

CHRISTOPHER R. RYAN, P.E., D.G.E. (Inactive—Retired Status) 01-25

INTRODUCTION

In 2014, Mr. Ryan established an independent consulting practice working for owners, engineers, and contractors to assess the cost and feasibility of specialized underground construction technologies. His work in support of engineering teams has helped avoid millions of dollars in construction claims. He also has considerable experience as a litigation consultant, with most of his assignments involving disputes over differing site conditions on complex sites.

In 1996, Mr. Ryan founded the firm of Geo-Solutions Inc. that established an international clientele in specialty contracting on projects involving soil and groundwater. Geo-Solutions was and is still involved in projects throughout the US, Canada and multiple other foreign countries. Previously, in 1979, he had founded and led a similar company, Geo-Con, Inc. In 2013, the two companies were combined through an acquisition process. Mr. Ryan sold his interests and retired completely from these businesses in 2014.

CREDENTIALS

Education

BS Civil Engineering	M.I.T.	1969
MS Civil Engineering	M.I.T.	1972
Civil Engineer Degree	M.I.T.	1972
Hazwoper 40 hours plus numerous annual updates		

Fairly fluent French and some Portuguese, Spanish, and Japanese.

Professional Licenses

Professional Engineer - Pennsylvania (Inactive-Retired status)

Diplomate of Geotechnical Engineering – American Society of Civil Engineers, Geo-Institute (Inactive-retired)

Licensed Contractor – Formerly held licenses in various states as required (including CA, NV, UT, AZ, NC, TN, LA and FL)

Dispute Resolution Board, previously a certified Member with DBRF Admin and Practice Training

Professional Societies/Affiliations

American Society of Civil Engineers (Served on Environmental Geotechnics, Grouting and Soil Mixing Committees) Lifetime Member

Deep Foundations Institute (previously)

The Moles--Emeritus Member

American Institute of Entrepreneurs

Young Presidents Organization Lifetime Member

Experience Synopsis

Mr. Ryan has more than 40 years' experience in constructed solutions to soil and groundwater problems. His background includes multiple projects in each of the following technical areas:

- * underground vertical barriers, including slurry walls, to control groundwater flow
 - * deep drainage trenches to collect groundwater
 - * soil mixing for contaminant fixation
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- * grouting for soil improvement and void filling
- * Jet grouting for foundation support and groundwater barriers
- * mine subsidence control
- * foundation support methods
- * soil and rock anchor installations
- * excavation support systems
- * deep soil compaction and ground improvement systems
- * extinguishment of underground fires
- * landfill liner and capping systems
- * hazardous waste site remediation
- * reduction of earthquake liquefaction potential

SELECTED CONSULTING ASSIGNMENTS

Loxahatchee FL—Support of Design Team (2020-2022)

Provided concept assistance during the design stage and support during project start up as technical issues surfaced, including issues with water, bentonite and trench stability. The project is a soil bentonite slurry wall installed through a layer of hard rock. The wall is several miles long and up to 70 ft deep.

Harrison NJ—Support of Contractor (2020-2021)

Assisted an environmental contractor with developing and testing design mixes for stabilizing a very large (over 400,000 cy) former MGP site using in situ soil mixing with large diameter augers and in controlling a subcontractor installation of a 100-ft deep continuously mixed barrier wall.

Portland OR—Support of Contractor (2020-present)

Assisted contractor with concept submittal for two biopolymer drainage collection trenches at a gas-works site and subsequently provided full-time technical supervision of the project. Became a permanent advisor to the design construct team on a complex project involving soil mixing and barrier walls.

Homestead FL—Support of Engineering Team (2019-2020)

Assisted the Owner's design team in the concept development for a vertical barrier water to isolate a limestone mine from the groundwater surrounding the site. The project was a 75 ft deep, 2-mile-long soil bentonite slurry wall excavated through hard rock with the assistance of blasting.

LaBelle FL—Support of Engineering Team (2016- 2022)

Assisted in concept development, cost estimating and specification development for a 16 mile long slurry wall through a new dam for water storage. A second contract keeps him involved as a subject matter specialist assisting the engineering team through the construction period. Assisted with managing contractor work plan submittals and claims for extra costs.

Multiple sites around the US (2019 - -present)

Assisting a contractor with method development, design mixes, bidding and executing specialty contracts on sites around the US.

Manatee County FL—Support of Engineering Team (2017-2018)

Assisted the engineering team in evaluating the failure of previous repair attempts and in selecting technologies to repair leaks and voids under and around a concrete spillway structure in a large earth dam used for water supply in western Florida.

Santa Rosa CA—MGP Site Remediation (2012)

Source treatment and containment at a former manufactured Gas Plant (MGP) site. Source area was treated with soil mixing and then surrounded with a jet grout barrier to mitigate environmental impacts to local groundwater environment. Pre-project consulting involved assisting with concept development and project budgeting.

