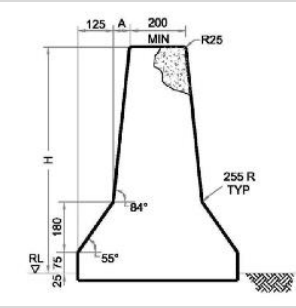
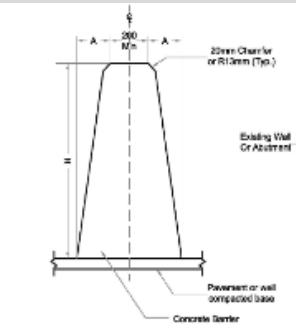


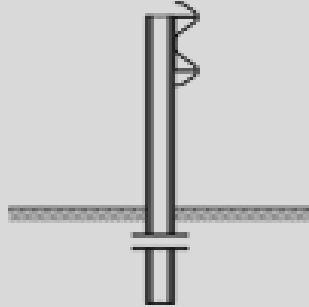
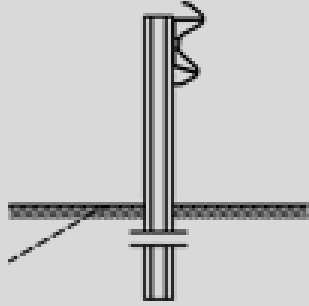
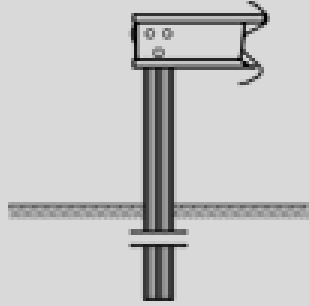
## LIST OF ACCEPTED SAFETY BARRIERS

### Safety Barriers - Permanent (Rigid Barriers)

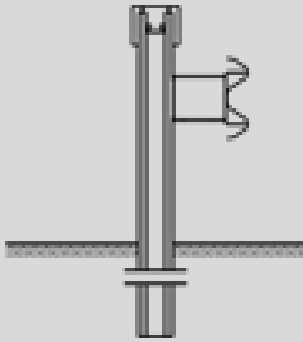
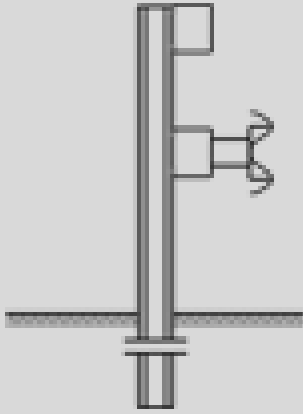
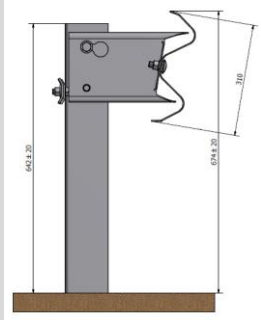
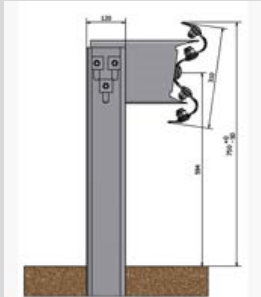
System Type	System Name / Details	Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
Permanent Safety Barrier Rigid (Concrete)		F-Shape Concrete Barrier	n/a	NCHRP350 <b>TL4</b> (H* = 810mm)		Public Domain FHWA Acceptance Letter <a href="#">B-64</a> and AASHTO-AGC-ARTBA Joint Committee, Task Force 13 Report: A Guide to Standardized Highway Barrier Hardware – May 1995: <a href="#">System Drawing SGM10a-b</a>		Refer to Interim Advice Note 002 (IAN-002) for details on concrete barrier use and performance.
			n/a	<b>TL5</b> (H* = 1070mm)				Refer to Ashghal Standard Drawing No: ( <a href="#">Under Development</a> ) for design and construction details.
Permanent Safety Barrier Rigid (Concrete)		Single Slope (9.1°) Concrete Barrier	n/a	NCHRP350 <b>TL4</b> (H* = 810mm)		Public Domain FHWA Acceptance Letters <a href="#">B-45</a> and <a href="#">B-64</a>		Refer to Interim Advice Note 002 (IAN-002) for details on concrete barrier use and performance.
			n/a	<b>TL5</b> (H* = 1070mm)				Refer to Ashghal Standard Drawing No: ( <a href="#">Under Development</a> ) for design and construction details.

