

Dr. Daniel Pradel, Principal Geotechnical Engineer

Education

Certificate of Postdoctoral Studies,
University of California, Los Angeles, 1989,
Major Field: Geotechnical Engineering

Dr. of Engineering, Civil Engineering,
University of Tokyo, 1987, Major Field: Soil
Mechanics and Foundation Engineering

Diploma of Civil Engineering, Swiss Institute
of Technology, Lausanne, 1982, Major Field:
Civil Engineering

Professional Registrations

Registered Geotechnical Engineer, State of
California (G.E. 2242)

Registered Civil Engineer, State of California
(R.C.E. 47734)

Registered Civil Engineer, State of Nevada
(R.C.E. 12285)

Registered Civil Engineer, State of Hawaii
(R.C.E. 12243)

Registered Engineer, Switzerland (Number
2/16791)

Diplomate of ASCE's Academy of Geo-
Professionals No. 1135

Deep Foundation Institute's High-Strain
Dynamic Pile Testing Certification
(2416AA13B)

Post-Disaster Safety Assessment Program
No.61821

EXPERIENCE SUMMARY

Dr. Daniel Pradel has over 25 years of experience in the field of geotechnical engineering. He has performed investigations and analyses of dams, landslides, building foundations and has also performed numerous forensic evaluations. He has performed geotechnical earthquake engineering investigations of ground motions for specific sites, and regional studies of earthquake damage and seismicity. Dr. Pradel has also performed geotechnical investigations of settlement, retaining walls, piping and expansion heave. He has performed engineering analyses for the grading of engineered fills, and the design and repair of building foundations. He has also designed the repair and mitigation of slope failures and landslides using drilled shafts, fill buttresses and other techniques.

WORK EXPERIENCE

Group Delta Consultants (2011 to current)

Praad Geotechnical (1997 to 2011)

Lockwood Singh & Associates (1989 to 1997)

Motor Columbus, Switzerland (1982-1984)

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers, American Society of Testing Materials, International Society of Soil Mechanics and Foundation Engineering, Structural Engineers Association of Southern California, Swiss Society of Engineers and Architects, Swiss Society of Soil and Rock Mechanics, International Conference of Building Officials.

SELECTED PROJECT EXPERIENCE

Silicon Valley Rapid Transit, San Jose, CA (2005-2008)

Dr. Pradel performed static analyses using finite differences (FLAC) for the design of a deep-soil-mixing cut-off wall and braced excavation system of the proposed cut-and-cover station and portal structures for the tunnel alignment. He performed numerical analyses to estimate the structural loads developed during excavation and construction of the support system. Dr. Pradel also performed seismic ground response analyses to develop input ground motions and dynamic soil properties for soil-structure interaction analyses. Results are published in ASCE Geotechnical Special Publication 181, Geotechnical Earthquake Engineering and Soil Dynamics IV.

Linden Terrace Landslide, Calabasas, CA (1999-2004)

Dr. Pradel performed seismic analyses to determine the ground motions that affected the landslide during the 1994 Northridge Earthquake and Finite Element Analyses, using the software QUAD4M,

to predict the magnitude of earthquake induced displacements. The comparison between observed and predicted movements was published in the Journal of Geotechnical and Geoenvironmental Engineering (ASCE), Vol. 131, No. 11, 1360-1369.

Construction Vibration Studies for Public Works Projects at Various Locations in Southern California and Nevada (2009-2011)

Dr. Pradel performed construction vibration monitoring for a contractor performing public roadway and bridge improvements at various locations in Nevada and Southern California. He performed investigations of adjacent structures and buildings, and recorded vibration levels from construction activities in order to determine if the threshold limits were exceeded and the potential for structural distress.

EL Cajon Arch Dam, Honduras (1982-1984)

Dr. Pradel performed static and dynamic analyses using Finite Elements for the design of the bottom outlet and elevator towers. After a portion of the upper left abutment was lost during blasting during construction, Dr. Pradel performed numerical analyses to verify that stress redistribution would not significantly overstress the arch dam and rock abutments. Additional analyses included design of instrumentation to evaluate the performance of the grout and drainage curtains and rock abutments.

Strathern Landfill, Los Angeles, CA (2008-2009)

Dr. Pradel performed numerical analyses using the program FLAC to estimate the varying amounts of settlement from inert landfill material with varying depths across the site. Using these settlement estimates, Dr. Pradel recommended zones for potential redevelopment of the closed landfill and their associated conceptual foundation designs (geogrid reinforced fill mats and concrete mat foundations).

