



Scott Whyte

DEng MSc BEng

Personal Information

Profile	Experienced geotechnical consultant with practical problem-solving attitude and passion for innovation. Scott has significant experience in carrying out offshore engineering consultancy projects. This experience includes site characterisation, optimised laboratory test scheduling and interpretation, offshore foundation design (concept to detailed), finite element analysis (FEA) and development of state-of-the-art design tools.
Email	saw@geowynd.com
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Nationality	British
Education	2014 – 2019, University of Oxford 2010 – 2011, Glasgow University and University of Strathclyde 2006 – 2010, University of Strathclyde
Qualifications	DEng (Doctorate of Engineering) Advanced Numerical Geotechnical Analysis MSc Geotechnics (with distinction) BEng (Hons) Structural and Architectural Engineering (1st class)
Additional Training	Basic Offshore Safety Induction and Emergency Training (BOSIET) Minimum Industry Safety Training (MIST)

Experience

Sep 2020 – Present	Geowynd Limited – Director / Geotechnical Consultant Geotechnical consultant supporting offshore wind farm developments from concept to detailed design. Focusing on site characterisation, optimised laboratory test scheduling and interpretation, offshore foundation design (concept to detailed), advanced FEA and development of state-of-the-art design tools.
Feb 2020 – Sep 2020	Vattenfall Wind Power Limited – Senior Lead Geotechnical Engineer / Geoscience Package Manager This role included geotechnical support to offshore wind farm developments in the North Sea mainly in the UK and Danish sectors. During this time Scott also acted as geoscience package manager for the Vesterhav Nord and Vesterhav Syd offshore wind farms, this role involved management of the offshore site investigation (geophysics and geotechnical), laboratory test planning/scheduling. Scott also acted as the lead geotechnical design engineer for the project performing and checking geotechnical parameterisation and foundation design analysis.
2016 – 2020	Fugro GB Marine Limited – Senior Geotechnical Consultant As part of the offshore consultancy department, Scott was involved in a large number of geotechnical engineering design projects, designing and assessing various types of offshore foundations and subsea structures. Primarily this role focused on performing advanced numerical analysis for offshore foundations. Scott also engaged in extensive R&D work within Fugro with respect to the development of advanced numerical modelling tools in collaboration with the University of Oxford University. Scott implemented several constitutive models within Plaxis and Abaqus for commercial offshore wind turbine foundation design projects in recent years.

2014-2016	Fugro GB Marine Limited – Project Geotechnical Engineer
2012-2014	Fugro GB Marine Limited – Staff Geotechnical Engineer
2015-2018	Oxford University – Geotechnics Tutorial Teaching Scott also undertook tutorial teaching responsibilities within the Engineering Science department at Oxford University. He was the primary tutor for the soil mechanics module at Oxford University for 2 years.
Other Roles	Secretary of Offshore Site Investigation and Geotechnics Early Career Group (OSIG)

Awards

Ground Engineering Award for Technical Excellence Finalist 2020

BGA Cooling prize Finalist 2020

2nd SUT OSIG Research Competition 2018

Runner up at the BGA Young Geotechnical Engineer Symposium 2014

Award for Best MSc Geotechnics Student: 2011

ICE Scottish Geotechnical Group Student Award: 2010

Best MSc Geotechnics Dissertation: 2011 (Dissertation Title: A Comparison of 2D and 3D Finite Element Analysis of Wind Turbine Foundations)

PSAS Scholarship Award for MSc in Geotechnics: 2010 – 2011

Publications

Whyte, S. 2014. *Large Deformation Finite Element Analysis of Spudcan-Footprint Interaction During Jack-up Rig Installation*. BGA Young Geotechnical Engineer Symposium. Manchester.

Whyte, S., Erbrich C., Rattley M., Martin CM., & Burd HJ. 2017. *A Practical Constitutive Model for Soil-Structure Interaction Problems Involving Dense Sand*. Society of Underwater Technology Offshore Site Investigation and Geotechnics Conference. London.

Whyte, S. 2018. *Foundation Design Optimisation for Ever Larger Offshore Wind Turbines: Geotechnical Perspective*. The Royal Netherlands Society of Engineers (KIVI) Technical Lecture, Nootdorp, Netherlands.

Whyte S. and Hilton J. 2019. *How the implementation of advanced structural analyses integrated with PISA-type geotechnical analyses can realise significant project benefits and help reduce the Levelized Cost of Energy for offshore monopile foundations*. Offshore Foundations 9th International Conference. Bremen, Germany.

Whyte S. 2019. *Development, implementation and calibration of advanced constitutive models for offshore wind turbine foundations*. DEng Thesis. Oxford University.

Whyte, S., Burd, HJ., Martin, CM., Rattley, M. 2020. *A practical total stress multi-surface cyclic degradation plasticity model*. Computers and Geotechnics Journal.

Roy, A., Chow, S.H., O’Loughlin, C., Randolph, M., **Whyte, S.** 2020. *Use of Bounding Surface Model for Predicting Element Tests and Capacity of Simple Surface Problems*. Canadian Geotechnical Journal.

