



ABSORB[®] 350

Non-Redirective Gating Crash Cushion

Product & Installation Manual

For permanent and temporary steel and concrete barrier

Please call Australian Construction Products on 1800 724 172 or visit www.acprod.com.au for more information

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SMARTER SAFETY SOLUTIONS

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Product & Installation: ABSORB[®] 350 Non-Redirective Gating Crash Cushion

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Product & Installation: ABSORB® 350 Non-Redirective Gating Crash Cushion

Preface

ACP's ABSORB® 350 crash cushion system is a water-filled, non-redirective, gating crash cushion.

As with any roadside safety device, the ABSORB® 350 system must be installed properly to ensure proper performance. Thoroughly review and fully understand the instructions and product limitations before starting the installation. Do not start the installation without the proper plans and tools required.

If you require additional information or have questions about the ABSORB® 350 Crash Cushion System please call ACP on 02 8708 4400 or go to www.acprod.com.au

Introduction

The ABSORB® 350 system has been tested to meet the rigorous requirements of NCHRP Report 350. The system attaches to permanent and temporary steel and concrete barrier.

The ABSORB® 350 system is a non-redirective, gating crash cushion for narrow hazard protection, with similar performance characteristics to other non-redirective, gating crash cushion systems. ABSORB® 350 is easy to install and requires no foundation or anchoring. It is easy to maintain, and it restores in minutes after impact.

Non-redirective, gating, crash cushions are frequently used at locations where the vehicle post impact trajectories can be accommodated behind the system. If it is desirable to have the majority of post impact vehicle trajectories on the impact side of the system, a redirective, non-gating crash cushion should be considered such as a TAU II.

System Overview

The ABSORB® 350 system is designed and constructed to provide acceptable structural adequacy, minimal occupant risk and safe vehicle trajectory as set forth in NCHRP 350 for a non-redirective, gating, crash cushion. Individual sections of the system are linked and pinned together to form a continuous freestanding installation (i.e. the system is not anchored to the foundation surface). The effective length of each element is 1m and the effective overall height is 800 mm.

The effective width of the upright portion of each section is 610mm. Each section is fabricated out of a roto-molded shell that is filled with water and fitted with steel hardware to allow the sections to be connected. The mass of each section is approximately 39kg empty and 317kg filled. Each section takes 265L of water to fill.

Required Tools

- > 12 mm drive deep sockets: 19 mm, 24 mm
- > Open / box end wrench: 19mm, 24mm
- > 12 mm drive ratchet with extensions
- > Rotohammer for drilling holes in concrete: 12mm X 250mm bit
- > Measuring tape
- > Safety equipment: glasses, gloves
- > Air impact wrench (Optional)
- > Crow bar

Note: The tools list is a general recommendation. Depending on the specific characteristics of the job site, additional tools may be necessary.



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Before Installation

Placement and use of the ABSORB® 350 system should be accomplished in accordance with the road controlling authority guidelines and the drawings in this manual.

Depending on the application and circumstances at the job site, installation and assembly should take a two-person crew less than 1 hour.

The ABSORB® 350 is a highly engineered safety device made up of a relatively small number of parts. Before starting the assembly, become familiar with the basic elements that make up the ABSORB® 350 system.

Limitations and Warnings

The ABSORB® 350 Non-Redirective, Gating, Crash Cushion has been designed and tested to perform in accordance with the criteria set forth in the National Cooperative Highway Research Program Report No. 350 (NCHRP 350) for devices in this specific category.

The impact performance of the crash cushion systems described in this document have been conducted under controlled conditions.

It is very important to note that non-redirective crash cushions should be applied to locations where there is not a need for redirection of impacting vehicles and where there is an adequate clear zone adjacent to the system. The ABSORB® 350 crash cushion requires a clear zone of 6 x 22.5m. Workers, equipment and materials should be a minimum of 6m behind crash cushion.

When properly installed and maintained the ABSORB® 350 crash cushion allows an impacting vehicle to be stopped in a safe and predictable manner under the NCHRP 350 impact conditions. Vehicle impacts that vary from

the NCHRP 350 impact conditions described for non-redirective, gating crash cushions may result in significantly different results than those experienced in testing. Vehicle impact characteristics different than, or in excess of, those encountered in NCHRP 350 testing (weight, speed and angle) may result in the system performance that does not meet the NCHRP 350 evaluation criteria.

The adjacent road operating speed must be limited to an operating speed of 70kph.

Placement in 80 kph zones is accepted subject to the site specific risk assessment noting that the product may only be used where high speed side impacts are unlikely, penetration behind or vaulting over the barrier has been managed and use of a redirecting impact attenuator is not feasible for reasons other than cost or convenience.

The installation should endeavour to minimise the impact angles to 25 degrees (1 lateral: 2.14 forward). The system should be filled with the appropriate fluid and delineated in accordance with road controlling authority requirements. The ABSORB® 350 system should always be installed on a firm surface that prevents the system from becoming embedded in the surface over long periods of time. Debris and foreign objects should not be in the clear zone.

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Safety statements

General Safety

- > All required traffic safety precautions should be complied with. All workers should wear required safety clothing (high visibility vests, steel capped footwear, gloves etc.)
- > Only authorised trained personnel should operate any machinery. Where overhead machinery is used, care must be taken to avoid any overhead hazards.
- > Gloves should be worn at all times.

ABSORB® 350 Safety Statements

- > All installers must be well clear of the water tanker when the elements are being filled.
- > The ABSORB® 350 is a stand alone crash cushion and does not require at any stage during installation that the surrounding soil be dug or drilled in anyway.
- > The empty elements weigh 39kg each and should be unloaded by two personnel. Do not attempt to lift an element that contains water.
- > Final positioning of the empty elements and placement of the steel connecting pins should be done by one person, so as to remove the risk of hands and fingers being caught between the components.

System design considerations

Slopes

A maximum approach and cross slope of 1:10 is preferable. On slopes greater than this, approval is required from the road controlling authority.

Curbs

As with all road side safety hardware, the ABSORB® 350 crash cushion has been designed and tested so the centre of gravity of the impacting vehicle is a constant height in relation to the system. For this reason the ABSORB® 350 cannot be installed in front, on top or behind the curb as it will alter the height of the vehicle at impact. The curb will also affect the performance of the system through limiting deflection.

