

Module BRIDGE

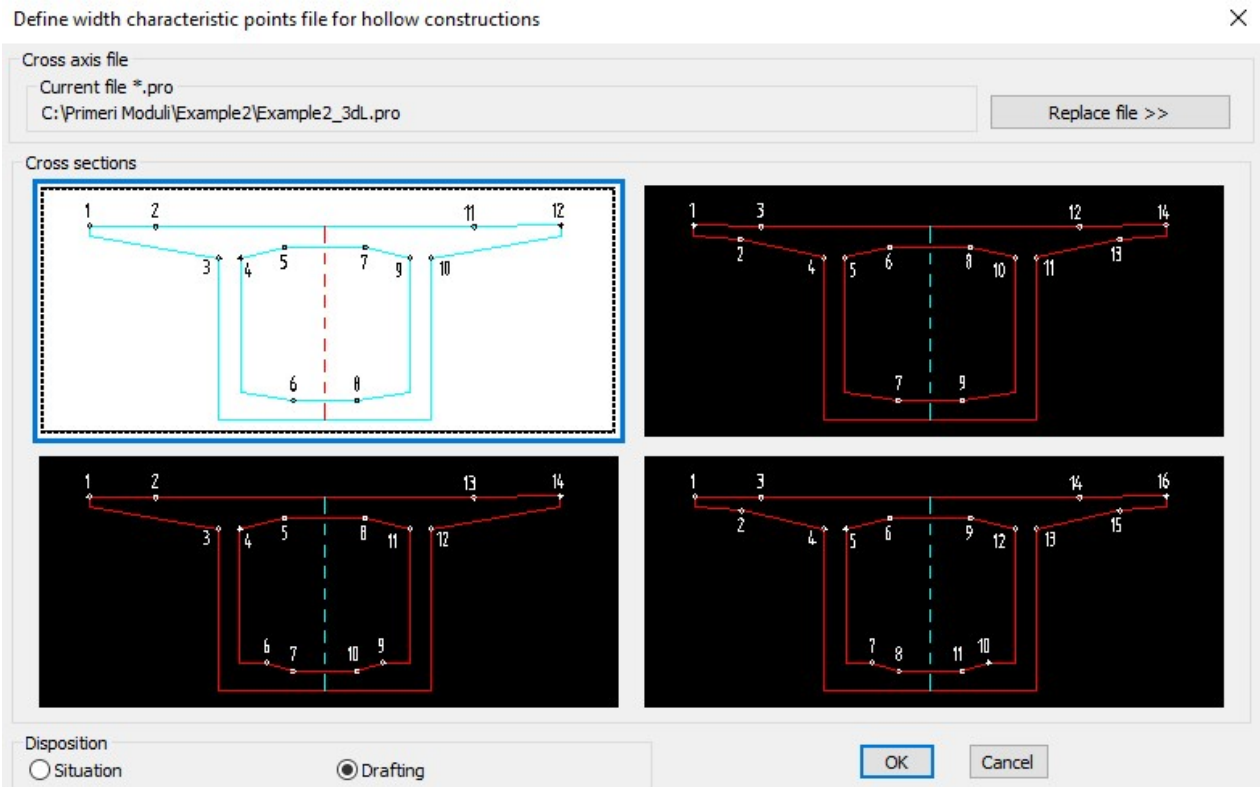
3D CONSTRUCTION

1. Define file of hollow sections widths in ground floor

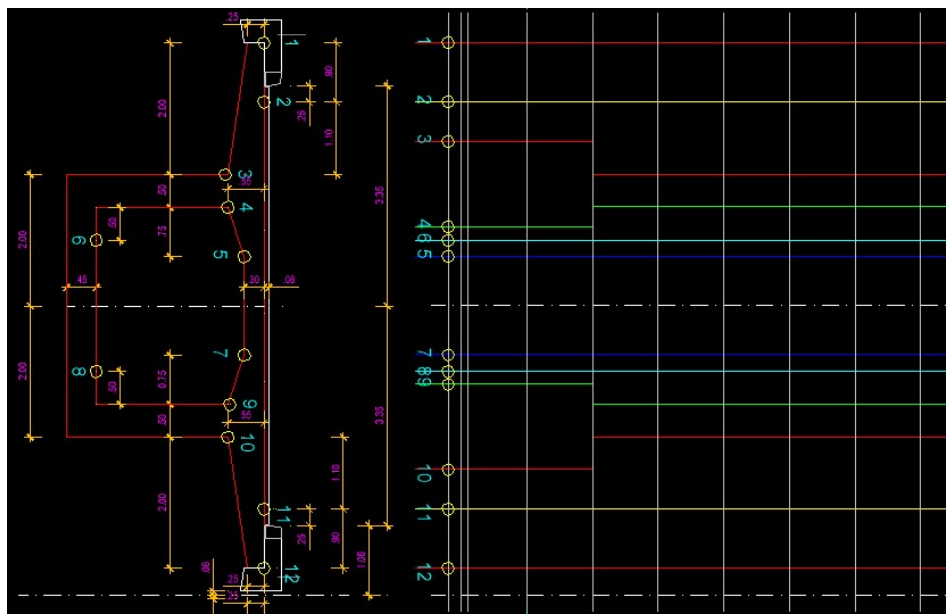
creating file **Example2_3dL.svk**

Defining widths for left object. **For drawing of 3d models, we must check (adjust) values in file, where in equal profile exists two different sections – 5/6, 86/87, 88/89, 93/94, 95/96, 175/176.**

Copy ground floor of left object on another position and define widths from draft/sketch. We use this procedure on non linear objects in ground floor. It is recommended to lengthen every polyline on start and end points for example 0.50 m, to define regular intersections with cross axis.

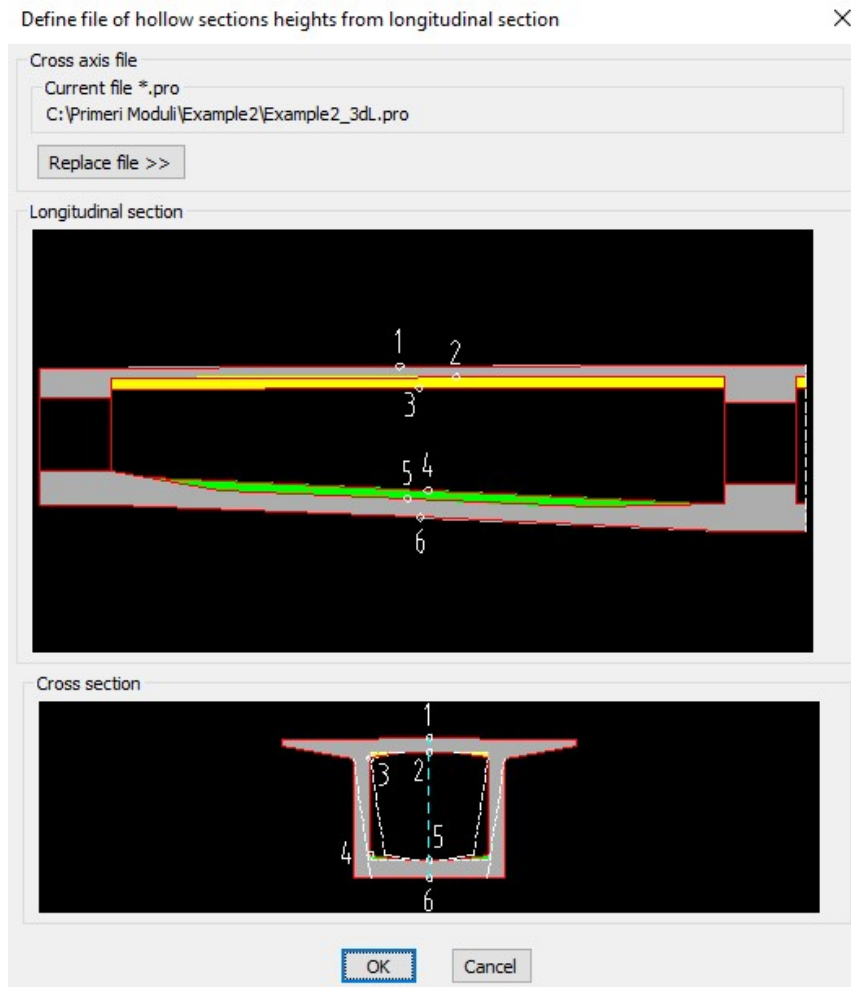


Polylines 1 to 12 must be drawn from left to right (in station direction)!

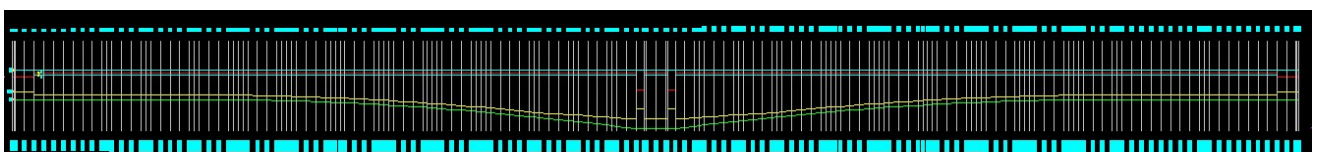
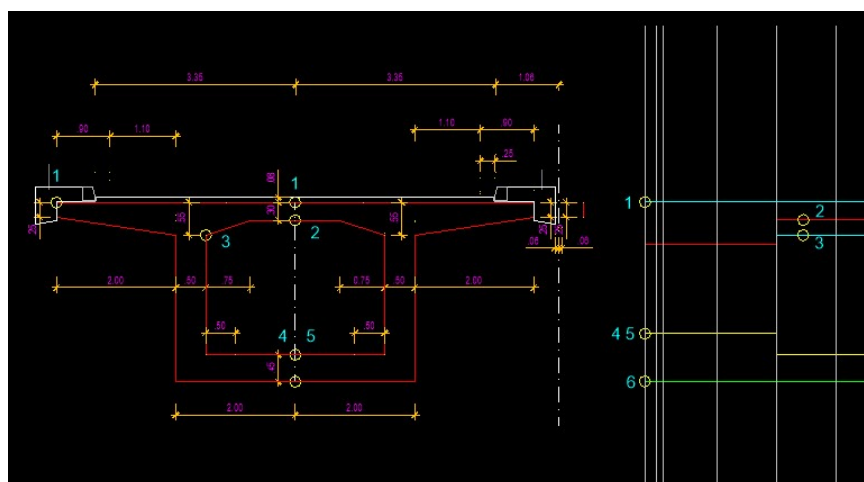


2. Define file of hollow sections heights from longitudinal section creating file **Example2_3dL.vvk**

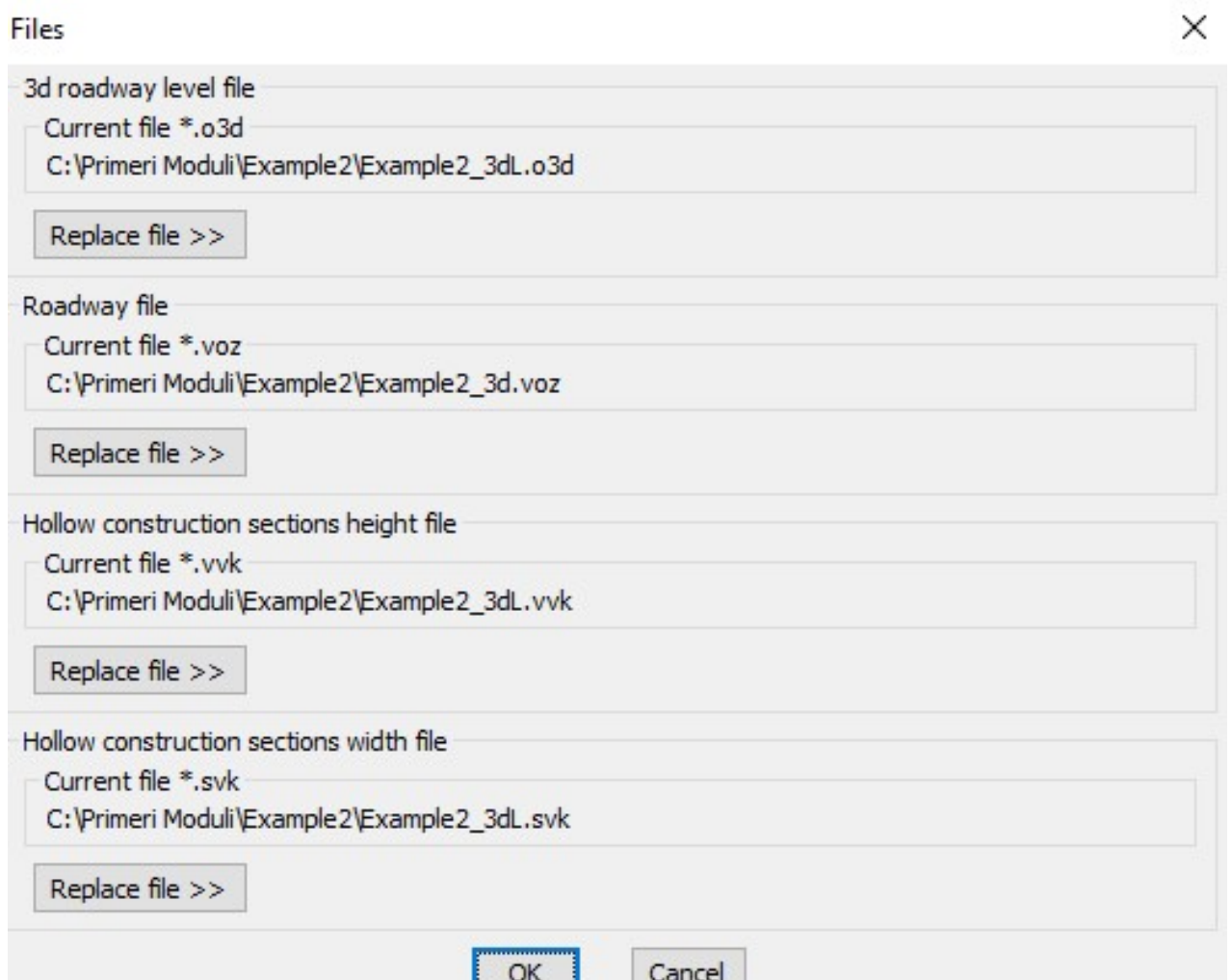
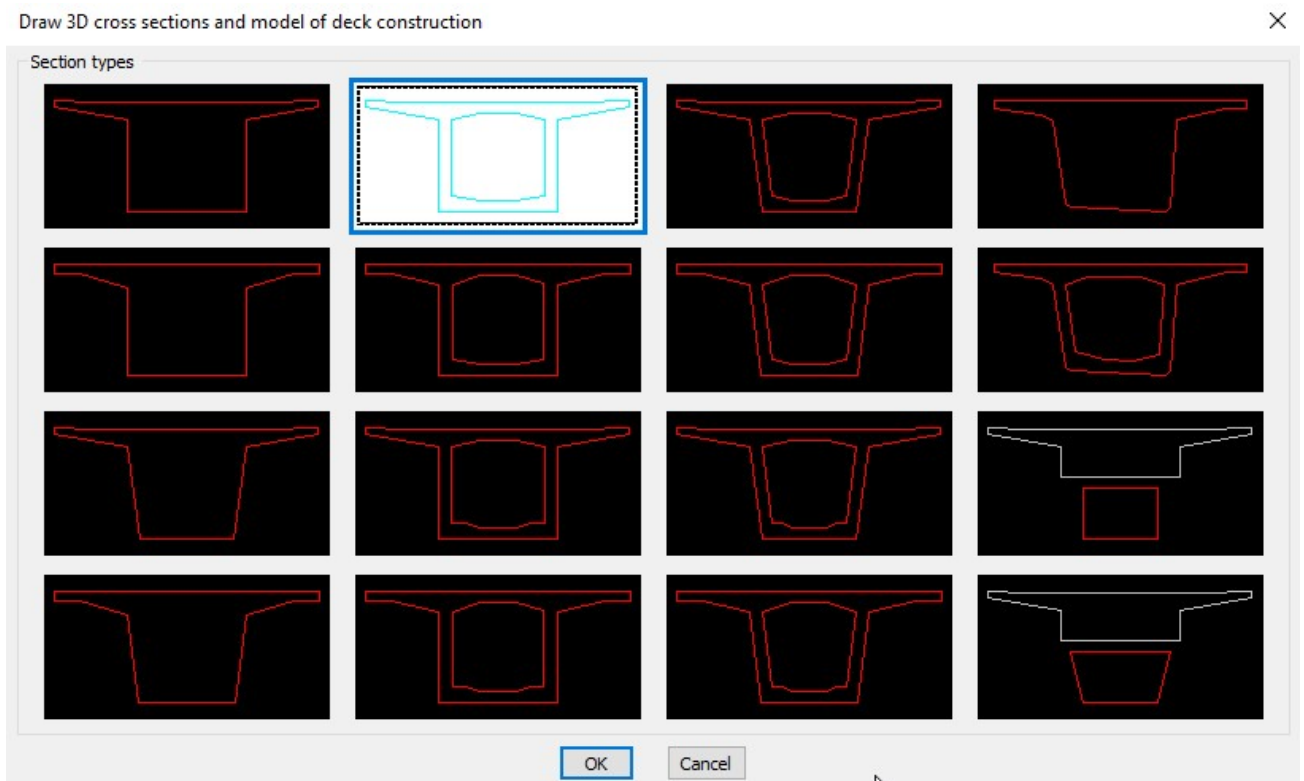
Define heights for left object. **For drawing of 3d models, we must check (adjust) values in file, where in equal profile exists two different sections – 5/6, 86/87, 88/89, 93/94, 95/96, 175/176.**



Polylines 1 to 6 must be drawn from left to right (in station direction)! Polylines are drawn **horizontal**, so that we can use it as template for drawing of prestressed cable axis in longitudinal profile.

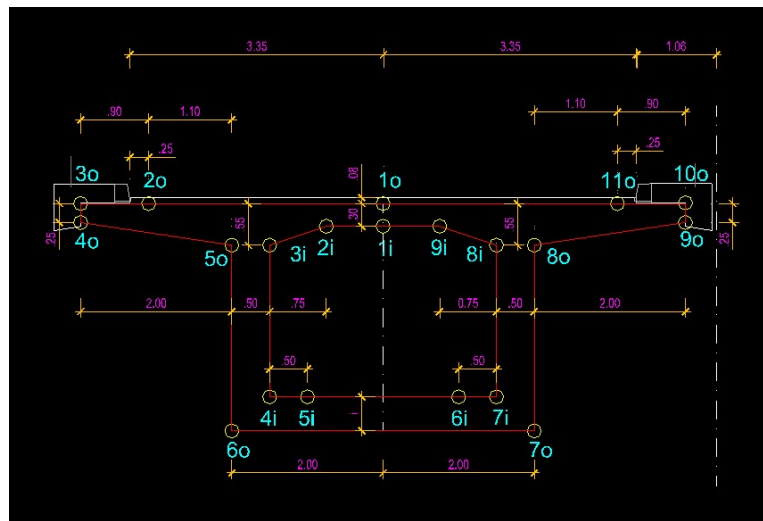


3. Draw 3D cross sections and model of deck construction



At the same time the file of console slopes **Example2_3dL.ppk** is created and optional file of setting out points in sections **Example2_3dL.v3d**.

Outer (points 1o to 11o) and (or) inner polyline (points 1i to 9i) must be drawn in contraclockwise and closed!



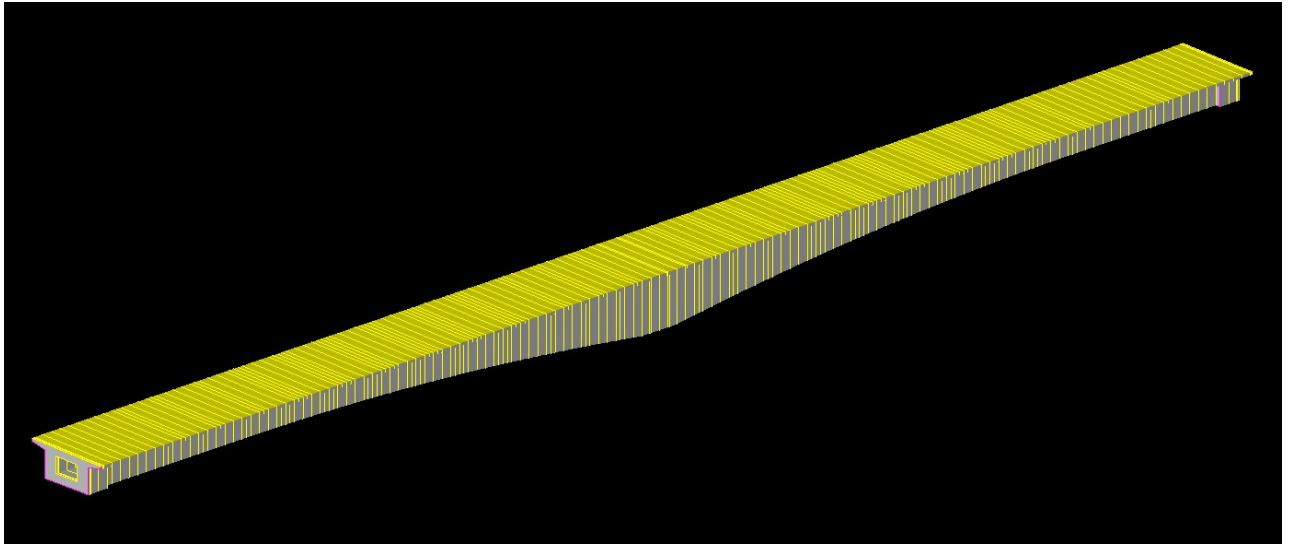
3.1 Draw in WCS coordinate system:

According to console slopes first will be drawn cross sections per segments. Setting out points will be written to file **Example2_3dL.v3d** and console slopes to file **Example2_3dL.ppk**.

