

# **Module CIVIL**



In new project we must first define insert dates.

Civil project		×
Object:	Object	
Road:	Road	
Section:	Road section	
Axis number:		1
Road classificat	ion 1	04 05
Land type OFlat	iilly 🔿 Steep hilly	○ Mountainly
LEFT PAVEMENT	ane width [m]	3.3500
RIGHT PAVEMENT	RIGHT PAVEMENT lane width [m] 3.3	
MIDDLE LEFT PAVEMENT lane width [m]		1.060
MIDDLE RIGHT P	DDLE RIGHT PAVEMENT lane width [m]	
Road type HW/FR	() Other	
	OK Cancel	

### 2. Define station file

creating file Example2\_3d.raz

Defining stations - distances, for cross axis and deck construction cross sections drawing

Define station file	2
Oefinition type Writte equal distances between profiles	O Select distances
Auxiliary line color	
Select color >>	

For drawing of 3d model, where in the equal profile (cross axis) apears two different sections, we must define equal stations!

3. Checking axis start point.

Extend polyline - axis for 0.25 m in opposite station direction. **Polyline must be drawn in station direction!** For polyline start point check use command in module BASICS -> Ratio -> Pedit -> Select polyline startpoint.



4. Define cross axis file

creating file Example2\_3d.pro

	Station files	×
Define cross axis X	Current file *.raz	
Definition type ○ Single ● From file *.raz	Replace file >>	
OK Cancel	Cancel OK Cancel	
Selected station fi Select starting sid Axis length = 132.6 Station on start of Minimum distance to Distance to 1. cross 1.axis number < 1 > Data processing Define NEW file for	le: C:\Primeri Moduli\Example2\Example2_3d.raz e of site plan AXIS on 2D or 3D polyline: 50 m. EXTENDED AXIS in m < 0.000 >:25 1. axis must be > 0.10! s axis <1.000>:.25 : finished. CROSS SECTION AXIS.	

5. Draw cross axis

raw cross axis					
Cross axis file					
Curent file *.pro					
C:\Primeri Moduli\Example2\Ex	kample2_3d.pro				
Replace file >>					
Aarks and axis lines					
Mark insertion side					
● Left	C	Right			
Draw axis horizontal					
Step:					1
					P
Number prefix Prefix:					
Number prefix Prefix: Axis line length [m]:					30.0
Number prefix Prefix: Axis line length [m]: Mark and station distance from (	axis lines [m]:				30.0
Number prefix Prefix: Axis line length [m]: Mark and station distance from a Line color	axis lines [m]:				30.0
Number prefix Prefix: Axis line length [m]: Mark and station distance from a Line color	axis lines [m]: Select color	>>			30.0
Number prefix Prefix: Axis line length [m]: Mark and station distance from a Line color Text	axis lines [m]: Select color	>>			30.0
Number prefix Prefix: Axis line length [m]: Mark and station distance from a Line color Text Style	axis lines [m]: Select color	>> Height [m	m]		30.0
Number prefix Prefix: Axis line length [m]: Mark and station distance from a Line color  rext Style MOD_Arial	axis lines [m]: Select color	>> Height [m \(\circ) 6.0	m] @ 5.0	03.5	30.0
Number prefix Prefix: Axis line length [m]: Mark and station distance from a Line color  rext Style MOD_Arial Color	axis lines [m]: Select color ~	>> Height [m () 6.0	m] () 5.0	○ 3.5	30.0
Number prefix Prefix: Axis line length [m]: Mark and station distance from a Line color  rext Style  MOD_Arial  Color	axis lines [m]: Select color ~ Select color	Height [m 6.0	m] @ 5.0	03.5	30.0
Number prefix Prefix: Axis line length [m]: Mark and station distance from a Line color  rext Style MOD_Arial Color	axis lines [m]: Select color ~ Select color	>> Height [m 0 6.0	m]	03.5 XXI51	30.0

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6. Define longitudinal profile vertical alignment file

#### creating file Example2\_3d.nvp

X

Define longitudinal profile vertical alignment file



Select polyline – vertical alignment, laying in station area and defined in file Example2\_3d.raz. Starting points of all selected polylines in longitudinal profile, must proceed from left to right! Poylines must be without arcs. First replace arcs in polylines in module BASICS with command Ratio -> Change arc/circle to polyline. Lengthen polyline for 1.00 m on ending side of polyline.

