

**SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION**  
**QUALIFIED PRODUCT POLICY 49 (QPP49)**  
**PERMANENT ROADSIDE SAFETY DEVICES & TRAFFIC BARRIER COMPONENTS**

Updated June 2023

**1. GENERAL:**

Qualified Product Policy 49 (QPP49) outlines the submission requirements for Manufacturers interested in submitting their product for consideration for inclusion on Qualified Product List 49 (QPL49).

The requirements established in QPP49 are only applicable to proprietary roadside safety devices and generic traffic barrier components installed in permanent applications that will be owned/maintained by SCDOT or installed within SCDOT Right-of-Way. If a product is deemed to be of no benefit to SCDOT that product will not be considered for inclusion on QPL49. Products that will not be owned/maintained by SCDOT or installed within SCDOT Right-of-Way will not be considered for inclusion on QPL49.

QPP49 does not apply to work zone and temporary devices. Submit all work zone and temporary devices to the Work Zone Device list found on [www.SCDOT.org](http://www.SCDOT.org). \*Do not submit applications for permanent roadside safety devices through the new products review process. Contact the Design Standards Office or the Office of Engineering Support for consideration of new roadside safety devices and traffic barrier components not addressed by SCDOT Standard Drawings. (\*<https://www.scdot.org/business/access-management.aspx>)

SCDOT may limit the number of proprietary devices in any category based on established device performance criteria, review of the crash test report(s), compatibility with existing design parameters, engineering judgement, device availability, FHWA or industry guidance, device installation or maintenance requirements.

SCDOT is under no obligation to use any product listed on QPL49 and maintains the right to remove any product or component at any time from QPL49. Reasons for removal may include, but are not limited to, in-service performance issues, changes in standards/design/material specifications, or failure to comply with QPP49. If a product or component is removed from a QPL49, SCDOT will notify the product/component Manufacture at least 30 business days prior to removal unless safety concerns indicate that immediate removal of a product is appropriate. SCDOT will only list the Manufacturer or Owner of the device submitted, and will not list 3rd party distributors of the device.

**2. CATEGORIES:**

Traffic barrier components are defined as the individual parts needed to construct a crash tested or standardized device. The most common components for guardrail are rail elements, posts, offset blocks, and fasteners. Traffic barrier components are typically classified as non-proprietary or generic. Roadside safety devices are defined as the assemblage of components that make up a crash tested configuration for sections within a system/run of guardrail from end to end. Generally, most roadside safety devices will be proprietary.

Where generic devices are available, SCDOT will first consider the generic product. If there is no generic option available or no generic option is considered appropriate for use within SCDOT Right-Of-Way, proprietary devices will be considered. Roadside safety devices and traffic barrier components will be grouped into the following categories and listed on QPL49:

- End Terminals (Leading & Trailing)
- Crash Cushions
- Impact Attenuators
- Rail Elements
- Offset Blocks
- Posts (Steel & Wood)
- Vegetation Control
- Warning Markers

### **3. PROPRIETARY DEVICE SUBMITTAL REQUIREMENTS:**

By submitting application documents for inclusion on QPL49, the manufacturer agrees to allow SCDOT to use the submitted documentation to develop and publish Standard Drawings and/or training/installation documents.

In addition, the manufacturer agrees to supply SCDOT with the version(s) of the device submitted/qualified for installation. Manufacturers are required to notify SCDOT of any modifications made to a qualified device. SCDOT may require the manufacture to resubmit their product for reevaluation in order to remain listed on QPL49. Failure to notify SCDOT of changes in any qualified device is cause for immediate removal of the device from QPL 49. Federal Aid Reimbursement Eligibility will not be sufficient for any device to be qualified for use in SCDOT Right-Of-Way. (See proprietary device submittal requirements checklist.)

#### **TRAINING REQUIREMENTS**

Depending on the complexity of the device, SCDOT may require the Manufacturer to provide initial and periodic training for all approved devices listed on QPL49. Training will only be provided for the version of the device that was approved for inclusion on QPL49 and as shown on SCDOT Standard Drawings.

When required by SCDOT, training will be provided for Guardrail Contractors/Subcontractor, SCDOT Residents and Inspectors as specified below:

##### Guardrail Contractors/Subcontractor Training

Initial training on full installation procedure. In addition, manufacturer will be required to provide a representative to be on-site during the first installation by **EACH CONTRACTOR** to ensure proper installation and answer any questions that arise about the product. **Contractor training must be completed before contractor can install product.**

##### SCDOT Residents & Inspectors Training

Training on installation inspection, maintenance inspection, repairs (as appropriate) in each SCDOT District Office (7 total). SCDOT District Offices may request subsequent training session for new employees. Resident training (all districts) must be completed within 6 months of product being listed on QPL49.