We define sections per segments from profile 1-5, 6-86, 87-88, 89-93, 94-95, 96-175 and 176-180.

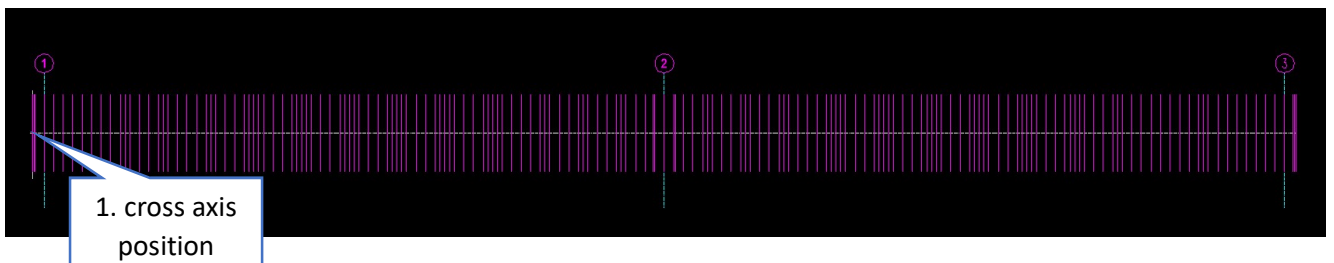
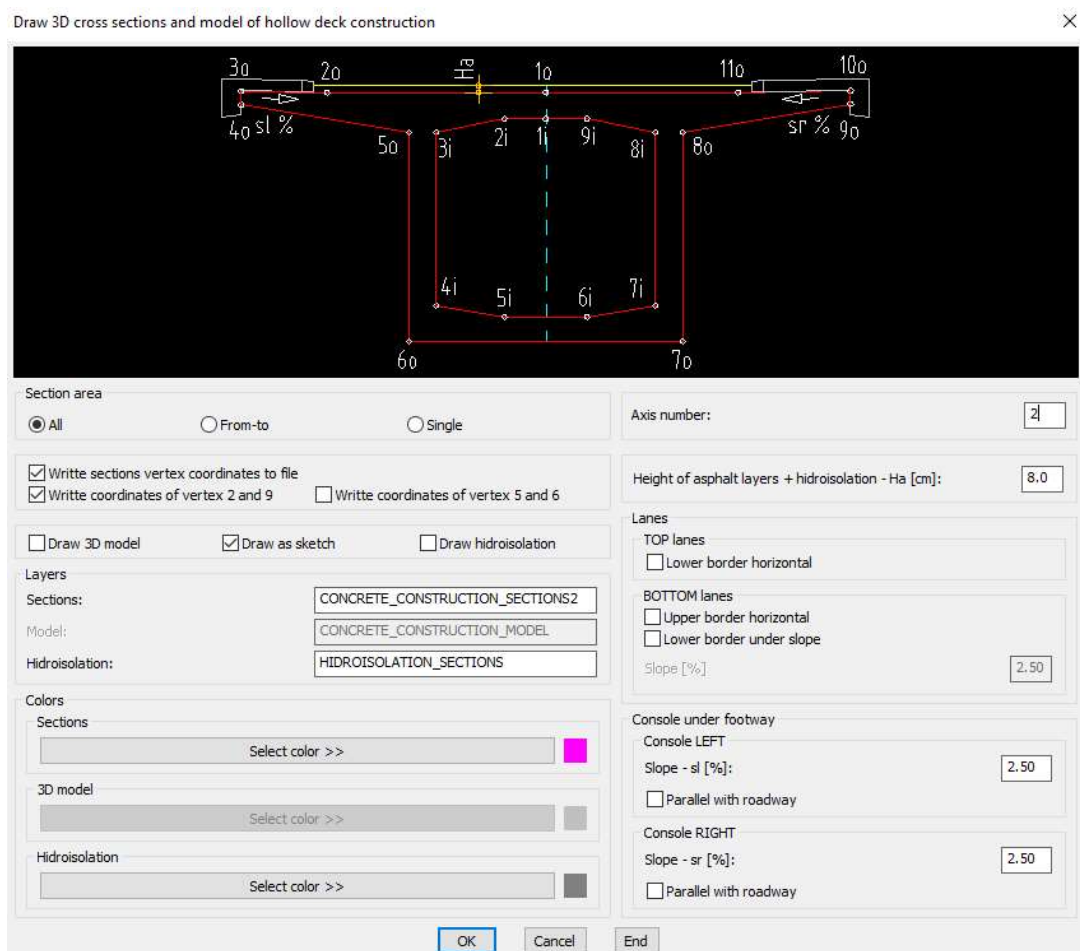
Draw 3D cross sections and model of hollow deck construction

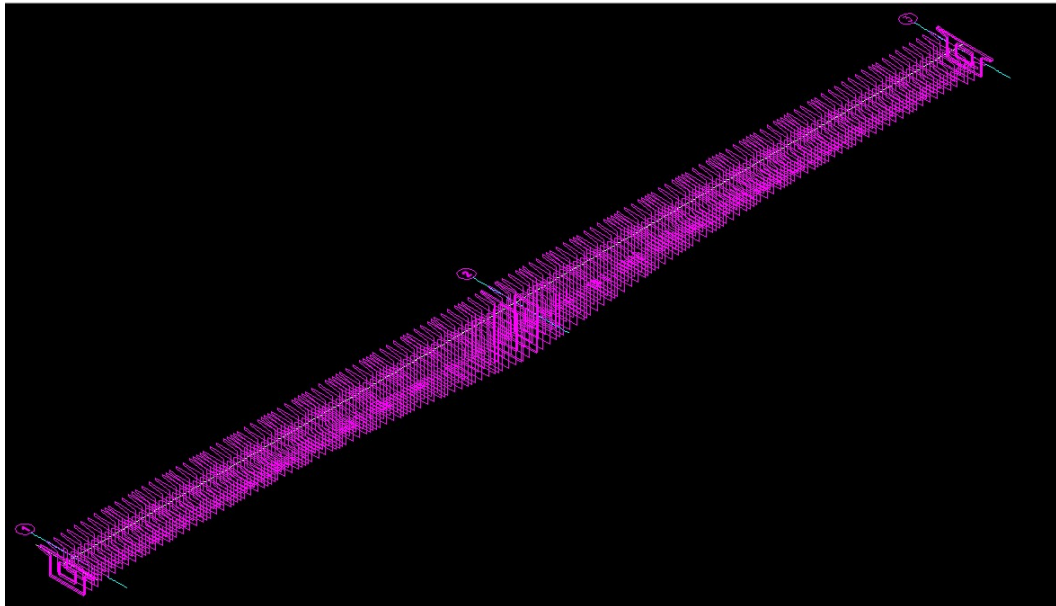




3.2 Draw as draft/sketch (horizontal) in local coordinate system

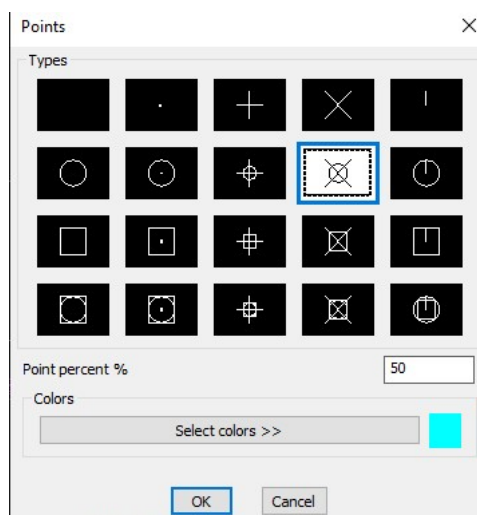
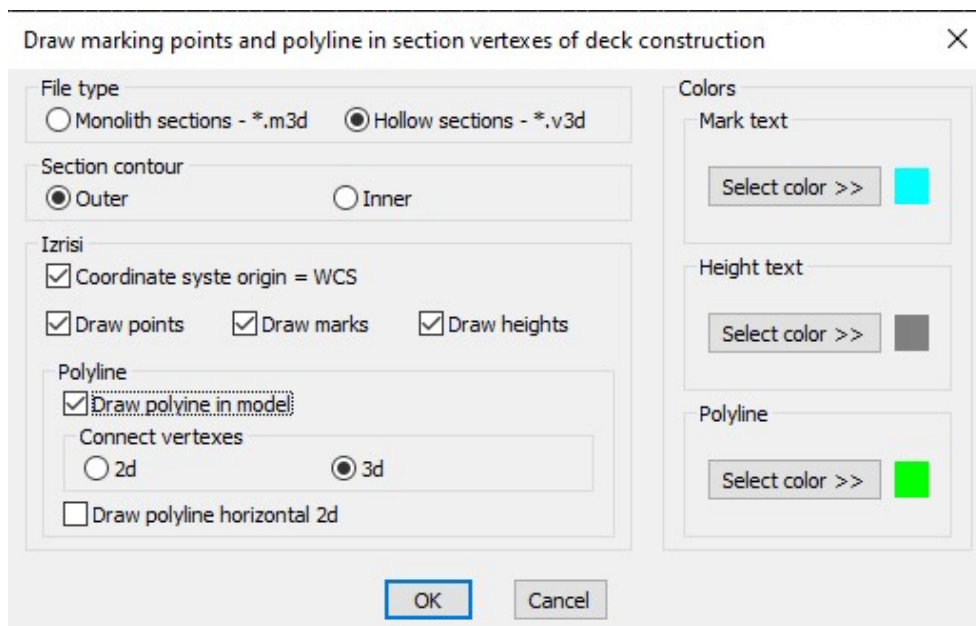
Defining setting out points file **Example2_3dL_sketch.v3d**.

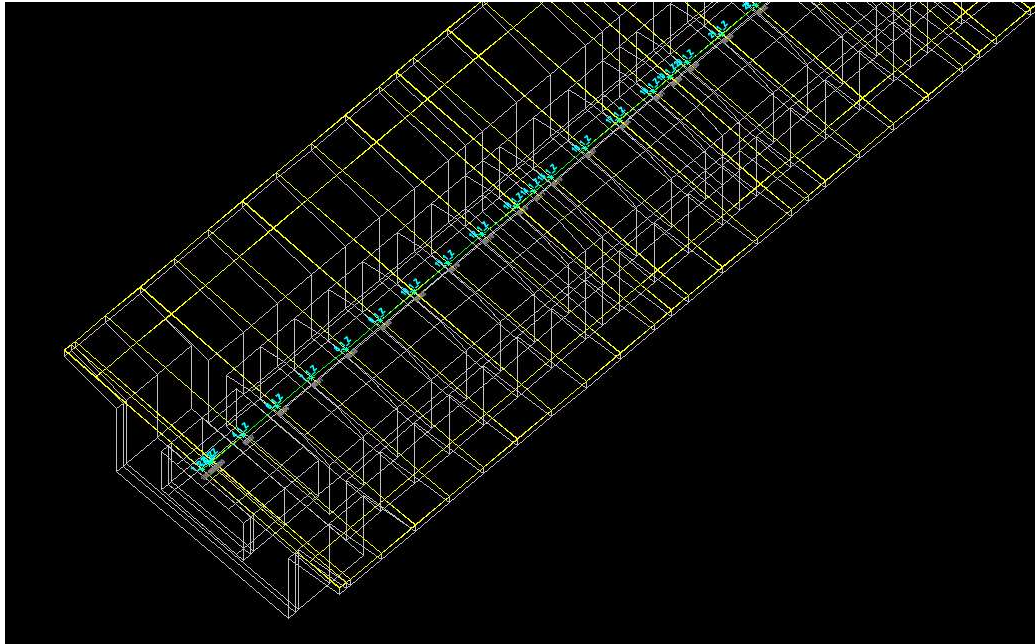




4. Draw setting out points and polyline in section vertexes of deck construction

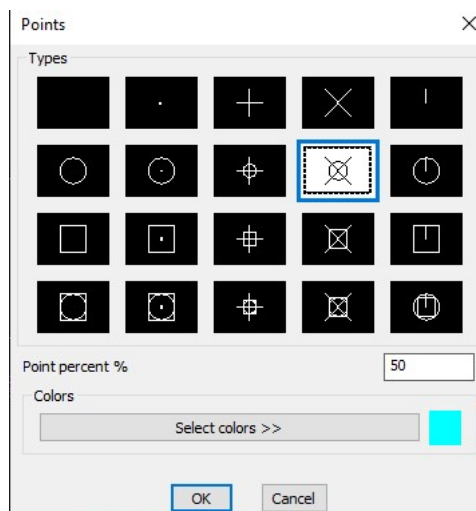
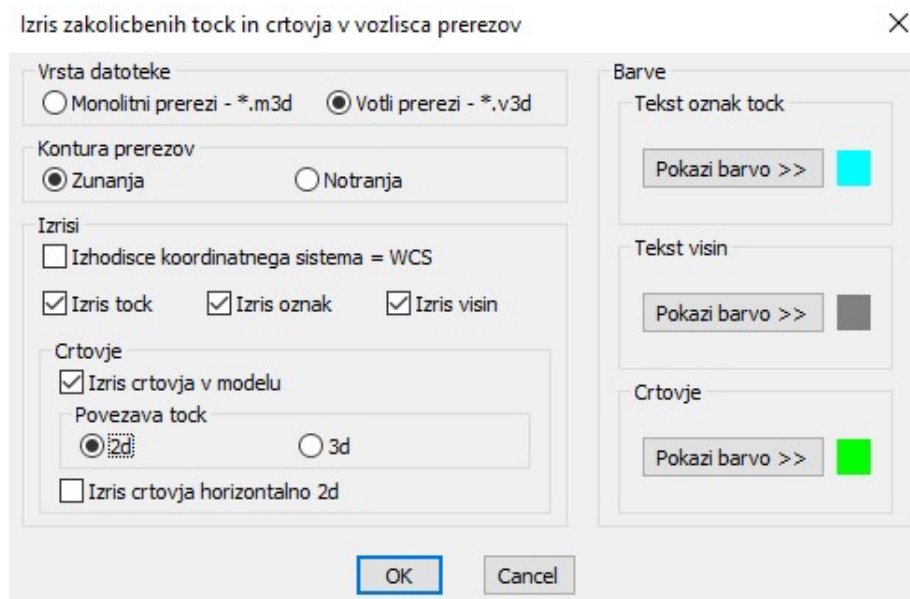
4.1 Draw in WCS coordinate system (from file Example2_3dL.v3d):

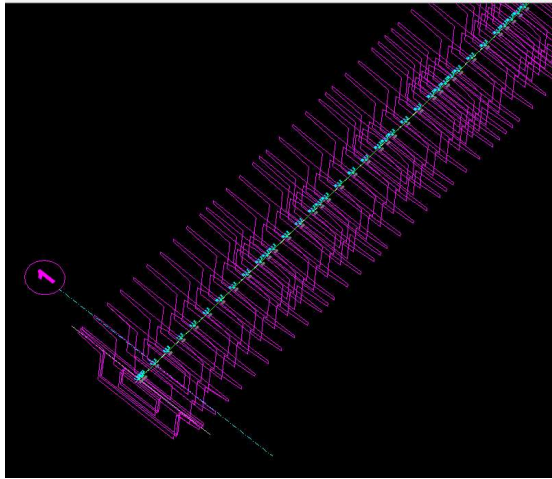




4.2 Draw in local coordinate system and in 2d (from file Example2_3dL_sketch.v3d):

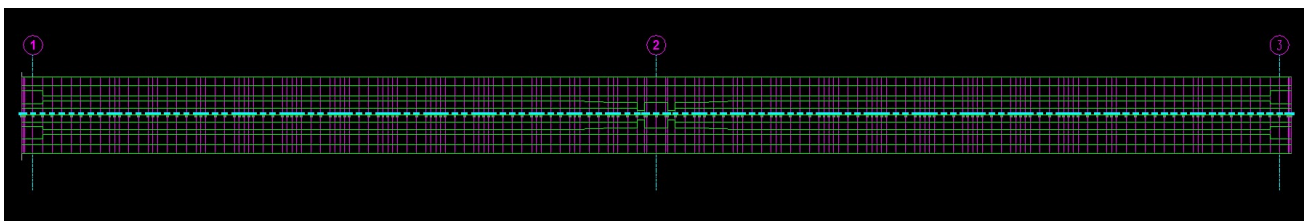
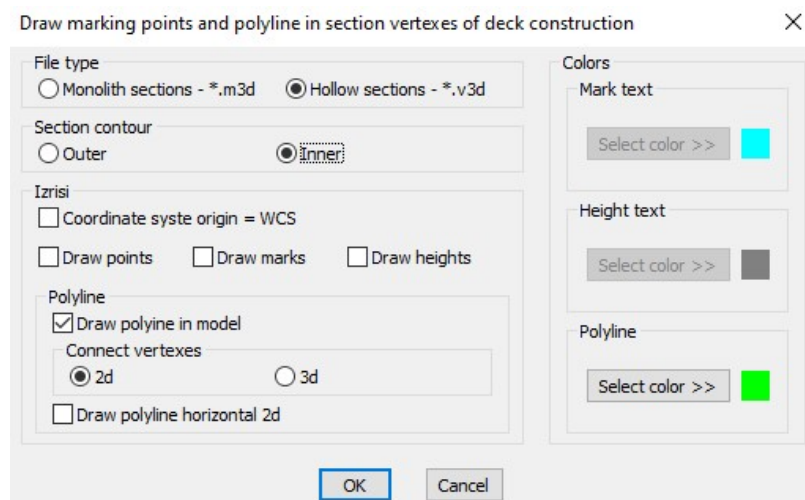
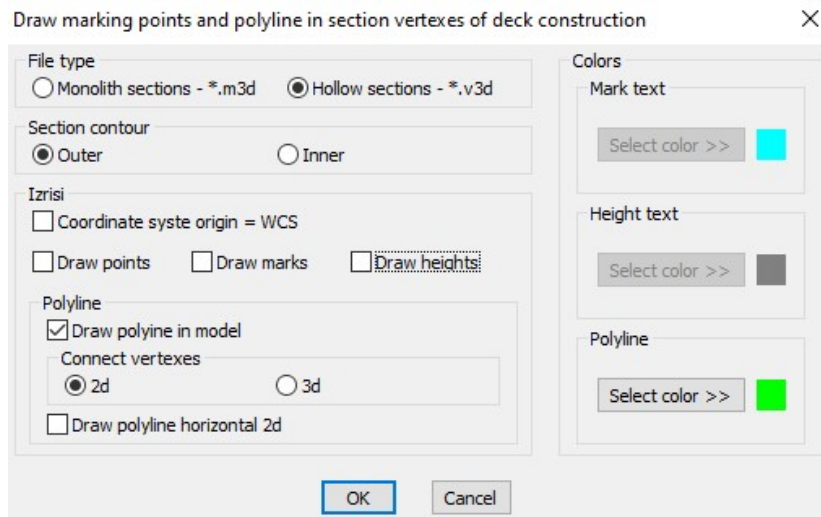
4.2.1





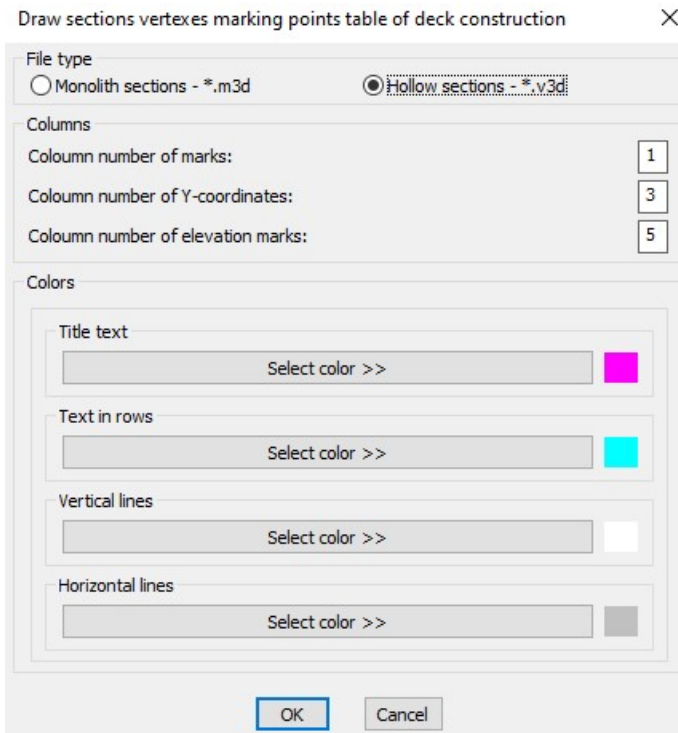
4.2.2

Drawing of longitudinal connection 2d points 1o, 2o, 3o, 5o, 3i, 2i, 7i, 6i, 8o, 11o, 10o in local coordinate system can be used as ground floor draft/sketch for prestressed cable axes drawing , especially in examples, where object is not linear, roadways with widening ...



