Austroads Technical Advice | August 2017
Austroads Safety Barrier Assessment Panel
SBTA No 17-002 Proximity of Safety Barriers to Batter Hinge Point

Preamble

Space in the road corridor is premium. In an effort to maximise space for other infrastructure and landscaping, the proximity of the post to the batter hinge point is often reduced during the design process, without evidence or justification through crash testing. Best practice ensures that the vehicle remains on the verge and there is no damage to the batter following an impact.

The purpose of this Technical Advice is to provide commentary and work towards a harmonised approach by Road Agencies regarding proximity of barriers to batter hinge points.

Audience

Road Agencies

Background

Austroads Safety Barrier Assessment Panel receives submissions from Proponents seeking reduced proximity of barriers to batter hinge points. The Panel has provided advice to Proponents indicating that issues such as constructability, performance of the product, impact on posts and space behind batter for workers need to be addressed.

Proximity of posts to batter hinge points is not harmonised. Currently, jurisdictions have different requirements and public domain and proprietary products are subject to varying approvals.

One road agency has adopted the measurements shown in Figure 1 which may be used as a guide to installers and designers.

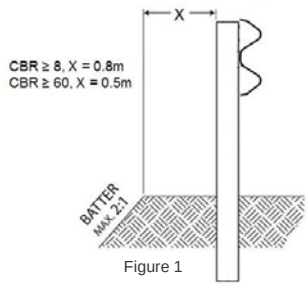

Figure 1

Commentary

The preference is that the distance to the hinge point is sufficient to accommodate the barrier's design deflection and provide adequate lateral support for the system.

Where the distance of the adjacent traffic lane to the hinge point is restricted, it may be possible to place the barrier closer to or at the hinge point rather than changing the width of the shoulder. This may involve the use of longer posts or other treatments to ensure that there is sufficient lateral support for the barrier system.

The length of the posts is likely to be determined by the width of the shoulder and the embankment slope beyond the hinge point. A documented and substantiated risk management case is also required.

Issues for consideration are barrier performance, vehicle stability, integrity of footings and embankment slope stability. The proposed footing or anchorage must be at least equivalent to that used during compliance testing in order to adequately resist lateral or longitudinal displacement as well as rotation or pull-out.

Maintenance of the barrier and the area behind the barrier may be difficult and appropriate maintenance procedures should be considered and documented as part of the installation requirements.

Recommendation

Safety barriers should be installed with sufficient distance to hinge points that allow a vehicle to remain upright during impact. Where such distances are reduced due to site constraints, barrier footings and posts must be suitably designed to take into account variations to slope stability, barrier proximity and the accepted level of performance of the barrier system taking into account local jurisdictional requirements.

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