Flood Damage Repairs, Mohaka Township Road Slips, Wairoa, New Zealand. Lead Geotechnical Engineer. Reviewed proposed slope stabilization design using geogrids and construction specifications for flood damage repairs of road slips.

Welcome Bay Road Realignment Project, Western Bay of Plenty, New Zealand. Lead Geotechnical Engineer. Slope stabilization design and construction specifications on road cuts into ignimbrite rock using soil nail walls and gabion walls for proposed roadway realignment and widening.

Proposed Te Atatu Road Corridor Improvements, Auckland, New Zealand. Lead Geotechnical Engineer. Geotechnical design and construction of proposed roadway improvements.

Street Improvements

Bicycle and Pedestrian Facilities, Sixth Street Viaduct Replacement Project, Los Angeles, CA. Geotechnical Project Manager. Geotechnical investigation for proposed street pavement improvements on Mission Road, Jesse Street and Myers Road and installation of underground fiberglass-reinforced polymer (FRP) water silos with a nominal diameter of 12 feet and height of up to 60 feet.

City of Laguna Niguel Design Services for Construction and Beautification of Landscaped Medians and Monuments, Laguna Niguel, CA. Lead Geotechnical Engineer. Geotechnical and foundation design of shallow foundations for 23 monuments, and drilled caissons for two 60-ft high monuments to be located throughout the City of Laguna Niguel.

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La Paz Road Sidewalk Widening, Laguna Hills, CA. Geotechnical Project Manager. Geotechnical investigation, preparation of geotechnical design report providing recommendations for sidewalk widening using drilled pile-supported retaining walls and soundwalls, and preparation of plans and technical specifications.

Ocean View Boulevard Slope Repair Project, La Cañada-Flintridge, CA. Geotechnical Project Manager. Geotechnical investigation, preparation of geotechnical design report providing recommendations for slope reconstruction and repair of retaining walls, and preparation of plans and technical specifications.

City of Lawndale Grevillea Avenue and Alley Improvements, Lawndale, CA. Geotechnical Project Manager. Pavement design services for the proposed rehabilitation of existing pavements along Grevillea Avenue between Manhattan Beach and Marine Avenue and street alley east of Hawthorne Boulevard between 167th Street and 168th Street for total distance of approximately 2,960 feet.

City of Placentia Residential Street Rehabilitation, Placentia, CA. Geotechnical Project Manager. Pavement design services for the rehabilitation of select residential streets within the City of Placentia, including pavement coring.

City of La Habra Heights Pavement Rehabilitation, La Habra Heights, CA. Geotechnical Project Manager. Pavement design services for the rehabilitation of select residential streets within the City, including pavement coring.

City of San Bernardino H Street Widening, Grevillea Avenue and Alley Improvements, Lawndale, CA. Geotechnical Project Manager. Pavement design services for the proposed widening of H Street, from Kendall Drive to 40th Street for a distance of approximately 1,000 feet.

City of Ontario New Model Colony, Ontario, CA. Lead Geotechnical Engineer. Geotechnical investigation for the backbone infrastructure consisting of 37 miles of roads, sewer and water mains, foundation design of bridges crossing Cucamonga Creek Flood Control Channel, Lower Deer Creek Channel, and the County Line Channel.

City of Hesperia Capital Improvement Projects, Hesperia, CA. Geotechnical Project Manager. Geotechnical investigations for the following projects: (a) Industrial Lead Railroad Track (1 mile), (b) Rancho Road widening (4.8 miles) from Mariposa Road to 7th Avenue, and (c) Main Street roadway and bridge widening (3 miles) from Mariposa Road to 11th Avenue.

Foothill Boulevard Widening, Rancho Cucamonga, CA. Geotechnical Project Engineer. Geotechnical investigation of proposed roadway widening of one-mile segment between Grove Avenue and Vineyard Avenue for SANBAG.

Pepper Avenue Extension Project, Rialto, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed 2,800-ft long extension to Pepper Avenue, which connects SR-210 on the north and existing Pepper Avenue to the south and across Lytle Creek. Provided geotechnical recommendations for the proposed 34-ft high roadway embankment, crib walls and four reinforced concrete box culverts.

Campus Avenue Realignment and 20th Street Extension, Upland, CA. Geotechnical Project Engineer. Geotechnical investigation of proposed realignment of existing Campus Avenue between

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19th Street and 20th Street and extension of 20th Street from the existing Campus Avenue to the New Campus Avenue.

Scott Road Widening, Riverside County, CA. Lead Geotechnical Engineer. Geotechnical investigation of proposed widening of 5-mile long section between Antelope Road and Winchester Road (SR-79). Scope of work included evaluation of existing structural pavement sections and subgrade soils, site preparation, earthwork, excavation and shoring, drainage facilities, utility trench bedding and backfill for the RCTD.

Railroads & Grade Separations

Metro Gold Line Foothill Extension, Pasadena to Montclair, CA. Lead Geotechnical Engineer. Preliminary geotechnical investigations for proposed widening of 24 miles of existing rail for future LRT and BNSF use. Performed seismic hazard and foundation design study for proposed 16 railroad bridge structures.

Metro Blue Line, Los Angeles to Pasadena, Pasadena, CA. Geotechnical Project Engineer. Geotechnical investigation of proposed Sierra Madre Villa Station Pedestrian overcrossing. Provided geotechnical and seismic design recommendations for the seismic retrofit design of existing Madre Street Underpass and Madre Street Undercrossing. Performed seismic hazard analysis and dynamic displacement analysis for the two-level seismic design criteria of the proposed Colorado and Figueroa Tunnel structures.

Eastside LRT Project, Los Angeles, CA. Geotechnical Project Engineer. Preliminary geotechnical investigation including foundation design and seismic hazard evaluation of existing First Street Viaduct over the Los Angeles River, Third Street OC and Third Street UC.

Alameda Corridor-East Grade Separation Projects at Baldwin Avenue, Nogales Street and Brea Canyon Road, Los Angeles County, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed railroad bridges over existing roadways, retaining walls, and pump stations at four grade separation projects.

Orangethorpe Avenue Grade Separation, Placentia and Anaheim, Orange County, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed bridge over BNSF railroad tracks, retaining walls and sound walls, drainage modifications and utility removal.

