



EXPERIMENTAL ANALYSIS OF A GFRP DISMOUNTABLE TRUSS BRIDGE

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Abstract: An 1:2.3 reduced scale model of a glass reinforced polymer dismantlable truss bridge was experimental evaluated during its construction and at service and ultimate loads. The bridge is 6.5 meters long and is composed of two longitudinal prestressed trussed beams whose elements are connected through cast aluminium joints, transversal beams, vertical and horizontal braces and a grillage floor. The considered vehicle load was 11.51 kN, corresponding to a vehicle load of 140 kN in the prototype. Loads and failure modes, deflections and strains were evaluated. The experimental results were quite satisfactory. The failure occurred due to the transverse displacement on the upper central node of the beam, causing the eccentric compression on the tube leading to its rupture by crushing. The ultimate load was 8.48 times higher than the vehicle load.

Keywords: dismantlable bridge, GFRP, experimental analysis, structural behaviour