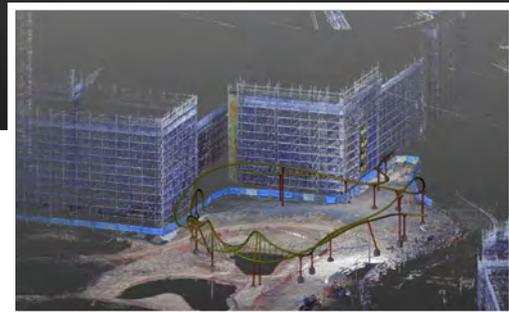
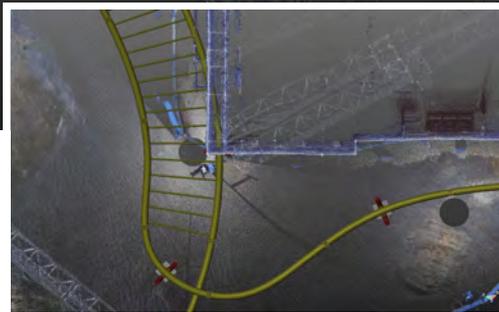
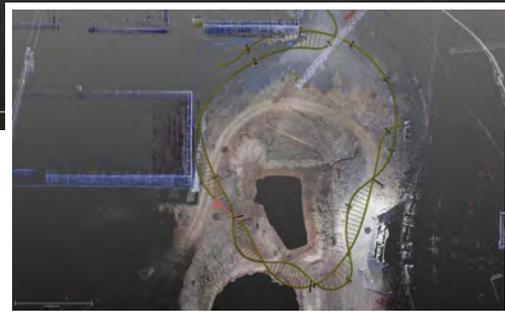
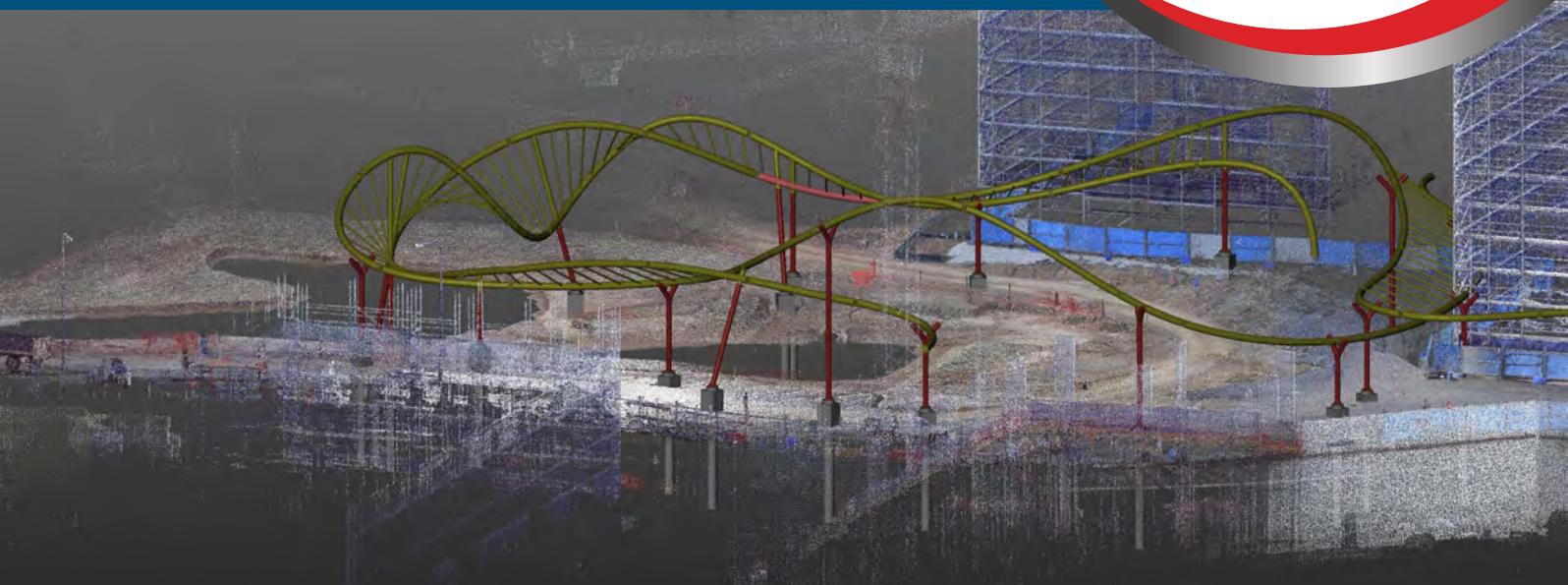


Watkins Steel were contracted by JMac Constructions to supply and install structural steelwork for a grand architectural Arbour and Disc Structure for The Parklands, Gold Coast.

