DESIGN BULLETIN #26/2005 (Revised October 2006)

AMENDMENTS TO TRAFFIC ACCOMMODATION REQUIREMENTS FOR TEMPORARY BARRIER REQUIREMENTS ON LONG DURATION BRIDGE CONSTRUCTION PROJECTS AND REQUIREMENTS FOR PRECAST 'F' SHAPED CONCRETE BARRIER (PERMANENT AND TEMPORARY INSTALLATIONS)

Superseded October 2008 by Traffic Accommodation in Work Zones Manual, 1st Edition
http://www.transportation.alberta.ca/597.htm

October 2006 Update to Design Bulletin #26/2005:
Drawing CB6 4.2M16 Rev. 1 Supersedes CB6 4.2M16

Design Bulletin No. 26 is issued as an amendment to the Alberta Infrastructure and Transportation Traffic Accommodation in Work Zones Manual, 2nd Edition, the Typical Barrier Drawings Manual, and the CB6 Highway Standard Plates Manual.

1.0 Introduction

The Department has revised its barrier requirements for traffic accommodation on long duration bridge construction projects, and has issued eleven new corresponding drawings. Nine of the eleven new drawings are Traffic Accommodation drawings (TCS drawings), one is a TEB drawing (3.19) and one is a CB6 drawing (4.2M16).

The nine new TCS drawings supersede five of the existing TCS drawings currently contained in the Long Duration section of the Department's Traffic Accommodation in Work Zones Manual, 2nd Edition. Attached is a table providing details of the new TCS drawings, and lists the five existing drawings which have been superseded.

The new TEB 3.19 drawing is for a Sand Barrel Cushion System, and the new CB6 4.2M16 drawing is for a Precast Concrete 'F' Shape Barrier. New Drawing CB6 4.2M16, shall be required and shall meet the requirements of NCHRP 350, Test Level 3. Drawings CB6 4.2M1 to CB6 4.2M14, inclusive, are obsolete and shall be deleted from CB6 Highway Standard Plates Manual.

Copies of all new and revised drawings referenced in this Bulletin are available on the Department's web page and are attached below.

2.0 Background

Currently, the Department's standard traffic accommodation drawings for all long duration bridge construction projects call for water-filled traffic barriers which meet the National Cooperative Highway Research Program's (NCHRP) Report 350, Test

Level 2 crash tests. The intended function of these barriers is to protect workers and safely direct public traffic through work zones.

It has recently been brought to the Department's attention that the water-filled barriers do not meet the NCHRP Report 350, Test Level 2 crash tests, and may not provide sufficient protection at higher speeds (> 60 km/hr). On impact, the water-filled barriers have shown an excessive deflection of 3.4 metres. Conversely, concrete barriers have shown only 1.8 metres of deflection on impact.

Consequently, the Department has decided to revise its barrier requirements from water-filled to concrete barriers on long duration bridge projects with posted speed zones greater than 60 km/hr; and on projects which have a drop equal to, or greater than, 300mm from the roadway surface to the deck surface, regardless of the posted speed.

3.0 Description of New Barrier Requirements

Following is an overview of the new requirements for temporary barriers on long duration bridge construction projects.

a) Projects with a posted work zone speed of 60km/hr or less, and that have a drop of less than 300mm from the roadway surface to the deck surface:

- Interlocking water-filled barricades (1.83m long x 1.06m high) are acceptable, and do not have to meet NCHRP 350 compliance tests.
- 50 metre buffer zone is desirable and recommended.

b) Projects with a posted work zone speed in excess of 60km/hr, or that have a drop equal to, or greater than, 300mm from the roadway surface to the deck surface:

- Continuous Precast Concrete 'F' Shape Barriers, as specified in Drawing CB6 4.2M16, will be required and shall meet the requirements of NCHRP 350, Test Level 3.
- The exposed end of the concrete barrier shall be protected by crashworthy end treatments such as sand barrels for the applicable posted work zone speed (see drawing TEB 3.19).
- 25 metre buffer zone is desirable and recommended.
- The concrete barriers may be terminated outside the clear zone (Table C5.2a of the Highway Geometric Design Guide) without end protection.

4.0 Implementation

All construction tenders advertised from this point forward will be subject to the amendments made to the Alberta Infrastructure and Transportation Traffic

Accommodation in Work Zones Manual, 2nd Edition, the Typical Barrier Drawings Manual, and the CB6 Highway Standard Plates Manual as specified in this bulletin.

A Special Provision will be included in all future tenders which will specify that traffic accommodation requirements on long duration bridge construction projects shall meet the requirements of the Alberta Infrastructure and Transportation Traffic Accommodation in Work Zones Manual, 2nd Edition, and as amended by this Bulletin.

In the case of permanent precast concrete barrier installations, the new Precast Concrete 'F' Shape Barriers, Drawing CB6 4.2M16 as indicated in this Bulletin, are to be implemented immediately unless the cost or timing does not allow such a change to be made on a specific project. The decision to revise or not will be made at the discretion of the Project Sponsor.

Date of Issue: April 15, 2005.
Effective Date: April 15, 2005.
Revision Date: October 3, 2006.

Conflicts Between Drawings

Where there are conflicts between drawings, the most recently approved or revised drawing should be used. Any outstanding questions should be directed to the Technical Standards Branch (Attention: Joe Mah, Telephone (780) 415-1018).

Attachments:

TCS Drawings:

TOCTAinWZ2 (Table of Contents)
Tcsb1m19b
Tcsb1m20b
Tcsb1m21b
Tcsb1m22a
Tcsb1m23b
Tcsb1m24b
Tcsb1m25b
Tcsb1m26a
Tcsb1m27a

TEB Drawing:

TEB 3.19
http://www.infratrans.gov.ab.ca/INFTRA_Content/docType233/Production/trafbarr.htm

CB6 Drawing:
CB6 4.2M16
http://www.infratrans.gov.ab.ca/INFTRA_Content/docType233/Production/rds006.htm

Download Typical Drawings (Various formats) For Temporary Construction Signing (Zipped Files)