

# THE NEED FOR SPEED

DEVELOPER : Sydney Metro  
MAIN CONSTRUCTION COMPANY : Abergeldie Complex Infrastructure  
CONSTRUCTION VALUE : \$70 million



The Sydney International Speedway project involved the construction of a new world-class clay-based racetrack for both speedway cars and motorcycles, with a new grandstand, public amenities, corporate boxes, food, beverage and merchandise outlets, dedicated and overflow parking, competitor pit, workshops, garages, and trackside support services.

The NSW Government is delivering a new world-class Sydney International Speedway to replace the current Speedway at Clyde which will be repurposed to house stabling and maintenance facilities for the upcoming Sydney Metro West. The new speedway is located within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports and will be an exciting addition to the precinct creating a Motorplex destination for international, national and local racing events.

Features of the new speedway include a world-class clay-based racetrack for cars and motorcycles with a grandstand for 7000 spectators plus parking, public amenities, corporate boxes, food, beverage and merchandise outlets. The Speedway will be serviced by a dedicated competitor pit area, workshops, garages and trackside support.

The speedway was also designed as a multi-use facility to host a wide range of events including junior driver and rider safety training days, farmers markets, and concerts.

Sydney International Speedway is the first purpose-built speedway built in Australia for over 20 years. It will be a

world-class facility compliant with Speedway Australia 5 Star Track Standards (highest rating) and FIM (Fédération Internationale de Motocyclisme).

Speedway Australia and operators were engaged during design to ensure the facility incorporated elements of the most successful, competitive and entertaining speedway tracks. 3D flythroughs were developed to aid stakeholder consultation and tendering, giving all parties a better understanding of the vision for the project.

Digital tools were used to manage the construction process. SYNCHRO 4D software allowed the project team to visualise the construction staging, allowing early identification of methodology challenges and saving valuable time. This software also enabled onsite updating of the construction schedule using iPads which automatically sync with a cloud-based system for the offsite project management team to monitor real-time progress.

Innovative construction methods were employed to efficiently utilise the site including the addition of a 500m long reinforced soil retaining wall to maximise the size of the track. A composite system of concrete



face panels with steel reinforcement strips allowed the construction of a very high retaining wall that could withstand large vertical and horizontal loads, allowing it to be built more easily and safely without concrete piling.

Another safety challenge was the need to find a crash wall and safety fence design that would work with the nature of a speedway car incident. A fence system comprising structural anchors and mesh was designed locally by engineers and racing experts to meet the highest safety standards. Computer modelling helped determine how the fences would perform in different incidents and allowed the design to be modified accordingly.

The Sydney International Speedway team were closely involved in the process from start to finish which helped ensure the project's success.

"Working collaboratively with such an enthusiastic project team from both the client and contractor side made this project stand out for me," said Lorraine Chirawu, Senior Project Manager for the Sydney International Speedway.

Sydney International Speedway's Motorsport Subject Matter Expert, Ashley Yelds, brought his professional background in large-scale transport infrastructure projects to benefit the project.

"For me being involved on a motorsport project is hard to comprehend, especially something as significant and high-quality as the new Sydney International Speedway," Ashley said. "That Sydney Metro managed to pull together a team that embraced the time, design and delivery challenges with equal commitment and enthusiasm will make this perhaps the most memorable infrastructure project of my career."

In total the Sydney International Speedway project supported more than 750 jobs, with more than 500 local workers. It is set to be a key contributor to the NSW economy and will support tourism and the community of Western Sydney for years to come.

For more information contact Sydney Metro, phone 1800 612 173, email [sydneymetrowest@transport.nsw.gov.au](mailto:sydneymetrowest@transport.nsw.gov.au)



**Below** Abergeldie Complex Infrastructure were engaged by Sydney Metro to build the new Sydney International Speedway.

**Abergeldie Complex Infrastructure (Abergeldie)** is a leading civil engineering contractor in Australia and New Zealand. They design and deliver projects in the utilities, infrastructure, rail and transport and energy sectors.

Founded by Mick Boyle in 1994, the company has a strong reputation as a leading mid-tier infrastructure provider with expertise across a broad range of project types.

Abergeldie's mission statement is to deliver the complex infrastructure needed to build better communities. Sydney International Speedway is a new world-class motorsports facility that replaces an older speedway which will be repurposed for the forthcoming Sydney Metro West project.

The project included a clay-based racetrack, grandstand and terrace seating for up to 7,000 spectators as well as public amenities, corporate boxes, and concession outlets. Also included was a dedicated pit area for competitors with workshops, garages and trackside support areas. Car parking facilities, internal roads and access via a new intersection with Ferrers Road were also provided.

As part of the works Abergeldie was required to provide a temporary carpark and maintain access to the neighbouring Sydney Dragway as well as mitigating dust settlement and noise issues for the Dragway, nearby residents and the Prospect Reservoir.

Major excavations and earthworks were required to deliver the project with over a quarter of a million cubic metres of cut and fill needed to level the carpark and new roads and shape the grandstand, including the Design & Construct up to 12m in height and almost 500m long reinforced soil wall, and also terralink retaining walls wrapping carparks. Two major onsite stormwater detention tanks were provided as well as all major incoming services connections.

Safety is of paramount importance for Abergeldie and during the contractor design period their focus was on eliminating high risk activities and finding safe, cost effective, innovative solutions to deliver the works on time.

