

ELLENBROOK'S SUPER TANK

DEVELOPER : Water Corporation
MAIN CONSTRUCTION COMPANY : Georgiou Group
CONSTRUCTION VALUE : \$14 million



The 80 million litre Ellenbrook Tank, contains enough water to support the growth of Ellenbrook and the north eastern metropolitan corridor. Measuring approximately 90m in diameter and 14m in height it is the largest concrete tank Georgiou Group and the Water Corporation have ever constructed.

Valued at an impressive \$14 million, Georgiou Group worked closely with the Water Corporation, which enabled the tank build and all associated works to progress with ease. The close relationship and trust between Georgiou Group and the Water Corporation is considered a key element of the projects success.

While the focus was on the construction of the tank, Georgiou Group also delivered earthworks, facilitated the construction of the dosing building (where water comes through from bores for treatment), formed all the lead in piping to site (inlet and outlet), and related roadworks.

Once Georgiou Group completed the earthworks package, the team began working on the design and construction of the tank. 80 concrete panels were manufactured in house at it's precast yard in Hazelmere before being transported to the site. Each of the 80 concrete panels that make up the walls of the tank weigh between 30 and 60 tonne. The roof was constructed as a modularised system with the team installing each 15 tonne section, one at a time, as opposed to building the roof at height.

This method significantly reduced the working at height risk to workers and allowed the construction programme to be accelerated, resulting in a six week period from finishing the earthworks to the slab being poured and stressed.

The enormity of Ellenbrook Tank can be illustrated by its extensive capacity of 80 million litres of water equating to 35 Olympic size pools. At max 200+ workers were contracted to work onsite, 1,260m³ of concrete was poured which required 230 trucks to deliver concrete to site, 96,000m³ of cut-to-fill was undertaken, 20,000m² of asphalt was laid and 1,200m of piping was used (ranging from 500 to 1,200 in diameter).

Water Corporation's plans to build two more tanks at the site over the next 40 years, which will occur in stages as the population grows.

While the Ellenbrook Tank is the biggest built by Georgiou Group and Water Corporation, it's not the first tank Georgiou Group have worked on with Harvey Summit Tank and Denmark Tank part of the company's portfolio.

The team at Georgiou Group are looking forward to working on new, upcoming projects in New South Wales and Western Australia including: Northern Road Stage 4, Marina East Apartments, PAPT Skybridge, Roy Hill Bridge and the Great Northern Highway.

Established in 1977, Georgiou Group is one of Australia's leading construction companies, delivering a wide range of engineering services. With over 40 years experience and located in Western Australia, New South Wales and Queensland, their vision is to be 'the best people to work with'.

Georgiou Group believe in working alongside their clients and partners to achieve the best possible results. From the conceptualisation and design phase to the construction and handover stage, the team believe in excellent communication to complement their high quality work.

The company have recently upgraded their fleet with the addition of the first factory fitted 3D GPS D6 Bulldozer, which takes advantage of the emerging technologies being implemented on construction sites. The GPS systems make machinery faster and more precise, allowing the Georgiou's team to work more efficiently then with regular 2D GPS.

Georgiou Group recognise that being a reputable corporation comes with great responsibility. That is why they have supported the



Australian charity MATES in Construction for a number of years. Every year 190 Australians working in the construction industry take their own lives, this means we lose a construction worker every second day to suicide. MATES are Australia's leading suicide prevention organisation focusing on raising awareness, building capacity, providing help and research as well as implementing a variety of strategies and resources to assist workers and their families.

For more information contact Georgiou Group, 68 Hasler Road, Osborne Park WA 6017, phone 08 9200 2500, email wa@georgiougroupp.com.au, website www.georgiou.com.au

Below: Meales Concrete Pumping WA used their state-of-the-art pumps to pour the 1,250m² concrete pour onsite at Ellenbrook.

Following a long and successful relationship with Eastside Concrete, Meales Concrete Pumping WA worked as part of a dedicated team to pump concrete to the base and walls of the Ellenbrook Water Tank.

