



Water Engineering Services - Capability

Downer

As the leading provider of integrated services in New Zealand, Downer provides complete lifecycle solutions for water suppliers. The Water Engineering Services Team offer bespoke solutions to several areas within the three waters industry:

Infrastructure Asset Optimisation

Our team partners with clients to maximise operational efficiency and expenditure in three waters networks by analysing and benchmarking performance and optimising maintenance and operations activities.

Our Services

- › Compliance and Condition Assessment
- › Operational assessment and optimisation
- › Asset data collection and analysis
- › Asset assessment and optimisation
- › Benchmarking Performance
- › Technology and solution focused delivery partnerships

Project Delivery

Downer works with industry experts during the Early Contractor Involvement (ECI) phase to provide value engineering and innovative design solutions.

Our Services

- › Tendering
- › Design, build and maintain specialists
- › Innovative and industry-leading design and delivery partnerships
- › Project management delivery

Contract Management (Supporting existing business)

Downer supports existing operational management contracts to better understand performance and offer improvement initiatives.

Our Services

- › Treatment capability-water and wastewater
- › Contract performance review
- › Contract benchmarking
- › Contract amendment suggestions
- › Contract support

Industry Development

Our team understands where changes within the industry are happening and will provide appropriate advice to our internal and external clients. We offer state of the art technology to capture real time data resulting in improvement strategies.

Our Services

- › Technological and industry advancements
- › Client liaison
- › Industry groups / events involvement
- › Identifying and completing tenders

Our Experience

Downer has a successful history of partnering with a wide range of clients from Councils, government departments and working with existing maintenance contracts. We have the expertise to work with you through identifying issues, offering innovative alternatives and value engineering solutions, to project delivery. A few case studies are shown below to give you an idea of the work we do for our clients.



Dovedale and Pōhara Water Treatment Plants Nelson

Client: Tasman District Council

Scope: Design, build and operate a new 1,000 m³/day water treatment plant to service the Dovedale area and another 250 m³/day plant for the Pōhara township.

Contract Value:

Dovedale: \$1.8 million

Pohara: \$1.6 million



Delivery Timeline

Detailed design phase: April to September 2021

Construction: September 2021 to February 2022

Project Information:

Dovedale Water Treatment Plant

The Dovedale water supply source is Humphries creek (a tributary of the Dove River) and supplies 300 connections, through 150 km of network pipes. The water supply had a permanent boil water notice as the required concentration of chlorine was not always able to be maintained to the end of the network, especially when the creek was in flood or when the raw water becomes too high in suspended solids.

Pōhara Water Treatment Plant

The Pōhara water supply source is from a creek in the Pōhara valley and supplies the Pōhara valley area as well as the Pōhara campground. The water treatment plant was also due for an upgrade.

Proposals and Innovations Provided by the Water Engineering Services

For Dovedale, a water treatment plant which consisted of a lamella clarifier and in line filtration was proposed and for Pōhara, an ultra-filtration plant was designed. Both plants also included automated chlorine dosing systems as well inlet diversion valves which returned incoming water that too high in suspended solids back to the creeks, thereby ensuring a high level of water quality at all times. Both water treatment plants had to be constructed whilst keeping the existing plants live, and the switch over were to be done in a manner that eliminates any down time or loss of service for the people of these townships.

These contracts were delivered by collaborative approach between the Water Engineering Services team and the Tasman District Council. Options were sought and costs were provided on a cost-plus margin basis, thereby minimising cost risks and maximising project transparency. Throughout this contract, some of key tasks performed by the Water Engineering Services team are highlighted below.

- Tender preparation and client engagement
- Gained building consents and provided supporting documents for resource consenting
- Gained acoustic assessment reports
- HAZOP and Safety in Design workshops
- Preparation of technical and contractual documents
- Managed subcontractor contracts
- Management of full concept and detailed design process
- Construction delivery and performance management

Waiouru Township Water Supply Ruapehu

Client: New Zealand Defense Force

Scope: Construction of water supply network to service 2,800 people in the Waiouru township

Contract Value:
\$4.5 million

Project Information:

The existing water treatment plant at Waiouru was planned for an upgrade, and an updated water supply network was designed as a result. The Downer Water Engineering Services team was invited to tender for the construction of the water supply network.

Proposals and Innovations Provided by the Water Engineering Services

Water Engineering Services reviewed the design documentation and prepared relevant construction plans and scopes in order to gain and provide the client with costs. Delivery of this project was done by engaging a combination of Downer construction teams and relevant subcontractors. For this contract, the key tasks performed by the Water Engineering Services include the following.

- Preparation of construction, quality control and project performance plans
- Preparation of scope and subcontractor contracts
- Project management
- Subcontractor management
- Construction delivery



Delivery Timeline

Construction: September 2021 to June 2022

Burnham Military Camp Water Scheme Compliance Assessment and Upgrades

Client: New Zealand Defense Force

Scope: Condition and compliance assessment of water supply scheme in relevance to statutory requirements, water safety regulations, preparation of water safety plan and delivering required scheme upgrades.

Contract Value:
\$205,000

Project Information:

Burnham military camp is the largest army camp in the South Island, with around 1300 people working onsite. The Water Engineering Services team was engaged to assess the compliance of the water supply scheme, to provide an assessment of risks and to prepare a water safety plan.

Proposals and Innovations Provided by the Water Engineering Services

Information was collated from existing documentation and condition assessments to characterize the scheme and to identify factors that needed to improve to reduce and eliminate any risk of contamination. A verified water safety plan was created for the facility, and improvements to the scheme were constructed, such as automating fluoride dosing and upgrading water treatment plant logic to improve function of bore water pumping and reservoir storage. The key tasks performed as part of this contract is as follows.

- Compliance assessments
- Identifying and planning risk management
- Preparation of water safety plan
- Recommendations of methods and technologies to improve operation and reliability of water treatment and supply system
- Construction and delivery of asset improvements



Delivery Timeline

August 2020 to April 2021

Dannevirke Township Sewer Improvement

Client: Tararua District Council

Scope: Preparation of sewer improvement option report to allow for detailed design and construction



Contract Value:

\$15,000 for report

Construction estimated to be \$5 million

Delivery Timeline

Option report: August to October 2021

Project Information:

Downer works under an alliance model with Tararua District Council and the 3 waters network is operated and maintained by Downer on behalf of the council. Wastewater overflows have been occurring in parts of the sewer network in recent years due to hydraulic overloading. Water Engineering Services were engaged to assess the failing points in the network and to provide an options report detailing practical and cost-effective methods to eliminate surcharging.

Proposals and Innovations Provided by the Water Engineering Services

A review of the network, operation and observations were reviewed, and several options were presented based on factors such as risk, public impact, and cost effectiveness. Preliminary scopes were prepared and sent to several suppliers to provide costs for pumping stations. Downer's construction team also priced gravity sewer upgrades. This report provided a basis for design detail and eventual construction. As such, the key competencies provided to client includes:

- Assessment of network performance and operation
- Identifying critical environmental and public risks
- Preparation of scope to gain concept design pricing
- Asset improvement options reporting

Tauranga City & Western Bay of Plenty District Council 3 Water Network Performance Monitoring and Benchmarking

Client: Tauranga City Council and Western Bay of Plenty District Council

Scope: Through the operation and maintenance contract, Water Engineering Services provides a consulting service that aims to monitor the performance of the 3 water networks through various network performance indicators and provide monthly reports which allows for a benchmarking template.

Contract Duration: 10 years from August 2020 to April 2031



Services Provided by the Water Engineering Services

As part of the scope to provide directed consulting services to support operation and maintenance of the network, the following skills are applied

- Network condition assessments and characterisation
- Network performance analysis as a basis for preventative maintenance
- Inflow and infiltration assessments
- Performance reporting
- Improving network assets with use of modern technology that enables optimised monitoring and operation
- Network performance benchmarking

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