Once construction started, many challenges had to be dealt with including wet weather,

asbestos contamination and COVID-19 impacts. "Both surface and sub-surface asbestos were present onsite which was a particular problem," said Dmitri Khomoutov, Project Director. "We engaged asbestos specialists to do the testing and develop a management plan to help us safely and cost-effectively remove the contamination, which involved EPA onsite inspection and further consultation with the agency."

Abergeldie collaborated closely with Sydney Metro to manage all issues on site and worked day and night when needed to keep on programme. "We always try to build a good relationship with clients that puts them and their project first," explained Joseph Maklouf, Senior Project Manager. "We try to be open and honest and put everything on the table to get the best outcome."

This ability to overcome delays by concentrating on the critical path and solving problems is a strength for Abergeldie who also brought valuable prior experience in the motorsports sector having previously delivered V8 Supercar tracks in Homebush and Newcastle. "We definitely had the right people and the right attitude to get us to the finish line on time," Joseph said.

Training is a major focus for Abergeldie, and the Sydney Speedway was no exception. Abergeldie's work experience, training and mentoring programmes on the project including their partnership with Aboriginal-owned employment group Yellow Sun.

"We take training and development seriously and had some really good success stories on this job," said Joseph. "For example three of our graduates were privileged to receive awards for excellence from Sydney Metro."

Abergeldie supports Aboriginal and Torres Strait Islander peoples and communities and the 6.7% Aboriginal workforce on the Sydney International Speedway demonstrates that. Other initiatives spearheaded by Abergeldie included a smoking ceremony and Aboriginal lunch while a percentage of profits from site vending machines were donated to Indigenous community programmes.

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# INNOVATIVE SOLUTIONS

The new Sydney International Speedway in the Western Sydney Parklands is a major project, creating a world-class motorsport destination for international, national and local racing.

Dinzel Civil Solutions were engaged to design, supply and install 2 x 1.6 million litre stormwater detention (OSD) tanks on behalf of clients Abergeldie and Transport for NSW. Originally intended to be constructed from large pre-cast concrete moulds, the heavy reliance on craneage led to the project being entirely redesigned using the lightweight, modular Dinzel Structural Walling system – permanent polymer formwork filled with self-compacting concrete.

Additionally, utilising Truedek® metal decking with clear, unpropped 3.9m spans and 40t loads to the suspended slabs created a complete modular construction methodology.

“The combination of Dinzel walls and Truedek® decking eliminated the need for most mid-span propping, minimising confined space works,” said Ken Holden, General Manager of Dinzel Civil Solutions. “The lightweight, modular components easily snap together making assembly straightforward with minimal craneage.”



When installation was affected by inclement weather the Dinzel system was easily dismantled to allow efficient remediation works. “The flexibility of the system helped convince our client of the merit of a total redesign on this project which was a big achievement,” said Ken. The self-compacting concrete used on the project also brought benefits as it flows into all crevices, joints and around penetrations, eliminating the potential for air-voids and future defects.

First released on the market in 2006, Dinzel Structural Walling is the original polymer-based permanent formwork system. Australian invented, owned and manufactured, Dinzel Structural Walling is suited to commercial, residential and civil project applications. “The Dinzel polymer permanent walling system is manufactured within 10km of the Sydney International Speedway. Our wall installers, formwork, concrete and steel fixing crews were locally sourced so it was great to do a truly local project,” Ken said.

Fully certified and code compliant the Dinzel system is lightweight, quick and easy to install. The Dinzel system achieves greater concrete strength by minimising moisture loss while curing, and also significantly reduces the use of steel reinforcement bars, resulting in real financial savings.



For more information contact Dinzel Structural Walling, phone 1300 DINCEL, website [www.dinzel.com.au](http://www.dinzel.com.au) | [www.dinzelcivilsolutions.com.au](http://www.dinzelcivilsolutions.com.au)



## LEADING THE PACK

Green Civil Con is a civil contractor with expertise in complex water, piping, bulk earthworks, energy and renewables projects and more. Founded by Director Tiernan Quinn in 2008, Green Civil Con has become a multi-million-dollar company with a reputation for delivering technically complex and challenging projects across New South Wales and interstate.

Green Civil Con was awarded the fire water, potable water and wastewater reticulation package for the new Sydney International Speedway in Western Sydney. Their scope included site establishment and excavations, surveying and connecting to existing services, supply and installation of new permanent materials and all related compliance testing.

“This is a difficult project. Site access was tricky and we had to deal with multiple trades onsite in a tight space,” Tiernan said. “Completing 8m deep excavations for a the sewer pumpstation in such a tight environment was a particular challenge.”

Managing time constraints was another challenge especially while also dealing with design changes, poor weather and COVID-19 restrictions. “We have been able to maintain the programme so far which is great,” said Tiernan. “We’ve worked closely with the main contractor Abergeldie for many years and have a good dynamic with

them. Our supervisors coordinated with them to keep the job moving forward well.”

In addition to the Sydney International Speedway, Green Civil Con is involved in many other projects in sectors including wind farms, freight terminals, substation works, quarry plant upgrades and Sydney Water asset upgrades.

Green Civil Con has converted their reputation into strong growth with their workforce more than tripling in the last 18 months alone. Whatever the project, Green Civil Con prides themselves on going above and beyond to provide better engineered solutions with loyalty, integrity and adaptability at the forefront. Their experienced and accredited team can be trusted to meet and exceed expectations on the most challenging civil infrastructure projects.

For more information contact Green Civil Con, Suite E204, 32 Lexington Drive, Bella Vista NSW 2153, phone 02 8814 1238, website [www.greencivilcon.com.au](http://www.greencivilcon.com.au)