\* H = Effective height of barrier (refer to IAN-002)

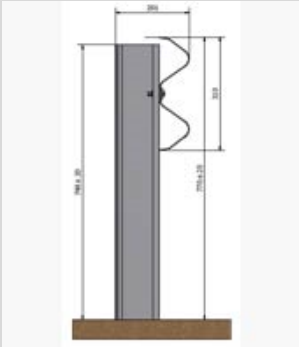
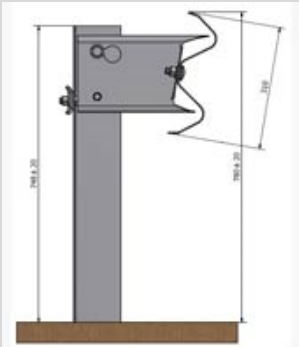
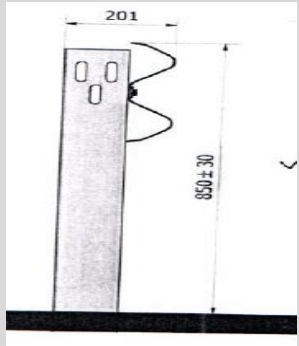
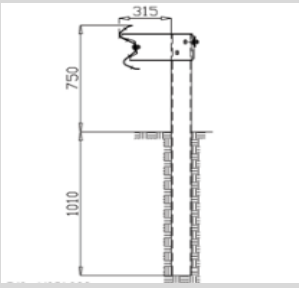
## Safety Barriers - Permanent (Semi-Rigid Barriers)

System Type	System Name / Details	Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
Permanent Safety Barrier Semi-Rigid	 <p>ESP</p>	2.0	<u>EN1317-2</u> N2	W4 (W ≤ 1.3m)	A	<b>VOLKMANN &amp; ROSSBACH GmbH &amp; Co. KG</b> Hohe Strasse 9-17 56410 Montabaur GERMANY Tel: +49 (0) 2602 135-0 Fax: +49 (0) 2602 135-490 <a href="mailto:info@volkmann-rossbach.de">info@volkmann-rossbach.de</a> <a href="http://www.volkmann-rossbach.com">www.volkmann-rossbach.com</a>	<b>Electro Industries</b> PO Box: 24425 Doha, Qatar Tel: +974 4444 8402 Fax: +974 4450 2290  <b>MIDWIL TRADING INC.</b> P. O. Box 14054 Doha Qatar Tel : 44626121  <b>TRADING&amp;AGENCY SERVICES LTD (TRAGS)</b> P.O.BOX 1884 Doha Qatar. Tel : 44432212 Fax : 44422255	Refer to manufacturer installation and maintenance manuals.
		4.0	N2	W5 (W ≤ 1.7m)	A			
Permanent Safety Barrier Semi-Rigid	 <p>EasyRail</p>	2.0	<u>EN1317-2</u> N2	W3 (W ≤ 1.0m)	A	<b>VOLKMANN &amp; ROSSBACH GmbH &amp; Co. KG</b> Hohe Strasse 9-17 56410 Montabaur GERMANY Tel: +49 (0) 2602 135-0 Fax: +49 (0) 2602 135-490 <a href="mailto:info@volkmann-rossbach.de">info@volkmann-rossbach.de</a> <a href="http://www.volkmann-rossbach.com">www.volkmann-rossbach.com</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.
		2.0	H1	W4 (W ≤ 1.3m)	A			
Permanent Safety Barrier Semi-Rigid	 <p>EDSP</p>	2.0	<u>EN1317-2</u> H1	W5 (W ≤ 1.7m)	A	<b>VOLKMANN &amp; ROSSBACH GmbH &amp; Co. KG</b> Hohe Strasse 9-17 56410 Montabaur GERMANY Tel: +49 (0) 2602 135-0 Fax: +49 (0) 2602 135-490 <a href="mailto:info@volkmann-rossbach.de">info@volkmann-rossbach.de</a> <a href="http://www.volkmann-rossbach.com">www.volkmann-rossbach.com</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.

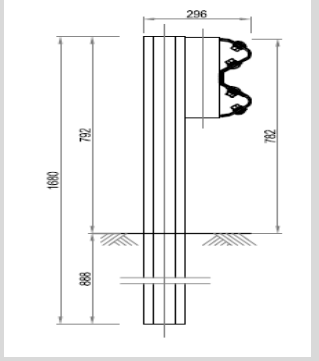
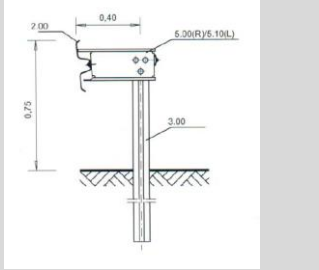
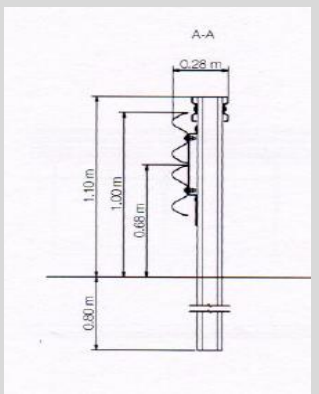
## Safety Barriers - Permanent (Semi-Rigid Barriers) ... Continued

