



BR05 Headstock Integrity

Project Details	
Client	Department of Transport and Main Roads
Project Name	Coomera Connector Stage 1 North - Shipper Drive to Helensvale Road
Contract Number	CN-14818

Reviewed by:

Project Representative	Acciona Representative	Georgiou Representative
Irrelevant information	Irrelevant information	Irrelevant information
Irrelevant information 2/10/2025	Irrelevant information 0/2025	Irrelevant information 2/10/2025

1.0 Background

During the initial level 2 inspections of the BR05 substructure, minor cracking with a width of around 0.1mm was observed across multiple headstocks typically above the columns. The TMR Structures Inspection Manual (SIM) Figure 2.2.3.1a suggests cracking in this region of a headstock is consistent with negative moment cracking. Furthermore, TMR Design Criteria for Bridges and Other Structures (DCBOS) Section 3.15 notes

Any finished concrete, in a non-aggressive area (exposure classification B2 or less), with a crack more than 0.3 mm wide, but less than 0.5 mm wide shall be inspected by an experienced designer (who shall be an appropriate RPEQ), preferably the designer for the bridge or associated structure, who shall certify that the crack is non structural or structural.

With the above in mind, details of the cracking were provided to WBJV through DCRCX#0844 to review and WBJV confirmed the cracks do not adversely impact the structural integrity or durability of the bridge. Subsequently, non-conforming crack widths and lengths were observed on Pier 7, 25,26,27,28 & 29 which was raised under NCR#1078 for WBJV review where WBJV concluded that the cracks were not structural and to be repaired in line with the approved concrete repair procedure to reinstate the durability performance of the headstocks.

AGJV and CVT conducted a review of construction quality documentation and records to look for any anomalies which may have contributed to the observed cracking. No single factor was found to be a likely contributor consistently across all affected piers. A separate assessment further evaluating possible causes of the observed cracking will be completed subsequent to this report.

TMR's review comments culminated in a proof-of-concept load test where Pier 25 and 29 were loaded and the headstock performance was monitored. Ultimately, WBJV confirmed the response and performance of the Bridge was adequate and the design requirements in terms of performance and design life were maintained. Refer to WBJV report for further detail on the Designer assessment and review of crack mapping.

2.0 Designer Assessment

The attached WBJV report CCSD2HR-DES-30STBR05-RPT-000004 summarises the additional design assessment that has been done after cracking was discovered and addresses TMR's comments raised during this process. The summary includes calculation summaries of the affected Headstocks, RPEQ observations from inspections of the cracks and load testing procedure and post-assessment analysis.

3.0 Contractor Assessment

AGJV confirm the approved Contractor's Quality Plan has been adhered to throughout the construction of BR05 Headstocks unless specifically noted otherwise through an NCR. This includes compliance with contract documents (including Department of Main Roads Specifications) and completion of the relevant quality records. CVT have overseen construction as outlined in the Contractor's Quality Plan including but not limited to construction lot audits, release of hold and/or witness points and general construction surveillance.

Considering the above and the attached WBJV report, AGJV confirm that BR05 has been constructed in accordance and compliance with the Project Documents and the Design except as noted in the relevant Non-Conformance Reports. Notwithstanding, these Non-conformance reports have been reviewed by WBJV and rectified where necessary to ensure the structural performance and durability of the bridge is maintained.

4.0 References

- CCSD2HR-DES-30STBR05-RPT-000004
- WBJV Response to DCRCX#0844 – CCSD2HR-DES-30PMDE00-DRE-002352_B
- WBJV Response to NCR#1078 – CCSD2HR-DES-30PMDE00-DRE-002285_D
- Contractor's Quality Management Plan – CCSD2HR-CON-00PMAD00-PLN-000009