JOHN T BRYANT, Ph.D., P.G., P.E., CPG, D.GE, M. ASCE, F.PTI

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CURRICULUM VITAE

EDUCATION

Doctor of Philosophy (Ph.D.), Civil Engineering (Geotechnical/Constructed Facilities Group), Texas A&M University, 1991

Master of Science, Geography (Geomorphology), Texas A&M University, 1987

Bachelor of Science, Engineering Geology, Texas A&M University, 1985

Bachelor of Science, Civil Engineering (BSCE), Texas A&M University, 1991

Associate in Science, Engineering, New Mexico Junior College, 1983

PROFESSIONAL REGISTRATION

Engineering: Registered & Licensed Professional Engineer

 Texas, No. 80163
 Florida, No. 73600

 New Mexico, No. 18085
 Oklahoma, No. 25878

 Louisiana, No. 33537
 New York, No. 092109.1

North Carolina, No. 034508

Arizona, No. 49063

Colorado, No. 42859

Arkansas, No. 14097

Tennessee, No. 113028

New Jersey, No. 24GE05123300

South Carolina, No. 33044

Virginia, No. 0402056235

Georgia, No. PE040925

Missouri, No. 2017037880

Utah, No. 8084186-2202 Wyoming, No. 15634

Licensed Professional Geoscientist

(Alabama), No. 1507 (Mississippi), No. 0797

(Texas), No. 284 (Kansas), No. 803

(Tennessee), No. 2555 (Kentucky), No. 163742

(Louisiana), No. 1102

Licensed Professional Geologist

Professional Organizations

American Institute of Professional Geologists, Certified Professional Geologist, CPG-9926 American Society of Civil Engineers, Member No. 315125 Post-Tensioning Institute, Fellow American Council of Engineering Companies

COMMITTEE MEMBERSHIP

Committee Member, National Research Council, Transportation Research Board (TRB), Transportation Research Committee on Engineering Behavior of Unsaturated Soils.

Past Chairman, present Committee Member, Post Tensioning Institute's Slab-on-Ground Committee.

Committee Member, Texas American Society of Civil Engineers (ASCE), Residential Foundation Evaluation and Repair Subcommittee.

Committee Member, American Society of Civil Engineers (ASCE), Technical Council on Forensic Engineering, Committee on Forensic Practices.

Committee Member, American Society of Civil Engineers (ASCE), Geo-Institute, Design of Residential Structures on Expansive Soils.

PROFESSIONAL EMPLOYMENT

Adjunct Professor of Geology and Geophysics at Texas A&M University, College Station, Texas, Spring 2016 to Present

CEO of Bryant Consultants Operating, LLC - September 1996 to Present

Bryant Consultants Operating, LLC was formed in September 1996 to provide consulting forensic geotechnical and geo-structural consulting, as well as consulting for site development for builders, developers and owners to mitigate problems associated with construction. Geographic Information Systems and computer modeling are used in conjunction with over 25 years of consulting expertise to provide innovative solutions to site development and construction-related distress problems.

As president of Bryant Consultants Operating, LLC, Dr. Bryant is the principal in charge of all engineering and geoscience operations including forensic, geotechnical, geo-structural, water modeling, and geophysical modeling and testing. Dr. Bryant coordinates the operations of the company with other affiliated technical experts when required. Dr. Bryant has provided expert witness testimony in over 200 various mediations, arbitrations, and court cases over the past 25 years.

Bryant Consultants Operating, LLC has performed work across Texas including Dallas, Houston, Austin, and San Antonio. BCI has also performed work in other states such as Oklahoma, New Mexico, New Jersey, Arizona, Mississippi, North Carolina, Florida, Arkansas, Louisiana, Colorado and Kansas. Bryant Consultants Operating, LLC provides a unique combination of geotechnical expertise coupled with

geophysical exploration technology to provide the most accurate two and three-dimensional representation of subsurface conditions available.

Dr. Bryant has performed work at the world's largest earthwork project located at the Lakes of Arlington in Arlington, Texas, Texas A&M Bonfire Collapse and has also worked on individual house failures such as the dramatic slope failures shown in the news in Trophy Club, Texas and at Lake Whitney, Texas. Dr. Bryant also consulted on offshore geotechnical modeling and the forensic evaluation of Millenium Tower in San Francisco, California. Dr. Bryant has also evaluated other subterranean as well as mine collapses in Kansas and Louisiana, as well as tunnel collapse and geological issues.

