Start to Finish: complete Bim workflow with Autodesk Infrastructure Design Suite

CI10451-L

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Who we are ?


Daniele Serretti
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Milano - Salvatore
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Italy - Milan
intercad
Roma - Stefano
Stefano Toparini
Senior Solution Engineer
Italy - Rome
AUTODESK.
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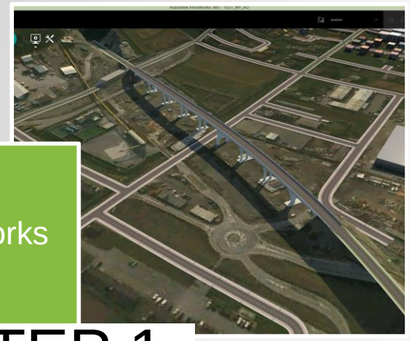
Image Landsat
Google earth

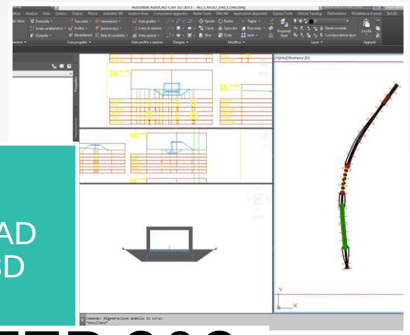
Class summary

What we'll see ?



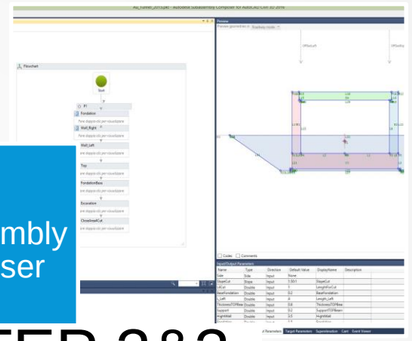
InfraWorks 360

STEP 1



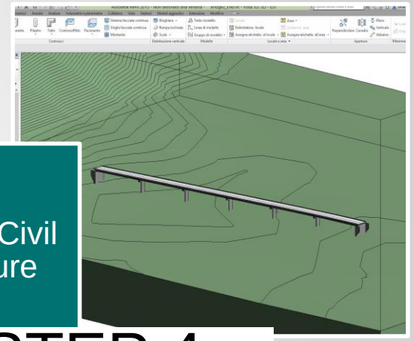
AutoCAD Civil 3D

STEP 2&3



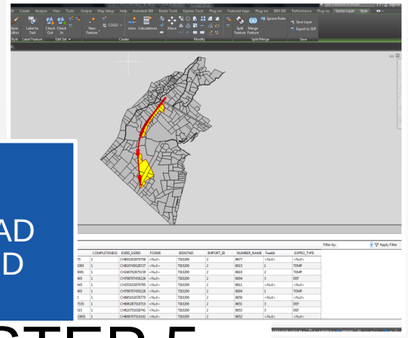
Subassembly Composer

STEP 2&3



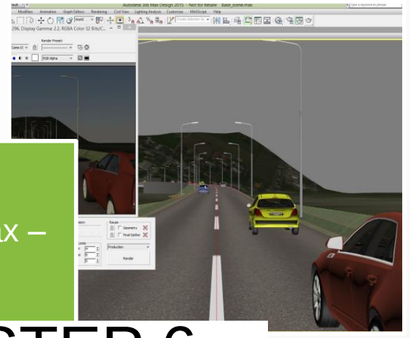
Revit – Civil Structure

STEP 4



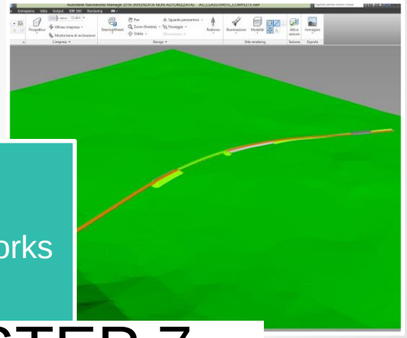
AutoCAD Map 3D

STEP 5



3dS Max – CV

STEP 6

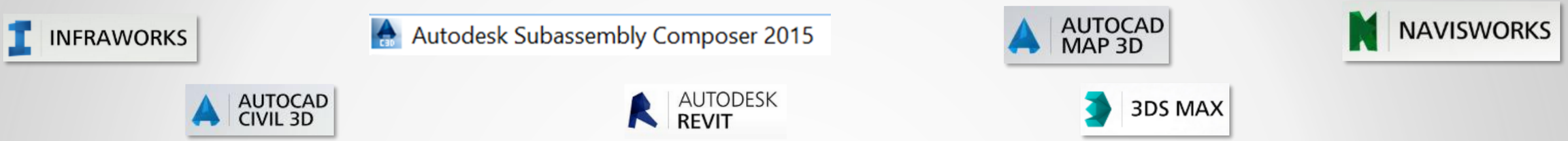


NavisWorks

STEP 7

Step by step we will develop one design road with IDS.
Total length: 1+300 km – 2 Bridge – 1 Tunnel – 1 Retain Wall

