FLH Standard Criteria Files

Section 15 –

Cross-Section Annotation Criteria Files

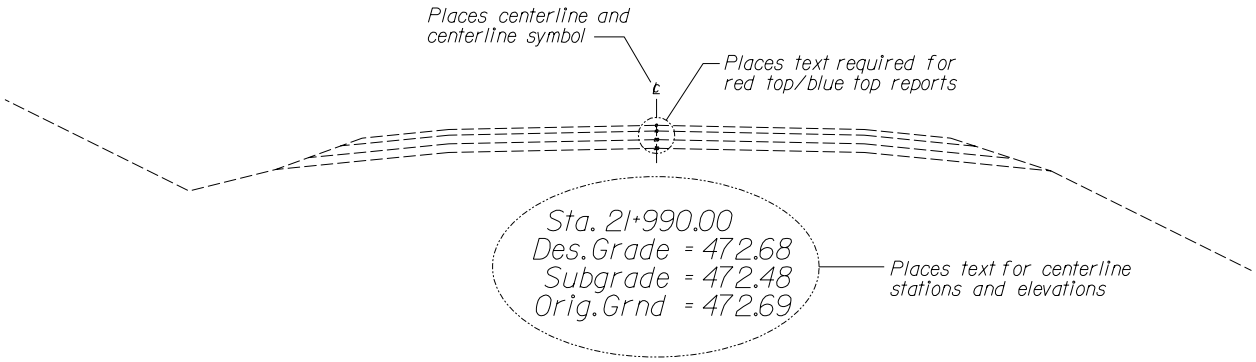
Cross-Section Annotation Criteria Files

Criteria File	Annotation Placed by Criteria File
fh_cl.x08	Places miscellaneous notes on the proposed cross-section.
fh_gr.x08	Places guardrail cells on the proposed cross-sections.
fh_x_lim.x08	Places excavation limit lines on the proposed cross-sections.
addtext.x08	Marks additional red/blue top points for unusually wide cross-sections.
fh_mark.x08	Places a witness line and label showing the location of line(s) drawn in a plan view dgn file.

fh_cl.x08

Draws the following features on the proposed cross-sections:

- note below the cross-section specifying station, design grade elevation, subgrade elevation, and original ground elevation
- centerline and centerline symbol
- text at centerline required for red/blue top reports



define variables that must be assigned values in the input data file:

None

define_dgn variables that must be assigned values in the input data file:

None

Variables that must be defined in exceptions data file:

None

Notes for fh_cl.x08:

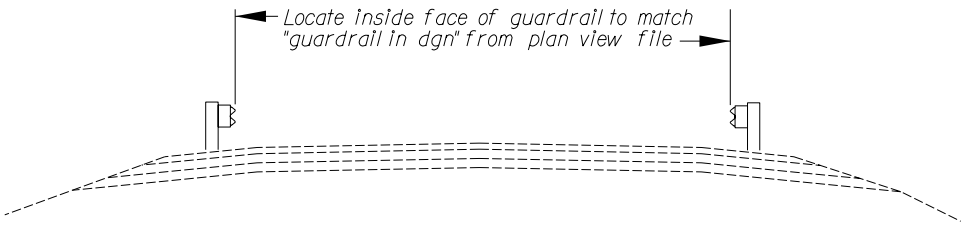
1. This criteria file is optional, however in most cases it will need to be included because it places text that the red/blue top reports look for.

2. This criteria file should be included only once in the proposed cross-section input file -- either for side slope lt or side slope rt, but not both. If it is included for both sides, it writes double text which will cause problems with the red/blue top reports.

3. A modified version of this criteria called c_cl.x08 allows the user to control the size of the text below the cross-section using a define variable "cl annotation text size" in the input file. This is a useful feature because often when the cross-sections are placed on sheets using the XS Layout procedure, the annotation text is too small to be readable, and it can't be easily resized using tools such as scltxt.ma due to the way the text strings are constructed and located by fh_cl.x08.

fh_gr.x08

Places guardrail cells at the appropriate locations on the cross-sections.



define variables that must be assigned values in the input data file:

"gr_left"
"gr_right"

define_dgn variables that must be assigned values in the input data file:

"guardrail in dgn"

Variables that must be defined in exceptions data file:

None

Notes for fh_gr.x08:

1. The syntax for the define "gr_left" and "gr_right" statements in the input file is:
   define "gr_left" set plot param lv=35 draw cell=g4w_lt xs=1.0 ys=1.0
   define "gr_left" set plot param lv=35 draw cell=g4w_lt xs=1.0 ys=1.0

2. Guardrail is placed on the cross-sections as a cell rather than drawing the guardrail as individual elements. Therefore, a cell library with the guardrail cells must be attached to the dgn file before running the criteria files. Cell library geo.cel has cells for W beam guardrail (g4w_lt and g4w_rt).