System Type	System Name / Details	Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
Permanent Safety Barrier Semi-Rigid	 SuperRail ECO	2.0	EN1317-2 H2	W4 (W ≤ 1.3m)	B	<b>VOLKMANN &amp; ROSSBACH GmbH &amp; Co. KG</b> Hohe Strasse 9-17 56410 Montabaur GERMANY Tel: +49 (0) 2602 135-0 Fax: +49 (0) 2602 135-490 <a href="mailto:info@volkmann-rossbach.de">info@volkmann-rossbach.de</a> <a href="http://www.volkmann-rossbach.com">www.volkmann-rossbach.com</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.
Permanent Safety Barrier Semi-Rigid	 SuperRail	1.33 1.33	EN1317-2 H2 H4b	W4 (W ≤ 1.3m) W7 (W ≤ 2.5m)	A A	<b>VOLKMANN &amp; ROSSBACH GmbH &amp; Co. KG</b> Hohe Strasse 9-17 56410 Montabaur GERMANY Tel: +49 (0) 2602 135-0 Fax: +49 (0) 2602 135-490 <a href="mailto:info@volkmann-rossbach.de">info@volkmann-rossbach.de</a> <a href="http://www.volkmann-rossbach.com">www.volkmann-rossbach.com</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.
Permanent Safety Barrier Semi-Rigid	 DUERO - N2/L2		EN1317-2 N2	W4 (W ≤ 1.3m)	A	<b>INDUSTRIAS DUERO</b> Gonzalez Davila 1, 28031 Madrid ( Spain)  Tel: +34 917 775 001 Fax: +34 917 789 501 <a href="http://www.industriasduero.com">www.industriasduero.com</a> <a href="mailto:export@industriasduero.com">export@industriasduero.com</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.
Permanent Safety Barrier Semi-Rigid	 DUERO - BMSNA2/C		EN1317-2 N2	W5 (W ≤ 1.7m)	A	<b>INDUSTRIAS DUERO</b> Gonzalez Davila 1, 28031 Madrid ( Spain)  Tel: +34 917 775 001 Fax: +34 917 789 501 <a href="http://www.industriasduero.com">www.industriasduero.com</a> <a href="mailto:export@industriasduero.com">export@industriasduero.com</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.

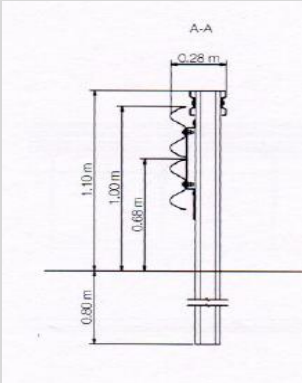
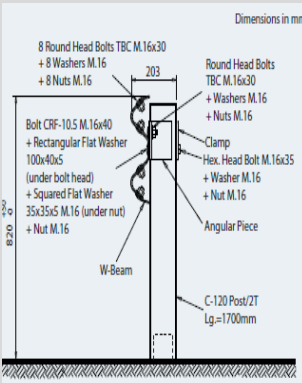
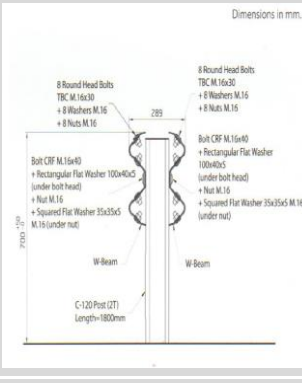
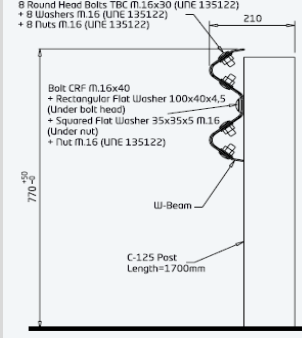
## Safety Barriers - Permanent (Semi-Rigid Barriers) ... Continued

System Type	System Name / Details	Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
Permanent Safety Barrier Semi-Rigid	 <b>DUERO – BL.ID-H1/C2</b>		<u>EN1317-2</u> <b>H1</b>	<b>W4</b> (W ≤ 1.3m)	A	<b>INDUSTRIAS DUERO</b> Gonzalez Davila 1, 28031 Madrid ( Spain)  Tel: +34 917 775 001 Fax: +34 917 789 501 <a href="http://www.industriasduero.com">www.industriasduero.com</a> <a href="mailto:export@industriasduero.com">export@industriasduero.com</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.
Permanent Safety Barrier Semi-Rigid	 <b>DUERO - H2/L1</b>	2.0	<u>EN1317-2</u> <b>H2</b>	<b>W5</b> (W ≤ 1.7m)	A	<b>INDUSTRIAS DUERO</b> Gonzalez Davila 1, 28031 Madrid ( Spain)  Tel: +34 917 775 001 Fax: +34 917 789 501 <a href="http://www.industriasduero.com">www.industriasduero.com</a> <a href="mailto:export@industriasduero.com">export@industriasduero.com</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.
Permanent Safety Barrier Semi-Rigid	 <b>DUERO – BL.ID H2/C13</b>	1.33	<u>EN1317-2</u> <b>H2</b>	<b>W4</b> (W ≤ 1.3m)		-Same as above-	-Same as above-	Refer to manufacturer installation and maintenance manuals.
Permanent Safety Barrier Semi-Rigid	 <b>Imeva H1 BL 200</b>	2.0	<u>EN1317-2</u> <b>H1</b>	<b>W5</b> (W ≤ 1.7m)	A	<b>IMEVA SPA</b> 82100 Benevento Localita Ponte Valentino Area Ind.le Z5 ITALY Tel: +39 0824 48.12.11 Fax: +39 0824 48.12.39 <a href="mailto:info@imeva.it">info@imeva.it</a> <a href="http://www.imeva.it">www.imeva.it</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.