The arbour sits at the heart of The Parklands acting as an impressive landscape feature, surrounded by multi-level apartments and recreational gardens.



STEEL DETAILING

With no two parts similar and few straight members our in-house drafting team had the complex task of turning the design drawings into something that could be manufactured and erected as well as communicated easily to the team of the shop floor.

Using our **3D Laser Scanning** Technology we scanned the as-built site for **100% accurate measurement** and **clash detection**.

After overlaying the 3D Design Model into the 3D Point Cloud Model registered from the scan, we discovered that the adjacent building scaffold encroached on the site and clashed with the arbour. As we caught this before installation we were able to re-adjust the construction program, containing overall project costs and instilling confidence in our client.

"This iconic project brings out the true DNA of a 3D Steel Detailer - complex compound curves and no two pieces the same. We used Tekla Structures for the 3D model documentation and production of 2D fabrication drawings and NC tube files."

Andy Irwin, Drafting Manager, Watkins Steel

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FABRICATION

Using **Tekla Structures Software** for detailing we were able to efficiently turn the design drawings into something that could be manufactured and erected, as well as, communicated easily to the team in the workshop.

Tekla can interface with our **Voortman CNC Machinery**, which allows a seamless integrated process from the detailer's console straight to the workshop cutting equipment.

The workshop crew cut out the handling of the large and awkward shapes by running them through on an **'infinite production line'**. This minimised unproductive time whilst reducing the hazard of crane lifts and objects moving overhead. This method also meant the pieces were being trial fit as they were assembled then taken straight to the back of the truck to the painter's yard.

The use of our **3D Laser Scanner** proved to be an invaluable Quality Assurance (QA) tool.

It allowed the crew to scan each piece after it was assembled so the detailer could overlay a virtual scale model of the assembled piece into the Tekla Model. This meant if any errors appeared, they were still well within control to repair or adjust with minimal hassle.

The rolling of the large pipe sections was undertaken by Melbourne company, Inductabend. Watkins Steel carried out QA by scanning the sections immediately after rolling. Once scanned, the 3D Point cloud was overlaid into our Tekla model and the model was adjusted to suit the members, rather than, adjusting the steel members to perfectly suit the existing design model.

"The ability of our workshop crew to rationalise the difficulty and manipulate proven techniques to increase fabrication efficiency on such an odd shape made the build successful."

Ben Trousdell, Project Manager, Watkins Steel



The arbour consisted of pre-assembled modules that were small enough to transport, yet large enough to be effective in modularising.

By dividing each module into a size suitable for transport it then allowed two to four pieces at a time to be connected on the ground and lifted in one go.



INSTALLATION

Installation of the arbour was staged to coincide with the removal of the the adjacent building scaffold.

Set-out for installation was carried out in tandem with the **3D Laser Scanner** and **Robotic Total Station**.

Using the scanner, we were able to scan the HD Bolts after installation, then overlay it into the Tekla model. This allowed us to alter the length of the columns, orientation of the base plate, and the holes within the base plate where necessary.

The robotic total station was then paired with the scanner to provide a measure, a check and a subsequent layout for final installation. This ensured the arbour went together the first time.

"Without our technology, the inevitable issues that arose would not have been avoided and caused significant reworks. Our technology allowed us to manage risk and pre-empt significant issues along the way."

Ben Trousdell, Project Manager, Watkins Steel

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The three-dimensionally rolled steel arbour, resembling a DNA helix, has a 190 metre circumference and a weight of 55 tonnes.



PROJECT RESULT

"Watkins Steel's state of the art expertise and construction savvy approach to providing millimetre perfect production of the arbour ensured that an extremely complex and high risk installation was completed seamlessly, efficiently and with the highest consideration of safety to all personnel involved. The site based verification of physical obstacles and constraints paired with their software allowed conflict analysis and design vetting to occur virtually in the office. As the client we were afforded hands on opportunities to partake in this process ensuring that the finished product was exactly as it was envisioned. The Watkins steel team provided great service throughout the entire project and I was extremely confident with the outcome throughout its fabrication and construction thanks to their professional and collaborative approach."

