

Design Update 2005-1 (Revised)

11/22/04

### 1) Sidewalk Ramps

The following apply from the December 2004 letting and beyond:

On resurfacing projects all existing sidewalk ramps will be retrofitted with detectable warnings (truncated domes), pay item Sidewalk Ramp, Detectable Warning, Retrofit.

On new/reconstruct all sidewalk ramps will use Sidewalk Ramp, ADA.

On signalized driveways all statements above apply.

New unsignalized commercial drives shall use Sidewalk Ramp. The pay item of Sidewalk Ramp is a 7000 number that requires no special provision, until the pay item code is updated.

### 2) Attenuator - Permanent

See appendix A for the new guidelines for choosing a permanent attenuator. Any questions regarding permanent attenuators contact Carlos Torres (517) 335-2852.

### 3) Attenuators—Temporary

There is a new updated special provision for Temp Conc Barrier Ending, Det \_\_ (Per Std Plan R-126 series). Contact Carlos Torres (517) 335-2852 for the latest special provision. This special provision allows for temporary sand filled barrels as an acceptable temporary attenuator and should be used instead of the old Sand Module Impact Attenuator special provision.

### 4) Pavement Design Letter

Always attach a copy of the pavement design letter to the Plan Review Package and the OEC package. Place a note on the title sheets stating: "Pavement design not available for Plan review", when missing from Plan Review Package.

### 5) Railroad Crossings

Any CPM or Non-Freeway Resurfacing project that has railroad crossing in the vicinity of work needs to contact Brandon Podolak at (517) 241-1472. Also, Brett Kach will need to initial the railroad coordination unit line on page 3 of 5 of the CPM CA form or page 5 of 9 on the standard CA form.

### 6) Permanent Signing

When turning in a project make sure that you include the Sign Supports Typical Plans that apply. You can either include mylars in the plans or 8½x 11" copies in the proposal. When submitting OEC plans just make sure the 8½x 11" check list called "Sign Supports Typical Plan Index" is included in the package for review.

7) If you know of new people in your TSC or Region that are not receiving this update that should, please let me (Gary Mazurek) know so they can be added to my list.

Regards,

Joel Ingle, Supervising OEC Plan Review Engineer  
Tom Vandenberg, Supervising Plan Review Engineer  
Gary Mazurek, OEC Plan Review  
Carl Anderson, OEC Plan Review  
Keith Claus, Road Plan Review  
Jennifer Transue, OEC Bridge Plan Review  
Radka Todorov, Bridge Plan Review

## Appendix A

Please review the following criteria for permanent attenuators:

- A. Attenuators shall be used whenever a standard Type I or II terminal is not appropriate.
- B. All systems meet NCHRP 350, TL-3.
- C. Cross Slope should not exceed 8%.
- D. Longitudinal Slope should not exceed 2%.
- E. If the above grades can not be attained, use a leveling pad.
- F. Any curbs that must remain should be (4") maximum and be sloped.
- G. The width of an attenuator system shall be as narrow as possible while still providing attenuation for the hazardous object.
- H. For additional information regarding attenuator selection guidelines and placement recommendations, please see the 2002 AASHTO Roadside Design Guide, Sections 8.4 and 8.5.

When choosing the type of attenuator to specify, please consider the following attenuator types.

- 1. Attenuator - 24" - Protects object up to 24" in width
- 2. Attenuator - 30" - Protects object up to 30" in width
- 3. Attenuator - 35"/36" - Protects object up to 35" or 36" in width
- 4. Attenuator - 69" - Protects object up to 69" in width
- 5. Attenuator - 90" - Protects object up to 90" in width

## 6-12 Self Restoring Attenuator

Self restoring attenuators will do everything that the regular attenuators listed above will. This type of attenuator generally costs more, but the repair costs are minimal. These attenuators should be used when:

The history of the site shows that it sustains more than two impacts per year.

Due to site geometrics, it is anticipated that the site will sustains more than two impacts per year.

The distance from EOM to EOM does not leave sufficient room for maintenance crews to work. (Generally less than 16' from EOM to EOM at the front of the attenuator).

An impact indicator shall be used with this type of attenuator.

6. Self Restoring attenuator - 24" - Protects objects up to 24" in width.
7. Self Restoring attenuator - 36" - Protects objects up to 36" in width.
8. Self Restoring attenuator - 60" - Protects objects up to 60" in width.
9. Self Restoring attenuator - 69" - Protects objects up to 69" in width.
10. Self Restoring attenuator - 90" - Protects objects up to 90" in width.
11. Self Restoring attenuator - 96" - Protects objects up to 96" in width.
12. Self Restoring attenuator - 120" - Protects objects up to 120" in width.

Available Attenuators

SYSTEM	Manufacturer	Length	Width(s)	Redirective (Angled Hit)	Reusable	Self Restoring	# of Bays	Attenuator Type
QUAD GUARD LMC	Energy Absorption	32' - 8"	36" - 90"	Yes	Yes	Yes	11	7, 9, 10
REACT 350	Energy Absorption	30' - 3" *28' - 9" to 34'-9"	36"	Yes	Yes	Yes	9 to 15	7, 8, 11, 12
QUAD GUARD ELITE	Energy Absorption	33' - 4"	24" - 90"	Yes	Yes	Yes	11	6, 7, 9, 10
QUAD GUARD	Energy Absorption	22' - 1" *23' - 6"	24" - 90"	Yes	Yes	No	6	1, 2, 3, 4, 5
TAU-11	Barrier System	26' -10"	35"	Yes	Yes	No	8	3
<b>TRACC – Does not meet the requirements to bid</b>	Trinity	21'-0"	24"	Yes	Yes	No	9	1