

CURRICULUM VITAE

FRANKLIN FONG, G.E.

CONSULTING GEOTECHNICAL ENGINEER

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PROFESSIONAL PROFILE

Registered Geotechnical Engineer with over 35 years of experience as consultant on major project assignments, including soil and foundation investigations, geologic and seismic investigations, field exploration and laboratory testing programs, engineering analysis, and on observation of earthwork and foundation construction for commercial, municipal, industrial, school, hospital, waterfront and residential developments.

Geotechnical engineering consultant and expert witness for legal dispute resolutions and insurance claim assessments.

Geotechnical engineering consultant to established engineering firms in California and Nevada.

EDUCATION

M. Engr., 1972, Geotechnical Engineering, University of California, Berkeley

B.S., 1971, Civil Engineering, California State Polytechnic University, Pomona

A.A., 1968, Engineering Technology, Merritt Jr. College, Oakland, California

PROFESSIONAL REGISTRATIONS

Registered Geotechnical Engineer, California, No. GE 315

Registered Civil Engineer, California, No. C 24179

Registered Civil Engineer, Nevada, No. 14567

PROFESSIONAL AFFILIATIONS

Fellow, American Society of Civil Engineers

Member, International Society for Soil Mechanics and Geotechnical Engineering

Member, Earthquake Engineering Research Institute

PROFESSIONAL EXPERIENCE

1995-	Consulting Geotechnical Engineer
1991-1994	Principal Engineer, MAA Engineering Consultants, Inc., Los Angeles, California
1986-1991	Senior Engineer, LeRoy Crandall and Associates, Los Angeles, California
1984-1985	Assistant Manager of Engineering, Irvine Soils Engineering, Inc., Irvine, California
1979-1984	Project Engineer, Converse Consultants, Inc., Anaheim, California
1977-1979	Senior Staff Engineer, Woodward-Clyde Consultants, Orange/Los Angeles, California
1976-1977	Staff Engineer, W.A. Wahler & Associates, Newport Beach, California
1972-1975	Staff Engineer, Woodward-Clyde Consultants, Oakland, California

AREAS OF SPECIALTY

Distress Investigation, Forensic Studies and Expert Testimonies: Perform investigation of distress to foundations and earth embankments, including damages caused by expansive soil, settlement, slope instability, groundwater seepage, soil liquefaction, erosion, design deficiencies, defective construction and earthquakes. Review and determine causes for damages or failures, and obtain supporting evidences for damage claim assessments and for legal dispute resolutions. Provide recommendations for corrective measures and repair, and assist in legal dispute resolutions and insurance claim assessments. Review and assess alleged damage claims, and provide supporting evidences and expert witness testimony, for both plaintiff and defense legal actions.

Landslides and Slopes: Review, evaluate and determine causes of landslides and slope instability, and prepare recommendations for appropriate procedures for landslide remediation and slope stabilization.

Foundation Engineering: Provide recommendations for design and construction of spread foundations, mat foundations, driven piles, cast-in-drilled hole (CIDH) piles and piers, belled caissons, auger-cast piles, and mini-pile foundation systems. Perform and evaluate pile load tests, monitor and evaluate piles during installation, including evaluation of results of non-destructive sonic testing and pile driving analyzer (PDA) test data. Review and evaluate foundation performance in weak and compressible, problematical soil conditions, including liquefiable soil condition during earthquakes.

Retaining Structures: Provide design recommendations and review for retaining walls, Mechanically Stabilized Earth (MSE) Retaining Structures, permanent soldier pile and tieback anchored walls.

Deep Excavations and Shoring: Provide design recommendations and review for temporary shoring systems, perform and evaluate testing of tieback anchors, and review of shoring monitoring data during construction.

Subsurface Drainage and Dewatering: Review and evaluate groundwater conditions, and provide recommendations for subdrainage and dewatering systems, pumping tests, well design and installation.

Pipelines and Tunneling: Review and evaluate, and prepare recommendations for pipe excavations and bedding support, backfill requirements, and for pipeline installation by jacking, tunneling and micro-tunneling techniques.

Ground Stabilization and Improvement: Review and evaluate, and prepare recommendations for stabilization or improvement of existing site and soil conditions to facilitate construction and/or for support of proposed or existing construction.