Undulating ground conditions

Site specific grading may be necessary to ensure that there are no “humps” or “hollows” that may significantly alter the impacting vehicles stability or substantially alter the height of the ABSORB® 350 in relation to the ground.

Median and roadside applications

ABSORB® 350 crash cushion can be used in both ‘roadside’ and ‘median’ applications.

Soil Conditions

ABSORB® 350 is installed above ground so soil conditions on site are not applicable. However it is recommended that the ABSORB® 350 is installed on a compacted surface.

Clear Zone

Ensure that there is a 6 x 22.5m clear zone to enable the ABSORB® 350 to gate if hit downstream from the head.

Operating Speed

ABSORB® 350 can only be installed at locations where the road operating speed is 70kph or less. Use on 80 kph roads is accepted subject to a risk assessment and conditions, see under ‘Limitations and Warnings’ on Page 4.

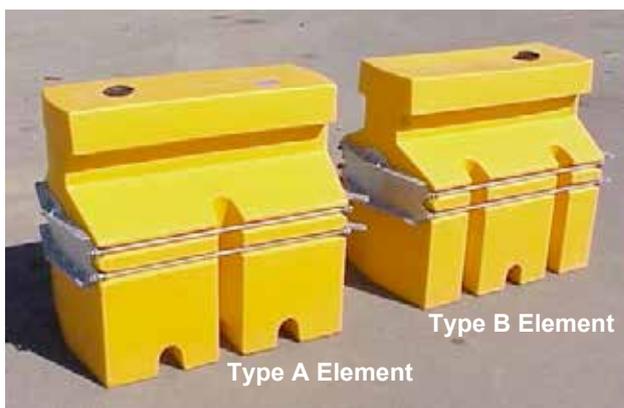
Product & Installation: ABSORB® 350 Non-Redirective Gating Crash Cushion

Installing the ABSORB® 350

A. Install the Transition Assembly – [Page 7](#)



B. Assemble the ABSORB® 350 elements – [Page 12](#)



C. Install the Nose Piece – [Page 15](#)



PCB Nose piece

Note: The Delineation shown is for illustrative purposes only. For the applicable delineation refer to the local road controlling authorities guidelines.



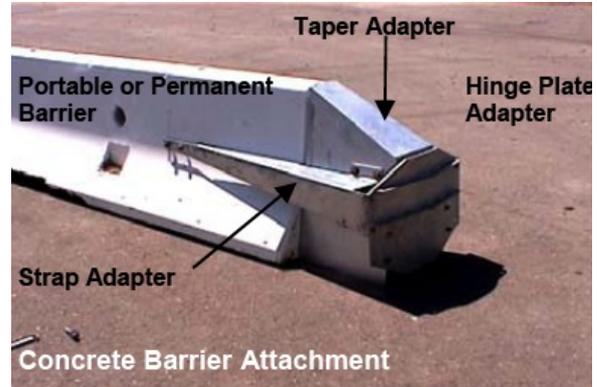
Product & Installation: ABSORB® 350 Non-Redirective Gating Crash Cushion

Transition Installation

One or two people can easily accomplish the initial installation. The installation should be completed prior to filling the energy absorbing elements with water. Start installing the transition assembly first at the concrete barrier wall end and assemble towards the nosepiece. **Before starting the installation, open and inspect all of the hardware kits. Lay out all nuts, bolts and washers as needed for the installation.**

STEP 1

Attach the transition to the concrete barrier using the pin and loop system.



1.1

Insert the Anchor Bolts through the holes in the adapter. There are two sets of holes in the adapter, use the holes on the top of each set.



1.2

Install the nuts with washers on the end of the anchor bolts that are now on the inside of the transition.



1.3

Remove the pin from the end of the steel or concrete barrier.





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1.4

Align the Anchor bolt loops with the barrier loops so the pin can pass through all four of the loops. If there is interference due to the height of the loops, adjust the height of the Anchor Bolts by repeating step 1.1



1.5

Install the pin down through the four loops.



1.6

Tighten nuts on the Anchor Bolts so that the adapter is tight against the barrier.



1.7

Tighten the four nuts on the Anchor Bolts to 20 Nm. Then install a jam against the first nut with a torque of 55Nm.



1.8

Option: In the event that the Taper Adapter is installed on a permanent concrete wall, mounting bolts must be installed. Place the Taper Adapter against the wall in its proper position. A punch can be used to mark the concrete in the four spots that the anchor bolts would be located.





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1.9

Drill four holes and install the 12mm wedge anchor bolts. Torque the 12mm nuts on the wedge anchor bolts to 55Nm.



1.10

Once the Taper Adapter has been securely attached (using either method mentioned above) install the Side Straps to both sides of the Taper Adapter. **Attach loosely, do not tighten at this time.**



1.11

Attach the Hinge Plate Adapter to the Slide Straps and Taper Adapter with 8 x 12mm x 32mm NC GR 5 CADII PLTD bolts. **Fill all holes. All transition components should be loosely installed at this time.** Level the side straps and use the holes in the straps as a guide to mark the barrier where the bolt holes will later be drilled.



1.12

Now that the Strap Ends are at their final "level" position on the barrier, drill 4 x 12mm diameter holes, 80mm deep in the side of the PCB. Install 4 x 12mm x 108mm wedge anchor bolts. Place one 12mm flat washer and nut on each anchor bolt. **Do not tighten.**





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1.13

Remove the Hinge Plate Adapter that was loosely attached earlier.



1.14

Tighten the Side Strap nuts and bolts on the steel transition housing.



1.15

Reinstall the Hinge Plate Adapter, installing bolts with washer right-to-left, top-to-bottom. Do not tighten until all bolts are installed. When reinstalling the plate, the use of a round tapered aligning bar is helpful when placed in the upper left bolt hole during reassembly.



1.16

Properly tighten ALL transition bolts.



1.17

Tighten the anchors on the Side Straps.



Installation Complete





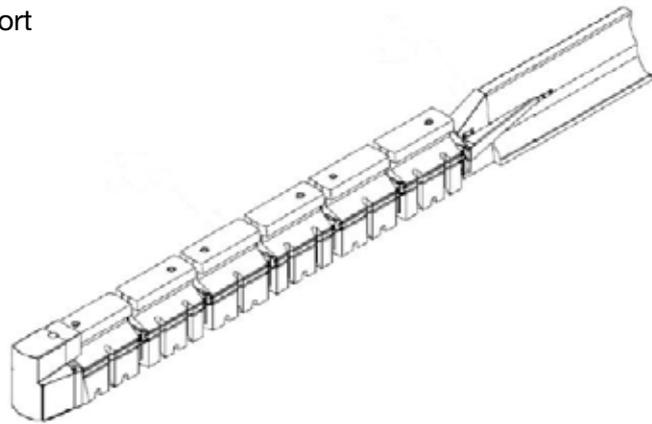
Product & Installation: ABSORB® 350 Non-Redirective Gating Crash Cushion

Carefully choose the required system

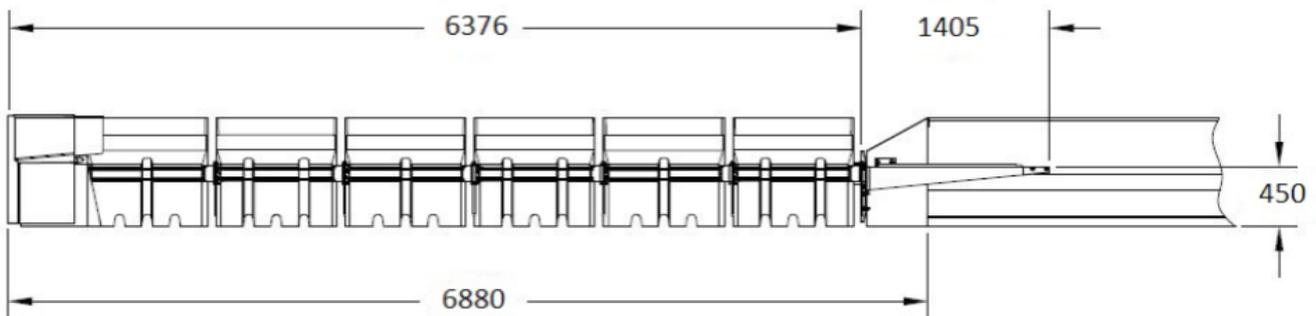
The ABSORB® 350 Crash Cushion System has been fully designed and tested to comply with the evaluation requirements of the National Cooperative Highway Research Program Report 350 NCHRP 350 for Test Level 2 – 70 kph. The TL-2 system contains six energy absorbing elements.

The use of any other configuration requires the approval of the road controlling authority.

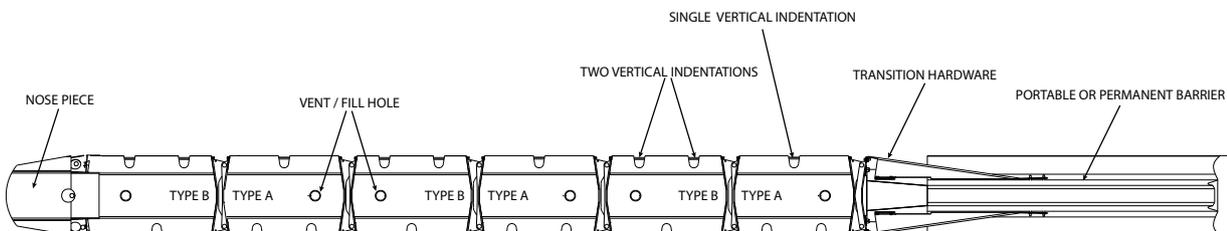
Roadside safety features, such as crash cushions, must be installed in accordance with the road controlling authority standards and guidelines and in conformance with the suppliers instructions.



Isometric View: Absorb 350 TL 2 (70km/h), Six Element System



Elevation: Absorb 350 TL 2 (70km/h), Six Element System

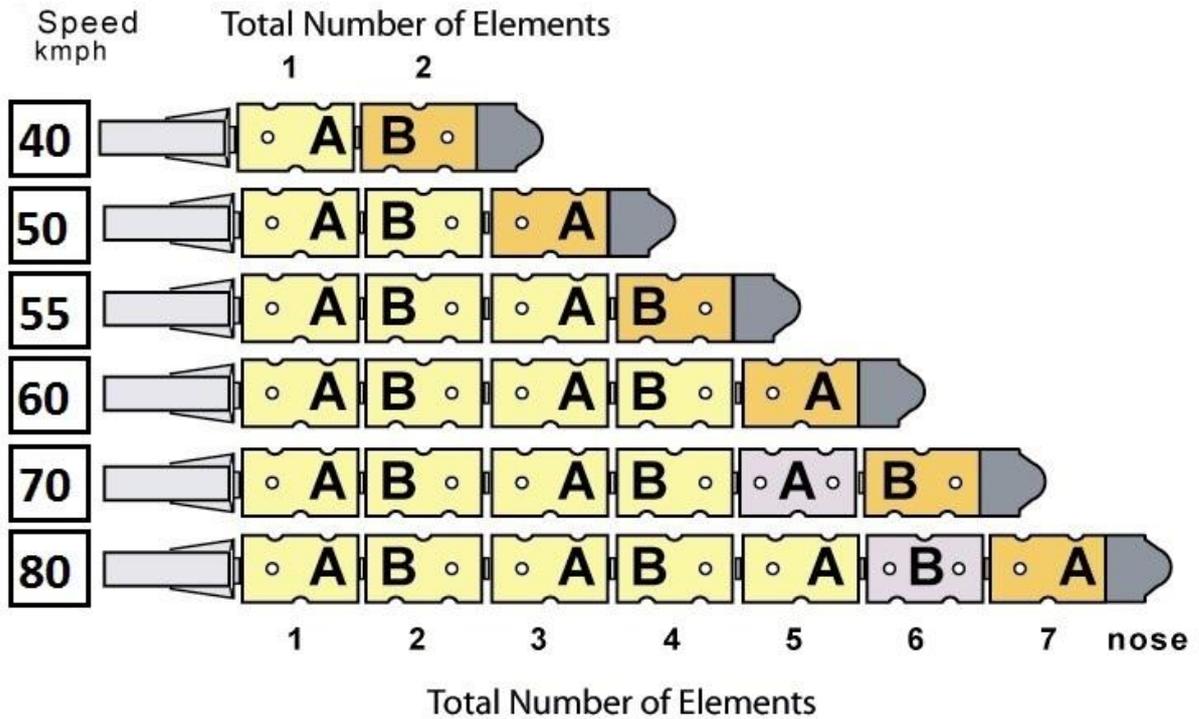


THE ORIENTATION OF THE VERTICAL INDENTATIONS AND THE VENT FILL HOLE MUST BE AS SHOWN IN THIS DRAWING. REFER TO THE ABOVE DRAWING FOR THE TYPE A AND TYPE B ELEMENT ORIENTATION



