

ON THE FAST TRACK

MAIN CONSTRUCTION COMPANY : John Holland Group Pty Ltd
CLIENT : Transport of NSW
PROJECT CURRENT VALUE : \$1.8 billion
DESIGN ENGINEER : GHD Pty Ltd



The \$1.8B South West Rail Link focuses on improving reliability and access to public transport for the communities of south-west Sydney.

Sydney's newest rail line, the \$1.8 billion South West Rail Link, consists of 53,000 rail sleepers over 31km of track. Connecting South Western communities with employment centres such as Liverpool, Parramatta and the Sydney CBD, the South West Rail Link delivers essential infrastructure to this rapidly expanding region.

Industry leaders John Holland provided the engineering services for the Greenfield section of the new twin track passenger rail line between Leppington and Glenfield, stretching 11.4km via Edmondson Park. John Holland was also responsible for the construction of the new Edmondson Park and Leppington Stations.

One of the more intensive aspects was drilling an 80m rail underpass beneath the Hume Highway to create a continuous rail corridor. The underpass was a major engineering feat that required cutting-edge technology to ensure minimal disruption to road users.

“An innovation of the project team during the completion of underpass works was the use of laser-guided sights and other systems to continuously monitor for any early signs of ground subsidence beneath the roadway,” explains John Holland’s, Malachy Breslin, Project Manager. “The data gathered was shared in real-time with Roads and Maritime Services and underscored just how well the nine canopy tubes, steel sets and other support features worked together.”

While the real-time monitoring system took approximately 850,000 individual survey readings, two 23tonne Komatsu PC228 excavators broke through the hard rock beneath the Highway. As with other excavated materials throughout the project, the resultant rubble was crushed and repurposed as fill along the rail link.

“With around 1,000,000m³ of earth to be moved across the job due to multiple cuts and fills, John Holland decided to re-use as much of

this material as it possibly could inside the rail corridor lands,” Malachy says. “Earth mounds designed to provide operational noise mitigation on the northern and southern sides of Rossmore Stabling Yard took some of this material. Hard rock excavated at the eastern end of the alignment was crushed on-site and provided a sizable supply of clean fill.”

The South West Rail Link is just one of the responses by Transport for NSW to issues of transport reliability and increased passenger numbers on Sydney’s metropolitan rail network. The North West Rail Link, currently under construction, will provide fast, reliable rail services for existing and future-planned communities of the north west district. An earmarked extension to the South West Rail Link, currently a protected corridor, proposes a north-south connection through the South West Growth Centre and the Broader Western Sydney Employment Area.

Additional infrastructure is predicted to have a positive flow-on effect throughout the wider network. For example, one aspect of the

South West Rail Link, the new Glenfield Junction northern flyover, will reduce delays across all Sydney services. Dividing T2 South Line services from T2 Airport Line services, two trains are now able to cross at Glenfield, avoiding the bottleneck that arose when each line crossed separately.

One of Australia’s leading engineering, contracting and service providers to the infrastructure, energy resources and transport services sectors, John Holland provided the necessary expertise to complete the project. Their reputation for constructing iconic infrastructure both locally and internationally is built on over 65 years experience. The company’s strength lies in delivering diverse and complex projects, “its partnership approach to client relationships and absolute commitment to people and careers.”

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Below Alliance Contractors managed the environmental impact on the South West Rail Link.



Below Ficogi Engineering constructed barriers and screens on the seven roadway overpasses of the South West Rail Link.



The South West Rail Link, provides essential transport infrastructure for Sydney's South West Growth Centre, a region of 18 Precincts undergoing re-zoning for sustainable urban development. While beneficial to their communities, these growth corridors can be highly disruptive to the natural environment. Civil landscapers Alliance Contractors (NSW) Pty Ltd managed the impact of the South West Rail Link through a number of landscaping works over approximately 400,000m² of area.

"Alliance Contractors has consistently undertaken large scale civil landscape projects since the mid 1990s," explains Scott Palmer, Managing Director of Alliance Contractors. "Typically, works include preservation of existing vegetation, soil structure and composition correction, water flow structures, [as well as the procurement, propagation and installation of Native plant stock."

The aim is rejuvenating open parklands and fragile ecosystems near urban growth corridors "somewhat back to their existing native origins."

Development techniques or soil and rubbish pollutants are the primary threats to native ecosystems. The route of the South West Rail Link, as Scott explains, "carried it through many creek lines and across major

road corridors." Environmental and access restrictions in these areas made construction a challenge.

Similarly concerning was the high phosphate levels of the soil from previous farming practices. As phosphate is detrimental to the cultivation of native plants, Alliance Contractors undertook the "blending and placement of approximately 40,000m³ of ameliorated site soil" to repair the damage before installing approximately 25,000m³ of recycled mulch and over 700, 000 native plants.

Specialising in sensitive environmental rehabilitation works, Alliance Contractors deliver "amicable outcomes to complex areas that require expertise and experience in large-scale landscape projects," Scott describes. Engaged by both construction contractors and Councils, some of Alliance Contractors' current projects include the newly developed former Hoxton Park Airport/M7 corridor, the Glenfield Residential Growth Centre and North West Rail Line.

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Constructing a new railway line involves more than just laying down train tracks. Associated infrastructure, such as road overpasses, ensures the railways remain safe and practical for the whole community. Ficogi Engineering Pty Ltd constructed barriers and screens on the seven roadway overpasses of the South West Rail Link, as well as supplying brackets and casting products. Approximately 950 lineal meters of Double Rail RHS (rectangular hollow section) Barriers were installed by Ficogi to each side of the overpasses in addition to large anti-throw screens for the protection of the rail line below.

Steven Davies, Managing Director of Ficogi Engineering reports on the their work on the South West Rail Link, "Our goal was to achieve the high standards required for all State Rail work, we hope we exceeded the clients expectation on this project" and all the overpasses were completed on time. Ficogi brought considerable expertise to the South West Rail Link having previously completed other railway projects. Last year, for example, Ficogi contributed all the steel structure for the new Shell Cove Railway Station, south of Wollongong.

Ficogi Engineering specialises in the fabrication and installation of structural steel. Established 28 years ago, Ficogi's factory in the South Western suburb of Ingleburn, fabricates steel for smaller owner-

builder projects to larger scale industrial and residential developments. Uses include bridges, walkways, stairs, platforms, lift shafts, frames, towers, screening structures, handrails, guards, pipe/general racks and mechanical support steel. Ficogi also supplies fabricated structural steel for buildings including columns, trusses, purlins, rafters and beams.

With a dedicated team of workshop, site and administration personnel, Ficogi Engineering offer a personalised service that seeks to fulfil their motto of "Excellence in Fabrication." Currently, Ficogi is involved in the construction of a new elevated public space with amphitheatre near the Powerhouse Museum known as "The Goods Line" with Gartner Rose. Past projects that Ficogi have worked on include Shell Cove Railway Station for Haslin Constructions and Ballast Point Park Located in Balmain and many more.

Ficogi's winning combination of specialist understanding, dedication to clients' requirements and excellent relationships with suppliers ensures their customers achieve outstanding results whatever their project.

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