3. Guardrail cells are placed wherever "guardrail in dgn" is found in the plan view dgn file. The face of the guardrail matches the offset of "guardrail in dgn".

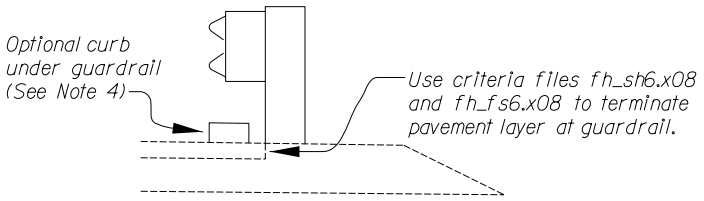
4. The name and scale of the guardrail cells is set with the "gr_left" and "gr_right" define variables in the proposed cross-section input file. The standard guardrail cells g4w_lt and g4w_rt were created assuming MU:SU:PU's in the cross-section file are 1:1000:10. If the MU:SU:PU's in your cross-section file are 1:1000:10, then in the define "gr_lt" and define "gr_rt" statements set xs=1.0 and ys=1.0. If the MU:SU:PU's in your cross-section file are 1:1000:1, then in the define "gr_lt" and define "gr_rt" statements set xs=0.1 and ys=0.1.

5. An optional curb located under the guardrail (as shown below) may be drawn by including the following statement in the input file:
   define "~draw curb under guardrail" 1
   By default no curb is drawn.

6. If the optional curb is drawn, its default size and shape are as shown in standard drawing M617-23. The user may adjust the size and shape of the curb with the following variables:

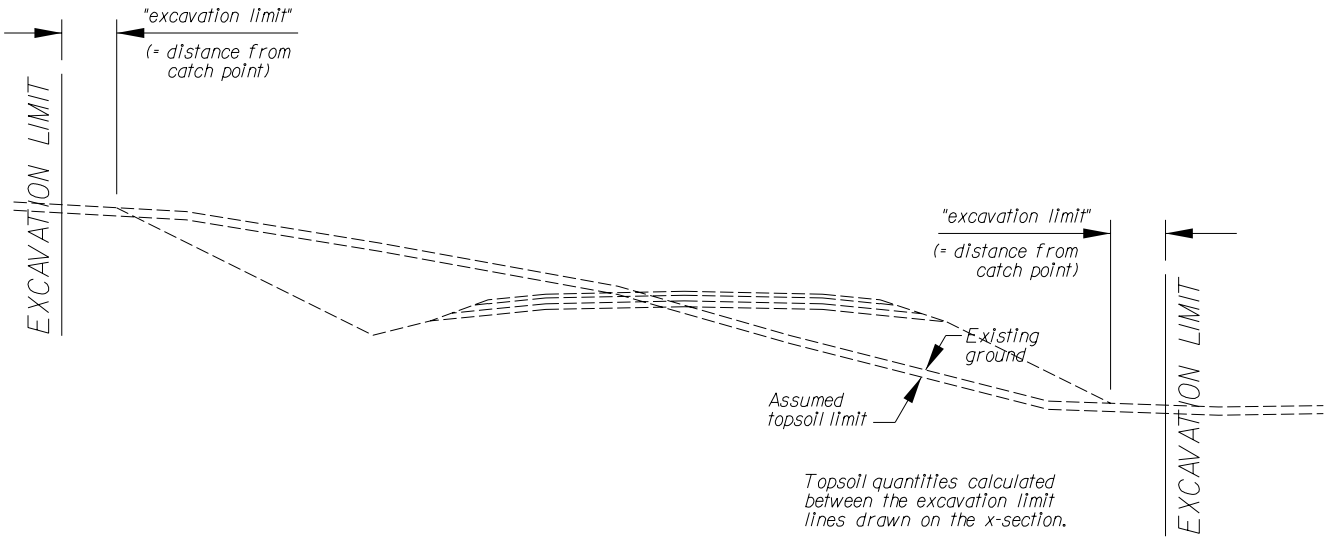
define "~guardrail curb base width" nnn (default = 0.20 m)
define "~guardrail curb height" nnn (default = 0.10 m)
define "~guardrail curb front taper" nnn (default = 0)
define "~guardrail curb back taper" nnn (default = 0)
where nnn is the desired curb dimension.