Orange County Gateway Project, Placentia, CA. Geotechnical Project Engineer. Geotechnical investigation for proposed improvements of existing at-grade crossings within the Orangethorpe Corridor of BNSF railway line.

Mojave River Bridge Crossing, Southern California Logistics Airport (SCLA) Lead Tract Project, Victorville, CA. Lead Geotechnical Engineer. Geotechnical investigation for the proposed five-span steel deck girder, railway bridge, located across Mojave River. Performed seismic hazard and foundation design of proposed 30-inch and 60-inch diameter CIDH piles at the abutments and bents, respectively. (Client: SCLA).

BNSF Railroad Bridge Replacement, Cajon Subdivision Third Main Track, San Bernardino, CA. Geotechnical Project Manager. Geotechnical investigation for a new bridge to replace the northern portion of existing bridge below the proposed Third Main Track.

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Sunset Avenue Grade Separation, Banning, CA. Geotechnical Project Manager. Geotechnical investigation for proposed lowering of Sunset Avenue by up to 25 feet and construction of a two-span bridge undercrossing at existing at-grade crossing at UPRR.

Gene Autry Trail Bridge Widening, Palm Springs, CA. Lead Geotechnical Engineer. Geotechnical investigation for widening of the bridge over the Union Pacific Railroad with a new bridge on the east side of the existing structure.

Victoria Avenue Bridge, Riverside, CA. Geotechnical Project Engineer. Geotechnical investigation of proposed seismic retrofit of existing bridge, including review of existing boring data, analysis of axial and lateral pile capacities and dynamic spring constants for 36-inch and 48-inch diameter CIDH piles, and preparation of Foundation Report.

Clay Street Grade Separation, Riverside, CA. Geotechnical Project Manager. Preliminary geotechnical investigation for proposed bridge over BNSF railroad tracks, retaining walls and sound walls, drainage modifications and utility removal.

Vereda Bikeway Underpass, San Juan Capistrano, CA. Geotechnical Project Engineer. Geotechnical investigation of proposed three-span railroad bridge extension supported on steel H-piles to provide for bikeway underpass along the north side of San Juan Creek Channel.

LAX to Palmdale High-Speed Ground Access Study, Southern California. Geotechnical Project Engineer. Geo-hazards study and preparation a Geotechnical and Seismicity Report for the EIR Document.

OCTA Centerline Project, Orange County, CA. Geotechnical Project Engineer. Geo-hazards study and preparation of a geotechnical and seismicity report for the proposed light-rail transit system in Orange County from Fullerton to Irvine for OCTA.

Irvine Guideway Rail Project, Irvine, CA. Geotechnical Project Engineer. Geo-hazards study and preparation of a geotechnical and seismicity report for the proposed light rail transit system within the City of Irvine.

Sea Ports & Harbors

Pier A Development Project, Berths 88-92, Port of Long Beach, CA. Geotechnical Staff Engineer. Seismic stability analysis/design of proposed pile-supported wharf-rock dike structure including numerical modeling (using FLAC program) of anticipated dynamic response, liquefaction-induced deformation and soil-pile structure interaction behavior during design earthquake.

Pier S Development Project, Berths 102-108, Port of Long Beach, CA. Geotechnical Project Engineer. Geotechnical investigation, two-level probabilistic seismic hazard evaluation, and seismic stability analysis/design of proposed pile-supported wharf-rock dike structure including numerical modeling (using FLAC program) of anticipated dynamic response, liquefaction-induced deformation and soil-pile structure interaction behavior during design earthquake.

Pier T/Navy Mole Development, Port of Long Beach, CA. Geotechnical Project Engineer. Geotechnical analysis of seismic stability and liquefaction-induced ground displacements of proposed dike structure using FLAC program.

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Berths 93 A&B Bus Ramps, Port of Los Angeles, CA. Geotechnical Project Engineer. Geotechnical investigation for the proposed 25-ft high extension structures for the existing bus ramps of the Passenger Cargo Terminal.

Berths 121-130, Port of Los Angeles, CA. Geotechnical Project Engineer. Slope stability analysis and seismic evaluation of existing APL Container Terminal wharf.

Berth 216-218 Wharf, Port of Los Angeles, CA. Geotechnical Project Engineer. Geotechnical investigation of proposed 30.5-m gauge crane rail and new marine terminal building.

Terminal Island Railroad Embankment Project, Port of Los Angeles, CA. Geotechnical Project Engineer. Geotechnical investigation for proposed embankment for railroad tracks adjacent to an existing Port of Long Beach land farm currently used for treatment of contaminated soils.

Airport Facilities

Taxiway B (Future Taxiway E) and Taxiway L improvements, Long Beach Airport, Long Beach CA. Geotechnical Project Manager. Geotechnical investigation for proposed pavement rehabilitation of existing taxiway facilities.

Hangar Plan J Development, Chino Airport, Chino, CA. Lead Geotechnical Engineer. Geotechnical investigation for new aircraft hangar facility and associated office buildings near Runway 3/21.

Federal Express Lease Gates Reconstruction, Ontario International Airport, Ontario, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed reconstruction of Gates 701 and 702 in the south-central portion of the airport to accommodate FedEx cargo planes. Provided foundation recommendations for the proposed structures and pavement design recommendations for aircraft taxi lanes and new auto vehicle parking lots.

San Bernardino International Airport Improvements, San Bernardino, CA. Lead Geotechnical Engineer. Geotechnical consultation during construction on design and subgrade compaction recommendations for the proposed rehabilitation and expansion of existing airport facility.

Boeing Sea Launch Site, Naval Station Mole, Long Beach, CA. Geotechnical Project Engineer. Seismic stability analysis and prediction of liquefaction-induced ground displacements using FLAC program.

Dams & Levees

Sycamore Canyon Dam Emergency Spillway Retrofit Project, Simi Valley, CA. Lead Geotechnical Engineer. Geotechnical investigation for the proposed riprap berm improvements and remedial mitigation for the dam spillway foundations.

Levee Evaluation Studies, Los Angeles County Department of Public Works, Pico Rivera, Arcadia, Glendora, and Monrovia, CA. Geotechnical Project Manager. Geotechnical investigation for existing levees at four spreading ground facilities located at Rio Hondo (in Pico Rivera), Santa Anita (in Arcadia), Little Dalton (Glendora) and Sawpit (in Monrovia) to evaluate embankment stability for saturated, seepage and rapid drawdown conditions, potential for piping and erosion of embankments and underlying soils, and develop recommendations for improving levee stability.

