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File no: CR142 Old man Gonyah Creek_ Load
Rating Memo 20190905
Subject: CR142 Old man Gonyah Creek Bridge_ Review Load
Rating



Transport
Roads & Maritime
Services

MEMO

Issue

The Upper Lachlan Shire Council (ULSC) has engaged Bridge and Structural Engineering (BSE) of RMS for a high level review for Bridge CR142 Old man Gonyah Creek on Boorowa Rd in absence of bridge drawings.

Currently, the bridge has load limit for General Access Vehicle as recommended by a consultant in their assessment report.

Background

There is no bridge drawing available for the Bridge to assess. Visual inspection and on site measurements show that the bridge comprises 3 simply supported spans of each about 12.00m. The overall and trafficable bridge widths are 7.00m & 6.10m respectively that carries two lanes of traffic.

The bridge is located on the same road that CR141 built on and considering the similarities between two bridges it might be constructed circa 1930s.

The superstructure includes monolithic deck that each comprises 3 cast-in-place concrete beams with cast-in-place slab.

Each pier is made up of two columns which with the headstock make a portal frame.

Level-2&3 inspection findings

The ULSC provided a Report named "CR142:MR248W Boorowa Rd / Old man Gonyah Crk – Level 3 Report" dated 25/06/2019 done by "pitt & sherry".

Based on the mentioned report, the bridge was inspected on foot and no Under Bridge Inspection Unit deployed.

Also, "pitt & sherry" recommended the following load limits including 14t Gross Vehicle Mass (GVM) be applied to the bridge.

Axle Group	Axle Group Load Limit (t)	Maximum Axle Group Load, General Access Vehicle (t)
Single Axle	7	11
Tandem Axle	8	16.5
Tri-Axle	11	20
Quad-Axle	12	20

Analytical Assessment

Analytical assessment could not be carried out in absence of any bridge drawing.

Load Testing / Instrumentation

The bridge was inspected by [REDACTED] and [REDACTED] from RMS Assessment and Evaluation team on 29th August. The testing of this bridge was not in the scope of work. However, testing team was able to conduct a limited test on 30th August after completing Timber Bridge (CR138) testing.

Two Strain Gauges and 3 Displacement Transducers installed by RMS Assessment & Evaluation team, at the maximum sagging locations of Span 1.

The Test Truck loaded for one load level of ST42.5t and positioned at numbers of locations in transversal direction. Also, the Test Truck travelled toward the West and East directions.

Based on the test results, the maximum deflection of beams is less than 1mm (Figures 1).

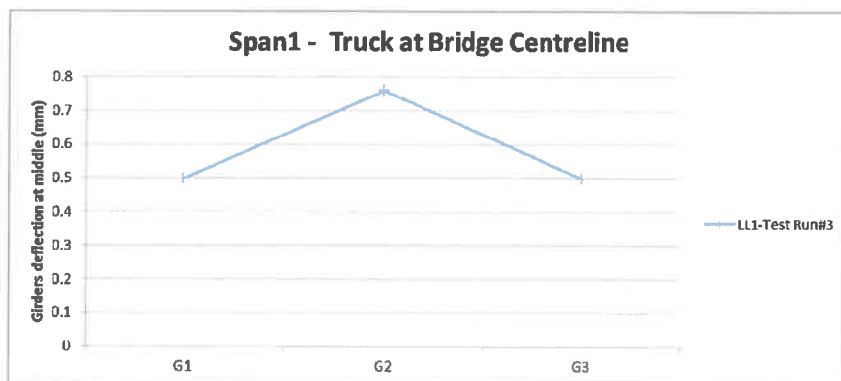


Figure 1-Beams deflection from the Test results

Comments

Considering the bridge behaviour under Test Truck, condition of the bridge and similarities between this bridge and Bridge CR141 (WHeeo Creek), this bridge is suitable to carry General Access Vehicle (GAV) ST42.5.

