



SIMPLE SOLUTIONS FOR COMPLEX CONDITIONS

Installation of a new Stainless Steel Liner for Final Stage of Historic Mundaring Weir Upgrade

PROJECT PHASES

01

Scope

Plan and execute the installation of Steel liners, overcoming tight spaces and limited access to remote site.

02

Solution

Utilise smaller crawler crane to transport equipment in and assemble on site

03

Conclusion

Successful in implementing a different approach to complete the project withing allocated timeframe.

MANDARING WEIR UPGRADE

With the final phase of the historic Mundaring Weir project nearing completion, the installation of a stainless steel liner to the intake tower, marks a major milestone in securing quality water supply for Western Australia.

Tutt Bryant Heavy Lift and Shift were engaged by Clough to plan and execute the vitally important installation of the intake tower, providing solutions to overcome complexities including; access to the site and lack of space in which to build a crane of the required boom length and capacity to enable the installation to be completed.

A multi-staged project taking over 5 weeks to execute, the initial relocation step presented a variety of challenges with access restrictions, due to a single road access located on a blind corner from both directions, no space to turn trucks around requiring the temporary closing of access for public traffic, while public access not being restricted to ensure the Bibbulun track continued to run through the access road adjacent to the site.





Above: Room is a premium with the M16000 ready to walk down the 10 degree ramp. Top Right: Nicolas SPT used to fit Main Boom Butt and 12 meter boom sections in a very confined space. Bottom Right: Constructing 102 meters of boom down a creek bed.

NEW TACTICS

Tutt Bryant's technical and engineering team designed a plan to assemble a relatively small crawler – a **280t Sumitomo SCX28002**, and use this crane to construct a **400t Manitowoc M16000** crawler crane to complete the installation. Initial construction of the Manitowoc was assembled with 151t + 54t of counterweight, 40m Derricking mast and 42m main boom. Due to lack of usable space, installation of the first (butt) section of main boom of the 400t crane was restricted, and overcome by the use of Tutt Bryant's Nicolas self-propelled trailers to position the section for installation.

Once assembled the 400t crane was mobilised and relocated, traversing down a temporary crane access ramp (10% gradient) to the base of the weir wall where it received an additional 150t of counterweight. The 400t crane then slewed around and lowered its 40m boom into temporary supports pre-positioned down the riverway at the base of the dam wall, after being reconfigured a third time and raising its final operational boom length of 102m.

Safety was no1 concern with the project team carefully monitoring wind velocity before allowing the lift to proceed at 9am. At 11am the team decided it was safe to lift over the spill wall, and over the period of another hour the liner was carefully manoeuvred to the inlet.

DELIVERING ON THEIR PROMISE

Partnering with the Clough team in their ongoing pursuit of excellence, Tutt Bryant Heavy Lift and Shift navigated multiple complex conditions to ensure that Clough succeeded in delivering on their promise for the water corporation and in doing so have

The lifting operation was highlighted by four distinct lifting events:

- 1) Horizontal lifting and relocation of the fully assembled liner from the site welding location to the temporary crane access ramp within radius of both 280t and 400t cranes;
- 2) Upending of the stainless steel liner, slewing the 400t and 280t crawler cranes to 'top and tail' the liner respectively;
- 3) Vertical lifting, slewing, and positioning the liner above the round house; and
- 4) Lowering the liner into the intake tower and onto its final resting positioning atop of three preinstalled concrete pedestal blocks.

With the crane lowering the liner millimetre by millimetre it was threaded into the inlet tower with only 5cm to spare, before precisely landing on its pre-constructed base, the successful completion of the lift, in just 3 hours marked the end of the key critical phase of the weir upgrade.

been responsible for a major milestone in securing quality water supply to towns in the Goldfields and agricultural regions of Western Australia, allowing 10 million litres which can be used elsewhere across the water network.