

WORLDWIDE HEAVY TRANSPORTATION AND LIFTING

RENEWABLE ENERGY

ALE   
SMARTER, SAFER, STRONGER



## Contents

- 03 Offshore Substations
- 04 Handling of Transition/Monopiles
- 05 Handling of Turbine Components
- 06 Handling of Turbine Components: Design and Feasibility
- 07 Handling of Turbine Components: Development Stage
- 08 Handling of Turbine Components: Operations
- 09 Handling of Turbine Components: Advantages
- 10 Onshore Substations
- 11 Heavy Crane Lifting

Having loaded-out more than 1,000 structures since the '80s, ALE is an authority on the design and development of load-out systems for platforms and jackets. Our speciality service allows modules to be transported hundreds of metres to the load-out quay, so that several modules can be built at the fabrication facility without impeding access to the quay, and multiple load-outs can be executed from a single load-out point. The result is minimum site disruption and maximum efficiency.

The 360° computer controlled steering capability of our SPMTs provides a wide choice of build positions, and our trailer configurations are always designed to meet the specific parameters and constraints of each project. Low ground bearing pressures minimise the need for site preparation or strengthening. Alternatively, if there is an existing skidway, we can help minimise costs by providing the strand jacking equipment required to pull equipment for load-out, where our high capacity ballast systems with manifold and integrated pipework can perform ballasting operations of up to 60,000te per hour.



### ► Case study:

ALE completed the load-out of a 992te jacket and 1090te offshore substation in Aalborg, Denmark. Both structures were separately loaded onto a cargo barge using 48 axle lines of SPMT as part of a UK offshore windfarm project.

ALE was also responsible for the site movement of both structures, the weighing of the substation and all barge ballasting operations.

ALE is currently developing and using innovative methods for the onshore and offshore handling of monopiles and transition pieces using ALE owned and operated cranes, multi-axle modular transport and barges.

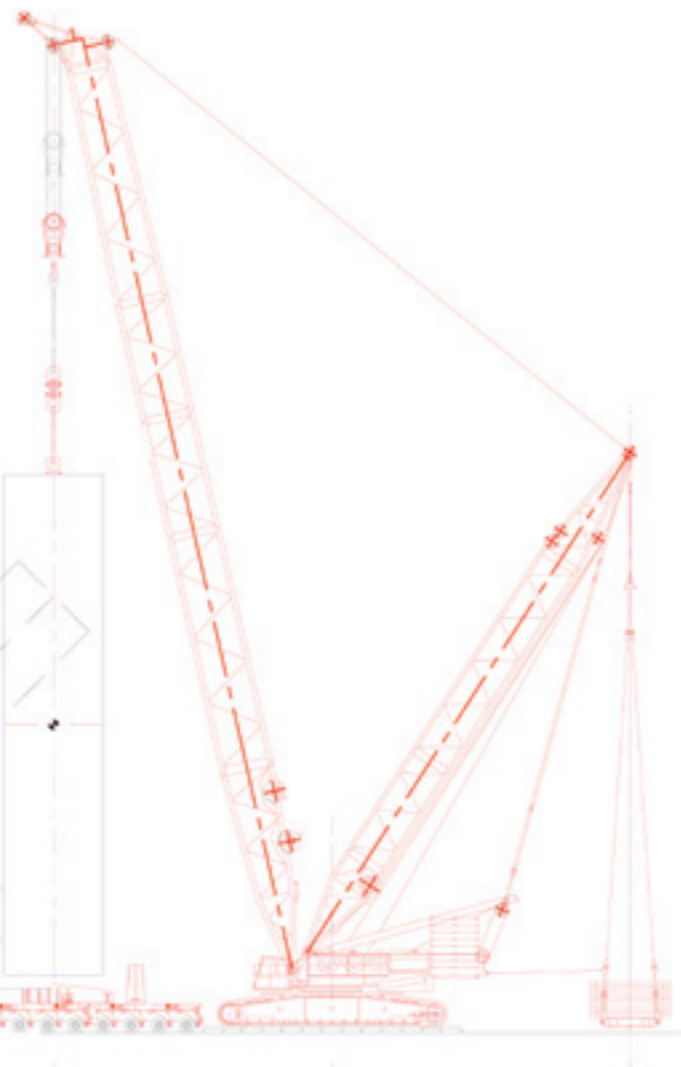
In addition we can provide up-front feasibility works and solutions to ensure locations and equipment are suitable. Our significant engineering resource means we're able to provide smarter innovations and the best equipment for handling operations with a view to minimising risk and cost while optimising time and efficiency.



► **Case study:**

ALE provided engineering for the transport, load-out, ballasting and mooring of six piles to the Chim Sao Discovery Well located 400 km to the south east of Ho Chi Minh City. The project was awarded to ALE by the PetroVietnam Technical Services Corporation (PTSC) as part of the Chim Sao Project.

The project began with the load-out of two 144m long piles with a total weight of 731.85te, followed by the load-out of two 124m long piles and two 146m long piles with a combined weight of 1,167.71te. The piles were loaded-out in a river with a strong current of around 3.5 to 4 knots.