Estrondo Landslide Stabilization, Encino, CA (2002-2006)

Dr. Pradel managed and coordinated the investigation and stabilization of a large landslide on 3 properties. Dr. Pradel was the Engineer of Record for the stabilization, designing a system of caisson-supported retaining walls with tiebacks in the upper row, a permanent soil buttress, and drainage gallery for subsurface dewatering. Dr. Pradel also performed numerical analyses of the landslide and repair, using FLAC to model the soil-structure interaction.

Caltrans Wall along I405 S, Westchester, California (2004-2005)

Dr. Pradel performed analyses of a 35-ft high soil nail wall exhibiting movement along the 405 freeway in Westchester, CA. His investigation included subsurface investigation, monitoring of wall movement and distress, and numerical analyses to determine the mode of deformation, critical failure mode, area of wall influence/damage, and potential methods of repair.

Metro Gold Line, South Pasadena, California (2005-2007)

Dr. Pradel performed a vibration study for the Metro Gold Line light rail extension into South Pasadena. He investigated claims of distress on nearby residences from construction activities and train vibrations, performed vibration testing at various distances and locations along the Gold Line tracks.

New Tract Development, Agua Dulce, CA (2000)

Dr. Pradel performed a seismic hazard assessment for a 908 acre development, including determination of the ground motions for structural design using deterministic and probabilistic

methods, development of site specific response spectra for cut and fill areas, evaluation of liquefaction potential, and seismically induced settlement analyses.

Melia Landslide Stabilization, Los Angeles, CA (2005-2010)

Dr. Pradel was originally retained as an expert witness to investigate a large landslide affecting several homeowners in a secluded hillside area in Los Angeles, and then was hired as engineer of record to repair the landslide. Dr. Pradel managed and coordinated the site reconnaissance, subsurface investigation and monitoring of the slope movement with slope inclinometers. He performed numerical analyses using the program FLAC to determine the feasibility of stabilization of the ancient landslide using a combination of landslide removal, pile supported retaining walls, and a fill buttress. The numerical modeling included both the temporary and permanent stability of the affected properties.

During repairs, Dr. Pradel was the engineer of record for the slope stabilization which included construction of a fill buttress and retaining walls for the stabilization of the Landslide.

Ground Motion Studies, Various Sites, Los Angeles, CA (1997-2006)

Following the Northridge Earthquake, Dr. Pradel performed numerous site specific ground motion studies for hundreds of sites located across the Los Angeles region. He researched ground motion recordings, selected dynamic soil properties, and developed site-specific ground motions and response spectra to provide to structural engineers. He has also investigated the effects of earthquakes on many tall structures. He published his findings on the correlation between ground motions and structural damages using a database of over 200 steel buildings. His findings were published in 2006 at the "Soil Stress-Strain Behavior, Measurement, Modeling and Analysis" conference in Rome.

Celite Dam Replacement Spillway, Lompoc, CA (2003)

When a replacement spillway was necessary for the Celite dam Dr. Pradel performed a study to select a new location and directed a subsurface investigation for the geotechnical design of the spillway and hydraulic structures.

Paute Mazar Gravity Dam, Ecuador (1983-1984)

Dr. Pradel performed static and dynamic analyses for the stability of the rock abutments. He used Finite Element results to evaluate the stresses and water pressures in the rock mass and performed three-dimensional rock mechanics stability analyses to determine the potential for three-dimensional discrete geologic block failures in the rock abutments.

Emosson Dam, Switzerland (1982-1984)

Emosson dam is a 590-foot high double curvature arch dam in Switzerland. Dr Pradel performed a yearly inspection and worked on the feasibility study to raise the dam by building an additional concrete arch connected to the existing dam with tiebacks.

Yuracmayo Earth Dam, Peru (1982-1984)

Dr. Pradel performed numerical deformation analyses to evaluate the dynamic performance of the dam and predict displacements of the dam under various Earthquake scenarios. The large predicted displacements resulted in significant changes to the dam cross-section to reduce the potential for a major failure due to seismic events.

Murrieta Creek Fault, Temecula Valley, California (1990-1991)

Dr. Pradel performed a study using Finite Element Analyses to predict the area of influence of the regional wetting induced (hydro-consolidation) subsidence. Finite Element predictions included determination of the likely location of ground extension/cracking and determination of the magnitude of settlement. He also designed several mitigation measures.

Sinaloa Dam, Simi Valley, California (1992-1993)

Dr. Pradel performed a feasibility study for the improvement/reconstruction of the dam, including subsurface characterization and testing, seepage, and stability analyses (static, dynamic and rapid drawdown conditions).

Sacred Falls, Oahu, Hawaii (2000-2001)

Dr. Pradel worked for the State of Hawaii and performed a geotechnical investigation of the rock fall that killed several people in the Sacred Falls Park. He also performed a feasibility study of potential mitigation and remediation techniques for the State Park.

Ground Improvement, Lancaster, California (2001)

Geotechnical investigation, design, and construction observations of ground improvement by compaction grouting in Lancaster, CA (for Allstate Insurance).

Geotechnical Investigation, Tokyo, Japan (2004-2006)

Geotechnical investigation of the causes of settlement and design of remediation using piles for a tract of homes near Tokyo, Japan (for American Homes of Japan).

COMMITTEES AND AWARDS

Committee Member, Recommended procedures for implementation of DMG SP117 ("Guidelines for evaluating and mitigating seismic hazards in California") for analyzing and mitigating landslide hazards in California (2001-2002)

Editor and Committee Member, Recommended procedures for implementation of DMG SP117 ("Guidelines for evaluating and mitigating seismic hazards in California") for analyzing and mitigating landslide hazards in California (1999-2000)

Chair of the Los Angeles Geotechnical Technical Section of the American Society of Civil Engineers (1999-2000).

Vice-Chair of the Los Angeles Geotechnical Technical Section of the American Society of Civil Engineers (1998-1999).

Treasurer and Secretary of the Los Angeles Geotechnical Technical Section of the American Society of Civil Engineers (1996-1998).

1st and 2nd Director of the Los Angeles Geotechnical Technical Section of the American Society of Civil Engineers (1994-1996).

Committee Member of the Geotechnical Engineering Career Awards Committee, for the National Science Foundation (1997).

Committee Member of the Slope Stability Committee for the Los Angeles County Department of Building and Safety (1995-1996).

Committee member of the American Society of Testing Materials Committee on Soil and Rock (1990-present).

Subcommittee chairman for the Structural Engineers Association of Southern California for Foundations (1990 - 1992).

Committee member of the American Society of Testing Materials Committee on Waste Management (1992-present).

"State of Vaud" award for thesis at the Swiss Institute of Technology in Lausanne, Switzerland (1982).

TEACHING, RESEARCH AND PUBLICATIONS

Dr. Pradel is also an Adjunct Associate Professor in the Civil Engineering Department at UCLA, where he has taught graduate and undergraduate courses in Soil Mechanics, Foundation Engineering, Slope Stability, Earth Retaining Structures, Finite Elements, Constitutive Modeling and Structural Engineering. In particular, he is the instructor of the only course at UCLA that focuses on the design of earth and concrete dams, including seepage analyses by numerical methods, piping, and slope stability analyses (including rapid drawdown).

Dr. Pradel is the author of many publications on topics such as dynamic compression of soils during earthquakes, seismic displacements of slopes, liquefaction and slope stability. He is the former chair of the Los Angeles ASCE geotechnical technical group, an editorial board member of the ASCE Journal of Geotechnical Engineering and has peer reviewed and edited U.S. Army Corps of Engineers (USACOE) technical manuals. In 1995, after a 2-year effort, the USACE presented Dr. Pradel with a certificate of Appreciation for his work for them

Dr. Pradel is also an active member in several research committees, his duties include reviewing documents and standards for the American Society of Testing Materials (ASTM), being member of the American Society of Civil Engineers Education Committee, and was subcommittee chairman for "Foundations" within the Structural Engineers Association of Southern California.

PUBLICATIONS IN JOURNALS AND BOOKS:

Pradel D., Tiwari B., Wartman J. (2011), "Landslides Triggered by 2011 Tohoku Pacific Earthquake: Preliminary Observations", Geo-Strata (ASCE's Geo-Institute) Sept./Oct. 2011, 28-32

Pradel D. and Chang K. (2011), "Practical Design of Stabilizing Piles" Deep Foundations (DFI), Summer 2011, 51-54

Pradel D., Smith P., Stewart J. and Raad G. (2005), "Case History of Landslide Movement during the Northridge Earthquake". ASCE Journal of Geotechnical and Geoenvironmental Engineering, Vol. 131, No. 11, 1360-1369.

Pradel D. (1997), "Procedure to Evaluate Earthquake-Induced Settlements in Dry Sandy Soils". ASCE Journal of Geotechnical Engineering, Vol. 124, No. 4, 364-368 and Vol. 124, No. 10, 1048.

Pradel D. and Raad G. (1993), "Influence of Permeability on Surficial Stability of Homogeneous Slopes". ASCE Journal of Geotechnical Engineering, Vol. 119, No. 2, 315-332.

Pradel D., Raad G. and Harter R. (1992), "Hydrocompression Settlement of Deep Fills, Discussion". ASCE Journal of Geotechnical Engineering, Vol. 118, No. 6, 954-955.

Lade P.V. and Pradel D. (1990), "Stability and Flow of Granular Materials: Experimental Investigation". ASCE Journal of Engineering Mechanics, Vol. 116, No. 11, 2532-2550.

Pradel D. and Lade P.V. (1990), "Stability and Flow of Granular Materials: Analytical Investigation". ASCE Journal of Engineering Mechanics, Vol. 116, No. 11, 2551-2566.

Pradel D., Ishihara K. and Gutierrez M. (1990), "Yielding and Flow of Sand under Principal Stress Axes Rotation". Soils and Foundations, Vol. 30, No. 1, 87-99.

Towhata I., Pradel D. and Ishihara K. (1988) "Plasticity Approach to Sand Behavior Under Principal Stress Axes Rotation". Micromechanics of Granular Materials, Studies in Applied Mechanics, Vol. 20, 191-200.

PUBLICATIONS IN PROCEEDINGS:

Pradel D., Garner J. and Kwok A. (2010), "Design of drilled shafts to enhance slope stability", ASCE GSP 208, Earth Retention Conference 3, Bellevue, 920-927.

Pradel D. and Carillo R. (2008), "Landslide stabilization using drilled shafts", Proc. 1st Int. FLAC/DEM Symposium, Minneapolis.

Chiu P., Pradel D. Et al. (2008), "Seismic Response Analyses for the Silicon Valley Rapid Transit Project", ASCE GSP 181, Geotechnical Earthquake Engineering and Soil Dynamics IV, Sacramento, 1-10.

Pradel D. (2006), "Engineering Implications of Ground Motions on Welded Steel Moment Resisting Frame Buildings". Soil Stress-Strain Behavior, Measurement, Modeling and Analysis, Springer, Roma, 937-947.

Pradel D. (1994), "Active Pressure Distribution in Cohesive Soils". Proc. of the XXIth International Conference of Soil Mechanics and Foundation Engineering, New Delhi, Vol. 2, 795-798.

Pradel D. (1991), "Instability and Plastic Flow of Soils". ASCE Engineering Mechanics Specialty Conference, Columbus OH, 1174-1178.

Pradel D. and Lade P.V. (1989), "Plastic Flow and Instability of Granular Materials". Proc. of the IIIrd International Symposium on Numerical Models in Geomechanics, Niagara Falls, 9-16.

Lade P.V. and Pradel D. (1989), "Comparison of Single and Double Hardening Models for Frictional Materials". Proc. of the IIIrd International Symposium on Numerical Models in Geomechanics, Niagara Falls, 147-154.

Pradel D. and Lade P.V. (1989), "Instability of Sand Under Applied Shear Stresses". Proc. of the XXth International Conference of Soil Mechanics and Foundation Engineering, Rio de Janeiro, 8/18: 743-748.

Pradel D. (1988), "Model with Multiple Mechanisms for Anisotropic Behaviors of Sands". Proc. of the VIth International Conference on Numerical Methods in Geomechanics, Innsbruck, 503-508.

Pradel D., Ishihara K. and Gutierrez M. (1987), "On Modeling of Inherent Anisotropy of Sands". Proc. of the XXIIth Japan National Conference on Soil Mechanics and Foundation Engineering, Niigata, 359-362

Pradel D. and Ishihara K. (1987), "Elastoplastic Model for Anisotropic Behavior of Sands". Proc. of the IInd International Conference on Constitutive Laws for Engineering Materials, Tucson, 631-638.

COMMITTEE PUBLICATIONS:

American Society of Civil Engineers (2007): "Seismic Rehabilitation of Existing Buildings" ASCE/SEI 41-06.

American Society of Civil Engineers (2003): "Seismic Evaluation of Existing Buildings" ASCE/SEI 31-03.

Southern California Earthquake Center (2002): "Recommended Procedures for Implementation of DMG Special Publication 117 Guidelines for Analyzing and Mitigating Landslide Hazards in California."