Seattle WA—Seattle DOT (2012)

Subconsultant to design team for replacement of old seawall in downtown Seattle tourist district. The specific problem was soil liquefaction during potential earthquake. The solution involved a major jet grouting and soil mixing project.

Pelham NY—Con Ed Power Company (2011)

Assisting design team with concept development, design mixes, project budgets, contract administration, project specifications for a jet grouted barrier to the migration of coal tar wastes from a former MGP site.

SELECTED LITIGATION SUPPORT ASSIGNMENTS

Expert Report—Claim for Extra Costs of Biopolymer Drain Construction, Walpole MA (2019-2022)

Reviewed Project Correspondence, bid documents, prepared an Expert Report and testified in support of a contractor claim for differing site conditions and the impact of those conditions on the construction of a biopolymer drainage trench. Client won a favorable arbitration award.

Expert Report and Trial Testimony—Marine Dredging Claim, New Bedford MA (2018-2019)

Supporting the legal team in a dispute involving a differing site conditions construction claim, including an expert report and trial testimony. The main issue in the case was the number of boulders encountered versus what could have been reasonably expected based on the construction documents. My contractor client won a full jury verdict.

Expert Witness Services—Change in Scope ordered by Owner, Linville NC (2017-2018)

Reviewed contract documents, site production records and correspondence and rendered an expert opinion as to what the termination criteria were for soil mix panels at the time of bid and whether or not different termination criteria ordered by the Owner constituted a change in the scope of work and assessed the impact of the alleged change in very hard drilling conditions.

Construction Dispute Resolution, Tempe AZ (2015)

Expert opinion report relative to a dispute between a specialty contractor and a municipal owner over increased costs due to alleged differing subsurface site conditions for construction of a slurry wall cutoff under a rebuilt dam.

Patent Dispute—Marine Dredge Spoil Processing, Newark NJ (2012)

Expert research and opinion prepared in support of a complicated patent dispute related to the machinery and methods for processing and stabilizing dredged harbor spoils. Our client obtained a favorable settlement of the dispute.

Expert Report—Slurry Wall and Collection Drain, Northwest NM (2011)

Expert report preparation in a dispute between an industrial concern and an environmental group. The issue involved the construction of groundwater containment systems and the negotiation of equitable and effective future evaluation methods for the efficacy of those systems. Mr. Ryan provided technical support in the drafting and negotiation of the consent decree.

Construction Dispute Resolution—Jet Grout Support System, Pittsburgh PA (2008)

Extensive project to support claim dispute resolution. Work involved intensive site inspection effort, documentation of site activities, participation in negotiation sessions and advising the client on the technical aspects of contractor claims. All work was done in anticipation of litigation, although the claims were settled in advance of that.

SELECTED PUBLISHED TECHNICAL PAPERS AND ARTICLES (Some as Co-Author)

“Soil Bentonite Slurry Trench Cutoff Walls: History, Design, and Construction Practices” Geo-Congress 2022, ASCE Geo-Institute Conference, Charlotte, NC, March 2022.

“70 years of Soil-Bentonite Slurry walls—So What’s New?” GEOSTRATA Magazine, ASCE Geo-Institute, May June July 2021 pp 62-69.

“Composite Slurry Wall and Liner—A Full-Scale Test”, Geo-Frontiers 2011, ASCE Geo-Institute Conference, Dallas TX, March 2011.

“Strength and Permeability of a Deep Soil Bentonite Slurry Wall”, Geo-Congress 2008, ASCE Geo-Institute Conference, New Orleans LA, March 2008.

“Vertical Groundwater Barriers for Contaminated Site Reclamation”, Common Ground ANZAC Conference on Geo-Mechanics, Brisbane Australia, October 2007.

“Time-Dependent Behavior of Soil-Bentonite Slurry Wall Backfill”, Geo-Frontiers 2005, Geo-Institute Congress & GeoSynthetics Conference, Austin, TX, January 2005.

“Closure of an Underground Tunnel with Long Distance Grouting”, International Containment & Remediation Technology Conference, USDoE, Dupont Company, USEPA, NASA, and US Navy, Orlando, FL, June 2001.

“Compaction Grouting Stops Settlement of An Operating Water Treatment Plant,” ASCE Specialty Conference on Vertical and Horizontal Deformations of Foundations and Embankments at Texas A&M University, College Station, Texas, June 16, 17, and 18, 1994.

“State of the Art in Bio-Polymer Drain Construction,” Slurry Walls: Design, Construction, and Quality Control, ASTM STP 1129, D.B. Paul, R.R. Davidson, and N.J. Cavalli, Eds., American Society for Testing and Materials, Philadelphia, 1992.

“Deep Soil Mixing at the Jackson Lake Dam,” ASCE Geotechnical and Construction Divisions Special Conference, Chicago, IL, June 1989.