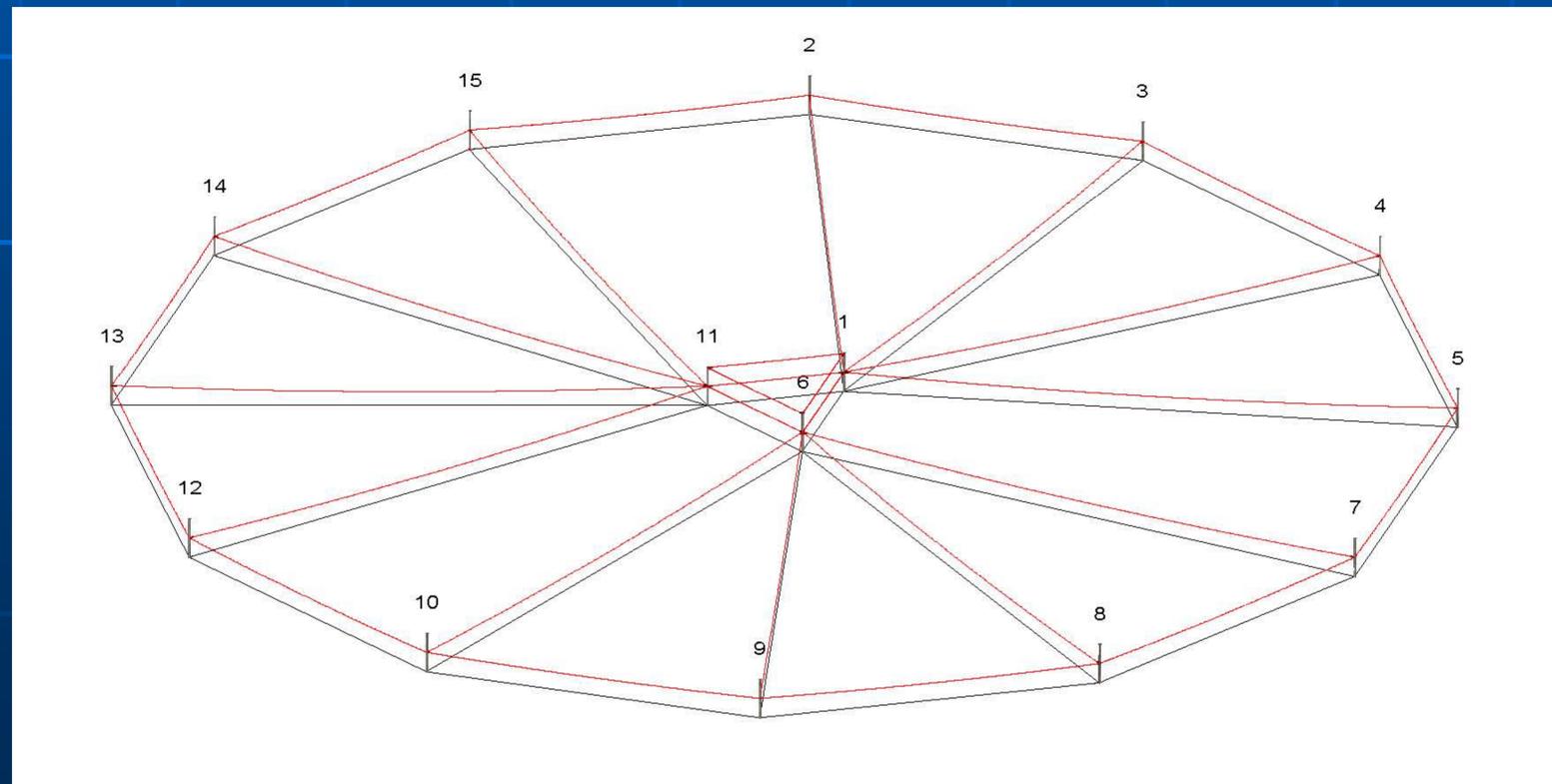


PLS-CADD USER'S GROUP

San Diego, April 2007

The Do's and Don'ts of Multiple Alignments



INTRODUCTION

Kevin Rugg

- Tx Line Design Consultant – Energy Serve
- PLS-CADD Trainer – Australia/New Zealand
on behalf of Dulhunty Power
- 25 years line design experience
- 3 years PLS-CADD experience

TX LINE DESIGN TERMS

You speak a different language and do things a little different down-under



← Earthwire

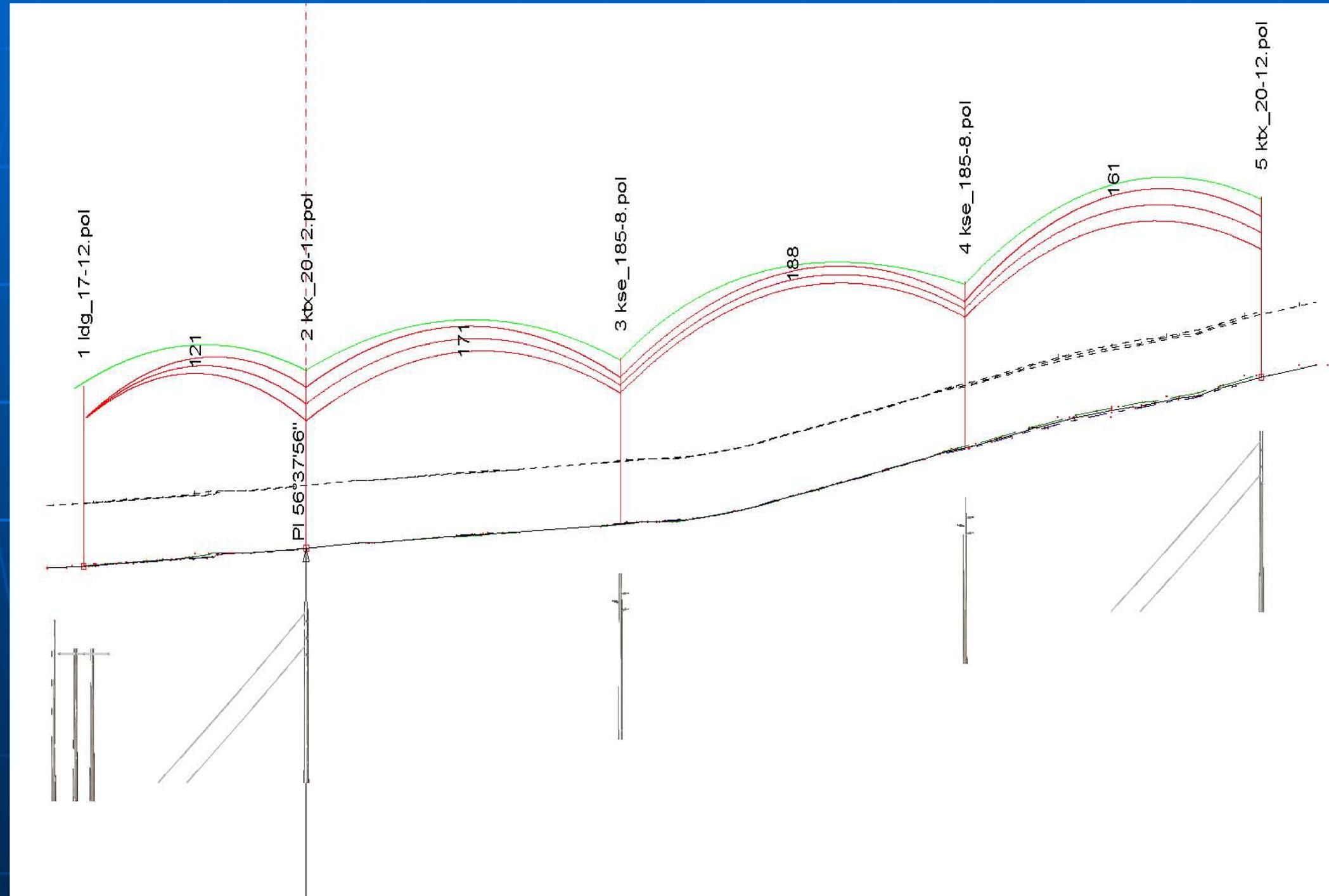
Lime conductor

Stays

m, mm², N, Pa

09/12/2005

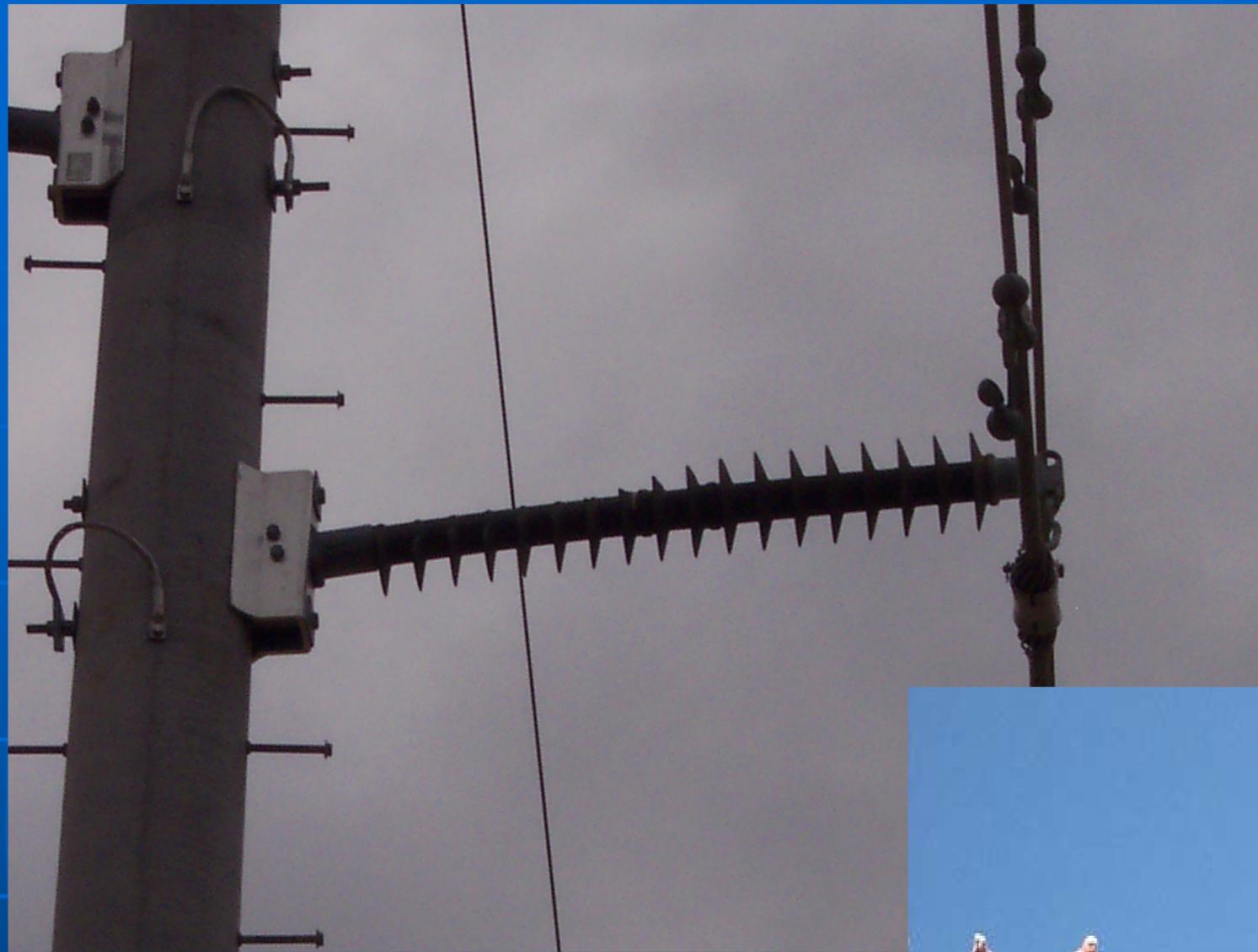
But basically it is all the same,
isn't it?



