evans, colbaugh & assoc., inc.

*RESUME*

**E. DAVID COLBAUGH**
**President**
**Principal Geotechnical Engineer**

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***Career Summary:*** Licensed geotechnical and civil engineer with over three decades of experience on a wide variety of projects requiring geotechnical expertise. These projects include siting and/or construction of large earth and rock fill dams, fossil-fueled and nuclear power plants, large industrial facilities, public works projects, waterfront structures, airport runways, commercial developments and small to large residential development projects. Experience has ranged from construction observation, instrumentation installation and monitoring, settlement analysis and remediation design, grouting, pavement evaluation and design, shallow and deep foundation analysis, design, load testing and installation, slope stability analysis, slope/landslide stabilization analysis and analysis of seismic related phenomena (i.e., liquefaction, slope movement, etc.). Also, extensive experience in the formulation, direction and implementation of geotechnical investigations and subsequent analysis of findings for the evaluation/amelioration of distress conditions to commercial and residential developments throughout southern California. Extensive expert witness testimony on behalf of both plaintiff and defense interests.

***Professional Licenses:*** Registered Geotechnical Engineer - California
Registered Civil Engineer - California, Arizona, Nevada

***Professional Affiliations:*** California Geotechnical Engineers Association - Past President, Board of Directors
American Society of Civil Engineers, Member, Publication Review Committee
Geo-Institute

Office of Emergency Services, State of California, Post Disaster Evaluation Volunteer

***Publications:*** Discussion of "Damage and Distortion Criteria for Residential Slab-On-Grade Structures", by E. T. Marsh and S. A. Thoeny, ASCE *Journal of Performance of Constructed Facilities* , November 2000

"Levelness of Newly Constructed Post-Tensioned Slabs for Residential Structures", I. Noorany, E.D. Colbaugh, R J. Lejman, M. J. Miller, ASCE *Journal of Performance of Constructed Facilities,* February, 2005

***Education:*** California State University, M.S. Civil Engineering (Geotechnical), 1985
West Virginia University, B.S. Civil Engineering, 1972

***Employment*:**

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| 3/93 - Present | President, Principal Engineer; Evans, Colbaugh & Associates, Inc., San Marcos, California. |
| 10/86 - 3/93 | Shepardson Engineering Associates, Inc. Carlsbad, California; Professional Service Manager, Senior Engineer. |
| 11/83 - 10/86 | D. A. Evans, Inc., Laguna Hills, California; Geotechnical Project Manager. |
| 10/81 - 11/83 | Geotechnical Engineer, Consultant, Newport Beach, California |
| 11/80 - 10/81 | D.A. Evans, Inc., Laguna Hills, California: Geotechnical Project Manager |
| 10/78 - 11/80 | Geosoils, Inc. Santa Ana, California; Project Engineer. |
| 3/77 - 9/78 | D'Appolonia Engineers, Mission Viejo, California; Assistant Project Engineer. |
| 6/72 - 3/77 | G.A.I. Consultants, Monroeville, Pennsylvania; Staff Engineer. |

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Supplemental Experience Information

Earth Dams

Project/Construction Engineer on earth and rock fill dams in Maryland, Ohio and Pennsylvania. The scope of work included developing site through all construction phases from keyway grouting through embankment fill placement. The embankments varied from 30 feet to more than 400 feet in height and were utilized by fossil fuel power plants for storage of fly ash (coal byproduct) residue, nuclear power plants for cooing pond storage and watershed embankment dams for control of surface drainage waters. Included unique, large scale (i.e., 3 feet x 3 feet box) shear strength and permeability testing of as-placed fill for Maryland Department of Conservation for developing design parameters for future embankments.

Recent assignment consisted of drilling, sampling and installation of vibrating wire peizometers on several watershed embankment dams on Kauai, Hawaii for evaluation of long term performance.

Landslides

Project to Principal Engineer on numerous landslides throughout southern California. Responsible for identifying and analyzing/stabilization efforts (i.e., buttressing, shear keys, etc) during development investigative phases to post-development movement investigations, assessment and remediation. The failures were in the form of deep-seated failures within engineered fill masses to large (300+ acres) bedrock failures. Bedrock failures include both newly formed landslides and re-activation of older/ancient landslide masses. Post construction stabilization efforts varied from extensive dewatering efforts utilizing vertical and horizontal drains to design and installation of shear pins, caissons and/or tie-back anchor elements.

Surficial/Debris Flow and Rock Fall Failures

Project to Principal Engineer on numerous surficial failures of engineered fill slopes, debris/mud flows and rock falls within off-site natural deposits affecting developments in southern California and Arizona. Scopes of work varied from development of prevention methods and /protection devices to accommodate the affects of potential off-site debris flows and/or rock falls to remediation of post construction failures.

Commercial/Industrial Development

Construction/Project/Principal Engineer on various heavy industrial and light commercial projects in Pennsylvania, Ohio, Illinois, Indiana, West Virginia and California. The industrial projects were focused on design and construction of deep and shallow foundation elements for new/expansion facilities and fossil and nuclear fuel power plants. The deep foundations consisted of pile supported elements utilizing pipe, concrete and step tapered piles. Support facilities for these structures included cellular sheet pile cofferdams and slurry walls for cooling ponds.

Supplemental Experience Information

Commercial/Industrial Development, cont'd

Involvement in light industrial to commercial/shopping center developments varied from investigations and preparation of design recommendations for new developments to post-construction investigations of distress due to ground movement (i.e., settlement/expansion) and earthquake/seismic events.

Government Entities

Project/Principal Engineer, Improvements/additions to seven elementary/middle school sites, Santa Monica School District; construction defect expert for ground movement distress to school structure, Coachella Valley School District; investigation for addition/remodel to Fleet Medical Service School , Camp Pendleton Marine Base.

Residential Development

Project to Principal Engineer on numerous residential developments in southern California for single family to multi-family dwellings. Projects ranged in size from single lot custom homes to large (several hundreds of acres) planning areas. Responsible for all phases of pre-development investigations through mass grading. Developed recommendations for remedial grading of unsuitable soils, landslide remediation slope stabilization through conventional and post-tensioned foundation elements.

Public Works/Government

Project to Principal Engineer on various public work projects from new facilities to distress investigations of existing facilities. Includes evaluation of distress to concrete pavement of airport apron/runway facilities, development of soil/rock parameters for new concrete runway pavement elements, post construction litigation of groundwater issues encountered during construction, structure slab-on-grade distress.

International

Assignment as Consultant to U S Navy Facilities Command on British Territory, Diego Garcia, Indian Ocean. Consultant for expansion of airport runways and development of port facilities. Duties included development of quality control for grading observation and testing, performance and analysis of plate bearing tests on coral for design of runway pavement and installation and backfill of cellular sheet pile cofferdam docking facilities.