

<p>PLASTIC WATER FILLED DEVICES</p> <p>Longitudinal safety barriers are expected to redirect an errant vehicle. Devices that do not redirect may have other uses such as vehicle capture. All Plastic Water Filled Devices (PWFDs) are temporary devices. Useful PWFDs are now categorised as either “Longitudinal barriers” or “Capture devices” and are separated primarily on their ability to redirect.</p>	<p>RTD 2011/001 June 2011</p>
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Definitions

Longitudinal Barriers:

“A device whose primary functions are to prevent vehicular penetration and to safely redirect an errant vehicle” (NCHRP350).

“All longitudinal barriers, including roadside barriers, bridge rails, median barriers and temporary barriers, are designed to contain, redirect and shield vehicles from roadside obstacles”. (MASH)

Capture devices:

“A device whose primary functions are to arrest the vehicle (and not redirect it) on the traffic side of the system without over riding, under riding or penetrating the system in any way”. (Austroads National Safety Barrier Assessment Panel)

History

The details of earlier PWFD acceptances are outlined in the 1996 version of the Road Design Guide (RDG).

The RTA recalled PWFD's listed in the RDG as having an existing acceptance for reassessment on 30 September 2009.

In late 2009, WorkCover and the RTA issued a joint Safety Alert on “Safe Work on or Near Public Roads – Issues with Plastic Water-filled Safety Barriers”

<http://www.workcover.nsw.gov.au/formspublication/s/publications/Pages/safeworkpublicroadsissuesplasticoncontainedwaterfilledsafetybarriers.aspx>

The Safety Alert recognised that the RTA was reviewing the acceptance status for older products including two plastic water filled barriers.

The acceptance status for plastic water filled barriers has been completed to the stage where categorisation is now possible.

Background

In the context of a work site a safety barrier is a physical barrier separating the work area and the travelled way, designed, as far as practicable, to resist penetration by an out of control vehicle and redirect it back onto the road.

The ability of PWFDs to perform as a safety barrier has been examined at length with due consideration being given to their ability to redirect errant vehicles.

It appears that PWFDs as a group act as a capture device rather than being re-directive.

Austroads National Safety Barrier Assessment

Prior to being given acceptance for use on the classified road network a product must first be assessed by the Austroads National Safety Barrier Assessment Panel.

A recommendation has now been given on the use of PWFDs and this recommendation has been accepted by the RTA. The details follow.

For: Project Management, Road Services, Contractors, Designers, Consultants, OHS personnel, Road Safety and Traffic Management practitioners Page 1 of 2

<p>Enquiries: e-mail to: technology_standards@rta.nsw.gov.au</p>	<p>This issue has been approved by: Chris Harrison, Group General Manager, Engineering Technology 7th June 2011</p>
<p>Phone: Bernard Hammonds (02) 8837 0101</p>	

Categorisation

PWFDs are now categorised as:

- Temporary Capture Device (non-redirective capture)
- Temporary Longitudinal Barrier (redirective)

Note: Devices which do not fit into the above two categories may, subject to other restrictions, be used as channelizing devices and are not the subject of this Direction.

Design

For a capture device, at some point along the system, the performance of PWFDs changes from gating to that of capture and the point at which this occurs is established by crash testing or modelling. It is possible that there are other modes of operation at lower speed, angles, mass or longer installation lengths (being re-direction or failure) but the conditions under which this might occur have not been adequately demonstrated for currently considered product.

The performance of a PWFD as a capture device based on standard testing is difficult to predict and hence design.

Until suppliers provide further information about the performance characteristics of their PWFDs, Technology Standards (Road) is unable to provide detailed design advice for this category.

For a safety barrier, at some point along the system, the performance also changes from gating to that of redirection and again the point at which this occurs is established by crash testing or modelling. Typically, devices which redirect are more able to cope with a range of impact conditions than devices which capture.

Current products

No new PWFDs are accepted as temporary longitudinal barriers at this time (see phasing out below for existing accepted product).

Phasing out

Following the adoption by the RTA of the recommendation of the Austroads National Safety Barrier Assessment Panel, PWFD products historically accepted and used as longitudinal barriers are not now considered to fall within the longitudinal safety barrier category.

These products will be given a phasing out period as a longitudinal barrier with restrictions on placement and usage, with limitations set by an assessment of risk. Typically, a speed restriction will be applied.

See the current acceptance status for details.

Limited Use Category

For one shift usage, it is envisaged that situations might occur where protection of the workzone is required but it is not possible to deploy an accepted longitudinal safety barrier. Until such time as a redirective barrier is available that can be efficiently deployed for one shift usage, then an accepted capture device may be used. That usage must comply with restrictions on placement and usage, with limitations set by an assessment of risk. Typically, a speed restriction will be applied.

See the current acceptance status for details.

Acceptance Status

A full list of RTA accepted safety barrier systems and conditions of use are available on the RTA website.

http://www.rta.nsw.gov.au/doingbusinesswithus/designdocuments/safety_barriers.html

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