Greater Gabbard is the world's largest offshore wind farm in construction. The project involves the installation of 142 Siemens 3.6MW wind turbines off the Suffolk coast around two North Sea sand banks known as Inner Gabbard and The Galloper. On completion, the wind farm will have a total capacity of around 500MW, with all 142 turbines mounted on steel monopiles and transition pieces.

The offshore wind industry presents a unique set of challenges in comparison to the onshore industry. The size and volume of equipment has increased dramatically: The Nacelle weight, for example, has increased from around 80te to 190te and beyond.

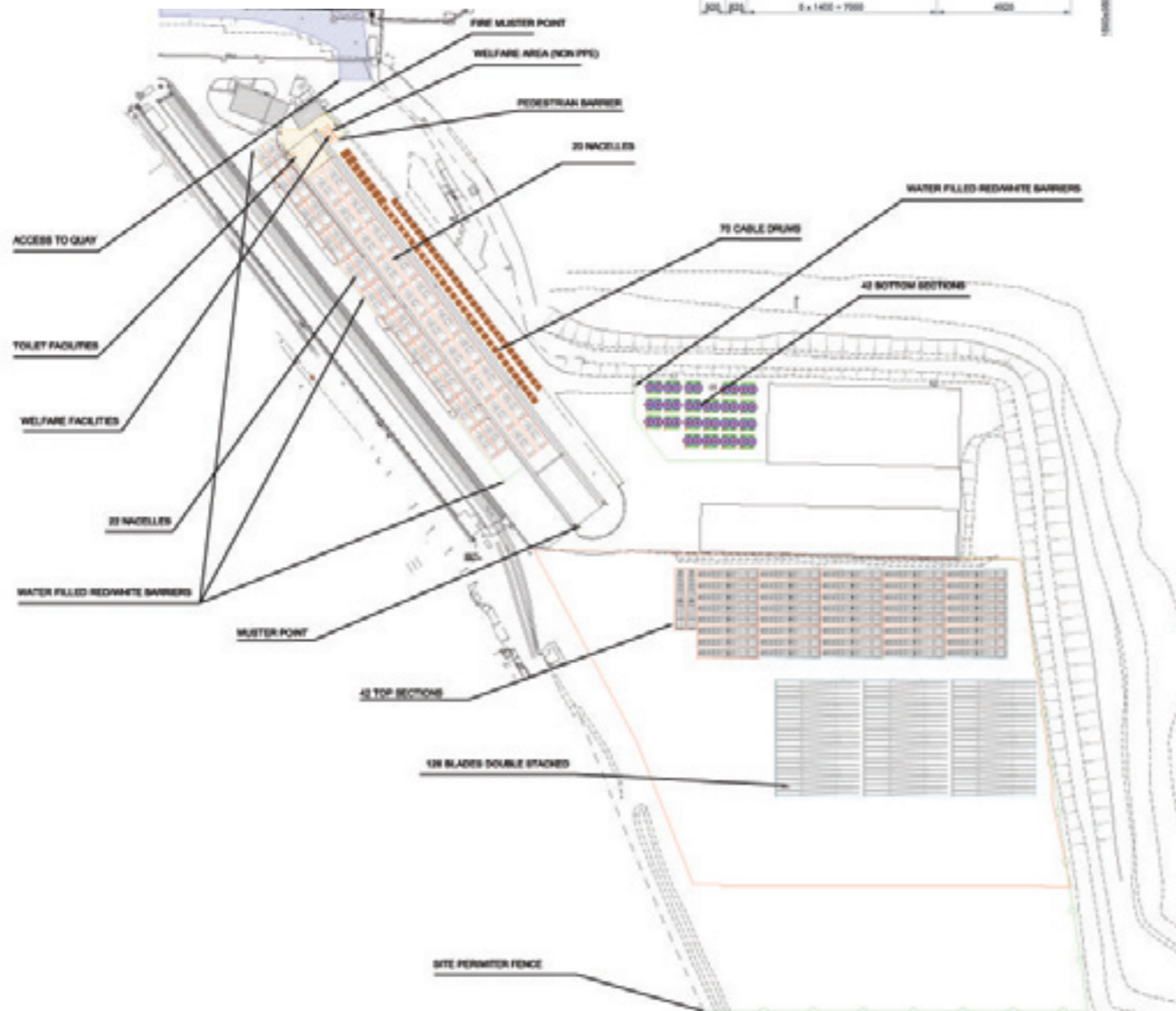
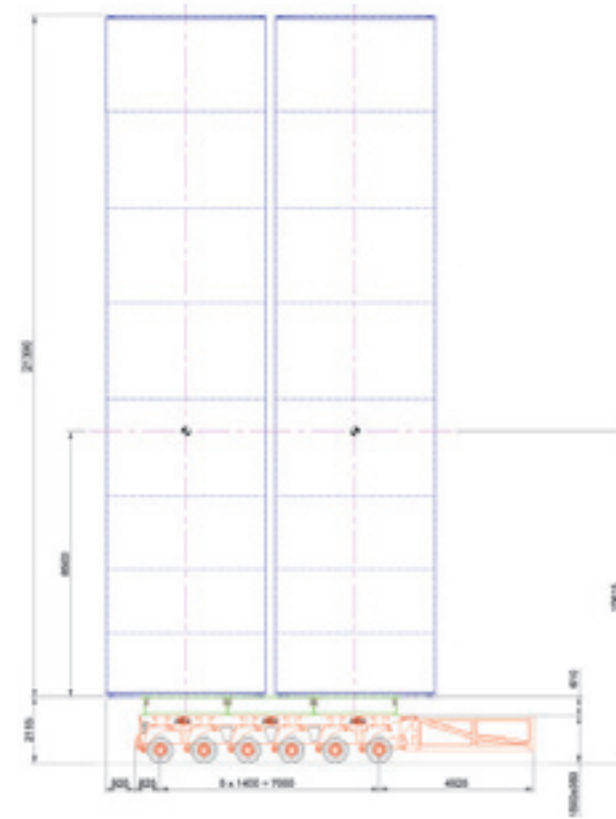
The challenge for offshore construction is matching component manufacturing dates to a variable offshore installation schedule. The ideal solution is a local staging area with a fast, efficient and reliable handling operation where a buffer stock of wind turbine equipment can be kept to allow deliveries to the offshore installation vessels to be made on a just-in-time basis with minimum risk of delay. This is exactly what ALE provided on the Greater Gabbard project.