Dr. Bryant's specialties include, but are not limited to the following areas:

- *Evaluation of Soil-Structure Interaction including Pavements, Foundation Analysis and Design, Retaining Wall Design and Analysis, Slope Stability and Soil Dynamics.
- *Geotechnical Engineering and Design
- *Vibration Testing, Analysis and Evaluation
- *Pavement Design and Analysis
- *Geophysical Modeling including Seismic, Electrical and Radar.
- *Geological Modeling Analysis
- *Fault Studies including HGS Phase I and Phase II Investigations
- *Geomorphological Modeling
- *Numerical Modeling of Soil-Structure Interaction and Geo-structural Elements.
- *Construction Materials Evaluation and Analysis
- *Groundwater Modeling
- *Hydrological and Drainage Modeling
 - *Specialist Geotechnical Laboratory Testing including Soil Suction and Triaxial Testing
 - *Research and Development
 - *Supervision and personal experience (field and laboratory) in construction material testing and observations including, but not necessarily limited to: 1) earthwork placement, 2) concrete and asphalt pavement placement, 3) drilled shaft construction, 4) compressive cylinder testing, 5) Proctor moisture and density curve derivation, and 6) placement of reinforcement in piers and concrete including pavements.

PE Consultants/Dallas January 1996 to September 1996

PE Consultants/Dallas was founded in January 1996 to provide better service for clients and customers after leaving Maxim Technologies, Inc. PE Consultants performed work on approximately 60 projects across the state including projects in Rockwall (Wal-Mart), Houston, Wichita Falls, Brownwood, and the DFW Metroplex. PE Consultants/Dallas provided geotechnical engineering, geophysical testing and consulting, construction materials engineering and testing, as well as environmental consulting services to a diversified client base. The projects ranged in complexity from analysis of landslide stability, providing design parameters for small residential construction and large industrial sites and forensic engineering to assess the distress conditions at residences and other structures.

Dr. Bryant helped in design of several post-tensioned slab-on-grade foundations for three-story hotel structures and for individual residences using the VOLFLO and PTISLAB design programs. He also performed structural inspections at numerous residences across the DFW Metroplex to evaluate the distress patterns at these structures and to develop possible causes for the distress condition.

Dr. Bryant has worked closely with Dr. Robert L. Lytton, P.E., on several interesting projects using the total soil suction and matric soil suction test methods to evaluate the PTI slab design parameters. Over the past few years, several thousand total and matric soil suction tests have been performed under his

supervision. These tests have been used to estimate the actual movement magnitudes to develop slab-on-grade design parameters for each site.

Maxim Engineers/Technologies, Inc. July 1994 to January 1996

Dr. Bryant's duties at Maxim Engineers, Inc. included coordination of the geotechnical laboratory, geotechnical drilling and geotechnical engineering activities. Dr. Bryant also worked closely with the Construction Materials Testing and Environmental Consulting parts of the organization when projects required construction monitoring and Environmental Site Assessments. During his tenure with Maxim Engineers, Inc. as the Manager of Geotechnical Engineering, he worked on a number of interesting geotechnical projects across the State of Texas. A partial list of these projects includes:

- 1. MedCath Heart Institute, McAllen, Texas. Performed geotechnical engineering and analysis for a two-story medical facility. This project was challenging because of the various field testing problems encountered and the large structural loads imposed.
- 2. Pavestone Plant, Katy, Texas. Performed geotechnical engineering and analysis for a sensitive car/track block retrieval system for storage of Pavestones' wall and paver products. The challenge on this project was to provide safe, but not over-conservative design parameters and recommendations for tolerances of movement of less than 0.25 inches.
- 3. Omnimax Theater, Dallas, Texas. Performed geotechnical engineering and analysis for a multi-level theater/museum complex at Fair Park.
- 4. Various remedial forensic geotechnical and geological investigations. The challenge in these projects is to develop "why" structures are experiencing distress and to work with the structural engineer to develop solutions to the problem soil conditions.

Dr. Bryant was also involved in research at Maxim Engineers, Inc. to test various chemical additives on the highly expansive clay soils in the Dallas/Fort Worth Metroplex Area. Other research activities include modeling movement magnitudes using soil suction, theoretical diffusion models and standard empirical models.