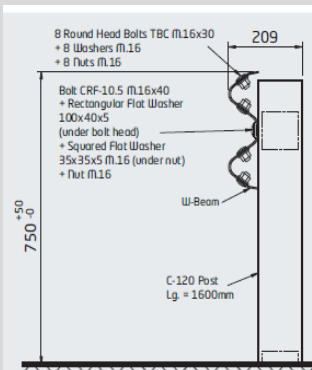
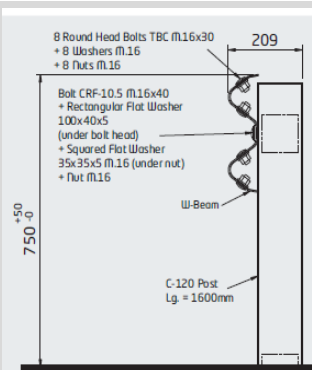
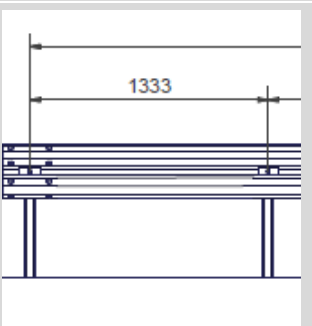
## Safety Barriers - Permanent (Semi-Rigid Barriers) ... Continued

System Type	System Name / Details	Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
Permanent Safety Barrier Semi-Rigid	 <b>Imeva H2BL900</b>	2.666	EN1317-2 <b>H2</b>	<b>W5</b> (W ≤ 1.7m)	A	<b>IMEVA SPA</b> 82100 Benevento Localita Ponte Valentino Area Ind.le Z5 ITALY Tel: +39 0824 48.12.11 Fax: +39 0824 48.12.39 <a href="mailto:info@imeva.it">info@imeva.it</a> <a href="http://www.imeva.it">www.imeva.it</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.
Permanent Safety Barrier Semi Rigid	 <b>PASS + CO EDSP/2.0</b>	2.0	EN1317-2 <b>H1</b>	<b>W5</b> (W ≤ 1.7m )	A	<b>PASS+CO</b> Dortmunder Strabe 8 Germany Tel: +49(0)2739 4796-0 Fax: +49 (0) 2739 4796 -110 <a href="http://www.passco.de">www.passco.de</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.
Permanent Safety Barrier Semi Rigid	 <b>SAFEROAD RRS</b>	1.0m 1.0m	EN1317-2 <b>H4b</b> <b>H2</b>	<b>W4</b> (W ≤ 1.3m) <b>W2</b> (W ≤ 0.8m)	A A	<b>Saferoad RRS GmbH</b> Landshuter Strabe 1 10779 Berlin Gemany. Tel : +49 35 73 37 30 0 Fax: +49 35 73 37 30 30 <a href="http://www.saferoad.rrs.com">www.saferoad.rrs.com</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.


## Safety Barriers - Permanent (Semi-Rigid Barriers) ... Continued

System Type	System Name / Details	Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
Permanent Safety Barrier Semi Rigid	 <p><b>SAFEROAD MegaRail ec 4.4</b></p>	1.33	EN1317-2 <b>H2</b>	<b>W4</b> (W ≤ 1.3m)	A	<b>Saferoad RRS GmbH</b> Landshuter Strabe 1 10779 Berlin Germany. Tel : +49 35 73 37 30 0 Fax: +49 35 73 37 30 30 <a href="http://www.saferoad.rrs.com">www.saferoad.rrs.com</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.
Permanent Safety Barrier Semi Rigid	 <p><b>Hiasa BMS4PLS-H1</b> Single sided</p>	4.0	EN1317-2 <b>H1</b>	<b>W4</b> (W ≤ 1.3m)	A	<b>HIASA Grupo Gonverri</b> Hierros Y Aplanaciones, S.A Poligono Industrial de Cancienes S/N,33470 Correra, Asturias, Spain. Tel: (+34) 985 12 8200 Fax: (+34) 985 50 5361 <a href="http://www.hiasa.com">www.hiasa.com</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.
Permanent Safety Barrier Semi Rigid	 <p><b>Hiasa BMD4-N2</b> Double sided (Base Plate with anchorage)</p>	4.0	EN1317-2 <b>N2</b>	<b>W4</b> (W ≤ 1.3m)	A	-Same as above-	-Same as above-	Refer to manufacturer installation and maintenance manuals.
Permanent Safety Barrier Semi Rigid	 <p><b>Hiasa BMS2-H2</b> Single sided</p>	2.0	EN1317-2 <b>H2</b>	<b>W5</b> (W ≤ 1.7m)	A	<b>HIASA Grupo Gonverri</b> Hierros Y Aplanaciones, S.A Poligono Industrial de Cancienes S/N,33470 Correra, Asturias, Spain. Tel: (+34) 985 12 8200 Fax: (+34) 985 50 5361 <a href="http://www.hiasa.com">www.hiasa.com</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.