•	() 	
*	132.40	1.00

×

Define longitudinal	profile vertical	alignment file

Station file	
Current file *.raz	
C:\Primeri Moduli\Example2\Example2_3d.raz	
Replace file >>	
Join vertexes to polyline	
First section	
Elevation in first vertex [m]:	100.000
Section number:	1
Elevation marks	
Draw elevation marks in vertexes	
Colors	
Marks symbol	
Select color >>	
Elevation text	100 000
Select color >>	
	Starting point
OK Cancel	

Selected station file: C:\Primeri Moduli\Example2\Example2\_3d.raz Select 2D or 3D longitudinal profile polyline: Processing ... Elevation symbol direction Up/Down <U>: finished. Define NEW longitudinal profile vertical alignment file. Selected longitudinal profile vertical alignment file:C:\Primeri Moduli\Example2\Example2\_3d.nvp Writting dates to file << C:\Primeri Moduli\Example2\Example2\_3d.nvp >> ... finished.

-		_	
	132.40	64	1.00
1		1	

#### 7. Define screwing file

creating file Example2\_3d.vij

Define screwing file - first section	×		
Axis number:	1		
Stations			
Station on section start [m]	0.000		
Station on section end [m]	140.000		
Slopes			
On section start			
Slope - left roadway side [%]	2.5		
Slope - right roadway side [%]	-2.5	Define screwing file on sections	×
On section end		Station on section end [m]	140.000
Slope - left roadway side [%]	2.5	Slopes on section end	
Slope - right roadway side [%]	-2.5	Slope - left roadway side [%]	2.5
Slope Inght roddwdy slae [76]		Slope - right roadway side [%]	-2.5
OK Cancel		OK Cancel	Find

8. Define roadway slope file in cross sections

### creating file Example2\_3d.psk

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Define roadway slope file

Cross axis file Current file *.pro C:\Primeri Moduli\Example2\	Example2	_3d.pro		
Replace file >>				
Cross sections screwing file Current file *.vij C:\Primeri Moduli\Example2\	Example 2	_3d.vij		
Replace file >>				
	OK	Cancel	]	

	Define 3d roadway	/ level file X	
	File types <ul> <li>.pro + *.nvp</li> </ul>	○*.I3d	
	ОК	Cancel	
Cross axis an	d Longitudinal profile ve	rical alignment file	×
Cross axis file			
Current file C:\Primeri N	*.pro Moduli\Example2\Example2	_3d.pro	
Replace file	e >>		
Longitudinal p	profile verical alignment file		
Current file	*.nvp		
C: Primeri M	Moduli (Example 2) (Example 2)	_3d.nvp	

Selected cross axis file: C:\Primeri Moduli\Example2\Example2 3d.pro
Selected longitudinal profile verical alignment file:C:\Primeri Moduli\Example2\Example2_3d.nvp
Define NEW 3d roadway level file.
3d roadway level file: C:\Primeri Moduli\Example2\Example2_3d.o3d
Writting dates to file << C:\Primeri Moduli\Example2\Example2_3d.o3d >> finished.

Cancel

OK

10. Define 3d separate roadway levels file

Replace file >>

## creating file Example2\_3d.l3d



Define 3d separate roadways levels file

Files				
3d roadway level file				
Current file *.o3d				
C:\Primeri Moduli\Example2	Example2_3d.o3d			
Replace file >>				
Roadway slope file				
Current file *.psk				
C: Primeri Moduli Example 2	Example2_3d.psk			
Replace file >>				
	L VL.	VD. D		
<u> </u>			<u> </u>	
	KIN.	K.N.		
Section area				
All	O From-to		◯ Single	
Left object				
Distance to object axis - L [m]				3.35
Middle lane				
Middle Jane distance LEET VI. F				1.05
	"]			1.00
Middle lane distance RIGHT - VD	[m]			1.06
Right object				
Distance to object axis - D [m]				3.35
	OK	Cancel		

11. Draw 3d separate roadway levels

3d separate roadway levels file Current file *.I3d C:\Primeri Moduli\Example2\Exa	ample2_3d.13d
Replace file >>	
Colors Left axis	Right axis
Select color >>	Select color >>
Select color >>	Cancel

×



12. Define cross axis for left object

creating file Example2\_3dL.pro

First extend polyline - axis for 0.25 m in opposite station direction.

