

## Purpose

The standards shown on these sheets have been developed to establish a limited number of practical sections leading to uniformity and simplicity of forming and production methods. These standards are applicable to most conditions of highway bridge loading and usage within the approximate span limits indicated for the sections, and the design loads specified in these General Notes.

## Span Limits

The span limits shown on these sheets are approximate only and are not mandatory at either limit. The span limits shown contemplate the use of concrete weighing 155 pcf (including rebar) and concrete strength of not less than 5000 psi. It is intended that the segment depth should generally increase in 300 mm increments for each 6 M increase in span above the minimum span of 30.5 M.

## Web Thickness

Web thickness for balanced cantilever construction is based on use of 100% internal tendons in top and bottom slabs (no draped internal or external tendons). The web thickness for balanced cantilever bridges with 100% straight internal tendons may be reduced for segments in the interior 60% of spans in accordance with shear requirements and other provisions of the "AASHTO Guide Specifications for Design and Construction of Segmental Concrete Bridges". Reductions in shear and web thickness requirements for balanced cantilever construction may also be achieved by use of draped external tendons in the box cells in conjunction with straight internal tendons.

## Precast Concrete

Recommended minimum strength of concrete is 5000 psi. Concrete of greater compressive strength may be used, and may be required for structural considerations, in which case limiting stresses will be based on the concrete specifications for the actual project.

## Segment Lengths

Maximum Segment Length using these standards is 3000 mm. In curved alignments, the segment length should be kept as close to the Maximum as possible.

## Post-Tensioning Steel

Post-Tensioning steel shall be 7-wire, 1/2 inch or 0.6 inch diameter strands, conforming to ASTM A416 (AASHTO M203), Grade 270. The maximum internal tendon size used for balanced cantilever construction under these standards shall not exceed 15-1/2 inch, or 12-0.6 inch diameter Grade 270 low relaxation strands. Unless otherwise stated in the contract special provisions, other aspects of furnishing, installing and grouting of prestressing steel shall be in accordance with the details shown on the plans, and the "Recommended Contract Administration Guidelines for Design and Construction of Segmental Concrete Bridges", March, 1995, American Segmental Bridge Institute.

## Reinforcing Steel

All reinforcing steel shall conform to the requirements of the AASHTO Standard Specifications, and shall be ASTM A615, Grade 60, or ASTM A706. When permitted welded grillages shall be shop prepared. Field welding of reinforcing steel will be permitted at the discretion of the engineer.

## Shop Drawing Requirements

Shop Drawing Requirements shall be in accordance with the "Recommended Contract Administration Guidelines for Design and Construction of Segmental Concrete Bridges" published by the American Segmental Bridge Institute, March, 1995, unless other provisions are stated in the Contract Special Provisions.

## Fabrication, Formwork, Handling, Storage, Shipment and Erection

Fabrication, formwork, handling, storage, shipment and erection of precast segments shall be in accordance with the "Recommended Contract Administration Guidelines for Design and Construction of Segmental Concrete Bridges", March, 1995, American Segmental Bridge Institute, unless other requirements are specified in the Contract Special Provisions. Angular intersections of formwork shall have a minimum radius of 50 mm. Slab and box edges shall have a minimum chamfer of 20 mm.

## Epoxy Joining of Precast Concrete Segments

When required by the Contract Drawings, epoxy joining of precast segments shall be in accordance with the Recommended Contract Administration Guidelines for Design and Construction of Segmental Concrete Bridges, March, 1995, American Segmental Bridge Institute, unless other requirements are specified in the Contract Special Provisions.

## Temporary Post-Tensioning

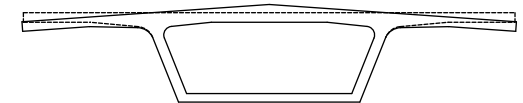
Temporary Post-tensioning required for construction of span-by-span, or balanced cantilever bridges using these standard segments shall be internal bars or tendons in top and bottom slabs unless specifically detailed otherwise in the contract drawings.

## Camber Diagrams

For span-by-span construction, a final, long term camber diagram which compensates for deflections in accordance with the assumed material properties shall be provided by the designer. For balanced cantilever construction, camber diagrams shall be prepared by the contractor and reviewed by the designer.

## Crown Roadway Cross Sections

Crown roadways should be accommodated by rotating the cantilever wings downward and building up the top slab between the webs. The shape of the inside void shall remain unchanged.



## Wearing Surfaces

For those regions in which deicing chemicals are used on roadways, a sacrificial wearing surface is recommended to protect the structural deck and thereby enhance the life of the structure. In regions where deicing chemicals are not used, as-cast riding surfaces without wearing surfaces may be used.

AASHTO - PCI - ASBI  
SEGMENTAL BOX GIRDER STANDARDS

FOR SPAN-BY-SPAN AND  
BALANCED CANTILEVER CONSTRUCTION

GENERAL NOTES