DIFFERENT CHALLENGES

We don't have unbalanced ice
loading but we do have Galahs

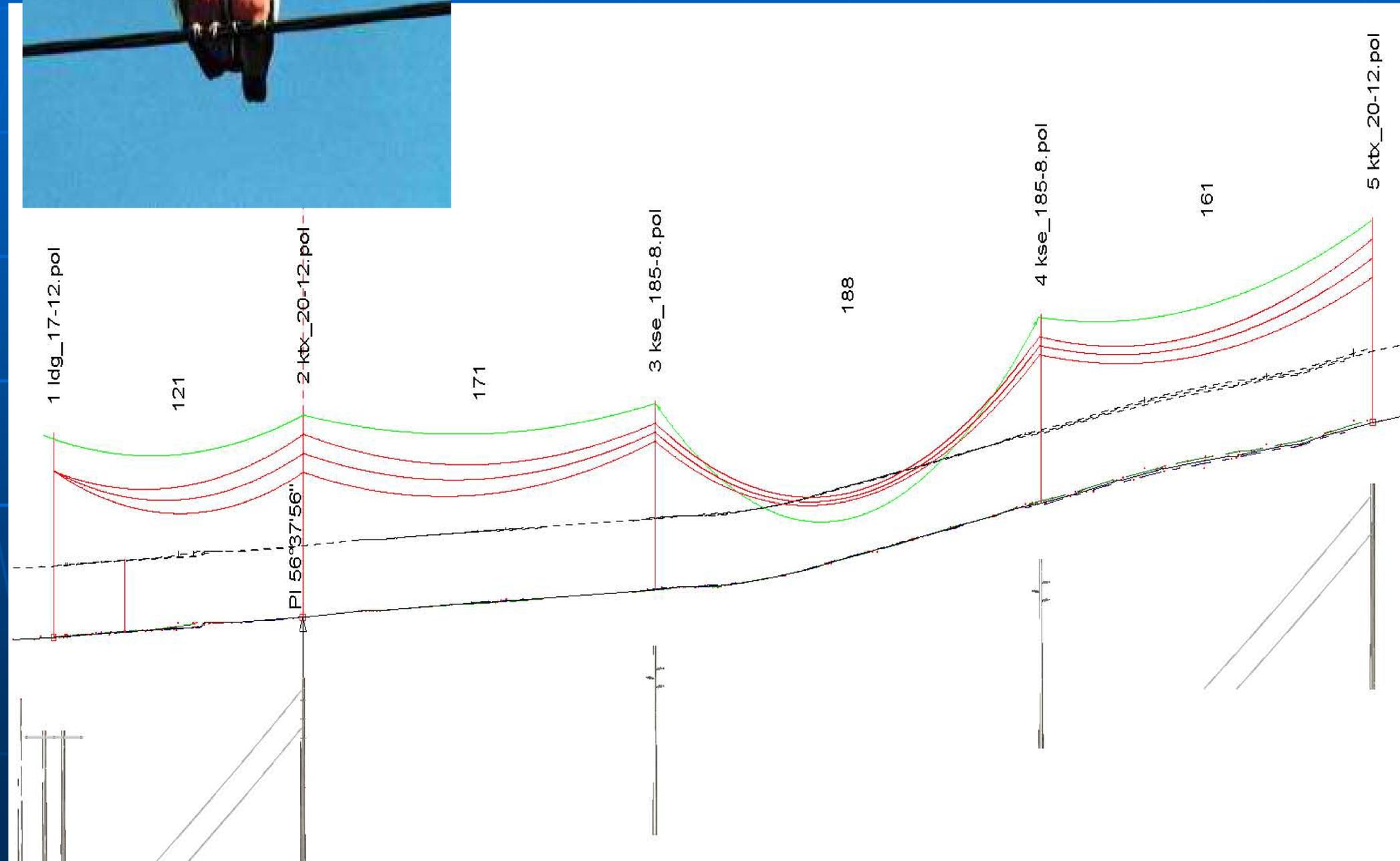




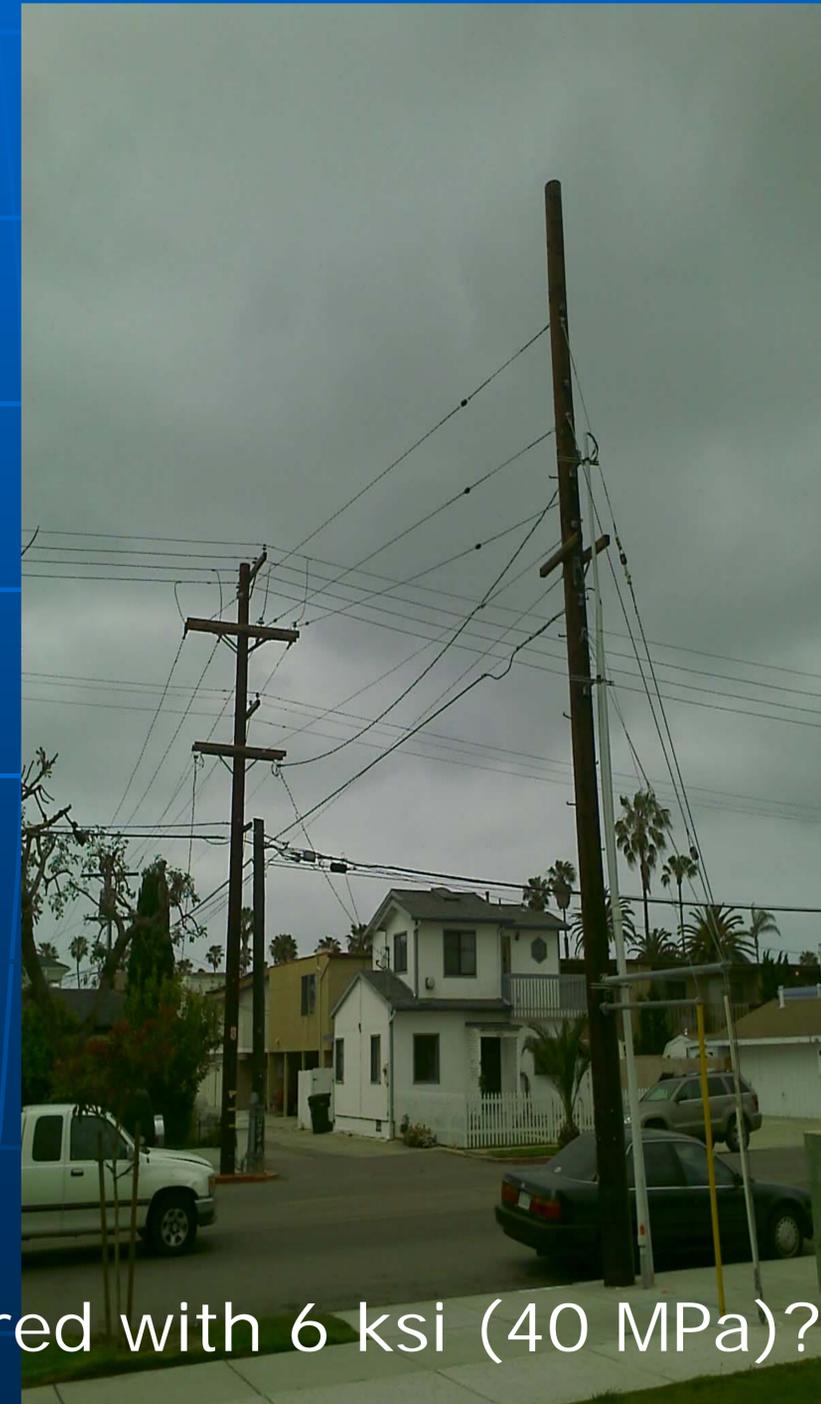
There can be
100's like this!