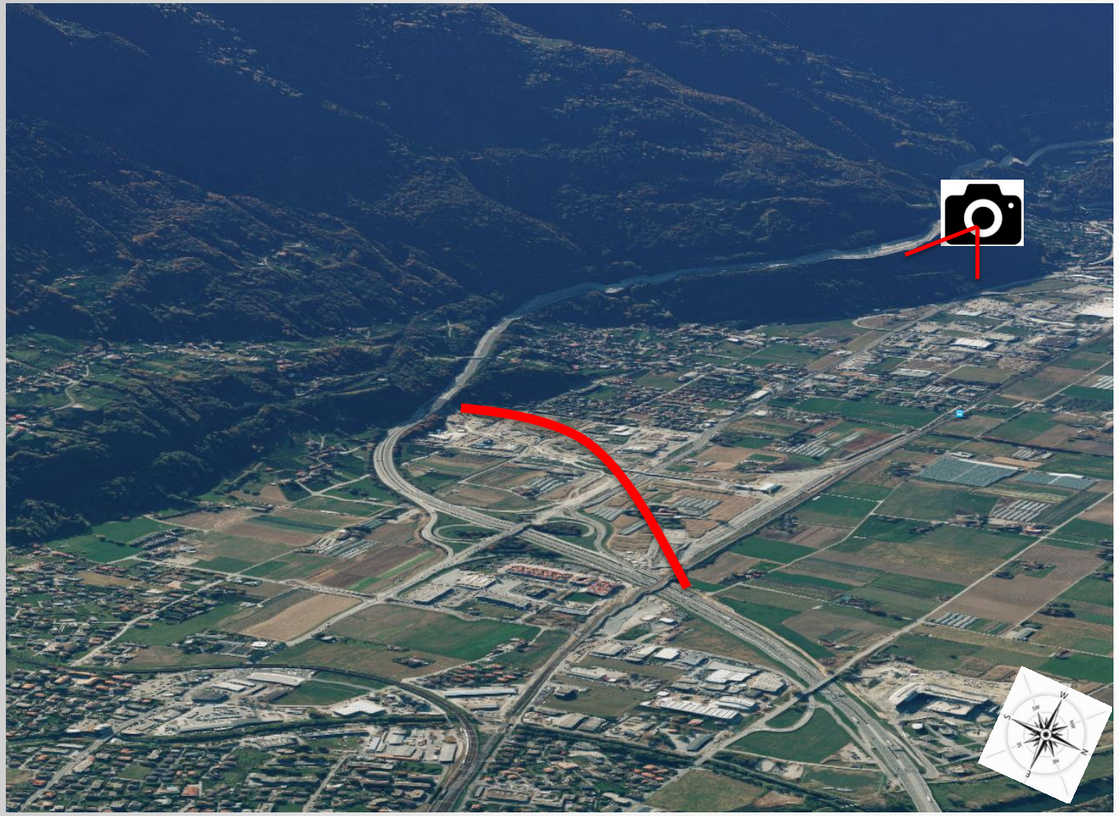
Key learning objectives

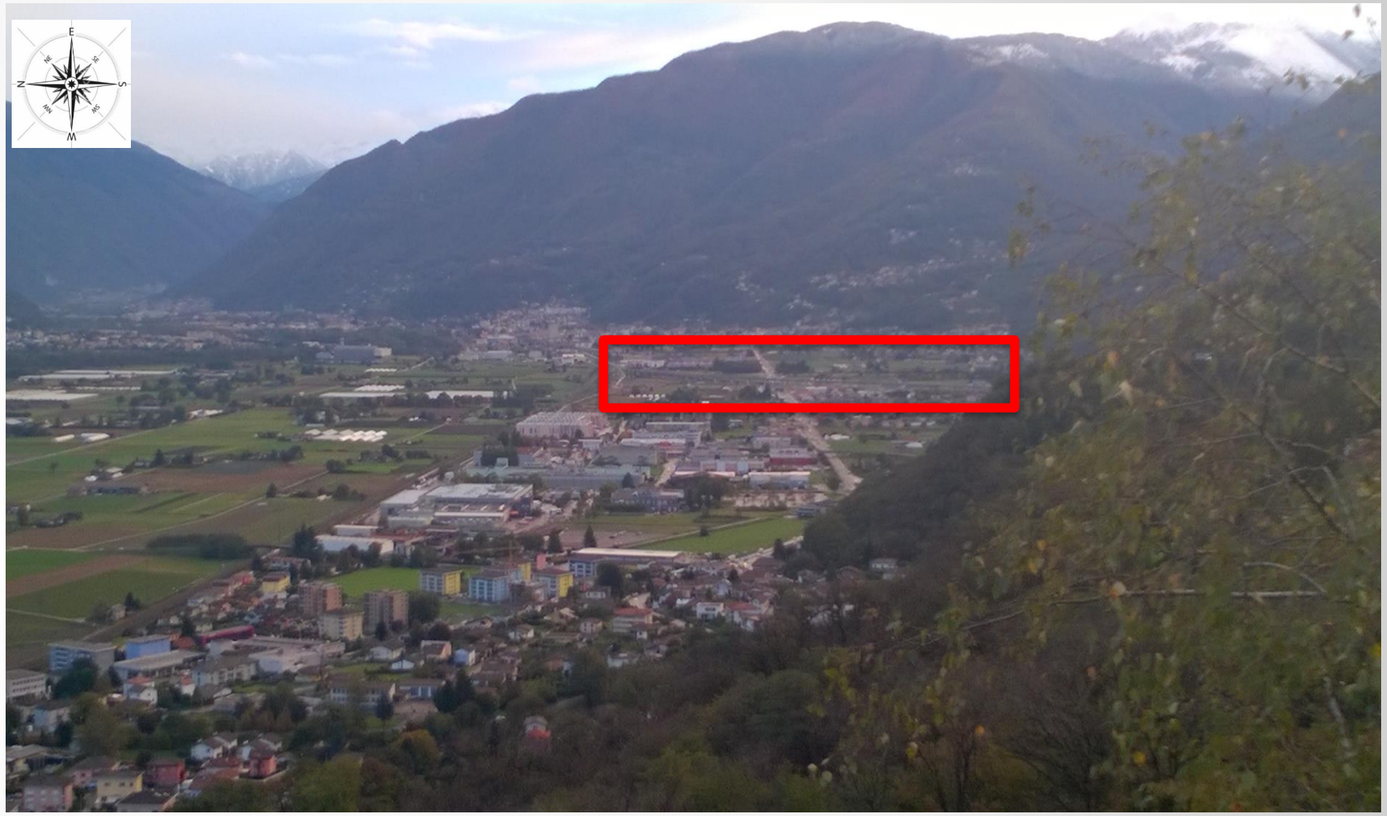


At the end of this class, you will be able to:

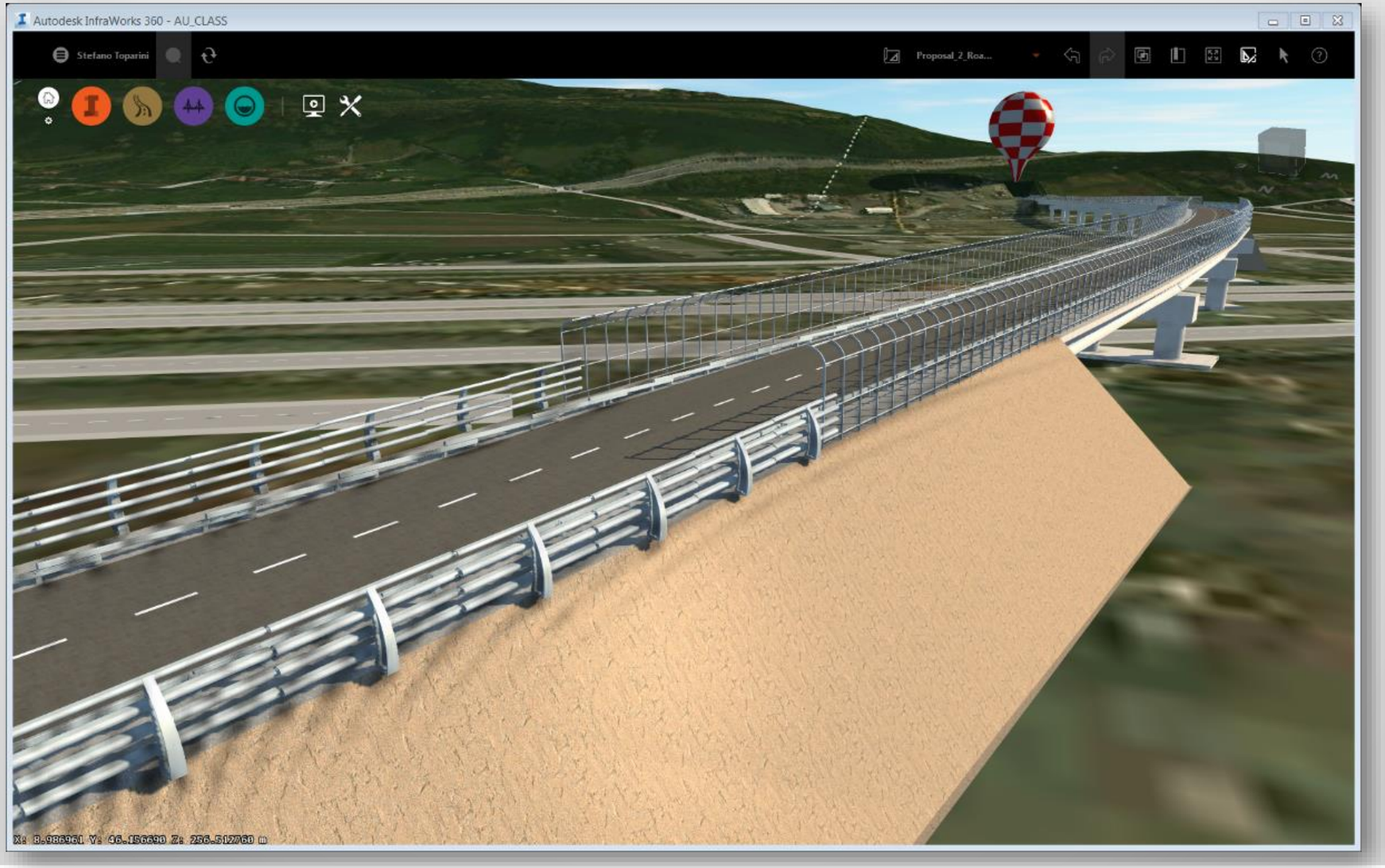
- Starting for use InfraWorks 360, AutoCAD Civil 3D, AutoCAD Map 3D, 3ds Max and Navisworks;
- Understand Bridge Module and Civil Structure
- Understand Civil View extension
- Understand the power of BIM workflow with Infrastructure Design Suite

Where is our project ?

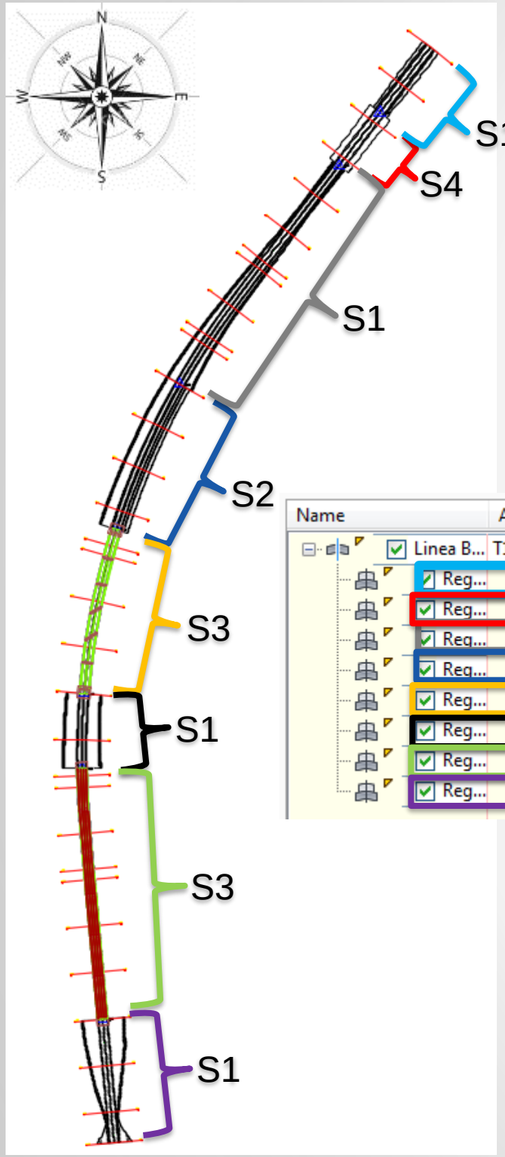




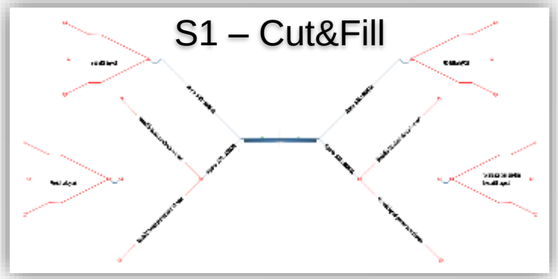
Step 1 : InfraWorks 360 Conceptual Design