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FEMA Levee Certification Projects, San Bernardino County, CA. Lead Geotechnical Engineer. Geotechnical evaluation and site-specific probabilistic seismic hazard analysis including development of design response spectra for 29 existing levees maintained and operated by San Bernardino County Flood Control District to develop recommendations for improving levee stability.

Levee Repairs, Puddingston Diversion Dam and San Dimas Spreading Grounds, San Dimas, CA. Geotechnical Project Manager. Geotechnical exploration initiated for proposed basins and culverts, and protection levee. Stabilization of scoured, steep slopes adjacent to residences, in addition to increasing the capacity of the channel.

Masbate Gold Project, Masbate Island, Philippines. Geotechnical Peer Reviewer. Site inspection of construction of saddle dam and tailings impoundment and evaluated borrow materials used during construction.

Bulawan Mine Tailings Storage Facility Closure Study, Negros Occidental, Philippines. Lead Geotechnical Engineer. Liquefaction hazards assessment, including evaluation of deterministic and probabilistic ground motion parameters and potential liquefaction-induced ground deformations and their impacts on the tailings dam stability.

Reservoirs & Water Storage Tanks

Apple Valley Water System Improvements, Apple Valley, San Bernardino County, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed water system improvements, including two 28-ft diameter, 16-ft high steel-bolted potable water tanks to replace the three existing water tanks at the Mesa Vista tank site, 6-inch diameter, 4,800-ft long transmission pipeline, and 8-inch diameter, 1,300-ft long distribution lines.

100,000-Gallon Pasall Road Water Tank, La Jolla Indian Reservation, San Diego County, CA. Lead Geotechnical Engineer. Geotechnical investigation for design and construction of a 27-ft diameter, 24-ft high bolted steel potable water storage tank adjacent to an existing irrigation water tank.

70,000-Gallon Duro Road Water Tank, San Pasqual Indian Reservation, San Diego County, CA. Lead Geotechnical Engineer. Geotechnical investigation for design and construction of a welded or bolted steel water storage tank with a shell height of less than 20 feet and a diameter of less than 36 feet.

10.8-MG Water Storage Facility, Santa Clarita, CA. Geotechnical Project Manager. Geotechnical reconnaissance review for the proposed emergency and operational water storage facility, including a water reservoir along with supporting appurtenances that may include pipelines, pressure regulators, valves and pump stations.

4.0-MG Palm No. 3 Reservoir, Verdmont Water Infrastructure Improvements–Phase 1 Facilities, City of San Bernardino, CA. Lead Geotechnical Engineer. Geotechnical investigation for a new concrete reservoir, approximately 174 feet in diameter and 24 feet in height. (

Two 5.0-MG Steel Water Tanks, Plant 19A Improvements, Hesperia, CA. Lead Geotechnical Engineer. Geotechnical investigation for two new cylindrical, welded-steel water tanks, with each tank approximately 174 feet in diameter and 35 feet in height.

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2.0-MG 2300 Zone East Reservoir, San Bernardino, CA. Lead Geotechnical Engineer. Geotechnical investigation for design and construction of a new concrete reservoir, 113 feet in diameter and 30 feet in height.

6.0-MG Highland Avenue Reservoir Replacement, Yorba Linda, CA. Geotechnical Project Manager. Geotechnical investigation and value engineering study of proposed permanent concrete water reservoir and two temporary steel water tanks to replace the existing buried hopper reservoir.

1.0-MG Arbor Ridge Steel Water Tank, Walnut, CA. Geotechnical Project Manager. Geotechnical investigation for a new welded-steel water tank located in the San Jose Hills.

3.0-MG Rawlings Reservoir Replacement, City of Tustin, CA. Geotechnical Project Manager. Geotechnical investigation for the proposed replacement of existing 4.2-MG hopper-type water reservoir with two cylindrical concrete water-tanks.

5.0-MG "Whitegates" Concrete Water Tank, City of Riverside, CA. Geotechnical Project Manager. Supervised geotechnical investigation for the proposed buried reinforced concrete potable water tank located on a hilly, rocky terrain.

7.5-MG "Emtman II" Concrete Water Tank, Riverside, CA. Geotechnical Project Manager. Geotechnical update study for the proposed 200-ft diameter reinforced concrete potable water tank located on a hilly, rocky terrain.

11.0-MG "Raley" Concrete Water Tank, Riverside, CA. Geotechnical Project Manager. Supervised geotechnical update study for proposed 230-ft diameter below-grade reinforced concrete potable water tank located on a hilly, rocky terrain.

Two 8.0-MG Steel Water Storage Tanks, Westminster, CA. Geotechnical Project Engineer. Geotechnical investigation and site-specific seismic hazard analysis for two 190-ft diameter, 40-ft high steel water storage tanks built side-by-side on a 4-acre site. Recommended site remediation consisting of soil surcharge program and installation of stone columns to mitigate weak upper clay soils and loose liquefiable sands underneath the site.

5.25-MG St. Joseph Reservoir No. 1, Arcadia, CA. Geotechnical Project Engineer. Geotechnical investigation and site-specific seismic hazard analysis for a new rectangular concrete reservoir.

Water/Wastewater Treatment Plants and Pipelines

Elsinore Valley Municipal Water District (EVMWD) Diamond Regional Sewer Dual Force Mains, Lake Elsinore, CA. Principal Engineer/QA-QC Reviewer. Provided project management and QA-QC review of geotechnical investigation of proposed 16-inch and 24-inch diameter HDPE pipe to be installed inside a 66-inch diameter steel casing by bore-and-jack method of construction crossing under the San Jacinto River at a depth of 35 feet below ground surface.

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EVMWD Diamond Regional Sewer Lift Station, Lake Elsinore, CA. Principal Engineer/QA-QC Reviewer. Provided oversight of geotechnical investigation of lift station consisting of 47-ft by 87-ft concrete structure with two below-grade wet wells about 54 ft deep, diesel generator, odor control system, chemical feed equipment, electrical building, pigging station, flow metering vault and all associated site yard piping and site grading.

