

# PROJECT SHEET

## AWG AMELAND

### BOSKALIS

Royal Boskalis Westminster is a leading global marine contractor and services provider. With safety as our core value, we offer a wide variety of specialist activities to the oil & gas and renewables sectors. These activities include marine installation and decommissioning, seabed intervention, marine transport and services, subsea services and marine survey. In addition, Boskalis is a global dredging contractor, provides towage and terminal services across the globe and delivers marine salvage solutions. By understanding what drives our clients we are able to provide the solutions that enable them to meet their specific business goals. For this reason we are constantly looking for new ways to broaden and optimize our offering and are committed to expanding our proposition, supported by our financial strength. With our committed professionals in engineering, project management and operations, 800 specialized vessels and an unprecedented breadth of activities in 90 countries across six continents we help our clients in the offshore industry push boundaries and create new horizons.

### INTRODUCTION

In 2020 Boskalis was contracted by NAM for the cable installation of the Ameland Westgat (AWG) electrification project near Ameland; one of the Wadden islands in the north of the Netherlands. Since the 1980's NAM has used a platform for the extraction of natural gas at a short distance from the coast: Ameland Westgat, also known as AWG. The gas is extracted from the land station Ameland AME-1 and from the sea at a depth of 3 kilometers. The extracted gas is transported to the platform AWG-1, on which it is processed, pressurized and transported to the mainland using a compressor. There, the gas is purified and made suitable for use. For the extraction, a gas-powered turbine is used on the platform. The Dutch Government has designated Ameland as a Natura 2000 area to preserve biodiversity. NAM decided to electrify the turbine as the current installation no longer met the requirements due to the height of nitrogen oxide emissions.

For the electrification of the platform a power cable needed to be installed. The 4.5-kilometer-long cable is installed from the beach side of the island towards the platform. On the beach it had another 1,5 kilometers to lay the cable across the dunes towards the land station.

### FEATURES

Client	NAM (Nederlandse Aardolie Maatschappij)
Location	Ameland, the Netherlands
Period	2020 - 2021
Contractor	Boskalis Subsea Cables B.V.
Kind of project	Power cable installation and burial
Cable supplier	JDR UK



### SCOPE

This scope of work included the installation and burial of the electrical cable. From the AME-1 substation (onshore), the route ran towards offshore to AWG-1 platform and through the pre-installed J-Tube to its topside termination. The work package contained:

- Engineering and procurement of the cable, CPS and accessories (bell-mouth, flange etc.)
- Pre-Installation bathymetry and UXO Survey and route preparations
- Cable Installation from AME-1 to AWG-1 and post-lay Burial both for onshore and offshore sections
- Testing and termination.

**A** CLV Spirit and the platform

## CABLE INSTALLATION

Cable Lay Vessel Spirit has been put on anchors close to the shore and together with a set of work-boats, the cable has been made floating and paid out towards the shore. With a set of big winches and excavators and roller boxes, the cable has been guided around the beach and pulled until sufficient overlength has been reached. The overlength was required to guide the cable over the dunes to the land station. After the last meters of the cable was pulled ashore, the floatation was cut from the cable and recovered on land. The cable was lowered on the route and upon completion of the recovering of all the floatation, the Spirit started installation of the cable on anchors towards the AWG-1 Platform. When close to the platform, about 500 m distance, the Spirit could change on DP (Dynamic Positioning) and perform the 2<sup>nd</sup> end pull up to the platform and complete its scope.

## BURIAL ON LAND

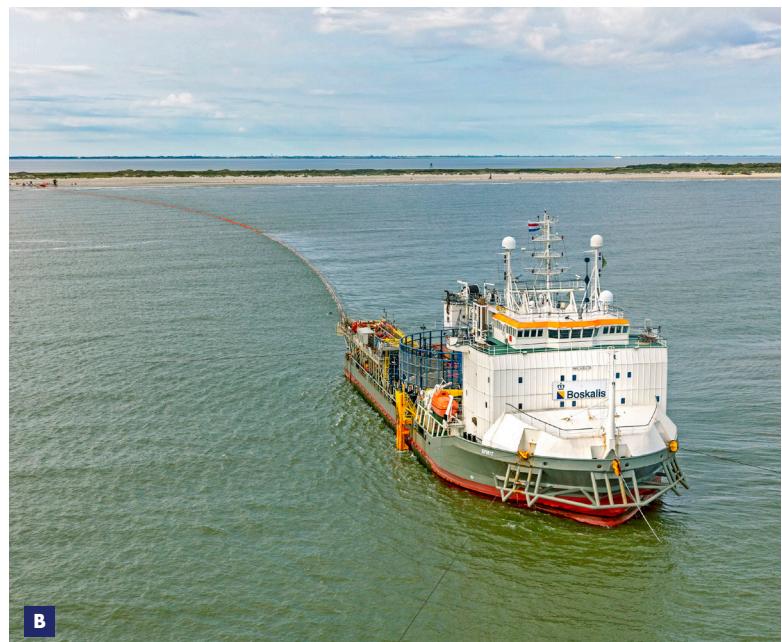
The free laid cable on land was repositioned to allow the cable to go over the dunes. The intertidal area was buried with a pump from a raised excavator. From the waterline a drainage burial tool was used to drive and bury the cable all the way up to the dune crossing, about 1km away. The depth of burial reached 2m on the beach. From the waterline further out the depth of burial reached 3.0 m.

## CONTROLLED FLOW EXCAVATION

The burial on land was executed with a so-called drainage burial tool. In the intertidal and offshore section we have chosen to use a Controlled Flow Excavation (CFE) technique. CFE is related to Mass Flow using 'large propellers' directed to the seabed and basically 'blow' away the sand and clay. CFE introduces more steering capacity and higher and directed pressure output, required in the stiffer clay areas. It is a trenching technique which is used on several trenchers and dredgers. This way we did not touch the seabed and the cable but had great burial progress.

## FACTS & FIGURES

- Cable lay vessel: Boka Spirit



**B** CLV Spirit