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ABSORB® 350 System Configuration Chart



Legend

- Transition
- Type "A"
- Type "A" (2-hole)
- Type "B"
- Type "B" (2-hole)
- Nose
- Empty Element

Note: The variants listed above are applicable to the Australian market however road controlling authority approvals and specifications of the ABSORB® 350 take precedence in the accepted use of the variants above.



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Install Energy Absorbing Elements

There are two types of Energy Absorbing Elements and each type has a forward and rearward end. The forward end is considered the end that faces the Nose Piece. The rearward end faces the Concrete Barrier wall. The two types of elements are identified by the number of vertical indentations along each side in relation to the front and rear hinges. See a picture of the two different elements on page 6 and the picture of Step 2 on page 13.

When the ABSORB® 350 system is assembled, it is important to ensure that the two types of elements are **always assembled in an alternating fashion** as shown in the System Configuration Diagram on Page 11. Thus, when you look down either side of the assembled system, you should see an alternating pattern of vertical indentations (i.e. two, one, two, one, etc.).

Step 1

Install the first Energy Absorbing Element (Type “A”) to the Hinge Plate Adapter by inserting the pin on each side of the hinge. Make sure that the harness clip on the pin is installed in the small hole located on the hinge next to the pin.



Install the pin with clip



Pin configuration



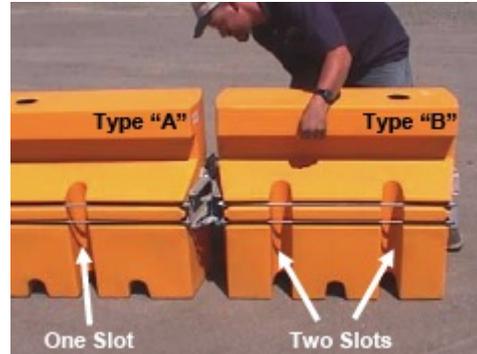
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Step 2

Continue attaching, alternating Type “A” and Type “B” Energy Absorbing Cartridges by repeating Step 1, until the desired system length is reached.

Important note:

(Follow the element orientation exactly as shown in the configuration diagram on page 11.) The additional evaporation caps for the new holes are shipped in the nose piece box.



Step 3

Four tabs connect the final Energy Absorbing Element to the nose piece. These tabs are the mounting points for the nosepiece. The hardware is packed in the nose piece box.



Step 4

Attach the tabs as shown in the picture above. Before tightening the bolts, align the tabs so that a pin can be inserted from the top, through both of the holes. The upper tabs attach to the bottom side of the top hinge flange and the lower tabs attach to the top side of the bottom flange.



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Step 5

Align the tabs with the holes located on the inside of the Nose Piece. Slide the Nose Piece over the hinge tabs. The nose piece will fit over the corners of the Energy Absorbing Element.



PCB Nose – Slide corners over the final element

Step 6

Attach the Nose Piece on the end of the final element with the two 10mm x 381mm pins that link the Nose Piece to the tabs on the hinge assembly. There are three (3) access holes in the Nose Piece (one on top, and one on each side). Use the two side access holes for the installation of these pins. After the pins are installed, attach the pin harness clips to the small mounting hole next to the access holes. It is very important that the Nose Piece does not become detached during an impact.



Pin harness clip attached to mounting hole

Step 7

Before filling the elements with water, align the system elements with the downstream barrier.

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Step 8

Fill all of the Energy Absorbing Elements with water, except the final element. **The element that attaches to the nosepiece must not be filled with water.** Fill the remaining elements with water to a level that is within 50mm from the top of the fill hole.

Example:

Only fill 4 elements for Test Level 2
(5 total elements)

Note – Filling the element attached to the nose piece with water will cause the system to perform improperly and may cause serious bodily injury.

In regions where the water filled ABSORB® 350 elements could become frozen or if conditions could fall below zero degrees, additives should be used to stop the water freezing. Refer to the local road controlling authority for acceptable additives.

The ABSORB® 350 elements should be inspected regularly to ensure that the elements that are intended to contain water (or antifreeze fluid) are kept at adequate fill levels.

Step 9

Install the Evaporation Prevention Cap into the top of each plastic element. The cap needs to be securely pushed down to prevent evaporation. In addition, the tie strap should be securely fastened through the hole in the cap and the hole located next to the cap on the top of the element.

Inspection

The metal components and fasteners of the system should be periodically inspected to ensure that the system remains intact and able to perform in a safe and effective manner.

Replacement of damaged parts

Any component within the system that becomes damaged should be replaced immediately.



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SECTION A: This checklist is to be used as a guide for the safe installation of ABSORB® 350.

ABSORB® 350 Crash Cushion

Installation Checklist 70 kph or Less	Y	N
Is the road operating speed 70 kph? NOTE: If the terminal is to be used for an 80 kph operating zone complete section B additionally.		
Are the units positioned on level ground i.e. max across and approach slope of 1:10?		
Is the crash cushion set out as per the design instructions in the Product and Installation manual?		
Is the vehicle impact angle, with the crash cushion, limited to 25 degrees (1 lateral: 2.14 forward)?		
Ensure workers and equipment are not located in the safety or clear zone.		
Are the correct number of elements for the sites peak and non-peak Operating speeds and are they in the correct order? Refer to the System Configuration Diagram (Page 6).		
Is the Transition anchored to concrete with 4 anchor bolts and to steel with 2 pins?		
Are all the elements pinned together as per Installation Manual?		
Have the elements been configured as per the configuration chart?		
Have all elements except the final element been filled with water?		
Are all elements aligned with the downstream barrier?		
Has Delineation been applied to nosing as per road controlling authority requirements?		
Have tools and equipment been removed from site on completion of the installation?		
Is there any debris under or between the elements?		
Have drive by inspections been scheduled? Minimum monthly.		

