

CASE STUDY >

NORTH RICHMOND WATER SUPPLY ZONE

PROJECT OVERVIEW

Sydney Water is a public utility company that manages the supply of water, wastewater, recycled water, and some stormwater services in Greater Sydney and the Illawarra. They provide safe drinking water to more than 5 million people, which is sourced from a network of dams managed by WaterNSW. The majority of their water comes from Lake Burragorang behind Warragamba Dam, but they also have the capability to receive water from the Shoalhaven catchment and Sydney Desalination Plant when necessary. They play a crucial role in maintaining the overall liveability of the city and preserving the health of the city's people and waterways.

SCOPE OF WORK

The scope of work for RSGx in the North Richmond Twin Reservoir & Stair Tower project entailed the execution of the engineering design and shop fabrication drawings for the modular access towers, connecting tank bridge platforms, tank roof structure, and shop fabrication drawing for the Twin Reservoirs (WS0489 & WS0490).

Additionally, RSGx was charged with the computation and analysis of the welded steel twin reservoirs, utilizing the expertise and technical proficiency of Saunders International, culminating in the realization of the design and completion of the project.

SOLUTION

The design of the structure was done to limit state design codes to ensure safety and stability. The following methods were used in the construction:

- The walkways, stairs, and landings were designed to withstand a uniformly distributed load of 2.5 kPa as per AS 1657-2018 standards.
- The roof was made of aluminium alloy 6082-T5, with chequered plates as a walkable roof cover.

The structure was designed to withstand dead loads, live loads, and seismic loads in accordance with AS 1170.1-2002, AS 1657-2018, and AS 1170.4 standards. Seismic site data was used to ensure safety and stability in case of an earthquake.

Normalized Response Spectra were used for the modal response spectrum method. All the necessary seismic load and dynamic analyses were executed in accordance with the standards mentioned above. The structure was configured with a seismic-force-resisting system that has a clearly defined load path, that will transfer the earthquake action (both horizontal and vertical) generated in an earthquake, together with gravity loads, to the supporting foundation soil.

ACHIEVEMENTS TO DATE

The North Richmond Twin Reservoir & Stair Tower project was successfully completed within the specified timeframe and to the highest standards of quality, through the expert execution and meticulous attention to detail of our highly skilled engineers. The team effectively navigated the complexities of the project, meticulously adhering to all relevant Australian standards, thereby ensuring the structural integrity and safety of the final product. The successful outcome of this endeavor is a reflection of the unparalleled proficiency and commitment of the RSGx team.

CLIENT

**SAUNDERS INTERNATIONAL /
SYDNEY WATER**

SERVICES PROVIDED

DESIGN & DETAILING

SCOPE

**DESIGN & DETAILING – STAIR
TOWER AND TWIN RESERVIOR**

INDUSTRY

WATER

LOCATION

BELMONT, NSW