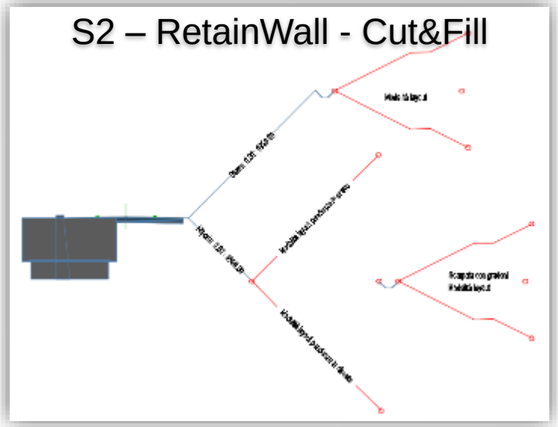


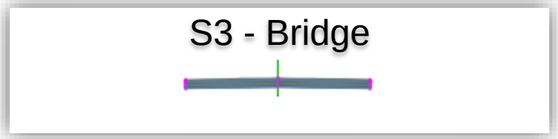
Step 2 : AutoCAD Civil 3D

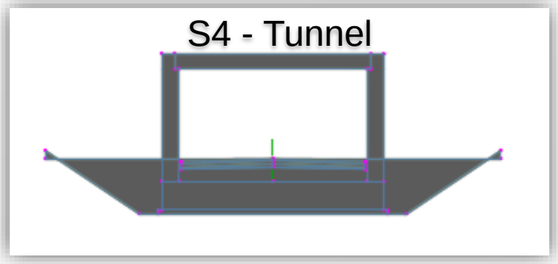


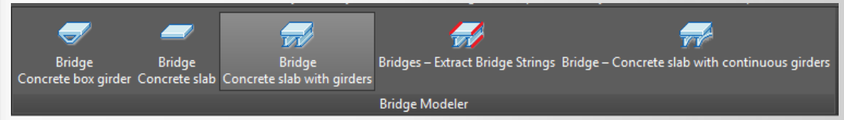
Name	Alignment	Profile	Assembly	Start Station	End Station
Linea B...	T1	Liv_T1		0+000.000m	1+283.122m
Reg...			S1_CutFill	0+000.00...	0+088.00...
Reg...			S4_Tunnel	0+088.00...	0+160.00...
Reg...			S1_CutFill	0+160.00...	0+450.00...
Reg...			S2_RetainW...	0+450.00...	0+620.00...
Reg...			S3_Bridge	0+620.00...	0+800.00...
Reg...			S1_CutFill	0+800.00...	0+880.00...
Reg...			S3_Bridge	0+880.00...	1+150.00...
Reg...			S1_CutFill	1+150.00...	1+283.12...



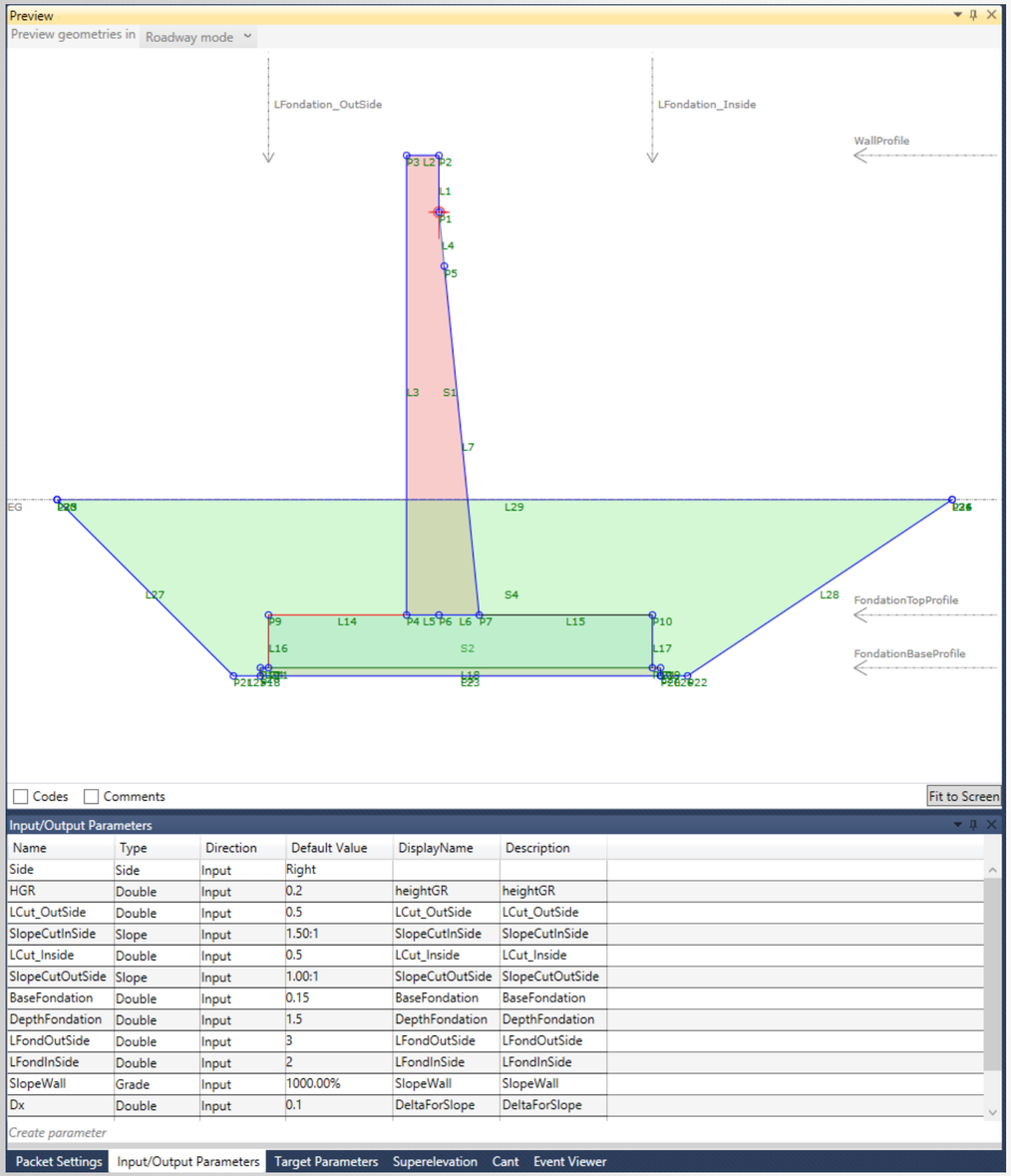








Step 3 : Autodesk Subassembly Composer



Input/Output Parameters

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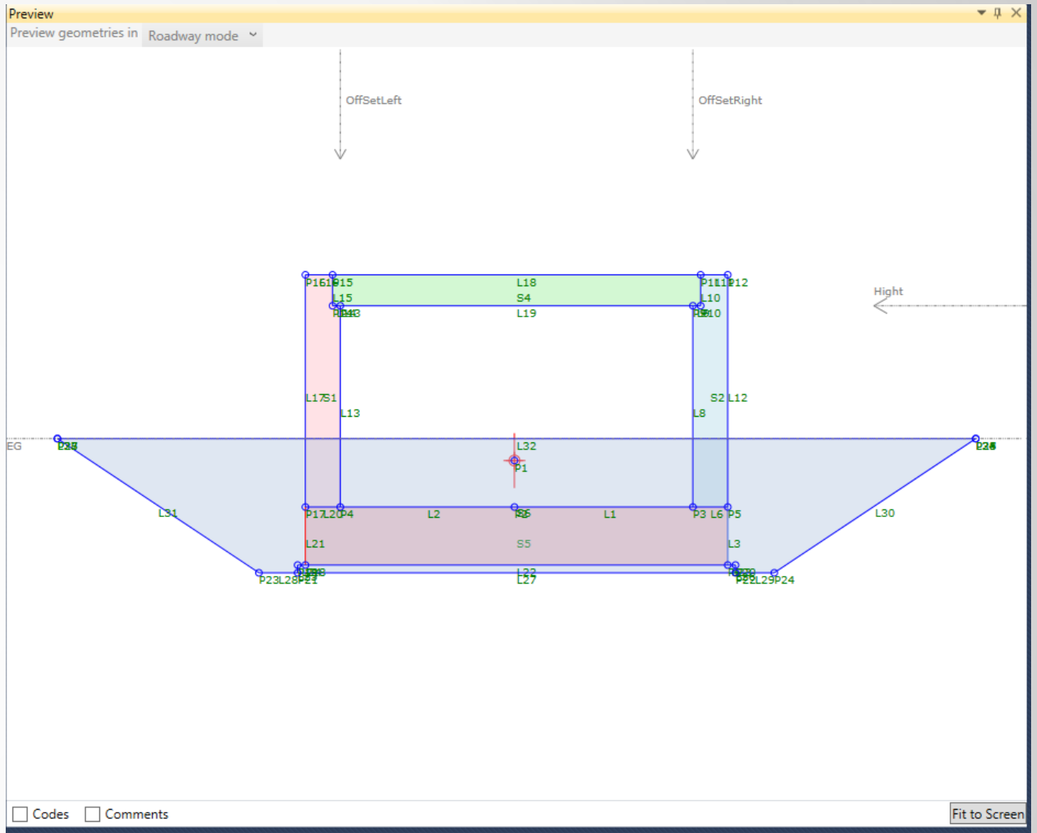
HGR	Double	Input	0.2	heightGR	heightGR
LCut_OutSide	Double	Input	0.5	LCut_OutSide	LCut_OutSide
SlopeCutInSide	Slope	Input	1.50:1	SlopeCutInSide	SlopeCutInSide
LCut_Inside	Double	Input	0.5	LCut_Inside	LCut_Inside
SlopeCutOutSide	Slope	Input	1.00:1	SlopeCutOutSide	SlopeCutOutSide
BaseFondation	Double	Input	0.15	BaseFondation	BaseFondation
DepthFondation	Double	Input	1.5	DepthFondation	DepthFondation
LFondOutSide	Double	Input	3	LFondOutSide	LFondOutSide
LFondInSide	Double	Input	2	LFondInSide	LFondInSide
SlopeWall	Grade	Input	1000.00%	SlopeWall	SlopeWall
Dx	Double	Input	0.1	DeltaForSlope	DeltaForSlope

