

Project

Wheatstone Marine facilities, Onslow, Western Australia

Product Loading Facility and tug berths associated with the Wheatstone Project LNG Plant near Onslow in Western Australia. The feed gas with condensates will be delivered via subsea pipeline from gas fields located off Northwest Coast of Western Australia in the Carnarvon Basin.

The scope of work included the design and construction of a 1.4-kilometre jetty with an operations platform, a product loading platform with a single LNG and condensate load out berth with associated breasting and mooring dolphin structures. Design, fabrication of topside piperack modules and platform modules with piping installation, insulation, module testing and ultimate completed piping modules installation and hook-up with final testing also formed part of the scope.

Design, fabrication and construction of tug berths within the breakwater harbour were required as well. The berthing arrangement was a series of pile-positioned floating mooring pontoons, articulated walkways, elevated access catwalks and utility corridor.



Location	Onslow, north west Western Australia
Client	Chevron Global Upstream and Gas
Engineer	Bechtel Western
Design	BAM Infraconsult, Aecom and Clough Engineering
Contractor	BAM Clough Joint Venture
Contract type	Design and construct
Contract period	February 2012 – May 2016
Contract sum	€325 million

‘Part of one of Australia’s largest-ever resource projects.’

Installation

Raker piles were driven through the platform sleeves and the concrete deck was constructed from precast planks and in-situ pours. On the trestle about 50 percent of the pipe racks from land were placed by using a launching girder, while the remainder was lifted in place by jack-up barge IB-914 and the 400-tonne crane barge IB-429. Besides the installation of the pipe racks, the welding and insulation of the pipe inter-connections was undertaken.

The works were completed with the installation of the jetty loading arms, the PLF (Product Loading Facility) control building and all other auxiliary and control equipment.



World class operations: Installation of the 1,250-tonne loading platform with heavy lift vessel



Construction methodology

Construction methodology was primarily a combination of a jack-up barge, a crane barge, an approach trestle and a cantilever bridge (CLB). This arrangement created schedule flexibility and maximised work fronts and land based activities.

BAM Clough designed and fabricated the CLB and its supporting equipment for the construction. It was the solution to the challenging conditions of the project: constructing of the approach trestle had to go across shallow waters avoiding impact on the environmental environment. The innovated design ensured construction efficiencies, safer working conditions and minimal environmental impact.

Overseas fabrication works

Some of BAM's activities took place outside of Australia: the pipe racks and loading platform were fabricated under our supervision in a module yard in Batam, Indonesia.

All steel decks and dolphins were fabricated in Korea, with steel pile supply from China. The tug berth facilities were constructed in Australia.

Wharf and berth furniture were generally sourced in South East Asia.

For this project, a total of 442 precast elements (6,325 m³) were manufactured at BAM International's precast yard in Cilegon, Indonesia, while adhering to and maintaining stringent Australian standards on Health and Safety, Quality and Quarantine.

In total, 108 T-beams, 192 headstocks and 60 planks were produced.