## Safety Barriers - Permanent (Semi-Rigid Barriers) ... Continued





System Type	System Name / Details	Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
Permanent Safety Barrier Semi Rigid	 <p><b>Hiasa BMS1L -H2</b> Single sided</p>	1.33	EN1317-2 <b>H2</b>	<b>W4</b> (W ≤ 1.3m)	A	-Same as above-	-Same as above-	Refer to manufacturer installation and maintenance manuals.
Permanent Safety Barrier Semi Rigid	 <p><b>Hiasa BMS4L -H1</b> Single sided</p>	4.0	EN1317-2 <b>H1</b>	<b>W5</b> (W ≤ 1.7m)	A	-Same as above-	-Same as above-	Refer to manufacturer installation and maintenance manuals.
Permanent Safety Barrier Semi Rigid	 <p><b>Easy Rail</b></p>	1.33	EN 131-2 <b>H1</b>	<b>W3</b> (W ≤ 1.0m)	A	<b>VOLKMANN &amp; ROSSBACH GmbH &amp; Co. KG</b> Hohe Strasse 9-17 56410 Montabaur GERMANY Tel: +49 (0) 2602 135-0 Fax: +49 (0) 2602 135-490 info@volkmann-rossbach.de www.volkmann-rossbach.com	Same as above-	Refer to manufacturer installation and maintenance manuals

## Safety Barriers - Permanent (Flexible Barriers)

System Type	System Name / Details	Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
<b>Permanent Safety Barrier</b>  Flexible (Wire Rope)	 <b>Armorwire Wire Rope Barrier System</b>	3.0	<u>NCHRP350</u> <b>TL4</b>	2.15 m	n/a	<b>Highway Care Ltd</b> The Highlands, Detling Hill Detling, Maidstone Kent. ME14 3HT UNITED KINGDOM Tel: +44 (0) 1622 734215 Fax: +44 (0) 1622 735106 <a href="mailto:info@highwaycare.co.uk">info@highwaycare.co.uk</a> <a href="http://www.highwaycare.co.uk">www.highwaycare.co.uk</a>	<b>Electro Industries</b> PO Box: 24425 Doha, Qatar Tel: +974 4444 8402 Fax: +974 4450 2290  <b>MIDWIL TRADING INC.</b> P. O. Box 14054 Doha Qatar Tel : 44626121  <b>TRADING&amp;AGENCY SERVICES LTD (TRAGS)</b> P.O.BOX 1884 Doha Qatar. Tel : 44432212 Fax : 44422255	Refer to manufacturer installation and maintenance manuals.  Must be used with certified Armorwire Terminal End.
		6.0	<b>TL4</b>	4.90 m				
		3.0	<b>TL3</b>	1.54 m				
		9.0	<b>TL3</b>	3.27 m				
<b>Permanent Safety Barrier</b>  Flexible (Wire Rope)	 <b>CASS (Cable Safety Systems) Wire Rope Barrier System</b>	–	<u>NCHRP350</u> <b>TL4, H2</b>	–		<b>TRINITY HIGHWAY PRODUCTS , LLC</b> 2525 Stemmons Freeway Dallas, Texas 75207 Tel : +1 (214) 589 8140 Fax : +1 (214) 589 8423 <a href="mailto:product.info@trin.net">product.info@trin.net</a> <a href="http://www.highwayguardrail.com">www.highwayguardrail.com</a>	-Same as above-	Refer to manufacturer installation and maintenance manuals.




## Safety Barriers - Temporary

System Type	System Name / Details	Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
Temporary Longitudinal Barrier Steel	 <b>BARRIERGUARD 800 Steel Safety Barrier</b>	n/a	<u>NCHRP350</u> TL3 TL4  <u>EN1317-2</u> N2 H2  <u>MASH</u> TL3	1.60 m 1.74 m  W5 (W ≤ 1.7m) W8 (W ≤ 3.5m)  1.70 m	A A	<b>Highway Care Ltd</b> The Highlands, Detling Hill Detling, Maidstone Kent. ME14 3HT UNITED KINGDOM Tel: +44 (0) 1622 734215 Fax: +44 (0) 1622 735106 <a href="mailto:info@highwaycare.co.uk">info@highwaycare.co.uk</a> <a href="http://www.highwaycare.co.uk">www.highwaycare.co.uk</a>		Refer to manufacturer installation and maintenance manuals.  <b>Must be used with appropriate end treatment / terminals – refer to section End Terminals and Crash Cushions.</b>
Temporary Safety Barrier Concrete	 <b>F-Shape Concrete Barrier with Pin and Loop Connection (OREGON)</b>	n/a	<u>NCHRP350</u>  TL3 (H = 810mm)	0.76m*		<b>Public Domain</b> FHWA Acceptance Letter <a href="#">B-86</a> Oregon DoT <a href="#">Test Report</a>	All local manufacturers must be approved and provide QA/QC reports for all batches upon request. Refer to Ashghal Roads O&M Department for list of approved manufacturers	Refer to FHWA Acceptance Letter <a href="#">B-86</a> and Oregon DoT <a href="#">Test Report</a> for design and construction details.  <b>Must be used with appropriate connector pins and end treatment / terminals.</b>
Temporary Longitudinal Barrier Steel	 <b>VARIOGUARD Steel Safety Barrier</b>	n/a	<u>EN1317-2</u>  N2  H1	W6 (W ≤ 2.1m)  W6 (W ≤ 2.1m)	B B B	<b>VOLKMANN &amp; ROSSBACH GmbH &amp; Co. KG</b> Hohe Strasse 9-17 56410 Montabaur GERMANY Tel: +49 (0) 2602 135-0 Fax: +49 (0) 2602 135-490 <a href="mailto:info@volkmann-rossbach.de">info@volkmann-rossbach.de</a> <a href="http://www.volkmann-rossbach.com">www.volkmann-rossbach.com</a>		Refer to manufacturer installation and maintenance manuals.  <b>Must be used with appropriate end treatment / terminals – refer to section End Terminals and Crash Cushions.</b>
Temporary Longitudinal Barrier Steel	 <b>DUO GUARD</b>	n/a	<u>EN 1317-2</u>  T1  T2  T3  N2  H1/L1  H2/L2	W2 (W ≤ 0.8m)  W3 (W ≤ 1.0m)  W4 (W ≤ 1.3m)  W4 (W ≤ 1.3m)  W5 (W ≤ 1.7m)  W7 (W ≤ 2.5m)	A A A B B B	<b>HEINTZMANN ITALIA SPA</b> Via Lorenzo Larocca, 7 70132 Bari Zona Industriale ITALY. Tel : +39 080 96 42 660 Fax+ +39 080 96 91 059 <a href="http://www.heintzmann.it">www.heintzmann.it</a>		Refer to manufacturer installation and maintenance manuals.  <b>Must be used with appropriate end treatment / terminals – refer to section End Terminals and Crash Cushions.</b>