Create parameter

Packet Settings | Input/Output Parameters | Target Parameters | Superelevation | Cant | Event Viewer



Input/Output Parameters

Name	Type	Direction	Default Value	DisplayName	Description
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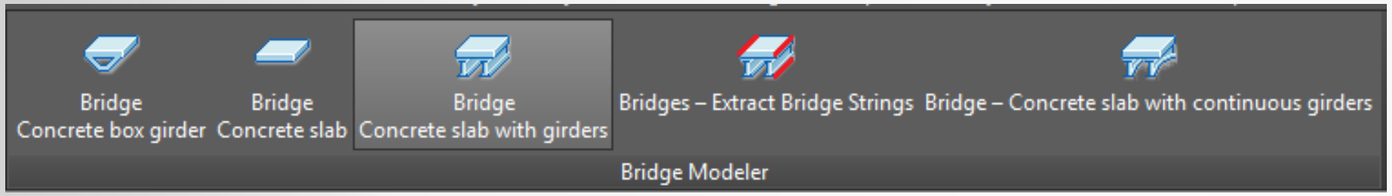
SlopeCut	Slope	Input	1.50:1	SlopeCut	
L4Cut	Double	Input	1	LenghtForCut	
BaseFondation	Double	Input	0.2	BaseFondation	
L_Left	Double	Input	4	Length_Left	
ThicknessTOPBear	Double	Input	0.8	ThicknessTOPBear	
Support	Double	Input	0.2	SupportTOPBeam	
HightWall	Double	Input	3.5	HightWall	
Fondation	Double	Input	1.5	Fondation	
ThicknessWall	Double	Input	0.9	ThicknessWall	
Delta	Double	Input	1.2	DeltaLevel_Fondat	
L_Right	Double	Input	4	LengthRight	