Flower Street Sewer Main Replacement, Santa Ana, CA. Principal Engineer/Project Manager. Provided contract and project management for the geotechnical design of the project. The project includes design and construction of approximately 4,500 linear feet of sewer main (15", 12" and 8" diameter pipes) and sewer related appurtenances including manholes and sewer laterals along Flower Street, 17th Street and Greenleaf Street in Santa Ana.

Old Grand Street, Santa Clara Avenue, and Wright Street Sewer Main Replacement, Santa Ana, CA. Principal Engineer/Project Manager. Provided contract and project management for the geotechnical design of the project. The project includes design and construction of approximately 3,000 linear feet of 15-inch diameter and 2,900 linear feet of 12-inch diameter sewer mains and sewer-related appurtenances including manholes and sewer laterals along Old Grand Street, Santa Clara Avenue and Wright Street in Santa Ana, California.

Fisher Park and Lacy Neighborhood Water Main Replacement, Santa Ana, CA. Principal Engineer/Project Manager. Provided contract and project management of the geotechnical investigation for the project. The project included design and construction of approximately 15,000 linear feet of water main replacement along 20 city streets in the City of Santa Ana. The pipelines were 8-inch to 12-inch diameter polyvinyl chloride (PVC).

French Park Water Main Santa Ana, CA. Principal Engineer/Project Manager. Provided contract and project management of the geotechnical investigation for the project. The project included design and construction of approximately 15,000 linear feet of water main replacement along 14 city streets in the City of Santa Ana. The pipelines were 8-inch to 12-inch diameter polyvinyl chloride (PVC).

EI Centro Wastewater Treatment Plant Improvements, El Centro, CA. Lead Geotechnical Engineer. Geotechnical investigation for design and construction of proposed bar screen structure with a footprint of approximately 700 square feet and depth of 25 feet.

EI Centro Sewer Pipeline Replacement, El Centro, CA. Lead Geotechnical Engineer. Geotechnical investigation for design and construction of proposed replacement of portions of existing gravity sewer lines and repair or replacement of existing manholes, located along Imperial Avenue from Adams Avenue to Brighton Avenue, and on portions of Villa Avenue from east of N 12th Street to the railroad tracks east of N 6th Street.

San Luis Rey Water Reclamation Facility, Oceanside, CA. Lead Geotechnical Engineer. Peer review of geotechnical analysis and design of proposed ground improvements and pile foundations to mitigate load-induced settlement and liquefaction-induced hazards at the site of proposed 2.0-MG water storage tank.

Arantine Hills Sewer Project, Corona, CA. Lead Geotechnical Engineer. Geotechnical observation and material testing services during construction of Arantine Hills Lift Station and Force main Reach 1 and California Avenue sewer line.

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Cameron Avenue Sewer Main Rehabilitation Project, West Covina, CA. Geotechnical Project Manager. Geotechnical investigation for the proposed rehabilitation of existing 10-inch diameter, 2,000-ft long, vitrified clay pipe (VCP) sewer main along Cameron Avenue between Citrus Street and 750 feet east of Inman Road. The sewer line was constructed by pipe-bursting method in the same alignment as the existing sewer pipeline with new 14-inch diameter High Density Polyethylene (HDPE) pipe.

Gateway Regional Recycled Water System Extension Project, Bell Gardens, CA. Geotechnical Project Manager. Geotechnical investigation for the proposed 5,500 linear feet (LF) of recycled water pipeline varying in diameter between 8 and 16 inches.

Phase 2 Water Relocation Project at the Ranch Resort & Golf Course, Laguna Beach, CA. Geotechnical Project Manager. Geotechnical observation and testing during installation of approximately 8-inch diameter, 200-ft long PVC potable water main and in-place abandonment of approximately 300 feet of 8-inch diameter asbestos cement pipe (ACP).

Vail Lake Transmission Main and Pump Station, Rancho California, CA. Geotechnical Project Manager. Geotechnical investigation for the proposed 48-inch diameter, 2.6-mile long pressurized steel water pipeline and pump station located downstream from Vail Lake Dam.

Highway 86 Transmission Main Extension, Riverside County, CA. Lead Geotechnical Engineer. Supervised geotechnical investigation for the proposed 24-inch diameter, 16.3-mile long ductile iron pipeline.

Inland Feeder Pipeline, Riverside Segment, Riverside County, CA. Geotechnical Project Engineer. Geotechnical exploration for the proposed 12-ft diameter, 15-mile long water pipeline from San Jacinto to Hemet.

Bluebird SOCWA Lift Station Odor Control Improvements, Laguna Beach, CA. Geotechnical Project Manager. Geotechnical investigation for installation of a biological odor control system for treatment of hydrogen sulfide and other odorous compounds found in the municipal wastewater collection systems. The project included excavation of existing slope and construction of a concrete gravity-type retaining wall.

Proposed Structures at the Whittier Narrows Water Reclamation Plant, South El Monte, CA. Geotechnical Project Manager. Geotechnical investigation for return activated sludge pump station, standby generator and lube oil cooler platform.

Saugus Aquifer Groundwater Treatment Plant, Santa Clarita, CA. Geotechnical Project Manager. Geotechnical observations and soil testing during grading and construction of proposed groundwater treatment system supported on mat foundation and underlain by geogrid-reinforced subgrade soils.

Visitor Center Renovation, Edward C. Little Water Recycling Facility, El Segundo, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed renovation of the facility's Visitor Center, landscaping, and parking lot improvements.

Recycled Water Pump Station, City of Industry, CA. Geotechnical Project Manager. Geotechnical investigation of proposed wet-well recycled water pump station located within the landscaped median of Grand Crossing Parkway.

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New Model Colony, Ontario, CA. Lead Geotechnical Engineer. Geotechnical investigation for the backbone infrastructure consisting of 37 miles of roads, sewer and water mains, foundation design of bridges crossing Cucamonga Creek Flood Control Channel, Lower Deer Creek Channel, and the County Line Channel.

Pressurization of Water Transfer Tunnels, Waibatusavu, Fiji. Lead Geotechnical Engineer. Numerical modeling study using Plaxis software to assess stress response behavior of existing horseshoe-shaped concrete lining of 9-ft I.D. with approximately 30 feet of rock cover, assuming no groundwater present in the rock. The analysis confirmed that the lining stresses are very sensitive to variation of the rock mass modulus. The study recommended safe water pressure head for the existing concrete tunnel liner.