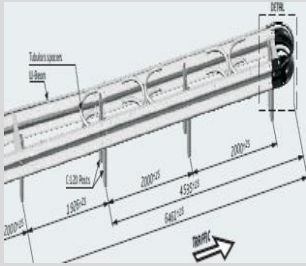
\* Denotes Maximum Barrier Deflection based on NCHRP350 Test

## Safety Barriers - Temporary... Continued




System Type	System Name / Details	Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
<b>Temporary</b>  <b>Longitudinal Barrier</b>  Steel	 <p><b>ZONE GUARD</b>  <b>Portable Type longitudinal steel safety barrier</b>   <b>(12m Unit Length)</b></p>	n/a	<u>NCHRP350</u> <b>TL3</b>  <u>EN1317-2</u> <b>N2</b>	1.80 m  <b>W6</b> (W ≤ 2.1m)*	B   B	<b>Hill &amp; Smith</b> Springvale Business & Industrial Park Wolverhampton, West Midlands WV14 0QL UNITED KINGDOM Tel: +44 (0) 1902 499400 <a href="mailto:richard.endersby@hill-smith.co.uk">richard.endersby@hill-smith.co.uk</a> <a href="http://www.hsholdings.co.uk">www.hsholdings.co.uk</a>	<b>Mediterranean Building Materials</b> Reem Island Sky Tower Office Number 602 and 603 PO BOX 44694 Abu Dhabi Tel: +971 2 4483232 Fax: +971 2 4483236	Refer to manufacturer installation and maintenance manuals.  <b>Must be used with appropriate end treatment / terminals – refer to section End Terminals and Crash Cushions.</b>

\* The system should be anchored at every 12m if any application requires minimum deflection arrangement




## End Terminals

System Type	System Name / Details	Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
Permanent End Terminal Re-directive	 <p><b>X-Tension Guardrail End Terminal</b></p>	n/a	<u>NCHRP350</u>  <b>TL3</b>  <u>EN1317-4</u>  <b>P4</b>	n/a   n/a		<b>Lindsay Transportation Solutions</b> 180 River Road Rio Vista, CA 94571 USA Tel: +1 (707) 374-6800 Fax: +1 (707) 374-6801 <a href="http://www.barriersystemsinc.com">www.barriersystemsinc.com</a>	<b>Electro Industries</b> PO Box: 24425 Doha, Qatar Tel: +974 4444 8402 Fax: +974 4450 2290  <b>MIDWIL TRADING INC.</b> P. O. Box 14054 Doha Qatar Tel : 44626121  <b>TRADING&amp;AGENCY SERVICES LTD (TRAGS)</b> P.O.BOX 1884 Doha Qatar. Tel : 44432212 Fax : 44422255	Must be installed and maintained in accordance with manufacturer instructions / manuals.  Non-Gating End Terminal (redirection from post 1)  May be installed as Tangent or Flared end terminal
Permanent End Terminal Re-directive	 <p><b>TREND 350</b></p>	n/a	<u>NCHRP350</u>  <b>TL3</b>  <u>EN1317-4</u>  <b>P4</b>	n/a   n/a		<b>TRINITY HIGHWAY PRODUCTS , LLC</b> 2525 Stemmons Freeway Dallas, Texas 75207 Tel : +1 (214) 589 8140 Fax : +1 (214) 589 8423 <a href="mailto:product.info@trin.net">product.info@trin.net</a> <a href="http://www.highwayguardrail.com">www.highwayguardrail.com</a>	-Same as above-	Must be installed and maintained in accordance with manufacturer instructions / manuals.  The adjoining barrier system length of need must account for gating of the end terminal. Crash tests indicated redirection from the third post.  May be installed as Tangent or Flared end terminal
Departure Re-directive End Terminal	 <p><b>DRET-110</b></p>	n/a	<u>Compliance to EN 1317</u>	n/a		<b>HIASA Grupo Gonverri</b> Hierros Y Aplanaciones, S.A Poligono Industrial de Cancienes S/N,33470 Corraera, Asturias, Spain. Tel: (+34) 985 12 8200 Fax: (+34) 985 50 5361 <a href="http://www.hiasa.com">www.hiasa.com</a>	<b>Electro Industries</b> PO Box: 24425 Doha, Qatar Tel: +974 4444 8402 Fax: +974 4450 2290	Must be installed and maintained in accordance with manufacturer instructions / manuals.