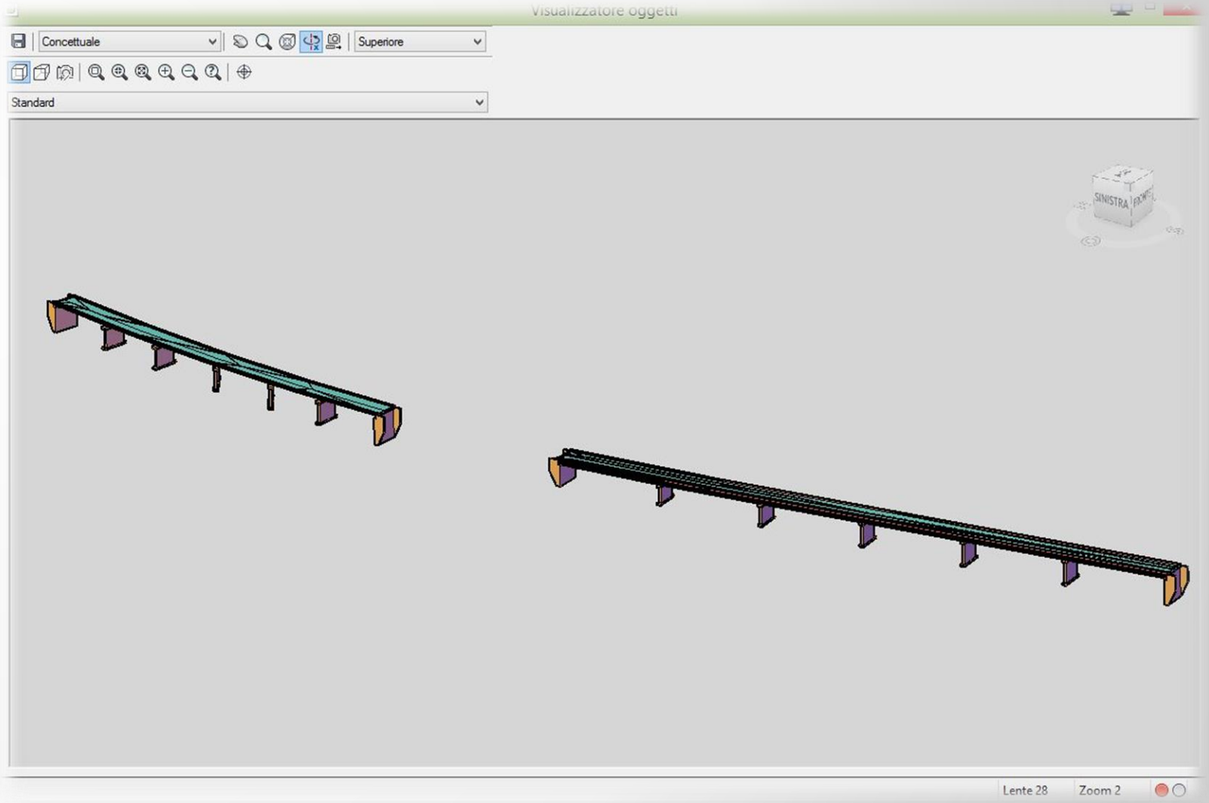
Create parameter

Step 4 : Bridge Module for AutoCAD Civil 3D

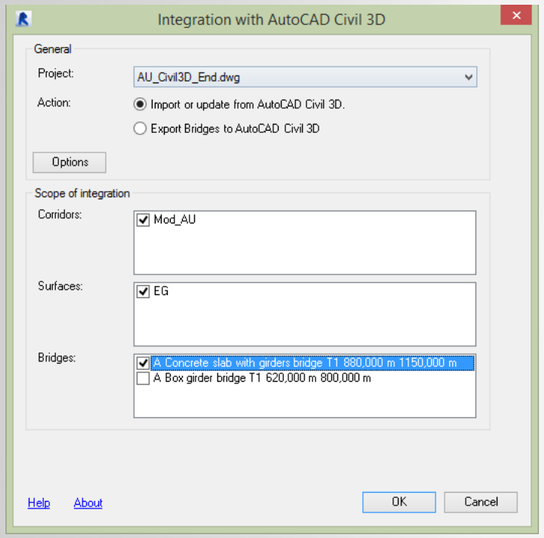


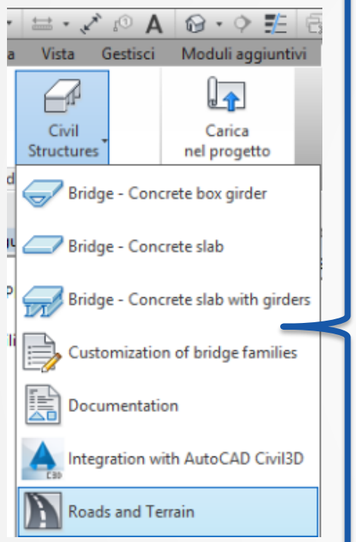
Bridge 1 – B1
0+620.00 m – 0+800.00 m

Bridge 2 – B2
0+880.00 m – 1+150.00 m

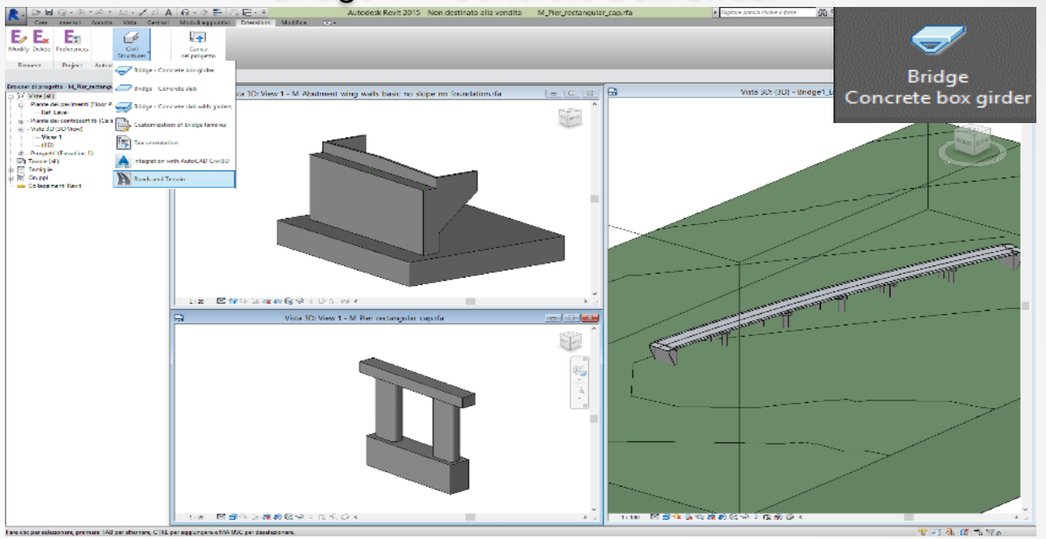


Step 4 : Civil Structure for Revit

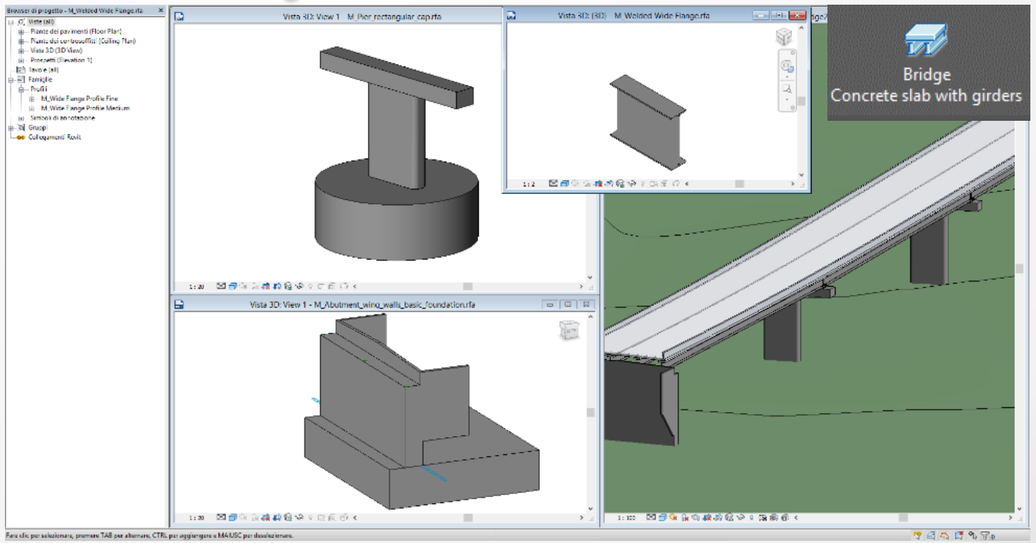


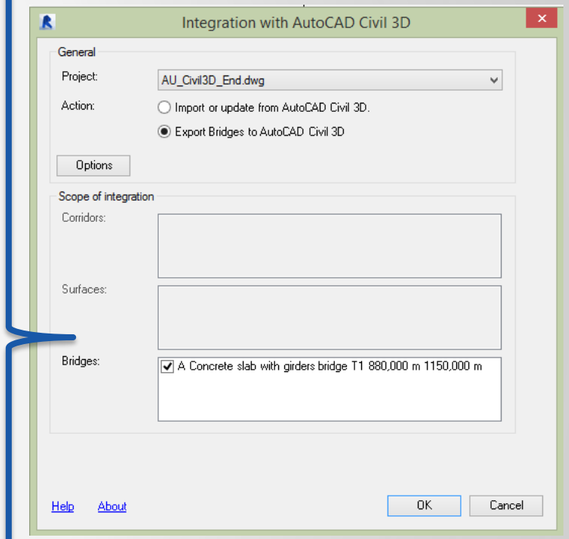


Bridge 1 - Concrete Box Girder



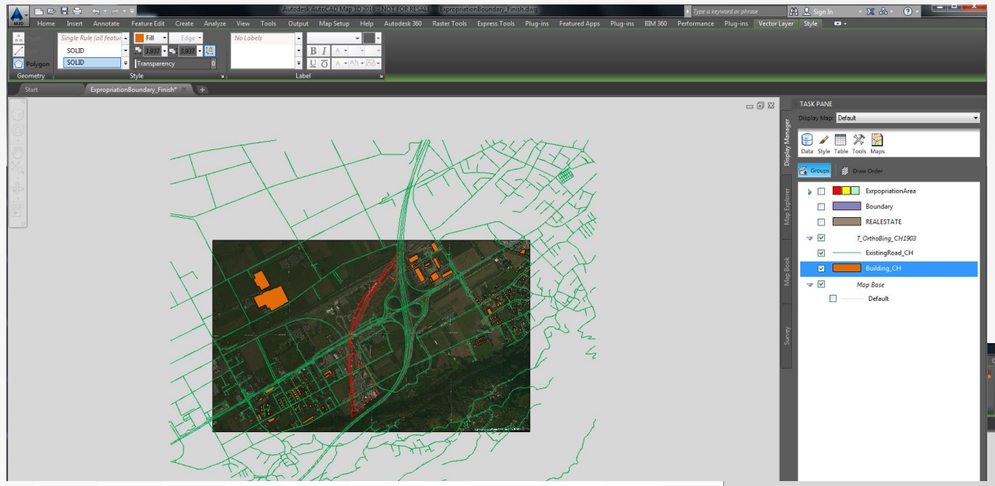
Bridge 2 - Concrete Slab with Girders

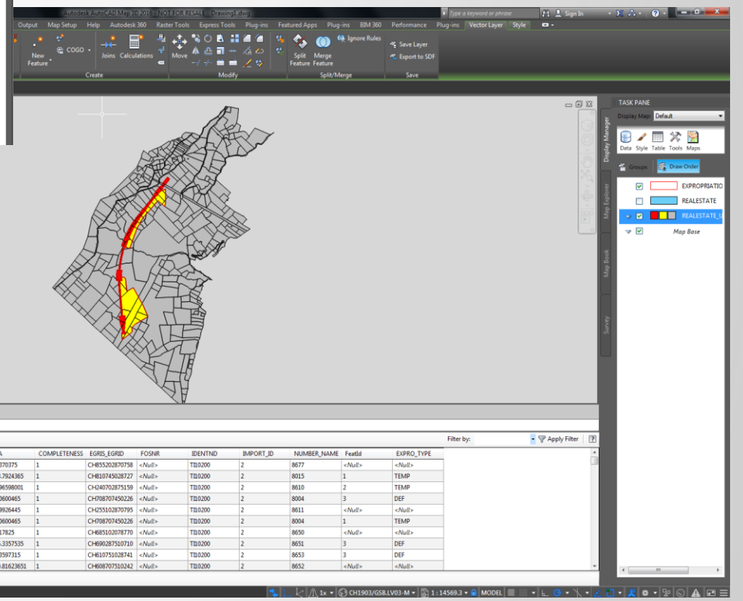




Step 5 : AutoCAD Map 3D

- Same GIS data used in InfraWorks
- Editing new GIS Data (conversion)
- Tematic Map
- Apply Overlay
- Export results as *.csv for Office Application