Currently the largest water tank ever built by the State Government, the Ellenbrook Tank can hold enough water to fill 35 Olympic swimming pools.

Situated to the North East of Perth, Ellenbrook is just 21km from Perth's CBD. Along with catering for future growth in the north east metropolitan corridor, the new tank will provide a more consistent water pressure for local residents.

An impressive 91m in diameter, and 13m high, the tank saw one of the biggest undertakings in the country with four pumps working onsite for 12 continuous hours in order to feed concrete to the base of the tank. Meales rotated 20 experienced operators to ensure the pump progressed with ease.

The massive pour, estimated at 1,260m³, was captured on a time lapse video and can be viewed on the Meales Facebook page. With Georgiou Group leading the project, Meales provided two 60m, one 53m and two 47m pumps on the job.

Continuing on from a 40 year history, the team at Meales continue to raise the bar with ongoing purchases of innovative equipment and continuous training in technological advances within their industry. The team is excited to see the expansion of their services with a brand new branch recently opened in Bunbury & Newman. This exciting addition allows the team to offer statewide coverage.

The company is a leader in formulating efficient operational procedures, safe work practices and quality control procedures. Major contractors have recognised Meales' capacity and capability to service large and complex projects and they are regularly engaged on major infrastructure, residential, civil, mining and high rise projects.

Their strong focus on developing comprehensive concrete pumping services and specialist technical and operational knowledge gives them confidence in their

ability to provide impressive concrete pumping services in a wide range of applications. As market leaders in their industry, Meales boasts the largest fleet of mobile boom pumps, placing booms and stationary line pumps in Australia. The company's pumps range from 17m-60m in size and are rated between 60-160m³ per hour, giving them the capability to accommodate both small and large pours.

Meales are committed to reducing their impact on the environment. To minimise the release of contaminants and waste concrete, they have several purpose built depots fitted with oil separation systems and modern filtration and recycling water washout facilities for their mobile concrete pumps.

In addition, the company have engineered and implemented an environmentally friendly water washout system for use on high rise and high pressure long ground line pours.

The team at Meales has worked on a diverse range of projects including water treatment plants, hospitals, shopping centres, highways, tunnels, high rise buildings and commercial projects. Meales has successfully worked with John Holland, Thiess, Probuild, BHP, Rio Tinto, CBP Contractors and Baulderstone, just to name a few.

As Australia's largest concrete pumping operation, Meales are always looking for a way to improve their already impressive customer service and capabilities. The company recently added additional new line pumps, as well as 36m, 47m, 57m and 60m mobile boom pumps to their fleet, extending the range of projects the company are able to deliver.



For more information contact Meales Concrete Pumping, 11 Crocker Drive, Malaga WA 6090, phone 1300 632 537, email sales@mealeswa.com.au, website www.meales.com.au



Below KR Surveys provided a top down perspective through their use of drones onsite at Ellenbrook Tank.

Below LogiCamms facilitated the electrical, instrument and control system design and construction onsite at Ellenbrook.



KR Surveys is an established surveying and utility locating company servicing many of Western Australia's largest civil contractors.

Two dedicated specialists worked with Georgiou Group on the project, where KR Surveys provided high precision surveying and utility location for the impressive 80 million litre tank and surrounding infrastructure.

Each week Unmanned Aerial Vehicle (UAV) flights were completed by KR Surveys to provide detailed progress imagery and tracking for the project.

Survey requirements for this project included all of the structural set out for the post tensioning tank as well as dosing, building, and the civil set out of 6km of Mild Steel Cement Lined (MSCL), pipework for the inlet and outlet of the tank. KR Surveys found this to be an exciting and interesting project allowing them to apply their weekly UAV progress tracking method and produce accurate, detailed set out.

The concrete tank, which is 91m in diameter and 13m high, is set to significantly improve the water supply to Ellenbrook and the north

east metropolitan corridor. The team at KR Surveys has a large fleet of drones/UAVs which enables them to create 3D surfaces.