Southwestern Laboratories, Inc., July 1991 to July 1994

During Dr. Bryant's tenure at Southwestern Laboratories his duties as a staff and project engineer included: 1) designing shallow and deep foundation systems for large buildings to individual houses, 2) forensic investigations of foundation failure, 3) field and design work for pipeline, tunneling and light rail projects for the City of Farmers Branch and Dallas Area Rapid Transit (DART), 4) use of laterally loaded shaft and slope stability programs to determine safe construction and final slope designs, and 5) use of electrical resistivity to identify leachate migration from municipal landfills, to locate gravel and sand deposits and for the grounding of transmission towers.

Dr. Bryant's geotechnical experience involved using several different computer programs for analysis of slope stability (UTEXAS2), lateral load capacity and deflection (COM624G), and settlement predictions (SETANL). Dr. Bryant also wrote several computer programs including GeoPVR based on the TxDOT's 124-E procedure and Fredlund's Method using interactive methods. The TxDOT's method is based on McDowell's empirical correlations. Another program, BearSet allows calculation of bearing values for shallow foundations, as well as settlement using Schmertmann's method in sand or classical Terzaghi consolidation theory in clay for NC or OC clays.

Dr. Bryant's field experience with Southwestern Laboratories included geological mapping and surveying using a transit and Brunton compass, as well as construction observation of drilled shafts, retaining walls, and water injection of slab-on-grade pads. While working on the Farmers Branch (5' diameter) and DART

(20' diameter) tunnel projects, he supervised drilling of approximately 100 borings, both oriented and vertical, ranging in depths from 30 feet to over 200 feet. Dr. Bryant's field responsibilities included visually logging all core samples and recording shear, joint and fault orientations, as well as identifying subtle stratigraphic variations. Dr. Bryant observed and supervised the installation of approximately 100 piezometers and monitor wells during his tenure at SWL.

Further, Dr. Bryant was responsible for conducting single and double packer pressure tests used to establish the formation's hydraulic conductivity or coefficient of permeability. Finally, Dr. Bryant's field experience included constructing and setting various piezometers for the tunnel projects and conducting California Bearing Ratio tests for pavement evaluation and design.

Dr. Bryant also used geophysical methods including electromagnetics (EM) resistivity, gravity and seismic methods to identify landfill volumes, depths and fill composition. In one study, he mapped a 10-acre tract using resistivity, EM and borings, and located construction debris including steel drums and concrete rubble.

Calvin E. Woods, Ph.D., P.E., R.P.L.S., an engineering consultant, June 1989 to June 1991

- 1) Prepared preliminary (Phase I) environmental site assessment for a site near San Antonio, Texas. Took soil samples and analyzed and synthesized geologic and soils information and maps. Prepared a report based on the laboratory information and geology and soils data.
- 2) Prepared hydrological and geological reports including flood routing and ditch sizings for expected peak flood rainfall events for landfill cap at Texas Municipal Power Authority (TMPA) lignite mine near Carlos, Texas.

K. W. Brown and Associates an environmental consulting firm, March 1990 to June 1990

Worked part-time on a post-closure permit application for a hazardous waste site at a General Electric plant in Pennsylvania. Prepared maps and coordinated computer-aided design draftsmen.

Texas A&M University, January 1986 to May 1991

Teaching Assistant/Part-Time Instructor, Texas A&M University, Department of Civil Engineering, Geotechnical Engineering Class, January 1991 to May 1991.

Research Assistant, Texas A&M University, Department of Civil Engineering, Fall 1988 to December 1990.

Graduate Teaching Assistant, Texas A&M University, Department of Civil Engineering, Spring 1988. Teaching assistant for CVEN 365, Geotechnical Engineering class.

Graduate Teaching Assistant, Texas A&M University, Department of Geography, Fall 1987. Teaching assistant for GEOG 213, Physical Geography Lab.

Graduate Teaching Assistant, Texas A&M University, Department of Geography, Spring 1987. Teaching assistant for GEOG 380, Environmental Workshop class.

Graduate Teaching Assistant, Texas A&M University, Department of Geography, Fall 1986. Teaching assistant for GEOG 431, Geomorphology class and GEOG 689, Coastal Geomorphology class.