Pavement Design and Rehabilitation: Review and evaluate, and prepare recommendations for pavement design and construction, including recommendations for reconstruction, restoration, recycling and resurfacing of existing pavements.

Earthfill Dams: Review and evaluate performance of existing earthfill dams, installation and monitoring of instrumentations for settlement, lateral deflection and seepage through dam embankment and abutments, and prepare dam surveillance reports for State regulatory review and approval.

REPRESENTATIVE EXPERIENCE

Mr. Fong has participated in over 1,200 design and construction projects, case reviews, and consulting assignments during his professional career. Listed below are few examples of representative project and consulting assignments, which exhibit his broad range of experience and practice within the geotechnical field. Most of these job assignments, unless otherwise noted, are located in California.

Mallett v. Union Pacific Railroad & W.T. Byler Co. (2007-2008) – Expert witness for plaintiff attorney representing railroad employee injured in construction excavation slope failure in San Antonio, Texas. Work tasks included compilation and review of deposition transcripts and exhibits, drawings, reports and photographs, and analyzed data and prepared report with professional opinions on origin and causes for temporary excavation slope failure. Testified before defense counsel during deposition on findings and opinions on failure of construction excavation. Case successfully settled out-of-court in favor of plaintiff.

Santa Fe 6 High-rise Condominium Development, San Diego (2004-2007) - Geotechnical Consultant on the geotechnical investigation for design and construction of proposed 34-story high-rise condominium tower over five-level underground parking garage. Performed design analyses and prepared reports with recommendations for mat foundation design with settlement mitigation using concrete columns, walls below grade, and shoring extending below adjacent existing structures, railroads and groundwater level conditions. Provided consultation during shoring and tieback installation, placement of concrete columns for foundation ground improvement, and evaluated monitoring data on shoring and site dewatering during construction.

Joint Outfall “H” Unit 1B Replacement Trunk Sewer, Section 4, South Gate (2007) - Geotechnical Consultant to Geo-Environmental, Inc. on the review of and recommendations provided for contractor’s proposed tunneling and pipe jacking procedures for installation of 8,500 lineal feet of a replacement trunk sewer along beneath the Los Angeles River and Rio Hondo River levees in South Gate, California, with outside diameters ranging from 107 to 138 inches for the tunnel liner plates, steel pipe casings and RCP pipes.

San Juan Hills Estates Homeowners Association v. Taylor Woodrow Homes, Inc., et al (2005-2006) – Geotechnical Consultant and Expert Witness to defense attorney representing V-ditch subcontractor on major hillside residential development in San Juan Capistrano, California. Reviewed case files, design drawings, observed and documented site conditions, and attended expert meetings. Assessed alleged construction defect claims by plaintiff experts for damages to hillside drainage facilities and slopes, and reviewed proposed resolutions. Provide professional opinion to client defense attorney on evidences and causes for alleged damages. Case successfully defended and settled with minimal financial loss to client.

Rahim Warehouse Facility Flood Damage, Temple City (2005) – Geotechnical Consultant and Expert Witness to plaintiff attorney on investigation of causes for discharge of stormwater from adjacent construction site onto existing warehouse facility that resulted in damages to merchandise and interrupted business operations, and of the future impact of the adjacent construction on the Rahim facility. Prepared report and provided consultation for pending legal case settlement.

Nikken, Inc. v. Harding ESE, Inc., et al (2004) – Geotechnical Consultant and Expert Witness to defense attorney representing plumbing subcontractor on major warehouse facility in Irvine, California. Reviewed case files, observed and documented site conditions, attended expert meetings, assessed claims by plaintiff for alleged damages to facility from expansive soil, and reviewed proposed resolutions. Provided professional opinion to client defense attorney on evidences and causes for damages and assessment of proposed resolutions for repair. Case successfully defended and settled with minimal financial loss to client.

Downey Unified School District, Downey (2003-2004) - Geotechnical Consultant to ATC Associates, Inc. on the investigation and construction for new stadium facilities at Downey High School and at Warren High School in Downey, California. Assisted on the analysis and preparation of design geotechnical reports, and provided training of field inspectors for pile driving inspection and consultation during construction.