SAPS Analysis showing unbalanced galah loading on the earthwire



Good Aussie hardwood "Look Mum no stays"



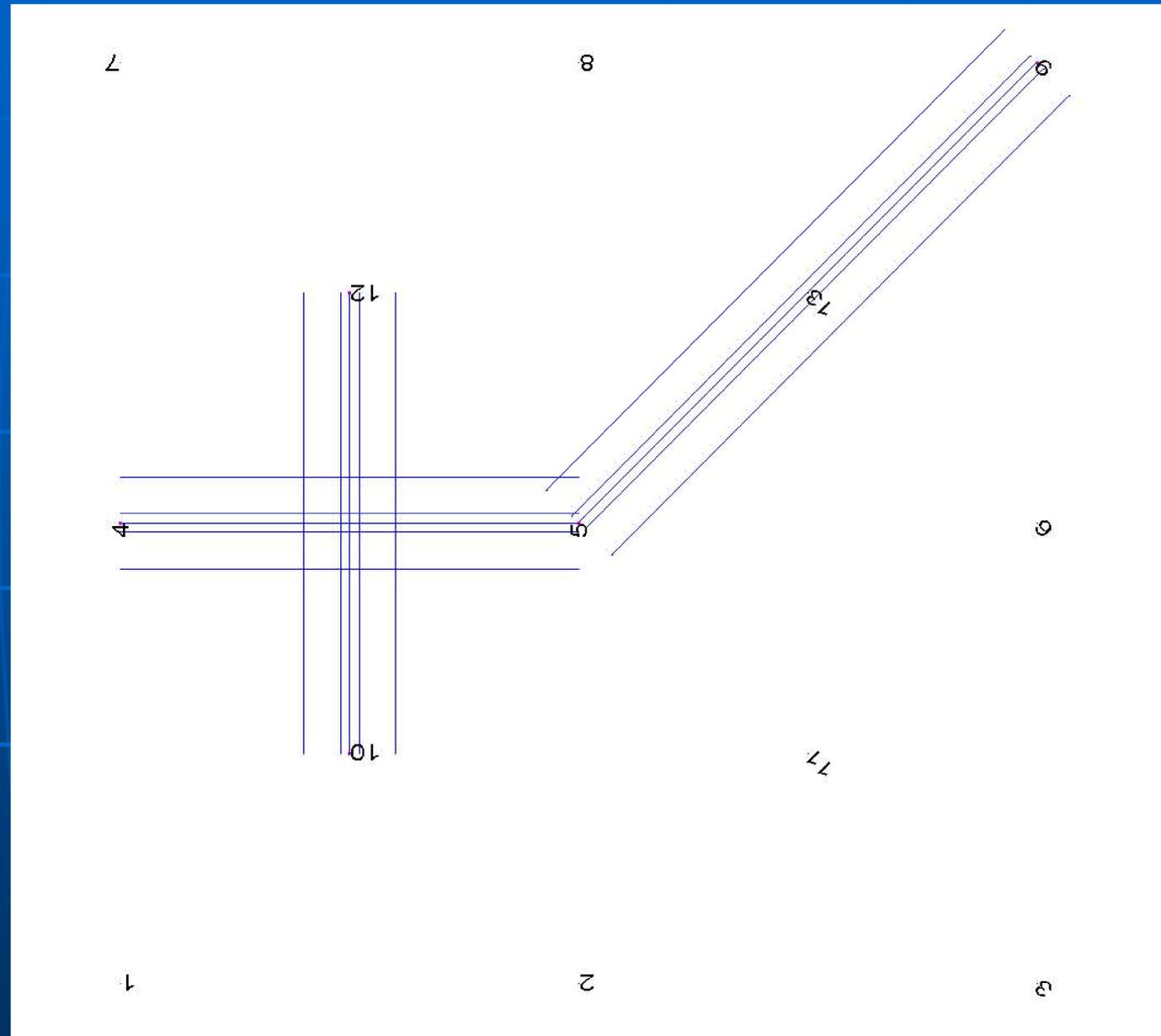
Multiple Alignments

- Under / over crossings where a profile or line model is required
- Parallel feeders where clearances are important
- Simple branches
- Loops
- Multiple scenarios – existing, interim & final arrangements

Key is in the direction of stringing

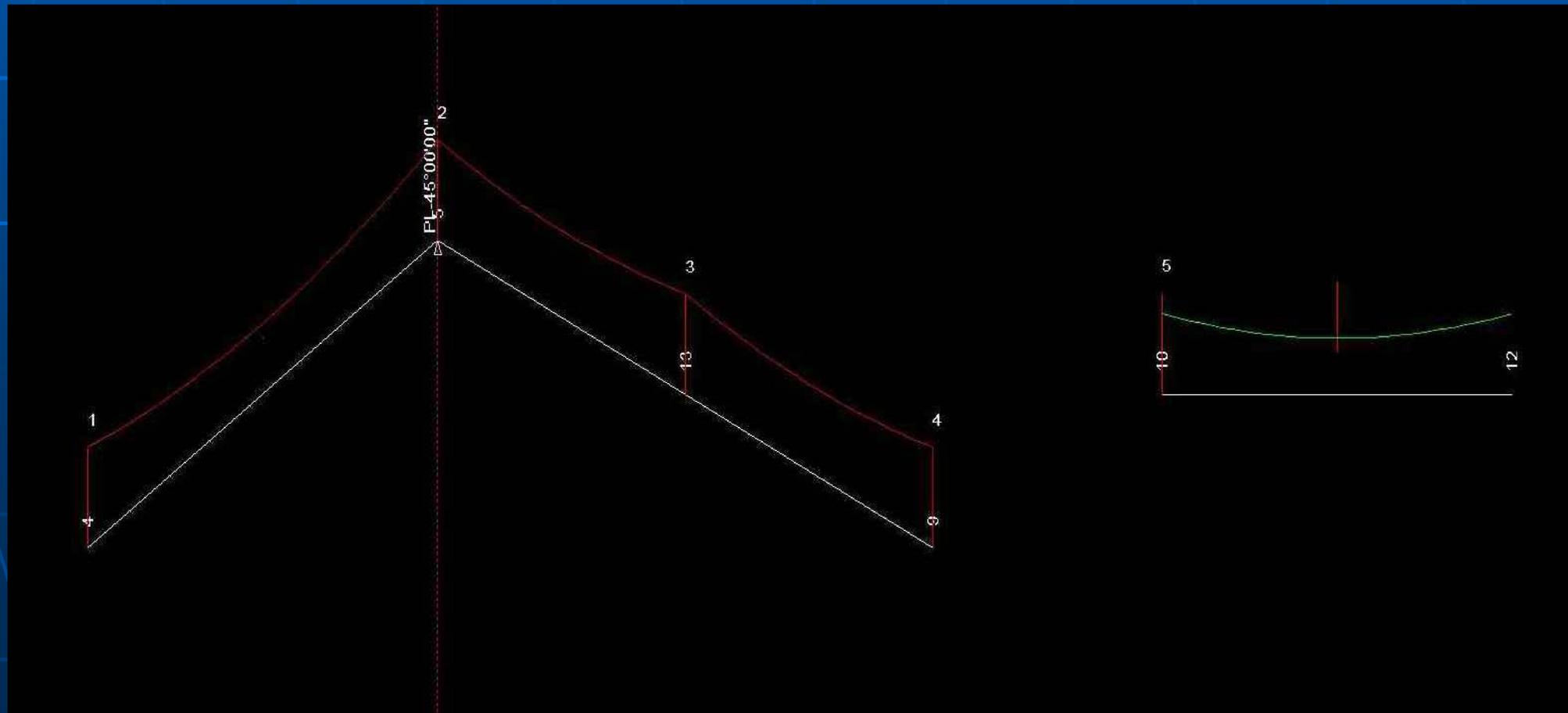
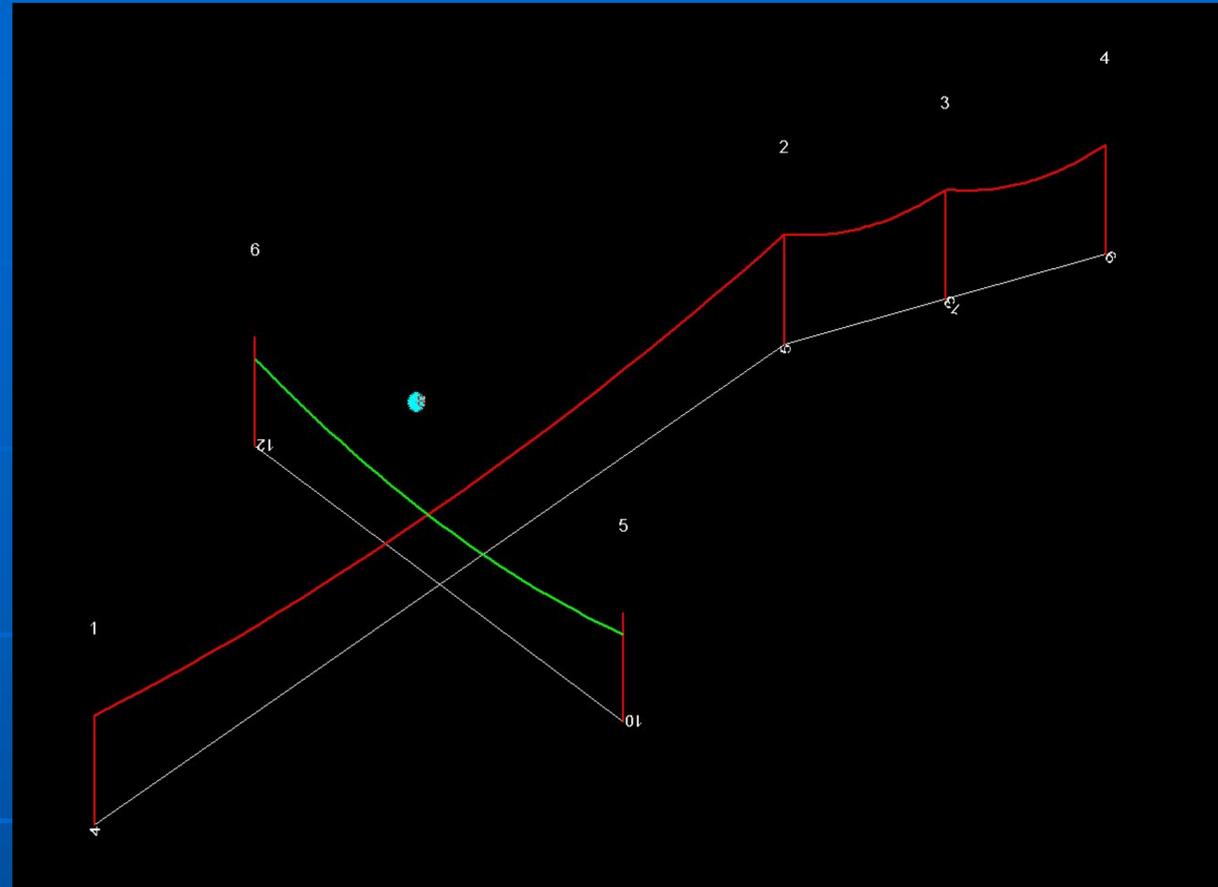
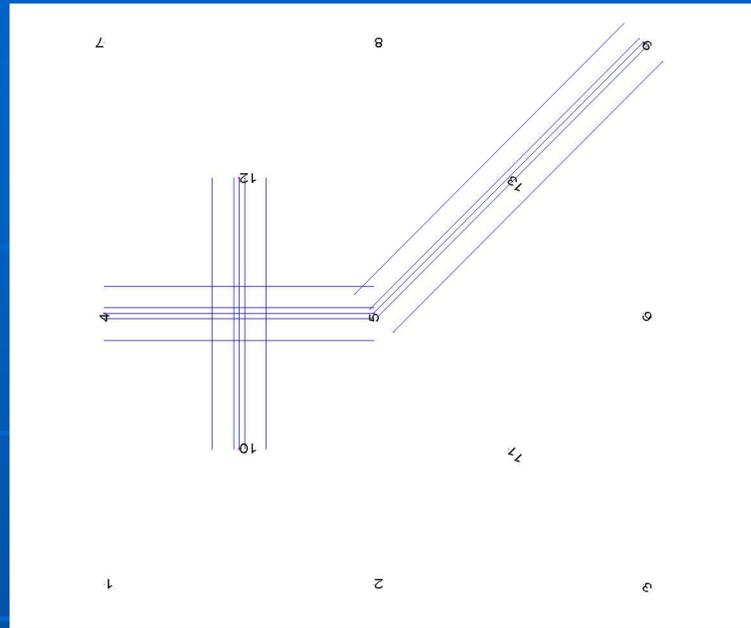
- Remember we always string from left to right (in the direction of increasing station)
- In the Profile View we can only select structures in the current or subsequent branches (to the right)
- Structures must be placed on the correct portion of the alignment

Independent Alignment

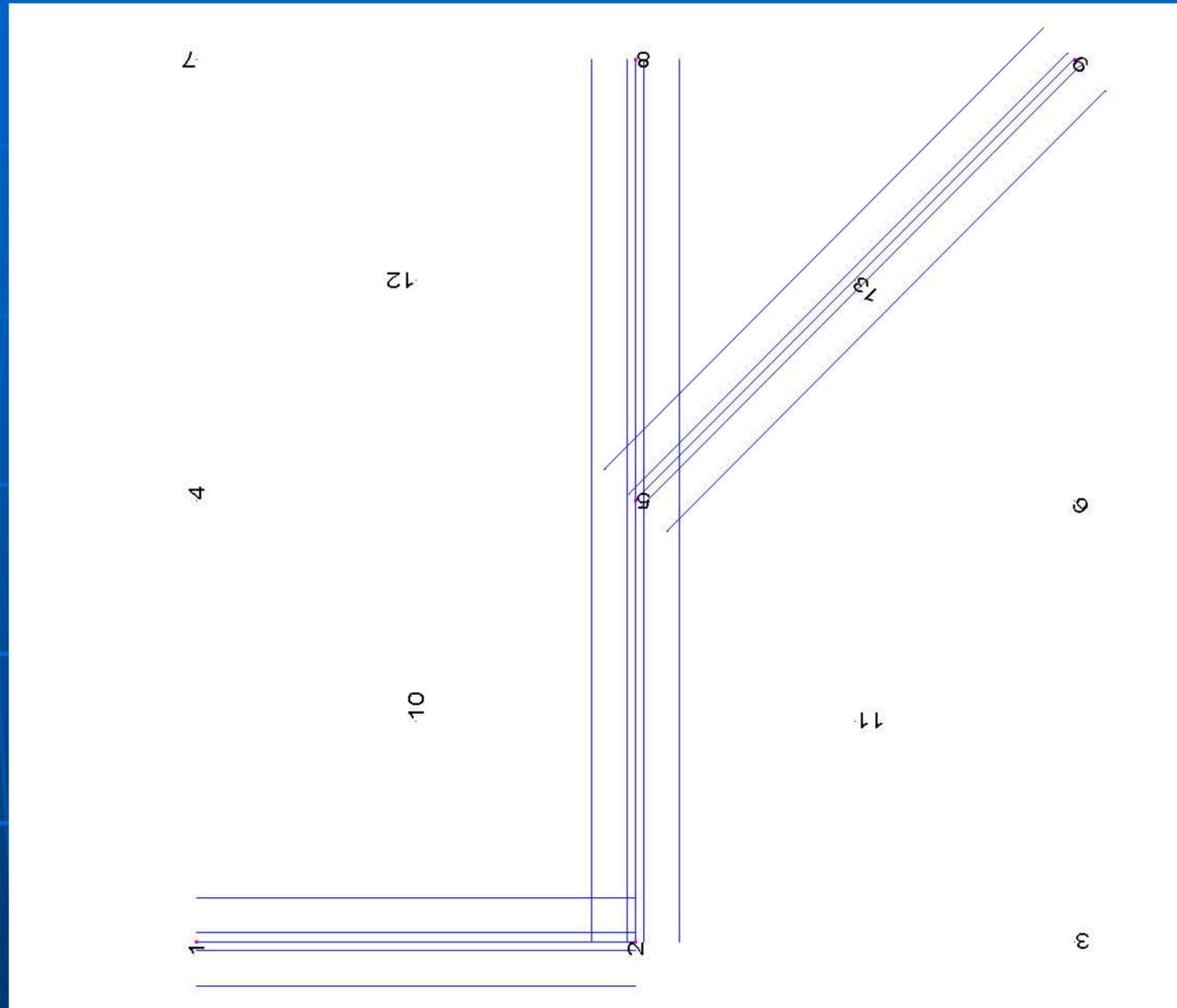


Place at the end or embed in the profile?
Multiple Alignment Options

grid – xing.bak

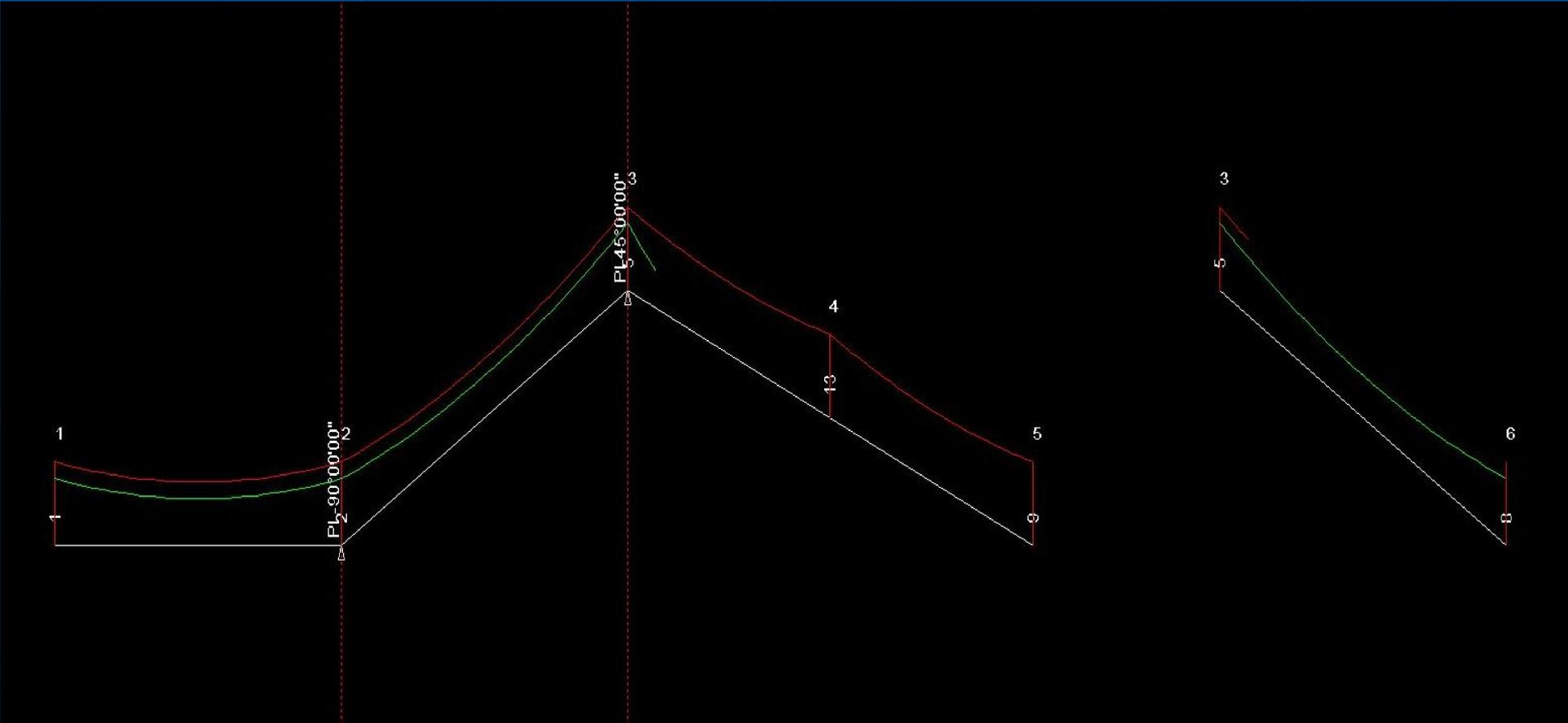
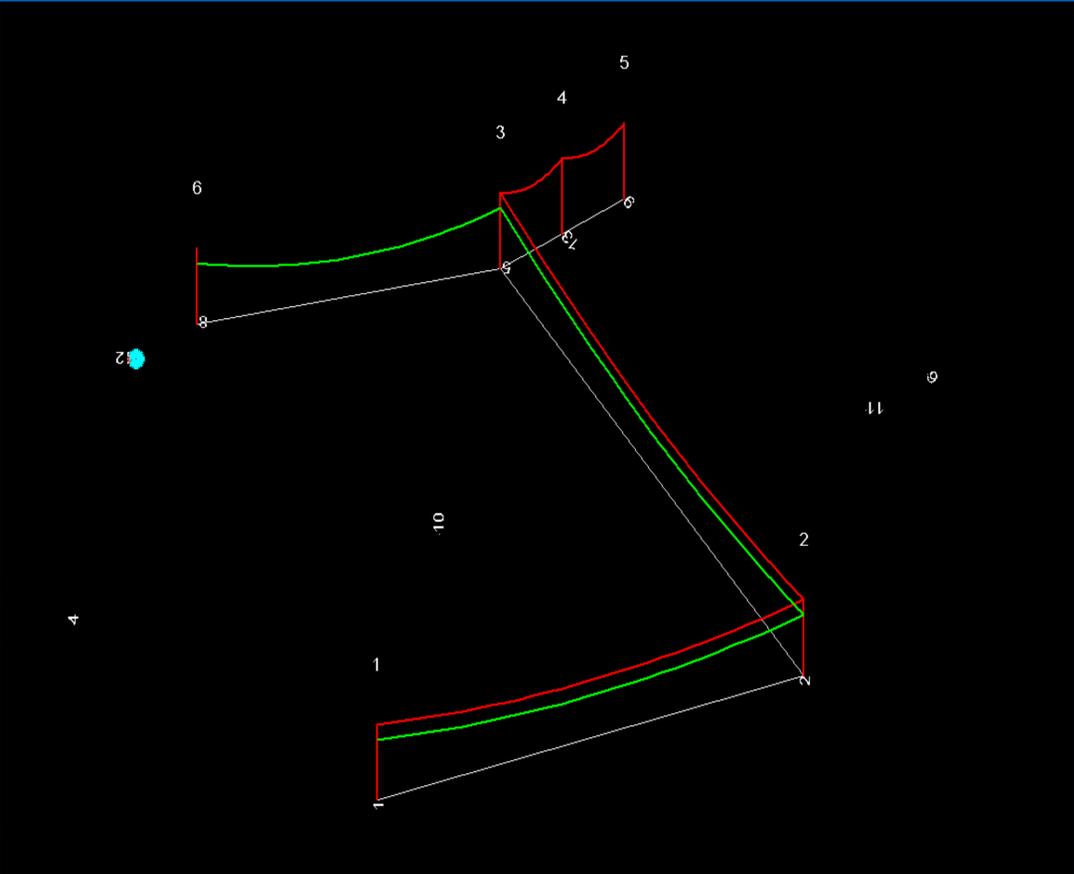
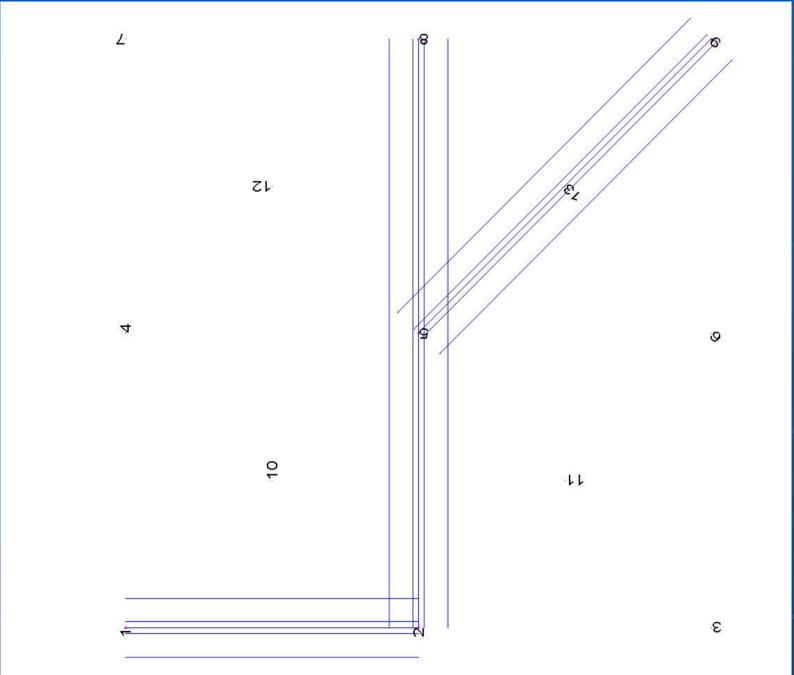


Simple Branch

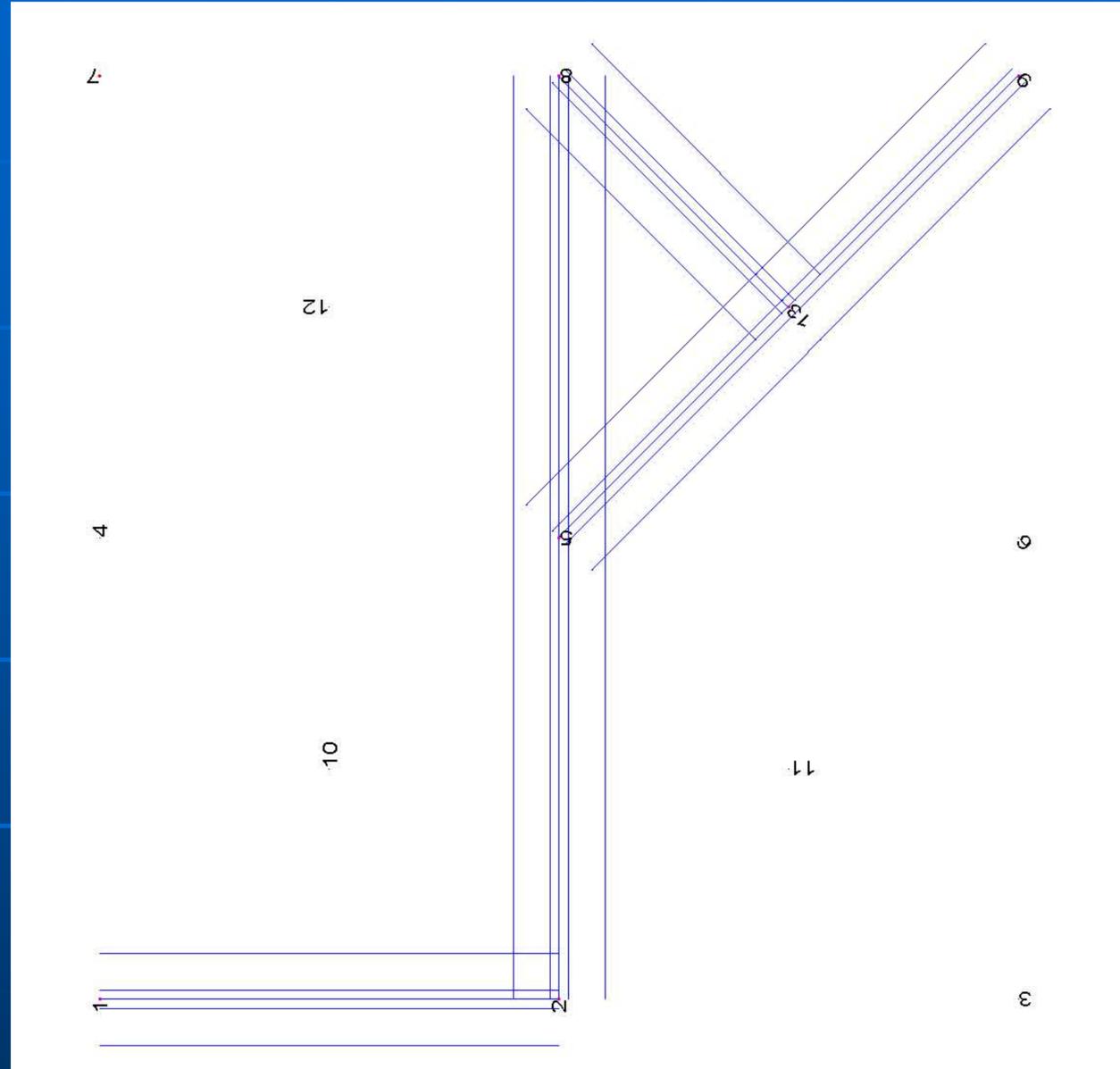


- Example from manual – Insert After or At End
- Automatic structure spotting At Angles >>
Multiple structures will be spotted at PI's

(grid – branch.bak)