Note: To be completed if ABSORB® 350 is required to be used in 80 kph zones

Installation Checklist 80 kph	Y	N
Have all criteria in Section A of the checklist been met?		
Has the risk of high speed side impact been assessed?		
Has the risk of penetration behind or vaulting over the barrier been assessed?		
Has the use of a re-directing impact attenuator been assessed not feasible for reasons other than cost or convenience?		
Is there a 30m clear run out area behind the barrier?		
Is the application to be used at 80 kph for a short time?		
Have drive by inspections been scheduled to occur more frequently?		
Has the site specific risk assessment been carried out and approved by the site engineer?		

Location:			
Installed by:		Date:	
Inspected by:		Date:	



Product & Installation: ABSORB® 350 Non-Redirective Gating Crash Cushion

ABSORB® 350 Clear Zone Requirement

ABSORB® 350 TL-2-connected to anchored concrete barrier.

Note: The Run Out Area will be less for lower rated ABSORB® 350's such as a 50 kph unit due to its shorter length.

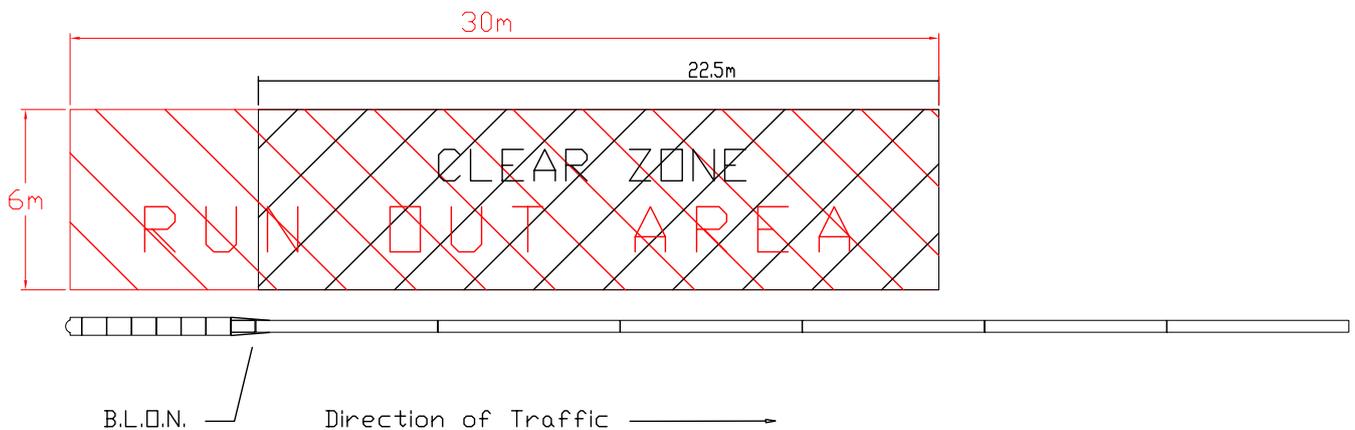
The Run Out Area is measured from the front of the ABSORB® 350 to the Point of Need or (B.L.O.N.) plus a Clear Zone of 22.5m.

Run Out Area required for 70 & 80 kph ABSORB shown below only.

Note: Deflection downstream of Barrier Length of Need (B.L.O.N.) as per performance criteria of the concrete barrier (typically 1.5m to 1.8m for unanchored barrier).

Deflection of an anchored barrier is assumed to be 0.5m.

Note: For unanchored barriers the Point of Need or B.L.O.N. is typically further downstream from ABSORB® 350/Barrier interface as determined by an Engineer in accordance with the road controlling authority standards. In such case the Run Out Area will increase.



Equipment and workers should not be in the Run Out Area or Clear Zone or within deflection distance of the barrier.

Product & Installation: ABSORB® 350 Non-Redirective Gating Crash Cushion

Frequently Asked Questions – ABSORB® 350 Crash Cushion

1. What type of equipment is required to install the ABSORB® 350?

Each element of the ABSORB® 350 weighs 39kg (empty) so can be unloaded, positioned and stacked by hand by two personnel. Elements are connected together by pins.

To fill the elements a standard water truck with 62.5mm diameter hose is used (265L required per element).

2. Does your company provide spare parts? What is the lead-time of supply?

It is important to fix a damaged crash cushion as soon as possible because it most probably won't perform as required when damaged. Replacement components are available between one and three working days.

3. Does your company teach installers to service and repair the ABSORB® 350? On average, how long does this take?

Full training can be given to installers on how to service and repair the ABSORB® 350 system. The time taken to do any repairs will depend on the severity and location.

4. Is the performance of the ABSORB® 350 jeopardised when the water is frozen?

Performance of the crash cushion may not be as intended if the water freezes. If conditions are below zero degrees additives can be used to stop the water freezing.

Refer to the road controlling authority for acceptable additives.

5. Can the ABSORB® 350 “nose piece” be angled off the concrete barrier to better face traffic?

The ABSORB® 350 system is designed to be flexible to allow for “small angle adjustments” and movement at job site. The “nose piece” can be angled off to face traffic as long as all of the ABSORB® 350 units remain pinned and fully connected. For larger angles the last concrete section is moved to face traffic to reduce tension on the system.

6. What about “vandalism?” Can the ABSORB 350 units be easily cut or damaged?

The ABSORB® 350 system has been designed to minimize the potential for vandalism. It is made of durable linear low density polyethylene (LLDPE) that is approximately 7mm thick to reduce the likelihood of blunt or sharp objects from penetrating the top or side walls.

7. How is the ABSORB 350 drained?

The ABSORB® 350 system can be drained in minutes by following this easy three-step process:

- 1) Uncap the 75mm fill hole located at the top of each unit,
- 2) Unpin the unit from adjacent units, One person with a pry bar can tip the unit on its side until it is partially drained and then rotate the unit upside down to be fully drained. Drainage can also be accomplished by using a water truck with vacuum or reversible pump capabilities.