ALE used Computer Aided Design to optimise the storage area from an efficiency and HSE perspective and to maximise the potential storage area capacity.

Knowing our client had to try and reduce the risk of weather delays on the project, ALE developed innovative handling solutions which increased the speed and reliability of operations and reduced the risk of weather delays. This was achieved by minimising the use of cranes and improving the HSE by reducing the imposed ground loads through the flexibility of equipment and fewer working at height issues.

ALE also provided risk assessments to identify potential areas of concern around the site, highlighting these at an early stage to the port owners so they could be rectified in the site development.



ALE managed the civil modifications and infrastructure upgrades to the port site based on the unique knowledge of the transport equipment and imposed technical requirements.

ALE developed the site to suit the rigorous maintenance schedule of the Wind Turbine Components and allow them to be connected to power supplies quickly and efficiently.

The innovative handling solutions also helped to maximise the use of the available land by leaving the minimum possible access ground area around the components which would be far greater with the use of large crawler cranes or similar.



ALE's responsibility for the complete management of the staging area includes:

- receiving wind turbine components from multiple heavy-lift ships in a short time period and on a round-the-clock basis
- the handling, storage and maintenance of wind turbine equipment for medium/long term to suit the offshore installation schedule
- inventory and quality control of the components entering and exiting the site
- load-out to offshore installation vessels when required on a 24-hour basis
- the ability to receive equipment and load-out equipment by working two vessels in parallel

A site management office with onsite project management and engineering on a continuous basis are critical to the success of the project.



Advantages include:

- Reduced onshore handling for the receiving/storing/load out
- Reduced onshore programme for receiving/storing/load out
- Reduced dependency on cranes – allows movement and offloading at higher wind speeds
- Greater ability to receive multiple components without onshore delays
- Less civil improvements for transport/tracking required due to flexibility
- Maximises low level working and minimises working at height issues



With 25 years' experience, ALE has the information, knowledge and skill base to provide proactive risk management and engineering solutions for the installation of transformer equipment to onshore substations.

By working with the utility company and/or the supplier of the equipment, ALE is able to tailor a full transportation and installation package for the transmission and distribution of equipment to onshore facilities.

Our involvement in the onshore substation sector is one of the core elements of our business. We have the skills base and resources to contribute in any of the following areas:

- The operations and risk review associated with the uplift and handling of substation plant and equipment
- The assessment of marine and port operations including storage, handling and the technical/commercial considerations associated with the receipt of cargo
- Liaising with government agencies to establish suitable ALL transport routes to site, including a full negotiability review and the assessment of street furniture plus any secondary routes which may need to be considered
- Project site access and installation methodology reviews for transformer equipment to foundations
- The compilation of a comprehensive document providing detailed risk analysis into operations including lead times, commercial and technical/operational considerations, and further recommendations
- Full service provider, including transportation and installation solutions from point of manufacture to final service foundation including shipping, handling and transport



ALE operates a range of project cranes which are used on projects throughout the world. These include a variety of crawler cranes and lifting machines which enable ALE to use the most appropriate type of crane for the working environment.

ALE's team of experienced multi-disciplined engineers prepare all method statements and rigging studies for the execution of all lifting operations.

ALE's strong engineering background and worldwide network of offices offers the highest standards of lifting practices.



ALE's CC8800-1 crane lifting at a fabrication yard in Scotland

► **Case study:**

AL.SK190 and AL.SK350

The AL.SK190 and AL.SK350 lifting machines have been designed for the lifting and installation of ultra heavy loads. They can be equipped with a standard winching system for weights of up to 600te and a strand jack lifting system for loads of up to 5000te.

In what is a first for a crane of this type, it can be relocated on site fully rigged saving considerable time during the construction schedule of major projects. The ability to lift heavy loads at large distances allows engineers to complete buildings and containment vessels in advance of major equipment installation.



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