

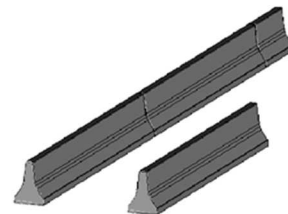
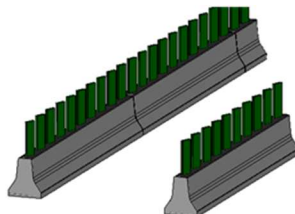
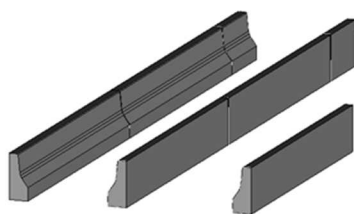
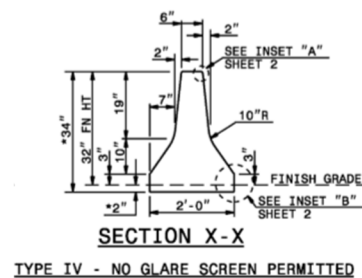
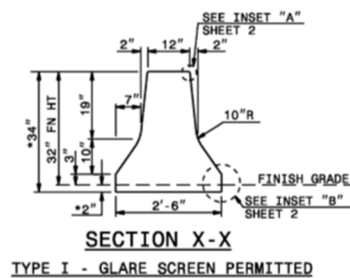
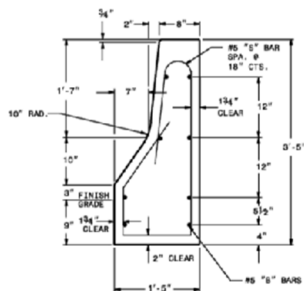
18_10 3D Barriers and Delineators Custom Line Styles

Effective immediately with the next CONNECT workspace update.

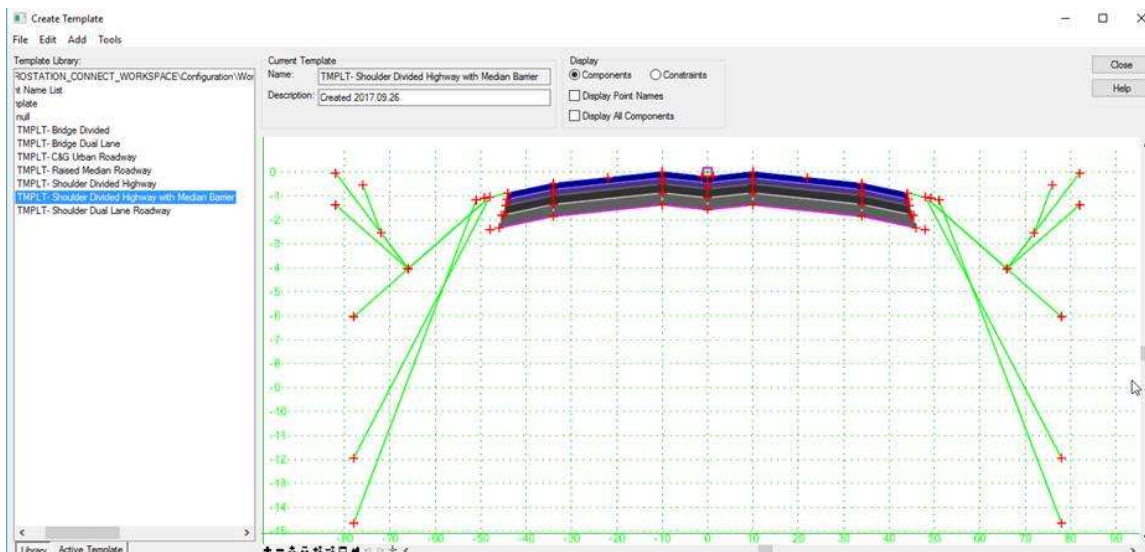
New 3D custom line styles, for barriers and traffic control delineators, have been added to the CONNECT workspace. These line styles were developed with the 2018 Roadway Standard Drawings and the 2009 FHWA MUTCD as guides.