Motueka Wastewater Treatment Plant Upgrade, Nelson, New Zealand. Lead Geotechnical Engineer. Tender design and cost estimation of all geotechnical elements of proposed improvements of existing wastewater treatment plant, including seismic design of a new membrane filtration building supported on raft foundation.

Ava Wastewater Pump Station, Lower Hutt, Wellington, New Zealand. Lead Geotechnical Engineer. Geotechnical assessment of liquefaction hazards in future design earthquakes and site remedial measures for the existing pump station. Tasks performed included drilling three 50-ft deep borings, laboratory testing, and assessment of liquefaction hazards including ground deformations and uplift potential.

Digester #8 Tank, Mangere Wastewater Treatment Plant, Auckland, New Zealand. Lead Geotechnical Engineer. Evaluation of load-induced settlements and recommended waiting period for foundation construction underneath the proposed steel wastewater tank.

Pressure Main 11 Trenched Sewer Pipes, Christchurch, New Zealand. Lead Geotechnical Engineer. Conducted numerical modelling study using Plaxis software to assess the deformation during liquefaction of proposed 48-inch diameter, one mile long GRP trenched sewer pipes using different three design alternatives. This study has saved the lead agency millions of dollars in reduced construction cost.

Huntly and Ngaruawahia Wastewater Treatment Plant Upgrade, Waikato Region, New Zealand. Lead Geotechnical Engineer. Design and construction of proposed upgrade of wastewater pond and other improvements.

Sewer Pump Stations, Greymouth, New Zealand. Lead Geotechnical Engineer. Geotechnical assessment of liquefaction hazards and site remedial measures for project design and construction of proposed sewer pump stations at Anzac Park and Water Walk Road in Greymouth.

Storm Drains

SR-99/Mitchell Road/Service Road Interchange Improvements (PS&E), Ceres, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed construction of diverging diamond interchange, four bridge replacements, 12 new MSE walls, seven detention basins, and local road improvements.

Sixth Street Viaduct Replacement Project, Los Angeles, CA. Geotechnical Project Manager. Geotechnical investigation for installation of four fiberglass-reinforced polymer (FRP) water silos with

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a nominal diameter of 12 feet and height of up to 60 feet located along Jesse Street, near Myers Street intersection.

I-15/Duncan Canyon Road Interchange Improvements (PS&E), Fontana, CA. Lead Geotechnical Engineer. Geotechnical investigation for widening of Duncan Canyon Road and new overcrossing bridge, MSE walls, and new RCB culvert storm drain below the I-15 freeway.

I-5 HOV/Gene Autry Way Interchange Improvements (PS&E), Anaheim, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed HOV Bridge, including foundation design for retaining walls up to 30-ft high, roadway extension and storm drain system.

SR-210, Segment 11 (PS&E), San Bernardino, CA. Geotechnical Project Engineer. Geotechnical investigation for proposed improvements of existing Route 210/I-215 interchange including 10 new bridge structures, MSE walls, tieback walls, sound walls, freeway, and 1.3-mile long storm drain along State Street.

Pepper Avenue Extension Project, Rialto, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed 2,800-ft long extension to Pepper Avenue, which connects SR-210 on the north and existing Pepper Avenue to the south and across Lytle Creek. Provided geotechnical recommendations for the proposed 34-ft high roadway embankment, crib walls and four reinforced concrete box culverts.

Power Generation

Colmac Power Plant Expansion, Mecca, CA. Geotechnical Project Manager. Geotechnical investigation for the expansion of the existing power plant and includes numerous new facilities including, RW/FP pump house and storage tanks; back pass, air heater; and baghouse facilities; cooling towers; steam turbine generator; ammonia tanks; PDC building and switch yard; and biomass handling system. The expansion will also include new roads and ancillary improvements such as water, gas and sewer utilities. The expansion area, exclusive of the biomass-handling pipeline, encompasses approximately 4 acres.

Victorville II Hybrid Power Plant Project, Victorville, CA. Lead Geotechnical Engineer. Geotechnical investigation for the proposed hybrid power plant site, located on approximately 300 acres, which will generate approximately 550 MW of electrical power using natural gas-fired, combined-cycle equipment and solar thermal technology. The major structures include two combustion turbines, one heat recovery steam generator, one steam turbine generator, one 230 kV switchyard, one cooling tower, one water treatment building, several tanks including clarifier tanks, storage tanks, settling tanks, one administrative and control building and one warehouse.

Palmdale Power Plant Project, Palmdale, CA. Lead Geotechnical Engineer. Geotechnical investigation for the proposed power plant site, located on approximately 300 acres in the City of Palmdale, in the California Mojave Desert. Approximately 500 MW would be generated using natural gas-fired, combined-cycle equipment and approximately 50 MW would be generated using solar thermal technology.

Beacon Solar Project, Mojave Desert, CA. Lead Geotechnical Engineer. Supervised geotechnical and geologic hazards investigation for a new solar power plant on 2,300 acres in the Mojave Desert. Studies included logging 1500 feet of exploratory trenches across existing faults and fissures, with

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additional trenching planned at a later phase, and a geotechnical investigation to characterize subsurface conditions.

Proposed Hydroelectric Power Projects, Philippines. Lead Geotechnical Engineer. Due diligence review to assess technical feasibility of three proposed hydroelectric power development projects located in South Cotabato, Davao del Sur and Aklan Provinces in central and southern Philippines.

Proposed 1500 MW Coal-Fired Power Plant, Atimonan, Quezon, Philippines. Lead Geotechnical Engineer. Geotechnical investigation and detailed design of earthworks and foundations for the proposed power plant and associated resettlement housing projects.

Proposed Solar Power Plants, Negros Occidental, Philippines. Lead Geotechnical Engineer. Peer review of geotechnical investigations and detailed foundation design reports prepared by EPC contractor for the proposed solar power plants to be located in sugar cane plantation farms in La Carlota and San Carlos Cities.

Proposed Wind Farm Project, Pililla, Rizal, Philippines. Lead Geotechnical Engineer. Peer review of geotechnical investigation and detailed foundation design reports prepared by EPC contractor for the proposed wind turbine towers supported on piled raft foundations.

Nelson Electricity Facilities, Nelson, New Zealand. Lead Geotechnical Engineer. Site liquefaction hazards assessments for existing switchyards, substations and power lines using existing borehole data.