Marc Mill, Senior Project Manager, JMac Constructions

Benefits



Guaranteed 100% accuracy of site measurements using the 3D laser scanner. All measurements were exact and could be linked to the drawings



Site measurement took 1 day. Minimal scans were needed to collect all required measurements



Improved plan approval time frame. Importing the architect's Rivet model into Tekla saved time during the drafting phase



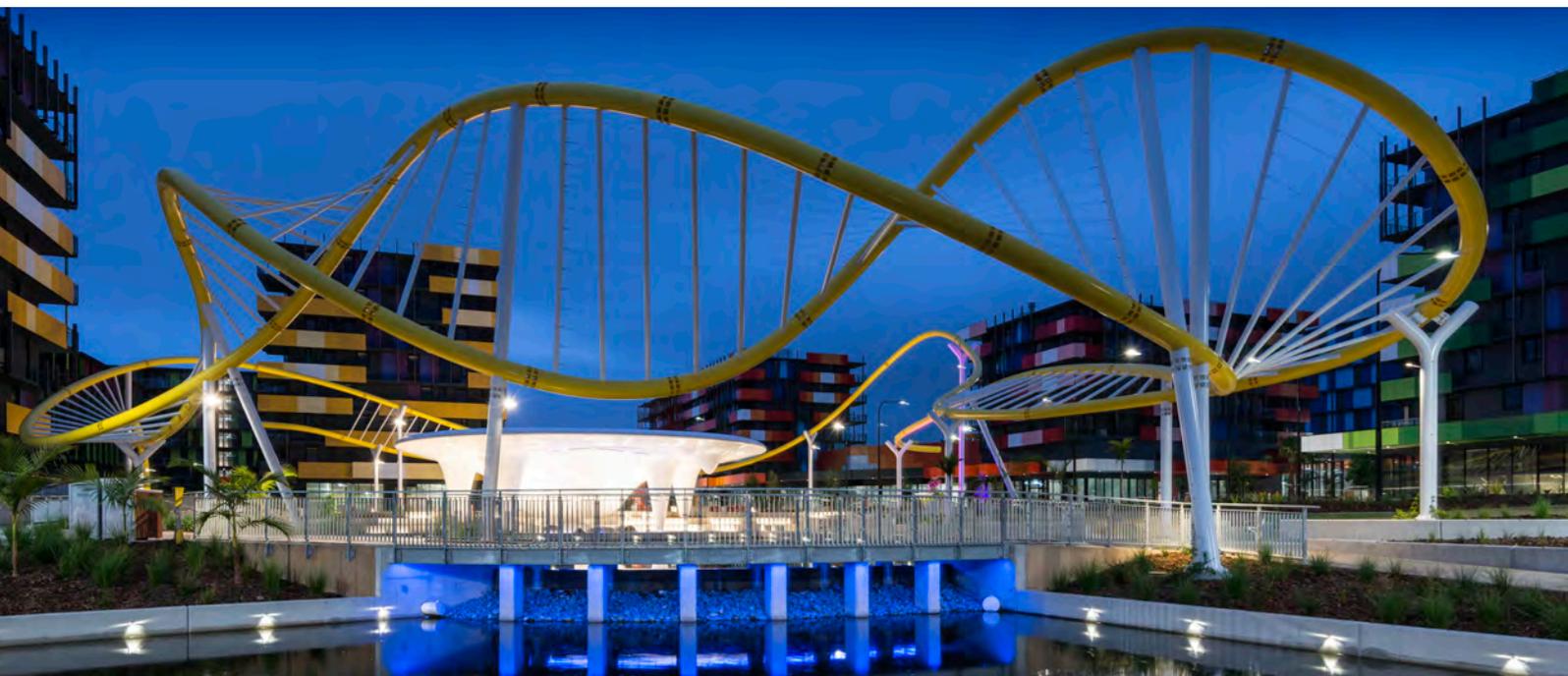
Increased fabrication efficiency due to the expertise of the workshop crew and Voortman CNC Machinery.



Guaranteed 100% accuracy of site markouts with the Robotic Total Station



Saved time on installation with little rectifications required - significant rectification work was avoided using the Total Station and 3D laser scanner



Make your project a success with the Watkins Steel difference. Contact the Watkins team today.