8. Can the ABSORB® 350 elements be moved when full?

It is possible and extreme care must be taken, a full unit weighs 317kg. Each unit must be lifted mechanically and used with the appropriate machinery and safety equipment.



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ABSORB® 350 Crash Cushion Maintenance

Introduction

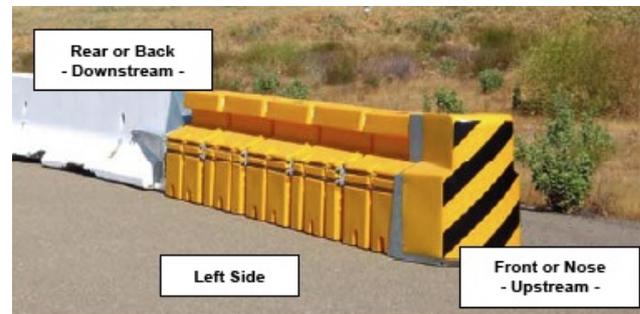
As with any roadside safety device, the ABSORB® 350 must be properly maintained to insure proper performance. Thoroughly review and fully understand the maintenance instructions and product limitations before performing any maintenance. Do not begin any maintenance operation without the proper plans and tools. For further guidance, refer to the ABSORB® 350 Installation portion of this manual.

If you require additional information or have questions about the ABSORB® 350 Crash Cushion System please call **ACP on 02 8708 4400** or go to **www.acprod.com.au**

Layout Conventions

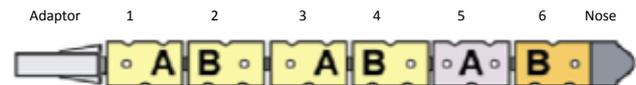
The picture of the ABSORB® 350 system is labeled to show the descriptive terms that will be used throughout this manual. The descriptions are based standing at the nose end looking back.

Note: Delineation is shown for illustrative purposes only. Refer to road controlling authority guidelines.



Element Counting Convention

The picture of the ABSORB® 350 system below is labeled to show how the elements are numbered throughout this manual.



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Inspection / Drive-By

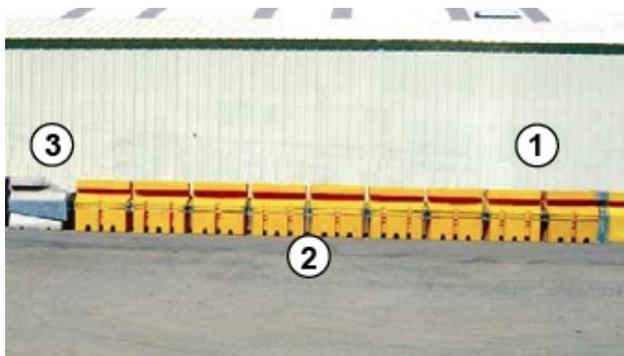
The frequency of Drive-By inspections is dependant on the traffic volume and the impact history of the system. Drive-By inspections are recommended at least monthly.

- 1) The inspector should be moving at a speed that is sufficiently slow enough to detect impact or environmental damage (debris). If any damage is observed, a Hands-On inspection is warranted.
- 2) Make sure that all of the elements are present and that there is no debris lodged between the elements.
- 3) If delineation has been applied to the nose cover, make sure that it is still properly applied and visible.
- 4) If the system appears to have been impacted in any way (scrapes, paint marks, etc.) a Hands-On inspection should be made.

NOTE: It is important to keep a logbook of all Drive-By inspections for each installed system. Record the date of the inspection and observed condition of the system.

- 1) Look for tyre or paint marks on front and side transition.
- 2) Look for debris between elements (tyre, garbage, etc) under unit.
- 3) Look for transition damage.

Although there may be no obvious damage, paint marks along the side would indicate an impact and the need for a hands on inspection.



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Inspection / Hands-on

The frequency of Hands-On inspections is dependant on the traffic volume and the impact history of the system. Hands-On inspections are recommended at least yearly.

- 1) Check that all of the elements are straight.
- 2) Check in the spaces between the Energy Absorbing Elements (EAEs) to remove any debris that may have accumulated.
- 3) Check the water level in the elements. The water should be within 50mm of the top of the element. There should be no water in the element attached to the nose piece.
- 4) Check the condition of and the placement of all Energy Absorbing Elements. Replace any damaged Cartridges. Refer to the diagram on Page 11 for proper placement.

NOTE: It is important to keep a log book of all Hands-On inspections for each installed system. Record the date of inspection, the observed condition of the system and any replaced items.

Post Impact Inspection – Repairs

After an impact, the system must be thoroughly inspected to determine which parts can be reused and which parts will need to be replaced. The system must be repaired to its original condition to operate properly during the next impact.

- 1) If the system has sustained an impact, detach the damaged elements by removing the two side pins and properly discard. Replace the damaged element with the same type of element Type “A” or “B”.

NOTE: Due to the possibility of reduced performance, any elements with bent side rods should be replaced.

- 2) Ensure that the system is re-installed in the proper configuration by referencing the system configuration diagram on Page 11.
- 3) Inspect for damage to the bolts that attach the transition. Remove and replace any damaged bolts.
- 4) Inspect the Nose Piece for damage. Repair or replace the Nose Piece if there is damage and apply the proper delineation.
- 5) Make sure that all of the pins are in place on both sides of the system.



Product & Installation: ABSORB[®] 350 Non-Redirective Gating Crash Cushion

**Appendix A - Safety Barrier
System Conditions**

Transport
Roads & Maritime
Services

Safety Barrier System Conditions

ABSORB 350 Plastic Terminal - Temporary

The conditions for use of the ABSORB 350 Plastic Terminal - Temporary on the New South Wales classified road network, are shown in the attached *Safety Barrier System Conditions*.

The conditions are based on the determination of the Austroads Safety Barrier Assessment Panel.