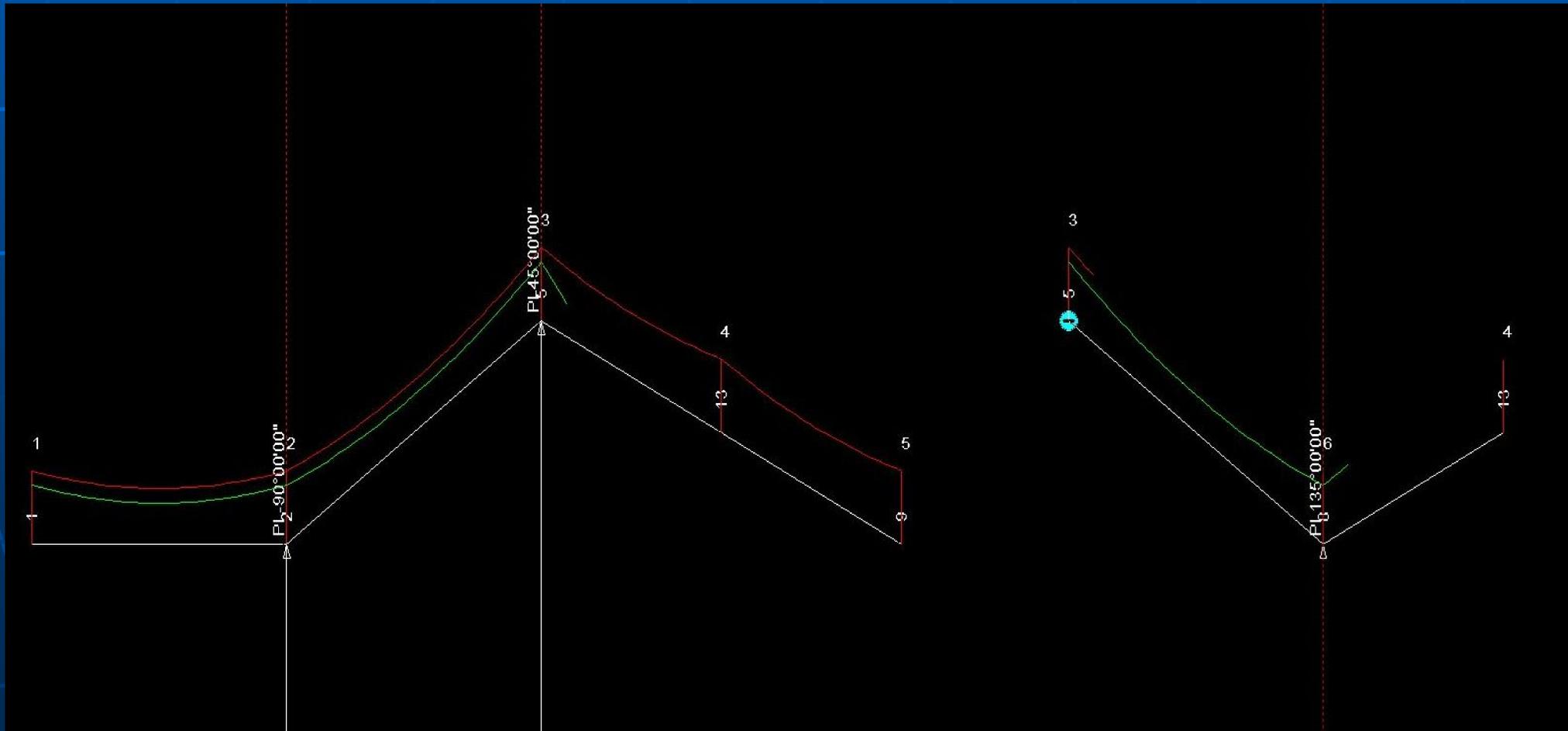
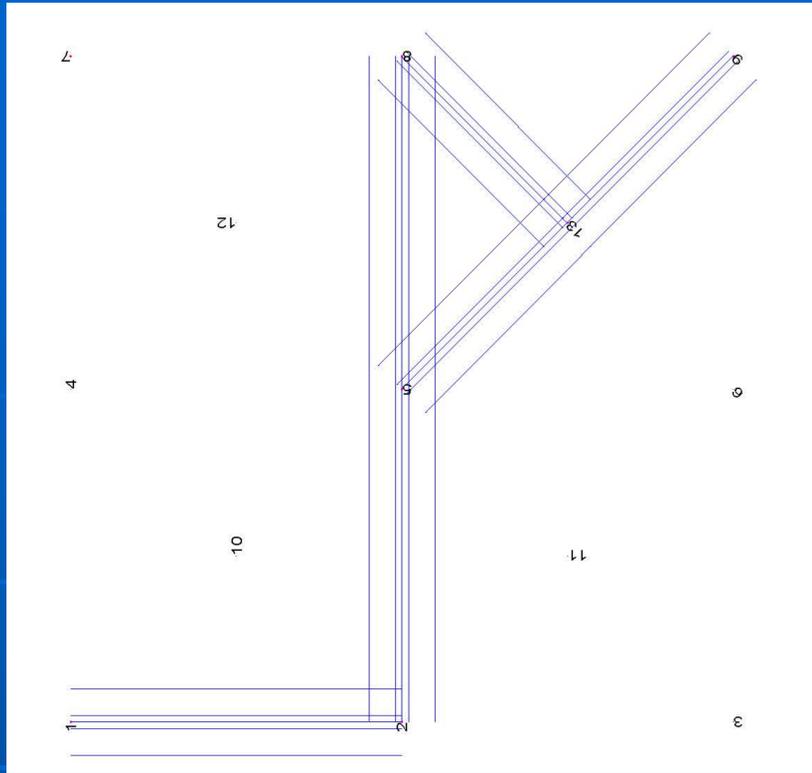
Closing the branch/loop?



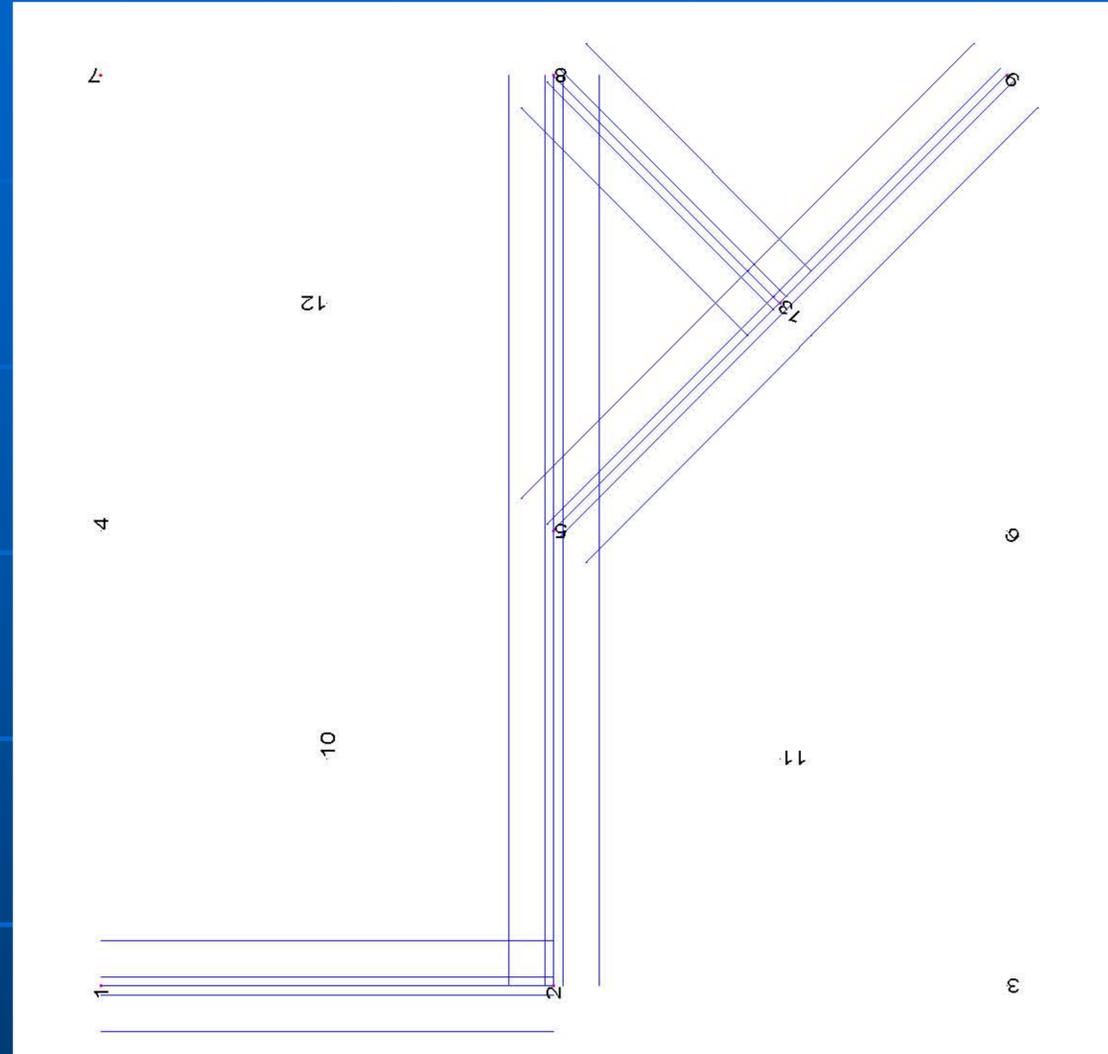
- Insert additional PI at 13 or click structure at 13
- What happens if we close the loop from 8-13
(Add PI After at 8 and click PI or structure at 13)

grid – close br.bak

We can't string from structure 6 to 4!

