



BRIAN PERRY CIVIL

DIXON STREET PUMPING
STATION AND RISING MAIN



BRIAN PERRY CIVIL



Established by Brian Perry in 1954, Brian Perry Civil is a contractor with a reputation for performance, innovation and quality in high risk civil engineering projects.



From its origins in drainage work in the Waikato, the Company progressed to river and marine works, energy pipelines, civil structures and foundation work. Operations expanded geographically around New Zealand and to the South Pacific Islands.



The Company was bought by Fletcher Construction in 1986 and is now undertaking civil engineering projects ranging from small drainage jobs to major infrastructure projects.



Brian Perry Civil expanded their operations in to the Wellington market in 1989. This year marks 30 years of operation in the Wellington Region.



BPC Wellington have carried out a vast portfolio of notable piling and ground improvement projects throughout the Wellington Region.

BRIAN PERRY CIVIL
WELLINGTON

PROJECTS



ORIENTAL BAY ENHANCEMENT



WELLINGTON MAJESTIC CENTRE



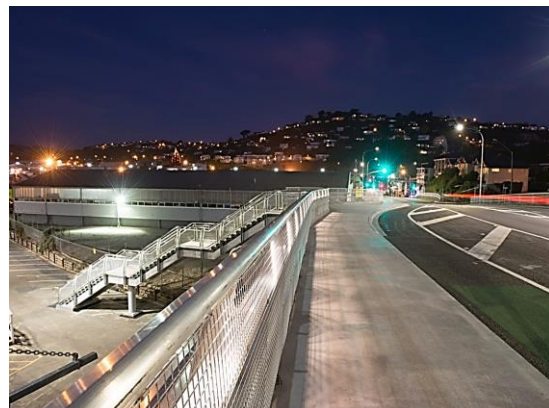
CENTREPORT



KUMOTOTO



WHIROKINO TRESTLE AND
MANAWATU RIVER BRIDGE



JOHNSONVILLE TRIANGLE
IMPROVEMENTS



NGAURANGA TO AOTEA QUAY
SMART MOTORWAY



MACKAYS TO PEKA PEKA
EXPRESSWAY

DIXON STREET PUMPING STATION AND RISING MAIN

- Construction of a new 6.5m diameter, 7m deep underground pumping station
- Mechanical fit-out
- 175m of new rising main
- Located on a contaminated land site in Wellington CBD.
- Constructed to accommodate the additional flows of the new developments, alleviating capacity issues in the downstream network.
- First PS to be constructed in the CBD in over 40 years.



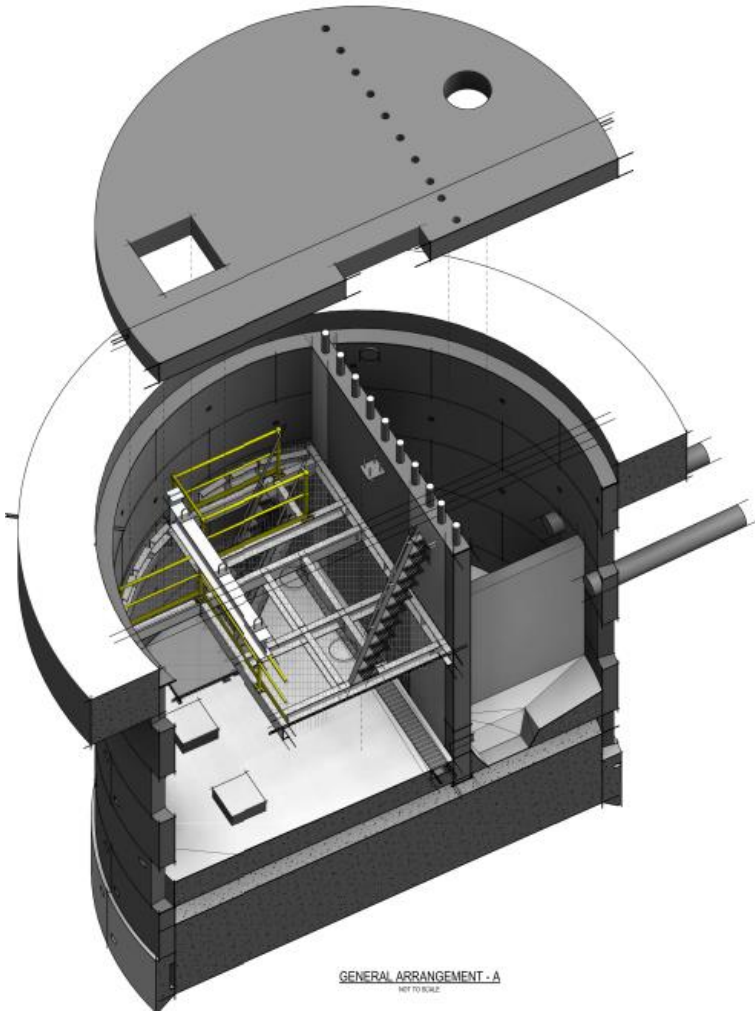
SEGMENTAL PRECAST CAISSON SYSTEM

- BPC submitted a proposal based a segmental precast caisson system.
- A market review highlighted the lack of a suitable supplier of concrete segments within New Zealand and Australia. We contacted FP McCann in the UK which had a supply of 6.5m diameter segments in stock.
- Traditional methods would have involved overdigging the extent of the excavation to provide working room to construct the structure.