Safety Barrier System Conditions

ABSORB 350 Plastic Terminal - Temporary

	Proponent	Lindsay Transportation Solutions and Australian Construction Products Pty Ltd
	Australian Distributor	Australian Construction Products Pty Ltd
	New Zealand Distributor	CSP Pacific
	Date Issued	4 March 2015

Status	Accepted – May be used on the classified road network. These acceptance conditions take precedence over any instructions in the Product Manual.
Variants accepted	5 water filled unit system, plus 1 empty unit and a nose piece (70km/h). 6 water filled unit system, plus 1 empty unit and a nose piece (80km/h - subject to restrictions below).
Variants NOT accepted	<ul style="list-style-type: none"> Variants that are not on the list above are not accepted. Variants accepted in other jurisdictions, but not accepted in the local jurisdiction, are NOT permitted.

Speed limit (km/h)	70 km/h. Restricted to use on work zones posted less than or equal to 70km/h. Placement in 80km/h zones subject to site specific risk assessment noting that the product may only be used where high speed side impacts are unlikely, penetration behind or vaulting over the barrier has been managed and use of a redirecting impact attenuator is not feasible for reasons other than cost or convenience.
Tested containment (kg)	2,000 kg at 100 km/h and 0°. Extract from USA Federal Highway Administration Letter HSA-10/CC66B: <i>“ABSORB 350 attenuator can result in vehicular vaulting and subsequent intrusion over 100 feet into the area behind the barrier thus requiring a significant clear runout area”.</i>
Adopted dynamic deflection (Nominal 2 tonne vehicle)	Not applicable.
Point of need	Not applicable.
Development length	Not applicable.
Minimum length of barrier between terminals	Not applicable.
System width (m)	0.61 metres.

System conditions	1. Use of the ABSORB 350 Plastic Terminal in conjunction with the RTS QMB barrier system is covered by a separate acceptance.
Terminal conditions	<ol style="list-style-type: none"> Not permitted for use on a permanent concrete barrier. When used with a temporary barrier, provide a 30 metre clear runout area. Installation on top of a kerb is not recommended, however if installed on top of a kerb, all system components must be free to operate.
Gore area use	Not permitted.
Pedestrian area use	Permitted – consider gating operation.

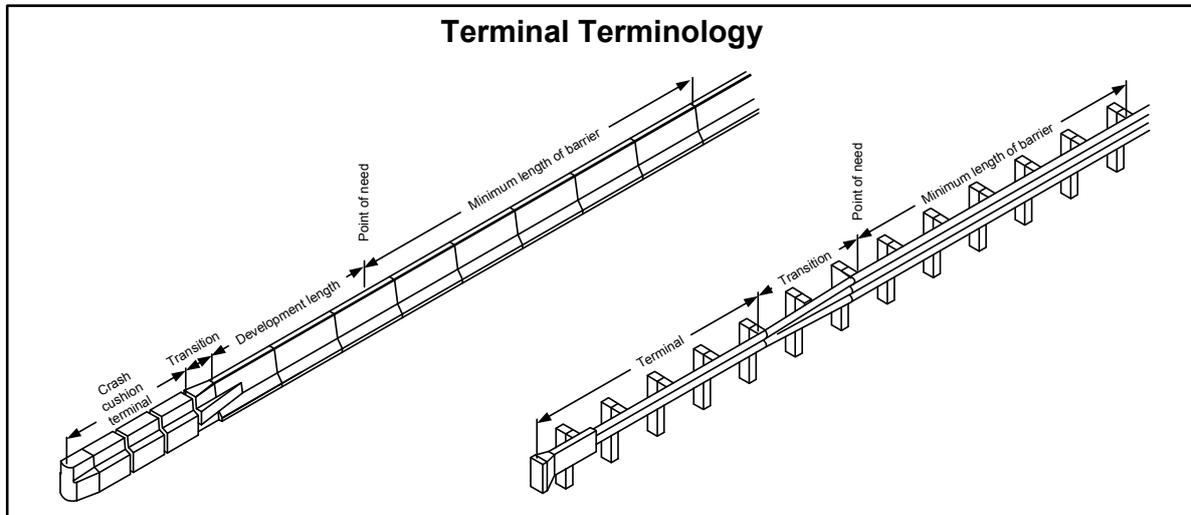
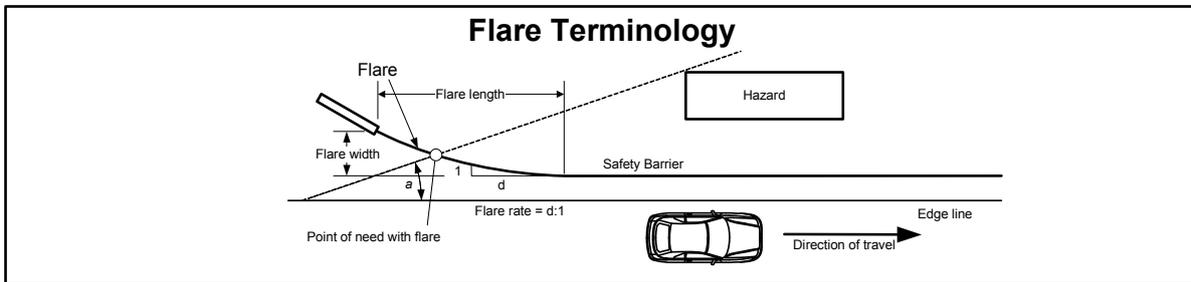
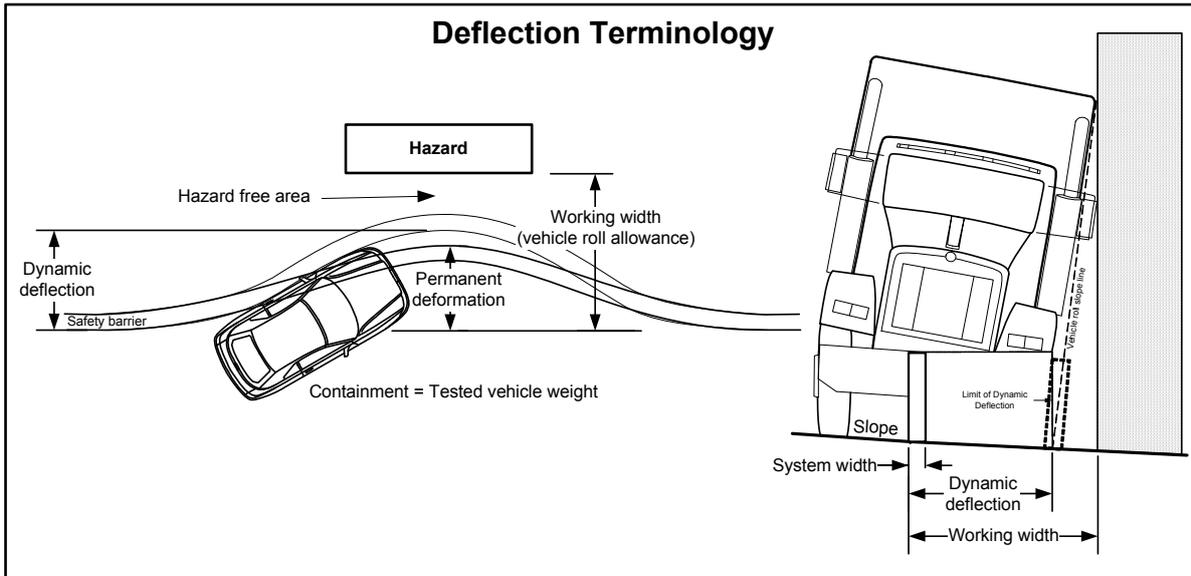
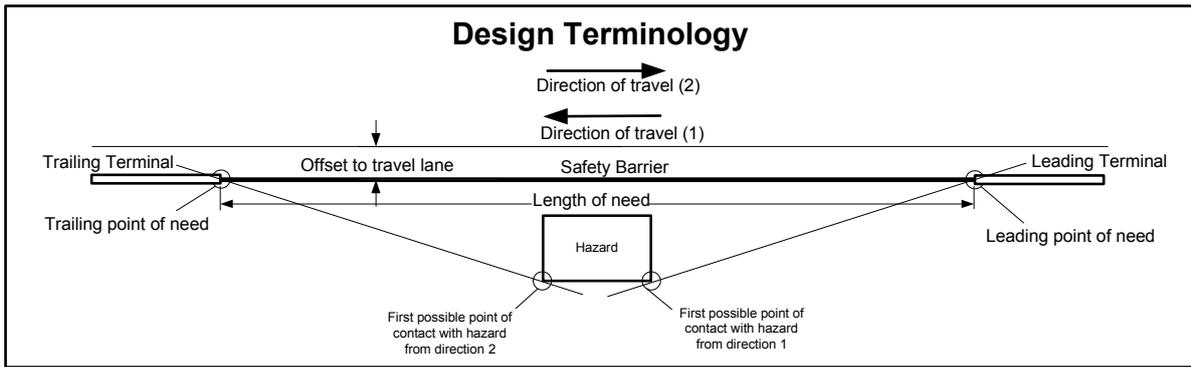
Safety Barrier System Conditions: ABSORB 350 Plastic Terminal - Temporary

