

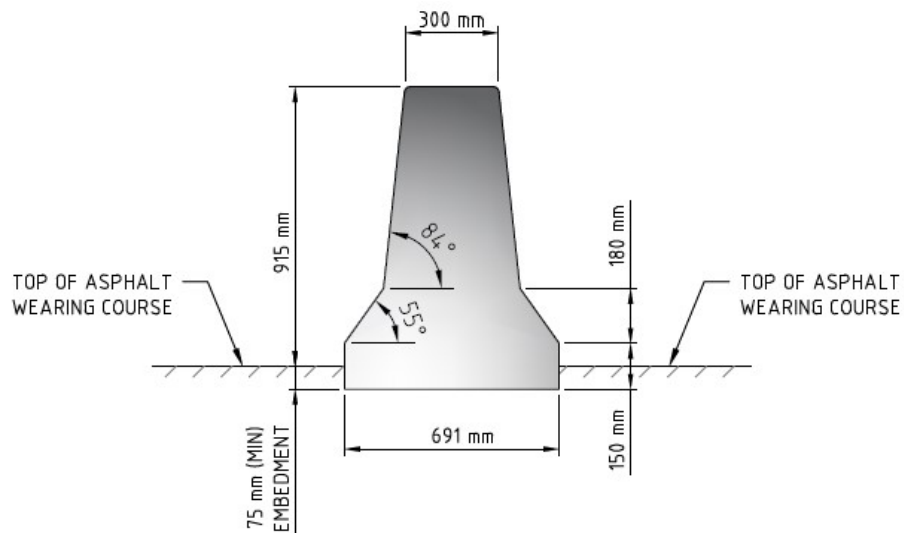
# CONCRETE BARRIER – TYPE F DESIGN SHEET

## REVISION REGISTER

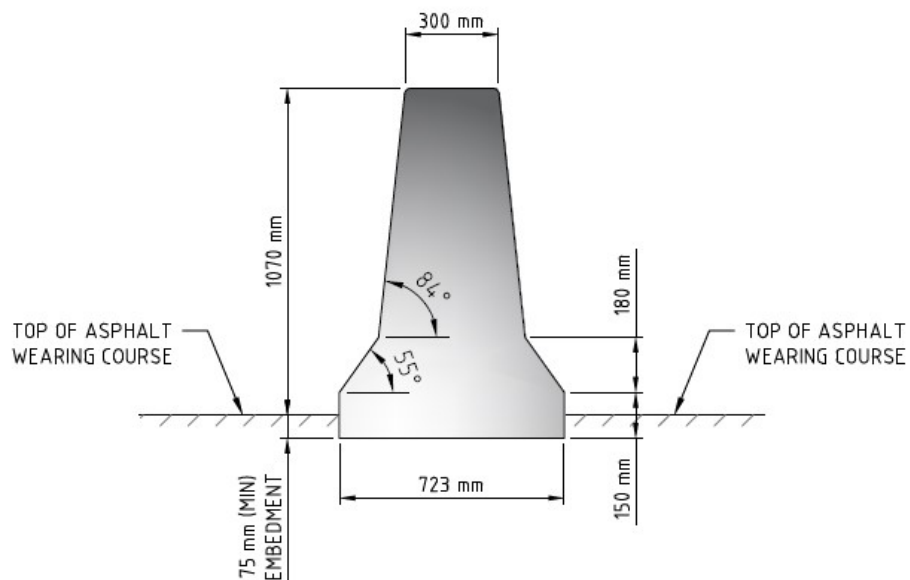
Revision	Description	Date
1	Issued for Use	23/02/2004
1 A	General revision.	03/03/2006.
1 B	Minimum length modified and general editorial changes.	11/05/2009.
1 C	General revision	2/11/2017
1 D	MASH Test Levels adopted	02/10/2018
1E	Vehicle roll allowance reference	31/10/2019

The Type 'F' is an accepted Main Roads concrete barrier shape but is not the preferred permanent concrete barrier profile.

### Drawings:



**MASH TEST LEVEL 4 CONCRETE BARRIER - TYPE 'F'**



**MASH TEST LEVEL 5 CONCRETE BARRIER - TYPE 'F'**

**Ownership:** Public Domain

**Supplier:** N/A

**Test Level:** MASH

MASH Test Level	Height (mm)	Foundation
4	915	The Type 'F' concrete barrier that was accepted to NCHRP 350 TL-4 requires the lateral restraint equivalent to 25mm thickness of asphalt for a width of 3.0m. Note that the impact energy for MASH TL-4 is 58% greater than the impact energy for NCHRP 350 TL-4. Note 75mm of embedment into the pavement is also required in addition to the provision of the required lateral restraint.
5	1070	Acceptance of the Type 'F' concrete barrier at Test Level 5 is based on the crash testing of the Ontario Tall Wall concrete barrier, which is 1070mm high and has a base width of 820mm and 75mm embedment. The Type 'F' concrete barrier requires lateral restraint equivalent to 75mm thickness of asphalt for a width of 3.0m.

**Design Considerations:**

**Deflection:**

None.

**Minimum Length:**

30 m at lengths less than this the barrier has insufficient strength to resist impacts. Where the hazard extends above the barrier and the design vehicle is a heavy vehicle it is desirable to extend the barrier at full height past the hazard for a minimum of 5.0 m.

**Offset from Kerbing:**

Kerbing is not to be placed in front of the barrier.

**Approach to barrier:**

The approach to the barrier should be a trafficable running surface at a slope of 1 in 10 or flatter clear of objects and grade changes to allow an errant vehicle to hit the barrier at an appropriate height.

**Vehicle Roll:**

Where the hazard being protected by a rigid barrier extends above the height of the barrier the Designer should ensure that adequate separation from the face of the barrier to the hazard is provided to allow for the roll of high vehicles (such as trucks) hitting the hazard. Refer to Main Roads Supplement to Austroads Guide to Road Design - Part 6, to determine the vehicle roll allowance.

**End Treatments:** The ends of concrete barriers are typically protected with crash attenuators or by transitioning to another barrier type. For approved crash attenuators refer to the relevant End Treatment Design Sheet. Only crash tested transitions shall be used to transition between barrier types.

**Limitations:**

- Consideration of occupant impact values should be given when selected for use in situations of high impact angles (> 20 degrees).
- Objects should not be placed on top of concrete barriers where practical.

**References:**

Item	Description
1	Reports: <ul style="list-style-type: none"><li>• Minimum Rail Height and Design Impact Load for MASH TL-4 Longitudinal Barriers.</li><li>• Safety Performance of Concrete Median Barriers under Updated Crashworthiness Criteria.</li></ul> Copies can be found on Main Roads file 08/1891

## Relevant FHWA Approval Letters

[https://safety.fhwa.dot.gov/roadway\\_dept/countermeasures/reduce\\_crash\\_severity/barriers/pdf/b64.pdf](https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/barriers/pdf/b64.pdf)

Code	Description
B64	NCHRP 350 TL-4 approval at 810 mm and TL-5 approval at 1070 mm height.

**Drawings:**

Refer to Main Roads Standard Drawings 200331-021 and 200331-022 for transition details of W Beam and Thrie Beam to concrete barriers.