Graduate Teaching Assistant, Texas A&M University, Department of Geography, Spring 1986. Teaching assistant for GEOG 430, Cartography. Also constructed and compiled a general-use map for a ranch in West Texas.

RESEARCH EXPERIENCE

Geomorphologic Research

- 1. Analysis of coastal landforms and coastal morphodynamics. Galveston Island and Bolivar Peninsula, Texas. January 1986 to December 1987.
- 2. Analysis of sediment surrounding Hohokam Indian settlement sites in South Central Arizona by dry-sieving methods, Spring 1987.
- 3. Construction of engineering geomorphologic map of Wolf Pen Creek, College Station, Texas, Spring 1987. The work involved use of transit for accurate placement of markers to determine slope angles and erosion rates in the area.

Civil Engineering/Geophysical Research

- 1. Research using a scale-model test tank and forward computer models involving cross-borehole and surface-to-borehole electrode configurations to locate subsurface conductive/resistive anomalies and to characterize the two-dimensional sub-surface resistivity structure.
- 2. Installation and monitoring of slope indicator and pressure sensor devices, as well as strain gages, for a retaining wall adjacent to a new road embankment near Houston, Texas for the Texas Department of Transportation.
- 3. Evaluation of heave mechanisms in expansive clay soils including computer simulation of various prediction schemes.
- 4. Correlation of soil suction values to other physical and engineering soil properties.
- 5. Development of GMMIR process via US Patents to reduce the error of non-uniqueness in geophysical inversion testing of the Direct Current Resistivity Method/Electrical Resistivity Tomography (DCRM/ERT).
- 6. Development of prototype of Thunderbird electrical resistivity modelling system using "smart" electrodes including software and hardware.
- 7. Research of and development of a 3D slab-on-grade soil-structure interaction model for design and analysis of slabs for expansive clay soils.

PUBLICATIONS

Papers

JEAN M. AUDIBERT, M. KABIR HOSSAIN, SUT, ASCE and JOHN T. BRYANT ASCE, AIPG, PTI, ACEC, "Sliding Mudmats Design – Current State of Practice and Realistic 3D Simulations." <u>International Symposium on Frontiers in Offshore Geotechnics, (DFI), Article #3591, Publication #1069</u> (IC-ISFOG21), November 2021.

M. KABIR HOSSAIN (Bryant Consultants Operating, LLC), JEAN M. AUDIBERT (Independent Consultant), JOHN T. BRYANT (Bryant Consultants Operating, LLC). "Understanding Sliding Mudmat Behavior using Eulerian-Lagrangian Simulations", Paper presented at the Offshore Technology Conference, Houston, Texas, USA, May 2020; OTC-30795-MS.

JOHN T. BRYANT, HAYDEN FISCHER, M. KABIR HOSSAIN and JEONG YEON CHEON. "The Active Zone: Unsaturated Soil Volume Change Due to Normal Cycles and Anomalies at Depth", Second Pan-American Conference on Unsaturated Soils 2017, GSP 303, Dallas, Texas; ASCE, June 2018.

M. ADIL HAQUE, JOHN T. BRYANT, "Failure of VERT Wall System: Forensic Evaluation and Lesson Learned" Geo-Frontiers 2011, ASCE 2011.

JOHN T. BRYANT, M. ADIL HAQUE, "Soil-Pipe Interaction Analysis: A Forensic Evaluation", Geo-Frontiers 2011, ASCE 2011.

BRYANT, J.T. and HAQUE, M.A., "Performance and Design of Foundations on Unsaturated Expansive Soils", UNSAT 2010, Barcelona, Spain, accepted for Publication.

BRYANT, J.T., HAQUE, M.A., and ROSENBERK, R.S., "Performance and Design of Slab-on-grade and Pier Foundation Systems: Theoretical Considerations and Practical Applications", <u>Geotechnical Special Publication No. 198</u>, 2010.

HAQUE, M. ADIL and BRYANT, J. T., "Failure of Vertical Wall System: Forensic Evaluation and Lessons Learned", Electronic Journal of Geotechnical Engineering, Vol. 15E, 2010.

BRYANT, J. T., "The Theoretical Foundations of Geotechnical Engineering I: A Geotechnical Engineer Apologist's Perspective", <u>Texas ASCE Proceedings</u>, Harlingen, Texas, Spring 2009.

HAQUE, M. ADIL and BRYANT, J. T., "Generalized Relationships to Estimate Soil Properties from Electrical Resistivity", <u>Texas ASCE Proceedings</u>, Fall 2008.

BRYANT, J. T., "Simplified Approach to PTI 3.1 Method", PTI Journal, February 2008.

MORRIS, D. V., GEHRIG, M. H., SWEENEY, S. P., and BRYANT, J. T., "A Slow-Moving Landslide Characterized by Both Engineering and Geo-Electrical Techniques", 1st North American Landslide Conference, Vail, Colorado, June 2007.

BRYANT, J. T., NISTALA, S., MORRIS, D. V., SWEENEY, S.P., and GEHRIG, M. D., "The Zone/Area of Influence Concept in Design and Forensic Engineering and Geosciences", <u>Texas ASCE Proceedings</u>, Fall 2006.

BRYANT, J. T., PH.D., P.G., P.E., "A Mathematical Model for Point Source Moisture Migration: The Standard Plumbing Leak Model in Expansive Clay Soils", <u>Texas ASCE Proceedings</u>, Spring 2006.

MORRIS, D. V., BRYANT, J. T., and GEHRIG, M. D., "Differentiation of Water Sources Using Analytical Water Chemistry Data", <u>TPG (The Professional Geologist)</u>, Volume 42, Number 6, pp 39-42, Sept/Oct 2005.

- MORRIS, D. V., PH.D., P.E., GEHRIG, M. D., PE. PG., and BRYANT, J.T., PH.D., P.E., "Detection of Three-Dimensional Voids in Karstic Ground", <u>The Tenth Multidisciplinary Conference</u>, <u>Texas ASCE Proceedings</u>, San Antonio, Texas, September 2005.
- PHILLIPS, H. F., P.E., PIERRY, R. F. JR., P.E., and BRYANT, J. T., Ph.D., P.G., P.E., "Reliability Based Soil Structure Foundation Interaction Evaluation Approach", <u>Texas ASCE Proceedings</u>, Spring 2004.
- GEHRIG, M.G., BRYANT, J.T., and MORRIS, D.V., "Ground Penetrating Radar for Concrete Evaluation Studies", Texas ASCE Proceedings, Fall 2003.
- PETRY, T. M., P. E., BRYANT, J. T., P.G., P.E., "Evaluation and Use of the Decagon WP4 Dewpoint Potentiometer", <u>Texas ASCE Proceedings</u>, Fall 2002.
- BRYANT, J. T., MORRIS, D.V., SWEENEY, S.P, and GEHRIG, M. D., "Underground Cavity Evaluation Near Structures", <u>Texas ASCE Proceedings</u>, Spring 2002.
- BRYANT, J. T., MORRIS, D.V., SWEENEY, S.P., GEHRIG, M. D., and MATHIS, J. D., "Tree Root Influence on Soil-structure Interaction in Expansive Clay Soils", <u>Geotechnical Special Publication Number</u> 115, Expansive Clay Soils and Vegetative Influence on Shallow Foundations, ASCE, Houston, Texas, 2001.
- BRYANT, J. T., "Variation of Soil Suction with Depth in Dallas/Ft. Worth, Texas", Transportation Research Board, 77th Annual Meeting, Washington, D.C., 1997.
- BRYANT, J. T., "The Predictive Capacity of Expansive Soil Potential by Empirical Methods", Site Development Workshop, Centex Real Estate Corporation, Lewisville, Texas, 1996.
- BRYANT, J. T., "Soil Testing and Sulfate-induced Heave", <u>Technical Memorandum TN-2</u>, Southwestern Laboratories, Geotechnical Engineering Division, Dallas, Texas, 1993.
- BRYANT, J. T., "Relationships Between Hydraulic Conductivity and Permeability as Functions of Temperature", <u>Technical Memorandum TN-1</u>, Southwestern Laboratories, Geotechnical Engineering Division, Dallas, Texas, 1993.
- BRYANT, J. T., and ABRAMS, T. A., "Evaluation of Vertical Rock Excavation Stability in the Austin Chalk Formation", Association of Engineering Geologists Lone Star Chapter Meeting, April 1993.
- BRYANT, J.T., MORRIS, D. V., and MORGAN, F. D., "Identification of Conductive Waste Bodies Using Borehole-to-Surface Electrical Resistivity Methods", <u>Society of Exploration Geophysicists Abstracts and Programs</u>, Annual Meeting, 1991.
- BRYANT, J. T., "Applications of Electrical Resistivity Methods: Relationships Between Theoretical Results and Laboratory Data", Dissertation, Texas A&M University, College Station, Texas, 1991.
- BRYANT, J. T., "A Study of Beach Cusp Morphodynamic Processes: Galveston Island and Bolivar Peninsula, Texas", Thesis, Texas A&M University, College Station, Texas, 1987.
- BRYANT, J. T. and GIARDINO, J. R., "Beach Cusps as Self-similar Fractal Sets", <u>Geological Society of America Abstracts and Programs</u>, 19, Abstract No. 141708, p. 604, 1987.

