

ZACHARY J WESTGATE
153 East Street, Williamsburg, MA 01096
(413) 404 1749 | zwestgate@hotmail.com

EDUCATION

2012 Ph.D. in Civil and Resource Engineering, Centre for Offshore Foundation Systems,
University of Western Australia, Perth

2005 M.S. in Civil and Environmental Engineering (Honors), University of Massachusetts,
Amherst

2004 B.S. in Civil and Environmental Engineering (Honors), University of Massachusetts,
Amherst

1999 B.S. in Exercise Science (Honors), University of Massachusetts, Amherst

PROFESSIONAL EXPERIENCE

University of Massachusetts, Amherst

Fall 2021 Start Associate Professor, Department of Civil and Environmental Engineering

Norwegian Geotechnical Institute

2019 – Present Manager of Offshore Wind, Consultant Engineer, Boston, USA

Fugro GeoConsulting

2017 – 2019 Engineering Department Manager, Houston, Texas

2015 – 2017 Senior Consultant, Pipeline Group Lead, Brussels, Belgium (part-time)

2014 – 2017 Consultant Engineer, Deputy Department Manager, Houston, Texas

Advanced Geomechanics

2012 – 2014 Principal Engineer, Houston, Texas

2008 – 2012 Senior Engineer, Perth, Western Australia

Centre for Offshore Foundation Systems

2008 – 2012 PhD Research Student, University of Western Australia, Perth

Arup Energy

2006 – 2008 Geotechnical Engineer, Houston, Texas

2007 Geotechnical Engineer, London, United Kingdom (6-month secondment)

Department of Civil and Environmental Engineering

2004 – 2005 Graduate Research Assistant, University of Massachusetts, Amherst

Haley & Aldrich

2004 Geotechnical Engineering Intern, Boston, Massachusetts

CERTIFICATIONS AND LICENSES

- 2019 Professional Engineer No. 101844, New York
2019 Professional Engineer No. 13102, Rhode Island
2019 Professional Engineer No. 33787, Connecticut
2013 Professional Engineer No. 114614, Texas
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HONORS AND AWARDS

- 2016 Editor's Choice for Canadian Geotechnical Journal Special Issue: Pipeline Geotechnics
2014 R.M. Quigley Award for Canadian Geotechnical Journal Best Paper of 2013
2009 Best Paper of the Offshore Geotechnical Symposium, OMAE79125
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GRANTS AND SCHOLARSHIPS

- 2008 – 2012 University of Western Australia Endeavour International Postgraduate Research Scholarship
2008 – 2012 Centre for Offshore Foundations Top-up Scholarship
2008 – 2012 Samaha Research Scholarship
2008 – 2012 Ernest & Evelyn Shacklock Scholarship in Civil and Resource Engineering
2005 Association of Drilled Shaft Contractors – International Association of Foundation Drilling, Graduate Scholarship
2005 National Science Foundation Graduate Research Fellowship Honorable Mention
2004 ASCE Dr. Leo Casagrande Memorial Scholarship
2003 Karl Hendrickson Endowed Scholarship for Civil Engineering
2003 Engineering Alumni Association Project Grant (w/DeJong), Interface behavior of overconsolidated granular soil on smooth HDPE geomembranes
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PROFESSIONAL AFFILIATIONS

Committees

- 2020 AWEA Technical Advisory Panel TR-2 Working Group: Geomaterial Degradation in the Geotechnical Design of Wind Turbine Foundations (current)
2019 BOEM Offshore Wind Technical Advisory Panel: Working Group 4 on Geophysics and Geotechnics (current)
2018 4th International Symposium on Frontiers in Offshore Geotechnics (ISFOG) 2020, Technical Chair (current)
2017 API RG7 / ISO TP6 Task Group: Risers, Pipelines and Conductors (current)
2017 SUT Offshore Site Investigation & Geotechnics, short courses subcommittee (current)

Societies and Institutions

- 2012 Associate Member #15179, Society for Underwater Technology (current)

2004	Member #409156, American Society of Civil Engineers (current)
2003	Permanent Member, Chi Epsilon, National Engineering Honor Society