Vintage Homes Development, Hacienda Heights (2003) – As Geotechnical Consultant to defense expert witness, assisted in observation and documentation of plaintiff expert's field exploratory boring and sampling procedures. Assisted in review and compilation of defensive evidences for defense attorney on legal case involving alleged defective construction damage claims.

Anaverde, LLC Residential Development, Palmdale (2003) – Geotechnical Consultant to Medall Aragon Geotechnical, Inc. on the geotechnical review and stability analysis of proposed cut slopes for a major residential development. Assisted on final review and design of stabilization fills and buttresses.

Sprint PCS (1999-2002) – Geotechnical Consultant assisting ATC Associates, Inc. on the geotechnical investigation for design of numerous wireless communications facilities in northern, central and southern California, and parts of Washington, Oregon, and Nevada.

Sludge Loading Facility, Fountain Valley (1999) – Geotechnical Consultant to Converse Consultants, Inc. on investigation for new sludge loading facility at Orange County Sanitation District, Plant 1. Assisted on recommendations for the use of stone columns for reducing liquefaction potential and improving bearing capacity of underlying natural soils for shallow spread foundation support.

FEMA-1203-DR-CA Emergency Declaration, California (1998) - Geotechnical Public Assistant Inspector on the review of landslides for the assessment of claims for damages caused by landslides triggered by the El Niño storms of February 1998 on public facilities in southern, central and northern California.

Jamboree Road/Edinger Avenue Grade Separation, Tustin (1998) – As Subconsultant, provided expertise to County of Orange on the installation, monitoring and load testing of 24-inch diameter steel pipe piles driven for new bridge structure. Reviewed and evaluated pile load test data, including PDA data, and confirmed design pile capacity, and reviewed and approved MSE wall design shop drawings/submittals for construction.

Route 30 Improvements, Segments 5 and 7, Fontana and Rancho Cucamonga (1998-1999) – As Consultant to Geofon, Inc., assisted in the review and preparation of final geotechnical design reports, and preparation of reports for various proposed bridges, sound walls, and other right-of-way structures for Caltrans approval.

Pier A Back Area Storm Water Pump Station, Port of Long Beach (1996) - As Consultant to Geofon, Inc., assisted in the geotechnical investigation and preparation of report for a major pumping facility located at a site below sea level. Recommendations were provided for settlement considerations, liquefaction potential, site surcharge, excavation and shoring, dewatering, mat foundation design, and installation of pump station and associated storm drains and force mains.

Union Pacific Railroad Lead Line, Riverside County (1996) - Consultant to Converse Consultants, Inc. on investigation for the design and construction of approximate 1.5-mile railroad lead track to the Aqua Mansa Industrial Center. Recommendations were provided for grading and sloped embankments, and for track roadbed preparation and support.

Channel Slope Lining Protection Studies, Orange County (1995) - Consultant and principle investigator to Converse Consultants, Inc. for review, development of recommendations and preparation of reports for restoration and lining protection of eroded sections of the East Garden Grove/Wintersburg Channel, Fountain Valley Channel, Santa Ana Gardens Channel, and San Diego Creek Channel.

Hyperion Treatment Plant Full Secondary Facilities, Playa Del Rey, Los Angeles (1991-1994) - Supervising Geotechnical Engineer, in association with the City of Los Angeles Geotechnical Services, served in full-time charge for all geotechnical inspection and testing, review and approval of submittals and shop drawings, and training and supervision of field engineering personnel, during construction of the City of Los Angeles' \$200,000,000 Hyperion Full Secondary (HFS) C-109, Phase 1 project at the Hyperion Treatment Plant. Project involved various complex major structures, which included Operational Center and Compressor Building, Cryogenics Facility, Water Service and Chlorination Facilities, Oxygen Reactors, 16 Final Clarifiers units, West Basin Pumping Station, interconnecting influent and effluent channels, access/service/utility tunnels, effluent/outfall Emergency Bypass Structure, Utility Compressor Building, and retaining walls.

Construction oversight included deep excavations, foundation construction, shoring and tieback systems, dewatering systems, chemical grouting, installation and testing of temporary and permanent tieback systems, installation and testing of auger-cast pressure-grouted piles, tunneling, compacted fill embankments and structural backfills, and major yard pipings and electrical duct banks. Prepared and submitted required formal reports for City's Department of Building & Safety final approval.