GIARDINO, J. R., BRYANT, J. T., DUKE, V., FITZGERALD, J., JEO, T., and PRICE, J., <u>Fundamentals and Applications of Physical Geography</u>, First Edition, Department of Geography, Texas A&M University, College Station, Texas, 1987.

GIARDINO, J. R., BEDNARZ, R. S., and BRYANT, J. T., "Nourishment of San Luis Beach, Galveston Island, Texas: An Assessment of the Impact", ASCE, <u>Coastal Sediments '87</u>, Vol. 2, p. 1145-1157, 1987.

GIARDINO, J. R., BEDNARZ, R. S., and BRYANT, J. T., "Nourishment of San Luis Beach, Galveston Island, Texas: Questions and Solutions", ASCE, Coastal Sediments '87, Vol. 1, Poster Session, 1987.

BRYANT, J. T., GIARDINO, J. R., and BEDNARZ, R. S., "Beach Cusp Spacing on Galveston Island and Bolivar Peninsula", <u>Geological Society of America Abstracts and Programs</u>, 18 (6), Abstract No. 85859, 1986.

BRYANT, J. T., GIARDINO, J. R., and BEDNARZ, R. S., "The Modification of a Beach Cusp Spacing Formula", <u>Association of American Geographers Proceedings</u>, Southwest Section Convention, San Marcos, Texas, 1986.

Technical Manuals

Bryant, J. T., <u>Site Development Manual</u>, Centex Real Estate Corporation, Regional Claims Office, Lewisville, Texas, 1996.

Bryant, J. T., <u>Site Development Manual Checklists</u>, Centex Real Estate Corporation, Regional Claims Office, Lewisville, Texas, 1996.

Contributions to Books

Roberts, Jack L., Understanding Soil Mechanics, Del-Mar Press, New York, N.Y., 1995.

PATENTS

Apparatus and Method for Three-Dimensional Moisture Control Using Sprinklers (CIP), Patent No. US 10,004,184, Patent Dated June 26, 2018.

System and Method of Performing an Engineering-based site Development and Risk Assessment Process (CIP of .0111), Patent No. US 9,324,050 B2, Patent Dated April 26, 2016.

System and Method of Performing an Engineering-Based Site Development and Risk Assessment Process (CIP of .0111), Patent No. 8,370,167, Patent Dated February 5, 2013.

Remotely Reconfigurable System for Mapping Subsurface Geological Anomalies (CIP of .0123), Patent No. US 8,321,160, Date of Patent: November 27, 2012.

Remotely Reconfigurable System for Mapping Subsurface Geological Anomalies (CIP of 117), Patent No. US 8,019,547, Date of Patent: September 12, 2011.

Multidiscipline Site Development and Risk Assessment Process (CIP .0111), Utility Filed May 7, 2009, (Pending).

Remotely Reconfigurable System for Mapping Subsurface Geological Anomalies (CIP of 117), Patent No. US 7,813,883, Date of Patent: October 12, 2010.

Remotely Reconfigurable System for Mapping Subsurface Geological Anomalies (CIP of 117), Patent No. US 7,788,049, Date of Patent: August 31, 2010.

Multidiscipline Site Development and Risk Assessment Process, Patent No.: US 7,693,724 B2, Date of Patent: April 6, 2010.

Remotely Reconfigurable System for Mapping Structure Subsurface Geological Anomalies, Patent No.: US 7,386,402 B2, Date of Patent: June 10, 2008.

Apparatus and Method for Displaying Subsurface Anomalies and Surface Features, Patent No.: US 7,003,400 B2, Date of Patent: February 21, 2006.