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	2	325	CH810745028727	TI10200	8015		3	Temporary	12.43
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	7	132	CH628751020714	TI10200	8654		<Null>	<Null>	20.58
	8	227	CH210751028780	TI10200	8607		2	Permanent	296.39
	9	7	CH208707510281	TI10200	8606		2	Permanent	659.04
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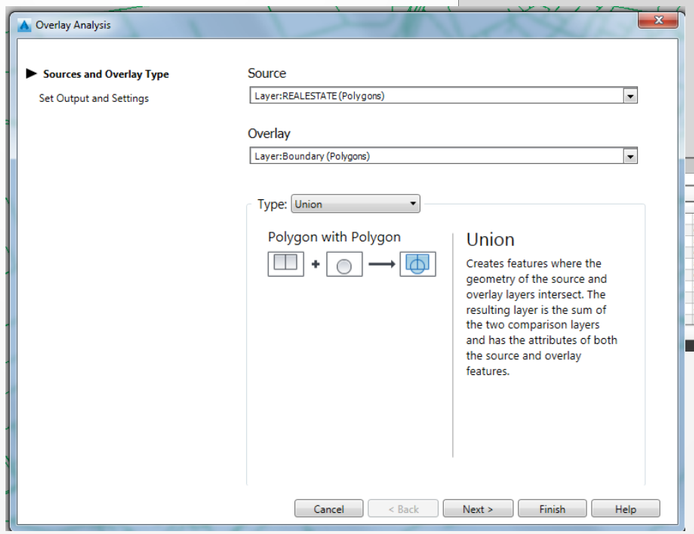
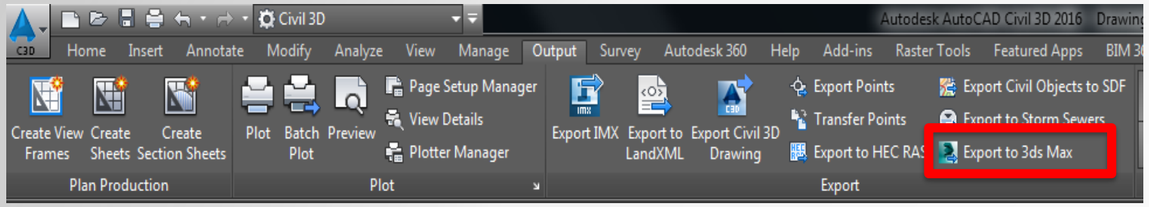
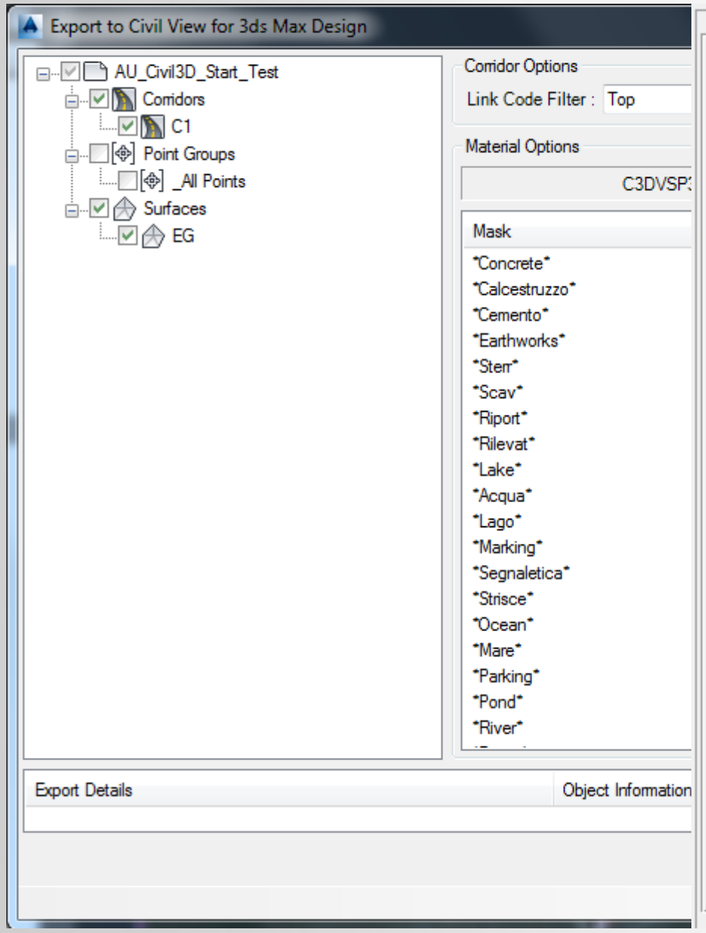
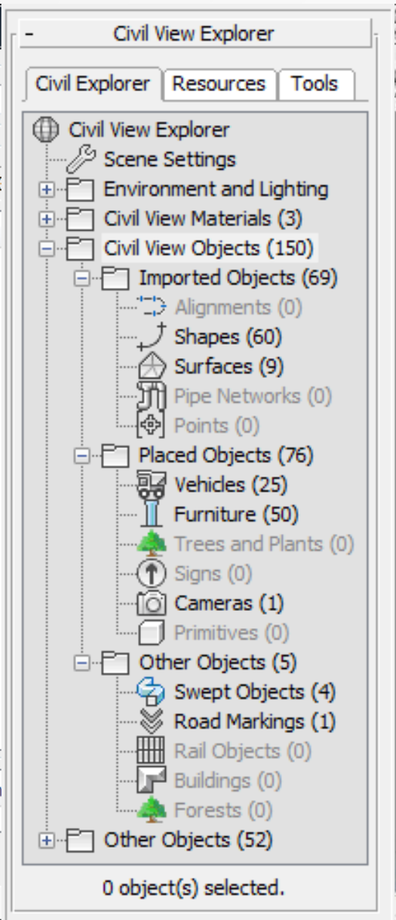
Row of 412 | 0 | Search to Select | Options