PUBLICATIONS

Peer-reviewed Journal Papers

- 2016¹ (J6) **Westgate, Z.J.**, Haneberg, W. & White, D.J. Modelling spatial variability in as-laid embedment for high pressure and high temperature (HPHT) pipeline design, *Canadian Geotechnical Journal*, Vol. 53, pp. 1853-1865.
- 2013² (J5) **Westgate, Z.J.**, White, D.J. & Randolph, M.F. Modelling the embedment process during offshore pipe laying on fine-grained soils, *Canadian Geotechnical Journal*, Vol. 50, No. 1, pp. 15-27.
- 2012 (J4) **Westgate, Z.J.**, White, D.J. & Randolph, M.F. Field observations of as-laid pipeline embedment in carbonate soils, *Géotechnique*, Vol. 62, No. 9, pp. 787-798.
- 2010 (J3) **Westgate, Z.J.**, Randolph, M.F., White, D.J. & Li, S. The influence of sea state on as-laid pipeline embedment: a case study, *Applied Ocean Research*, Vol. 32, No. 3, pp. 321-331.
- 2009 (J2) DeJong, J.T. & **Westgate, Z.J.** Role of initial state, material properties, and confinement condition on local and global soil-structure interface behavior, *Journal of Geotechnical and Geoenvironmental Engineering, ASCE*, Vol. 135, No. 11, pp. 1646-1660.
- 2005 (J1) DeJong, J.T. & **Westgate, Z.J.** Role of overconsolidation on sand-geomembrane interface behavior and material damage evolution, *Geotextiles and Geosynthetics*, Vol. 23, pp. 486-512.

Conference Papers^{3,4,5}

- 2020* (C26) Spikula, D. Hill, A.J., Kay, D, and **Westgate, Z.J.** Field observations of pipelines in the context of SAFEBUCK design guidelines, *Proc. 4th Int. Symp. Frontiers in Offshore Geotechnics, Austin, TX.*
- 2019 (C25) Watson, P. Bransby, F., Delimi, Z.L., Erbrich, C., Finnie, I., Krisdani, H., Meecham, C., O'Neill, M., Randolph, M., Rattley, M., Silva, M., Stevens, B., Thomas, S., and **Westgate, Z.** Foundation design in offshore carbonate sediments – building on knowledge to address future challenges, *Proc. XVI Panamerican Conf. Soil Mechanics and Geotechnical Engineering, Cancun, Mexico.*
- 2019 (C24) Stevens, R.F, **Westgate, Z.J.** & Kocijan, J. Assessing the pile driving risk due to the presence of boulders, *Proc. Offshore Technology Conf., Houston.*
- 2019 (C23) Long, X., Senanayake, A., **Westgate, Z.J.**, Troyo Diaz, A., Tucker, G. & Gibbs, P. Stress history characteristics of Atlantic OCS sediments, *Proc. Offshore Technology Conf., Houston.*

