

12_17 Criteria Issues with First Proposed X-Section

Question:

I stored a profile for -Y2- using VPI generator. The first VPI is at 10+00.00. When I try to run criteria it tells me it can't draw a x-section at 10+00.00 because the profile isn't long enough. When I use cogo to check the elevation at 10+00 I get 0.00. The elevation I used at 10+00.00 is 2521.43. D&C Manager draws the dsN alignment and proposed profile with station 10+00.00.[Why wouldn't Criteria process station 10+00.00?]

Answer:

First let's examine the profile for -Y2- as it is stored in the GPK file.

```
<* 1 el pro y2_pro 1000
Elev at 10+00.00 = 0.0000, grade = -1.71ND, On tang betw 1 & 2
<* 2 pri pro y2_pro

Beginning profile Y2_PRO description:
=====
          STATION    ELEV    GRADE    TOTAL I    BACK I    AHEAD I
VPI 1      10+00.00  2,521.4300  -7.4600    K = 25.4    SSD = 323.9
VPC        10+00.00  2,521.4300  -7.4600    K = 25.4    SSD = 323.9
VPI 2      10+50.00  2,517.7000   100.0000   50.0000    50.0000
VPT        11+00.00  2,512.0000  -11.4000
VPC        11+75.00  2,503.4500  -11.4000    K = 4.4
VPI 3      12+00.00  2,500.6000   50.0000   25.0000    25.0000
VPT        12+25.00  2,500.6000   0.0000
VPC        12+36.38  2,500.6000   0.0000
VPI 4      12+36.38  2,500.6000   0.0000
=====
Ending profile Y2_PRO description
```

A direct elevation and grade can not be obtained, but VPI #1 at station 10+00 of the profile Y2_Pro elevation is 2,521.43' and a back grade of -7.4600%. Note that the vertical curve length is long enough that the begin grade station is also the begin point of vertical curve (PVC).

Next run a test to see how Criteria will process this profile.

```
Station = 10+00.00, Region = 1
XS-V-STAOUI: Station 10+00.00 is out of the limits of
profile Y2_PRO. This profile is referenced
in a shape with the parameters:
  baseline = Y2,
  profile = Y2_PRO,
  tie = 0.00,
  pgl chain = .
This shape intersects the current pattern at
coordinates 1047091.7115 801370.5702
This error typically occurs under one of the
following circumstances:
- Profile is of insufficient length such that the
station is outside the limits of the profile
- Profile is improperly stationed
- An incorrect profile is referenced by the shape
XS-E-CNCE Cannot calculate elevation at point with coordinates
1047091.711489 801370.570231
Cross-section NOT plotted
TASK COMPLETED
```

Criteria message indicates a problem with the profile. The problem is Criteria can not obtain the profile elevation at the same station and point where the vertical curve begins (PVC). A bug, yes. Justifiable, maybe.

After restoring the profile Y2_Pro without any vertical curves, was able to process Criteria at station 10+00 successfully.

```
CORRELATING CELLS IN THE CROSS-SECTION DGN FILE WITH THE PATTERNS
1 XS Pattern Line matches existing XS Cell
INTER-SHAPE RECTIFICATION
PROCESSING CROSS-SECTIONS FOR PROPOSED GEOMETRY
Station = 10+00.00, Region = 1
Cross-section plotted
TASK COMPLETED
```