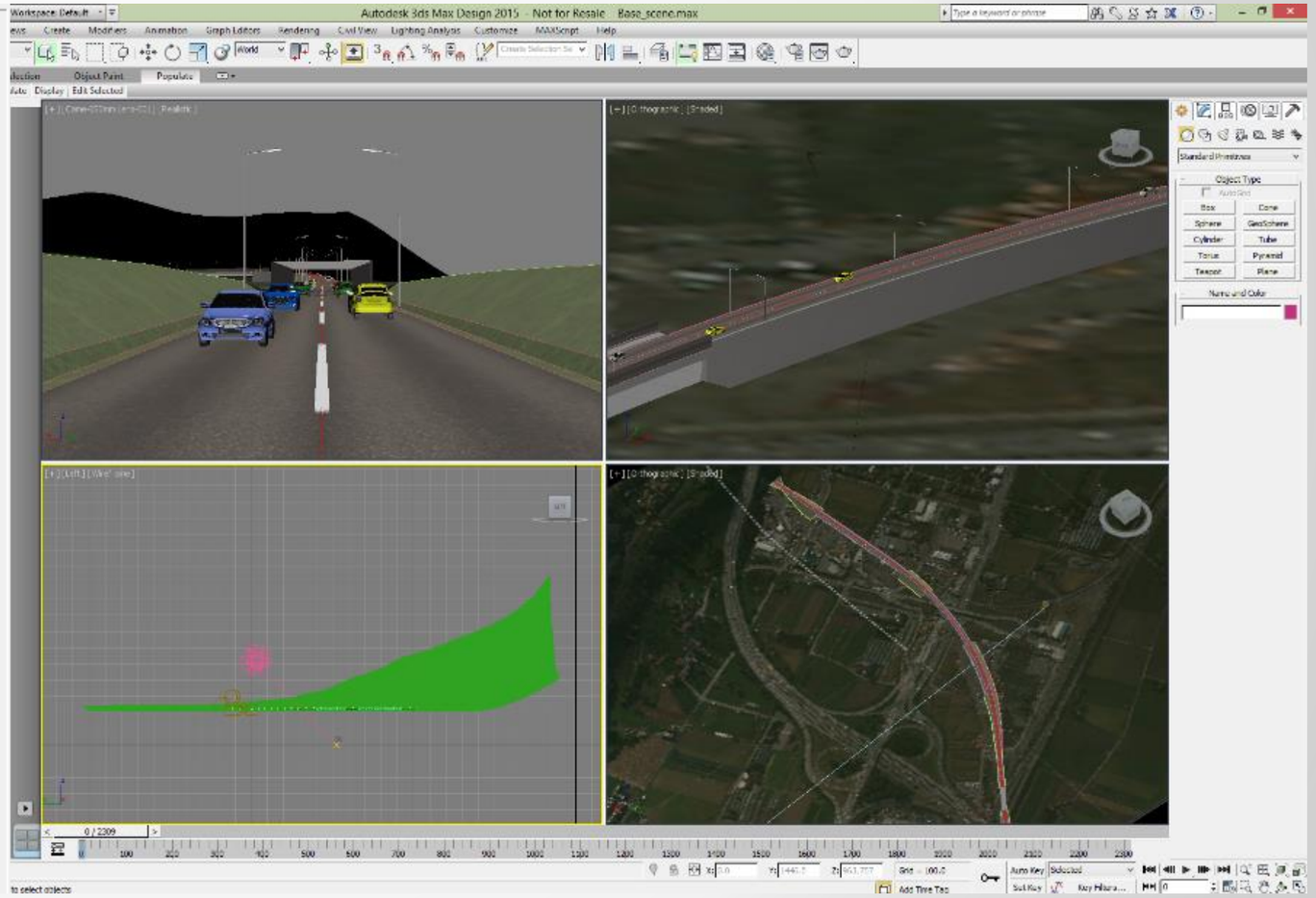


Step 6 : 3ds Max







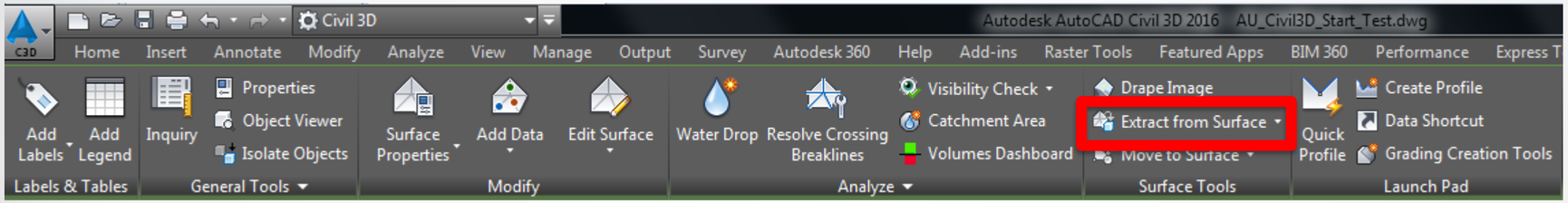


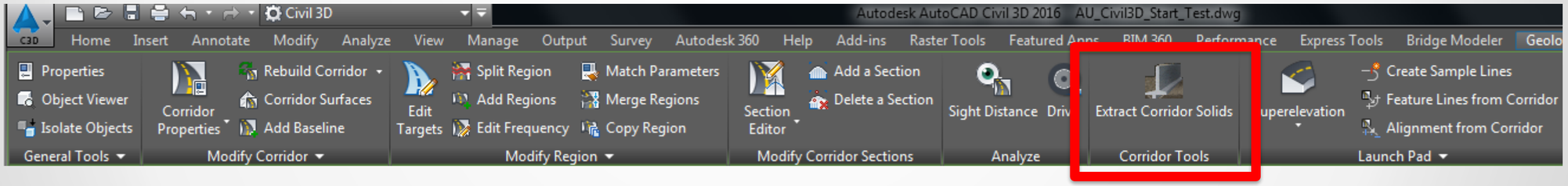
Step 7 : Navisworks

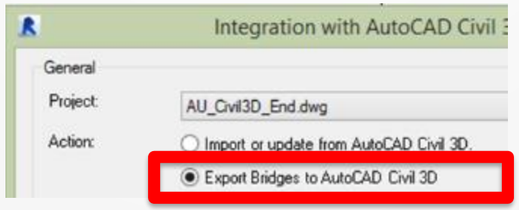
Most of Our Geometry are designed with AutoCAD Civil 3D → **DWG**

Also Revit 3D object can be managed as **DWG** (EXPORT)

What We Need ?