This can be applied to stockpile quantities, progress site quantities and also end of month surveys. Using drones eliminates the need for a surveyor on the ground for these specific surveys, in turn creating a safer workplace.

The team at KR Surveys have extensive experience in major road and rail projects, mine infrastructure expansions, residential subdivisions and various other surveying projects.

For more information contact KR Surveys, PO Box 363, Hillarys WA 6923, phone 0400 077 933, email admin@krsurveys.com.au, website www.krsurveys.com.au

The team at LogiCamms worked with Georgiou Group and Water Corporation to provide electrical/instrument and control system design, construction and commissioning for the Ellenbrook Tank project. LogiCamms have an extensive history with the Water Corporation and have helped to secure the future water supply for multiple regions in Western Australia. The company had three specialist teams who worked on the project comprising of electrical engineers, control systems engineers and construction specialists, all of whom played an essential role in the project's success.

LogiCamms offers a comprehensive range of value driven and market leading capabilities that extend across three core industries; hydrocarbons, mining/minerals and infrastructure. LogiCamms have a well-established reputation for tailoring their approach to customer specific needs ensuring every phase of a project is delivered successfully.

The company's water experience ranges from water and wastewater treatment plants to desalination plants and transfer pipelines. LogiCamms are members of Water Corporations Process Control Systems and Operational Technology panels and provides services

both directly to Water Corporation and to Water Corporation's primary contractors. Recent projects delivered include Denmark and East Rockingham waste water treatment plants and communications upgrades to over 150 Water Corporation sites across the Perth Metro and Goldfields regions in Western Australia.

LogiCamms operates across Australia and New Zealand and provides water industry specialist services to authorities across the country including; SA Water, SE Water, Seqwater and Queensland Urban Utilities. In mining, LogiCamms has delivered some of the largest control system projects in Australia including control systems for the Wiggins Island Coal Export Terminal, Queensland and the Roy Hill Mine Processing Plant, Western Australia.

LogiCamms offers a true commitment to their customers and the performance of their operations. The team work with a diverse customer range including local councils through to larger corporations and resources companies.

For more information contact LogiCamms, 251 Adelaide Terrace, Perth WA 6000, phone 08 6220 2000, email westenquiries@logicamms.com, website www.logicamms.com.au



Ellenbrook Tank, Western Australia

Below Eastside Concrete facilitated the extensive concrete pour for the base of the Ellenbrook Tank.



Regardless of the size of the project, Eastside Concrete Contracting in Perth is dedicated to ensuring that all works are completed flawlessly, with efficiency and quality.

With over 20 years' experience their professional team of contractors specialise in all aspects of concrete and associated services.

During their years of operation Eastside Concrete have developed a loyal client base which is just as diverse as the services they offer. These clients include Local Shires, Mining Companies, Builders, Developers, Landscapers, Commercial and Industrial Companies plus Residential Homeowners.

Eastside Concrete have an impressive equipment portfolio and one piece worth mentioning is the Somero 3D Laser Screed. This is the only 3D laser screed in Western Australia and is capable of producing perfectly flat floors and floors with a dome effect.

Eastside Concrete used the 3D laser screed onsite at Ellenbrook. Working with Water Corporation, Georgiou Group and several other contractors, the team at Eastside Concrete had four pumps onsite for the extensive concrete pour which made the base of the tank.

This project represents the largest concrete water tank in the Southern Hemisphere and the continuous pour of the base lasted 12 hours.

The \$14 million Ellenbrook Water Storage Tank involved the construction of an 80 million litre tank which now provides much needed services to residents of Ellenbrook and the north eastern metropolitan corridor.

The innovative Somero 3D laser screed was also present on the 75 million litre Cunderdin Water Tank project for Water Corporation and the runway at Perth Airport which accommodates the new Dreamliner.

Eastside Concrete offers a diverse range of concrete solutions to developments of all sizes throughout Western Australia.

For more information contact Eastside Concrete Contracting, 10 Meliador Way, Midvale WA 6056, phone 08 9274 5245, email eastsideconcrete@bigpond.com