Mechanical

design | fabrication | installation

CAPABILITY STATEMENT

SEIPP MECHANICAL

Our role in the industry is ...

Tier 1 Main Contractors

Seipp as Self-Perform Contractor

Offering more ...

The technical expertise, systems, plant and processes of a major contractor

+

The self-perform capability of a proven Tier 2 contractor with in-house mechanical capability

Mechanical: design | fabrication | installation

New Mechanical business unit

As we extend our offering to asset owners, with Early Contractor Involvement being matched with increasingly complex self-perform delivery, Seipp has established a new business unit focused on Mechanical.

Shane Smith brings both extensive workshop and managerial experience to his role as General Manager, Mechanical.

This in-house resource will enable us to more comprehensively add value throughout the process of design iteration, fabrication (focused on more complex items) and installation in conjunction with wider Seipp management of the process.

This will benefit both our business and clients—making a difference in the industry:

- A more holistic approach to design and delivery
- Broadening internal understanding of Mechanical
- Extending our range of self-perform
- Reducing risk (cost, time, performance, safety)
- Eliminating margin on margin

Seipp Mechanical services / capability

- Site survey
- Design, 3D modelling and shop drawings
- Fabrication and welding
  - structural carbon steel and stainless steel
- Mechanical installation
  - pumps, valves, pipeworks
  - gearboxes, generators, diesel engines
  - structural steel
  - access equipment and class-rated lids and grates

All the above services for the following industries, throughout New Zealand

- Pump station mechanical fit outs (new and upgrades)
- Wastewater | Potable water | Stormwater
- Treatment plants
- Oil pipelines
- Hydro power stations
- Rail network

Shane Smith
General Manager, Seipp Mechanical

"Throughout the time that Seipp has worked with Shane in his previous role, I have been super impressed by both his extensive technical knowledge and 'can do' attitude, as well as by his energy and passion to improve the state of civil infrastructure in New Zealand. He shares my sense of mission to make a difference.

Shane is a great fit for our business and the missing link we need to deliver even better results for asset owners. He will work well with Scott Cook to achieve more cost-effective outcomes, faster."

Peter Seipp
Managing Director, Seipp Construction

Client: Meridian Energy | **Location:** Otematata

Benmore Dam Hydro Station Seismic Strengthening

Seipp designed and implemented bespoke processes for bearing replacements and other upgrades to the penstocks on Benmore Dam, working closely with Shane and his team.

Seipp worked with Shane and design partner Structex in the early contractor involvement phase, to trial upgrading penstocks at Benmore Dam to meet current seismic resilience criteria.

The project was split into three parts: replacing all 636 elastomeric bearings beneath the penstocks, installing 24 fluid viscous dampers mid-slope, and constructing reinforced concrete sleeves around existing anchor blocks.

Above: Micky, an early Seipp Mechanical employee, undertaking 3D design modelling for the Benmore temporary works. Pictured holding a physical model from the 3D printer.

Tailored solution for replacing bearings on active penstocks

As the bearing replacement was the first of its kind in New Zealand, a range of bespoke equipment was designed and manufactured for the specific geometry and the challenge of removing the bearings under significant compression from each 5000-tonne penstock above. There was significant value to Meridian in having the penstocks remain in service throughout the project, contrasting with the original tender which called for full penstock shutdowns.

Seipp's new methodology was a major success, with Shane leading development of the complex mechanical devices required to undertake the work on site, from development in the workshop to trials at Benmore.

Preplanning fluid viscous damper installation

The combined team developed a logical and constructable design for the fluid viscous dampers. This design development added value to Meridian: first by identifying early on the high cost of rock anchor installations, and next by mitigating this cost through design of an alternative raft foundation arrangement.

The fluid viscous damper installation will involve launching 48 x 12-metre structural beams beneath the penstock, connecting into pre-installed brackets. With the added challenge of the slope, this launch will require detailed sequencing, with a temporary frame-and-roller system to be used in accurately launching the beams. Shane detailed the bespoke lifting methodologies, hydraulic arrangements and fabrications to enable safe construction.