Detail of optional curb under guardrail:



fh_x_lim.x08

Draws and labels a vertical line on the cross-section representing the excavation limits. This line may be required to get some earthwork quantities such as topsoil or subexcavation.



define variables that must be assigned values in the input data file:

"excavation limit"

define_dgn variables that must be assigned values in the input data file:

None

Variables that must be defined in exceptions data file:

None

Notes for fh_x_lim.x08:

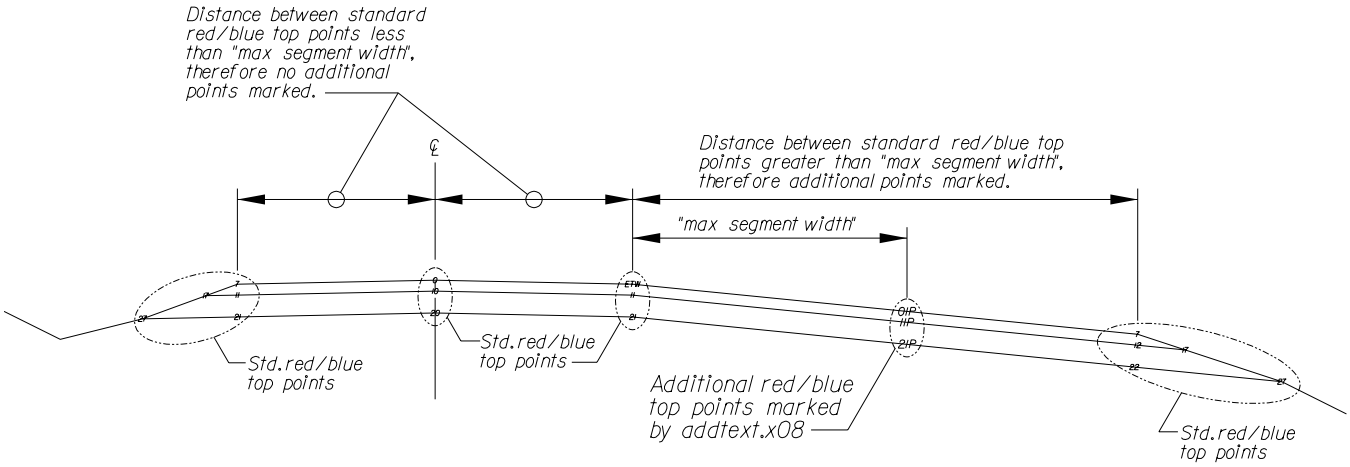
1.Excavation limits are only required if quantities for topsoil and/or subexcavation are going to be calculated from the cross-sections.

2. The value of the define variable "excavation limit" is the distance from the cut/fill catch point to where the line is drawn. In almost all cases "excavation limit" should be set to 0 in the input file (i.e., excation limits coincide with the cut/fill catch point).

3. The only thing this criteria does is draw a vertical line on lv=9 and co=22, and labels it.

addtext.x08

Marks additional red/blue top points for unusually wide cross-sections.



define variables that must be assigned values in the input data file:

"max segment width"

define_dgn variables that must be assigned values in the input data file:

None

Variables that must be defined in exceptions data file:

None

Notes for addtext.x08:

1. The standard criteria files are set up to automatically mark red/blue top points with text elements as the proposed cross-section is drawn. For most cases these marked points will be all that's needed to produce adequate red/blue top notes. However, for situations where the default location of red/blue top points is farther apart than is desired (e.g., an unusually wide pullout) this criteria can be used to mark intermediate points.

2. This criteria must be run in a separate "post-processing" run after the proposed cross-sections have been drawn. Use a copy of the standard input file l:\criteria\addtext.inp for the post-processing run to mark the added red/blue top points. The only changes that need to be made to this input file are to define a value for "max segment width" and to specify the dgn file where the proposed cross-sections are drawn.