¹ Editor's Choice Award for Special Issue on Pipeline Geotechnics

² R.M. Quigley Award for Canadian Geotechnical Journal Best Paper of 2013

³ * Denotes refereed conference paper

⁴ ^ Denotes presentation given

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- 2019* (C22) Ballard, J-C. & **Westgate, Z.J.** Drained lateral breakout of subsea pipelines in sand, *Proc. Offshore Mechanics and Arctic Engineering Conference*, Glasgow.
- 2018^ (C21) **Westgate, Z.J.**, White, D.J. & Savazzi, M. Experience in interface shear box testing for axial pipe-soil interaction on soft clay, *Proc. Offshore Technology Conf.*, Houston.
- 2018 (C20) Peuchen, J. & **Westgate, Z.** Defining geotechnical parameters for surface-laid subsea pipe-soil interaction, *Proc. CPT'18 Conf.*, Delft.
- 2017 (C19) Witthoef, A.F., **Westgate, Z.J.** & Long, X. Extraction resistance of suction anchors in fine-grained soil, *Proc. COME DOGS Conf.*, Hamburg.
- 2017 (C18) **Westgate, Z.J.**, Yonatan, P.H., Muylle, J. & Ballard, J-C. Numerical simulations of buried pipeline extraction during reverse pipe laying, *Proc. COME DOGS Conf.*, Hamburg.
- 2017* (C17) Low, H.E., Ramm, M., Bransby, M.F. & **Westgate, Z.J.** Effect of through-life changes in soil strength and axial pipe-seabed resistance for HPHT pipeline design, SUT OSIG, London.
- 2016^ (C16) O'Driscoll, D., Yamamoto, N., Amodio, A., Bransby, M.F., Erbrich, C.T. & **Westgate, Z.J.** Seismic assessments for offshore shallow foundations in carbonate sediments, *Proc. Offshore Technology Conf.*, Houston.
- 2015^* (C15) **Westgate, Z.J.** & White, D.J. Role of spatial variability in as-laid embedment of subsea pipelines, *OMAE*, St. John's.
- 2015 (C14) White, D.J., **Westgate, Z.J.**, Ballard, J-C., De Brier, C. & Bransby, M.F. Best practice characterization and pipe-soil interaction analysis for HTHP flowline design, *Proc. Offshore Technology Conf.*, Houston.
- 2015 (C13) Bransby, M.F., White, D.J., Low, H.E. & **Westgate, Z.J.** Accurate descriptions of pipe-soil interaction to facilitate the design of high temperature pipelines, *Proc. Offshore Pipeline Technology Conf. Asia*, Kuala Lumpur.
- 2014^ (C12) White, D.J., **Westgate, Z.J.** & Tian, Y. Pipeline lateral bucking: realistic modelling of geotechnical variability and uncertainty, *Proc. Offshore Technology Conf.*, Houston.
- 2014^* (C11) **Westgate, Z.J.**, Chee, K.Y. & Walker, A. Modeling the dynamic lateral bucking response of subsea pipelines using rate-dependent seabed friction, *OMAE*, San Francisco.
- 2010^* (C10) **Westgate, Z.J.**, White, D.J., Randolph, M.F. & Brunning, P. Pipe laying and embedment in soft fine-grained soils: field observations and numerical simulations, *Proc. Offshore Technology Conf.*, Houston, OTC20407.
- 2010* (C9) White, D.J., Hill, A., **Westgate, Z.J.** & Ballard, J-C. Observations of pipe-soil response from the first deep water deployment of the SMARTPIPE[®], *Proceedings of the 2nd International Symposium on Frontiers in Offshore Geotechnics*, Perth.
- 2010^* (C8) **Westgate, Z.J.**, Randolph, M.F., White, D.J. & Brunning, P. Theoretical, empirical, and numerical studies of offshore pipeline sleeper crossings, *Proceedings of the 2nd International Symposium on Frontiers in Offshore Geotechnics*, Perth.
- 2010 (C7) DeJong, J.T. & **Westgate, Z.J.** Linking global interface response to microscale particle – interface behavior, *Research Symposium on the Characterization and Behavior of Interfaces*, IOS Press, pp. 24-34.

- 2009^{^*6} (C6) **Westgate, Z.J.**, Tapper, L., Lehane, B.M. & Gaudin, C. Modelling the installation of stiffened caissons in overconsolidated clay, *Proceedings of the 28th Offshore Mechanics and Arctic Engineering Conference*, Honolulu, OMAE79125.
- 2009^{^*} (C5) **Westgate, Z.J.**, Randolph, M.F. & White, D.J. Video observations of dynamic pipeline embedment during offshore pipelaying in soft clay, *Proceedings of the 28th Offshore Mechanics and Arctic Engineering Conference*, Honolulu, OMAE79814.
- 2006[^] (C4) **Westgate, Z.J.** & DeJong, J.T. Geotechnical considerations for foundation optimization in offshore wind farm development, *Proc. WindPower 2006*, June 4th-7th, Pittsburg.
- 2006^{^*} (C3) **Westgate, Z.J.** & DeJong, J.T. Quantification of strain development during monotonic shear of structural interfaces using particle image velocimetry, *Proceedings of the 2006 GeoCongress Conference*, February 26th-March 4th, Atlanta.
- 2006 (C2) **Westgate, Z.J.** & DeJong, J.T. Evolution of local soil-structure interface response using particle image velocimetry, *Proc. Int Symp. on Granular Geomaterials and Geomechanics*, September 12th-14th, Yamaguchi.
- 2004 (C1) **Westgate, Z.J.** & DeJong, J.T. Particle crushing at the sand-structure interface during cyclic loading, *Proceedings of the 17th ASCE Engineering Mechanics Division Conference*, June 13th-16th, Newark.

