Humes

Strength. Performance. Passion.

Glenugie Upgrade, Pacific Hwy NSW

Precast arches, spandrel and wing walls

Case study

Case study

Arch delivers value above and below Pacific Highway

Project
Glenugie Upgrade,
Pacific Highway NSW

Products supplied
Precast arch units,
4 spandrel walls,
20 wing walls,
DN375 to DN1200 SRCP
(approximately 2,700 m),
28 headwalls

This Pacific Highway upgrade involved the duplication of a seven kilometre dual carriageway within the Glenugie state forest, 15 km south of Grafton. The drive behind the project was to improve the safety and alignment of the highway which has been an ongoing priority for the National Land Transport network and the Australian Government. Additionally, the new highway offered an opportunity to lower noise levels for residents along the existing Pacific Highway at Glenugie.

Humes 9300S one piece arch, with an internal span of 9 m and internal height of 3 m was used to provide a feasible and effective underpass for fauna such as the Rufous bettong (rat-kangaroo) and the Brush tailed phascogale. Similarly, as part of the environmental assessment, minimising the impact on local fauna such as the square-fruited ironbark (Eucalyptus tetrapleura) was also a driving force in the choice to use precast.

Humes technical design team successfully incorporated a 150 m centreline radius at one end of the 9300S arch to reflect the natural alignment of Glenugie Creek. The innovative arch design was fundamental in optimising the quality of the highway and to ensure minimal disruption to existing vegetation. Humes' engineers were engaged to customise the arch structure to withstand exceptionally high fill loads. The solution was to modify the reinforcement cage and use 65Mpa super strength concrete mix.

In addition to the 9300S arch, Humes successfully supplied the 6310S one piece arch, with an internal span of 6 m and internal height of 3.1 m to supersede the existing twin cell structure on a different section of the highway. The ground for nominating a single structure was to prevent any obstruction, where debris could collect and to provide a clear passage in high flow (flood) situations.

Due to strict construction timeframes, precast spandrel and wing walls were used to improve efficiency and eliminate the need for in-situ construction. By utilising Humes' project management resources and consistent supply, cost savings and a high quality solution were successfully achieved.

Humes was also the exclusive pipe supplier for the project, supplying approximately 2700 m of steel reinforced concrete pipe ranging from DN375 to DN1200 for longitudinal drainage.

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