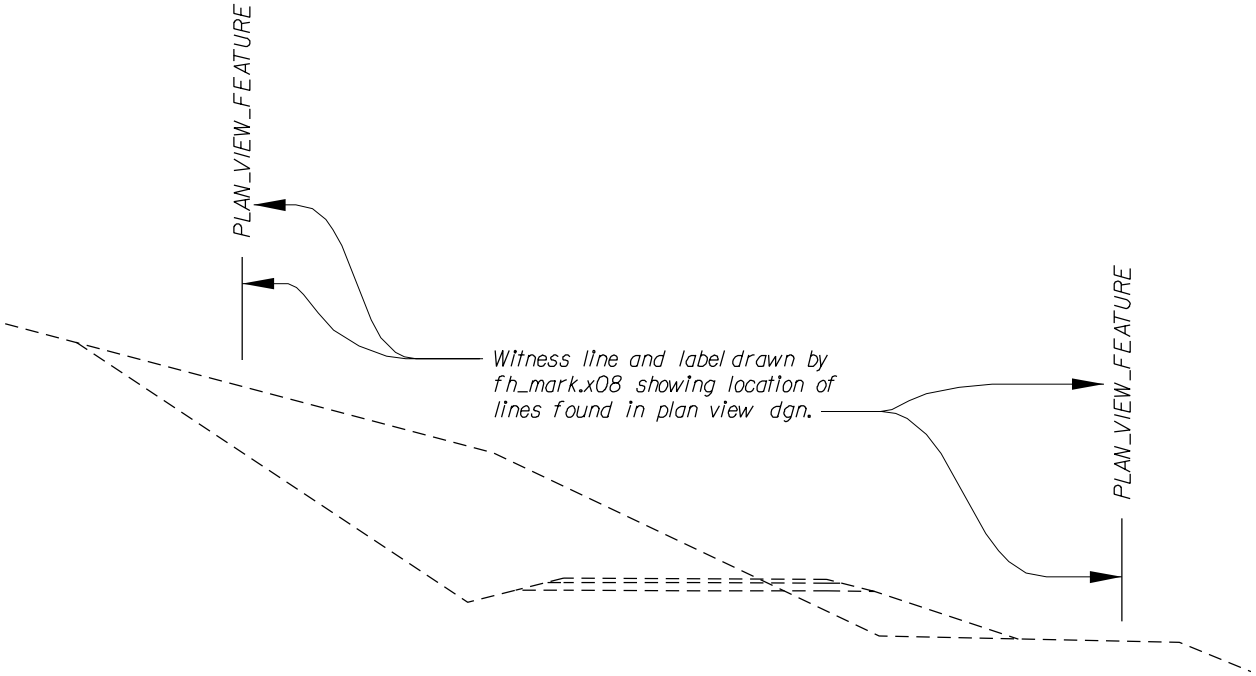
3. The "max segment width" variable in the input file controls the maximum distance between red/blue top points. Additional points are marked only when the distance between the standard red/blue top points exceeds this value.

4. Additional points are labeled 11P, 12P, 13P, etc., for the bottom of layer #1; 21P, 22P, 23P, etc., fore the bottom of layer #2; and so on for however many layers there are in the pavement structural section.

5. If additional marked points are required at the top of the pavement layer, then in the input file define the "mark points at top of pavement" as 1. By default no additional points are drawn at the top of the pavement.

fh_mark.x08

Places witness lines and labels showing the location of line(s) drawn in a plan view dgn file.



define variables that must be assigned values in the input data file:

"planimetric feature label"
"plan feature text parms" (Optional. Default is th=0.35 tw=0.35 ang=90 just=lc ft=23)
"plan feature witness line length" (Optional. Default is 5.00)
"plan feature witness line offset" (Optional. Default is 0.50)

define_dgn variables that must be assigned values in the input data file:

"planimetric feature in dgn"

Variables that must be defined in exceptions data file:

none

Notes for fh_mark.x08:

1. Finds line(s) drawn in a plan view dgn file and marks the location of those lines on the x-sections with a labeled vertical witness line. Typically this criteria would be used to mark on the x-sections the location of features such as fences, right of way lines, edges of streams, utility, etc., relative to the proposed roadway.

2. Level/symbology for the line(s) draw in plan view dgn is set in the the input file with the define_dgn variable "planimetric feature in dgn".

3. Will find and mark any number occurrences of the "in dgn" line.

4. Include this criteria for both side slope lt and side slope rt if you want it to find "in dgn" lines on both sides of the road.

5. The label for the vertical witness line in the x-section file is user definable with the "planimetric feature label" in the input file. For example, define "planimetric feature label" ROW_LINE. Notice that no spaces are allowed in the label. (By default the label is set to PLAN_VIEW_FEATURE.)

6. The level/symbology of the witness line is fixed as lv=31 co=0 wt=1 lc=0.

7. The witness line is placed relative to the existing ground line using the "plan feature witness line length" and "plan feature witness line offset" parameters.

8. This criteria must be after the slope selection criteria (fh_ss3.x08) in the include sequence.