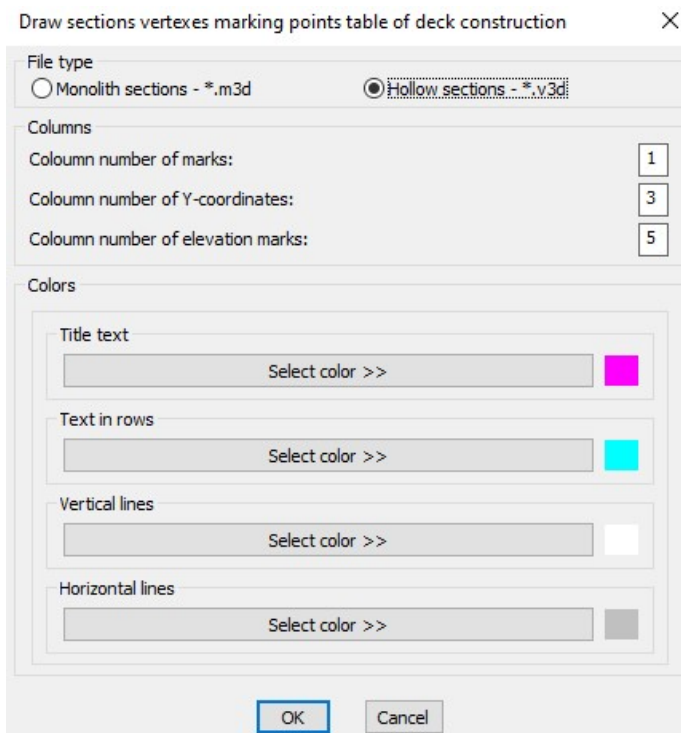
5. Draw sections vertexes setting out points table of deck construction

5.1 Draw in WCS coordinate syste (from file Example2_3dL.v3d):



Marking points			
point	Y	X	H
1_1_O	588306.235	140918.567	100.004
1_2_O	588306.235	140921.667	100.081
1_3_O	588306.235	140922.567	100.104
1_4_O	588306.235	140922.567	99.854
1_5_O	588306.235	140921.067	99.516
1_6_O	588306.235	140921.067	97.004
1_7_O	588306.235	140916.067	97.004
1_8_O	588306.235	140916.067	99.391
1_9_O	588306.235	140914.567	99.699
1_10_O	588306.235	140914.567	99.949
1_11_O	588306.235	140915.467	99.926
1_1_I	588306.235	140918.567	99.304
1_2_I	588306.235	140919.317	99.323
1_3_I	588306.235	140919.767	99.334
1_4_I	588306.235	140919.767	97.804
1_5_I	588306.235	140917.367	97.804
1_6_I	588306.235	140917.367	99.274
1_7_I	588306.235	140917.817	99.285

5.2 Draw in local coordinate system (from file Example2_3dL_sketch.v3d):



Marking points			
point	Y	X	H
1_1_O	0.000	0.000	0.000
1_2_O	0.000	3.100	0.078
1_3_O	0.000	4.000	0.100
1_4_O	0.000	4.000	-0.150
1_5_O	0.000	2.500	-0.488
1_6_O	0.000	2.500	-3.000
1_7_O	0.000	-2.500	-3.000
1_8_O	0.000	-2.500	-0.613
1_9_O	0.000	-4.000	-0.305
1_10_O	0.000	-4.000	-0.055
1_11_O	0.000	-3.100	-0.078
1_1_I	0.000	0.000	-0.700
1_2_I	0.000	0.750	-0.681
1_3_I	0.000	1.200	-0.670
1_4_I	0.000	1.200	-2.200
1_5_I	0.000	-1.200	-2.200
1_6_I	0.000	-1.200	-0.730
1_7_I	0.000	-0.750	-0.719

2D CONSTRUCTION

1. Draw 2d cross sections of deck construction

Draw 2D cross sections of deck construction

Files

3d roadway level file
Current file *.o3d
C:\Primeri moduli\Example2\Example2_3dL.o3d
Replace file >>

Roadway file
Current file *.voz
C:\Primeri moduli\Example2\Example2_3d.voz
Replace file >>

Console slope file
Current file *.ppk
C:\Primeri moduli\Example2\Example2_3dL.ppk
Replace file >>

Sections

Section type
 Monolith Hollow

Section insertion direction
 Horizontal Vertical

Drawing type
 Sketch Normal

Drawing without roadway Explode multileader insertion

Axis number:

Sections drawing step:

Distance between sections [m]:

Asphalt layer height [cm]:

Views

Views width [m]:

Views height [m]:

Roadway drawing type in draining area
 Under roadway slope Under console slope

Colors

Section text marks
Select color >>

Elevation marks symbol
Select color >>

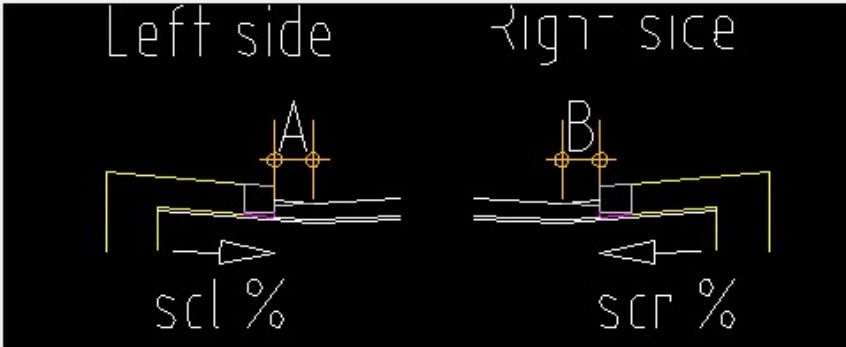
Elevation marks text
Select color >>

Roadway
Select color >>

Axis
Select color >>

OK Cancel

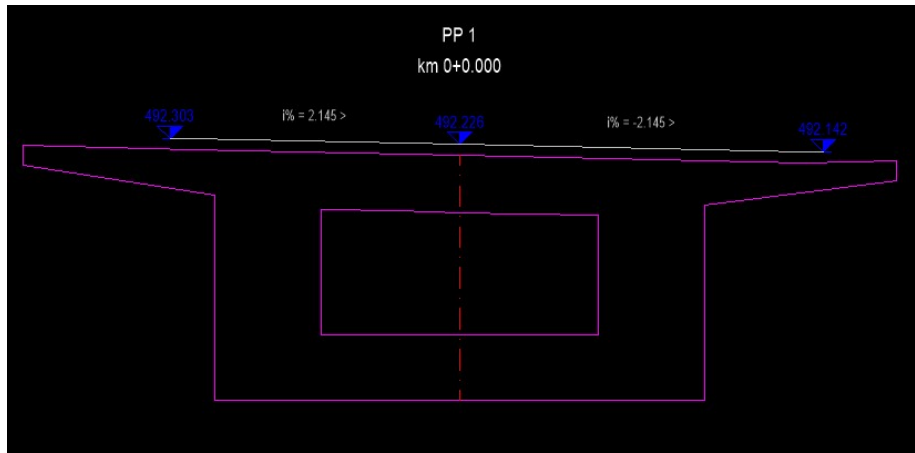
Breaking points distances in construction cross sections



Distance from LEFT border to breaking point of LEFT console A [cm]:

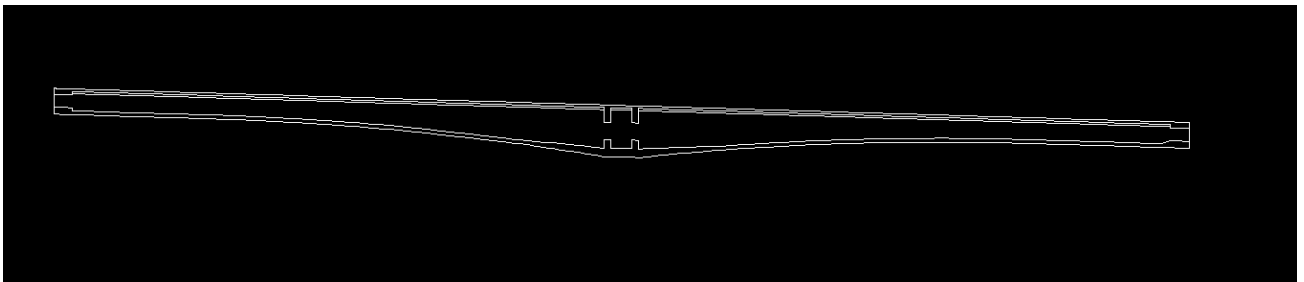
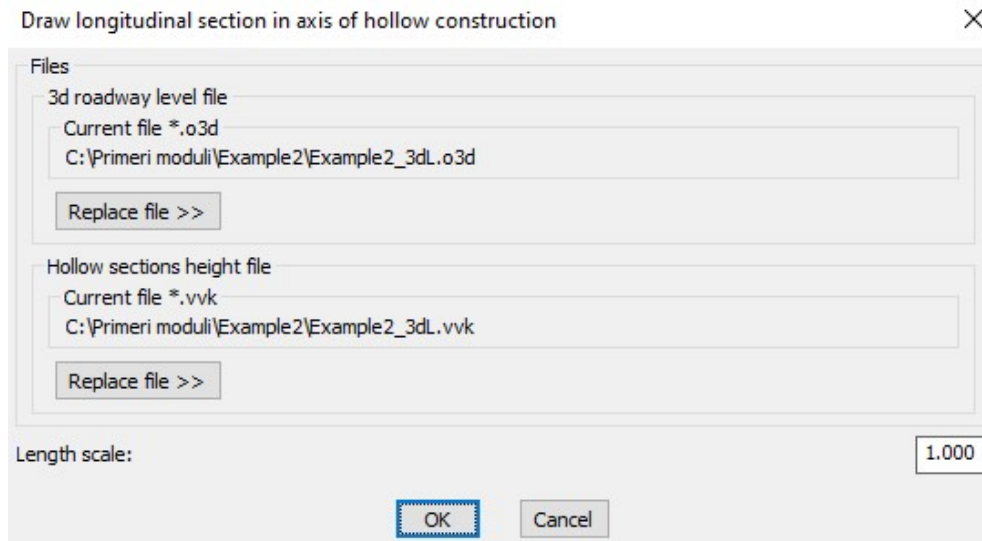
Distance from RIGHT border to breaking point of RIGHT console B [cm]:

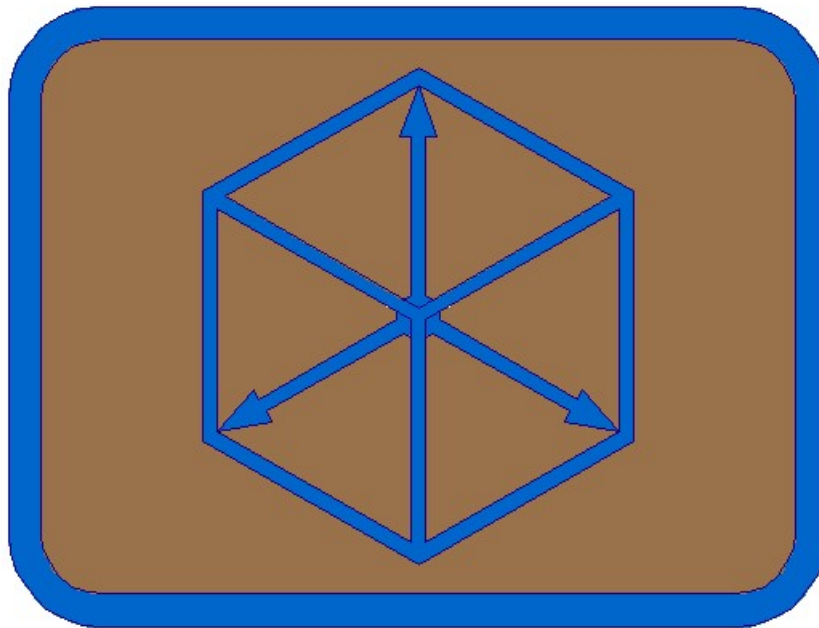
OK Cancel



2. Draw longitudinal section in axis of hollow deck construction

If we do according to upper procedure, **we don't need to draw ahead longitudinal section of object in object axis**, this command enable that.





Module BRIDGE

CABLE PRESSTRESSING

CABLE PRESSTRESSING

1. Define cable axis files in cross sections in draft/sketch ground floor and longitudinal section

- 1.1 Draw cross axis horizontal with command Civil -> Cross axis -> Draw cross axis.

Draw cross axis ✕

Cross axis file
Current file *.pro
C:\Primeri Moduli\Example2\Example2_3dL.pro

Marks and axis lines
Mark insertion side
 Left Right

Draw axis horizontal

Step:

Number prefix Prefix:

Axis line length [m]:

Mark and station distance from axis lines [m]:

Line color

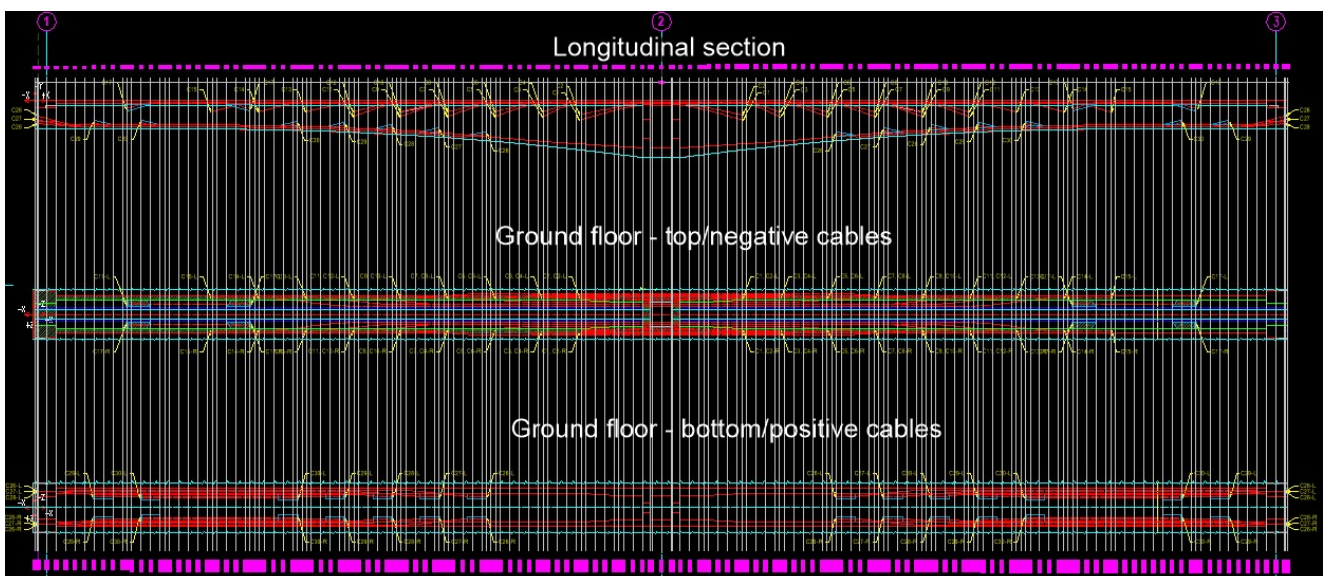
Text
Style:
Height [mm]: 6.0 5.0 3.5 3.0

Color

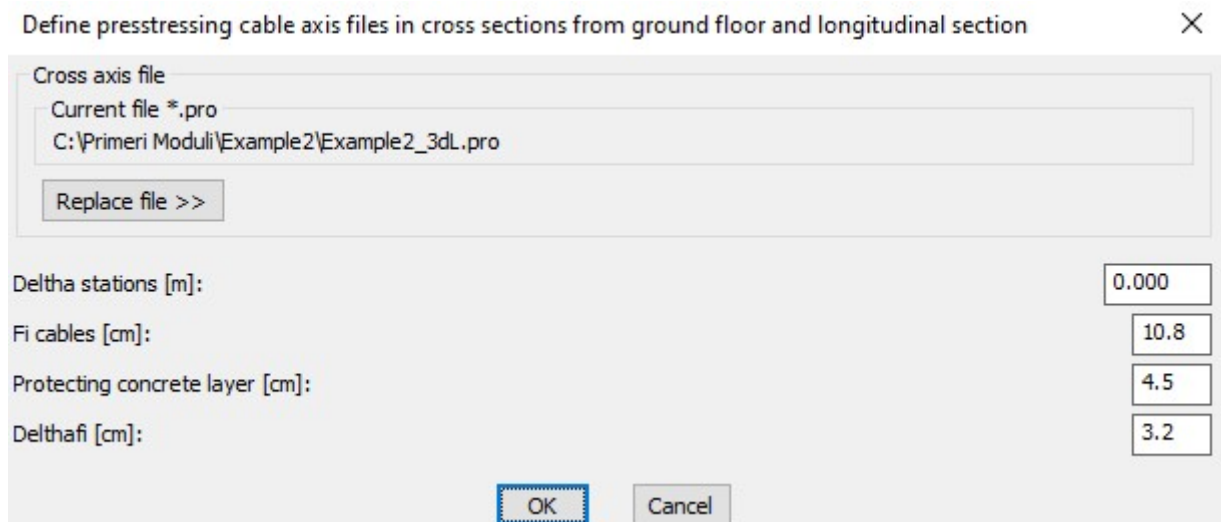
Layer name:

- 1.2 Draw cable axis in draft/sketch ground floor and longitudinal section. (see examples in appendix – 12)

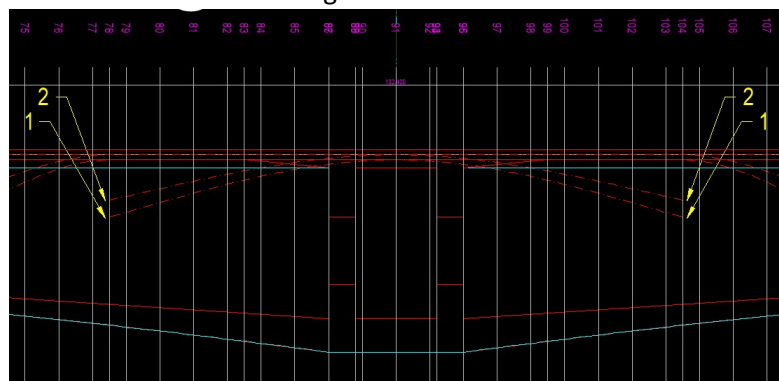
Longitudinal section and ground floor



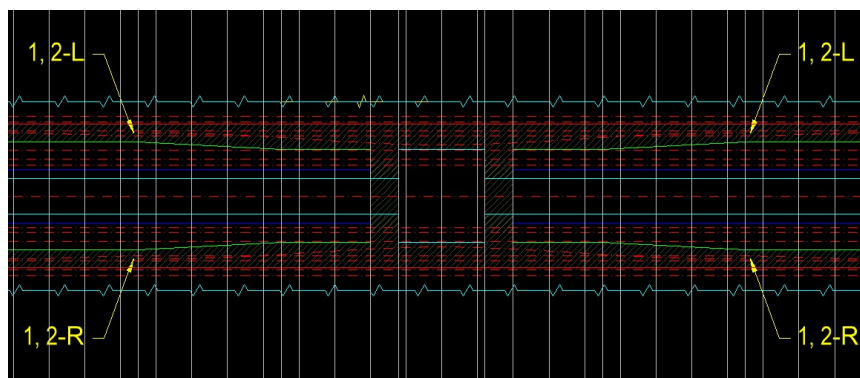
1.3 Define cable file from ground floor and longitudinal section - creating file **CableL1.kal**



Longitudinal section



Ground floor



```

Selected cross axis file: C:\Primeri Moduli\Example2\Example2_3dL.pro
Checking dates in file ... finished.
Length of longitudinal axis = 132.400
X and Y coordinates of construction STARTING and ENDING polyline points longitudinal and COMPARISSION AXIS in ground floor must be equal!
Select polyline in LONGITUDINAL SECTION - TOP CONSTRUCTION BORDER:
Select polyline in LONGITUDINAL SECTION - BOTTOM CONSTRUCTION BORDER:
Longitudinal construction length = 132.400
Select polyline - COMPARISSION AXIS in GROUND FLOOR:
Cable number < 1 >/End:
Select polyline in LONGITUDINAL SECTION - CABLE AXIS:
Select polyline in GROUND FLOOR - CABLE AXIS:
Section processing ... finished.
Define NEW prestressed cable line file.
Prestressed cable line file: C:\Primeri Moduli\Example2\CableL1.kal
Write dates to file << C:\Primeri Moduli\Example2\CableL1.kal >> ... finished.
Cable number < 2 >/End: e
    
```

Whith the same command we define files for other cables. **For multiple cable drawing files must have the same cahracters to cable numbers in names!** (CableL2.kal, CableL3.kal, CableR1.kal, CableR2.kal, CableR3.kal,...)