Concrete barriers are included for the following standard drawings:

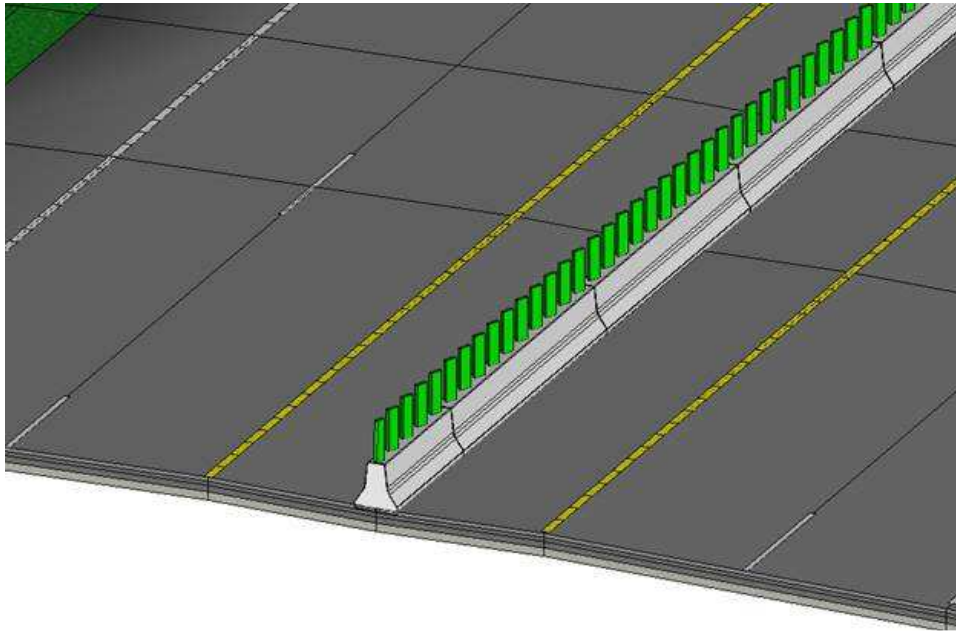
- Single Faced Left
- Single Faced Right
- Double Faced Median Application (Type I with Glare Screen)
- Double Faced Median Application (Type IV without Glare Screen)



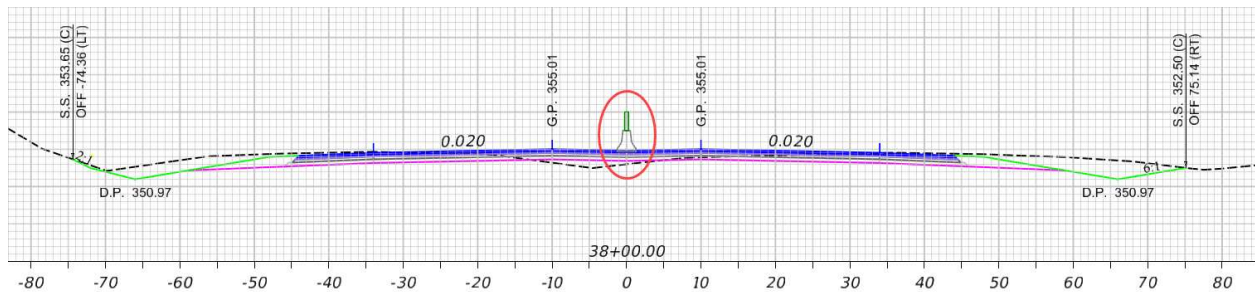
These line styles are not drawn in the template:



Instead, they are shown in the 3D model as a 3D custom line style:



When cutting cross sections, they are generated as a 2D cell:

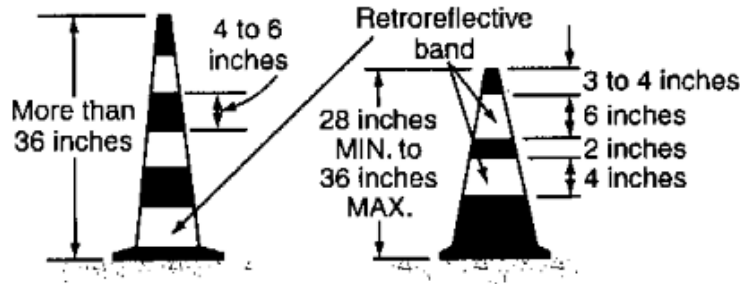


It is likely that both the old and new methods will be utilized. Using custom line styles and building the concrete barrier components, as part of the template (for Type II and III), in Corridor Modeling. The custom line styles are applicable in locations with even “flush” finished grades. Template components can be used when the finished grade is drastically different on both sides of the centerline (e.g. NBL and SBL PGLs).

