PROJECT SHEET

SPRINGFIELD RESERVOIR REMEDIATION

PROJECT SUMMARY

Client: Queensland Urban Utilities

Location: Springfield

Duration: 5 Months (2019)

Project Value: $ 600,000

SPRINGFIELD 20ML RESERVOIR

The Project

Springfield College Drive Reservoir (R091) is a 20ML concrete reservoir located on Springfield College Drive, Ipswich. The reservoir was constructed circa 1996 and is a circular, post-tensioned concrete reservoir with an aluminium roof structure. The reservoir is 48m in diameter and has a depth of 10.98m.

Dynaciv was engaged by Queensland Urban Utilities to carry out reservoir rehabilitation including a new access ladder and staircase.

Project Scope

The project comprised of the following work:

- Design
- Hard clean and disinfect for a leak test
- Rehabilitation of ring beam – crack repair and sealing
- Rehabilitation of floor joints – concrete repair and sealing
- Abrasive blast and epoxy coat of overflow pipe
- Design and installation of handrails around roof
- Remove existing staircase
- Design and install of a new staircase with security mesh and working platform
- Roof repair and sealing
- Vermin proofing
- Flood testing
- Concrete repairs

Design

All rehabilitation work, including the steel work and foundations required, were designed and approved by a Queensland registered professional engineer.

Design comprised of:

- External steel staircase
- Handrails
- Vermin proofing
- Concrete repairs
- Valve replacements
- Coating of internal overflow pipe
- Internal ladder
- Waterproof joints (Polyurea Bandage)

Programme

The repair work commenced in late February 2019 and was completed by the end of July 2019.

Completed Works

The following works were successfully carried out:

<u>Staircase</u>

The previous staircase consisted of an inclined caged aluminium ladder. This ladder had to be replaced to comply with QUU's current access requirements, a new foundation cast and the new steel case erected.

Following design and soil testing, the foundation installed as shown below.

The new steel staircase comprised of three landings. It measured 10 metres in height and the lower two thirds were encased in security mesh.

Existing staircase before removal

New staircase installation

New staircase after installation

Concrete Repairs

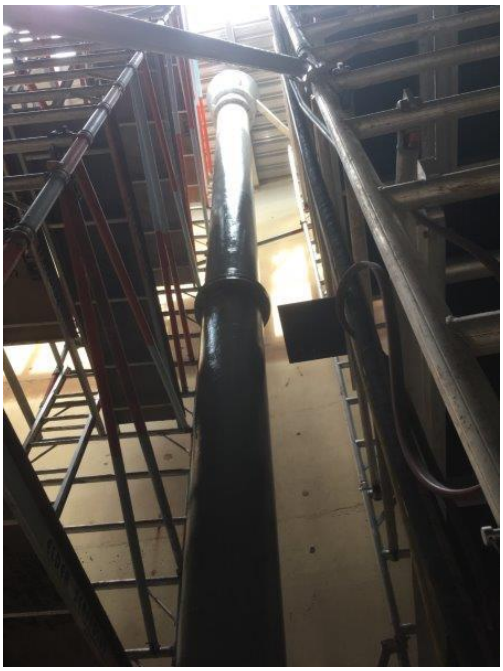
The concrete walls had a large number of defects where the reinforcing was corroding. The photos below illustrate a typical repair.

Crack injection

The structural ring beam had suffered severe cracking. This was repaired by adopting a low-pressure crack injection method to inject epoxy.

Overflow coating

The overflow pipe required a new AS4020 coating. The previous coating had to be removed by sandblasting to achieve a defined surface profile and finish. The pipe was coated with three epoxy coats.



Access to overflow pipe

A typical stripe coat

Aluminium railing

Following the design and fabrication process, we erected in excess of 150m of aluminium railing.

Railing along roof edge

316 Stainless Steel ladder

A316 stainless steel ladder was designed, fabricated, and installed at the hatch.

Stainless steel access ladder

Polyurea Bandage

After joints were cleaned and sealed, they were waterproofed with a polyurea bandage.

Rehabilitated joints