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10.0 WATERWAY STRUCTURES

10.1 PURPOSE

This chapter is intended to provide supplementary information to expand on some of the elements specified in the Services, Works and Infrastructure Code and the Operational Works Code of the *Brisbane City Plan*. Therefore **the user must read this chapter in conjunction with the *Brisbane City Plan* to ensure that the development proposal complies in its entirety with the relevant codes, provisions and planning scheme policies**.

10.2 DETAILED DESIGN

Design of bridges and major culverts must conform to the following references.

- *Bridge Design Code* (AustRoads).
- Chapter 2 of Part B of this document for flood immunity standards.
- *Public Riverside Facilities – Design and Maintenance Guidelines* (Brisbane City Council).

Hydraulic assessment must be in accordance with procedures set in the publication *Waterway Design. A guide to the Hydraulic Design of Bridges, Culverts and Floodways* (AustRoads, 1994).

All bridge deck joints (eg joints between precast elements, construction joints etc) must be waterproofed using an approved membrane. The design drawings must nominate jacking points and jacking loads for bearing replacement of all bridge bearings. A suitably qualified Registered Professional Engineer Queensland must certify submitted designs.

10.3 PROVISION OF WALKWAYS/ BIKEWAYS

Where appropriate, the design of bridges on major roads over major watercourses and creeks should incorporate provisions of a transverse walkway/bikeway crossing **under** the bridge, as well as the normal footway provisions on the superstructure.

Prior to commencing design of a major bridge or culvert structure, the Consultants should seek advice from the Principal Asset Officer – Structures, Urban Management Division on walkway/bikeway requirements.

The design of walkway/bikeway under a bridge or culvert must generally comply with *Guide to Traffic Engineering Practice - Part 14 Bicycles and Part 13 Pedestrians* (AustRoads).

Concrete footpaths on bridges and culverts must generally be as wide as the verge either side of the bridge/culvert. However, the footpath width may be reduced to 3.0 metres (minimum) at the discretion of the Principal Asset Officer – Structures.

10.4 SAFETY

Appropriate safety measures must be incorporated into all Bridges and Culverts. This may require the use of the following items:

- Flexibeam Guardrail as per Chapter 12 of Part B of this document.
- Fencing as per Chapter 12 of Part B of this document - when the fence is clear of possible longitudinal vehicle impact.
- Appropriate depth indicators and approach warning signs if flooding is possible.
- Appropriate vehicle barriers, for example, high kerbs, and GM barrier, to protect pedestrians and to minimise the possibility of vehicles crashing off the bridge/culvert.