

INDUSTRIAL

World-class skills. World-class team.

CONSULTING ENGINEERS

Mechanical Detailed design to minimize construction, operation & lifecycle costs for Greenfield or retrofit projects

Front End Engineering Scope definition, design basis development and review of design concepts for operation and cost effectiveness

**Civil Structural** Design to accommodate challenges faced with industrial structures

Process Design PFDs & PIDs Mass & Energy Balances; Hydraulic Modelling; HSNO Compliance: Hazardous Atmospheres

Assessment Gap Analysis: HAZOPs; Project & Environmental QRA;

### WORLD-CLASS SKILLS.

Operations Construction QA / Checkout Commissioning Process Optimization Debottlenecking

MCA Option Analysis Project Go / No Go: Project & Lifecycle Cost / Benefit Analysis

Value Engineering

Asset Management Condition Assessment: Inspection & Test Plans,

Maintenance PPMs Failure Analysis & Design Out of Defects

Project & Contract Management Planning, Co-ordination & Administration (NZ3910, FIDIC

#### Electrical &

or NEC3)

Controls\* Integrated M&E designs for industry best practice process control & operability

\* We partner with Electrical and Controls Consultants

Key Software Capabilities: Pipe Stress Analysis - AutoPipe Pipe FEA – Nozzle Pro Transient Modelling – Hytran Head Loss – Pipeflow Process – AutoCAD P&ID, HYSYS, WinGEMs Piping Design – AutoCAD Plant 3D Machine & Equipment Design - Inventor Structural Frame Analysis – Microstran Structural Design – AutoCAD Structural Detailing / Revit Structure

### **ABOUT MTL**

Industrial design

skills available.

MTL's core

MTL, established in 1994, is a medium sized owner operated engineering design consultancy based in New Zealand employing Mechanical Engineers, Designers, Civil and Structural Engineers and Project Managers.

#### **INDUSTRIAL PROJECTS**

Key industrial design projects include the management and commissioning of an LPG bottle filling and refurbishment facility, Powder Activated Carbon (PAC) and Chlorine dosing facilities, and a mineral extraction process utilizing titanium rich steel mill slag.

### **PROJECT DELIVERY**

Our experienced engineers provide the complete package from project feasibility studies, detailed process, mechanical, civil and structural design, contract management and commissioning for delivery of your Industrial project.

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### World-class skills. World-class team.

Risk



**Don Purdie** Process / Mechanical Design Project & Contract Management Commissioning Management

Matt Chubb Civil and Structural Design Project & Contract Management Asset Management

Alle

Chris Brown Mechanical Design Contract Commissioning Asset Management

NDUSTRIA



#### **DESIGN PROCESS**

MTL's process /mechanical design methodology utilises industry standard P&IDs and Engineering Lists to define the equipment specifications and interfaces. These documents provide the basis for asset management of new plant or retrofits for the life of the installation.

### WORLD-CLASS TEAM.

**SKILLS & KNOWLEDGE** 

Collectively, MTL's engineering

personnel have significant specialist

knowledge and experience to draw

on. An overview of some of our key

personnel and partner consultants

industrial engineering projects,

can be provided on request.

James Powell Project & Contract Management Procurement, Scheduling

Stephen Kennedy Design Management, Detailed Engineering Design

**MTL ROLE** 

We believe we have a unique offering due to our range of skills and our organisation's size. We are able to work closely with clients and partner consultants to repeatedly provide quality results.





# **GOLDEN BAY CEMENT SILO 9**

Brian Perry Civil Ltd for Golden Bay Cement. Whangarei, NZ.

### **PROJECT**:

6,000 T Cement Silo, Ship & Truck Loading Systems.

### MTL ROLE:

Commissioning Manager (Secondment).

### **PROJECT OUTCOME:**

The Silo 9 works enables increased cement production at the Portland works by providing a 180 T/h ship loading system to enable faster turnaround of the 8,500 T capacity MV Aotearoa Chief and a fully automated 1,000 T/d truck loading facility.

### **PROJECT PARTNERS:**

Ammjohn, Current Consulting, GTick, IBAU Hamburg, Ammerman, Rendertech, Steve Jennens Engineering, Blackdog Steelworks, Circa Marine & Industrial, Culham Engineering, Airzone & FL Smidth.













# BOTTLESWAP LPG BOTTLE FILLING FACILITY

OnGas (Vector). Papakura, Auckland.

### **PROJECT**:

LPG Bottling Plant - 6,000 Bottle/Day processing capacity.

### MTL ROLE:

Vector's OnGas operated LPG processing plant includes automated bottle emptying, washing, painting and filling operations. MTL was engaged to provide technical leadership for the delivery of the bottle processing and painting facilities. Our services included procurement support, contract administration, coordination of the separate plant and equipment contractors, design/construction supervision, development of commissioning plans and management of commissioning, and real world verification of the MHF safety case engineering controls.

### **PROJECT OUTCOME:**

The plant was successfully commissioned and was the first upper tier major hazard facility to be approved under the 2015 Health and Safety at Work Act.

### **PROJECT PARTNERS:**

Ergo, Verso Consulting.











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# WATERVIEW TUNNEL SUMP DRAINAGE

Well-Connected Alliance, Auckland, NZ

### **PROJECT**:

Design of the pipe supports for the Waterview Tunnel sump drainage system.

### MTL ROLE:

MTL was engaged by Well-Connected Alliance to provide engineering structural and seismic design services for the pipe supports along the Waterview Tunnel. The drainage system of the tunnel is essential for normal operation of the tunnel and emergency scenarios such as firefighting flows from the deluge system. The collected stormwater or deluge flows are designed to be pumped out from three sumps in the tunnel into two existing wetlands. The wetlands are specifically designed and built for the retention and treatment of stormwater. MTL's role was to deliver a series of pipe support designs for stainless and galvanised steel pipes for different pipe sizes up to DN600 using ASNZS 4219.

### **PROJECT OUTCOME:**

The Well-Connected Alliance included NZTA. Fletcher Construction. McConnell Dowell, Parksons Brinkerhoff, Beca Infrastructure, Tonkin & Taylor and Obayashi Corp. The Waterview tunnel is 2.4km and is considered a "Road of National Significance (RoNS)". To date it is the largest infrastructure project in New Zealand and part of Western Ring Route of Auckland that connects State Highway 20 in the south to State Highway 16 in the west.













# **ALUMINIUM PROCESSING PLANT**

Fletcher Aluminium, Christchurch

### **PROJECT**:

South Island Aluminium Processing Plant.

### MTL ROLE:

MTL was engaged in October 2011 to provide project management and engineering services to Fletcher Aluminium to deliver a new aluminium processing plant in Christchurch. MTL undertook the process and mechanical design for the processing plant including the chemical dosing plant, trade waste treatment plant, automated crane, dipping tank system, tank heating/ circulation system, control system and other auxiliary equipment. Key design criteria was to ensure compliance with all relevant HSNO and Building Act legislation and Approved Codes of Practice.

Project management included coordinating building owner's works to meet Fletcher Aluminium's requirements and managing Resource/Building Consent applications. We liaised with overseas equipment suppliers for aluminium powder coating equipment, managed the tender process, supervised the construction works and managed the plant commissioning/handover.

### **PROJECT OUTCOME:**

MTL's involvement in the project concluded with the successful commissioning and handover of the plant in August 2012.

### **PROJECT PARTNERS:**

Fletcher Aluminium, Pacific Consultants, Ergo, Industrial Controls Christchurch.









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# KAURI DAIRY FACTORY BOILER REPLACEMENT

Fonterra, Kauri, Northland

### **PROJECT**:

Kauri Dairy Factory Boiler Replacement.

### MTL ROLE:

MTL was engaged to provide project management and engineering assistance to Fonterra for the upgrade to the Energy Centre at their Kauri Dairy Factory in Northland.

MTL's scope of engagement included:

- Project and contract management for the demolition of two redundant thermal fluid boilers
- Project and contract management for the installation of a new 10MW boiler
- Developing methodology for the safe removal and installation of the boilers from the Energy Centre
- · Identification of tie in works during production outages
- Design of new steam piping and upgrade to existing steam network

### **PROJECT OUTCOME:**

MTL's involvement in the project concluded with the successful removal of the last redundant boiler in July 2013.













# WAITOA FIRE WATER UPGRADE

Fonterra

### **PROJECT**:

Waitoa Dairy Factory Fire Water System Upgrade.

### MTL ROLE:

MTL was engaged by Fonterra to provide engineering services for the upgrade of Waitoa's fire water pump station and replacement of end of life buried fire water pipework. MTL's role included the detailed hydraulic analysis, design specification and commissioning for the upgrade works.

During the design phase constraints in the existing system were identified that could be removed to improve available firefighting flow and pressure from the site hydrants.

### **PROJECT OUTCOME:**

The new system is more energy efficient and meets the requirements of SNZ PAS 4509. The pumping system and ring-main pipework was successfully commissioned in 2015 and met the performance requirements set by the client.











## WORLD-CLASS RESULTS.



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