Subsurface Modeling Method (CIP .0102), Patent No.: US 6,804,625 B1, Date of Patent: October 12, 2004.

Subsurface Mapping Apparatus and Method, Patent No.: US 6,295,512 B1, Date of Patent: September 25, 2001.

TECHNICAL SEMINAR PRESENTATIONS

"The Forensic Analysis of the Soil-Structure Interaction of Millennium Tower", The University of Texas at Austin, Engineering Executive Education, Cockrell School of Engineering, Austin, TX, January 14, 2020.

"Active Zone Depth in Unsaturated Expansive Clay Soils", Building Professional Institute, Irving Conference Center, Irving, TX, May 23, 2018.

"Retaining Walls & Slope Stability", EMJ Corporation, EMJ Corporation, Brookwood Conference Center, 5601 North MacArthur Blvd., Irving, TX, April 27. 2018.

"Retaining Walls & Slope Stability", EMJ Corporation, Residence Inn Chattanooga, Chattanooga, TN, February 23, 2018.

"Natural Gas Study", 2016 AEGIS Claims Seminar, Hyatt Regency Scottsdale Resort & Spa at Gainey Ranch, Scottsdale, Arizona, October 17-19, 2016.

"Design of Post-Tensioned Slab-on-Ground Foundations", SOG Geotechnical Design Seminar, Post-Tensioning Institute, San Francisco, California, May 10, 2016.

"Investigation of Subsurface Anomalies Including Faults", Foundation Performance Association (FPA), Houston, Texas, March 9, 2016.

"Application of Expansive Soil - Geotechnical Procedures", 2015 PTI Convention, Royal Sonesta Houston Galleria, Houston, Texas, April 28, 2015.

"Shallow Foundation Design, Construction and Repair", HalfMoon Education, Inc., El Paso, Texas, February 5, 2015.

"Reviewing Geotechnical Reports", David Weekley Homes, Celebration, Florida, May 7-8, 2014.

- "Soil Swell PVR Debate", ASCE, CECON 2014, Galveston, Texas, September 17-19, 2014.
- "Sinkhole Diagnosis and Remediation", American Foundry Society, Waco, Texas, March 1, 2013.
- "Shallow Foundation Design, Construction & Repair", HalfMoon Education, Inc., Austin, Texas, March 22, 2013.
- "Guidelines for the Evaluation of Foundation Movement for Residential and Other Low-Rise Buildings", Structural Engineers of Texas, Fort Worth, Texas, March 27, 2013.
- "Shallow Foundation Design, Construction & Repair", HalfMoon Education, Inc., Shreveport, Texas, April 12, 2013.
- "Soil Mechanics, Bearing Capacity & Slope Stabilization", HalfMoon Education, Inc., Arlington, Texas, May 10, 2013.
- "Shallow Foundation Design, Construction & Repair", HalfMoon Education, Inc., Lubbock, Texas, July 18, 2013.
- "Shallow Foundation Design, Construction & Repair", HalfMoon Education, Inc., Corpus Christie, Texas, July 24, 2013.
- "Shallow Foundation Design, Construction, and Repair", HalfMoon Education, Inc., Arlington, Texas, December 12, 2012.
- "Failure of VERT Wall System: Forensic Evaluation and Lessons Learned", Geo-Frontiers, Dallas, Texas, March 15, 2011.
- "Differentiation of Water Sources using Analytical Water Chemistry Data", Foundation Performance Association, Westheimer, Houston, Texas, June 8, 2011.
 - "Soil-Structure Interaction Principles and Practice Seminar", Eberl Claims Services 16th Annual Conference, San Antonio, Texas, February 18, 2010.
 - "Simplified Approach to PTI 3.1 Method", Structural Engineers Association of Texas Conference, Corpus Christie, Texas, October 22, 2010.
 - "Soil Structure Interaction the Simplified Approach to PTI 3.1 Method", Structural Engineers Association of Texas, Fort Worth Chapter, Fort Worth, Texas, November 17, 2010.
 - "Geotechnical Info for Structural Engineers", The Structural Engineers Association of Texas, Fort Worth Chapter, Fort Worth, Texas, January 28, 2009.
 - "The Theoretical Foundations of Geotechnical Engineering I: A Geotechnical Engineer Apologist's Perspective", ASCE, Rio Grande Valley Branch, South Padre Island, Texas, Spring 2009.
 - "Application of Expansive Soil Geotechnical Procedures", 17th Annual Building Professional Institute, The University of Texas at Arlington, Arlington, Texas, May 19, 2009.