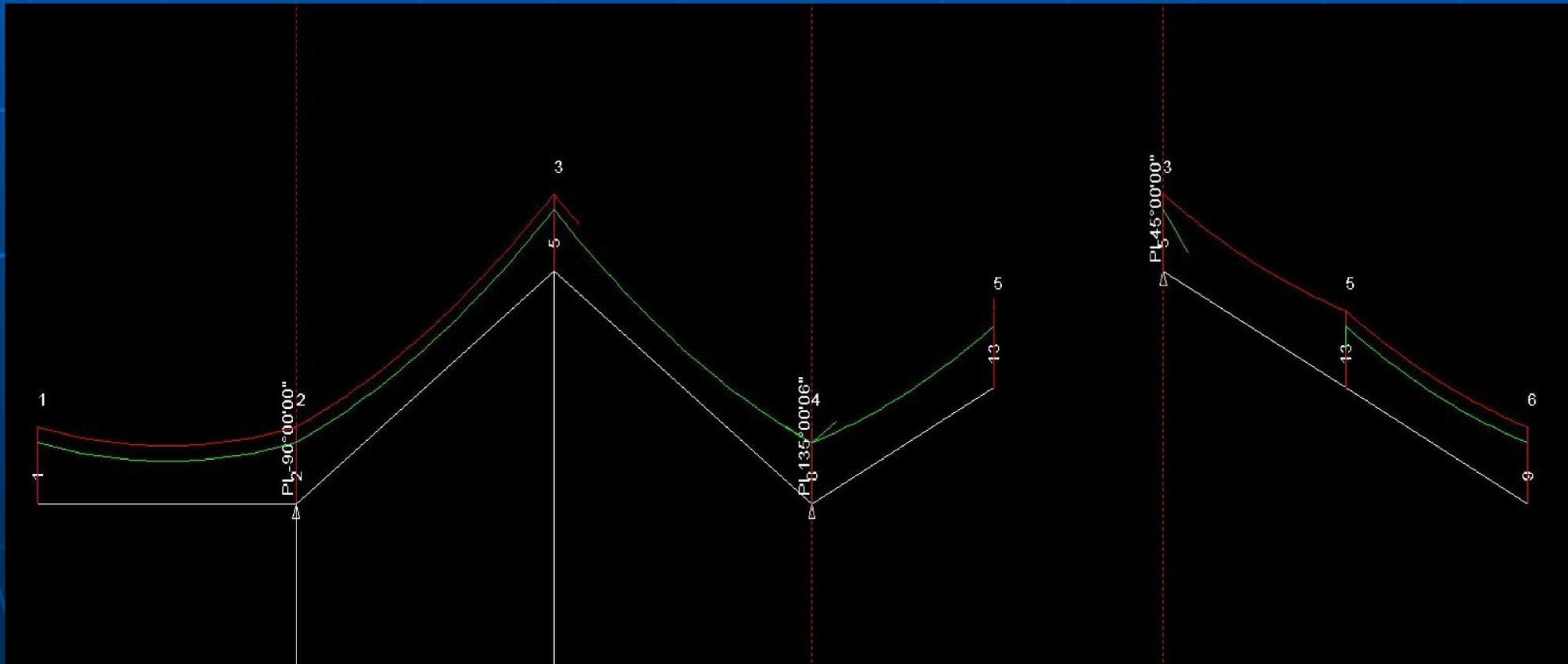
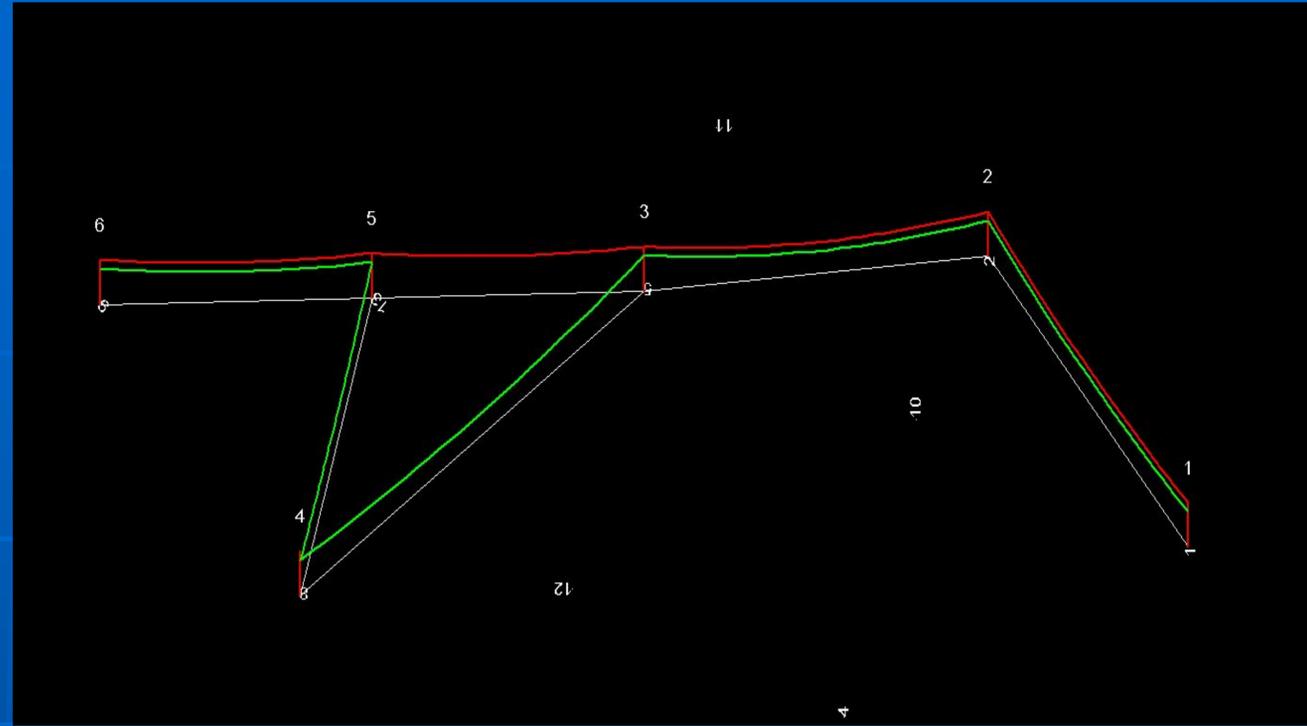
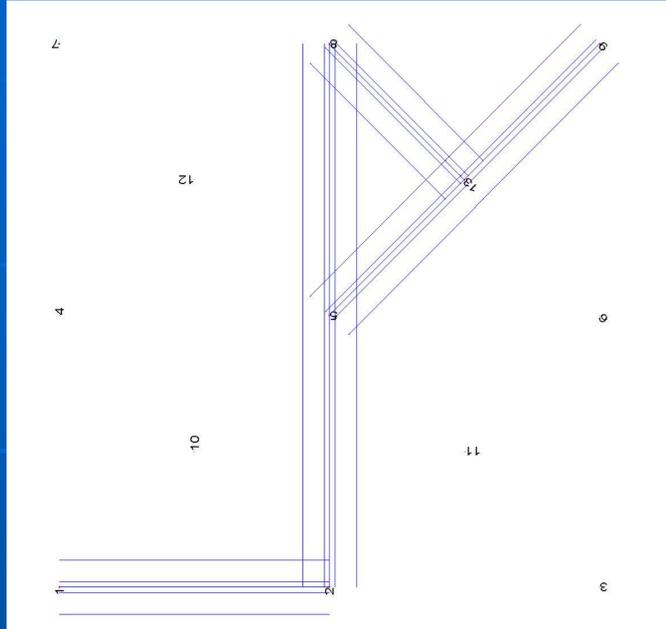


Closed Loop

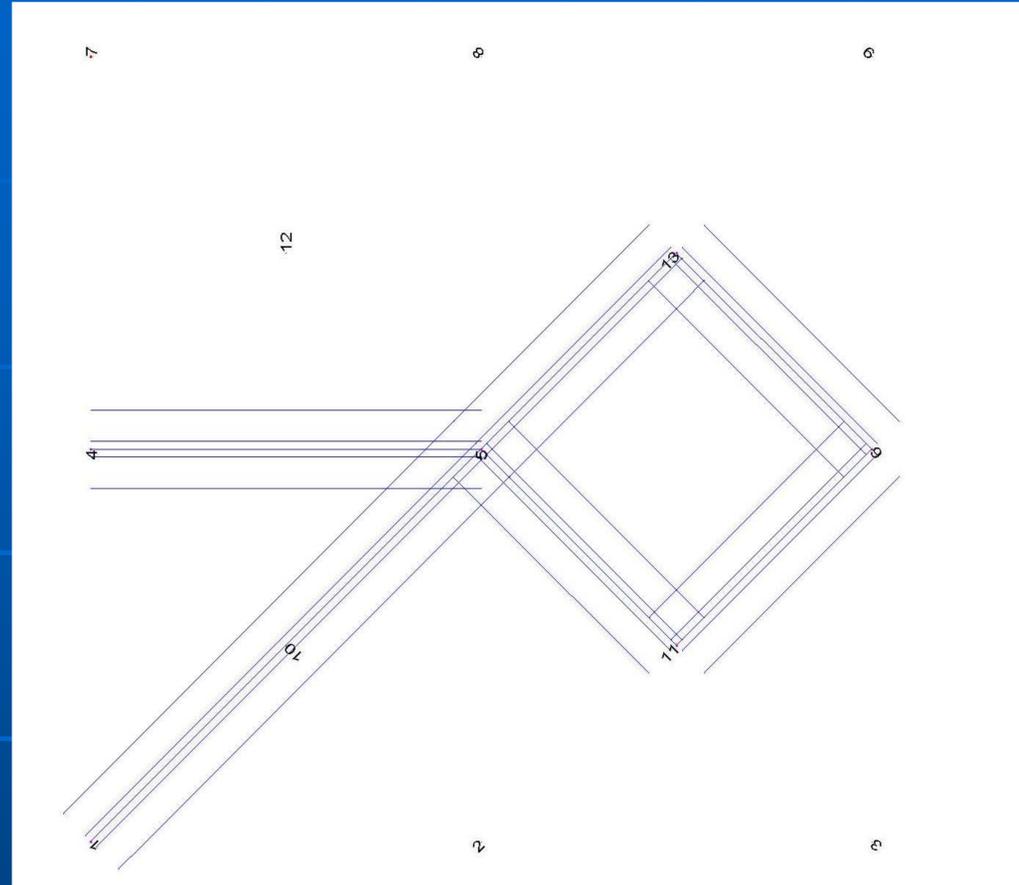


- Create backbone alignment (1-2-5-9)
- Loop must be inserted after take-off structure
- New Alignment/Branch/Insert After (5-8-13)
- Manual stringing recommended