2. Draw cables in draft/sketch ground floor and longitudinal section

2.1 Multiple – negative cables on top longitudinal and in ground floor: CableL1 do CableL17


Colors, blocks and section numbers ✕


Cross section file
Current file *.pro
C:\Primeri Moduli\Example2\Example2_3dL.pro


Drawing option in ground floor
 Draw axis and cable Draw axis None

Drawing option in longitudinal section
 Draw axis and cable Draw axis None

Colors

Cable axis
 

Cables
 

Cable marks
 

Blocks


On cable startpoint
 Head Clutch Ancloring None


On cable endpoint
 Head Clutch Ancloring None


Drawing option
 Single Multiple Cable numbers from file Draw table Draw vertical assistance lines


Mark prefix: Draw suffix for side

Table lines and text colors ✕

Cable axis
 

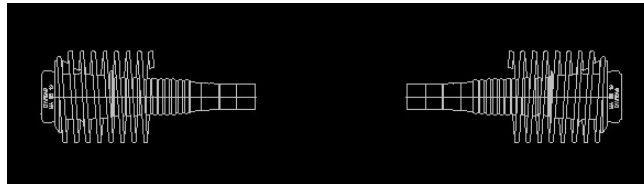
Text
 

Lines
 

Vertical inner lines
 

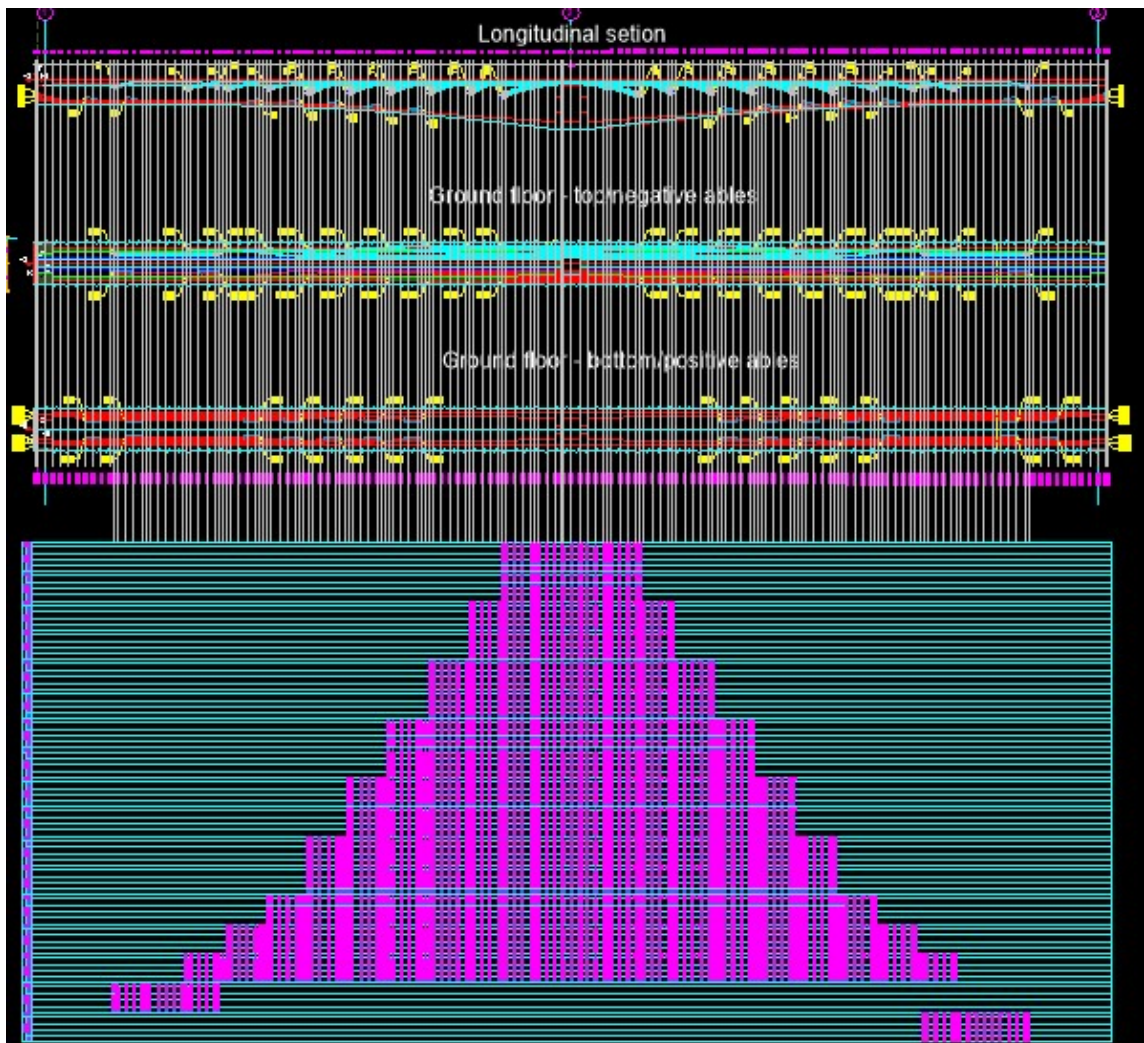
Block CABLE_HEAD_LEFT

Block CABLE_HEAD_RIGHT



```
Selected cross section file: C:\Primeri Moduli\Example2\Example2_3dL.pro
Checking dates in file ... finished.
Select basic BLOCK for LEFT head:
Select basic BLOCK for RIGHT head:
Select polyline - TOP BORDER of construction longitudinal section:
Pick AXIS position in ground floor:
Starting cable files text <cable1>:
STARTING cable number <1>:
ENDING cable number <2>: 17

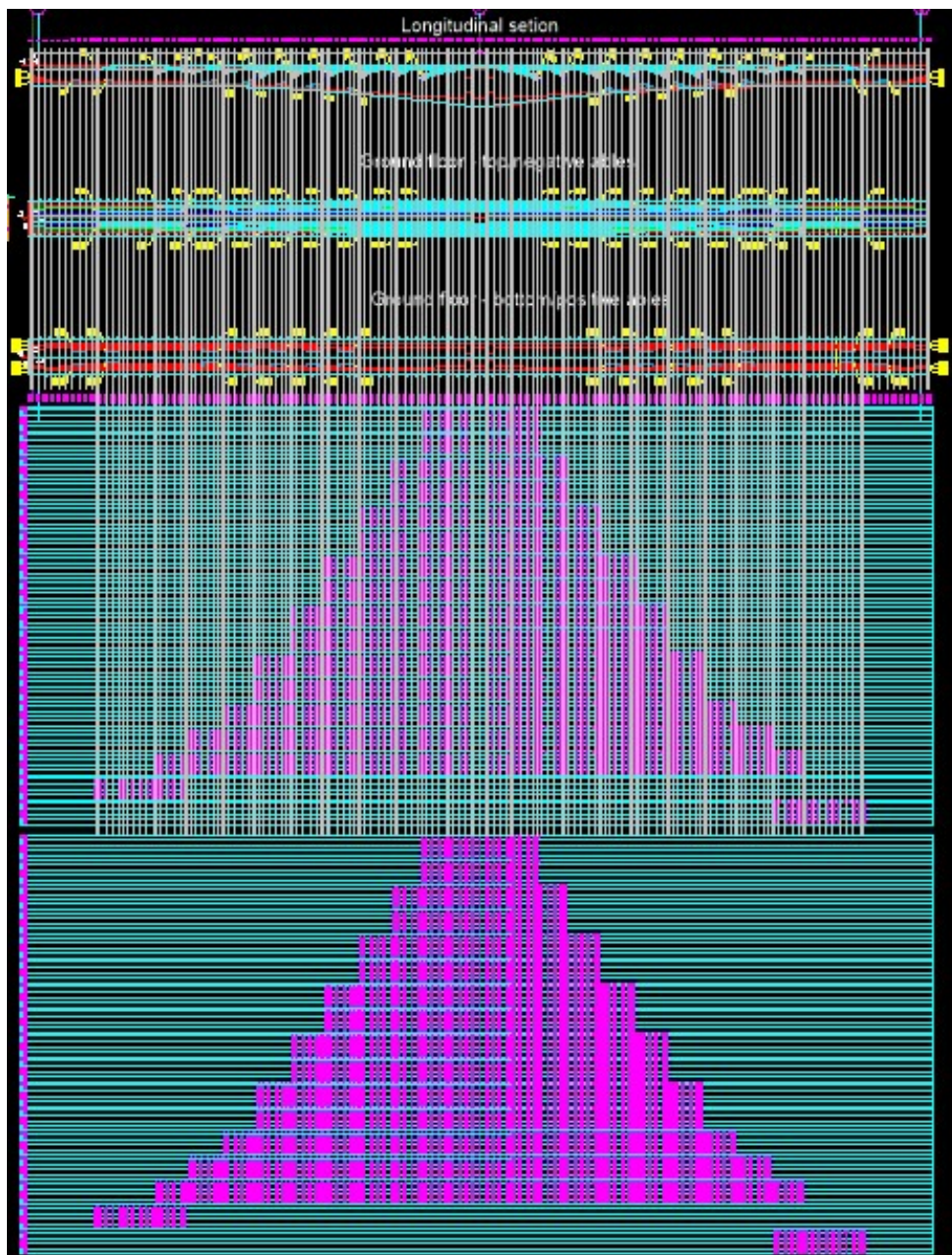
File C:\Primeri Moduli\Example2\cable11.kal not found.
Cable line file:
C:\Primeri Moduli\Example2\cable11.kal.
Longitudinal section processing ...
Section processing in ground floor ... finished.
Pick table XOY origin point of cable. 1:
Draw table of 1. cable ... finished.
File C:\Primeri Moduli\Example2\cable12.kal not found.
Cable line file:
C:\Primeri Moduli\Example2\cable12.kal.
Longitudinal section processing ...
Section processing in ground floor ... finished.
Draw table of 2. cable ... finished.
```



2.2 Multiple - negative cables on top, longitudinal and in ground floor: CableR1 to CableR17

```
Selected cross section file: C:\Primeri Moduli\Example2\Example2_3dL.pro
Checking dates in file ... finished.
Select basic BLOCK for LEFT head:
Select basic BLOCK for RIGHT head:
Select polyline - TOP BORDER of construction longitudinal section:
Pick AXIS position in ground floor:
Starting cable files text <cablel>: CableR
STARTING cable number <1>:
ENDING cable number <17>:

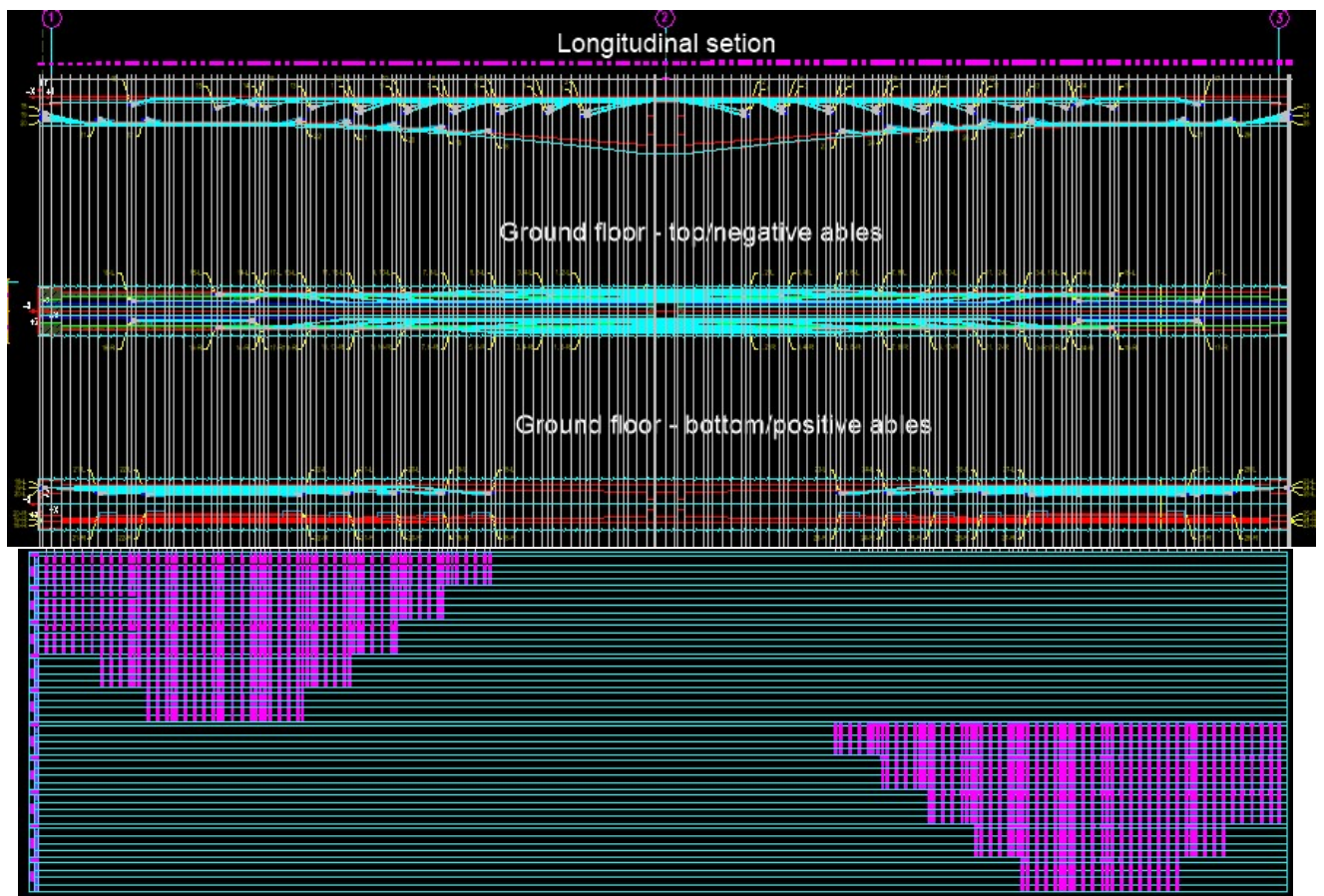
File C:\Primeri Moduli\Example2\CableR1.kal not found.
Cable line file:
C:\Primeri Moduli\Example2\CableR1.kal.
Longitudinal section processing ...
Section processing in ground floor ... finished.
Pick table X0Y origin point of cable. 1:
Draw table of 1. cable ... finished.
File C:\Primeri Moduli\Example2\CableR2.kal not found.
Cable line file:
C:\Primeri Moduli\Example2\CableR2.kal.
Longitudinal section processing ...
Section processing in ground floor ... finished.
Draw table of 2. cable ... finished.
```



2.3 Multiple – bottom positive cables longitudinal and in ground floor: CableL18 to CableL27

```
Selected cross section file: C:\Primeri Moduli\Example2\Example2_3dL.pro
Checking dates in file ... finished.
Select basic BLOCK for LEFT head:
Select basic BLOCK for RIGHT head:
Select polyline - TOP BORDER of construction longitudinal section:
Pick AXIS position in ground floor:
Starting cable files text <CableL>:
STARTING cable number <18>:
ENDING cable number <28>: 27

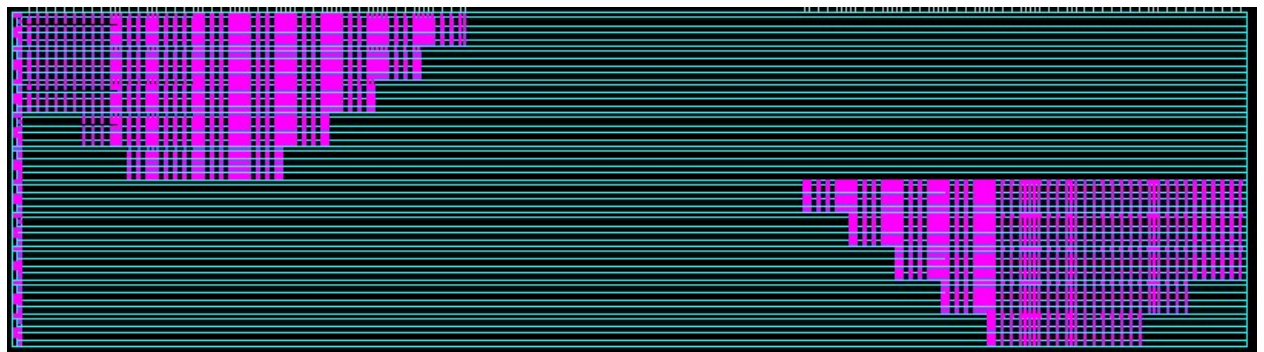
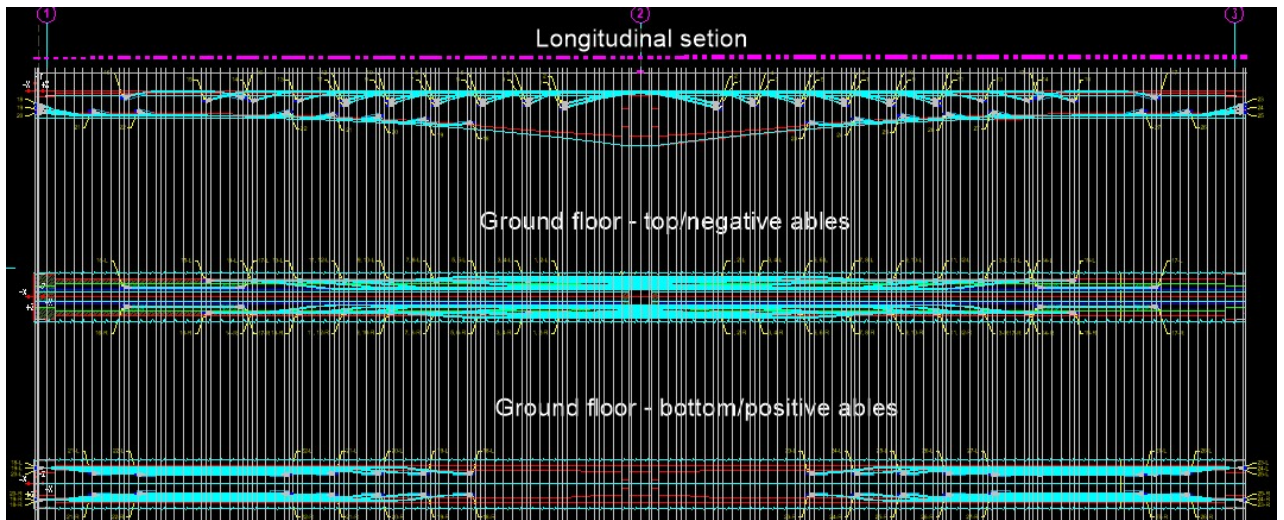
File C:\Primeri Moduli\Example2\CableL18.kal not found.
Cable line file:
C:\Primeri Moduli\Example2\CableL18.kal.
Longitudinal section processing ...
Section processing in ground floor ... finished.
Pick table X0Y origin point of cable. 18:
Draw table of 18. cable ... finished.
```



2.4 Multiple – bottom positive cables longitudinal and in ground floor: CableR18 to CableR27

```
Selected cross section file: C:\Primeri Moduli\Example2\Example2_3dL.pro
Checking dates in file ... finished.
Select basic BLOCK for LEFT head:
Select basic BLOCK for RIGHT head:
Select polyline - TOP BORDER of construction longitudinal section:
Pick AXIS position in ground floor:
Starting cable files text <CableL>: CableR
STARTING cable number <18>:
ENDING cable number <27>:

File C:\Primeri Moduli\Example2\CableR18.kal not found.
Cable line file:
C:\Primeri Moduli\Example2\CableR18.kal.
Longitudinal section processing ...
Section processing in ground floor ... finished.
Pick table X0Y origin point of cable. 18:
Draw table of 18. cable ... finished.
```