- "Site Investigation Techniques and Introduction to Shallow Foundation Design" and "Post-Tension Slab on Grade Design and Analysis/Brief on Deep Foundation Design and Analysis", ASCE Fall Technical Seminar, Acadiana Branch, Lafayette, Louisiana, October 22, 2009.
- "Theoretical Foundations of Geotechnical Engineering II: Guidance for Slab Design", ASCE Fall Meeting, Corpus Christie, Texas, October 30, 2009.
- "Simplified Approach to PTI 3.1 Method", Foundation Performance Association, Houston, Texas, December 2008.
- "Simplified Approach to PTI 3.1 Method", ASCE, Corpus Christi, Texas, April 2008.
- "The Zone/Area of Influence Concept in Design and Forensic Engineering and Geosciences", ASCE, San Antonio, Texas, October 2006.
- "A Mathematical Model for Point Source Moisture Migration: The Standard Plumbing Leak Model in Expansive Clay Soils", ASCE, Beaumont, Texas.
- "New Methods for Designing Slabs on Grade: PTI Methods and Challenges", ASCE, March 2005.
- "New Methods for Designing Slabs on Grade: PTI Methods and Challenges", ASCE, New Orleans Branch, December 2004.
- "Differentiation of Water Sources Using Analytical Water Chemistry Data", Association of Engineering Geologists (AEG), Vail, Colorado, September 19, 2003.
- "New Methods of Subsurface Investigation", Thirty-Ninth Paving and Transportation Conference, University of New Mexico Department of Civil Engineering, Albuquerque, New Mexico, January 2002.
- "The Use of Soil Suction Methods and PTI Design", Building Professionals Institute, 1997.
- "Geotechnical Engineering Design for Foundations and Retaining Walls", Professional Engineering Review in Civil Engineering and Structures, University of Texas at Arlington, Spring 1997.
- "Geotechnical Engineering Design for Foundations and Retaining Walls", Professional Engineering Review in Civil Engineering and Structures, University of Texas at Arlington, Fall 1997.
- "Geotechnical Engineering Design for Foundations and Retaining Walls," Professional Engineering Review in Civil Engineering and Structures, University of Texas at Arlington, Spring 1996.
- "Geotechnical Engineering Design for Foundations and Retaining Walls," Professional Engineering Review in Civil Engineering and Structures, University of Texas at Arlington, Fall 1996.
- "Geotechnical Engineering Design for Foundations and Retaining Walls," Professional Engineering Review in Civil Engineering and Structures, University of Texas at Arlington, Spring 1995.

"Geotechnical Engineering Design for Foundations and Retaining Walls," Professional Engineering Review in Civil Engineering and Structures, Alpine Engineered Products, Inc., Haines City, Florida, Spring 1995.

"Geotechnical Engineering Design for Foundations and Retaining Walls," Professional Engineering Review in Civil Engineering and Structures, University of Texas at Arlington, Fall 1995.

"Geotechnical Engineering Design for Foundations and Retaining Walls," Professional Engineering Review in Civil Engineering and Structures, University of Texas at Arlington, Fall 1994.

PROFESSIONAL AND COLLEGE ORGANIZATIONS

American Society of Civil Engineers

American Institute of Professional Geologists

Gamma Theta Upsilon, Geographical Honor Society

Texas A&M University Association of Former Students

Texas A&M University Geology & Geophysics Advisory Council (GEODAC)

Texas A&M University Adjunct Faculty

Member, Gamma Theta Upsilon, International Geographical Honor Society

ACADEMIC HONORS

New Mexico Jr. College Outstanding Student in Mathematics

New Mexico Jr. College Dean's Honor Roll

Texas A & M University Geography Scholarship

Texas A & M University Dean's Distinguished Honor Roll

PROFESSIONAL HONORS

Fellow, Post-Tensioning Institute.

Diplomate, Association of Geoprofessionals, American Society of Civil Engineers.

ASCE Texas Section Best Paper Spring 2008 Meeting for paper entitled "Using Simplified PTI 3rd Edition Approach for Slab on Grade Design: Creating Simple Soil-Structure Interaction Design Charts for Local Conditions.