

DARLING HARBOUR LIVE

A CRANAGE SOLUTION FOR 'THE NEW FACE OF SYDNEY'

AT A GLANCE

CLIENT	LENDLEASE
PROJECT	DARLING HARBOUR LIVE
LOCATION	SYDNEY, NSW, AUSTRALIA
SECTOR	PUBLIC INFRASTRUCTURE
DATE	FEBRUARY 2014 – FEBRUARY 2016

CRANES	1 X M2480D, 1 X M860D, 1 X M440D, 1 X M630D, 1 X M600D
ENGINEERS	4
INSTALLATION CREW	8
MAINTENANCE CREW	2
PROJECT LENGTH	2 YEARS

Using a heavy lift crane fleet system, the redevelopment of Sydney's Darling Harbour Live precinct changed the game for the construction of high density inner-city infrastructure projects.

The AU\$3.4 billion re-development of Sydney's western harbour is part of the NSW Government's vision to transform Darling Harbour into one of the most distinctive and dynamic waterfront business and leisure districts in the world.

For Marr Contracting and the Darling Harbour Live consortium led by Lendlease, the project demonstrated how heavy lift cranes, predominantly used in large-scale industrial projects, could be successfully used on a high density inner-city infrastructure projects.

THE PROJECT

In 2013 the Darling Harbour Live (DHL) consortium (comprising Lendlease, Hostplus, Capella Capital, AEG Ogden and Spotless) won a competitive tender to partner with Infrastructure NSW on what would be one of the largest urban regeneration and infrastructure development projects ever undertaken by the NSW Government.

The project brief was to create Australia's premier convention, exhibition and events destination, (ICC Sydney), along with reinvigorated and expanded public spaces, a luxury 5-star hotel and a vibrant commercial and residential urban village called Darling Square.

Opened in December 2016, the Darling Harbour transformation is home to more than 4,200 residents, 3,000 workers, and more than 60 retail outlets. The entertainment precinct is also projected to welcome more than 26 million visitors¹ to Darling Harbour each year.

THE CHALLENGE

In addition to the redevelopment of the new convention, exhibition and entertainment venues; the 20-hectare site also included the construction of 1,400 residential apartments, 1,000-bed student accommodation, 7,000sqm of retail space, 15,000sqm of commercial space, a 400-bay public car park, and 2000sqm of community space and public realm upgrades.

At the same time a new pedestrian light rail connection linking Darling Harbour and ICC Sydney to the CBD and Barangaroo was also built. A full calendar of events and entertainment managed by the Sydney Harbour Foreshore Authority (SHFA) was also staged during the construction phase.

Providing a heavy lift solution on a congested inner urban construction site surrounded by light rail, public roadways, existing buildings, additional construction work and the general public posed significant challenges for Marr's team.

The multiple buildings and new structures that were built required a range of lifting solutions ranging from 10 tonnes to in excess of 100 tonnes. We also had to manage the lifts around a redevelopment that was still in the process of final design approval as it was being built.

THE SOLUTION

To address the challenges that the project posed, we needed to deliver a solution that covered all possibilities from general to heavy lifting.

To do this, we worked directly with Lendlease and the DHL Consortium to develop a craneage solution that was flexible enough to accommodate the scale and variables that the project presented.

After analyzing their lifting requirements, we presented a solution which also included managing all the lift planning and installation of heavy concrete elements on the job.

To allow for the lift and coverage requirements of the project, we provided cranes with a radius coverage in excess of 90 meters and lift capacities in excess of 100 tonnes.

THE RESULT

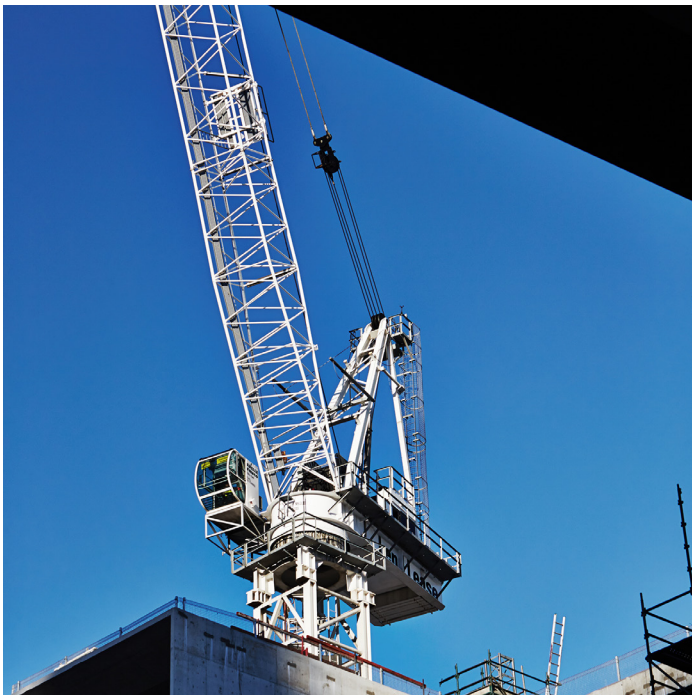
The system we provided allowed Lendlease to build the project in a completely different way with the ability to build the job in a sequence that suited their construction methodology, rather than being beholden to the limitations of the craneage as would normally be the case in a more traditional approach.