However, if the bridge is subject to one GAV per marked lane then potential Rating Factors will be less than 1.00 as per load assessment of CR141. However, considering the current usages of the bridge and the chances of heavy vehicles movement simultaneously on both lanes, it is concluded no load limit per lane for the bridge.

It is also concluded that this bridge will be satisfactory to carry 62.5t B-Double i.e. BD62.5t as a Restricted Access Vehicle (RAV).

Recommendations

It is recommended that

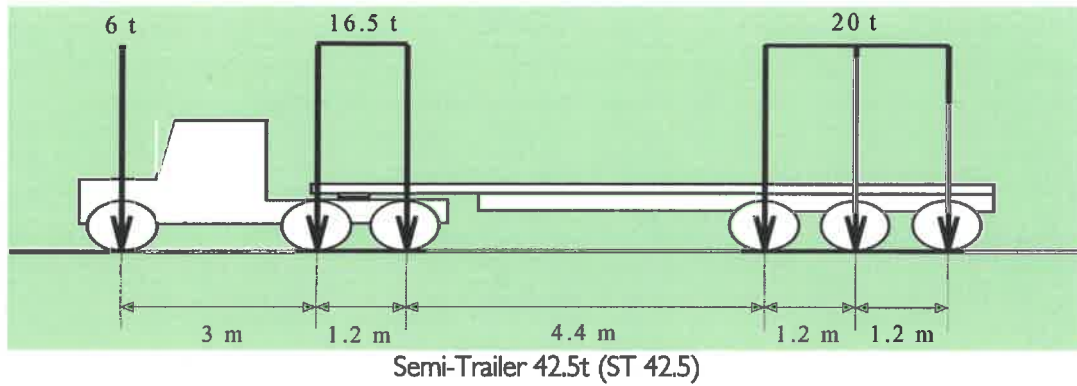
- the bridge be opened for General Access Vehicle ST42.5 and BD 62.5t as a restricted Access Vehicle per laned with a speed limit of 40 Km/h.
- the bridge be allowed one semitrailer ST45.5t or one B-Double 68t under Higher Mass Limit (HML) ie one heavy vehicle at a time..
- the bridge be monitored by inspection regularly to see any sign of distress..
- all required maintenance works as identified in the consultant's inspection Report.to be completed.

References

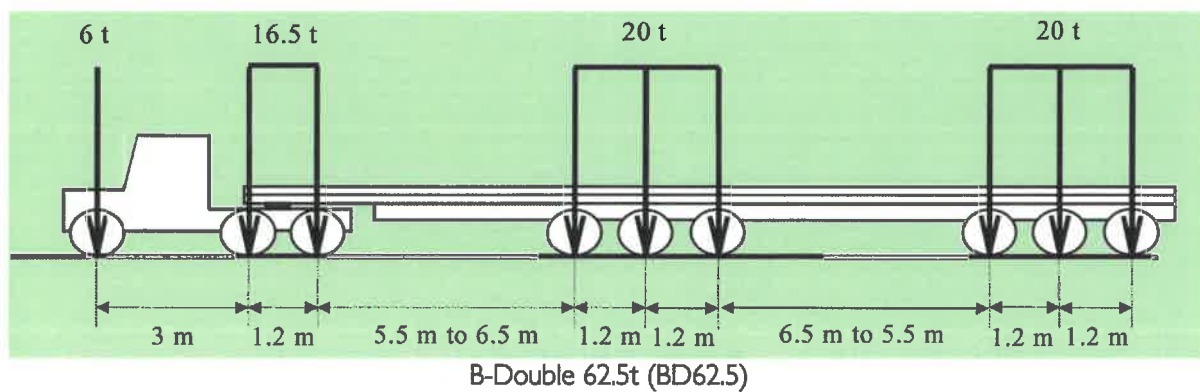
N/A

Appendix

GENERAL/ RESTRICTED ACCESS VEHICLES



ST42.5t is a 1,2,3 axle configured six axle articulated* vehicle with GVM 42.5 tons.



BD62.5t is a 1,2,3,3 axle configured nine axle articulated* vehicle with GVM of 62.5 tons.