grid – close loop.bak

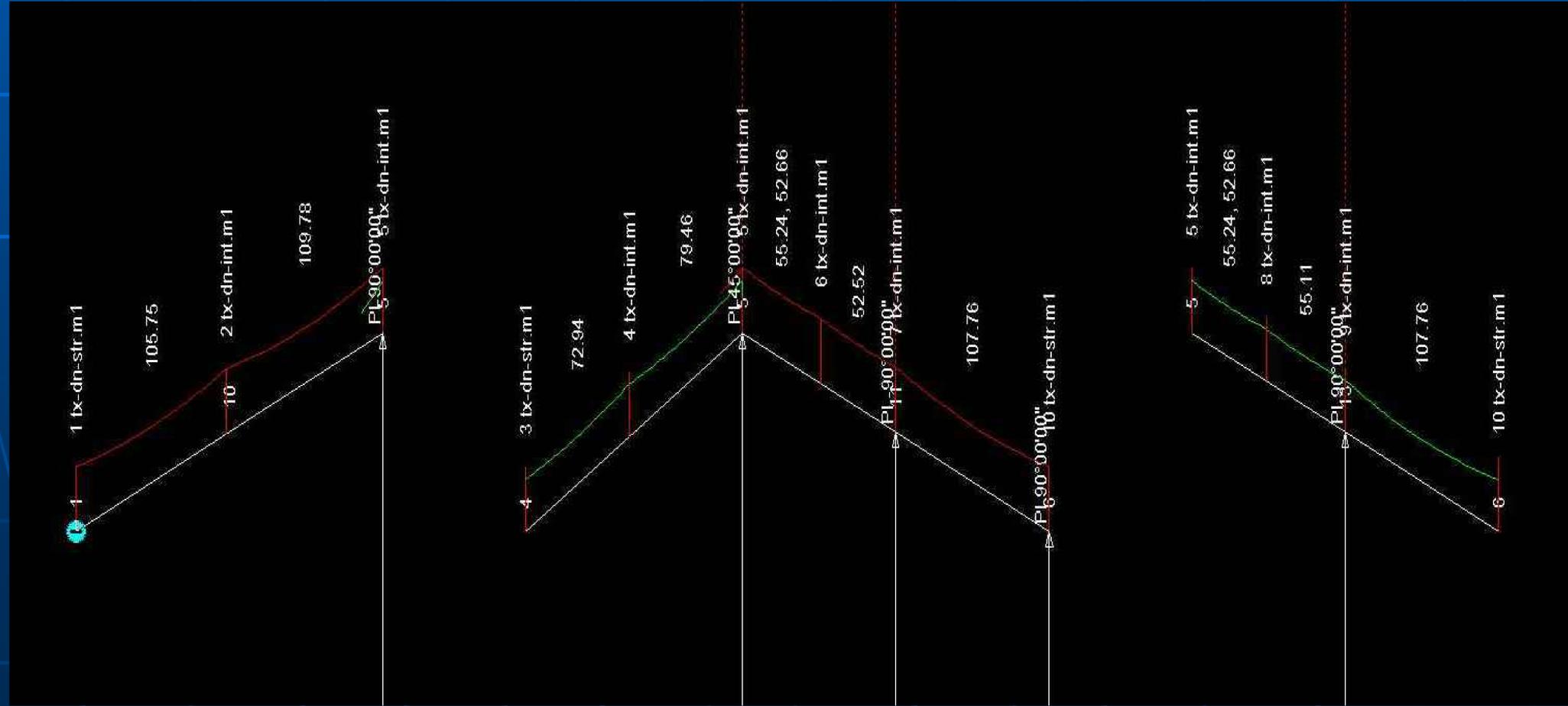
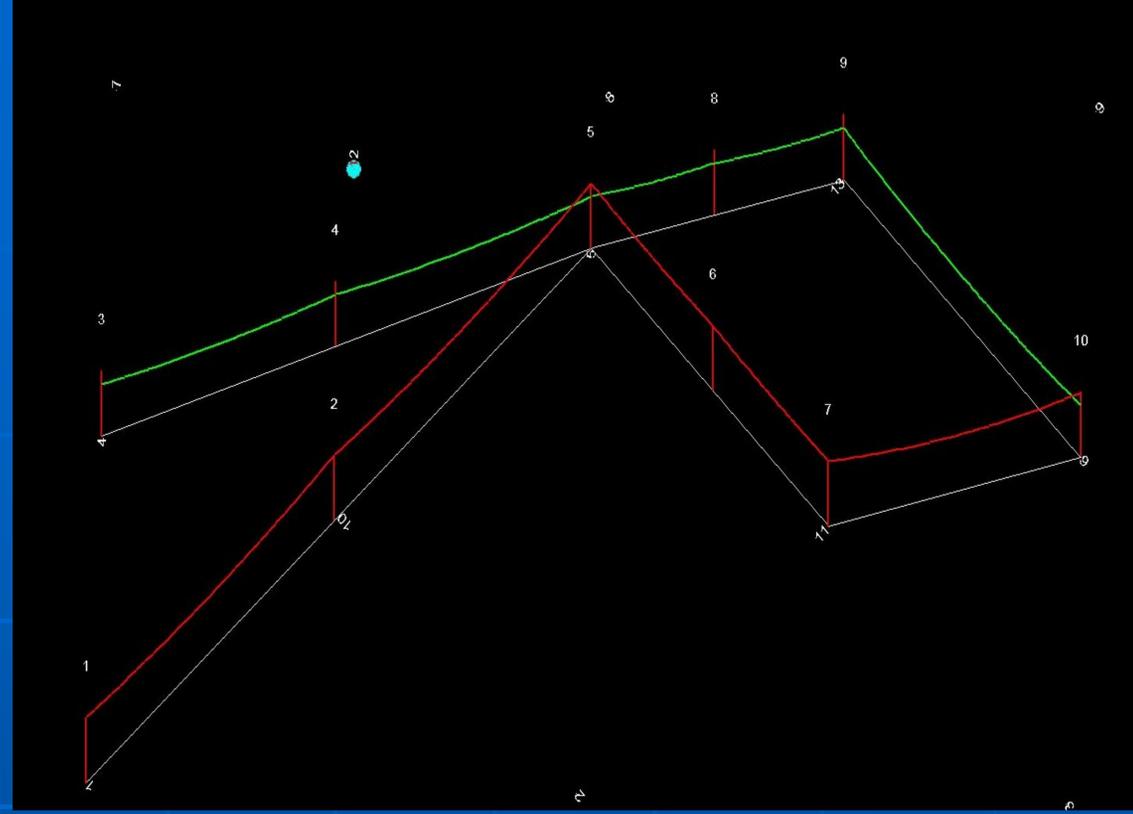
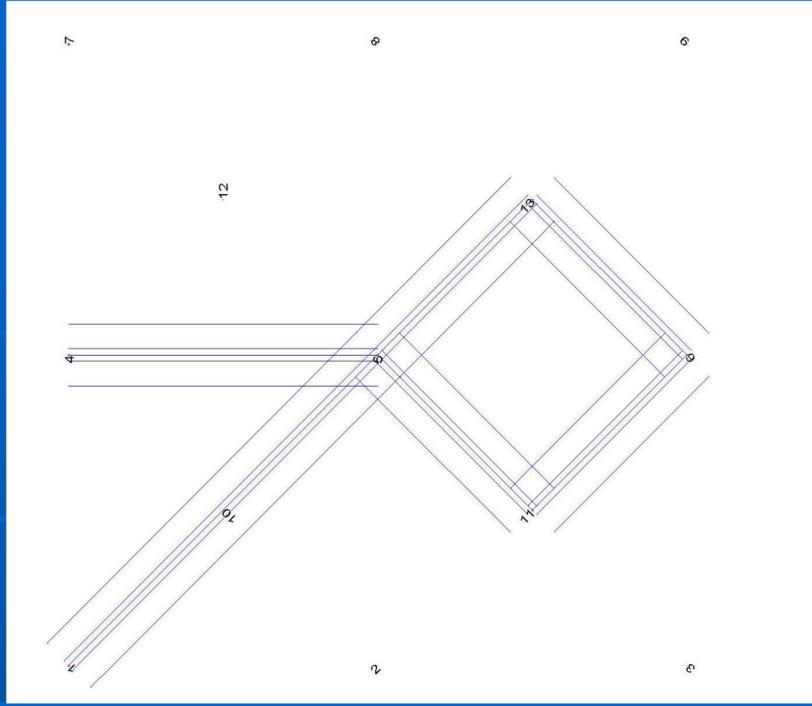


Opening Branch



- Create secondary alignment first (4-5-13-6)
- New Alignment/Independent/Insert After 1st PI (4)
- Snap to common PI (1-5-11-6)
- Spot structures manually making sure that common structures are snapped to PI points with highest station (5 & 6)
- String manually selecting set "None" as appropriate

grid – open br.bak



DO's

- Think about what outcomes you need
- Plan stringing sequence
- Get the alignment right before proceeding
- Manual structure spotting recommended
- Manual stringing recommended
- Take care in placement & movement of structures – on correct alignment – use Structure Modify & edit station

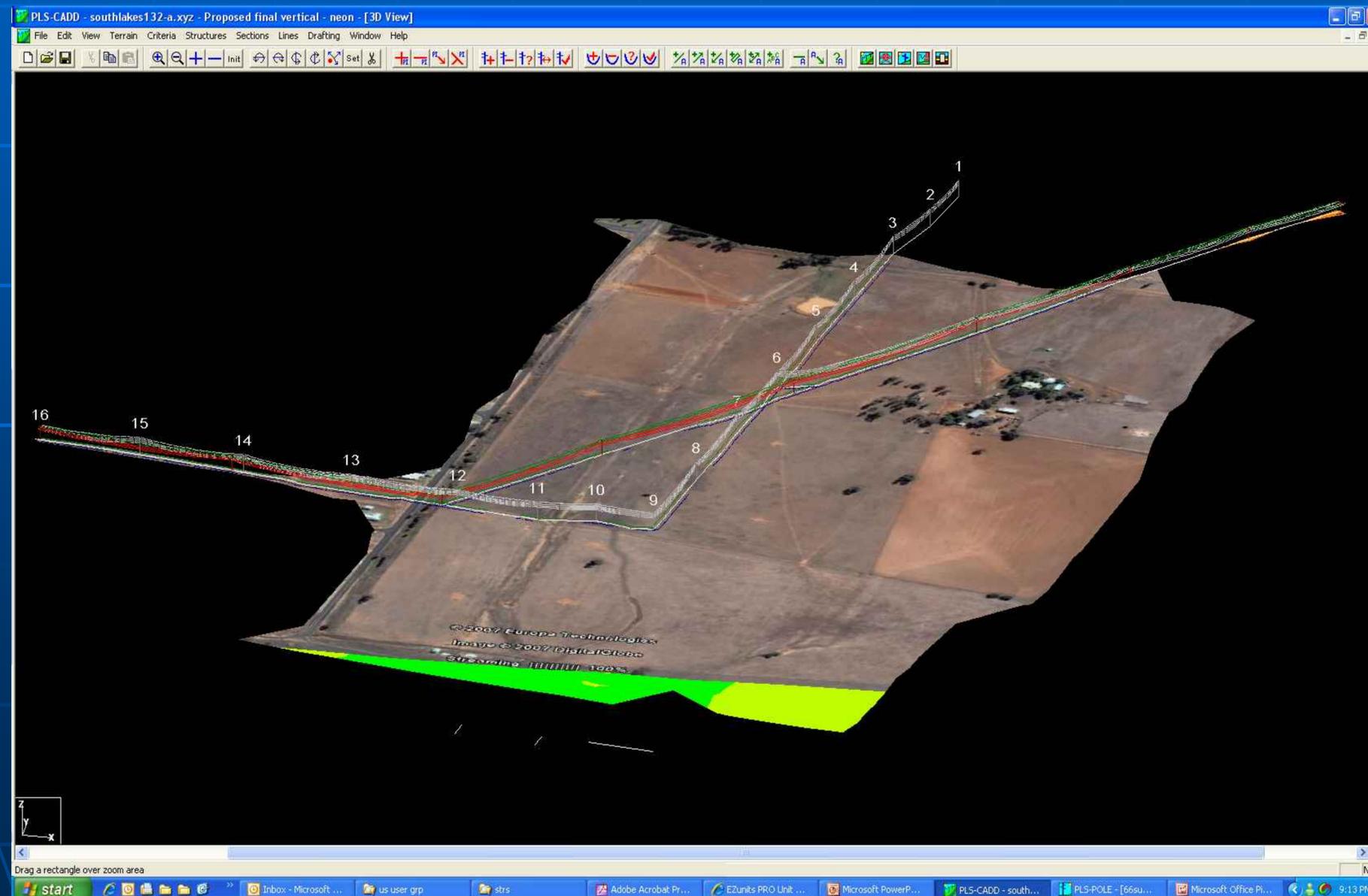
DON'Ts

- Make the model more complex than necessary
- Don't delete & reinsert branches, loops or PI's – floating PI's will remain that may corrupt or prevent correct alignment
- Don't reverse the alignment!!

**Do think it out carefully & if in doubt
start again before you invest too much effort!!**

South Lakes 132

Existing, Interim & Final models



Tallowarra 132

Existing, Temporary & Final models