Transmission & Distribution

Rainbow Compressor Station Tower, Rainbow, San Diego County, CA. Lead Geotechnical Engineer. Geotechnical and seismic hazard studies, including foundation design of 36" diameter drilled piers for compressor tower.

230kV Sycamore Canyon Substation, San Diego County, CA. Lead Geotechnical Engineer. Geotechnical impact study of trenching/excavation adjacent to an existing cable pole drilled pier foundation.

Artesian Substation 230kV Expansion, San Diego, CA. Lead Geotechnical Engineer. Peer review of soil nail wall design report and plans prepared by DrillTech for conformance to design plans and specifications.

PGE Blue Lake Substation Addition, Troutdale, Oregon. Lead Geotechnical Engineer. Geotechnical and seismic investigation of proposed substation addition, including torque-down pile design for transformer pads and shallow foundations supported on geogrid-reinforced crushed aggregate base.

Stanton Energy Reliability Center, Stanton, CA. Lead Geotechnical Engineer. Geotechnical and seismic design investigations to develop shallow and deep foundation design parameters, and recommendations to mitigate seismically induced liquefaction.

Colorado River to Devers 500-kV Transmission Project, San Bernardino and Riverside Counties, CA. Lead Geotechnical Engineer. Supervised geotechnical investigation for the proposed construction of 390 new lattice steel towers to support a 500-kV electrical transmission lines over a 115-mile long

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corridor traversing both desert and mountainous terrain through the Coachella Valley and extending across the Willow Springs area of Mojave Desert. The new 500-kV line will replace an existing 220-kV line. Scope of services included drilling 148 soil borings, laboratory testing, development of foundation and seismic design parameters, and preparation of geotechnical design report.

Devers to Valley 500-kV Transmission Project, Riverside County, CA. Lead Geotechnical Engineer. Supervised geotechnical investigation for the proposed construction of 160 new lattice steel towers to support a 500-kV electrical transmission lines over a 43-mile long corridor traversing from Devers Substation in North Palm Springs continuing west through the San Gorgonio Pass towards Beaumont, and then southwest through the Riverside Badlands, San Jacinto Valley, and Lakeview Mountains before terminating at the Valley Substation near Romoland in the Perris Valley. The new 500-kV line will replace an existing 220-kV line. Scope of services included drilling 63 soil borings, laboratory testing, development of foundation and seismic design parameters, and preparation of geotechnical report.

Tehachapi Renewable Transmission Projects (TRTP) - Segments 7, 8 and 10, Los Angeles and San Bernardino Counties, CA. Lead Geotechnical Engineer. Supervised geotechnical investigation for the proposed construction of 342 new tubular steel monopoles and lattice steel towers to support a 500-kV electrical transmission lines for approximately 65 miles. Scope of services included analysis of existing field and laboratory test data (145 soil and rock core borings, 19 cone penetration tests performed by others), development of foundation and seismic design parameters, and preparation of geotechnical report.

Riverside-Alumunux-Hunter 66kV Bridge, Grand Terrace, CA. Geotechnical Project Manager. Geotechnical investigation for foundation design of proposed steel girder bridge to replace an existing timber bridge across a concrete-lined channel (Riverside Canal). The bridge replacement will be used by SCE field staff to access their electric power lines, located along east of I-215 Riverside Freeway and west of Michigan Street between De Berry Street and Van Buren Street, in the City of Grand Terrace in San Bernardino County.

Mining

El Sobrante Landfill Expansion Project, Cells 11B through 17, Corona, CA. Geotechnical Project Manager. Geotechnical investigation consisting of surface geologic mapping, seismic refraction surveys, and air-track and rock core drilling and laboratory testing. The purpose of this investigation is to explore the subsurface conditions of the proposed landfill expansion areas to determine the feasibility of various excavation methods to be used for construction of the new landfill cells. The specific concerns to be addressed in this investigation are the excavatability of the earth materials present and the economic value of the excavated earth materials for use on- or off-site.

Carmen Copper Open-Pit Mine Slope Failure Study, Toledo, Cebu Philippines. Geotechnical Project Manager. Geotechnical and hydrological assessments and provided remedial design solutions for the slope failure that occurred in June 2014, triggered by saturation of the near-surface shale/sandstone sediments due to rainfall.

Masbate Gold Project, Masbate, Philippines. Lead Geotechnical Engineer. Site inspection of construction of saddle dam and tailings impoundment and evaluated borrow materials used during construction.

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Bulawan Mine Tailings Storage Facility Closure Study, Negros Occidental, Philippines. Lead Geotechnical Engineer. Site liquefaction hazards assessment, including evaluation of deterministic and probabilistic ground motion parameters and potential liquefaction-induced ground deformations and their impacts on the tailings dam stability.

Taharoa Iron Sand Mine Expansion, Hamilton, New Zealand. Lead Geotechnical Engineer. Geotechnical investigation to develop design parameters for stability evaluation of proposed open-pit mine up to 311 feet height in loose to medium dense iron sands.

Stage 3 Landfill Development, Levin, New Zealand. Lead Geotechnical Engineer. Geotechnical assessment of fill-induced settlement and potential liquefaction hazards for the proposed 82-ft high Stage 3 landfill development in Levin.

Commercial

Mian Plaza of Camarillo, Camarillo, Ventura County, CA. Lead Geotechnical Engineer. Geotechnical investigation and seismic-resilient foundation design of proposed commercial/residential complex consisting of two four-story hotel buildings and single-story conference center, a retail building, and three restaurants. The site is located in a liquefaction hazard zone with potential lateral spreading.

Marriott Residence Inn Hotel, Goleta, Santa Barbara County, CA. Lead Geotechnical Engineer. Geotechnical design, material testing and inspection services during construction for a new three-story hotel, swimming pool and parking lots. Tasks included foundation design, surcharge and settlement monitoring, pile driving inspection and PDA testing, and soil grading observations and compaction testing.

Westin Hotel and Residences, Palm Springs, CA. Geotechnical Project Manager. Geotechnical investigation of proposed hotel improvements consisting of a 200-room, five-story Westin Hotel and 200-unit, multi-story condominium development with subterranean parking structure, to be constructed on a 3.2-acre site..