Technical reports

(Excludes industry reports authored while employed at Arup, Advanced Geomechanics, & Fugro)

- 2010 Gaudin, C., Boylan, N., Mahmoodzadeh, H. & **Westgate, Z.** Wheatstone Project: on-bottom stability and lateral buckling of pipelines, centrifuge modeling factual report, University of Western Australia Geotechnical Report No. 10533.
- 2010 **Westgate, Z.J.**, Randolph, M.F. & White, D.J. Analysis of the as-laid embedment of the Pluto flowlines, University of Western Australia Geotechnical Report, University of Western Australia Geotechnical Report No. 11555.
- 2009 **Westgate, Z.J.**, Randolph, M.F. & White, D.J. Analysis of the as-laid embedment of a pipeline network off the coast of West Africa, University of Western Australia Geotechnical Report No. 09491.
- 2009 **Westgate, Z.J.**, Randolph, M.F. & White, D.J. Analysis of the as-laid embedment of the Callanish pipeline, University of Western Australia Geotechnical Report No. 08468.
- 2005 **Westgate, Z.J.** & DeJong, J.T. Geotechnical considerations for offshore wind turbines, Massachusetts Offshore Wind Collaborative.

PRESENTATIONS

(Excludes project and marketing presentations while employed at Arup, Advanced Geomechanics, Fugro, & NGI and excludes list of conference presentations as noted above)

Invited

- 2018 Spatial variability and HPHT pipeline design, Stress Engineering Seminar: Integrity and Assessment of Pipelines and Risers, Houston, September.

⁶ Best Paper Award of the OMAE Offshore Geotechnical Symposium

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- 2017 Modelling spatial variability in as-laid embedment for high pressure and high temperature (HPHT) pipeline design, NGI Workshop: Integrity and Assessment of Pipelines and Risers, Houston, April.
- 2016 Cost-effective geotechnical design of offshore pipelines: Pre-Conference Seminar, Offshore Pipeline Technology Conference, February.
- 2015 Geohazards, superspans, walking pipelines and slippery foundations: challenges for subsea pipelines, International Webinar and SUT Learning Breakfast, March.

Other

- 2011 Field observations of as-laid pipeline embedment in carbonate soils, Civil & Resource Engineering / Centre for Offshore Foundation Systems Seminar, Perth, September.
- 2010 Studies of as-laid pipeline embedment, CSIRO Pipeline Cluster Workshop, University of Western Australia, February.
- 2009 Using OrcaFlex to model offshore pipeline sleeper crossings, Annual OrcaFlex User Group Meeting, Perth, September.
- 2008 Video observations of dynamic pipeline embedment during offshore pipelay in soft clay, 1st Annual Deep Offshore Technology Conference, Society for Underwater Technology, Perth, February.
- 2008 Dynamic pipeline embedment during offshore pipelay, Centre for Offshore Foundation Systems Workshop, University of Western Australia, February.
- 2005 Geotechnical considerations for offshore wind turbines, Offshore Wind Collaborative Meeting, University of Massachusetts, Amherst, June.
- 2004 Role of pre-stressing on sand-geomembrane interface response and material damage evolution, Northeast Graduate Geotechnical Research Symposium, University of Massachusetts, Amherst, October.

