



## BRIDGE TECHNICAL DIRECTION BTD2008/09

### ***LINK SLABS FOR PRECAST PRETENSIONED CONCRETE GIRDER BRIDGES***

#### **Background**

Clause 5 of AS 5100.4 specifies that the number of deck joints in a bridge shall be minimised. This provides optimal riding quality on the bridge and minimises maintenance related to deck joints. On bridges with superstructures comprising simply supported precast pretensioned concrete girders (e.g. super-T girders or I-girders) and cast-in-situ reinforced concrete deck slabs the continuity of the deck is achieved using link slabs. Link slabs are normally cast after casting of the deck slab in both adjacent spans.

#### **Information and Bridge Technical Direction**

Bridge decks of all new precast pretensioned girder type bridges for RTA and those that will become the property of RTA must be made continuous between abutments using link slabs with deck joints located at the bridge abutments only. However, if the length of the bridge deck exceeds six spans or 200 m, whichever is longer, intermediate expansion joints may be provided.

A longitudinal section through a typical link slab on PSC Super-T girder bridges is detailed on Figure 1 attached. The required lengths of the link slab and debonding shall be determined by the designer. Minimum lengths are specified on Figure 1. The thickness of the deck slab at piers varies, but shall be not less than 180 mm.

The load effects that will determine the required area of longitudinal reinforcement in link slabs include local bending moment, rotation and tension. The area of longitudinal reinforcement should be designed conservatively to ensure well distributed fine cracks in the link slab. Although the skew angle of Super-T girders is limited to 35 degrees, the skew may also influence the area of reinforcement required. The amount of reinforcement may need to be increased as the reinforcement may not be orientated in the same direction as the bending moments. However, the minimum longitudinal reinforcement in link slabs shall be not less than Grade D500N16 reinforcing bars at 75 mm spacings in the top layer and Grade D500N16 reinforcing bars at 75 mm spacings in the bottom layer. The minimum transverse reinforcement in link slabs shall be not less than Grade D500N16 reinforcing bars at 150 mm spacings in both top and bottom layers. The top and bottom reinforcing bars should be staggered to provide optimal space for concrete placing and compaction.

The nominal reinforcing bar concrete cover shall be determined from Section 4 of AS 5100.5 as appropriate for the exposure classification and concrete strength. Cover shall not be reduced despite the presence of bituminous surfacings or waterproof membranes.

In addition to the lengths of the link slabs, length of debonding and areas of longitudinal and transverse reinforcement, the length of laps and deck pouring sequence shall be specified on the drawings. The required delay between the casting of the deck slabs and the link slab shall be specified.

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**References:** RTA Standard Bridge Drawings with detailing of Super-T girders include the following:

RTAB033 Standardisation of Super-T Girder Sections

RTAB033A to RTA033F Open Flange Super-T girders – Reinforcement.

**Effective date:** 25/02/2008

**Approved:** Wije Ariyaratne  
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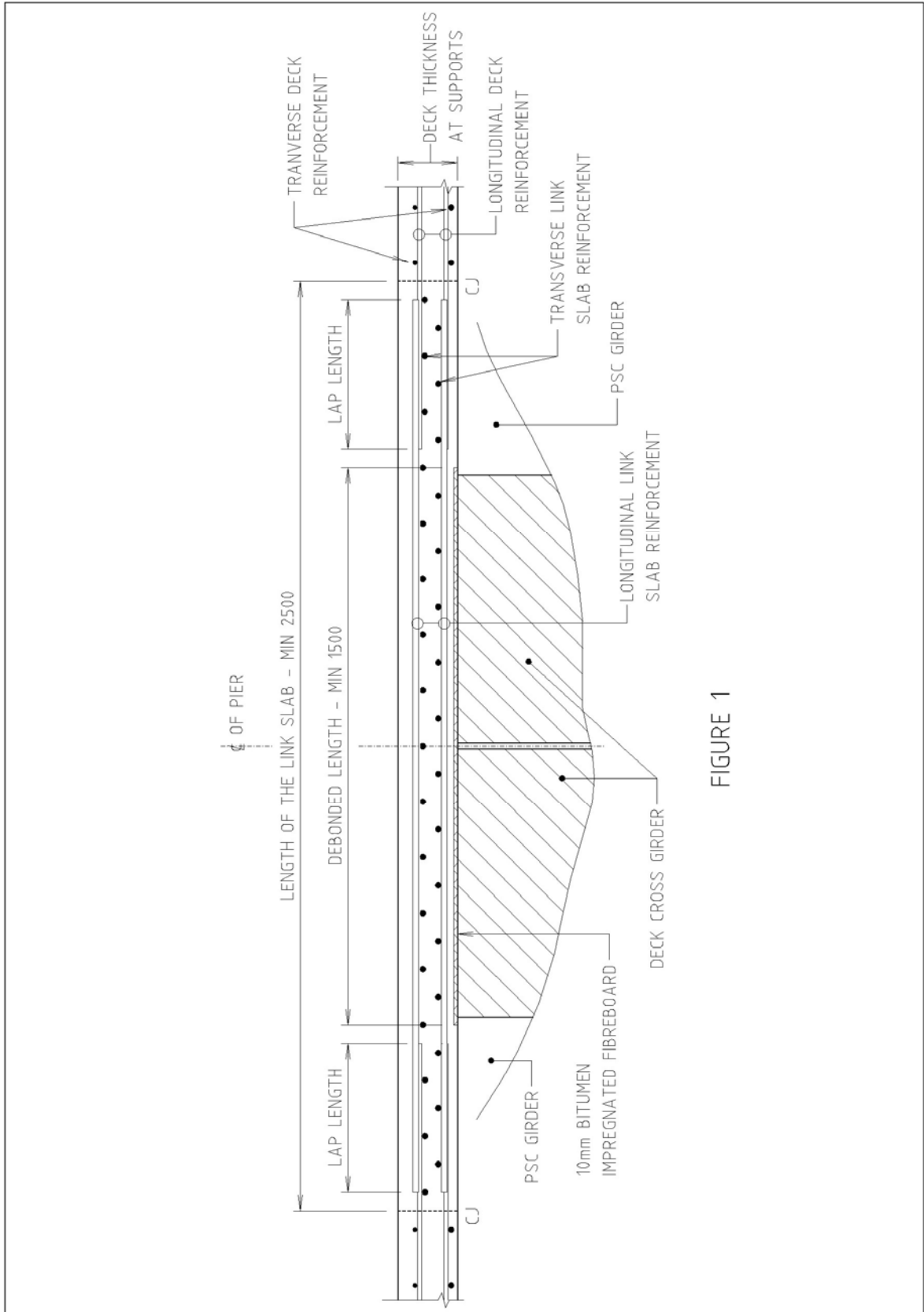


FIGURE 1

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