	Station files	×
Define cross axis X	Current file *.raz C:\Primeri Moduli\Example2\Example2_3d.raz	
Definition type O Single  From file *.raz	Replace file >>	
OK Cancel	OK Cancel	
Selected station fi Select starting sid Axis length = 132.0 Station on start of	ile: C:\Primeri Moduli\Example2\Example2_3d.raz de of site plan AXIS on 2D or 3D polyline: 550 m. f EXTENDED AXIS in m < 0.000 >:25	
Minimum distance to Distance to 1. cros 1.axis number < 1 >	<pre>b 1. axis must be &gt; 0.10! ss axis &lt;1.000&gt;:.25 &gt;:</pre>	
Data processing Define NEW file for Writting dates to f	. finished. r CROSS SECTION AXIS. file << C:\Primeri Moduli\Example2\Example2_3dL.pro >>. finished	

# 13. Draw cross axis for left object

	Draw cross axis	×
	Cross axis file Curent file *.pro C:\Primeri Moduli\Example2\Example2_3dL.pro	
	Replace file >>	
	Marks and axis lines Mark insertion side  Calculate Content of Right	
	Draw axis horizontal	
	Step: 1	]
	Number prefix Prefix:	]
	Axis line length [m]:	]
	Mark and station distance from axis lines [m]: 1.0	
	Select color >>	
	Tavt	
	Style         Height [mm]           MOD_Arial	
	Color Select color >>	
	Layer name: CROSS_AXIS_LEFT	
	OK Cancel	
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14. Define roadway and widening file in cross sections for left object

creating file Example2\_3dL.voz



Roadway in situa	ation		×
Cross axis file Current file *.p C:\Primeri mod	oro uli\Example2\Example2_3dL	.pro	
Replace file >	>		
Slope file in secti	on profles		
Current file *.p	osk		
C: Primeri mod	uli (Example2 (Example2_3d.)	osk	
Replace file >	>		
Widening			
None	○ Constant	○ Variable	
Roadway			
Roadway width I	LEFT [m]:		3.3500
Roadway width I	RIGHT [m]:		3.3500
	ОК С	ancel	

If the roadway has widening, select in column Widening Variable and after them we select in situation or sketch left and right roadway border.

15. Define longitudinal 2D profile from 3D polyline for left object

Define longit	udinal 2D profile from 3D polyline	×
Writte date	s to file	
File type ,c3d	O .pro	
	OK Cancel	

Select starting side of left 3d axis



And start point of 2d longitudinal profile from 3d polyline; 2d profile will be created.

100.084		
$\mathbf{V}_{$		

#### 16. Define longitudinal profile vertical alignment file for left object

	benne longitaanar pronie verdear anginnene me	~
	O From drawing	
	OK Cancel	
efine	longitudinal profile vertical alignment file	×
Statio	n file	
Cur C: V	rent file *.raz Primeri Moduli\Example2\Example2_3d.raz	
Re	place file >>	
D Jo	in vertexes to polyline	
First s	ection	
Eleva	tion in first vertex [m]:	100.084
Sectio	on number:	1
Eleva	tion marks	
D	aw elevation marks in vertexes	
Cold	rs arks symbol	
M		
M	Select color >>	
-M	Select color >>	

Selected station file: C:\Primeri Moduli\Example2\Example2\_3d.raz
Select 2D or 3D longitudinal profile polyline:
Processing ...
Elevation symbol direction Up/Down <U>:
finished.
Define NEW longitudinal profile vertical alignment file.
Selected longitudinal profile vertical alignment file:C:\Primeri Moduli\Example2\Example2\_3dL.nvp
Writting dates to file << C:\Primeri Moduli\Example2\Example2\_3dL.nvp >> ... finished.

Dolocitev datoteke 3D osi X Vrste datotek za dolocitev O\*.pro + \*.tan O.pro + \*.nvp O\*.I3d OK Cancel

Cross axis and Longitudinal profile verical alignment file

X

Current file *.pro			
C:\Primeri Moduli\	Example2\Example	2_3dL.pro	
Replace file >>			
ongitudinal profile	verical alignment fil	e	
Current file *.nvp			
C: Primeri Moduli	Example2\Example	2_3dL.nvp	
Replace file >>			
	č.		

Selected cross axis file: C:\Primeri Moduli\Example2\Example2\_3dL.pro
Selected longitudinal profile verical alignment file:C:\Primeri Moduli\Example2\Example2\_3dL.nvp
Define NEW 3d roadway level file.
3d roadway level file: C:\Primeri Moduli\Example2\Example2\_3dL.o3d
Writting dates to file << C:\Primeri Moduli\Example2\Example2\Example2\_3dL.o3d >> ... finished.