St Georges Lake Dam is located within Creswick State Forest, off Creswick-Dean Road. The reservoir has an estimated capacity of 200 ML and was originally constructed to supply water for the Creswick quartz crushing plant. Since then, it has been established as an important popular recreation facility for Creswick residents, with picnic and walking trails over the dam and spillways.

The earth filled embankment, originally constructed in the early 1900’s is located across a relatively steep gully and in late 2010 severe storms resulted in water levels creeping dangerously close to the crest of the dam wall. This close call reinforced the need for the 100 year old structure to gain and urgent upgrade. The historic dam was only designed to withstand a 1 in 350 year storm risk. This is well below the current national guidelines for large dams which require a dam wall to withstand a 1 in 100,000 year storm event.

Entracon will create a new concrete dam wall and secondary spillway, and widen and deepen the primary spillway. All of these modifications to the dam will reduce the volume of water held by the dam and therefore improve safety during high rainfall and flood events.
Dandenong Creek Rehabilitation, Heathmont, Vic

In February 2011 a storm event caused subsidence to the lower embankment of the Dandenong Creek (northern side) between the gravel pathway and the creek. Council closed the section of gravel pathway between the access tracks to Waters Grove and Simpsons Court following this subsidence. The work performed under this contract included stabilisation and rehabilitation of the upper and lower embankments of the Dandenong Creek between the Waters Grove and Simpsons Court in Heathmont, and associated drainage and pathway works.

Works Include

- Construction of tiered concrete sleeper retaining walls
- Underground drainage pipes and grated pits and connection to existing drainage networks;
- Construction of a low gabion retaining wall, AG drainage lines and gravel pathway reconstruction;
- Construction of a rock blanket at the rivers edge.

Key Aspects

- Very Limited Site access
- Proximity to live creek
- Steep Site

Client:
Maroondah City Council
Project Design:
Wallbridge & Gilbert Engineers
Contract Sum: $ 0.5M
Boronia Retarding Basin, Boronia, Vic

Knox City Council has been working closely with Melbourne Water for the past 2 years to identify ways to improve the storage capacity of the retarding basin for flood protection of residents, without losing a much valued park site. In its current form the Retarding Basin and surrounding drainage has a high risk of reaching its full storage capacity and flooding overland through adjacent streets. The upgrade works will significantly reduce the risk of flooding to adjacent properties. Completion of the project will see an improved useability of the park with creation of a ‘meadow’ and wetland garden, feature trees, wider paths and a multipurpose plaza space.

Works Include

- Bulk Earthworks
- Concrete Paving
- Design, construction and certification of timber boardwalks
- Landscaping
- Installation of Public Lighting
- Construction of Drainage and pit structures
- Construction of Retaining walls
- Top soiling and seeding of lawn areas.
- Sheet Pile Wall

Key Aspects

- Working in a live drainage asset
- Protection of existing gum trees
- Site access and proximity to major road.

Client: Knox City Council
Project Design: Knox City Council
Contract Sum: $1.5M
Sunbury Landfill/Transfer Station, Sunbury, Vic

Hume City Council has requested the construction of a Landfill Transfer Station at its Sunbury Landfill site. The project comprises the construction of a roofed upper and lower concrete paved platforms for use in unloading refuse for later disposal.

Key Aspects

- Large scale concrete construction
- Remoteness of Site
- Ground Conditions

Works Include

- Installation of driven piles
- Construction of the upper and lower concrete slabs/platforms
- Construction of the vertical concrete wall between the upper and lower concrete slabs
- Construction of the steel roof including its supporting columns
- Installation of roof drainage
- Installation of lighting and GPO items
- Installation of works site drainage system.

Client:
Hume City Council

Project Design:
Form Structures

Contract Sum: $ 0.7M
Napier Conservation Park Stormwater Harvest, Strathmore, VIC

The Napier Park Stormwater Project has been designed to recreate the Parks original ephemeral water course which flowed only after rain events. In the 60’s, stormwater was directed and conveyed underground, however this meant the red gums received significantly less water and subsequently their health declined.

A new vegetated swale will be built which will treat the water before it flows into an underground, tank, Five Mile Creek, Moonee Ponds Creek, The Yarra and ultimately the Port Phillip Bay. The works have provided additional habitat for local flora and fauna within the area and improved the health of the local ecosystems.