Manufactures will be required to provide SCDOT with copies of the training class roster & presentation materials for each training session.

#### **CRASH TESTING**

SCDOT will only review or consider devices for inclusion onto QPL49 that have been crash tested in accordance with the latest edition of MASH. SCDOT requires that crash testing and any confirmation computer modeling be performed by an ISO 17025 Accredited, independent, third party test facility. **Submit documentation certifying that the crash test facility was ISO 17025 accredited at the time of testing.**

Submit copies of all crash test reports for the device. If alterations were made to the device between testing, provide a summary of alterations and which tests were performed under each version of the device. If the full test matrix identified in MASH was not performed for the device, provide documentation explaining why specific tests were not performed. Provide results of computer simulations for lower test level configurations of the device (if available). Provide in-service performance data compiled by other state DOT (if available).

SCDOT will review each crash test report for test facility recommendations of MASH compliance. SCDOT will use the crash test reports to identify design characteristics of the device and to establish Standard Drawing details consistent with the crash tested configuration. The review will also consider the device's compatibility with existing SCDOT Standard Drawings and design methodology.

Additional tests and review processes may be identified for devices as information is made available. SCDOT reserves the right to increase pay limits, design deflection values, and design gating post/length of need coverage conservatively

to ensure that the installation conditions for the device meet or exceed the conditions of the design crash test and conform to SCDOT Standard Drawings.

**GENERIC COMPONENT SUBMITTAL REQUIREMENTS:**

SCDOT understands that most generic components do not have individual crash test criteria. SCDOT will not require that crash tests be conducted for specialty components used outside of the Standard Generic MGS3 device.

Manufactures/Producers interested in providing SCDOT with generic components (shown on fabrication details) must complete and submit form **QPP49F** along with all the items listed on the generic component submittal requirements checklist.

Email submittal package to [d8designstandards@scdot.org](mailto:d8designstandards@scdot.org), if submittal package is too large to email contact the Design Standards office and make arrangements to provide submittal package on CD, DVD, or USB Flash Drive mailed to:

**Design Standards Office (QPL49 Submittal)**  
**South Carolina Department of Transportation**  
**955 Park Street Room 409**  
**Columbia, SC 29201**

Email questions, notifications, & requests regarding QPP49 or QPL49 to: [d8designstandards@scdot.org](mailto:d8designstandards@scdot.org)

**Roadside safety devices and traffic barrier components can vary significantly in design and function, therefore SCDOT maintains the right to improvise QPP49 submittal requirements (continuously) at any time as necessary in order to achieve compliance with SCDOT standard practices and design policies.**

Contractors may only use permanent roadside safety devices and traffic barrier components that are listed on QPL 49. SCDOT prohibits submittals of alternative technical concepts or value-engineering these safety features (by attempting to use a different barrier group or lower test level) without the written consent of the Engineer of Record. Contractor may substitute a higher test level system within a barrier group if the site conditions accommodate the higher test level system.

### Proprietary Device Submittal Requirements Checklist

- 1) \*Complete form **QPP49F**
- 2) \*All MASH crash test reports, crash test videos and any device installations videos.
  - i) \*If the full MASH test matrix was not performed for a device, the omitted crash test must be justified with written engineering judgement, calculations, computer simulation, etc.
  - ii) \*Written certification that all crash testing was performed by an ISO 17025 accredited, independent, third party test facility.
- 3) CAD Drawings (.dwg, .dxf, .dgn format only)
  - i) \*Assembled device drawings (with dimension, part labels, etc.)
  - ii) 3D Drawing of Complete device (no labels required)
  - iii) Part Inventory (each part labeled with general dimensions)
  - iv) Crash Cushion Additional Drawings
    - (a) \*Transitions (to eliminate snag points at rigid barrier interface)
    - (b) \*backups (tension strut, backup anchor, etc.)
    - (c) \*width variations
    - (d) \*foundation anchoring details
- 4) Installation manual (Specific to device)
  - i) \*Manual addressing SCDOT qualified Installation
  - ii) \*Part list & identification diagram
  - iii) Assembly check list for new installations identifying all critical installation steps and procedures for proper inspection of new installations.
  - iv) Drawings and written instructions when installing the device in a trailing end condition.
  - v) Written instructions for installing the device adjacent to or behind 6" curb & sidewalk (where available).
  - vi) Written instructions for attaching delineation (including parts list).
- 5) \*Inspection, Maintenance & Repair manual
  - i) Identify common maintenance concerns & recommended adjustments
  - ii) \*Estimated initial installation cost of device
  - iii) \*Estimated average repair cost of device (identify typical device damage after a vehicle impact)
- 6) \*List of State DOT's that have approved this device for use.
  - i) Include any In-service performance data compiled by State DOT's
- 7) Written statement that Manufacturer will
  - i) Supply SCDOT with the version of device consistent with submitted & qualified configuration only.
  - ii) Emboss unique serial/identification number on the most identifiable component of the device (to identify device, fabrication facility and date, etc. – recommended on impact head).