Mechanical scope

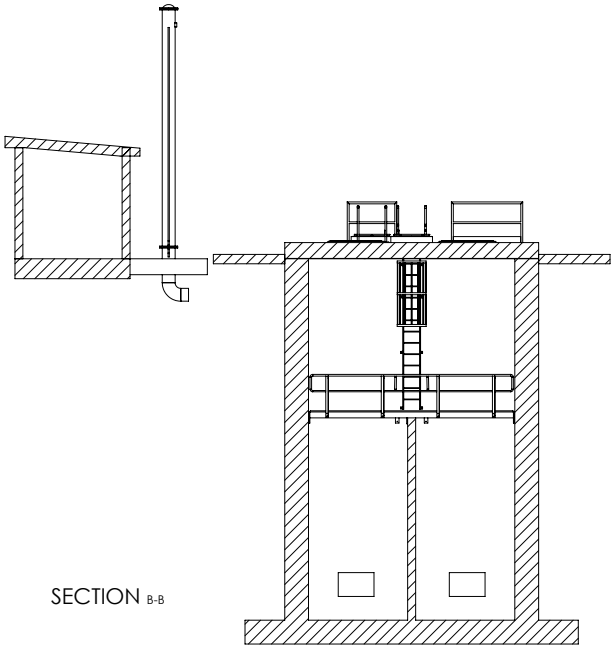
- Design, build install and commission, 5-tonne hydraulic primary winch and 2-tonne hydraulic secondary winch
- 400-tonne jacking trolley system, to aid the penstock bearing replacement without the need for manual handling
- Service trolley system to aid the replacement of 636 penstock bearing replacements
- Penstock bearing press tooling to aid the removal of 636 penstock bearings
- Penstock new bearing installation tooling
- New penstock bearing assembly
- Enabling works

Client: Ashburton District Council | **Location:** Near Ashburton River

Wilkins Road Wastewater Pump Station

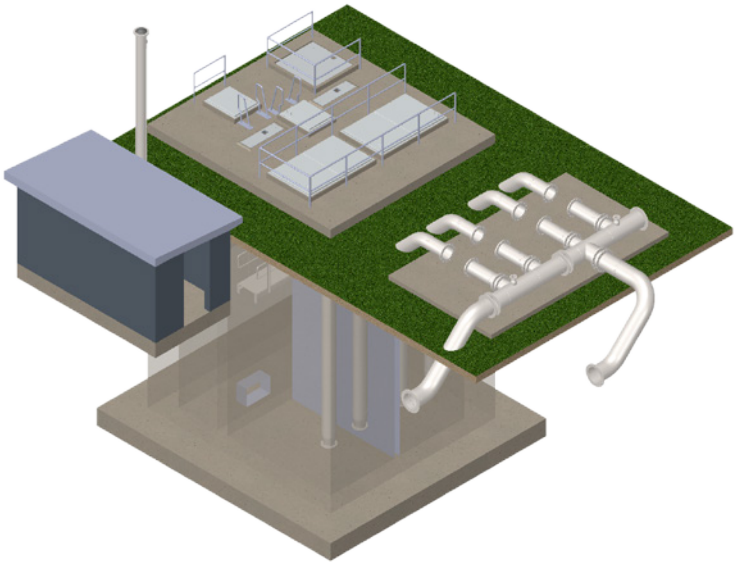
This project was to construct a new pump station with a 9.5m deep in-situ concrete wet well structure to lift wastewater flows from Ashburton township into the existing Ashburton Wastewater Treatment Plant.

The flow from Ashburton township to the pump station was transported via a new 1,000mm diameter pipeline, which was installed by Seipp across the Ashburton River under a separate contract.



Mechanical scope

- 3D model the pump station
- Shop drawings
- Fabricate and install pump station stainless steel pipeworks
- Fabricate and install access platforms
- Design, fabricate and install class-rated access lids and grates
- Gate valve, and pump installation
- Hydrotesting
- Pump station commissioning and acceptance testing
- Gantry crane design, fabricate, install



Client: Christchurch City Council | **Location:** Horseshoe Lake

Christchurch Stormwater Pump Station 205 Refurbishment

Seipp led the complex and detailed refurbishment of Christchurch's PS0205 stormwater pump station, while ensuring continuous station operation.