3. Draw cables in real ground floor 2d or 3d

2d draw

Draw cables CableL1 to CableL27 and CableR1 to CableR27

Draw cable in real ground floor ✕

Files

3d roadway level file

Current file *.o3d
C:\Primeri Moduli\Example2\Example2_3dL.o3d

Replace file >>

Roadway file

Current file *.voz
C:\Primeri Moduli\Example2\Example2_3d.voz

Replace file >>

Drawing option

Single Multiple 2d 3d

Draw 3d Y- coordinates horizontal Draw as sketch


Mark prefix: Write suffix for side


OK Cancel


Colors and blocks ✕

Drawing option in ground floor
 Draw axis and cable Draw axis None

Colors

Cable axis
 

Cables
 

Cable marks
 

Blocks

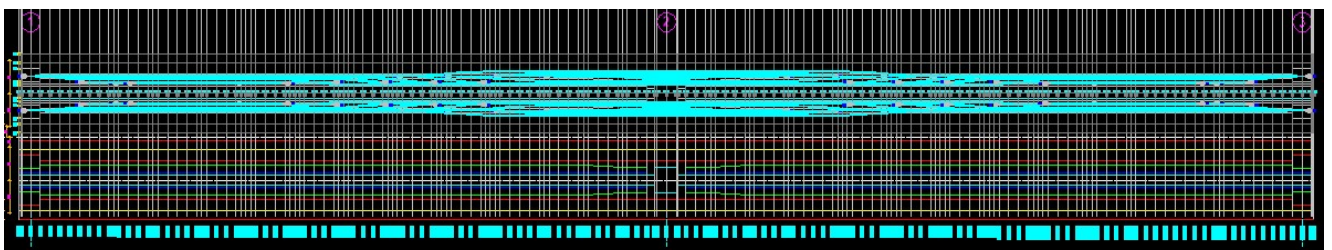
On cable startpoint
 Head Clutch Anchoring None

On cable endpoint
 Head Clutch Anchoring None

Mark prefix: Draw suffix for side

```
Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Checking dates in files ... finished.
Section checking ... finished.
Select basic BLOCK for LEFT head:
Select basic BLOCK for RIGHT head:
Starting text of cable files <CableL>:
Number of STARTING cable <1>:
Number of ENDING cable <27>:
```

```
Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Checking dates in files ... finished.
Section checking ... finished.
Select basic BLOCK for LEFT head:
Select basic BLOCK for RIGHT head:
Starting text of cable files <CableL>: CableR
Number of STARTING cable <1>:
Number of ENDING cable <27>:
```



3d draw

Draw cables CableL1 to CableL17 and CableR1 to CableR17

Draw cable in real ground floor ✕

Files

3d roadway level file
Current file *.o3d
C:\Primeri Moduli\Example2\Example2_3dL.o3d

Roadway file
Current file *.voz
C:\Primeri Moduli\Example2\Example2_3d.voz

Drawing option
 Single Multiple 2d 3d


Draw 3d Y- coordinates horizontal Draw as sketch


Mark prefix: Write suffix for side


Colors and blocks ✕

Drawing option in ground floor
 Draw axis and cable Draw axis None

Colors

Cable axis
 

Cables
 

Cable marks
 

Blocks

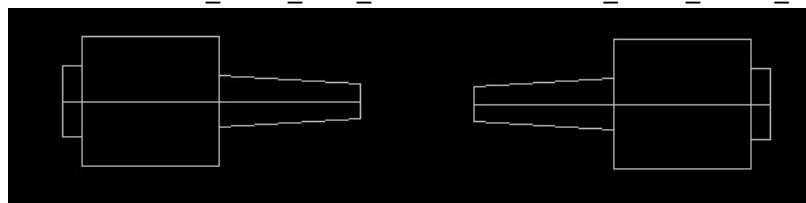
On cable startpoint
 Head Clutch Ancoing None

On cable endpoint
 Head Clutch Ancoing None

Mark prefix: Draw suffix for side

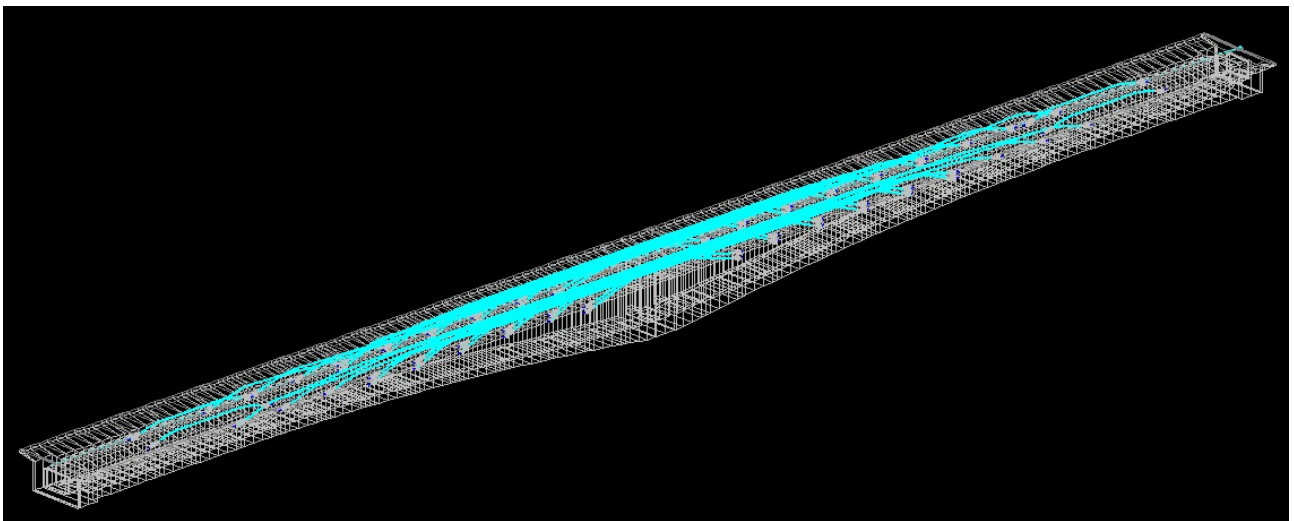
Block CABLE_HEAD_LEFT_3D

Block CABLE_HEAD_RIGHT_3D



```
Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Checking dates in files ... finished.
Section checking ... finished.
Select basic BLOCK for LEFT head:
Select basic BLOCK for RIGHT head:
Starting text of cable files <CableR>: CABLEL
Number of STARTING cable <1>:
Number of ENDING cable <27>: 17
```

```
Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Checking dates in files ... finished.
Section checking ... finished.
Select basic BLOCK for LEFT head:
Select basic BLOCK for RIGHT head:
Starting text of cable files <CABLEL>: CABLER
Number of STARTING cable <1>:
Number of ENDING cable <17>:
```



Draw cables CableL18 to CableL27 and CableR18 to CableR27

Draw cable in real ground floor

Files

3d roadway level file
Current file *.o3d
C:\Primeri Moduli\Example2\Example2_3dL.o3d
Replace file >>

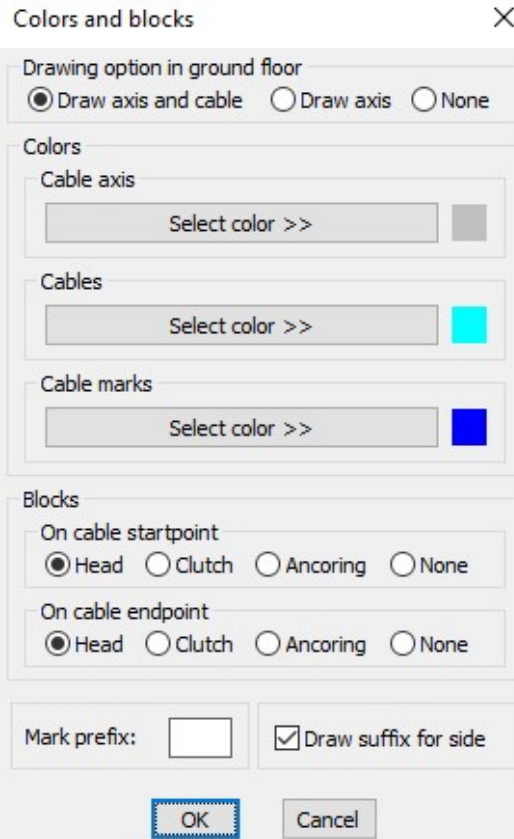
Roadway file
Current file *.voz
C:\Primeri Moduli\Example2\Example2_3d.voz
Replace file >>

Drawing option
 Single Multiple 2d 3d

Draw 3d Y-coordinates horizontal Draw as sketch

Mark prefix: Write suffix for side

OK Cancel



```

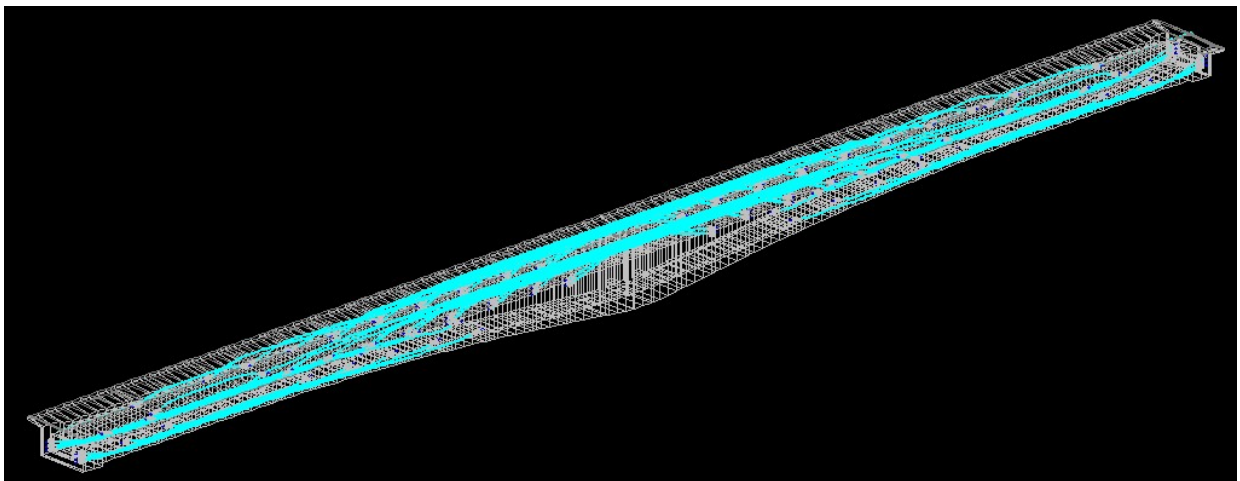
Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Checking dates in files ... finished.
Section checking ... finished.
Select basic BLOCK for LEFT head:
Select basic BLOCK for RIGHT head:
Starting text of cable files <CABLER>: CABLEL
Number of STARTING cable <1>: 18
Number of ENDING cable <17>: 27

```

```

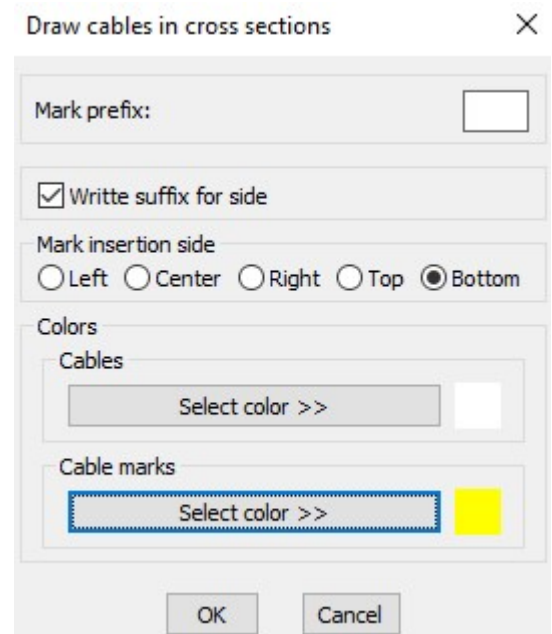
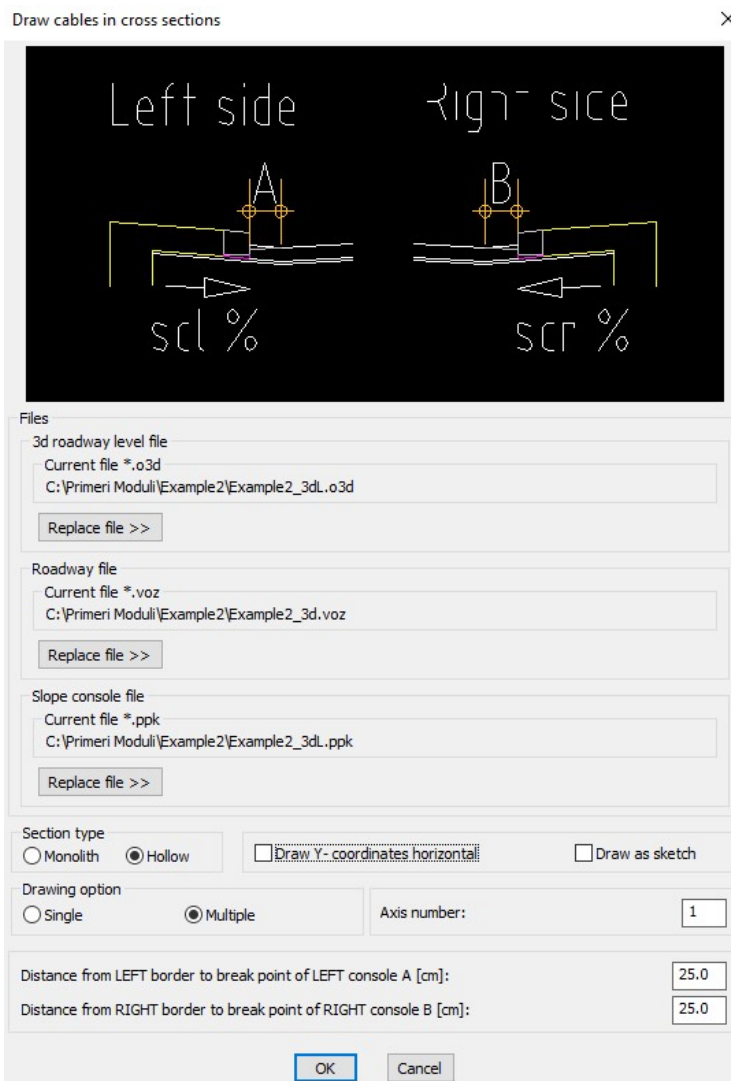
Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Checking dates in files ... finished.
Section checking ... finished.
Select basic BLOCK for LEFT head:
Select basic BLOCK for RIGHT head:
Starting text of cable files <CABLEL>: CABLER
Number of STARTING cable <18>:
Number of ENDING cable <27>:

```



4. Draw cables in cross sections

Draw cables CableL1 to CableL17 and CableR1 to CableR17



```
Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Selected file *.ppk: C:\Primeri Moduli\Example2\Example2_3dL.ppk
Sections checking... finished.
Starting text of cable files <CABLER>: CABLEL
STARTING cable number <18>: 1
ENDING cable number <27>: 17

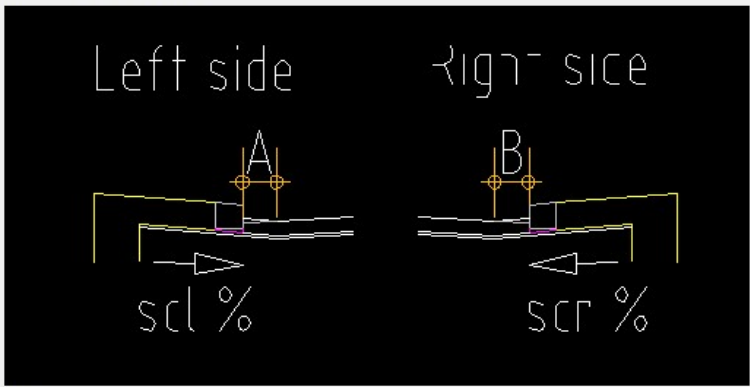
Cable drawing file:C:\Primeri Moduli\Example2\CABLEL1.kal.
Section processing ...
Draw cable ... finished.
```

```
Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Selected file *.ppk: C:\Primeri Moduli\Example2\Example2_3dL.ppk
Sections checking... finished.
Starting text of cable files <CABLEL>: CABLER
STARTING cable number <1>:
ENDING cable number <17>:

Cable drawing file:C:\Primeri Moduli\Example2\CABLER1.kal.
Section processing ...
Draw cable ... finished.
```

Draw cables CableL18 to CableL27 and CableR18 to CableR27

Draw cables in cross sections
×



Files

3d roadway level file
Current file *.o3d
C:\Primeri Moduli\Example2\Example2_3dL.o3d
Replace file >>

Roadway file
Current file *.voz
C:\Primeri Moduli\Example2\Example2_3d.voz
Replace file >>

Slope console file
Current file *.ppk
C:\Primeri Moduli\Example2\Example2_3dL.ppk
Replace file >>

Section type
 Monolith Hollow Draw Y-coordinates horizontal Draw as sketch

Drawing option
 Single Multiple Axis number:

Distance from LEFT border to break point of LEFT console A [cm]:
Distance from RIGHT border to break point of RIGHT console B [cm]:

Draw cables in cross sections

Mark prefix:

Write suffix for side

Mark insertion side
 Left Center Right Top Bottom

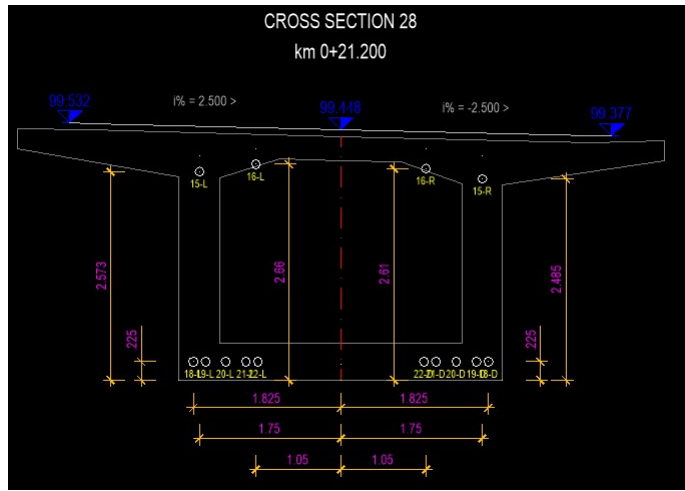
Colors

Cables

Cable marks

```
Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Selected file *.ppk: C:\Primeri Moduli\Example2\Example2_3dL.ppk
Sections checking... finished.
Starting text of cable files <CABLEL>:
STARTING cable number <18>:
ENDING cable number <27>:
Cable drawing file:C:\Primeri Moduli\Example2\CABLEL18.kal.
Section processing ...
Draw cable ... finished.
```

```
Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Selected file *.ppk: C:\Primeri Moduli\Example2\Example2_3dL.ppk
Sections checking... finished.
Starting text of cable files <CABLEL>: CABLER
STARTING cable number <18>:
ENDING cable number <27>:
Cable drawing file:C:\Primeri Moduli\Example2\CABLER18.kal.
Section processing ...
Draw cable ... finished.
```

5. Insert YOZ basis points in cross sections

Draw cable table in cross sections ×

Section type
 Monolith Hollow

Drawing type
 Sketch Normal

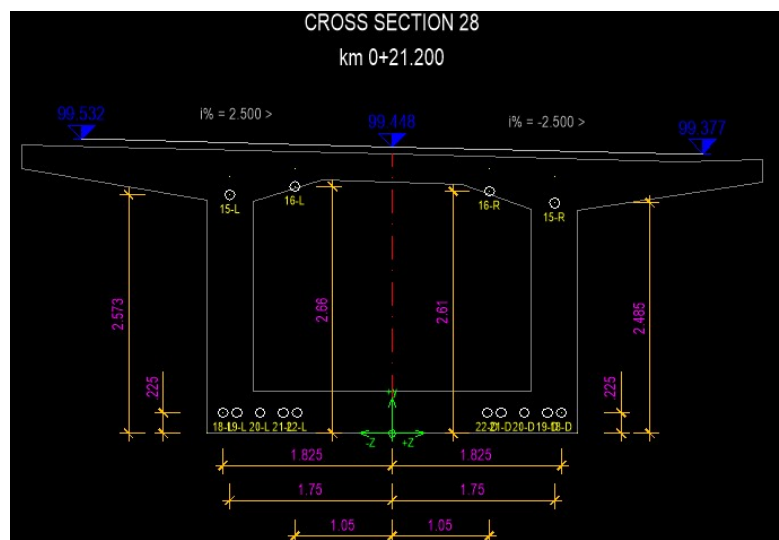
YOZ Origin of coordinate system
 Top axis point Bottom axis point