### Generic Component Submittal Requirements Checklist

- 8) \*Complete form **QPP49F**
- 9) Written statement that Manufacturer will
  - i) Fabricate component consistent with details shown on Standard Drawing F805-090-00.
  - ii) Manufacture component using the materials specified on SCDOT Standard Drawings and/or SCDOT Standard Specification Section 805.
  - iii) Mark all components as shown on Standard Drawing F805-090-00.
  - iv) Maintain material test/mill test data on file and will provide this data to SCDOT when requested.
  - v) Replace any component not meeting these requirements free of charge.
- 10) CAD drawings of Composite Offset Blocks & Specialized Parts (.dwg, .dxf, or .dgn format)
- 11) AASHTO/ASTM material specifications (if applicable)

**Note:** Depending on the type of device, SCDOT may request additional information in order to evaluate a product for inclusion on QPL49. SCDOT reserves the right to omit device categories based on design practices.

\* Indicates required, if submittal package does not include this information the device will not be reviewed or considered for inclusion onto QPL49.

**SCDOT Manufacturer Information Submission Form QPP49F**

**Manufacturer Information**

Company Name:

Address:

City/State/Zip Code:

Company Website:

**Plant Manager Contact Information:**

Name:

Telephone No: EXT:

Email Address:

Fax No:

**Sales Person Contact Information:**

Name:

Telephone No: EXT:

Email Address:

Fax No:

**Technical Assistance Contact Person Information:**

Name:

Telephone No: EXT:

Email Address:

Fax No:

**Training Person Contact Information:**

Name:

Telephone No: EXT:

Email Address:

Fax No:

**Proprietary Device Information:**

Product Name:

Version/Model No:

Patent Owner:

Has this Device been crash tested?      Yes:                                      No:

Name of crash test facility:

Are the crash test facility & device manufacturer and/or  
Patent Owner owned by the same parent company?      Yes:                                      No:

Describe the intended use of proprietary device:

## **Generic Component Information**

See SCDOT Standard Drawing Website for generic component fabrication details Drawing F805-090-00.

Notify Design Standards Office immediately if details shown on F805-090-00 do not match your shop drawings. Where indicated, stamp or emboss identification marking near top of part. Check all generic items below that will be supplied by Manufacturer for inclusion onto QPL49:

### **Rail Elements**

- W-beam rounded end section 12 gauge (RWE03A)
- W-beam terminal connector 10 gauge (RWE02B)
- W-beam backup plate 12 gauge (RWB01A)
- 12'-6" W-beam section for type B end anchor 12 gauge
- 9'-4.5" W-beam section for type MB end anchor
- 12'-6" MGS rail section 12 gauge (RWM04A)
- 25'-0" MGS rail section 12 gauge
- 6'-3" leading asymmetrical transition section 10 gauge (RWT02A) 6'-3"
- Trailing asymmetrical transition section 10 gauge (RWT02B) Thrie-beam
- Terminal connector 10 gauge (RTE01B)
- Thrie-beam backup plate 12 gauge (RTB01A)
- 6'-3" symmetrical transition section 10 gauge (RTW01B)
- 3'-1.5" Thrie-beam 10 gauge
- 12'-6" Thrie-beam section quarter post spacing 12 gauge (RTM08A) 6'-3"
- Thrie-beam section quarter post spacing 12 gauge (RTM19A)

### **Posts**

- 6'-0" standard steel post (W-beam) W6x9 or W6x8.5
- 9'-0" compressed shoulder steel post (W-beam) W6x9 or W6x8.5
- Standard steel post (Thrie-beam) W6x9 or W6x8.5
- 7'-0" heavy steel post (Thrie-beam) W6x15
- 6'-0" wood CRT post (MASH long span)
- 6'-0" wood CRT post (PREMASH radius)
- 3'-10" wood CRT post (PREMASH/MASH) Type B/MB trailing end terminal

### **Offset Blocks**

- 12" composite Thrie-beam offset block (MASH)
- 12" composite W-beam offset block (MASH)
- 12" composite W-beam offset block wood post (MASH)
- 8" composite Thrie-beam offset block (PREMASH)
- 8" composite W-beam offset block (PREMASH)
- 8" composite W-beam offset block wood post (PREMASH)

### **Type B/MB Components**

- Ground strut yoke assembly (PFP02)
- Anchor bracket, includes end plate (FPA01)
- BCT post sleeve (FMM02)
- Steel foundation tube (PTE06)
- BCT anchor cable (FCA01)
- BCT cable anchor bearing plate (FPB01)

Date:

Submitted By: