

Project Profile

Dampier Highway Duplication

Constructed 13km of new dual carriageway and a new duplicate bridge over Seven Mile Creek

PROJECT DESCRIPTION

The Dampier Highway Duplication was a design and construct project completed in remote regional Western Australia by the HWA (Highway/Downer Works/Albem Operations) Joint Venture, in partnership with Main Roads WA.

Stage One works involved the construction of 7km of new dual carriageway road between the Karratha town site and the airport, including the construction of a new bridge structure and refurbishment of an existing bridge over Seven Mile Creek.

Stage Two optional works, added at a later date, extended the road an additional 6km from the airport to the Burrup Road intersection.

Other works included traffic signal installation; the construction of new concrete pavements at four intersections; the incorporation of a floodway adjacent to Madigan Road; construction of a new causeway embankment across a three kilometre salt flat; and a 10m high rock cutting at the Burrup.

KEY COMPONENTS

Works included geometric road design, drainage network design, structural, lighting, intersection, pavement and geotechnical design involving:

- Conversion of approximately 13km of highway to dual carriageway between Balmoral Road West in Karratha and the Burrup Peninsula Road near Dampier;
- Construction of a new 100m bridge at Seven Mile Creek;
- Strengthening and improvement of the existing 100m bridge at Seven Mile Creek;
- Linking 10 intersections into the new highway, including four high-strength concrete pavement intersections (over 20,000m²) complete with traffic signals; and
- Several works variations for external stakeholders including Watercorp, Landcorp and The Mac Services group - totalling \$8M.

SPECIAL FEATURES AND CHALLENGES

The construction of high strength concrete pavements at critical intersections were the first standards developed for concrete pavement in WA. The project team also introduced eastern state expertise into the design and construction phases for the pavements, and developed suitable concrete mixes locally, which expedited the process and optimised local resources.

CONTRACT

304/08, design and construct

CLIENT

Main Roads WA

LEAD DESIGNER

GHD

LOCATION

Karratha, Western Australia

TIMEFRAME

Jan 2011 – Feb 2013

PROJECT VALUE

\$110 million



Other special features and challenges included:

- Construction of new carriageway across a 3km salt flat causeway included preloading techniques to manage settlement issues;
- Expansion of three Dampier Salt brine channel culvert structures whilst minimising impacts on their operations;
- Drilling and blasting at the Burrup cutting was successfully managed under strict SEWPaC guidelines to protect the local heritage and environment;
- Extensive traffic management in a high speed area with a high proportion of heavy vehicles;
- Development of suitable causeway rock-fill embankment and pavement materials;
- A change in the specified primerseal approach included a two-coat bitumen emulsion which provided a far improved and more durable solution to counter heavy traffic movements throughout the site;
- The project included the first slip-based, cyclone rated, high speed road light pole in Western Australia; and
- Protective measures were implemented to permit working adjacent to the Dampier Bunbury high pressure gas main.



Awards and Accolades

The project was nominated and a finalist for an **Engineers Excellence Award (WA)** award in the **Environment and Innovation** category.

The project was also very well received within the local community, which was reflected by a very supportive and collaborative Community Reference Group.



PROJECT REFEREES

Brian Norris, Main Roads WA