For Roadway Engineers who generate Traffic Control Plans, the following delineator devices have been added to the 3D custom line style libraries:

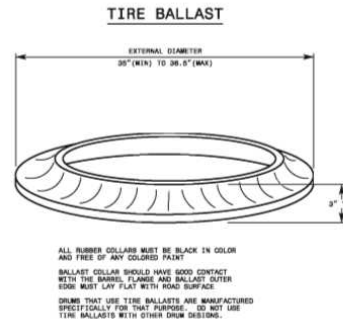
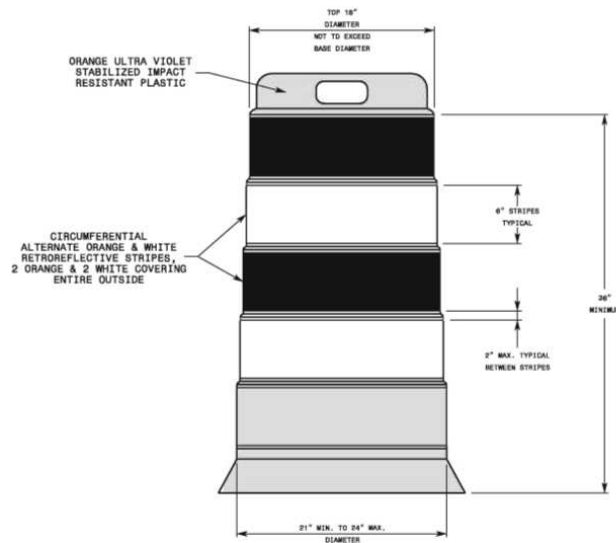
- Temporary Water-Filled Plastic Barrier
- Drum (Construction Barrel)
- Skinny Drum
- 28” Cone
- 36” Cone

Note: The MUTCD states that the 36" cone is used for "Night and/or freeways high-speed roadway (≥ 45 mph)." Use the 28" cone otherwise.



Night and/or freeway
High-speed roadway
(≥ 45 mph)

CONES

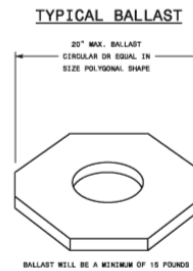
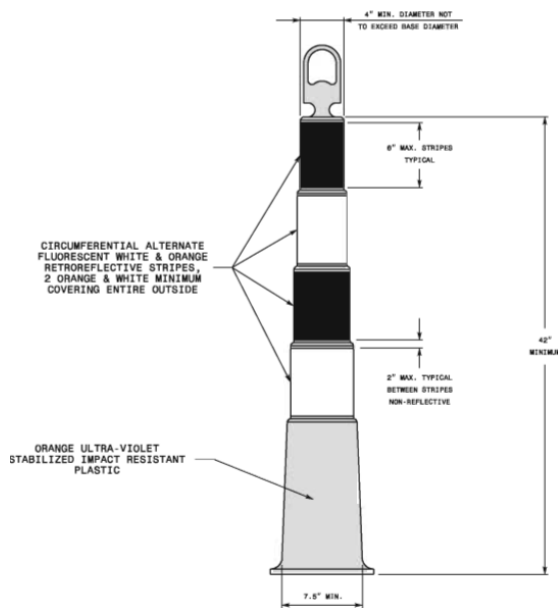


GENERAL NOTES

- 1- BALLASTING SHALL BE ACHIEVED BY THE SAND BAG, TIRE-SIDWALL, OR PREFORMED WEIGHTED BASE METHODS. USE THE TIRE BALLAST AS SPECIFIED BY THE MANUFACTURER. DO NOT PLACE BALLAST ON TOP OF THE DRUM.