**Works Include**

- Bulk earthworks
- Site Setup
- Removal of existing services
- Stormwater Drainage pipes
- 250m Storm Trap underground tank
- Levee Installation
- Installation of Irrigation System.
- Construction of rock riffle
- Landscaping and planting

**Key Aspects**

- Heavy rains delaying progress
- Conflicts with existing services
- Redesign of pipe runs to avoid services
- Deep excavation
- Limited site access

**Client:**

City of Moonee Valley

**Project Design:**

AECOM

**Contract Sum:** $0.8M
Nine Mile Creek Reservoir Upgrade, Longwood, Vic

The Nine Mile Creek reservoir is about 150km north of Melbourne and provides the town of Longwood with its water supply. The dam is currently operated at less than full capacity and is in poor condition due to excessive seepage and embankment instability. Entracon was engaged to upgrade and improve the stability of the existing reservoir embankment and overall dam safety to ensure that a reliable supply of water is provided to the Longwood township.

Works Include

- Removal/decommissioning of existing pipework and fittings including grouting of pipes.
- Design and construction of coffer dam and all associated temporary works
- Construction of earthen zoned embankment
- Construction of concrete and rock gabion spillway including culverts and guard railing.
- Construction of access track
- Supply and construction of pipe crossings
- Supply pipe and fittings for outlet works and installation/construction

Key Aspects

- Remoteness of site
- Accessibility to works
- Large concrete pours
- Construction tolerances

Client:
Goulburn Valley Water

Project Design:
SKM

Contract Sum: $ 1.6M
Charles Mutton Reserve Stormwater, Fawkner, Vic

Charles Mutton Reserve is located in Fawkner, north of Melbourne CBD. It is primarily used as a sports ground by local AFL, Cricket, Tennis and Bowls Clubs. To help maintain the numerous grounds in good condition all year round, Council is implementing a stormwater harvesting scheme designed to utilise the existing irrigation system. The system captures stormwater runoff from adjacent Melbourne Water drains and supplies 16ML of treated water which is equivalent to 75% of the current water demand, resulting in a significant enhancement for the reserve and the council.

Works Include
- Excavation for pipelines and foundations, including dewatering, topsoil stripping and site levelling
- Excavation and installation of valve pits and buffer storage tanks
- Excavation of diversion pump stations: sump pit and wet well
- Construction of Raingarden and underground day storage
- Installation of GPT

Key Aspects
- Publicity of project
- Public Control and Management
- Connection to MWC asset
- Heavy Rock excavation

Client:
Moreland City Council

Project Design:
Spiire Australia

Contract Sum:  $ 1.0M
Orde Hill Reservoir Upgrade, Mt Macedon, Vic

The Orde Hill Reservoir, located on the Willimingongon Creek, Mt Macedon has a capacity of 250 million litres. This reservoir is used to harvest and store water before it is transferred to Rosslynne Reservoir and/or the Graham Brock Reservoir in Woodend, where it is treated and distributed as drinking water. Due to the current dam wall not meeting ANCOLD standards, Entracon was engaged by Western Water to upgrade the existing embankment and reduce the risk of dam failure.

**Works Include**
- Clearing, Topsoil and Grassing
- Chimney Filter Works
- Outlet Filter Protection Works
- Concrete Pits, hinged lockable lid.
- Drainage Blanket Upgrade
- Subsurface Drainage
- Excavate toe drain, stockpile and reinstate drain.
- Surface Drainage
- Rock line road side drain including lining, groin drains, toe drain.
- Road construction

**Key Aspects**
- Limited access to work site
- Poor weather conditions
- Poor ground conditions
- Significant Asbestos removal

**Client:**
Western Water

**Project Design:**
GHD

**Contract Sum:** $0.5M
Jack Madigan Reserve, Williamstown, Vic

Hobson’s Bay City Council has requested the rehabilitation of its Jack Madigan Reserve located at Mason Street, Newport. This reserve is predominantly used for recreational activities but has experienced subsidence issues such that the site is currently fenced off from public access. This project comprises the rehabilitation of the reserve by eliminating the current subsidence and making the reserve again suitable as a public recreation space.

This project required a unique method of compaction resulting in Entracon becoming the first in Australia to own a BSP RIC 7000.

More details about the RIC 7000 can be found on the back page ……

Works Include
- Bulk Earthworks
- Deep Compaction
- Landscape works
- Grassing and lawn areas
- Landscape feature rock work

Key Aspects
- Deep compaction
- New to Australia -
  ⇒ First construction methodology using RIC7000
- Poor ground conditions

Client: Hobsons Bay City Council
Project Design: SPIIRE Australia
Contract Sum: $ 0.95M
St Georges Dam, Creswick, Vic

Ste Georges Lake Dam is located outside the township of Creswick. In late 2010 severe storms resulted in water levels creeping dangerously close to the crest of the dam wall. This close call reinforced the need for the 100 year old structure to gain an urgent upgrade. The new design of the dam and the spillway being constructed will reduce the volume of water held by the lake, therefore improving safety during high rainfall and flood events.