Hyperion Storm Drain, Playa Del Rey (1993-1994) - Supervising Geotechnical Engineer in responsible charge for review and approval of contractor shop drawings and construction procedures, and for monitoring installation of 990 linear feet of 60- and 72-inch RCP storm drain in sand by tunnel boring machine and pipejacking (micro-tunneling) procedure. Also, monitored excavation of 60-foot by 7-foot diameter tunnel section performed by manual labor and supported using ribs and spillings for a 54-inch lateral. Work was performed as part of the City of Los Angeles' Hyperion Treatment Plant improvements.

Permanent Tie-back Retaining Wall, Playa Del Rey (1992-1993) - Supervising Geotechnical Engineer in charge of construction inspection and testing for 600-foot by 37-foot high permanent tieback retaining wall at south end of the City of Los Angeles Hyperion Treatment Plant. Construction included ground stabilization with chemical grouting, soldier pile installation, installation and testing of approximately 300 permanent tieback anchors, load cell installation, and placement of permanent wall facing.

Tahquitz Debris Basin Dam, Palm Springs (1989-1991) – Senior Engineer to Riverside County Flood Control and Water Conservation District, Owner, for the design and construction of a maximum 60-foot high by 600-foot long homogenous earthfill dam constructed of well-graded material containing maximum 12-inch size particles placed in 18-inch thick lifts. Work included review of design plans and specifications, and review of construction methodology, including fill test pads, with the California Division of Safety of Dams for project approval. Also, provided consultation to owner's engineering personnel in developing special field testing program and equipment for control of gradation and compaction of soil material containing boulder-size particles during construction.

Forest City-La Brea Condominium Development, Los Angeles (1990) - Senior Engineer in charge of foundation investigation for multiple 15-stories condominium tower complex in the Park La Brea District of Los Angeles. Investigation included determination of the present of methane gas and asphaltic tar/sand deposits.

Water Transmission Lines Relocation, Pomona (1989) - Senior Engineer in charge of geotechnical investigation for relocation of the Metropolitan Water District Orange County Feeder and the adjacent Walnut Valley Water District transmission main around the Spadra Landfill. Recommendations were developed to avoid landslide and creep affected areas, for landfill slopes adjacent pipeline alignment, for protection of water lines from contamination due to adjacent landfill area, for excavation and pipeline backfills, and for design of storage tank foundations.

Lopez Canyon Landfill, Los Angeles (1988-1990) - Senior Engineer in charge of geotechnical investigation for major landfill expansion, including investigation and analyses of proposed landfill cut slopes, compacted fill slopes and landfill refuse fill slopes, and stability of natural bedrock slopes under static and earthquake conditions. Also, prepared recommendations/design for containment structure, construction materials, clay and geomembrane liners, LCRS, gas recovery system, construction and inspection procedures, operations, monitoring, and final cover design. Prepared landfill design report, plans and specifications in compliance to Subchapter 15, Chapter 3, Title 22 of the California Administrative Code. Work performed for City of Los Angeles Bureau of Sanitation.

Disneyland, Anaheim (1988-1991) - Senior Engineer on soil investigations for various amusement park facilities, including *Splash Mountain* and *Mickey's Fantasmic* attractions, new *Rivers of America* boat dock facility, and retail stores and support facilities. Recommendations were prepared for foundation design and construction, and for grading and shored excavations.

Monterey Hills Building Rehabilitation, Los Angeles (1988-1990) - Senior Engineer on investigation of the causes for severe lateral and vertical earth movements beneath existing three-level condominium over parking structure in a graded hillside area. Recommendations were developed for rehabilitation of structure and preparation of report presenting results of study to the City of Los Angeles Redevelopment Agency.

North Outfall Replacement Sewer (NORS), Los Angeles (1987-1988) - Senior Engineer in charge of field exploration, laboratory testing, analyses, and preparation of geotechnical report for major 9-mile, 12-foot diameter sewer tunnel for City of Los Angeles. Prepared recommendations and report for tunneling, instrumentation monitoring of potential ground subsidence during tunneling, excavation and shoring systems, dewatering, and recommendations for design of deep access shafts and junction structures.

Palevsky Residence, Los Angeles (1988) - Senior Engineer assisting on foundation investigation, and on repair and restoration of bearing support for distressed residence using compaction grouting procedures.

The Broadway, Los Angeles (1987-1989) – Senior Engineer on post-seismic investigation, after October 1987 Whittier Narrows Earthquake, of distressed floor slab at warehouse Building "E" constructed over former landfill. Recommendations for restoration of floor slab, for seismic retrofit of building structure, and for foundation support of new conveyor system were provided.

El Torito Restaurant Warehouse, Irvine (1987) - Senior Engineer on the investigation of distressed warehouse building, which was initially believed by others caused by foundation deficiency; repairs were proposed that included pile support. Distresses were determined to be caused by defect and deficiency in building construction, not inadequate foundation support, resulting in significant savings in repair costs.

Disney Corporate Headquarters, Burbank (1986-1989) - Project Manager for geotechnical and seismic investigations for new headquarters office building, proposed high-rise office development consisting of several towers, and subterranean parking facilities for The Walt Disney Company. Recommendations were provided for shallow and deep foundation design, deep excavation and shoring, and seismic design criteria.

Koll Center, Irvine (1981-1983) - Project Manager in charge of geotechnical and seismic investigation, and observations and testing during construction for major high-rise office development consisting of four towers, parking structure, and restaurants for The Koll Company.

Building Reconstruction, Fullerton (1983) - Project Engineer in charge of geotechnical investigation and observation during construction of CIDH pile foundation and earthwork for severely damaged existing building adjacent to distressed concrete channel along Fullerton Creek, Fullerton, as part of damage claim settlement.

Irvine Marriott Hotel, Irvine (1981-1982) - Project Manager for foundation investigation and inspection during construction of 10-story hotel complex for Marriott Hotel. Project included pile load tests and inspection of pile driving installation.

Anaheim Convention Center, Anaheim (1980) - Project Manager in charge of foundation investigation for expansion and improvements to Anaheim Convention Center for City of Anaheim. Investigation included the use of cone penetration tests with conventional test borings.

Plataro Dam, Colorado (1980) - Project Engineer on the safety evaluation of existing earthfill dam for U.S. Bureau of Reclamation under SEED program. Work included review and compilation of pertinent historical design, construction, and operational performance records for initial screening of dam for later detailed analysis.

Nambes Falls Dam, New Mexico (1980) - Project Engineer on the safety evaluation of existing combination earthfill and concrete gravity arch dam for the U.S. Bureau of Reclamation under SEED program. Assignment included review and compilation of pertinent historical design, construction, and operational performance records for initial screening of dam for detailed analysis.

Pacific Gateway Center, Los Angeles (1979-1983) - Project Manager in charge of foundation investigation for 5 to 10 stories office buildings and parking structure development over former synthetic rubber plant site for Cadillac-Fairview of California.

Dry Dock No. 1 Hydrostatic Relief Wells and Dewatering System, Long Beach Naval Shipyard (1977-1978) - Senior Staff Engineer during installation of deep wells and piezometers, performing series of six

pumping tests, analyses, and design of a major relief well and dewatering system to reduced the potential of liquefaction during major earthquakes, which could affect stability of a critical dry dock facility. Work included preparation of plans and specifications for sand drains and deep wells construction. Work was performed for the U.S. Navy, Naval Facilities Engineering Command.

Harry S. Truman Airport Improvements, St. Thomas, U.S. Virgin Islands (1977) - As Senior Staff Engineer, assisted in geotechnical and geophysical investigation for major airport improvements and runway extension into the Caribbean Sea, including seismic refraction and rock corings for blasting and rip rap source feasibility studies, and offshore bathymetry, seafloor, and shallow seafloor subsurface profiling studies. Supervised onshore and offshore exploratory borings, and developed recommendations for foundations and airfield pavement design, and for extension of proposed runway into sea by hydraulic method of fill placement.

Rattlesnake Dam, Sand Canyon Dam, and San Joaquin Dam, Orange County (1976) - Project Manager in charge for surveillance and inspection of dam facilities and operational performance for Irvine Ranch Water District. Work included installation and rehabilitation of dam instrumentations and piezometers, field inspection and review of dam embankments and internal seepage conditions, compilation and evaluation of dam instrumentation data, and preparation of required reports for submittal to the California Division of Safety of Dams.