1-12 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS

ENGLISH STANDARD DRAWING FOR DRUM

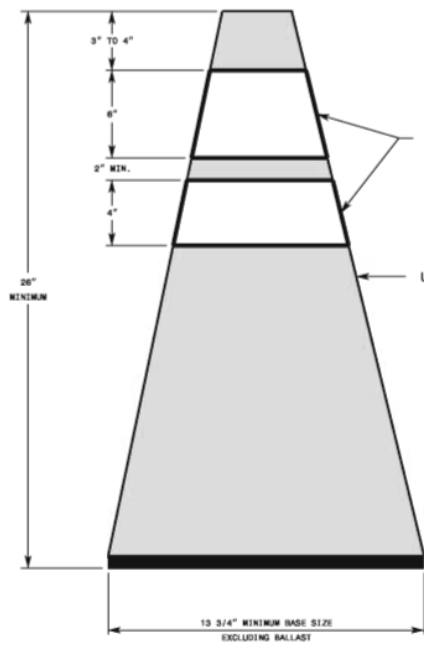


1-12 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR SKINNY-DRUM

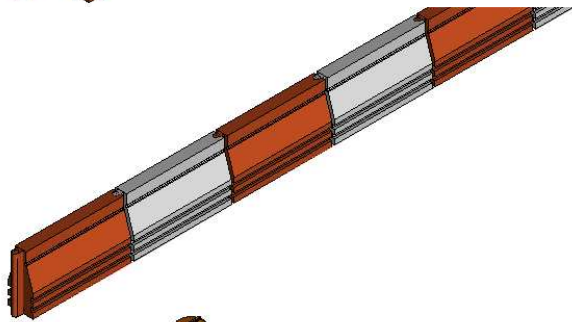
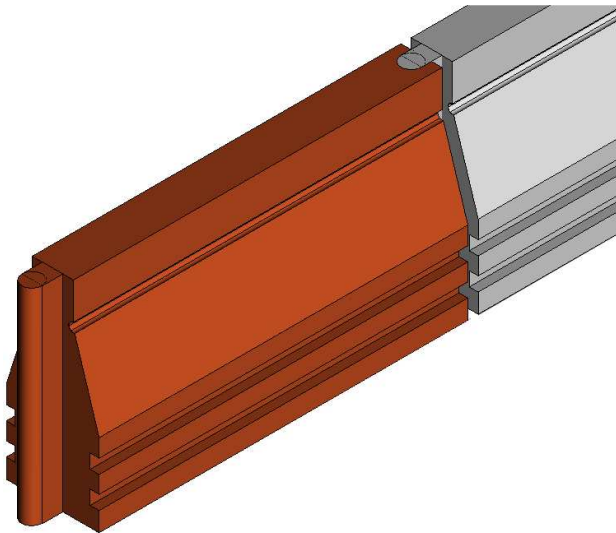
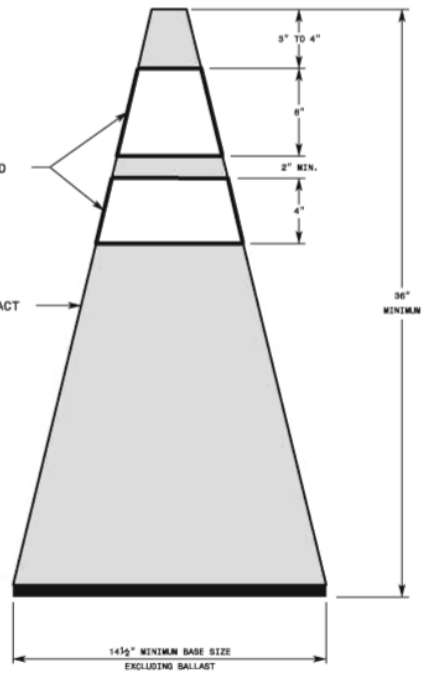
28 INCH CONE

(MINIMUM SIZE CONE FOR ALL CLASSES OF ROADS EXCEPT FREEWAYS AND INTERSTATES)



36 INCH CONE

(REQUIRED FOR FREEWAYS AND INTERSTATES)



The spacing of the delineators is mainly dictated by the MUTCD:

05 *Delineators should be spaced 200 to 530 feet apart on mainline tangent sections. Delineators should be spaced 100 feet apart on ramp tangent sections.*

Support:

Table 3F-1. Approximate Spacing for Delineators on Horizontal Curves

Radius (R) of Curve	Approximate Spacing (S) on Curve
115 feet	25 feet
150 feet	35 feet
250 feet	40 feet
300 feet	50 feet
400 feet	55 feet
500 feet	65 feet
600 feet	70 feet
700 feet	75 feet
800 feet	80 feet
900 feet	85 feet
1,000 feet	90 feet

- Notes:
1. Spacing for specific radii may be interpolated from table.
 2. The minimum spacing should be 20 feet.
 3. The spacing on curves should not exceed 300 feet.
 4. In advance of or beyond a curve, and proceeding away from the end of the curve, the spacing of the first delineator is 2S, the second 3S, and the third 6S, but not to exceed 300 feet.
 5. S refers to the delineator spacing for specific radii computed from the formula $S=3\sqrt{R-50}$.
 6. The distances for S shown in the table above were rounded to the nearest 5 feet.

Initially, the following spacing has been set for these devices:

- Drum = 50'
- Skinny Drum = 30'
- Cones = 20'

Note that these line styles may be moved to another Unit's workspace at a later time. These barriers and channelization devices are all drawn at true 1:1 scale with their "Physical" setting checked on. Which means they are not subject to Annotation Scale (don't change size according to the annotation scale).