Hyatt Regency Hotel, Huntington Beach, CA. Geotechnical Project Engineer. Geotechnical investigation for new hotel residences consisting of a 504-room hotel complex and associated facilities, including a four-story hotel building, two levels of subterranean parking, landscaping, and other improvements. Performed pile foundation design, and settlement analysis and monitoring during surcharge program and indicator pile program during construction.

Crowne Plaza Hotel, Garden Grove, CA. Geotechnical Project Engineer. Indicator pile testing program including pile driving analyzer (PDA) measurements to evaluate pile driving criteria and optimum pile lengths of driven concrete piles prior to construction.

Doubletree Hotel, Irvine, CA. Geotechnical Project Engineer. Conducted indicator pile testing program including pile driving analyzer (PDA) measurements to evaluate pile driving criteria and optimum pile lengths of driven concrete piles prior to construction.

Nordstrom's Building at Horton Plaza, San Diego, CA. Lead Geotechnical Engineer. Geotechnical design evaluation for seismic rehabilitation of the existing 5-story building. Performed site-specific probabilistic seismic hazard analysis including design response spectra in accordance with FEMA 356 guidelines and recommended spectrum-compatible acceleration time histories for dynamic analysis of

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the mitigated building.

Baxter Healthcare, Hyland Plant, Los Angeles, CA. Geotechnical Project Manager. Geologic hazards review as part of seismic upgrade evaluation of existing Hyland Plant. Conducted site-specific probabilistic seismic hazard evaluation and recommended design spectra.

Colonies Crossroads Planning Area 19A, Parcel Map 17782, City of Upland, CA. Lead Geotechnical Engineer. Geotechnical investigation, material testing, and inspection services for proposed commercial center consisting of eight single-story retail buildings and parking lots.

Home Depot and Tire Shop at Sierra Lakes Parkway, Fontana, CA. Lead Geotechnical Engineer. Geotechnical investigation, material testing and inspection services for proposed Home Depot Garden Center and a tire shop, and associated parking lots.

Joanne's Store, Apple Valley Commons, Apple Valley, CA. Lead Geotechnical Engineer. Geotechnical investigation, material testing, and inspection services for a proposed single-story retail building and parking lot. (Client: Lewis Retail Centers).

Norm's Restaurant, Claremont, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed single-story wood-frame building and parking lot.

Northlands Shopping Centre, Papanui, Christchurch, New Zealand. Lead Geotechnical Engineer. Peer review of geotechnical reports prepared by others to investigate liquefaction-induced damage at Northlands Shopping Centre from past earthquakes and future seismic design events.

Christchurch Earthquake Recovery, Christchurch, New Zealand. Lead Geotechnical Engineer. Peer review of geotechnical desktop studies, site-specific investigations and liquefaction damage assessments of dozens of commercial and residential properties located in TC2 and TC3 areas in Christchurch. The investigations and assessments were in accordance with DBH guidelines.

Residential

Vintage Westwood Horizons Senior Living, Los Angeles, CA. Lead Geotechnical Engineer. Peer review of site-specific seismic hazards evaluation based on ASCE 7-10 and ASCE 41-13 codes and geotechnical design investigation of proposed seismic upgrade/retrofit of an existing 13-story residential building.

Playa Vista Development, Marina Del Rey, Los Angeles, CA. Geotechnical Project Engineer. Geotechnical exploration and evaluation of seismic slope stability and potential liquefaction-induced lateral spreading on proposed Playa Vista residential development site adjacent to Ballona Creek. Recommended stone columns to mitigate liquefaction effects and performed settlement monitoring during surcharge and indicator pile program.

Desert Dunes, Phase 2, Tract 34552, Unincorporated Riverside County, CA. Lead Geotechnical Engineer. Geotechnical investigation and site-specific probabilistic seismic hazard analysis and liquefaction hazards assessment of the proposed 80-acre site. Remediation measures included soil removal and re-compaction of loose native soils to minimize seismically induced settlements and installation of stone columns to mitigate potential lateral spreading.

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Coyote Canyon Development, Tentative Tract 18824, Fontana, CA. Lead Geotechnical Engineer. Geologic hazard review and geotechnical investigation for proposed residential development consisting of 120 single-family homes. The Alquist-Priolo Earthquake Fault Zone, located in the northern part of the site, was investigated for potential surface fault-rupture hazards and a fault setback zone was recommended.

Santa Barbara Apartments, Tentative Tract 16925, Rancho Cucamonga Area, CA. Lead Geotechnical Engineer. Geotechnical investigation, material testing and inspection services for proposed tree-story apartment building.

Proposed Hidden Oaks Residential Development, 538-Acre Parcel, Southwest of Canyon Hills and Carbon Canyon Roads, Chino Hills, CA. Lead Geotechnical Engineer. Geologic hazards evaluation and geotechnical feasibility study for proposed residential subdivision with more than 100 single-family residential lots, 393-acre open-space-park covering 3 acres, and 32 acres of private streets. Planned grading includes cuts with a maximum depth of 90 feet and fill of up to 75 feet.

Chino Residential Development, Tract 17612, Chino, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed residential development of approximately 18.8-acre property.

Tentative Tract 16925, Rancho Cucamonga Area of San Bernardino County, CA. Lead Geotechnical Engineer. Geologic hazards evaluation and geotechnical investigation for proposed residential subdivision with 107 single-family residential lots and 268-acre open space. Planned grading includes cuts with a maximum depth of 75 feet and fill of up to 170 feet.

Homecoming at the Preserve, Chino, CA. Lead Geotechnical Engineer. Geotechnical investigation for proposed residential development of 52-acre property into 800 multi-family units.

Shady Trails Residential Development, Tracts 16870, 16873, 16874 and 16875, Fontana, CA. Lead Geotechnical Engineer. Geotechnical evaluation of existing fill, including excavation of exploratory test pits, comparison of field-density test data with geotechnical data presented in prior soil grading reports.

Educational Facilities

Santa Ana Unified School District (SAUSD) On-Call Geotechnical Services, Santa Ana, CA. Geotechnical Project Manager. Geotechnical investigations, site-specific seismic hazard assessments, and material testing and inspection services for proposed modernization of: Raymond Villa Intermediate School, Saddleback High School Permanent Kitchen, Lathrop Intermediate School, Monroe Elem. School Early Child Education, Heninger K-8 School, Andrew Jackson Elem. School, Herbert Hoover Elem. School, Century High School, Santa Ana High School, Spurgeon Intermediate School, Jackson Elem. School, Hoover Elem. School, Franklin Elem. School, and Wilson Elem. School.