RESEARCH EXPERIENCE

Industry (includes development activities)

- 2018 Seabed S-wave measurement tools to improve shear wave velocity assessment for offshore wind turbine foundation design (internal funding)
- 2018 Improvement to Fugro DeckScout in-boxcore testing capabilities (low stress load-controlled cycling for riser fatigue analysis). (\$115,000 internal funding)
- 2017 SAGE Profile finite element analysis software development planning and management of advanced plasticity models for structural pipeline analysis. (\$150,000 internal funding)
- 2015 Development, testing, and commissioning of low stress interface shear box devices at Fugro Houston laboratory. (\$40,000 internal funding)
- 2009 Centrifuge model testing for pipeline on-bottom stability and lateral buckling design: Chevron Wheatstone LNG Project – North West Shelf, Australia. (\$120,000 project funding)
- 2009 Centrifuge model testing of skirted caisson foundation installation in stiff clay: Petronas Magtymguly Collector Riser-A Platform – Caspian Sea, Turkmenistan. (\$60,000 project funding)

- 2007 Geotechnical Engineering Software Tool Development. (\$50,000 internal funding)
2007 Collaborative industry study on hydrokinetic renewable energy development: Arup-HydroGreen Internal R&D Study – Various USA Locations. (\$50,000 internal funding)

University of Western Australia

- 2011 Centrifuge modeling of dynamic pipe lay effects and pipe breakout in soft clay
2010 Numerical modeling of offshore pipe laying using OrcaFlex (w/Orcina)
2009 Field data analyses of as-laid pipeline embedment (w/Aceryg, Woodside)
2009 Centrifuge modeling of suction caisson installation in stiff clay

University of Massachusetts, Amherst

- 2005 Development of advanced laboratory testing procedures and interpretation of sand – structure interface behavior using particle image velocimetry
2004 Desk studies on geotechnical design and installation issues for offshore wind turbine foundations
2003 Development of direct shear and triaxial sand sample preparation equipment
2003 In situ sampling and testing of the Connecticut Valley Varved Clay and Boston Blue Clay
2003 Field load testing of mini-piles in sand and clay

TEACHING AND SERVICE EXPERIENCE

University of Western Australia

- 2012 Supporting research supervisor for visiting international PhD student: Pipe-soil interaction during offshore pipe laying
2011 Oil and Gas Engineering course assignments for offshore pipeline development project

University of Massachusetts, Amherst

- 2005 Supervision of undergraduate research student project: Extent and distribution of particle breakage at interfaces
2004 Geotechnical demonstrations for undergraduate civil engineering laboratory course
2004 Assisted in development of new geotechnical ground improvement course

Service

- 2020 Reviewer, ASCE Journal of Geotechnical and Geoenvironmental Engineering
2018 – 2019 Reviewer, Canadian Geotechnical Journal
2017 – 2018 Reviewer, Applied Ocean Research
2018 Reviewer, ASTM Geotechnical Testing Journal
2014 Reviewer, Journal of Ocean Engineering
2010, 2020 Reviewer, International Symposium on Frontiers in Offshore Geotechnics
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INDUSTRY EXPERIENCE

Business Development Activities

- 2019 – Present Leading NGI's entry into offshore wind market in the US
- 2014 – 2019 Lead marketing and business development efforts for offshore geotechnics across Americas region
- 2015 – 2017 Oversaw offshore pipeline and SAGE Profile business lines in Fugro GeoConsulting Brussels office
- 2012 – 2017 Lead offshore pipeline business development activities across Americas for Advanced Geomechanics and Fugro (including over 30 Lunch & Learn style presentations to clients from 2013 to 2015)
- 2014 – Present Prepared and assisted in preparing dozens of proposals and frame agreements for small (single office, <\$10K) to large (global, >\$50MM) projects