COLLABORATION

- The ECI and construction required extensive liaison and collaborative engagement with GHD to finalise and implement the testing and design phases.
- To the best of our knowledge this is the first time this technology has been used in New Zealand.
- Thus, this system has not been proven in a seismic environment. BPC worked collaboratively with GHD, and our sub consultant Arup, to finalise the design and to ensure that the segmental caisson and the internal walls could be designed to perform effectively in an earthquake. This work included:
 - Assessing ground conditions
 - Seismic modelling and;
 - Defining structural performance requirements
- BPC produced a 3D model to visualise the new pump station layout.



SEGMENTAL CAISSON

- By opting to use a segmental caisson:
 - No requirement for large scale temporary works (shoring).
 - Absolute minimum footprint of the excavation, thereby reducing the volume of material to be excavated, minimising the volume of contaminated material to be removed.
 - The minimised footprint allowed us to position a 6.5m diameter structure on the site, without the need to close Feltex Lane.



HEALTH & SAFETY

- During the planning stage, it was noted that one of our greatest health and safety risks was going to be safe access, egress and ventilation of the work space.
- The nature of a segmental caisson allows all work to be carried out safely from ground level.
- The 7.5m deep caisson excavation and external structure was completed without any workers entering the caisson





29 March 2019

Dixon Street Pump Station and Rising Main

GHD, on behalf of Wellington Water, administered the Contract and carried out Management, Surveillance and Quality Assurance for the Dixon Street Pump Station and Rising Main project constructed by Brian Perry Civil (BPC) in 2018 / 19.

This was a highly innovative project that required ambitious thinking, collaboration and a can do mind set. In the early stages BPC identified a construction methodology that encompassed the type of innovation that was required for this challenging urban environment and extremely constrained site.

GHD worked closely with BPC to ensure the precast system met geotechnical, seismic and structural performance requirements and the additional quality assurance (QA) requirements for elements prefabricated overseas.

Dewatering of contaminated groundwater proved a major challenge in construction. BPC were quick thinking and developed an onsite storage system that ensured that delays were kept to a minimum. Groundwater that was too contaminated for discharge to storm or sewer was stored in the already constrained site and was effectively managed. BPC developed a monitoring plan that subsequently ensured that the required time needed for the hydrocarbons to separate could be achieved and the majority of groundwater successfully discharged to the sewer network. There were minimal delays to the programme and significant cost savings to the client.

Working in the CBD surrounded by major traffic routes was consistently demanding. BPC proposed an effective traffic management plan that was well implemented, carefully monitored and adapted by BPC to suit the specific day to day site conditions. This resulted in a site that was safe for the construction workers, pedestrians and road users, while also keeping delays to a minimum.

The pump station has achieved everything that we had hoped it would do, despite significant challenges in construction stages that were successfully overcome by BPC. GHD were impressed with BPC, notably the professionalism, collaboration, problem solving and willingness to always go the extra distance to meet stakeholder and customer needs on behalf of the client. All parties worked and encouraged a collaborative working environment which was at the core of the success of this project.

Sincerely,

Callum Allison
Water Lead
027 804 0002

RECIPE FOR SUCCESS

- ★ The RFP included small number of drawings that inferred that the client was open to **'Another Way'** to construct the project
- ★ Responses to questions during the RFP re-affirmed the desire to want to do things differently; no unnecessary provision for **Risks**
- ★ Extensive and open dialogue during the **'Preferred Tender'** stage clarified responsibilities and mitigate outstanding risks
- ★ All parties entered into the project with the knowledge that decisions were being made **'Best for Project'**; scope, role and responsibilities were all understood.
- ★ Result: The contract was **'Administrative'** not **'Adversarial'**

AWARDS



- ★ Civil Contractors New Zealand Wellington / Wairarapa Branch Project of the Year Award 2019
- ★ Finalist in the Civil Contractors New Zealand National Awards 2019
- ★ Finalist in the Fletcher Building Excellence Awards Outstanding Customer Leading Team 2019
- ★ Institute of Public Works Engineering Australasia NZ Engineer Awards Best Public Works Project under \$5m 2019



THANKYOU!

ANY QUESTIONS?