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1 SCOPE

This specification covers posts and footings required to provide a defined level of passive safety for occupants of vehicles impacting such a post. Such posts may be described externally as frangible posts (refer definitions in item 3.)

It is to be noted that such a passive safety post is targeted at safety of vehicle users, but may provide less protection to pedestrians than a high strength post in the event of a crash.

Scope is limited to posts required to be used in permanent positions adjacent to the roadway for traffic management and/or drivers’ information in the State of New South Wales.

This specification is intended to be used in conjunction with a general specification for a post that covers the overall needs.

The existence of this specification shall not be taken to imply that passive safety posts are required by default, but in the event that a passive safety post is required, this specification describes the requirements associated with passive safety.

The following are not included within the scope of this Specification:

- Policy or policies defining which applications, usages, activities or locations, require passive safety posts.
- Policy defining the level of passive safety applicable
- Application specific structural requirements e.g. for static load, wind load, deflection, vibration, and installation and maintenance forces.
- Environmental requirements, e.g. temperature, humidity, UV resistance, water resistance, corrosion.
- Design requirements for the application – e.g. cable access, mounting points, footings, socket designs, lifting brackets, enclosures integrated or attached etc.
- Labelling, identification and traceability requirements
- Reliability, Maintainability, Repairs, Replacement or Cost
- Quality plans, production testing and release inspection.
- Certification and Statutory compliance
- Packaging, transport and handling
- Manuals, e.g. Operation, Maintenance and Installation.
2 REFERENCES AND APPLICABLE DOCUMENTS

2.1 International Standards

[1] EN 12767 - Passive Safety Of Support Structures For Road Equipment - Requirements, Classification And Test Methods

2.2 Australian Standards

[2] AS 1170.2 – Structural design actions - Wind actions

2.3 RMS Documents

[3] TS201 – Approval of ITS Field Equipment

3 DEFINITIONS AND GLOSSARY OF TERMS

For the purposes of this Specification, the following definitions and abbreviations shall apply:

RMS – Roads and Maritime Services; a New South Wales Government Agency

Frangible – Frangible means “easily broken”, or “weak”. However, typically deformability to absorb impact is sought.

A generic requirement for a frangible post stated outside this specification shall be assumed to be a requirement for a passive safety post, without constraint on the means by which passive safety is provided, unless explicitly defined otherwise in that external source.
4 REQUIREMENTS

4.1 Compliance with Standards

Passive Safety posts shall comply with the relevant sections of EN 12767 (ref. [1]).

4.2 Structural

Passive safety is an additional requirement to the overall needs of a post, not an alternate requirement. The passive safety post shall also meet the design structural requirements for the anticipated usage and locations. Structural considerations shall include as applicable

4.2.1 Static load
4.2.2 Wind as per AS 1170.2 for Terrain Category 2, Region B. (ref. [2])
4.2.3 Deflection e.g. to limit sway, if the post is intended for use with items that require movement to be limited to functionally perform as required.
4.2.4 Dynamic loads/behaviour such as vibration, wind induced harmonics, harmonics from other sources such as movement of the mount due to traffic, and fatigue resistance.
4.2.5 Forces expected to occur during installation and maintenance

4.3 Replacement Capability and Assessment

A passive safety post and its associated mounting/footing shall be designed in such a way that should its “passive safety” be exercised due to impact/collision, practical and cost effective means are available to reinstate the site with a replacement post.

4.3.1 The passive safety shall allow for ease of installation of a replacement post if the post is damaged due to an impact or collision.
4.3.2 The supplier shall specify the criteria to be assessed when a passive safety event is reported, to define the scope of restoration activity
4.3.3 The supplier shall provide methods and limits enabling a practical site based pass/fail assessment of minor damage (dent/bend etc), to distinguish damage that mandates replacement from damage that is tolerable and does not require post replacement.

Note: Passive safety posts, by their very nature, are likely to require more replacements than high strength posts.

4.4 Limitation of region of possible cable damage

Where electrical and communication cables are used in the application and these involve the post or post footing, design consideration shall be given to the consequences on such cables of exercise of passive safety.

In the event of impact/collision such that the post's “passive safety” be exercised:

4.4.1 The associated footing/pit design shall prevent the transmission of cable tension from this cause into supply ducts (e.g. to limit the region of potential cable damage from this cause to that of the post and the footing or a closely located cable storage pit.).
4.4.2 The associated footing/pit design shall provide a practical and cost effective means (e.g. sufficient accessible undamaged cable) to connect replacement cables to feed hardware on the post. This shall be usable for at least three post replacements.
5 APPROVAL

5.1 Approval for Passive Safety aspects

The supplier shall provide information to RMS via the ITS HelpDesk (ITSHelpdesk@rms.nsw.gov.au) according to the process defined in TS201 (ref. [3]) to demonstrate compliance to the passive safety requirements, as defined in this specification.

5.2 Overall Approval for a specific application

To gain overall approval of a passive safety post design, the supplier shall follow the process defined in TS201 (ref. [3]), expanded to cover all requirements for that application. Such detail application specific requirements would typically be covered by a further specification defining overall needs for a post for that application.