Whyte S, Burd HJ, Martin CM, Randolph MF, Bienen B, Rattley MJ, Roy A, Stapelfeldt M. 2020. *Comparison of numerical simulations using a bounding surface model to centrifuge tests of axial loaded suction buckets in dense sand*. Computers and Geotechnics Journal (Under Review)

Rattley M., **Whyte S.**, Hilton J., Burbury D., Burd H., Martin C. 2020. *Implementation of advanced monopile design approaches at the Seastar offshore wind farm*. In: Frontiers in Offshore Geotechnics, ISFOG, Austin, USA, August 2020.

Whyte S., Rattley M., Ramos da Silva M., Martin C., Burd H. and Erbrich C. 2020. *Numerical analysis of offshore wind turbines in dense sand considering partial drainage*. In: Frontiers in Offshore Geotechnics, ISFOG, Austin, USA, August 2020.

Key Projects and Experience

Vesterhav Nord and Vesterhav Syd Offshore Wind Farm: Geoscience package manager, leading all geoscience related activities for project. Managed offshore geotechnical and geophysical site investigation campaign. Technical Lead for laboratory test management, development of geotechnical interpretive reporting (GIR), Finite element analysis and foundation design.

Hollandse Kust Zuid Offshore Wind Farm: Responsible for development of certified monopile cyclic design approach for the detailed design of the foundations. Involved development and implementation of cyclic constitutive model for FEA based cyclic design as well as the certification of the approach with DNVGL.

Unnamed Chinese Offshore Wind Farm (South China Sea): Technical Lead for the geotechnical monopile design. The project involved site characterisation, performing 3D FEA for monopile design and development of PISA-type soil reaction curves for the structural design. In addition, a recommended approach for site investigation and laboratory testing was developed for future monopile projects.

Hollandse Kust (Noord) Offshore Wind Farm: Development of geotechnical interpretative report. Responsibilities focused on development and checking of design parameters for advanced geotechnical design (critical state line development, stiffness degradation curve development).

Borssele 1 & 2 Offshore Wind Farm: Geotechnical monopile design and FEA. My responsibilities involved leading the site characterisation, constitutive model calibration and performing extensive 3D FEA to develop PISA-type soil reaction curves for the structural design. This project was one of the first 3D FEA based monopile design, using the PISA approach, performed in the offshore wind industry.

Borkum Riffgrund 2 Offshore Wind Farm: Geotechnical suction bucket design. My responsibilities involved leading the development and implementation of a new constitutive model for the FEA design. The developed constitutive model allowed better prediction of the dilatational (and hence pore pressure) response during cyclic loading which allowed for more optimised suction bucket design.

SeaMade Offshore Wind Farm: Technical Lead for the geotechnical monopile design for the substation. The project involved site characterisation, performing 3D FEA for monopile design and development of PISA-type soil reaction curves for the structural design. The project was performed to demonstrate the potential savings of an FEA-based design for monopiles.

Development of design tools for monopile design: Technical lead for the development of a number of numerical analysis tools used to optimise offshore foundation design. Examples include: dilatational sand constitutive model implemented in Abaqus; Cyclic PIMS constitutive model implemented in Plaxis, Simple Sand and Clay Undrained Cyclic model implemented in Plaxis and used for certified monopile design.

Mariner Field: Platform foundation reassessment including: driveability back-analysis, development of design parameters, pile aging review, pile design and development of reaction curves for structural design.

Manuel deep water site development foundation design: Detailed foundation design and installation analysis for subsea infrastructure.

Rembrandt Field: Technical lead for detailed foundation design and installation analysis for piled jacket.

Vermeer Field: Technical lead for detailed foundation design and installation analysis for piled jacket.

Franklin Field: Acted as lead engineer performing extensive large-deformation FEA to review the risk and potential for spudcan sliding into existing footprints from previous jack-up installations at the site. In addition, extensive analyses performed to review optimal remediation strategy to ensure safe installation.

Mariner Field: Project to de-risk installation of jack-up at the Mariner field. Acted as lead engineer performing extensive FEA to review the risk and potential for spudcan sliding into existing footprints from previous jack-up installations at the site.

Jade Field: Project to de-risk installation of jack-up at the Jade field. Acted as lead engineer performing extensive FEA to review effect of jack-up installation on existing jacket platform piles.

Jasmine Field: Project to de-risk installation of jack-up at the Jasmine field. Acted as lead engineer performing extensive FEA to review effect of jack-up installation on existing jacket platform piles.

Caspian Field: Extensive numerical analysis performed to predict the in situ pore-pressures at site.

Offshore lead shift engineer:

- *Orsted – Finke Jack-up Rig Site Investigation*
- *AOWF Limited – Aberdeen Offshore Wind Farm (OWF)*
- *Statoil – Gulfaks Oil Field Development Site Investigation*
- *E.On Renewables – Rampion OWF Geotechnical Site Investigation*
- *Equinor (formerly Statoil) – Bressay Offshore Site Investigation*
- *Equinor (formerly Statoil) – Polarled Pipeline Site Investigation*