Oak Park Unified School District (OPUSD) On-Call Geotechnical Services, Oak Park, Ventura County, CA. Lead Geotechnical Engineer. Geotechnical investigations for proposed modular classrooms at Medea Creek Middle School, Red Oak Elementary School and Brookside Elementary School.

South Pasadena Unified School District (SPUSD) On-Call Geotechnical Services, South Pasadena, CA. Lead Geotechnical Engineer. Geotechnical investigations for proposed classroom

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buildings and athletic field improvements at South Pasadena High School and South Pasadena Middle School.

Los Angeles Community College District (LACCD) On-Call Geotechnical Services, Los Angeles, CA. Lead Geotechnical Engineer. Geotechnical consultations, material testing and inspection services during construction of proposed modernization of: Los Angeles City College Student Union Building, Los Angeles Valley College, Harbor College Teacher Preparation Academy, Pierce College, and Los Angeles Mission College.

Los Angeles Unified School District (LAUSD) On-Call Geotechnical Services, Los Angeles, CA. Geotechnical Project Manager. Geotechnical investigations, site-specific seismic hazard assessments, and material testing and inspection services for proposed modernization of: Calvert Elem. School, Danube Avenue Elem. School, Fremont High School, Griffith Middle School, Hamlin Street Elem. School, Manual Arts Senior High School, Serrania Elem. School, and White Point Elem. School.

Pasadena Unified School District (PUSD) On-Call Geotechnical Services, Los Angeles, CA. Geotechnical Project Manager. Ground investigations, site-specific seismic hazard assessments, and material testing and inspection services for proposed modernization of: Don Benito Elem. School, Loma Alta Elem. School, Longfellow Elem. School, Marshall Fundamental School, Pasadena Central Kitchen Culinary School, Roosevelt Elem. School, Washington Accelerated Elem. School, and Willard Elementary School.

Chino High School Pool and Recreational Facility, Chino Hills, CA. Lead Geotechnical Engineer. Geotechnical investigations, site-specific seismic hazard assessment, and material testing and inspection services for the proposed swimming pool and a 2,300-square-ft masonry locker/pump/concession building.

Proposed High School No. 4, Desert Sand Unified School District, Indio, CA. Geotechnical Project Manager. Geotechnical update investigation and site-specific probabilistic seismic hazards analysis for a proposed 48-acre high school campus.

Proposed High School No. 4, Palm Springs Unified School District, Rancho Mirage, CA. Geotechnical Project Manager. Supervised geotechnical investigation and geologic hazard review of a new high school campus including construction of eight one- to two-story buildings with a total area of approx. 21,100 square meters.

Community College of the Desert Expansion Projects, Palm Desert, CA. Geotechnical Project Manager. Geotechnical investigation, material testing and inspection services for proposed campus expansion including construction of nine single- and two-story classroom buildings with total area of approximately 36,600-square-ft, five asphalt and concrete paved parking lots, four 75-ft high power and light poles, 1,800 feet of 10-ft high screen walls along Monterey Avenue, and percolation studies.

Pitzer College Dormitory Expansion, Claremont, CA. Lead Geotechnical Engineer. Geotechnical investigations, site-specific seismic hazard assessment, and material testing and inspection services for proposed two 3-4 story dormitory buildings.

Pomona College Grounds Expansion, Claremont University Consortium, Claremont, CA. Lead Geotechnical Engineer. Geotechnical investigations, site-specific seismic hazard assessment, and material testing and inspection services for proposed one- to two-story offices, shops and storage buildings supported on 24-inch diameter drilled piles.

Carlos Amante, PE, GE

Principal Engineer/Managing Officer

Chaffey College South Ballfield Parking Lot Improvements, Rancho Cucamonga, CA. Geotechnical Project Manager. Geotechnical investigation for proposed parking lot improvements within the college campus.

Occidental College Improvements, Eagle Rock Area, Los Angeles, CA. Lead Geotechnical Engineer. Geotechnical investigations, material testing and inspection services for proposed James Swan Hall renovation and addition, De Mandel Swimming Pool Complex, and McKinnon Family Tennis Center.

Scripps College David Lincoln Ceramic Art Building, Claremont, CA. Lead Geotechnical Engineer. Geotechnical observation and material testing services during construction of proposed Lincoln Ceramic Art Building.

Parks & Recreation

Samuel Oschin Space Shuttle Endeavour Display Pavilion, California Science Center, Los Angeles, CA. Lead Geotechnical Engineer. Geotechnical investigation, including foundation design and site-specific seismic hazards study for a temporary housing structure for the Space Shuttle Endeavor.

Boat-Launching Facility, Lake Elsinore, CA. Lead Geotechnical Engineer. Geotechnical investigation for the proposed six-lane launch ramp with a boat wash area and a restroom building with fish cleaning station and picnic area. Construction of a new parking lot area with approximately 288 spaces for cars and trailers is planned using dredged materials as fill from the anticipated cuts of the launch ramp grades.

Santa Ana River Trail (Phase I), Colton, San Bernardino County, CA. Lead Geotechnical Engineer. Geotechnical investigation to analyze the portions of existing trail that is undergoing excessive erosion and slope movements. It was concluded that erosion occurred as a result of improper drainage control and that piping of fine-grained soils occurred in areas burrowed by animals. A written report, submitted to the County of San Bernardino, was used as a basis to develop a repair and remediation plan.

Central Park Fire Station and Recreational Facilities, Rancho Cucamonga, CA. Geotechnical Project Manager. Geotechnical investigation for proposed developments within the western and central portions of Rancho Cucamonga Central Park, including a fire station, several buildings, a gymnasium and recreational areas, parking areas and maintenance yard.

San Manuel Indian Bingo and Casino Parking Structure II, San Manuel Indian Reservation, San Bernardino County, CA. Lead Geotechnical Engineer. Geotechnical investigation and foundation design for proposed parking structure with seven levels, two of which are underground.

Miner's Memorial Structure, Greymouth, New Zealand. Lead Geotechnical Engineer. Geotechnical design study and analysis of vertical and lateral design capacities of driven steel piles for foundation support of the proposed memorial structure.