Key Aspects
- Poor site access
- Poor ground conditions
- Deep excavation
- Flood water level management
- Extreme weather conditions

Works Include
- Dewatering of the reservoir and water control management during construction;
- Clearing, grubbing and off-site disposal of vegetation and other obstructions to the work;
- Decommissioning of the piezometers and outlet works
- Removal of pedestrian footbridge over the primary spillway;
- Stripping and stockpiling of top soil;
- Excavation of the embankment
- Construction of the new spillway;
- Construction of the rockfill weir downstream of the secondary spillway chute;
- Construction of pedestrian access from the south to north extents of the site;
- Landscaping and grassing of all areas

Client:
Parks Victoria

Project Design:
SMEC Australia

Contract Sum: $1.6M
Lake Endeavour Dam Upgrade, Parkes, NSW

Lake Endeavour Dam is the key water reservoir for the Parkes Shire and has performed and operated in a satisfactory manner for the past 76 years. However, the spillway capacity is now considered inadequate by modern standards and requires strengthening and flood security works to be carried out. The upgrade works involve strengthening the Dam embankment and spillway training wall to ensure long term stability and integrity of the structure. Increased flood security will be achieved by widening/deepening the existing relief spillway and raising the current embankment crest.

Works Include

- Construction of Auxiliary Fuse Plug Relief Spillway
- Embankment Strengthening Works
- Relocation of Existing and installation of new instrumentation
- Service spillway training wall concrete strengthening works
- Service spillway training wall post tensioning works
- Upgrade of outlet works
- Reinforced concrete conduit strengthening works

Key Aspects

- Deep excavation
- Large Scale construction works
- Working within an operating dam environment

Client:
Parkes Shire Council

Project Design:
NSW Water Design

Contract Sum: $ 8.0M
2013 completed projects

Mitchells Run Laurimer Drain Section 23, Doreen, VIC

Works Include
- Removal of existing culverts and pipework
- Bulk earthworks
- Stormwater Pits
- Rock Weir
- Construction of sediment pond with clay liner
- Aquatic Planting and landscaping

Key Aspects
- Heavy Rains causing flooding of the works area
- Protection of Flora/Fauna
- Extensive rock breaking for the wetlands
- Planting and maintenance of substantial amounts of soft landscaping
- Rabbit control

Client:
Dacland Management

Project Design:
SPIIRE Australia

Contract Sum: $2.5M

Surrey Road Park, South Yarra, VIC

Works Included
- Construction of underground drainage system
- Construction of rain gardens and garden beds
- bluestone seating and cobbles.
- Construction of a rock swale
- Construct coloured concrete works

Key Aspects
- Ex Council Depot
- Constraints due to pre-existing structures
- Unsuitable ground conditions
- Integration with Surrounding property
- High profile
- Working alongside neighbouring apartments

Client:
City Of Stonnington

Project Design:
Tract

Contract Sum: $0.6M
Clarrie Hall Dam Spillway Upgrade
Uki, NSW

Key Aspects
- Working in operating dam environment where water levels are to be maintained
- Design and construction of temporary coffer dams.
- No existing access to work area. All plant and materials need to be craned out. Scaffolding access for workers needed to be built
- Protection of works during flooding
- Working at heights (10.5m walls)
- Setting up and constructing pre-cast area for onsite casting of parapet units (220 No. units)

Works Include
- Structural Concrete works associated with Raising the spillway wall by 2m
- Extending the existing spillway entrance by 35m.
- Strengthening the flip bucket downstream of the spillway

Client:
Tweed Shire Council

Project Design:
NSW Public Works

Contract Sum: $5.4M

Client:
Tweed Shire Council

Project Design:
NSW Public Works

Contract Sum: $5.4M
Entracon is proud to announce that it is the first in Australia to own a BSP RIC 7000.

Initially purchased for the Jack Madigan Reserve Project, the RIC will be available to work throughout Australia and New Zealand on deep compaction projects such as land reclamation, crane platforms, land rehabilitation, piling platforms, container terminals, building sites and car parks.

RIC is a technique allied to Dynamic Compaction that can be used to increase the bearing capacity of soils through controlled Impact.

RIC units can be supplied with drop-weights of 5, 7, 9, 12 and 16 tonnes. Depending on the size of machine used, the soil type and moisture content, the treatment is effective in the top layers typically up to 6m in depth. Up to 10m has been achieved in certain conditions. The drop-weight is dropped onto a special foot assembly 40-60 times a minute. The foot remains in contact with the ground at all times making RIC a safe controlled compaction technique with particular emphases in creating a safe working environment.

CONGRATULATIONS

Our warmest congratulations and best wishes go out to Honor and Leigh Oram who were married in May.