

14_39 Using Shoulder Berm Gutter with Criteria

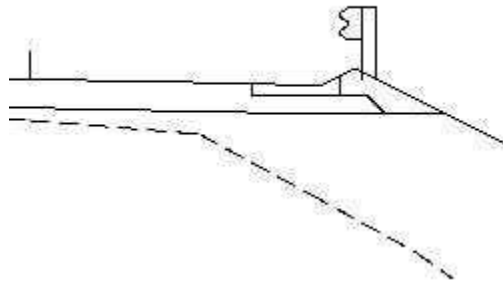
Question:

1. Can the standard placement and location of the guardrail be modified to reflect 2006 Roadway Drawing Standards 846.03, Sheet 2 of 2 for shoulder berm gutters? Currently the face of guardrail is aligned with the back of the shoulder berm gutter. Per standard, the face of guardrail should be aligned with the gutter flow point. 2. My normal usable shoulder width is 10', 4' paved. I am having to define a shoulder width for the normal usable shoulder and the shoulder width of the shoulder berm gutter. Can Criteria be modified to use just one set of shoulder definition and automatically adjust for both situations?

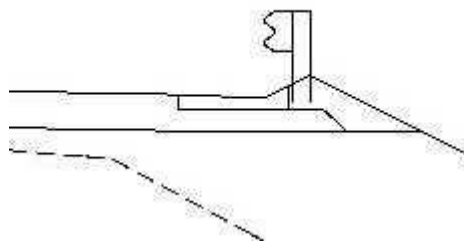
Answer:

1. The Curbing and Gutter Criteria (CC) files have been modified to align the face guardrail to the flow point shoulder berm gutters (type 8).

Before: GR Face Aligned with Back of Gutter



After: GR Face Aligned with Gutter Flow Point



2. At the present, it is probably not to the best interest of Roadway to combine the shoulder Criteria files for automatic adjustment to shoulder with in shoulder berm gutter scenarios, for the following reasons:

- I. Existing shoulder Criteria contain seven (7) cases of shoulder rollover rate scenarios.
- II. Existing Roadway Standard Drawings contain seven (7) cases of shoulder rollover rate scenarios.

Both #1 and #2 will ignore any shoulder rollover applications and ignore the normal paved shoulder width because shoulders are paved to the shoulder berm gutter.

- III. There is a mixture of curbing berm width and the shoulder width to consider. Normally, for any curb and gutter applications, a curbing berm width has to be defined. For shoulder berm gutters, the curbing berm width is set to zero (0) and the dimension of shoulders are defined instead. Therefore one should separate the station range that has shoulder berm gutters from the station range that does not. For instance;

For normal usable shoulder sections

For shoulder berm gutter sections

DEFINE "SH01 WIDTH" 10
DEFINE "SH01 PAVED" 4

and ...

CRITERIA FOR SHAPE CLUSTER
SHAPE CLUSTER BASELINE = L
SHAPE CLUSTER PROFILE = L
SHAPE CLUSTER TIE = 0

SIDE SLOPE LT Where (station <= 1500)
include L:\tmplt01.cri
include L:\shld01.cri
include L:\dss01.cri

SIDE SLOPE RT Where (station <= 1500)
include L:\tmplt01.cri
include L:\shld01.cri
include L:\dss01.cri

DEFINE "SH02 WIDTH" 7.67
DEFINE "SH02 PAVED" 7.67
DEFINE "CC01 CURB TYPE" 8
DEFINE "CC01 BERM WIDTH" 0

and ...

CRITERIA FOR SHAPE CLUSTER
SHAPE CLUSTER BASELINE = L
SHAPE CLUSTER PROFILE = L
SHAPE CLUSTER TIE = 0

SIDE SLOPE LT Where (station >1500)
include L:\tmplt01.cri
include L:\shld02.cri
include L:\cc01.cri
include L:\cslp01.cri

SIDE SLOPE RT Where (station >1500)
include L:\tmplt01.cri
include L:\shld02.cri
include L:\cc01.cri
include L:\cslp01.cri

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Calculation Example

Note that for shoulder berm gutter, the shoulder (berm) and paved shoulder widths are derived from taking the normal usable width minus (-) the 2'-4" distance from the origin of the gutter to the gutter flow point. For the above example, 10' normal usable shoulder width minus 2.33' is 7.67' of shoulder berm width. Resulting in plan view, shoulder is paved from the proposed EOT to shoulder berm gutter (7.67') and 2.33' to the flow point. Finally directly above the gutter flow point is the faced on the guardrail (10' from the proposed EOT). The purpose of this Criteria modification in the first place.