Demolition of the Angellala Creek Bridges

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About us

Creating a single integrated transport network accessible to everyone

We manage:

- 33,353 km state-controlled roads
- 3078 bridges
- 20 ports

There were:

- 3.6m drivers licensed
- 5.1m vehicles registered
- 3259 taxis licensed
- 232,901 recreational boat registrations
- 866,194 recreational boat licences

Services provided:

- 178m trips taken annually on bus, rail, ferry and light rail in SEQ
- 11.9m outside SEQ

We serve:

- 3.39m customers served face-to-face at 59 Customer Service Centres
- 7.2m online services
- 2.6m go cards in use
- Over 485,000 passengers travel on the SEQ network on average each day

Statistics sourced from the Department of Transport and Main Roads Annual Report 2016–17

Demolition of the Angellala Creek Bridges | 28 November 2017
Setting the scene – Angellala Creek Bridge Incident
Agenda

- Initial involvement
- Demolition of the road bridge
- Demolition of the rail bridge
- Key learnings
Initial involvement

- Department of Natural Resources and Mines Inspectors looking for truck components and residual ammonium nitrate.
- Truck trailer pinned under span 5.
- RoadTek assistance:
  - excavation of material in vicinity of bridge components
  - related structural advice
  - attempted retrieval of trailer.
Truck components
Attempted retrieval of components
Initial assessment of structures

Road bridge

- Identification, location and evaluation of all visible components.
- Assess if components could be salvaged or feasibly re-used.
- Site assessment:
  - spans 3 and 4 and piers 2, 3 and 4 virtually destroyed
  - pier 1 and spans 4 and 5 sustained significant damage
  - span 1 largely intact, with damage at pier 1 end
  - abutment headstocks appeared to be intact
  - wingwalls were broken and separated.
Overview of site
Span 3 – Road bridge
Pier 1 headstock
Initial assessment of structures

Rail bridge

• Bridge on a closed rail line – restoration not a priority.
• Exclusion zone in place around structure – unstable.
• Site assessment:
  • main steel span pushed sideways off piers, hanging suspended
  • steel approach spans either side of the main span pushed sideways by varying degrees, relative to their proximity to the main span
  • timber approach spans virtually untouched.
Railway bridge – main span
Demolition of road bridge

• Risks to be managed:
  • residual ammonium nitrate present
  • unstable support of elevated components
  • prestress and post-tensioning.

• Demolition plan developed to address risks and ensure safe demolition of structure.

• Key points:
  • no exposed flame tools (such as gas axe)
  • staged demolition and anticipated fall paths
  • segmental demolition of units to control release of prestress
  • span 3 left until demolition of railway spans (April 2015).
Recovery of truck components
Pier 1 headstock demolition
Pier 1 headstock demolition
Demolition of rail bridge

• Risks to be managed:
  • working at heights - main span suspended 10 metres in the air
  • instability of steel spans and cast iron columns
  • restraint and tension in rail line.

• Demolition plan developed to address risks and ensure safe demolition of structure.

• Key points:
  • rail lines cut from a safe distance with modified drop saws
  • leader lines established around downstream girders
  • initial plan and back-up plan developed
  • no works in the vicinity of the bridge until all components were at ground level.
Modified drop saws
Demolition of the Angellala Creek Bridges

Demolition of keeper walls

November 2017
Demolition of the Angellala Creek Bridges

Rail bridge spans dislodged
Rail bridge spans cut into segments
Rail bridge spans relocated
Span 3 of road bridge demolished.
Key learnings

• Importance of maintaining structure records:
  • drawings and condition information available for road bridge assisted in planning the demolition works
  • lack of similar information for rail bridge, greater uncertainty.

• Innovation doesn’t need to be expensive:
  • modified drop saws.

• Prepare for the unexpected (particularly in remote sites):
  • uncertainty as to how rail structure would behave
  • nearest ‘large’ town approximately three and half hour drive
  • additional ‘just-in-case’ plant, additional cost
  • developed contingency plans using essential plant.
Angellala Creek Bridge memorial
Thank you and stay connected

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