Leadership Activities

- 2017 – 2019 Engineering Manager for Houston and Norfolk offices of Fugro GeoConsulting, comprising ~30 engineering staff
- 2017 – 2018 Regional Champion for Americas Marine Division on Innovation in GeoConsulting
- 2015 – 2017 Product owner of Fugro's SAGE Profile finite element software for subsea pipeline design since November 2015
- 2015 – 2017 Offshore pipeline group supervisor for Fugro GeoConsulting Brussels office, managing 2-3 staff
- 2012 – 2019 Subject Matter Expert on all pipeline-related projects for Houston office
- 2012 – 2017 Project manager for projects with 2-8 staff across multiple offices (mainly Houston, Brussels, Perth)
- 2011 – 2012 Lead geotechnical engineer for subsea structures and pipeline, and interface engineer during FEED and detailed design: Chevron Wheatstone LNG Project – North West Shelf, Australia
- 2006 – 2008 Lead geotechnical engineer for Petronas Magtymguly Collector Riser-A Platform – Caspian Sea, Turkmenistan
- 2007 Deputy project manager, concept design: Shell Gulf Landing LNG Terminal – Gulf of Mexico, USA
- 2007 Project manager for collaborative industry study on hydrokinetic renewable energy development: Arup-HydroGreen Internal R&D Study – Various USA Locations

Site Characterization Activities

- 2020 – Present Site characterization including fieldwork optimization, laboratory testing and interpretation, and geotechnical design basis development: Equinor Empire Wind Project – Offshore New York, USA.
- 2018 – 2019 Geotechnical testing, interpretation and reporting for full field development: Ørsted Ocean Wind Project – Offshore New Jersey, USA.
- 2018 – 2019 Geotechnical testing, interpretation and reporting for full field development: Ørsted Bay State Wind Project – Offshore Massachusetts, USA.

- 2017 – 2018 Geotechnical testing, interpretation and reporting for full field development: Kosmos/BP Tortue Project – Mauritania/Senegal, Africa.
- 2016 – 2017 Geotechnical testing, interpretation and reporting for full field development: ExxonMobil Liza Project – Offshore Guyana, South America.
- 2016 Geotechnical testing, interpretation and reporting for full field development: ONGC KD WN 98/2 Project – Bay of Bengal, India.
- 2009 – 2013 Geotechnical testing, interpretation and reporting for full field development: Chevron Wheatstone LNG Project – North West Shelf, Australia.

Engineering Activities

- 2020 – Present Concept gravity base foundation studies: Equinor Empire Wind Project – Offshore New York, USA.
- 2018 – 2019 Ground model development, laboratory testing and reporting: BP Tortue Project – Mauritania/Senegal, Africa.
- 2018 Pipe-soil interaction testing, interpretation and analysis for lateral buckling and axial walking design: Chevron Tigris/Anchor Project – Gulf of Mexico, USA.
- 2018 Pipe-soil interaction analysis for lateral buckling and axial walking design: BP Alligin Project – West of Shetland, UK.
- 2018 Pipe-soil interaction analysis for lateral buckling and axial walking design: BP ACE Project – Caspian Sea, Azerbaijan.
- 2017 – 2018 Trenched and surface-laid pipe-soil interaction testing, interpretation and analysis: Kosmos/BP Tortue Project – Mauritania/Senegal, Africa.
- 2017 Pipe-soil interaction testing, interpretation and analysis for lateral buckling and axial walking design: Shell East Coast Marine Area Project – Offshore Trinidad.
- 2016 Trenched and surface-laid pipe-soil interaction testing, interpretation and analysis: ONGC KD WN 98/2 Project – Bay of Bengal, India.
- 2016 Pipeline and riser-soil interaction testing, finite element analysis, and interpretation: ExxonMobil Liza Project – Offshore Guyana, South America.
- 2016 Pipe-soil interaction testing, interpretation and analysis for lateral buckling and axial walking, and on-bottom stability design: ENI Mamba/Coral Project – Offshore Mozambique, Africa.
- 2016 Pipe-soil interaction testing, interpretation and analysis for lateral buckling and axial walking design: Shell Rydberg Project – Gulf of Mexico, USA.
- 2016 Pipe-soil interaction assessment for spools and PIP flowlines: ENI Ochigufu and Vandumbu Project – Offshore Angola, Africa.
- 2016 Pipe-soil interaction analysis for cyclic lateral buckling and axial walking design: Noble Leviathan Project – Mediterranean Sea, Israel.
- 2016 – 2017 Pipe-soil interaction testing, interpretation and analysis for lateral buckling and axial walking design: Total Absheron Project – Caspian Sea, Azerbaijan.
- 2016 Back-analysis and interpretation of operating pipeline data and pipe-soil interaction analysis: BP Platina Project – Offshore Angola, Africa.
- 2016 Pipe-soil interaction assessment for spools: Talisman Blane Project – North Sea, UK.

