SPECIALIST CAPABILITY PROFILE

Offshore geotechnical engineering

OIL & GAS / OFFSHORE WIND



CONCEPT ILLUSTRATION

From investigation strategy to engineering decisions

TDAC provides specialist client support, campaign management assistance, independent technical review, geotechnical interpretation and foundation engineering for offshore energy projects.

Principal-led delivery from India and the United Kingdom.

02 / INVESTIGATION AND ASSURANCE

Confidence through the investigation lifecycle

Technical support for developers, operators, consultants and investigation contractors.

Client-side investigation support

Define investigation objectives, review available ground data and develop borehole, CPT, sampling and laboratory testing requirements. Support scope preparation, technical tender evaluation and contractor selection.

Campaign project management

Assist with execution planning, mobilisation readiness, technical interfaces, programme tracking and progress reviews. Support client representation, technical queries and decisions during offshore operations.

Factual reporting and data review

Review borehole and CPT records, sample recovery and quality, laboratory results, data consistency and traceability. Identify gaps and clarify the engineering implications for the planned asset.

Testing and interpretive review

Review test schedules, methods and result quality against the design objectives. Assess interpretive reports, ground models, parameter selection, assumptions and recommendations.

Clear records. Timely decisions.

Typical outputs include investigation scopes, test schedules, technical review registers, campaign progress summaries and recommendations for additional investigation or testing.

01

Plan

Define the questions the investigation must answer.

02

Execute

Track scope, quality, progress and technical interfaces.

03

Review

Check evidence, assumptions and outstanding gaps.

04

Interpret

Translate ground data into engineering inputs.

03 / INTERPRETATION AND ENGINEERING

Ground understanding. Engineering judgement.

Analytical and finite element assessment for offshore foundations and installation.

Interpretive and engineering reports

Integrate borehole, CPT and laboratory information into ground models and design parameter profiles. Prepare interpretive and engineering reports with a clear basis, assumptions, calculations and recommendations.

Foundation design and assessment

Assess pile and foundation response under axial, lateral and uplift loading, including settlement and soil-structure interaction. Evaluate foundation options and the implications of ground variability.

Analytical and finite element analysis

Apply analytical methods and finite element modelling to foundation response, deformation and stability. Select models and soil parameters for the problem, with sensitivity checks and documented limitations.

Pile drivability analysis

Assess driving resistance, penetration and installation feasibility. Evaluate pile and hammer scenarios, driving stresses and refusal risks to inform installation planning.

Spudcan penetration analysis

Develop penetration resistance profiles and assess likely jack-up footing penetration, layered-ground behaviour and punch-through risk. Support preload planning and geotechnical input to site-specific assessments.

Engineering data and digital tools

Use structured geotechnical data management, CPT interpretation and developed engineering modules to support consistent processing, calculation review and reporting.

A traceable design basis

Ground evidence → parameter selection → analysis → engineering recommendations

04 / SECTORS, EXPERIENCE AND PEOPLE

Experience that connects the field and the design

Offshore capability supported by TDAC’s wider engineering, laboratory and digital teams.

Oil and gas

Offshore investigation programmes, piled foundations and jack-up site assessments, including drivability and spudcan penetration studies.

Offshore wind

Site characterisation, investigation and testing review, foundation engineering and installation assessments for offshore wind developments.

Selected team project experience

Our team’s project experience includes assignments associated with BP, Total, PGE, NISA and ONE-Dyas.

This experience includes work undertaken in previous professional roles; it is presented as team experience rather than a list of direct TDAC contracts.

Technical leadership

Jayakrishnan Menon | Chief Engineer | 19 years of professional experience
Geotechnical and structural engineering experience includes offshore investigation planning and campaign management in Europe, with previous service as Senior Geotechnical Engineer at Geoquip Marine, Bristol.

Flexible specialist support

Appoint TDAC for an independent review, a defined reporting or design package, or ongoing client-side technical and campaign support. Delivery combines principal-led direction with geotechnical, structural, laboratory, project management and digital expertise.

TDAC in India and the United Kingdom

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