Axis number:

Section views
 Width [m]:
 Height [m]:

Colors
 Text:
 Lines:

STARTING section number <1>:
 ENDING section number <2>: 180



- 6. Draw table of cable coordinates in cross sections
 - 6.1 Left side

Draw table of cable coordinates in cross sections ✕

Section type

Monolith Hollow

Drawing type

Sketch Normal

Coordinate system YOZ origin

Top axis point Bottom axis point

Cable position for draw

Left Axis Right

Axis number:

Mark prefix:

Write suffix for side

Views

Width [m]:

Height [m]:

Colors

Title text

Select color >> ■

Text

Select color >> ■

Outer lines

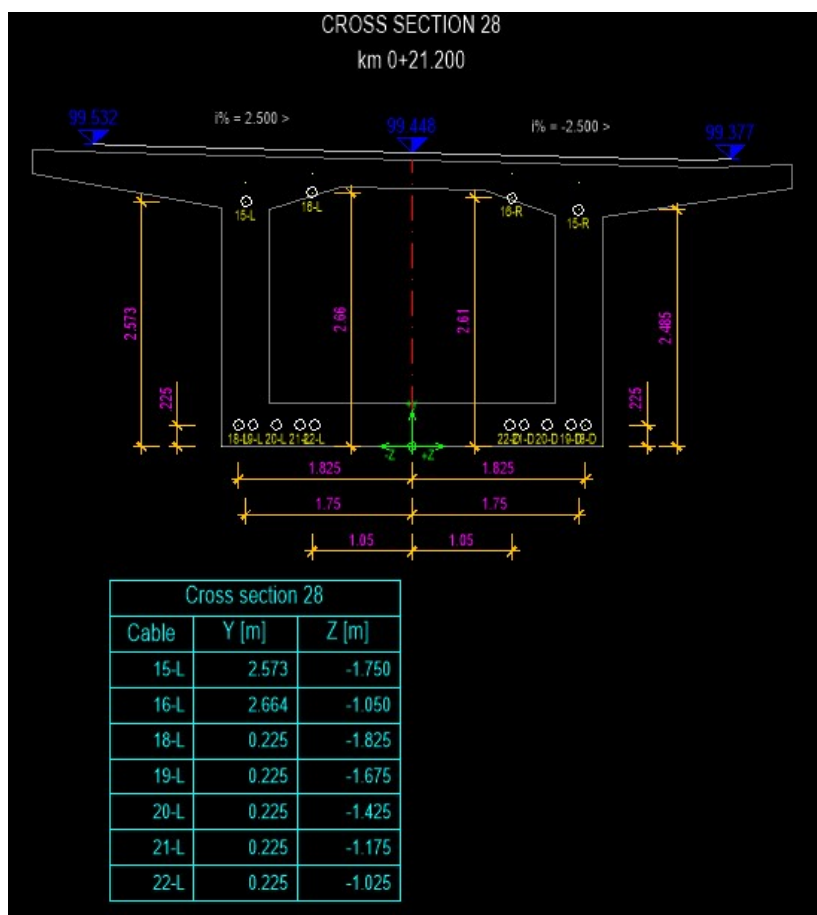
Select color >> ■

Inner lines

Select color >> ■

OK Cancel

```
STARTING section number <1>: 3
ENDING section number <180>: 178
```



6.2 Right side

Draw table of cable coordinates in cross sections ×

Section type

Monolith Hollow

Drawing type

Sketch Normal

Coordinate system YOZ origin

Top axis point Bottom axis point

Cable position for draw

Left Axis Right

Axis number:

Mark prefix:

Write suffix for side

Views

Width [m]:

Height [m]:

Colors

Title text

Select color >> ■

Text

Select color >> ■

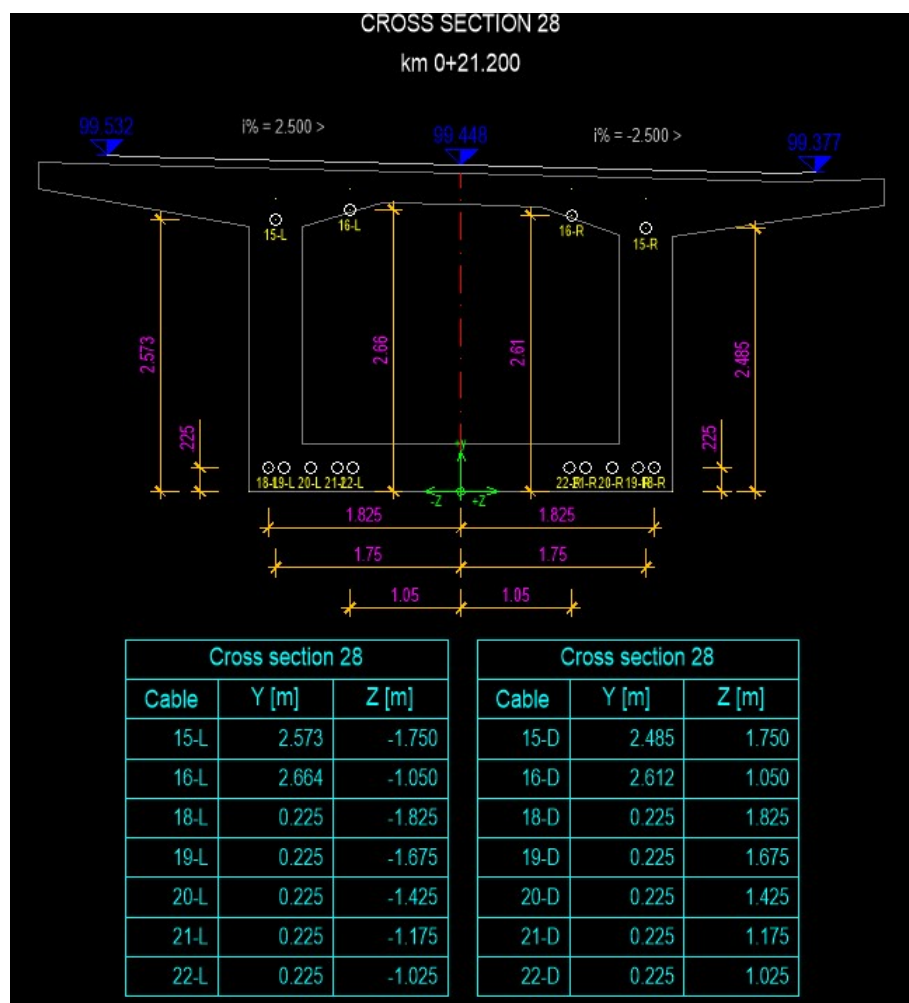
Outer lines

Select color >> ■

Inner lines

Select color >> ■

STARTING section number <3>:
ENDING section number <178>:



7. Draw table of cable specifications

7.1 Left side

Draw table of cable specifications

Drawing area
 2d 3d

Cable position
 Left Axis Right

Textual dates
 Title text:
 Mark prefix:
 Write suffix for side

Cable type:
 Cable weight [kg]:

Colors
 Title text
 Text in lines
 Outer table lines
 Inner table lines

Cable specifikacija				
Mark	pcs	TYPE	L [m]	Wght [kg]
1-L	1	19 x 150 mm2	17.4	395.0
10-L	1	19 x 150 mm2	55.3	1255.3
11-L	1	19 x 150 mm2	65.5	1486.9
12-L	1	19 x 150 mm2	65.3	1482.3
13-L	1	19 x 150 mm2	75.3	1709.3
14-L	1	19 x 150 mm2	85.3	1936.3
15-L	1	19 x 150 mm2	95.4	2165.6
16-L	1	19 x 150 mm2	13.2	299.6
17-L	1	19 x 150 mm2	13.2	299.6
18-L	1	19 x 150 mm2	47.7	1082.8
19-L	1	19 x 150 mm2	42.6	967.0
2-L	1	19 x 150 mm2	17.3	392.7
20-L	1	19 x 150 mm2	37.5	851.3
21-L	1	19 x 150 mm2	26.6	603.8
22-L	1	19 x 150 mm2	16.6	376.8
23-L	1	19 x 150 mm2	47.6	1080.5
24-L	1	19 x 150 mm2	42.5	964.8
25-L	1	19 x 150 mm2	37.5	851.3
26-L	1	19 x 150 mm2	26.6	603.8
27-L	1	19 x 150 mm2	16.6	376.8
3-L	1	19 x 150 mm2	25.5	578.9
4-L	1	19 x 150 mm2	25.3	574.3
5-L	1	19 x 150 mm2	35.4	803.6
6-L	1	19 x 150 mm2	35.2	799.0
7-L	1	19 x 150 mm2	45.5	1032.9
8-L	1	19 x 150 mm2	45.3	1028.3
9-L	1	19 x 150 mm2	55.5	1259.9
Sum			1112.7	25258.4

7.2 Right side

Draw table of cable specifications

Drawing area
 2d 3d

Cable position
 Left Axis Right

Textual dates
 Title text:
 Mark prefix:
 Write suffix for side

Cable type:
 Cable weight [kg]:

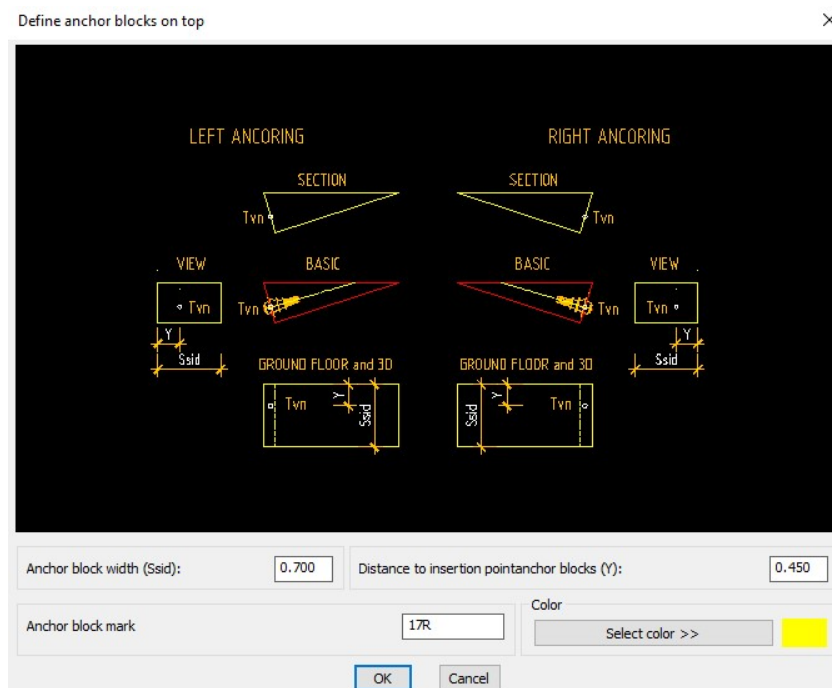
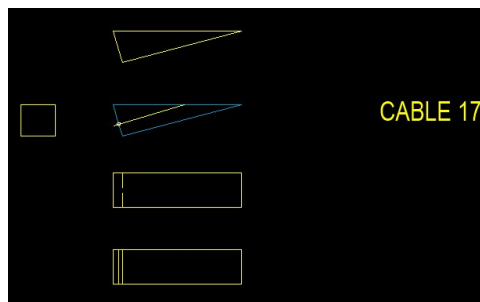
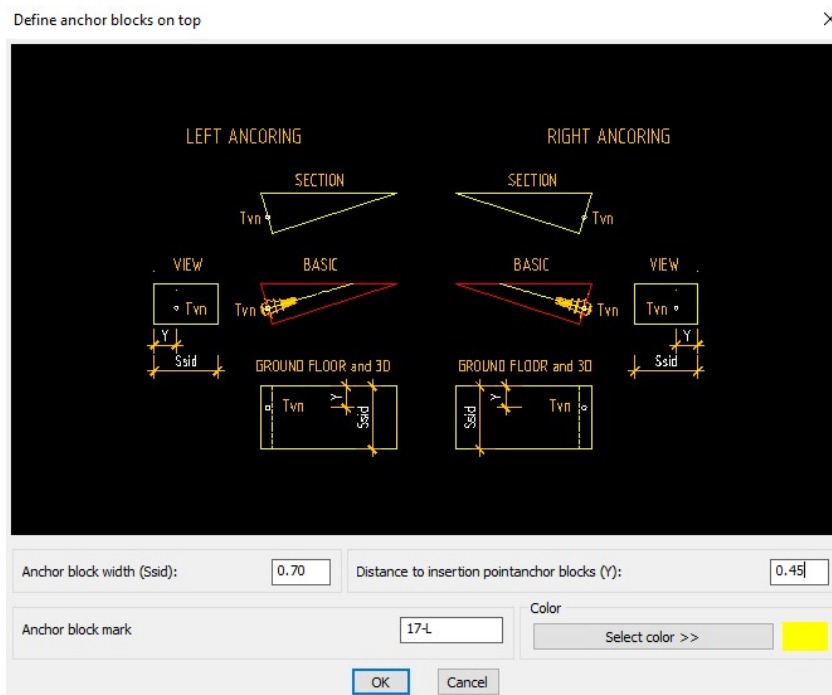
Colors
 Title text
 Text in lines
 Outer table lines
 Inner table lines

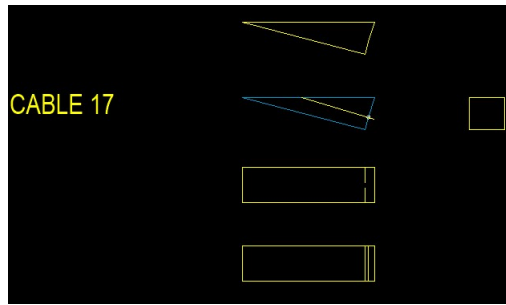
Cable specifikacija				
Mark	pcs	TYPE	L [m]	Wght [kg]
1-R	1	19 x 150 mm2	17.4	395.0
10-R	1	19 x 150 mm2	55.3	1255.3
11-R	1	19 x 150 mm2	65.5	1486.9
12-R	1	19 x 150 mm2	65.3	1482.3
13-R	1	19 x 150 mm2	75.3	1709.3
14-R	1	19 x 150 mm2	85.3	1936.3
15-R	1	19 x 150 mm2	95.4	2165.6
16-R	1	19 x 150 mm2	13.2	299.6
17-R	1	19 x 150 mm2	13.2	299.6
18-R	1	19 x 150 mm2	47.7	1082.8
19-R	1	19 x 150 mm2	42.6	967.0
2-R	1	19 x 150 mm2	17.3	392.7
20-R	1	19 x 150 mm2	37.5	851.3
21-R	1	19 x 150 mm2	26.6	603.8
22-R	1	19 x 150 mm2	16.6	376.8
23-R	1	19 x 150 mm2	47.6	1080.5
24-R	1	19 x 150 mm2	42.5	964.8
25-R	1	19 x 150 mm2	37.5	851.3
26-R	1	19 x 150 mm2	26.6	603.8
27-R	1	19 x 150 mm2	16.6	376.8
3-R	1	19 x 150 mm2	25.5	578.9
4-R	1	19 x 150 mm2	25.3	574.3
5-R	1	19 x 150 mm2	35.4	803.6
6-R	1	19 x 150 mm2	35.2	799.0
7-R	1	19 x 150 mm2	45.5	1032.9
8-R	1	19 x 150 mm2	45.3	1028.3
9-R	1	19 x 150 mm2	55.5	1259.9
Sum			1112.7	25258.4

8. Define anchor blocks

8.1 Define anchor blocks on top

8.1.1 Define anchor blocks for CableL17:





8.1.2 Insert anchor blocks in ground floor and longitudinal section

Colors, blocks and section numbers ×

Cross section file
 Current file *.pro
 C:\Primeri Moduli\Example2\Example2_3dL.pro

Drawing option in ground floor
 Draw axis and cable Draw axis None

Drawing option in longitudinal section
 Draw axis and cable Draw axis None

Colors

Cable axis

Cables

Cable marks

Blocks

On cable startpoint
 Head Clutch Anchoring None

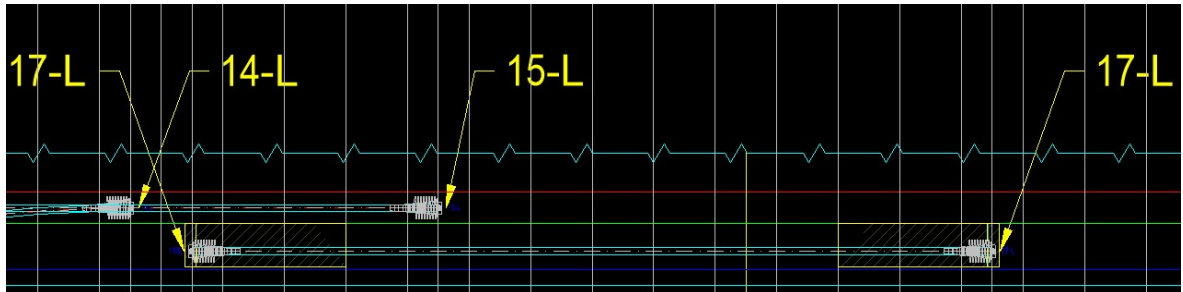
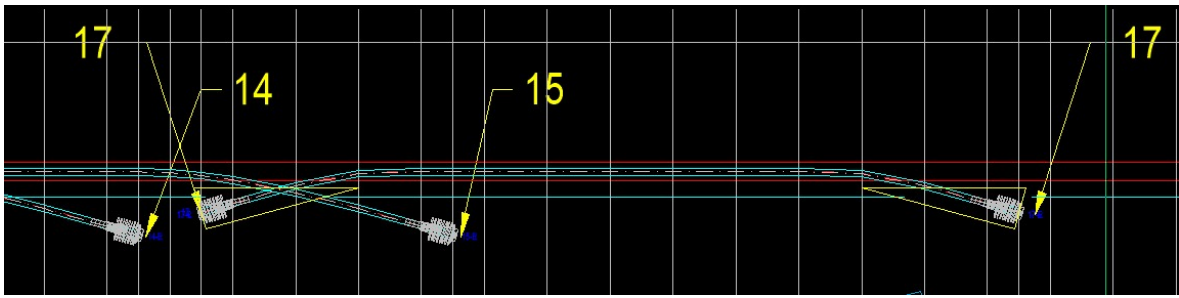
On cable endpoint
 Head Clutch Anchoring None

Drawing option
 Single Multiple Cable numbers from file Draw table Draw vertical assistance lines

Mark prefix: Draw suffix for side


```

Selected cross section file: C:\Primeri Moduli\Example2\Example2_3dL.pro
Checking dates in file ... finished.
Select basic BLOCK for LEFT anchoring:
Select basic BLOCK for LEFT anchoring in ground floor:
Select basic BLOCK for RIGHT anchoring:
Select basic BLOCK for RIGHT anchoring in ground floor:
Select polyline - TOP BORDER of construction longitudinal section:
Pick AXIS position in ground floor:
< Draw 1. cable >/End:
Select existing CABLE LINE file.
Selected cable line file: C:\Primeri Moduli\Example2\CableL17.kal.
Longitudinal section processing ...
Section processing in ground floor ... finished.
< Draw 2. cable >/End:E
  
```



8.1.3 Insert anchor blocks in cable axis ending points in cross sections

Izris blokov v oseh kablov v precnih prerezih ✕

Section type
 Monolith Hollow

Drawing type
 Sketch Normal

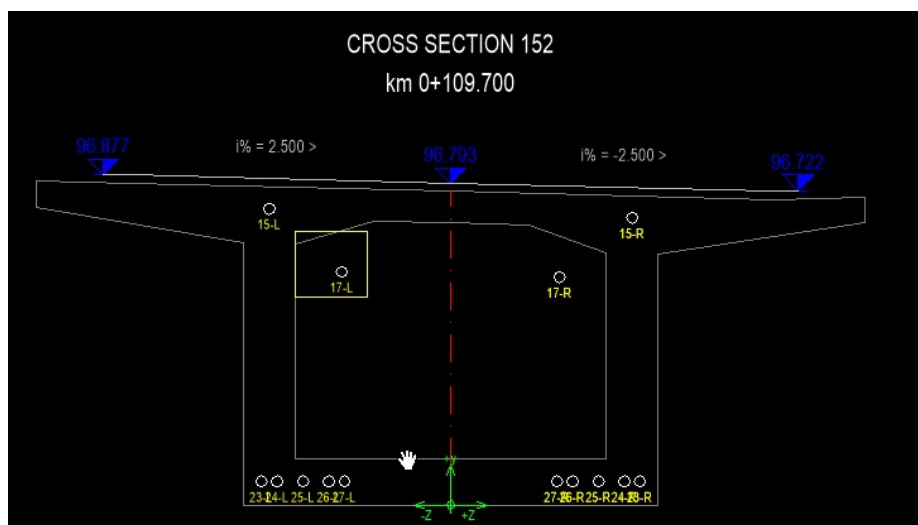
Axis number:

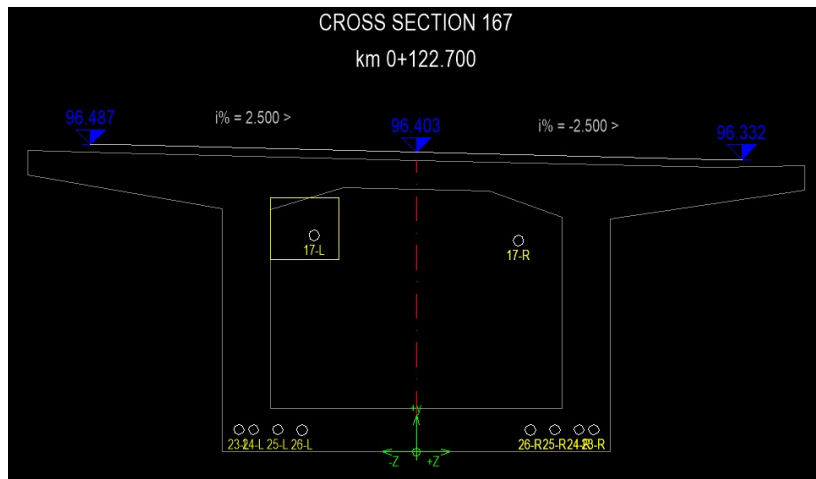
Section areas
 Width [m]:
 Height [m]:

Drawing option
 Single Multiple

Insertion side
 Left Right

```
Select BLOCK on cable STARING point:
Select BLOCK on cable ENDING point:
< Insert blocks >/End:
Select existing cable line file.
Selected cable lines file:
C:\Primeri Moduli\Example2\CableL17.kal.
< Insert blocks >/End:E
```





8.1.4 Insert anchor blocks in real 2d ground floor

Draw cable in real ground floor

Files

3d roadway level file
Current file *.o3d
C:\Primeri Moduli\Example2\Example2_3dL.o3d
Replace file >>

Roadway file
Current file *.voz
C:\Primeri Moduli\Example2\Example2_3d.voz
Replace file >>

Drawing option
 Single Multiple 2d 3d

Draw 3d Y- coordinates horizontal Draw as sketch

Mark prefix: Write suffix for side

OK Cancel

Colors and blocks

Drawing option in ground floor
 Draw axis and cable Draw axis None

Colors

Cable axis
Select color >>

Cables
Select color >>

Cable marks
Select color >>

Blocks

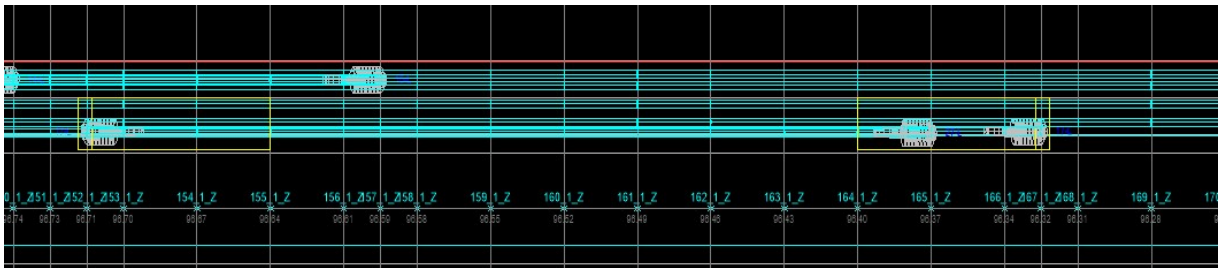
On cable startpoint
 Head Clutch Ancoring None

On cable endpoint
 Head Clutch Ancoring None

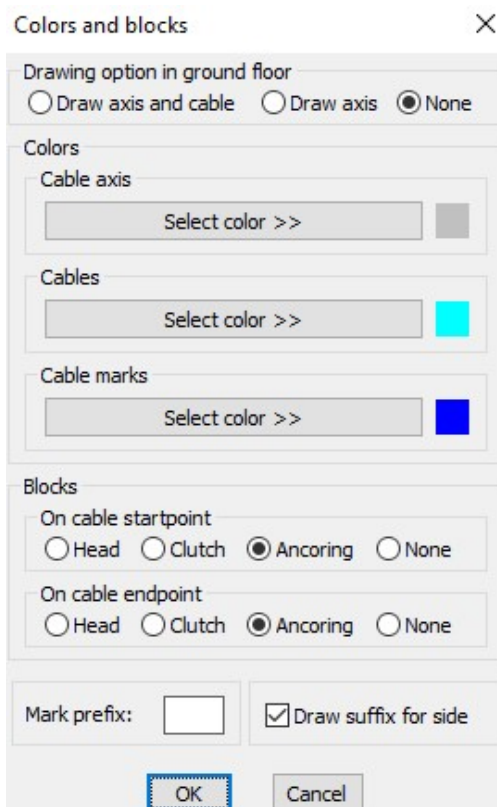
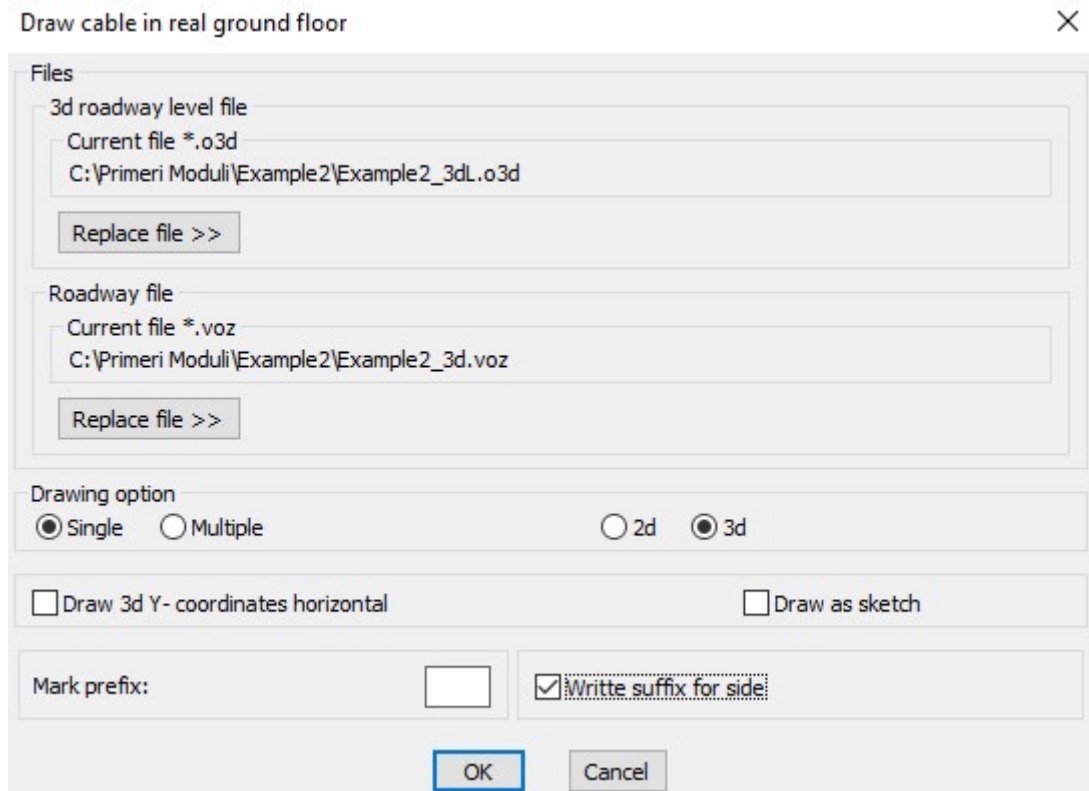
Mark prefix: Draw suffix for side

OK Cancel

```
Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Checking dates in files ... finished.
Section checking ... finished.
Select basic BLOCK for LEFT anchoring in ground floor:
Select basic BLOCK for RIGHT anchoring in ground floor:
< Draw 1. cable >/End:
Select existing cable line file.
Cable line file:
C:\Primeri Moduli\Example2\CableL17.kal.
Section processing ... finished.
Draw 1. cable ... finished.
< Draw 2. cable >/End:E
```

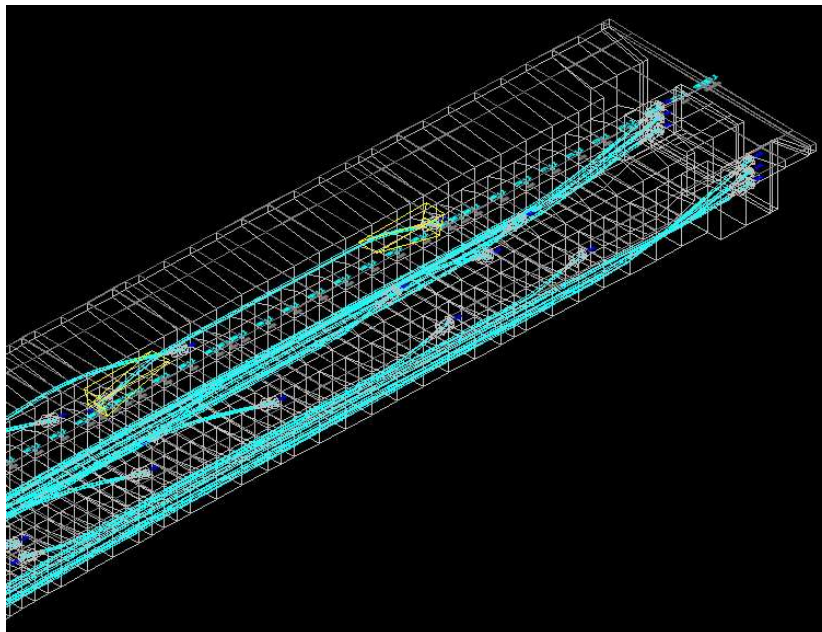


8.1.5 Insert anchor blocks in real 3d ground floor



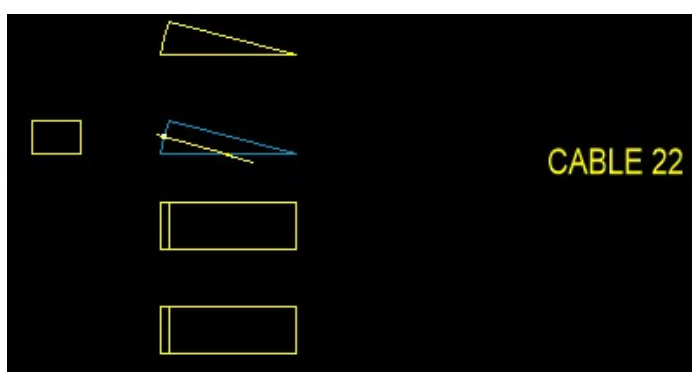
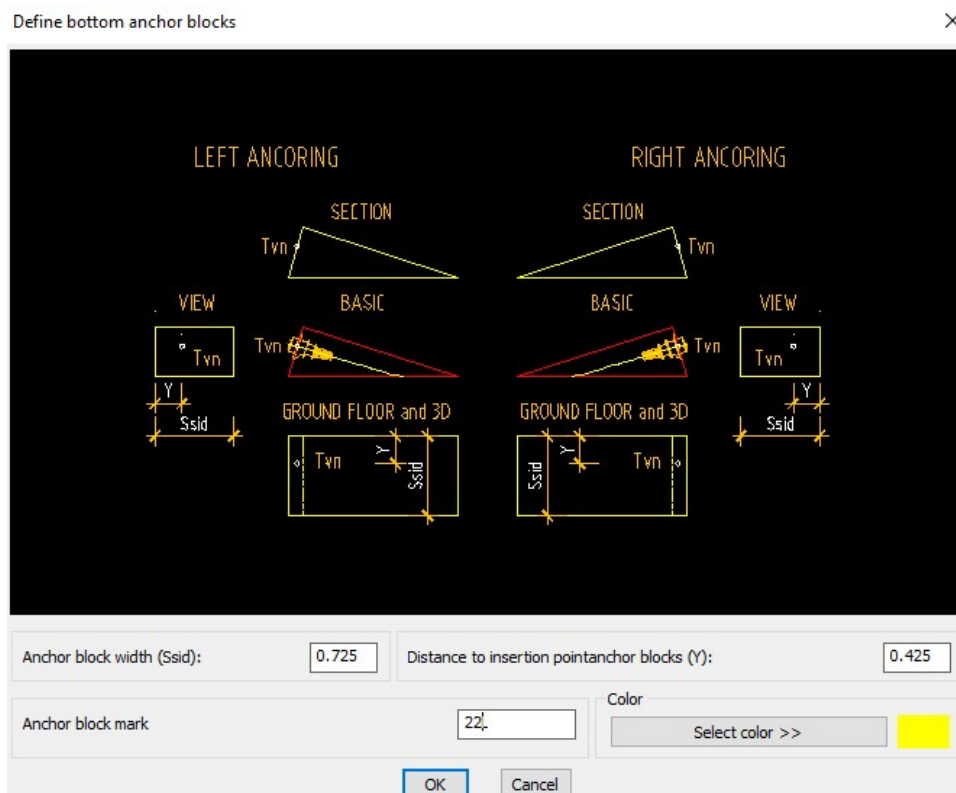
```

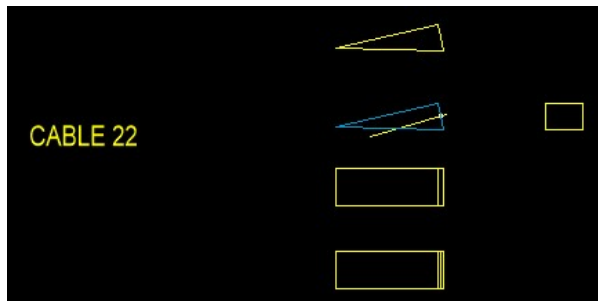
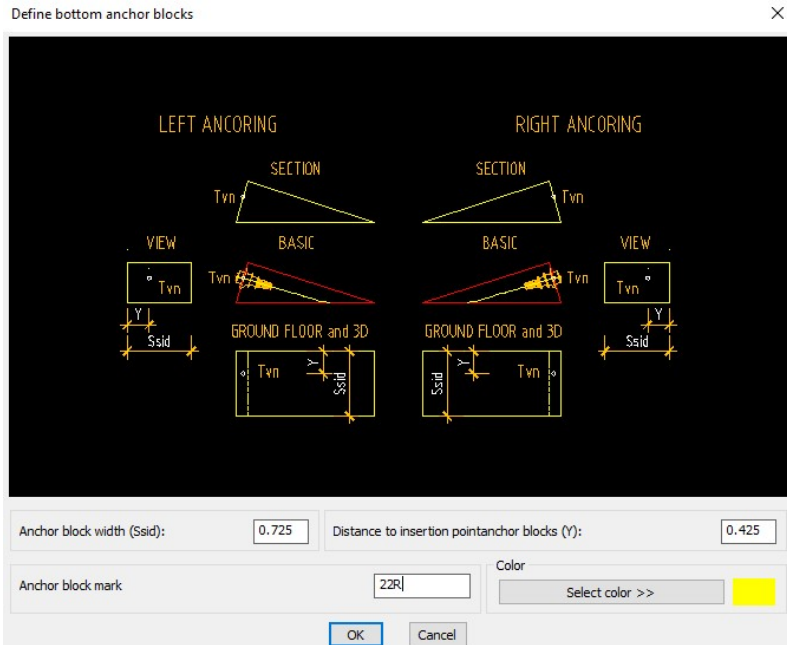
Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Checking dates in files ... finished.
Section checking ... finished.
Select basic BLOCK for LEFT anchoring in ground floor:
Select basic BLOCK for RIGHT anchoring in ground floor:
< Draw 1. cable >/End:
Select existing cable line file.
Cabele line file:
C:\Primeri Moduli\Example2\CableL17.kal.
Section processing ... finished.
Draw 1. cable ... finished.
< Draw 2. cable >/End:E
  
```

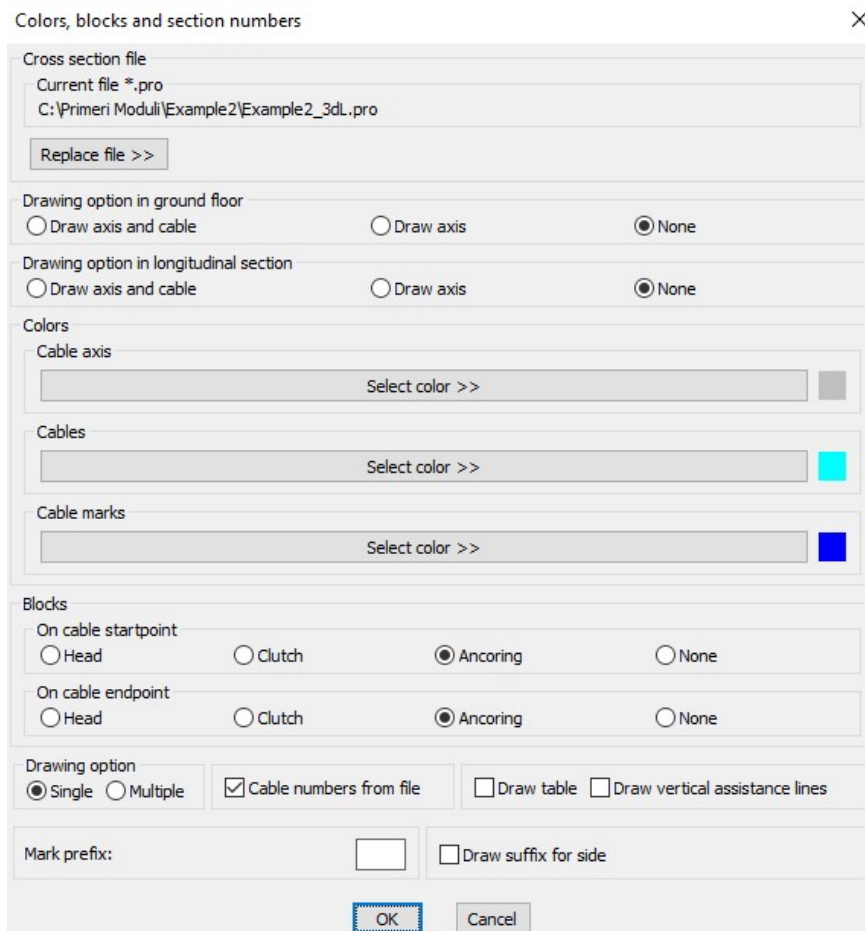
8.2 Define bottom anchor blocks

8.2.1 Define anchor blocks for CableL22:





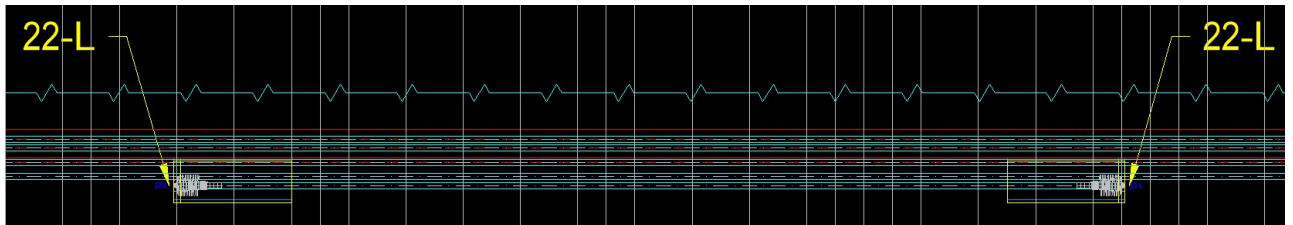
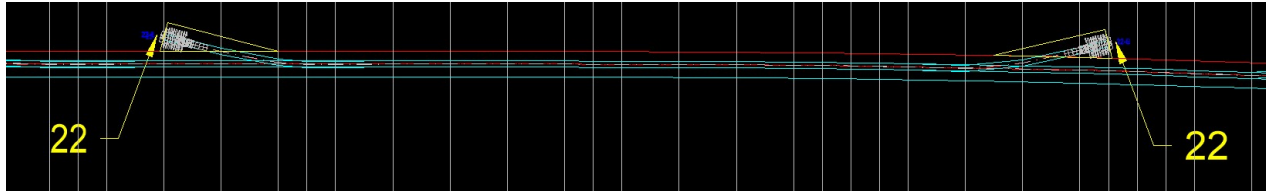
8.2.2 Insert anchor blocks in ground floor and longitudinal section



```

Selected cross section file: C:\Primeri Moduli\Example2\Example2_3dL.pro
Checking dates in file ... finished.
Select basic BLOCK for LEFT anchoring:
Select basic BLOCK for LEFT anchoring in ground floor:
Select basic BLOCK for RIGHT anchoring:
Select basic BLOCK for RIGHT anchoring in ground floor:
Select polyline - TOP BORDER of construction longitudinal section:
Select polyline - TOP BORDER of construction longitudinal section:
Pick AXIS position in ground floor:
< Draw 1. cable >/End:
Select existing CABLE LINE file.
Selected cable line file: C:\Primeri Moduli\Example2\CableL22.kal.
Longitudinal section processing ...
Section processing in ground floor ... finished.
< Draw 2. cable >/End:E