PS0205 is Christchurch's largest stormwater pump station. Its main job is to prevent the tidal Avon River from back-flooding. It lifts water by means of three Archimedes screws.

Investigations and design were required to return the pump station lift capacity to original design levels following localised subsidence after the earthquakes: refurbishment, technology upgrades and safety enhancements.

The initial design and construct project with Shane and his team was to install fish-friendly stop gates. Later, the tide gates were replaced.

Shane undertook refurbishment and mechanical installation of the Archimedes screws and drives units. He also led fabrication and installation of building re-strengthening, as well as design, build, install of the maintenance crane system.

Finally, the PS205 facility was fully upgraded, once again involving Shane and his mechanical team. The work included replacement engines, motors and gearboxes and extending the lift screws with associated civil, structural and electrical improvements.

Additional design was undertaken, demanding integrated service delivery involving design, mechanical, electrical, structural, civil and environmental services.

Mechanical scope

- 3D model the pump station
- Building re-strengthening
- Archimedes screw x 3 (remove, refurbish, protective coating, re-install)
- Install two caterpillar engines, gearbox and drive system
- Monorail crane, (design, fabricate, protective coatings, install and commission)
- Caterpillar engine, exhaust system and stack (design, manufacture, install and commission)
- Caterpillar fuel delivery system (new fuel tank, access platforms and fuel lines)
- Full system commissioning and acceptance testing.

Client: Christchurch City Council | **Location:** Christchurch

Christchurch Wastewater Treatment Plant Recovery Works and Step Screens

Post-fire repairs at Christchurch wastewater treatment plant

In late 2021, a major fire destroyed the two trickling filters at the Christchurch wastewater treatment plant in Bromley. Under pressure to repair the system as quickly as possible, the Council contracted emptying the 8 x 55 metre trickling filters, a round-the-clock task that took several months.

Simultaneously, the council contracted Seipp to restore the treatment process by setting up a sludge-activated treatment system. This required a unique approach —more 'build and design', than 'design and build'.

Side-by-side solutions

The approach frequently called for the setup of temporary works to get systems running while anticipating the design of permanent solutions.

The Seipp team installed permanent pump pipework on temporary concrete supports while awaiting the permanent supports. Shane undertook mechanical aspects of a new pipeline to bypass the existing tricking filter system with a capability of 1400l/s flow rates, and a new treatment system utilising aerators within existing clarifier tanks.

Each level of temporary system was carefully planned to allow for the permanent systems to be installed seamlessly, with shutdowns completed at each stage to transfer the operations.

Mechanical scope

- Shop drawings
- Pipe supports
- Access platforms
- Site installation

Replacement of four existing step screens at the end of their maintainable life

Operating as the main contractor, Seipp designed, supplied, installed, commissioned and handed over four step screens and wash presses, working closely with Shane and his team.

The step screens treat sewage waste as it first enters the treatment plant. Immersed at an angle in concrete-lined channels, they mechanically lift insoluble material out of the flow of wastewater.

Lifting solids efficiently from wastewater

Equipment was procured from Sweden and Australia from shortlisted suppliers, with installation executed in four phases, working closely with Shane and his team—with close liaison with CWTP Operations to ensure continuous operation of the screen room.

Mechanical scope

- Scan step screen precast channels x 4
- 3D design showing the new step screens in existing pre-cast channels
- Shop detailing
- Removal of old step screens
- Manufacture new step screen support mounting
- Manufacture viewing screens
- Install new step screens
- Reconnect pneumatic control systems
- Modify existing walkway platforms
- Dry commissioning
- Wet commissioning and acceptance testing

Client: GAJV for Watercare | **Location:** Auckland

Māngere Wastewater Treatment Plant Diversion Chamber

Seipp was entrusted with complex, multi-disciplinary works to construct a new diversion chamber around two major sewer interceptors entering the Māngere Wastewater Treatment Plant. The interceptors are part of a vast new underground tunnel network that will alleviate pressure on stormwater and wastewater systems.