General Foods Corporation Cereal Plant, Ceres (1974-1975) - Project Manager in charge of geotechnical investigation for design and construction of new cereal manufacturing plant for General Foods Corporation. Project included recommendations for spread footings and driven piles, and design and construction of on-site storm runoff retention basin. Also, performed series of pile load tests under compression, tension, and laterally-loaded conditions, and monitored pile driving operations.

Bank of Tokyo Building, San Francisco (1974) – Staff Engineer on geotechnical investigation for 22-story office tower supported on driven end-bearing piles in reclaimed fill area underlain by Bay Mud.

Oakland City Center, Oakland (1973-1975) - Staff Engineer on geotechnical investigation and construction for major commercial, office and hotel development consisting of several high-rise towers, parking structure, and plaza for Oakland City Redevelopment Agency. Work included exploratory borings and recommendations for deep foundation design, pile load tests, and monitoring of pile driving vibration effects on adjacent BARTD subway station.

Fairfield-Cordelia Interceptor Tunnel, Cordelia (1973-1974) – Staff Engineer in charge of geotechnical investigation for approximate 500-foot by 8-foot high horseshoe-shaped, unlined tunnel for installation of steel pipeline for wastewater interceptor through Cordelia Hill, Solano County, California. Tunnel was excavated by blasting through volcanic tuff, agglomerate and breccia. Ground velocities and effects from blast vibrations on nearby facilities were monitored during construction.

Fairfield-Suisun and Cordelia Interceptors, Fairfield (1972-1975) - Staff Engineer in charge of geotechnical investigation for pump stations and six miles of forced interceptors. Project included recommendations for excavation and shoring in Bay Mud, dewatering, pipeline excavation and backfill, pipe-jacking requirements beneath roadways and railroads, and for construction of a 500-foot long tunnel.

Fairfield Sub-Regional Wastewater Treatment Plant, Fairfield (1972-1975) – Staff Engineer in charge of geotechnical investigation for site selection, design, and construction of new 24-MGD wastewater treatment plant. Project included construction of shallow and deep pile foundations, containment dike fill embankments for sludge drying beds, and sewer outfall across marshland.

Piercy Pushup Landslide Investigation, Piercy (1972-1974) - Staff Engineer assisting in the investigation, monitoring, and analysis of massive landslide along east side of U.S. 101 and South Fork Eel River canyon for Caltrans on defensive against legal actions by adjacent property owners. Investigation included exploratory test borings, installation of slope indicators to 120-feet deep on side of canyon slope, field monitoring of slope indicators, and analyses.

Brickyard Cove Development, Richmond (1972) - As Resident Engineer, monitored the placement of fill in San Francisco Bay over soft Bay Mud for a marina/bayfront residential development. The construction of the fill embankments and the stability of the embankments in Bay Mud for the development were achieved by displacing the Bay Mud from underneath the fill and forming of mud waves.

PUBLICATION

Fong, F. and Davis, C.M. [2008]. "Case History - Settlement Mitigation for Mat Foundation using Lean Concrete Columns", *Proc. of the 6th International Conference on Case Histories in Geotechnical Engineering*, Arlington, VA, August 11-16, 2008, Paper No. 7.31a, Missouri University of Science and Technology.

PROFESSIONAL COMMITTEES AND SERVICES

February 2005 - Geotechnical Engineer expert on KCAL 9 News on landslide issues.

June 2002 Presentation on "Pavement Rehabilitation - Design Considerations" for seminar on Street Rehabilitation Projects in Southern California, Hyatt Regency Hotel, Irvine.

Spring 1999 Instructor for CE 327L Soil Mechanics Laboratory, California State Polytechnic University, Pomona, California.

1994-1998 Planning Commissioner, City of Diamond Bar, California

1981-1986 Board of Directors and Chairman, Geotechnical Engineering Group, Los Angeles Section, American Society of Civil Engineers.

1976-1980 Board of Directors, Associate Member Forum, Los Angeles Section, American Society of Civil Engineers.

CLIENT REFERENCES

References available upon request.