Cycleway use	Permitted – consider gating operation.
Frequent impact likely	Not permitted.
Remote location	Permitted.
Median use	Not permitted.
Minimum median width (m)	Not applicable.
Flare (See Explanation of Terms diagram)	Not permitted.
Offset to travel lane (m)	Refer to Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers, Section 6.3.5.
Hazard free area beside barrier or terminal (Working Width)	Refer to Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers, Section 6.3.16.

Installation	The ABSORB 350 Plastic Terminal - Temporary must be installed and maintained in accordance with the Product Manual and Road Agency specifications. The Road Agency specifications and standards shall have precedence.	
Minimum distance to excavation	30 metres minimum distance between the terminal and the start of a workzone.	
Slope limit	Side slope limit: 10 Horizontal to 1 Vertical (10%).	
Foundation pavement conditions	Concrete	Permitted.
	Deep lift Asphaltic Concrete	Permitted.
	Asphaltic concrete over granular pavement	Permitted.
	Flush seal over granular pavement	Permitted.
	Unsealed compacted formation	Permitted.
	Natural surface	Not permitted.
	Foundation pavement conditions must be smooth and free of snag points, kerbs or obstructions that may interfere with the operation of the product.	
Attachments and screens	<p>Visual screens, debris screens, platforms for workers and other non-product hardware must not be attached to the product.</p> <p>Screens may be placed adjacent to the side of the product not exposed to traffic. The distance between the screen and the product shall be determined by a site specific risk assessment that considers the deflection distance.</p> <p>Screens must not have horizontal members that present a risk of impaling errant vehicles that impact the product.</p>	
Damaged components	Damaged components must be replaced. Repaired components must not be used.	
Delineation	The installed system shall include delineation as prescribed by Road Agency specifications and drawings.	
Traceability and markings	<p>Product markings shall be in accordance with marking/s prescribed by the current Australian/New Zealand Standard “AS/NZS 3845 Road Safety Barrier Systems” and Road Agency specifications. Traceability details that must be permanently fixed to the terminal are:</p> <ul style="list-style-type: none"> • Name of the product. • Manufacturer or distributor name. • Date of manufacture. 	

Safety Barrier System Conditions: ABSORB 350 Plastic Terminal - Temporary

	<ul style="list-style-type: none"> • Model or version details of the product, if applicable. • Batch number, if applicable. • Serial number, if applicable. <p>Traceability details must be easily visible but unobtrusive and not be in a form that becomes prominent advertising. No advertising shall be displayed on the installation.</p> <p>Traceability must be in a form that will not be erased with use.</p>
<p>Notes</p>	<p>Conditions are based on drawings in the Product Manual supplied by the Proponent, dated March 2014. This acceptance will cease if there is any change in the product design or specifications.</p> <p>Only the Product Manual authorised by the Proponent shall be used in any marketing of the product.</p> <p>Acceptance of the ABSORB 350 Plastic Terminal - Temporary does not place any obligation on the Road Agency, or its contractors, to purchase or use the product.</p> <p>The Austroads Safety Barrier Assessment Panel may periodically re-assess the ABSORB 350 Plastic Terminal - Temporary.</p> <p>The Road Agency may withdraw or modify at any time, the acceptance status or conditions of use of the product without notice. Users should refer to the Road Agency web site to ensure they have the latest version of the conditions related to this product.</p>



Safety Barrier terminology.vsd

For more information, refer to
Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers