

# PROJECT SHEET

**BRASS ISLAND, NIGERIA**  
BRASS LNG EARLY WORKS PROJECT

## INTRODUCTION

The Brass LNG Project's objective is to construct a LNG Complex on Brass Island, Bayelsa State, Nigeria, and in so doing, develop Nigeria's abundant gas resources, reduce the adverse effect of gas flaring on the environment, and provide social-economic benefits to the local and wider Nigerian communities. The LNG Complex will be designed to produce approximately 10 million tons per annum (MTPA) of LNG, as well as LPG and Residual NGL products.

## THE EARLY WORKS

In October 2007 Brass LNG awarded Nigerian Westminster Dredging & Marine Limited (NWDM) the Early Works EPC Contract. The project consisted of the construction of a Pioneer Camp and three Pre-Loads to provide early settlement for the future tank farm of the proposed Brass LNG plant.

In more detail the Scope of Work consisted of bush clearing and topsoil removal, the construction of temporary roads and pipeline crossings, the excavation of sand for the construction of the pre-loads, installation of vertical drains, the installation of settlement monitoring instrumentation and the monitoring thereof and covering the completed pre-loads with poly sheets.

The Pioneer Camp was designed to be fully self-supporting. Apart from accommodation units it consists of offices, catering, laundry and water treatment facilities. For the power supply three generators were supplied and installed. Furthermore, provisions were made for waste water and sewage treatment and for waste disposal an incinerator was supplied and installed.

## FEATURES

Client	Brass LNG Ltd.
Project Management	Bechtel LNG Contractors Ltd.
Location	Brass Island, Bayelsa State, Nigeria
Period	2007 - 2010
Contractor	Nigerian Westminster Dredging & Marine Limited



## EXECUTION

The bush clearing was mainly sub-contracted to local contractors from the three host communities. Immediately upon having the first areas cleared, sand excavation started to construct the temporary roads, and to create dry and stable platforms for the construction of the accommodation and offices, and for the pre-loads.

Approximately 1,5 million cubic meter of sand was excavated and transported for the construction of the three pre-loads, which were elevated to approximately 20 meter height. The required sand was excavated from an onshore borrow area. Over 30 heavy duty dry earth moving machines were brought to site to execute the works, such as excavators, bulldozers, vibro roller compactors, articulated dump trucks, etc.



In order to accelerate the settlement process, Prefabricated Vertical Drains (PVD's) were installed to depths varying between 40 to 50 meter deep. The drains were installed by COFRA, another Boskalis company.

Engineering for and construction of the Pioneer Camp was partly done by local sub-contractors, but ultimately the majority of the work was done by NWDM itself.

- A** Location map
- B** Bush clearing
- C** Dry earthmoving equipment
- D** PVD installation



**E**

**QUALITY CONTROL**

A settlement monitoring system was installed to check vertical and horizontal movements of the subsoil layers resulting from the pre-loads. The installation and subsequent monitoring of the instrumentation was carried out by Boskalis Environmental. Regular geotechnical checks were carried out to verify the quality of the sand and the level of compaction achieved and for this purpose NWDM had a special CPT rig and a geotechnical laboratory on site throughout the duration of the project and under the supervision of the Boskalis Environmental specialists staff.



**F**

**ENVIRONMENTAL MANAGEMENT**

Excavation of sand from the onshore borrow pit was done with utmost care to avoid damaging a watertight impermeable layer of clay which prevented salt water intrusion from below the clay layer in the excavation zone. On a regular basis the salinity levels were measured to monitor any possible salinity ingress in the groundwater due to excavation of sand from the borrow pit.



**G**

**COMMUNITY ENGAGEMENT**

The majority of the workforce for the project was arranged through the three host communities. Because of the long running experience of NWDM in Nigeria and the Niger Delta in particular, no serious incidents occurred with the host communities on Brass, as all issues were resolved amicably and in a professional manner from both sides.



**H**

**LOGISTICS**

Due to a lack of infrastructure, all materials and equipment required for the project had to be transported from the NWDM yard in Warri to the site at Brass by barge through the creeks of the Niger Delta. Throughout the two years of barge movements between Warri and Brass, no security incidents nor any problems with the (fishing) communities along the transport routes occurred.



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**SAFETY RECORDS**

We are proud to mention and with compliments to the Project Management Team, that the project was completed without any Lost Time Injury (LTI) during the execution of the works on a total of more than 2 million man-hours.



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- E** CPT unit
- F** Monitoring salinity wells
- G** Community relations
- H** Mobilisation PVD rigs
- I** Pioneer camp near completion
- J** Pre-loads completed

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