More importantly, it allowed the project team to concentrate on their strengths – building and delivering the project – rather than having to focus on complex lifting and logistics that other craneage options came with.

At the completion of the job we had designed, planned and supervised the installation of over 100 critical lifts for elements weighing between 10 and 100 tonnes.

All lifts were completed within the designated time frame and without incident.

¹SOURCE SYDNEY HARBOUR FORESHORE AUTHORITY.
[HTTP://WWW.SHFA.NSW.GOV.AU/CONTENT/LIBRARY/DOCUMENTS/780B61B8-5056-A83C-FC18DC5EB0E6874E.PDF](http://www.shfa.nsw.gov.au/content/library/documents/780B61B8-5056-A83C-FC18DC5EB0E6874E.PDF)

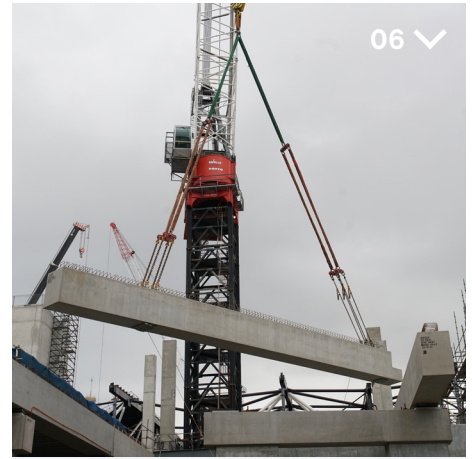




A congested inner urban construction site surrounded by light rail, public roadways, existing buildings, additional construction work and the general public posed a number of challenges.



Introducing our heavy lift crane fleet redefined how infrastructure projects can be constructed.



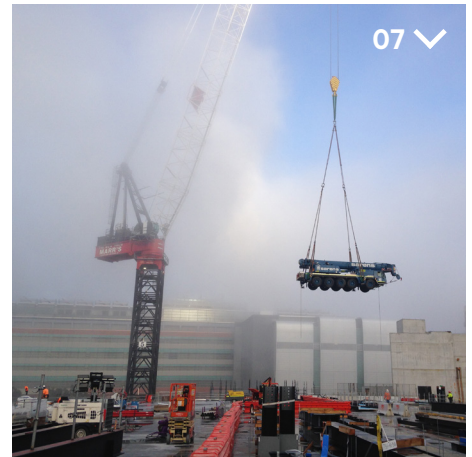
One of the biggest challenges of the project was the installation of the heavy concrete pre-cast elements, weighing up to 100 tonnes.



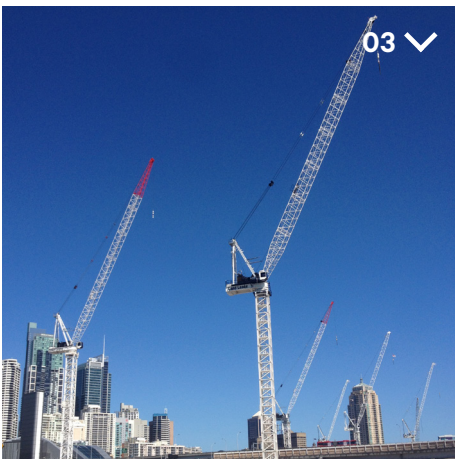
The solution required a highly productive and flexible craneage system that could cope with greater capacities than ever seen on an urban project before.



In June 2014, the first crane base was installed.



The M2480D lifts a 100-tonne mobile crane, demonstrating the flexibility that the large crane fleet brought to the project.



The boom being installed on the M2480D tower crane.



Our solution allowed Lendlease to maintain their original program, despite the pressure of design changes throughout the project. By completion, 100 critical lifts for elements weighing between 10 and 100 tonnes had been made without incident.