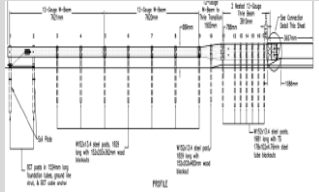
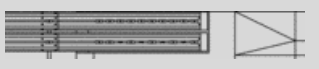
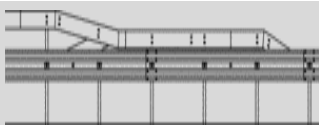
## Crash Cushions (Permanent and Temporary)

System Type	System Name / Details		Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
Permanent & Temporary Crash Cushion Re-directive		<b>TRACC Crash Cushion</b>  Includes: <b>FASTRACC</b> <b>WIDETRACC</b>	n/a	<u>NCHRP350</u>  <b>TL3</b>	n/a		<b>TRINITY HIGHWAY PRODUCTS , LLC</b> 2525 Stemmons Freeway Dallas, Texas 75207 Tel : +1 (214) 589 8140 Fax : +1 (214) 589 8423 product.info@trin.net www.highwayguardrail.com	-Same as above-	Must be installed and maintained in accordance with manufacturer instructions / manuals including anchorage and connection details.  <i>TL3 minimum requirement.</i> <i>Alternative configurations require Roads O&amp;M site specific approval.</i>
Permanent & Temporary Crash Cushion Re-directive		<b>REACT 350 Crash Cushion</b> Version 1 (9 units) Version 2 (6 units)	n/a	<u>NCHRP350</u>  <b>TL3</b>	n/a		<b>ENERGY ABSORPTION SYSTEMS , INC</b> 70 W Madison St, Suite 2350 Chicago, IL 60602 Tel : (312) 467 6750 Fax: (312) 467 9625 www.energyabsorption.com	-Same as above-	Must be installed and maintained in accordance with manufacturer instructions / manuals including anchorage and connection details.  <b>Note: This product requires site specific Roads O &amp; M approval for each installation.</b>
Permanent & Temporary Crash Cushion Re-directive		<b>TAU-II Crash Cushion</b>	n/a	<u>NCHRP350</u>  <b>TL3</b>	n/a		<b>Lindsay Transportation Solutions</b> 180 River Road Rio Vista, CA 94571 USA Tel: +1 (707) 374-6800 Fax: +1 (707) 374-6801 www.barriersystemsinc.com	-Same as above-	Must be installed and maintained in accordance with manufacturer instructions / manuals including anchorage and connection details.  <i>TL3 minimum requirement.</i> <i>Alternative configurations require Roads O&amp;M site specific approval.</i>





## Crash Cushions (Permanent and Temporary) Cont'd...

System Type	System Name / Details	Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
Permanent & Temporary Crash Cushion Re-directive	 <p><b>AIR crash cushions (Parallel and wide models)</b></p> <p><b>AIR -H110-P</b></p>	n/a	Compliance to EN 1317	n/a		<b>HIASA Grupo Gonverri</b> Hierros Y Aplanaciones, S.A Poligono Industrial de Cancienes S/N,33470 Corraera, Asturias, Spain. Tel: (+34) 985 12 8200 Fax: (+34) 985 50 5361 <a href="http://www.hiasa.com">www.hiasa.com</a>	-Same as above-	Must be installed and maintained in accordance with manufacturer instructions / manuals.
	 <p><b>AIR -H110-V</b></p>	n/a	Compliance to EN 1317	n/a		-Same as above-	-Same as above-	Must be installed and maintained in accordance with manufacturer instructions / manuals.
Permanent & Temporary Crash Cushion Re-directive	 <p><b>SMA (Safety Modular Absorber) Parallel and wide models</b></p> <p>Different Models to suit various speed &amp; design requirements:-</p> <p><b>50, 80, 100, 110 KPH</b></p>	n/a	Compliance to EN 1317	n/a		Industry A.M.S s.r.l Via Dante Giacosa snc Zona Industriale ASI Sud 81025 Marcianise Caserta - Italy  Tel: +39 0823 821560 Email : <a href="mailto:info@amssrl.com">info@amssrl.com</a>	-Same as above-	Must be installed and maintained in accordance with manufacturer instructions / manuals.