```



8.2.3 Insert anchor blocks in cable axis ending points in cross sections

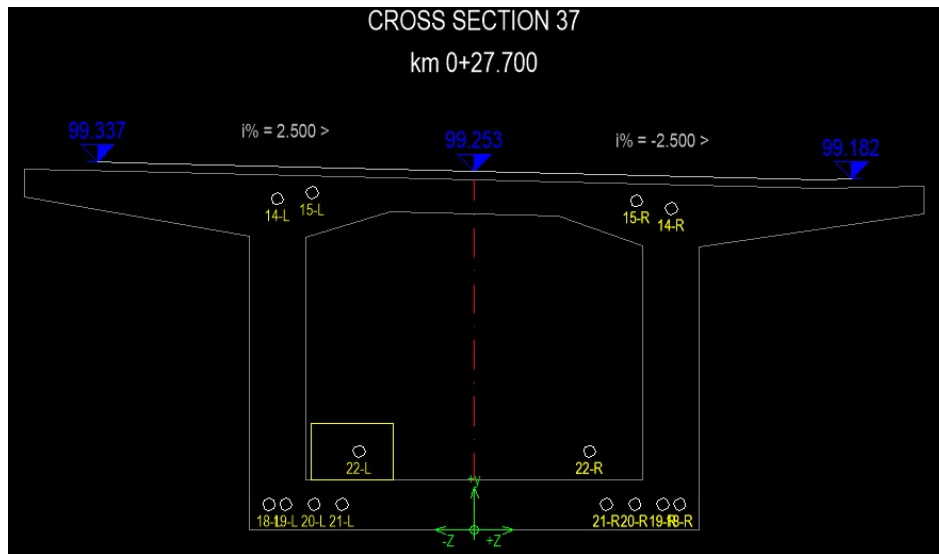
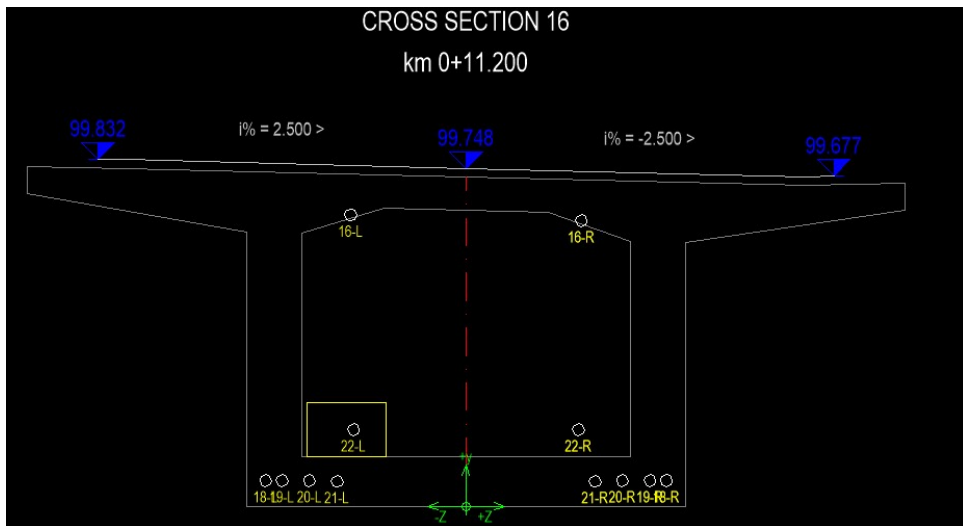
Izris blokov v oseh kablov v precnih prerezih ✕

Section type	
<input type="radio"/> Monolith	<input checked="" type="radio"/> Hollow
Drawing type	
<input type="radio"/> Sketch	<input checked="" type="radio"/> Normal
Axis number:	<input type="text" value="1"/>
Section areas	
Width [m]:	<input type="text" value="10.0"/>
Height [m]:	<input type="text" value="10.0"/>
Drawing option	
<input checked="" type="radio"/> Single	<input type="radio"/> Multiple
Insertion side	
<input checked="" type="radio"/> Left	<input type="radio"/> Right
<input type="button" value="OK"/>	<input type="button" value="Cancel"/>

```

Select BLOCK on cable STARING point:
Select BLOCK on cable ENDING point:
< Insert blocks >/End:
Select existing cable line file.
Selected cable lines file:
C:\Primeri Moduli\Example2\CableL22.kal.
< Insert blocks >/End:E

```



8.2.4 Insert anchor blocks in real 2d ground floor

Draw cable in real ground floor ✕

Files

3d roadway level file

Current file *.o3d
C:\Primeri Moduli\Example2\Example2_3dL.o3d

Replace file >>

Roadway file

Current file *.voz
C:\Primeri Moduli\Example2\Example2_3d.voz

Replace file >>

Drawing option

Single Multiple 2d 3d

Draw 3d Y- coordinates horizontal Draw as sketch


Mark prefix: Write suffix for side


OK Cancel


Colors and blocks ✕

Drawing option in ground floor
 Draw axis and cable Draw axis None

Colors

Cable axis
 

Cables
 

Cable marks
 

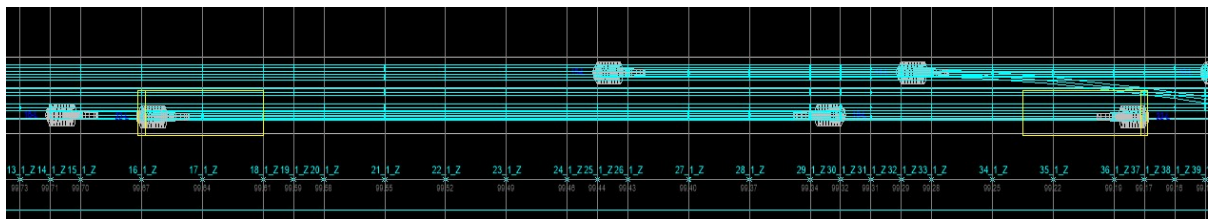
Blocks

On cable startpoint
 Head Clutch Anchoring None

On cable endpoint
 Head Clutch Anchoring None

Mark prefix: Draw suffix for side


```
Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Checking dates in files ... finished.
Section checking ... finished.
Select basic BLOCK for LEFT anchoring in ground floor:
Select basic BLOCK for RIGHT anchoring in ground floor:
< Draw 1. cable >/End:
Select existing cable line file.
Cable line file:
C:\Primeri Moduli\Example2\CableL22.kal.
Section processing ... finished.
Draw 1. cable ... finished.
< Draw 2. cable >/End:E
```



8.2.5 Insert anchor blocks in real 3d ground floor

Draw cable in real ground floor ✕

Files

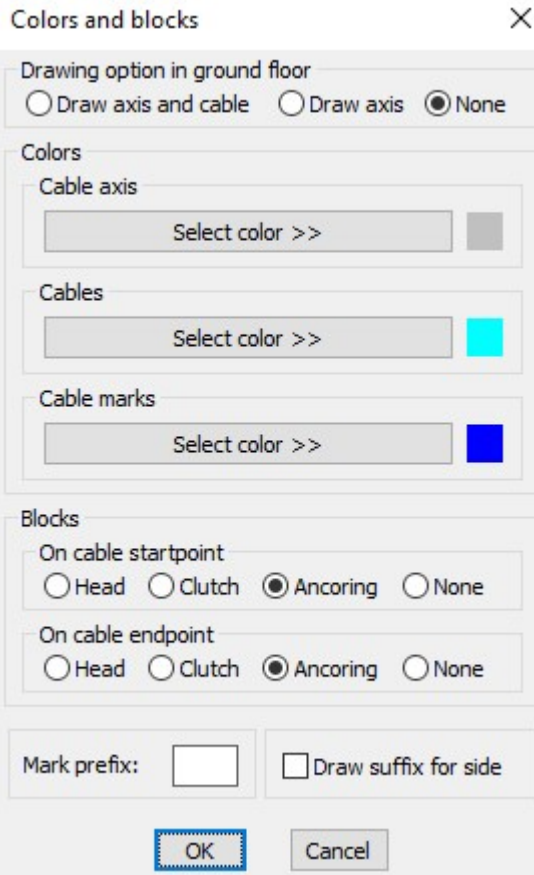
3d roadway level file
 Current file *.o3d
 C:\Primeri Moduli\Example2\Example2_3dL.o3d

Roadway file
 Current file *.voz
 C:\Primeri Moduli\Example2\Example2_3d.voz

Drawing option
 Single Multiple 2d 3d

Draw 3d Y- coordinates horizontal Draw as sketch

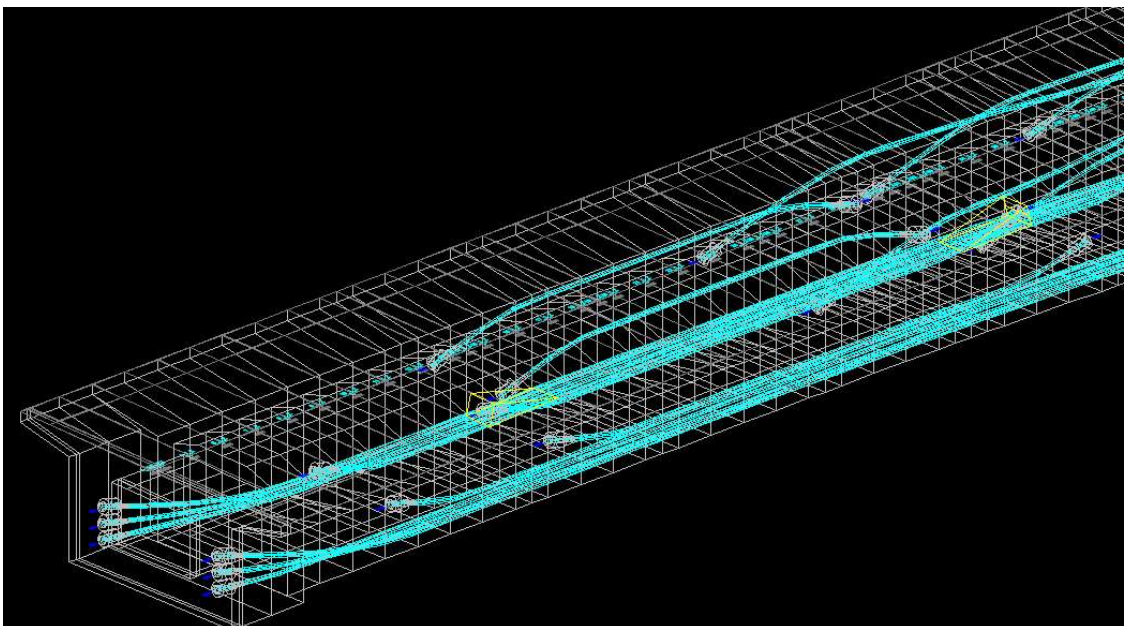
Mark prefix: Write suffix for side



```

Selected file *.o3d: C:\Primeri Moduli\Example2\Example2_3dL.o3d
Selected file *.voz:C:\Primeri Moduli\Example2\Example2_3d.voz
Checking dates in files ... finished.
Section checking ... finished.
Select basic BLOCK for LEFT anchoring in ground floor:
Select basic BLOCK for RIGHT anchoring in ground floor:
Select basic BLOCK for RIGHT anchoring in ground floor:
< Draw 1. cable >/End:
Select existing cable line file.
Cable line file:
C:\Primeri Moduli\Example2\CableL22.kal.
Section processing ... finished.
Draw 1. cable ... finished.
< Draw 2. cable >/End:E

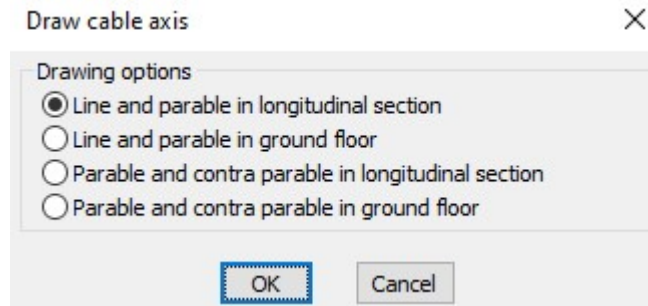
```



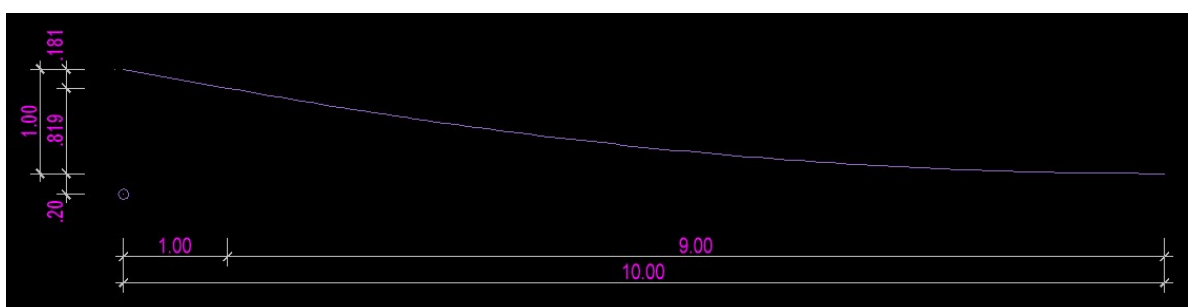
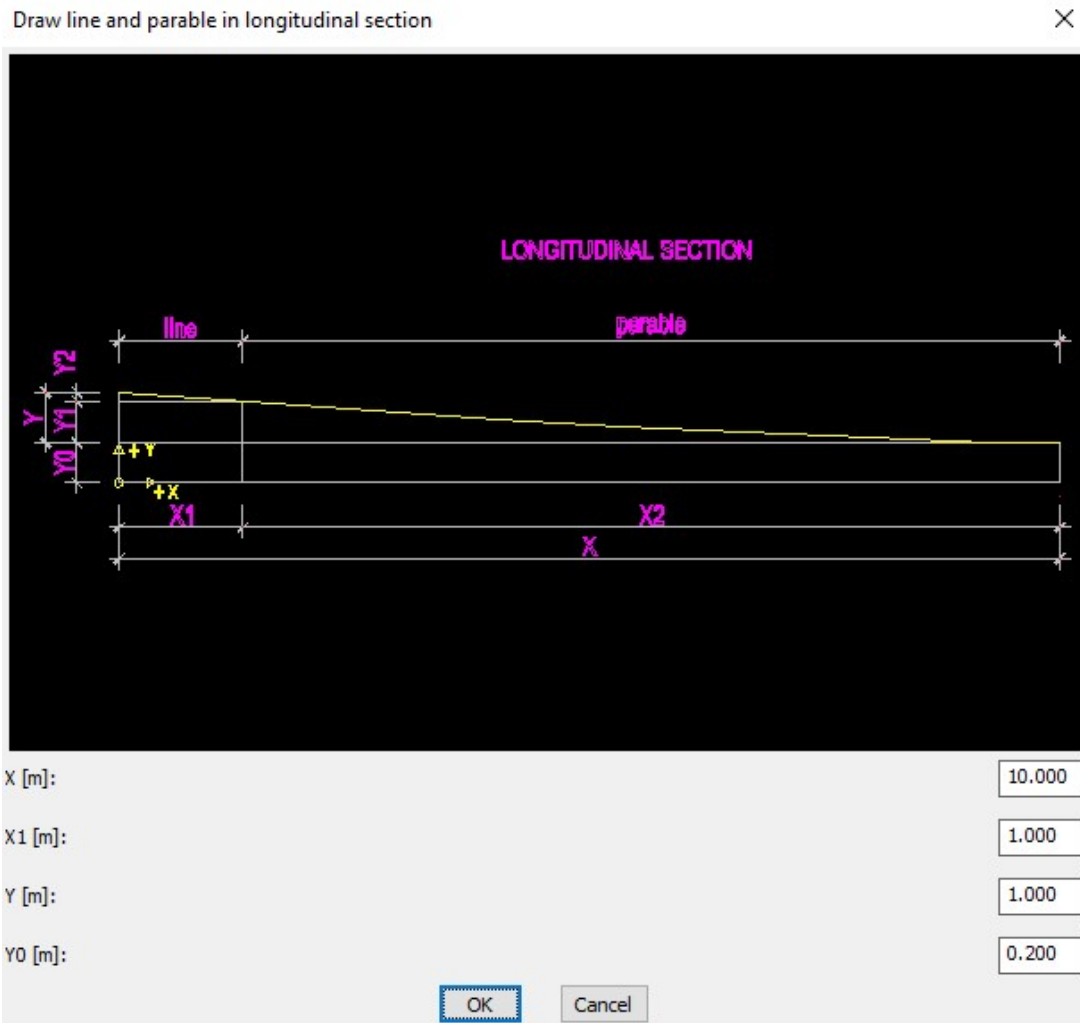
9. Appendix - draw prestressed cable axis in ground floor and longitudinal section

Use command BRIDGE -> Cable prestressing -> Draw cable axis in ground floor and longitudinal section

In dialog box we select drawing type:



9.1 Draw line and parable in longitudinal section



9.2 Draw line and parable in ground floor

Draw line and parable in ground floor ✕

GROUND FLOOR

X

X1 X2

Z Z1 Z0

line parable

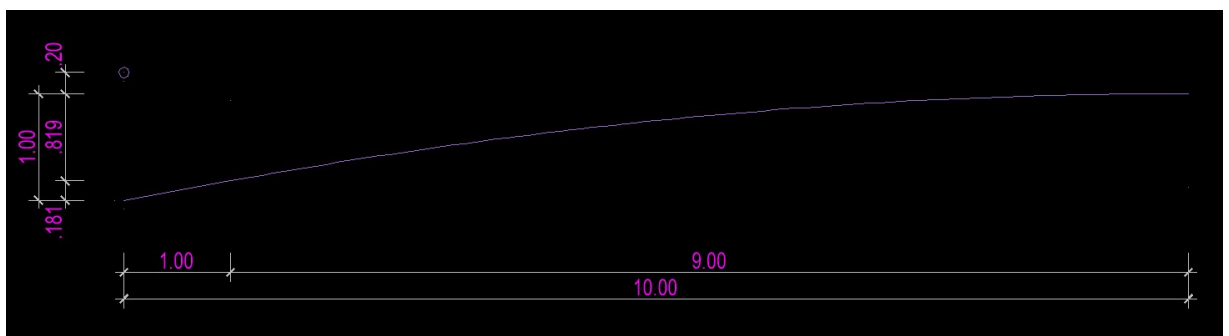
X [m]: 10.000

X1 [m]: 1.000

Z [m]: 1.000

Z0 [m]: 0.200

OK Cancel



9.3 Draw parable and contra parable in longitudinal section

Draw parable and contra parable in longitudinal section ✕

LONGITUDINAL SECTION

parable contra parable

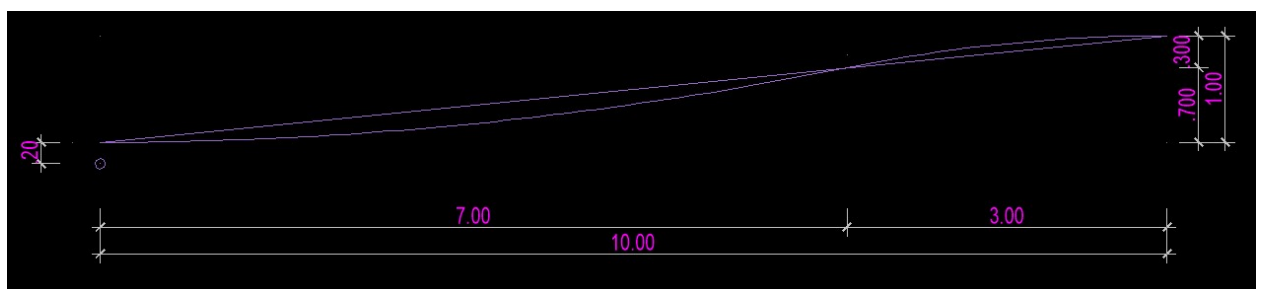
X0 Y0 X1 X2 X Y1 Y2 Y

X [m]:

X2 [m]:

Y [m]:

Y0 [m]:



9.4 Draw parable and contra parable in ground floor

Draw parable and contra parable in ground floor

GROUND FLOOR

X

X1 X2

Z

Z0

parable contra parable

X [m]: 10.000

X2 [m]: 3.000

Z [m]: 1.000

Z0 [m]: 0.200

OK Cancel

