

PROJECT TITLE: Falkland's Offshore Dolphin Platforms



Client

Noble Energy

Main Contractor

Trant

Van Elle Division

Restricted Access Piling

Service Provided

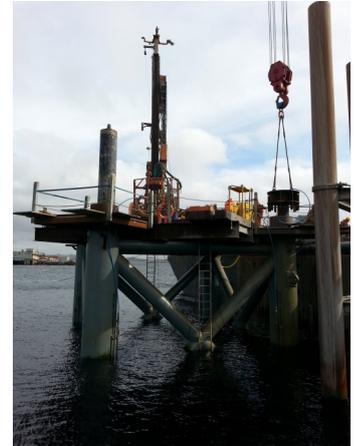
600mm–1200mmø Piles

Project Description

Offshore projects pose unique challenges to contractors operating around the world and how the logistics are handled can prove to be the difference in success and failure on a contract. Substantial pre-planning ensures that you are prepared for whatever situation may arise including having backup rigs, spare parts, alternative solutions and the relevant plant at your disposal, helping to avoid delays to programme. It is also essential to select the correct items of plant, best suited to the worksite restrictions and the type of works that are required to be carried out. The weather conditions that one may be faced with when working offshore can have a major impact upon the task at hand, again, from the logistics of actually getting to and from the working location to carrying out the operation itself. We may need to adapt the equipment and plant to suit the working conditions ensuring safety and maximum production at all times. There is always an element of the unknown in geotechnical engineering and even the most accurate of sub surface investigations can throw up surprises but establishing details, workarounds and possibly carrying out further investigation when offshore adds significant additional complications.

We have recently completed one such challenging project off the east coast of the Falkland Islands drilling rock sockets to anchor large diameter steel driven piles into the sea bed for a series of 125t GPS positioned dolphin platforms. Due to the distance and journey time from the UK, planning was of the essence in order that all the required equipment could be dock-side in Southampton within the allowed 3 week window, ready for the shipping date. To ensure maximum reliability and efficiency, a full overhaul was conducted on the rig which included modifications so that the machine could utilise a system that was beyond the capability of the standard manufacturer's specification. The design and fabrication of the drilling system and sourcing of spare parts was also carried out within the same time frame.

Once the ship had docked in the Falklands and the site teams arrived on site to carry out their initial investigations, it was discovered that there were serious design issues with regard to the actual tension anchor that was to be installed after drilling the rock socket. Our design team back in the UK, worked alongside the client's designers to rectify these issues and the relevant changes to the existing anchor were carried out on site. Whilst waiting for design approvals, our site teams worked as part of our client's team, carrying out roles which included lifting operations, cutting and welding, operating plant and other general duties on the platform. This was possibly due to the extensive training, experience and varied skill set gained throughout the years working for Van Elle.



Each corner of the 4 platforms had a 1150mmØ circular hollow section leg which acted as a guide for the 1060mmØ steel piles to be driven into the tillite bands using a 36t hammer. Each dolphin then raised up its new legs and was welded into position 6m above sea level to create a piling platform. Once the void between the pile and the leg annulus had been grouted, we lowered the 660mm casing within the pile down to 3m into the seabed and drilled a 610mm DTH at 4000CFM and 25bar up to 37.5m from platform into the granite with a tolerance of only 15mm. A specially designed 595mmØ 40m long anchor pile was lowered to the toe of the void in 2 sections to create the rock socket which once grouted was welded to the 1060mmØ pile.



During the drilling of the rock sockets, we encountered unforeseen ground conditions and other operational difficulties, but due to our foresight in the pre-planning and having taken into consideration all issues that could arise on the platforms, we maintained our client's programme despite the significant environmental challenges including restricted work area, 100+mph wind, heavy snow and temperatures as low as -22°C.