## Transitions

System Type	System Name / Details	Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
<b>Permanent Transition</b>  Concrete to Steel	 <b>Transition from Concrete F-Shape to W-Beam Steel Barrier</b>		<u>NCHRP 350</u>  <b>TL3</b>			<b>Public Domain</b> US Federal Highways Administration (FHWA) <a href="http://safety.fhwa.dot.gov">http://safety.fhwa.dot.gov</a> Midwest Roadside Safety Facility (MwRSF) University of Nebraska-Lincoln, 527 Nebraska Hall Lincoln, NE 68588-0529 Tel no : (402) 472 6864		Refer to Ashghal Roads O&M Department for design and construction details.
<b>Permanent Transition</b>  Concrete to Steel High Containment	 <b>BeSTCONNECT EDSP EDSP to Concrete</b>		<u>EN1317</u>  <b>H2</b>	<b>W2</b> ( $W \leq 0.8m$ )	C	<b>VOLKMANN &amp; ROSSBACH GmbH &amp; Co. KG</b> Hohe Strasse 9-17 56410 Montabaur GERMANY Tel: +49 (0) 2602 135-0 Fax: +49 (0) 2602 135-490 <a href="mailto:info@volkmann-rossbach.de">info@volkmann-rossbach.de</a> <a href="http://www.volkmann-rossbach.com">www.volkmann-rossbach.com</a>		Refer to manufacturer installation and maintenance manuals.  Requires transition of concrete barrier to vertical end section.
<b>Permanent Transition</b>  Steel to Steel High Containment	 <b>Flextra SR-EDSP EDSP to SuperRail</b>		<u>EN1317</u>  <b>H1</b>	<b>W4</b> ( $W \leq 1.3m$ )	B	<b>VOLKMANN &amp; ROSSBACH GmbH &amp; Co. KG</b> Hohe Strasse 9-17 56410 Montabaur GERMANY Tel: +49 (0) 2602 135-0 Fax: +49 (0) 2602 135-490 <a href="mailto:info@volkmann-rossbach.de">info@volkmann-rossbach.de</a> <a href="http://www.volkmann-rossbach.com">www.volkmann-rossbach.com</a>		Refer to manufacturer installation and maintenance manuals.

## Vehicle Attenuators (TMAs)

System Type	System Name / Details		Post Spacing (m)	Containment Level	Working Width / Deflection	ASI	Supplier / Manufacturer	Approved Installer	Acceptance Status / Comment
Vehicle Attenuator (Truck Mounted)		<b>SCORPION Truck Mounted Attenuator</b>  Type C & Type V (vertical)	n/a	<u>NCHRP350</u>  TL 3	n/a		<b>TRAFFIX DEVICES INC</b> 160 Avenida La Pata San Clemente CA, 92673 Tel : +1 (949) 361 5663 Fax : +1 (949) 573 9250 info@traffixdevices.com www.traffixdevices.com	<b>JNP Trading</b> Salwa Industrial Area Doha, Qatar. Tel: 4468 1711 Fax: 4468 1181	Refer to manufacturer installation and maintenance manuals.  Refer to WZTMG for Host Vehicle Weight requirements.
Vehicle Attenuator (Truck Mounted)		<b>Verdegro TMA-US</b>	n/a	<u>NCHRP350</u>  TL 3	n/a		<b>VERDEGRO GROUP</b> Munnikenheiweg 59 4879 NE Etten Leur Netherlands. Tel no : +31(0) 76-5017990 www.verdegro.com	<b>Gulfco International Trading WLL</b> P.O. Box 65545 Al-Ain, UAE Tel: +971 37224433 Fax: +971 37224434	Refer to manufacturer installation and maintenance manuals.  Refer to WZTMG for Host Vehicle Weight requirements.
Vehicle Attenuator (Trailer)*		<b>SCORPION Trailer Attenuator</b>  Fitted with Anti-Rotation Arms	n/a	<u>NCHRP350</u>  TL 3	n/a		<b>TRAFFIX DEVICES INC</b> 160 Avenida La Pata San Clemente CA, 92673 Tel : +1 (949) 361 5663 Fax : +1 (949) 573 9250 info@traffixdevices.com www.traffixdevices.com		Refer to manufacturer installation and maintenance manuals.  Refer to WZTMG for Host Vehicle Weight requirements.  <b>Restricted to 80km/h speed limit on Divided Highways &amp; Expressways.</b>
Vehicle Attenuator (Trailer)*		<b>VORTEQ Trailer Attenuator</b>	n/a	<u>NCHRP350</u>  TL 3	n/a		<b>ENERGY ABSORPTION SYSTEMS , INC</b> 70 W Madison St, Suite 2350 Chicago, IL 60602 Tel : (312) 467 6750 Fax: (312) 467 9625 www.energyabsorption.com		Refer to manufacturer installation and maintenance manuals.  Refer to WZTMG for Host Vehicle Weight requirements.  <b>Restricted to 80km/h speed limit on Divided Highways &amp; Expressways.</b>

\* The use of trailer attenuators is restricted on high speed multi-lane roads (refer to the WZTMG)

## Gates

There are currently no systems in this category.

## Parapets

There are currently no systems in this category.

## Miscellaneous

There are currently no systems in this category.