Seipp's brief includes the controlled, staged deconstruction of existing interceptor chambers, installation of 36m-deep bored pile foundations to a new confluence chamber, and connection of the new twin DN1400 rising mains and existing Western Sewer Interceptor to the confluence chamber.

While a build-only project, Seipp also interacted closely with the designer and fabricator, focusing on constructability and temporary works. Shane and his team manufactured the complex steel structures to contain the large rising mains.

Mechanical scope

- Diversion of WAS pipework.
- Installation of penstocks / slide gates.
- Bypass fluming of Western Interceptor with large diameter steel pipework within the cofferdam.
- Automated surge bypass pumping on Western Interceptor.

Client: Horizons Regional Council | **Location:** Manawatū

Moutoa Floodway Gates

Keeping Moutoa floodgates working

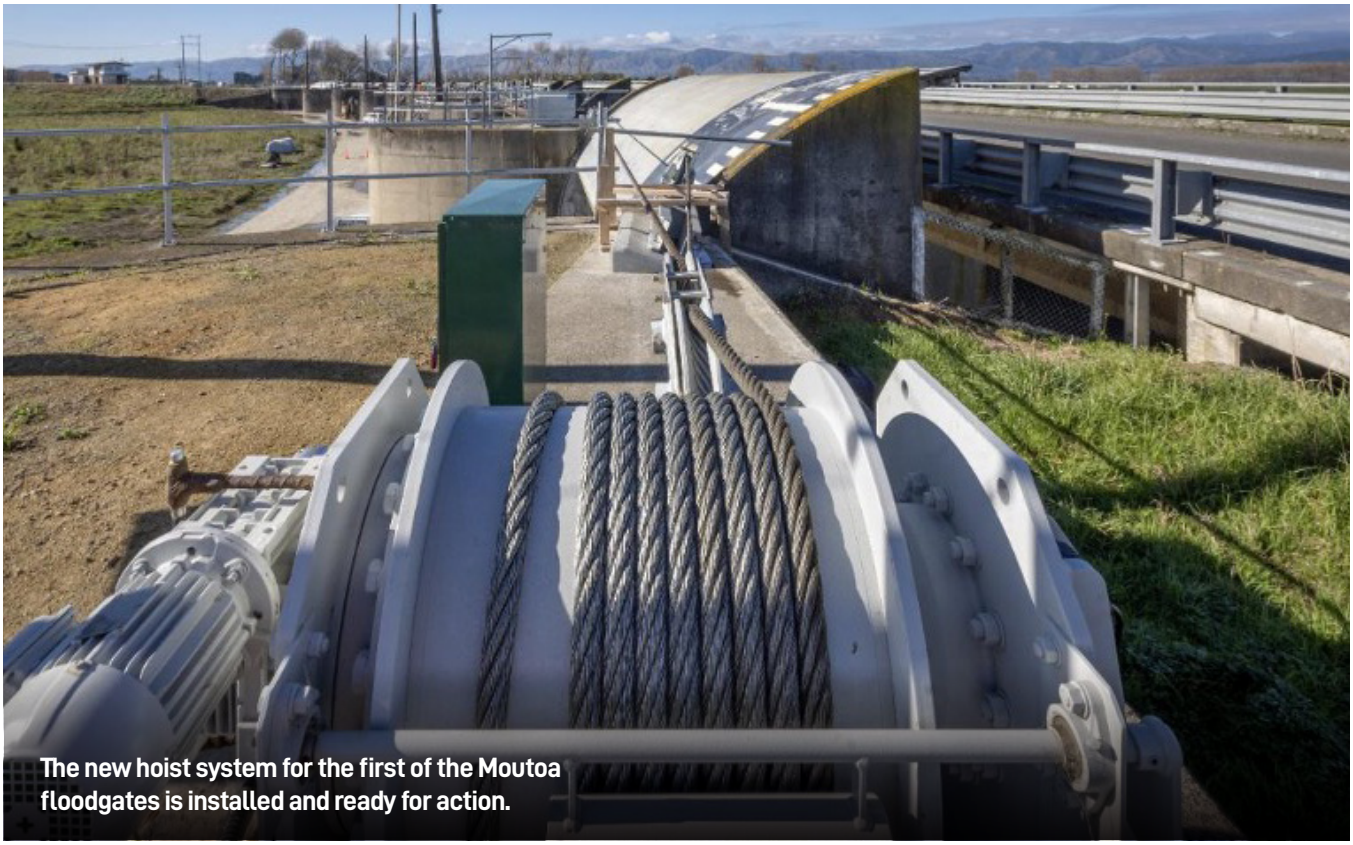
The biggest piece of flood protection kit in the Horizons region has been given a $2.5 million upgrade by Seipp.

Having worked to protect some 280km^2 of land on the lower Manawatū plain for more than 60 years, the floodgates now have new winching systems to lift the nine 15-tonne curved gates.

The gates, commissioned in 1962, are valued at more than $50m.

They had proven their worth, helping divert up to 2500m^3 of floodwater per second from the Manawatū River's meandering lower 30km channel into a 10km spillway that rejoined the river at Whirokino, just before the Foxton Loop.

The curved 4.5m gates themselves were retained, it was just the ageing winch and hoist mechanics, motors, motor control systems and power supplies that were being upgraded progressively.



The new hoist system for the first of the Moutoa floodgates is installed and ready for action.

ADELE RYCROFT / MANAWATU STANDARD

Seipp Construction project manager Barry Hofmeyr stands by the ageing winch gear that were removed and replaced for one of the nine Moutoa floodgates.

ADELE RYCROFT / MANAWATU STANDARD

Mechanical scope

- Design, build, install and commission
- Site survey
- Fabricate and factory test nine wire rope winches
- Remove old winches and install new ones
- Commissioning and acceptance testing

Client: Christchurch City Council | **Location:** Christchurch

Sydenham Public Water Supply Water Storage Tank

In 2022 Seipp installed a stainless-steel 500m^3 potable water storage tank in the old Citycare yard flanking Sydenham Park. The new tank was to replace temporary tanks put in place after the concrete original was irreparably damaged in the 2011 earthquakes.

The Sydenham pump station supplies most of the city's water. Four wells draw water from aquifers some 200m deep and pump it to the storage tank, from where it is supplied on demand to homes and businesses. The upgrade forms part of a council initiative to upgrade all pump stations in the city.

Mechanical scope

- Site survey
- 3D model below and above ground pipe works
- Shop drawing
- Procurement, installation and hydro testing, CSL below ground pipework
- Fabricate, install and hydro testing above ground stainless steel pipework and pipe supports
- Supply and install gate valves, Flex-Tends joints
- Design, build and install tank access stairs and stepovers
- Pump station commissioning and acceptance testing

Jeffreys Road Water Supply Suction Tank and Pump Station

Seipp led this complex upgrade, including the construction of a new 500m^3 concrete suction tank.

The brief was to construct a new, larger concrete suction tank, including all structural, carpentry, electrical and mechanical works. Seipp undertook all the related pipe work, plus well head upgrades and waterproofing.

The station, located in Fendalton, had been damaged in the February 2011 earthquake, and required repair as well as restoration. This highly technical job, in an established residential area with strong community engagement, required an array of specialist skills.

Mechanical scope

- Site survey
- 3D modelling and shop drawing
- Fabricate, install and hydro testing stainless steel pipework and pipe supports
- Supply and install gate valves and pumps
- Design, build and install access equipment, including tank access stairs and tank handrails
- Design, build and install, tank class rated access lids and safety grating
- Design, build and install pump station maintenance crane system
- Fabricate and install, architectural security fencing
- Pump station commissioning and acceptance testing

Client: KiwiRail | **Location:** Cheviot, South Island

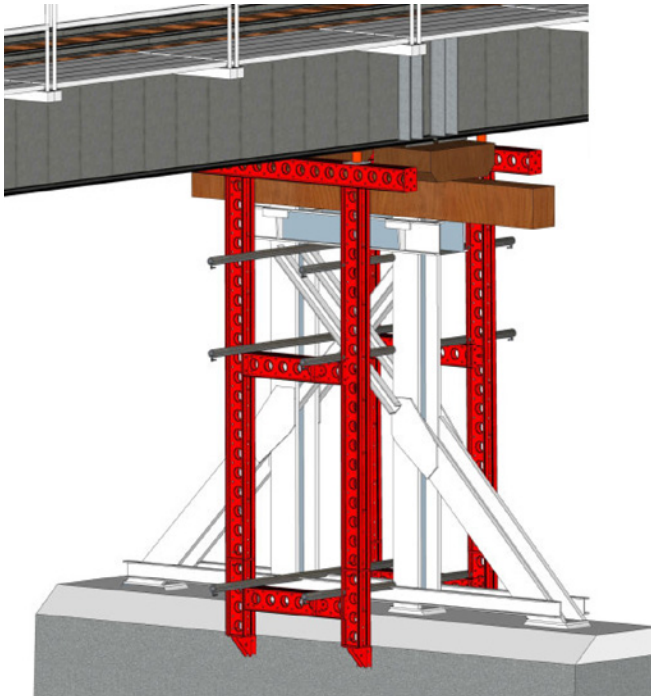
Bridge 72

Seipp's staged methodology involved pier trestle replacements in five key stages.

This enabled the bridge to be completed under short 'line impassable' periods between scheduled trains, instead of large Block of Line periods which significantly disrupt the rail network.

This was the first time that pier replacements were executed in key stages on the KiwiRail network, rather than under Block of Line periods.

Project completed 50 days early, under budget.



Mechanical scope

- Site survey
- 3D model and shop drawings
- Fabricate and workshop trial assembly
- Site installation and site welding
- Quality document package and client acceptance testing

General Manager—Seipp Mechanical

Shane Smith

Extending Seipp self-perform

Shane brings to Seipp knowledge and experience gained over 40 years in the mechanical and fabrication industry—his legendary status is the nucleus of Seipp Mechanical.

Having worked both in the workshop as a Mechanical Fabricator / Fitter Welder, and in design and client-facing roles as General Manager of Taurus Engineering, he understands technical challenge, design constraints / opportunities and client objectives.

Already familiar with Seipp through working collaboratively on successful delivery of multiple projects, he is well-positioned to bring mechanical design, fabrication and installation in-house.

Projects include Wilkins Road Pump Station, Pump Station 205 Upgrade Sydenham Suction Tank, CWTP Step Screen Replacement, CWTP Recovery works and Benmore Seismic Strengthening Upgrades.

Relentlessly driven to make a difference, Shane is a perfect fit for the business as it extends its capability.

Technical Skills

- Fabrication and welding
- Mechanical fitting
- Design build
- M&E commissioning
- Tie-in /shutdown procedures
- Pump station design build
- Expertise in oil pipelines

Recent Relevant Project Experience

July 2022 to present

Benmore Seismic Strengthening, Meridian Energy

Seipp is part of the Early Contractor Involvement alongside design partners Structex to upgrade the Benmore Penstocks. Shane led development of the complex mechanical devices requires to undertake the work on site, from development in the workshop to trials at Benmore.

April 2022–February 2023

Mechanical Design & Fabrication, CWTP Recovery, CCC, $6.2M

Emergency repairs were required, with re-construction to multiple sections of the Wastewater Treatment plant impacted by a large fire to the trickling filter process.

Seipp was contracted to undertake an immediate response to get two main aspects up and running: Shane undertook mechanical aspects of a new pipeline to bypass the existing tricking filter system with a capability of 1400l/s flow rates, and a new treatment system utilising aerators within existing clarifier tanks.

Dec 2021–August 2023

Mechanical Design and Fabrication, CWTP Step Screens, CCC, $1.2M

Four existing step screens at the end of their maintainable life at Christchurch Wastewater Water Treatment Plant were replaced.

Equipment was procured from Sweden and Australia from shortlisted suppliers, with installation executed in four phases, working closely with Shane and his team—with close liaison with CWTP Operations to ensure continuous operation of the screen room.

2021–2023

Mechanical Design & Fabrication, Upgrade of PS205, Christchurch City Council, $3M

PS205 is Christchurch's largest stormwater pump station with three Archimedes screws capable of discharging a combined flow of 13 m^3/second. Seipp was awarded a contract to upgrade the pump station to protect the local area against flooding.

The initial design & construct project with Shane and his team was to install fish-friendly stop gates. Later, the tide gates were replaced.

Shane, while at Taurus, undertook refurbishment and mechanical installation of the Archimedes screws and drives units. He also led fabrication and installation of building re-strengthening, as well as design, build, install of the maintenance crane system.

Finally, the PS205 facility was fully upgraded, once again involving Shane and his mechanical team. The work included replacement engines, motors and gearboxes and extending the lift screws with associated civil, structural and electrical improvements.

Additional design was undertaken, demanding integrated service delivery involving design, mechanical, electrical, structural, civil and environmental services.

General Manager—Seipp Mechanical

Shane Smith

November 2019–December 2020

Mechanical Design & Fabrication, Wilkins Road Pump Station, Ashburton District Council, $7.6M

The new pump station lifts wastewater flows from Ashburton via a pipeline running under the main channel of the Ashburton River.

Shane led production of detail drawings, shop fabrication and welding of pipes, platforms, ladders, lids, grates and above ground handrails. Most of the material used were 316 stainless steel. All work was completed in compliance with Standards AS/NZS1554:6, AS1657,2013 AS/NZS1554:1.

September 2022–Dec 2023

Mechanical Design & Fabrication, Sydenham Pump Station, Christchurch City Council, $5.9M

This lump sum construct-only project included a 500m3 stainless steel water reticulation tank on piles, a concrete foundation, water pipework from four wells to the tank, and outlet pipework to the pump station.

Shane and his team undertook all pipework.

March 2022–Dec 2023

Mechanical Design & Fabrication, Jeffreys Pump Station, Christchurch City Council, $5M

This lump sum, construct-only project included a concrete 500m3 water reticulation tank, piled foundation, pipework from four wells, construction of two new wells, complete strip and rebuild of the inside of the pump station and commissioning and testing. Shane and his team undertook all mechanical work.

2020

Mobil Fuel pipeline, McConnell Dowell

Site welding of 1.3km of 6" fuel pipeline; material handling the 1.3km pipe into trench; pipe fitting and installation of valve chamber manifold. All work completed in compliance with Standards AS/NZS:2885 and ASME B31.4.

2018–2019

Lyttelton Tunnel Potable Deluge Pump House and Wastewater Pipeline, NZTA / McConnell Dowell

Fabrication, welding and installation of pipes including design of all brackets, connections to all pumps and valves, Hydro testing and commissioning.

Career History

2025–present	General Manager, Mechanical, Seipp Construction
2018–2025	General Manager, Taurus Engineering
2014–2018	Operations Manager, Taurus Engineering
2006–2014	Workshop Supervisor, Southern Cross Engineering
2003–2006	Site Team Leader, Southern Cross Engineering
1995–2003	Fabrication Welder (Trade Qualified), Various employers

Qualifications and Training

- Trade Qualified Fitter Welder
- Advanced Trade Qualified
- Dip Management
- Introduction to Lean Manufacturing
- Working at Heights

Making a difference to asset owners.

Seipp is a highly respected, award-winning nationwide construction company.

We're proud of how we have made a difference to clients, communities and cities—as well as our care for our people and the planet. We don't just solve challenging technical problems, we understand and respect why there is a need for the work, and the broader aspirations involved.

Our company is all about both individuals and the business making a difference, based on being self-motivated, passionate and productive, delivering superior outcomes.

Being good to deal with, good for the planet, good for our people, and demonstrating excellence in delivery, Seipp is making a difference to individuals, to the industry and to Aotearoa New Zealand.

We have the processes, plant and people to self-perform

Seipp is ISO 45001 (Occupational Health and Safety Management Systems), ISO9001 (Quality Management Systems), ISO14001 (Environmental Management Systems), SiteWise Gold 100% and Tōtika 100% accredited.

Mechanical capability

- Site survey
- Design, 3D modelling and shop drawings
- Mechanical installation
  - pumps, valves, pipeworks
  - gearboxes, generators, diesel engines
  - structural steel
  - access equipment and class-rated lids and grates
- Fabrication and welding
  - structural carbon steel and stainless steel

Let's Talk

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Making a difference.