- 2016 As-built survey review, free spanning and on-bottom stability assessment for operating pipelines: Kuwait National Petroleum Company Mina Al-Ahmadi Refinery – Offshore Kuwait, Middle East.
- 2015 Pipe-soil interaction testing and interpretation for lateral buckling and axial walking design: Shell Kaikias Project – Gulf of Mexico, USA.
- 2015 Pipe-soil interaction testing, interpretation and analysis for lateral buckling and axial walking design: Shell Vito Project– Gulf of Mexico, USA.
- 2015 Trenched pipe-soil interaction finite element analysis and interpretation: Pemex Kuil-B to Abkatun-A Pipeline – Gulf of Mexico, Mexico.
- 2015 Pipe-soil interaction testing, interpretation and analysis for lateral buckling and axial walking design: Chevron Greater Longui Project – Offshore Cabina, Africa.
- 2015 Suction pile design review: Medusa Project – Gulf of Mexico, USA.
- 2014 Pipe-soil interaction analysis for PIP lateral buckling and axial walking design: Tullow Oil TEN Project – Gulf of Guinea, Offshore Ghana.
- 2014 Pipe-soil interaction testing, interpretation, analysis, and field data back-analysis for lateral buckling and axial walking design: BP Shah Deniz II Project – Caspian Sea, Azerbaijan.
- 2014 Pipe-soil interaction testing, interpretation, analysis and survey back-analysis for lateral buckling and axial walking design: BP Quad 204 Project – West of Shetland, UK.
- 2013 Geotechnical support for subsea structure foundation design and on-bottom stability and lateral buckling design of pipelines: Apache Julimar Project – North West Shelf, Australia.
- 2008 – 2013 Geotechnical support for subsea structure foundation design and on-bottom stability and lateral buckling design of pipelines: Chevron Wheatstone LNG Project – North West Shelf, Australia.
- 2009 Analysis and interpretation of Fugro SMARTPIPE® deep water field trials: BP – offshore Angola, Africa.
- 2007 – 2008 Steel skirted gravity base foundation engineering: Petronas Magtymguly Collector Riser-A Platform – Caspian Sea, Turkmenistan.
- 2007 Concrete gravity base foundation engineering and ground improvement studies: Woodside Browse Phase 2B Development – North West Shelf, Australia.
- 2007 Geotechnical engineering for graving dock study: Exxon Neftegas Sakhalin I Development – Sakhalin Island, Russia.
- 2007 Geotechnical engineering for breakwater design, scour protection, and seabed preparation: Sempra Energy Costa Azul LNG Terminal – Pacific Coast, Mexico.
- 2007 Driven steel offshore pile design technical review: ConocoPhillips Bohai Bay Phase II Development – Bohai Bay, China.
- 2007 Concrete pile foundation design and ground improvement studies: Cheniere Energy Sabine Pass LNG Terminal – Texas, USA.
- 2006 Steel skirted gravity base foundation engineering: OMV Maari Wellhead Platform – offshore New Zealand.

- 2006 Concrete gravity base foundation engineering and ground improvement studies: ConocoPhillips Compass Port LNG Terminal – Gulf of Mexico, USA.
- 2006 Concrete gravity base foundation engineering: Shell Gulf Landing LNG Terminal – Gulf of Mexico, USA.

Site Representation Activities

- 2009 Offshore cone penetration testing and geotechnical sampling of pipeline route and gravity base platform location: Chevron Wheatstone LNG project – North West Shelf, Australia.
- 2007 Offshore geotechnical sampling of piled platform location: ConocoPhillips Bohai Bay Phase II Development – Bohai Bay, China.
- 2004 Pile-driving and site preparation monitoring for onshore construction: Boston, USA.

SOFTWARE SKILLS

- MS Office (proficient)
- Orcaflex (working knowledge)
- SAGE Profile 3D (working knowledge)
- Matlab (working knowledge)
- Plaxis 2D/3D (basic understanding)