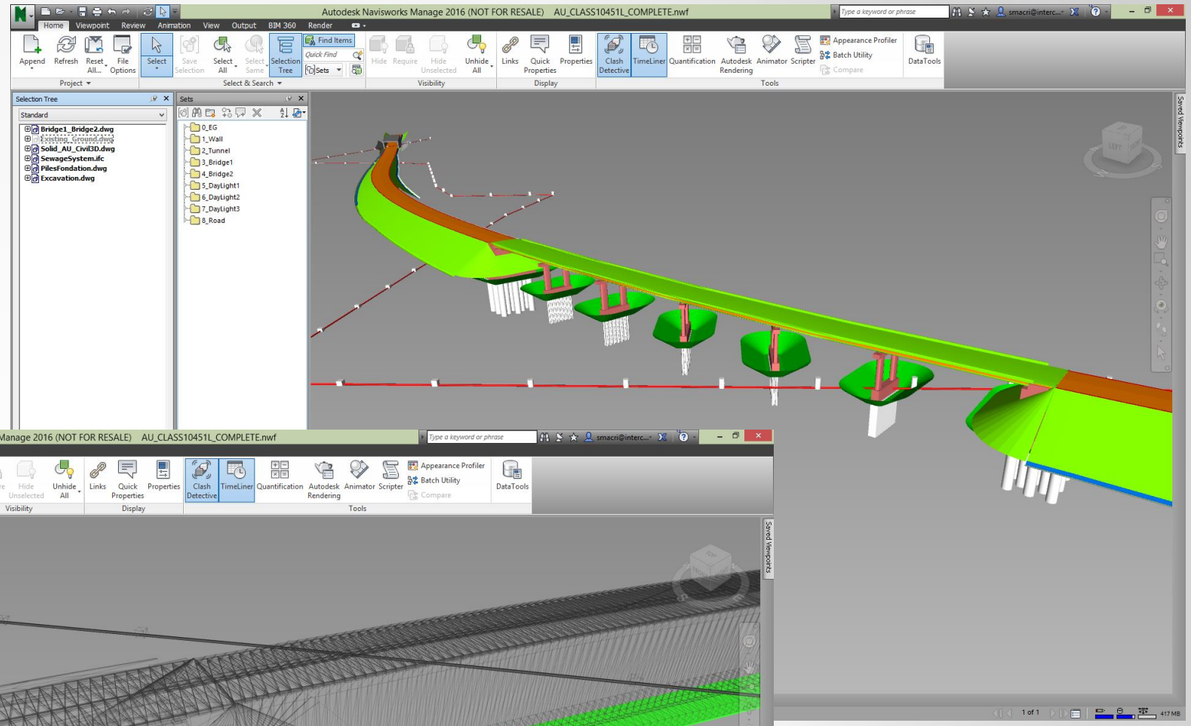


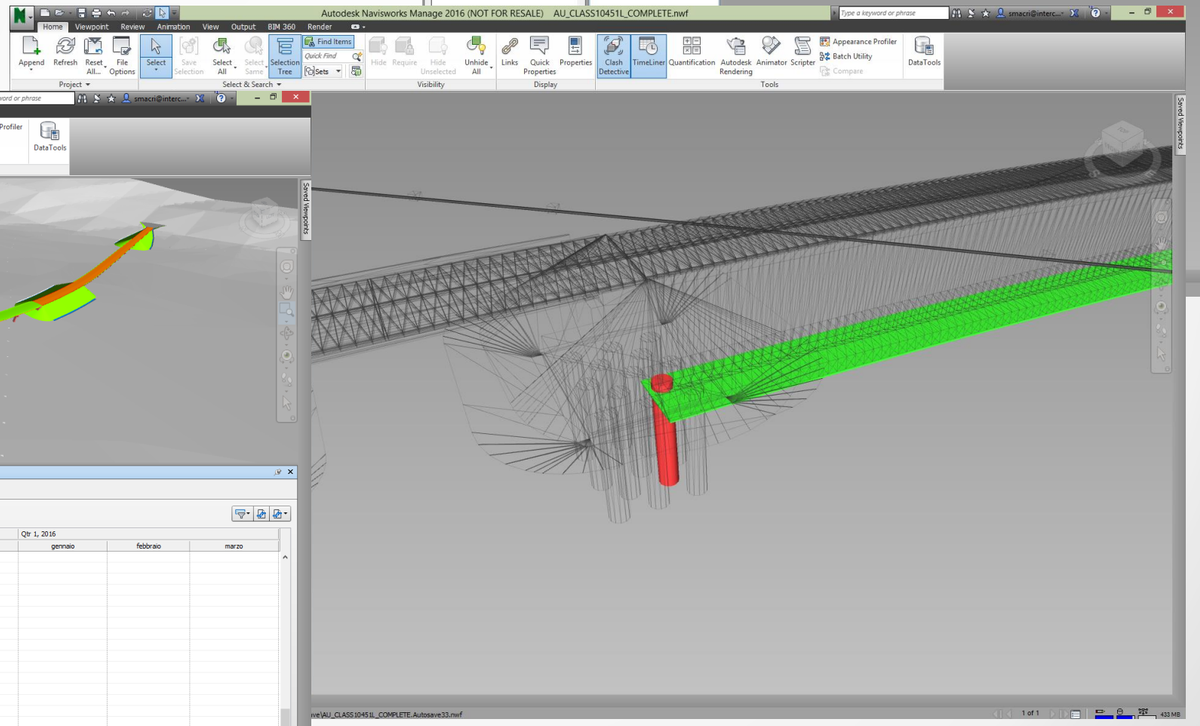


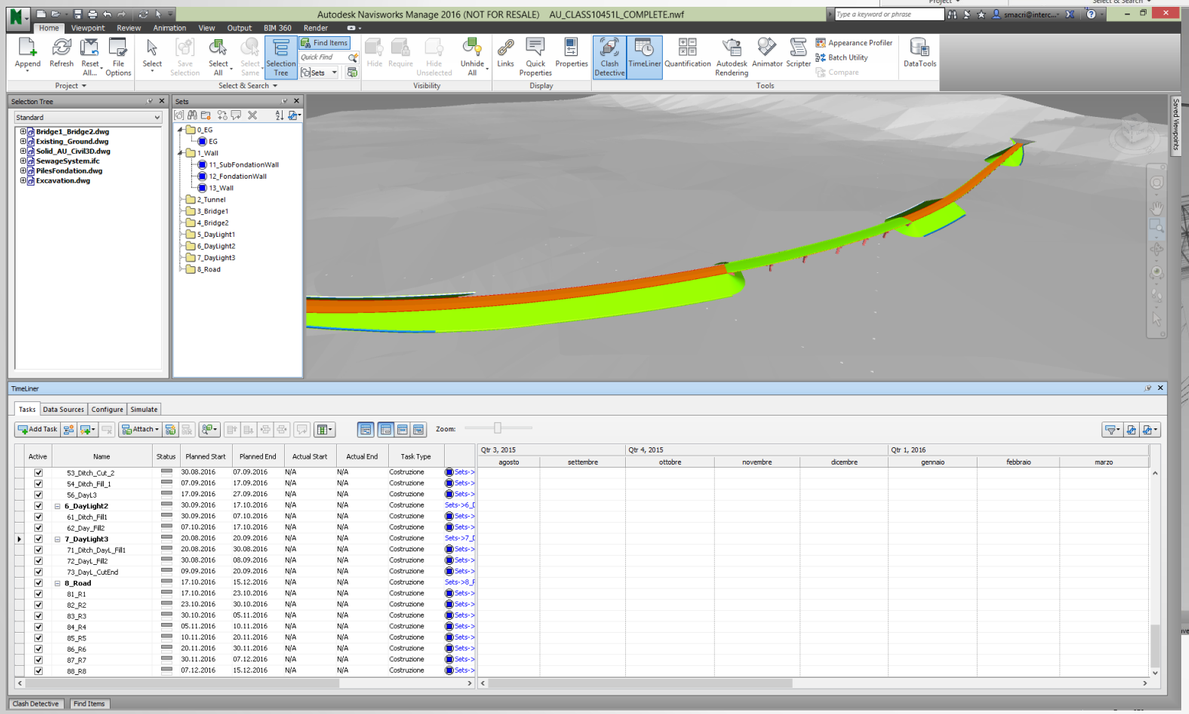


Step 7 : Navisworks

Focus on:
Coordination
Clash Detection
TimeLiner

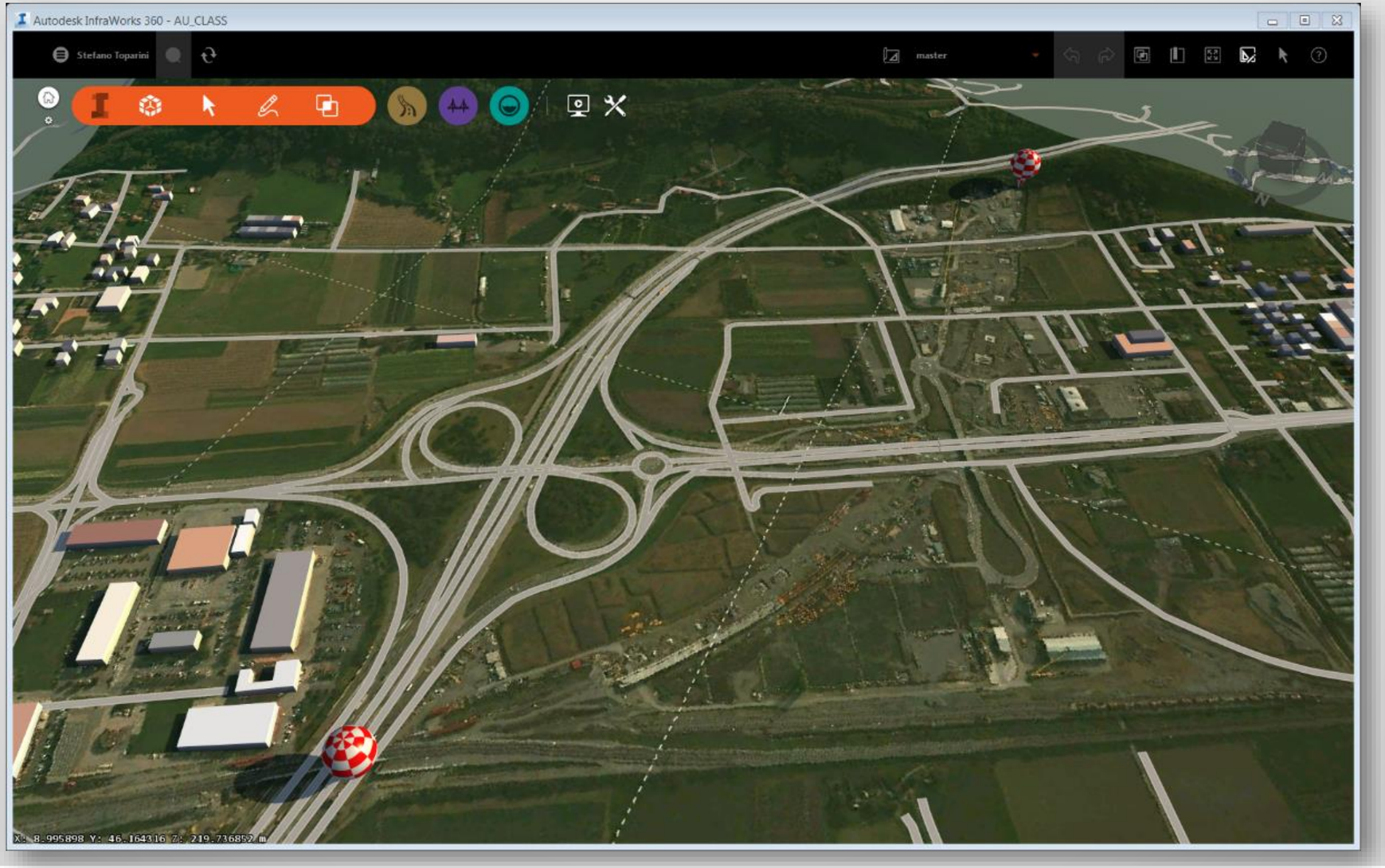




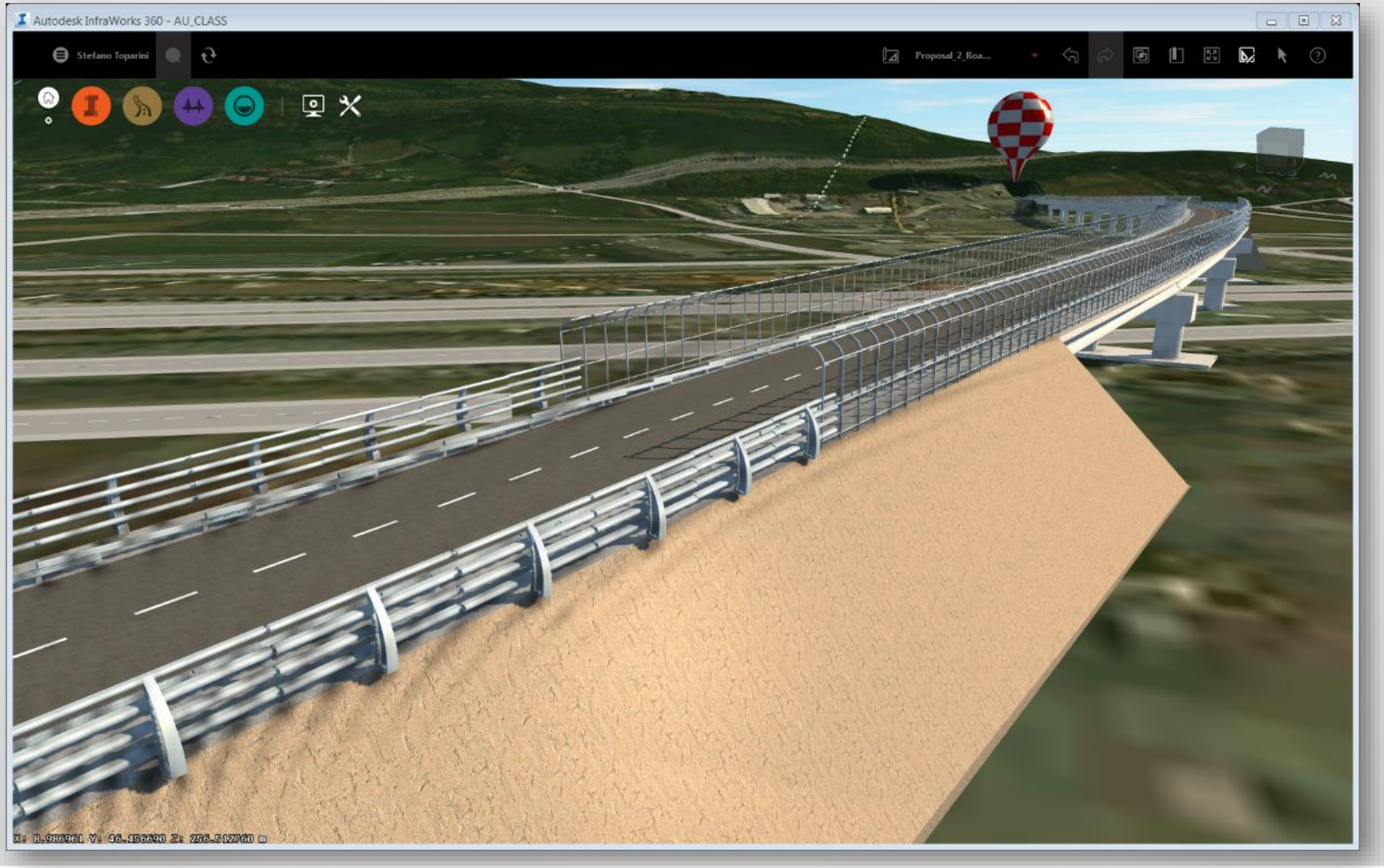


Let's start with Hand’s On Lab

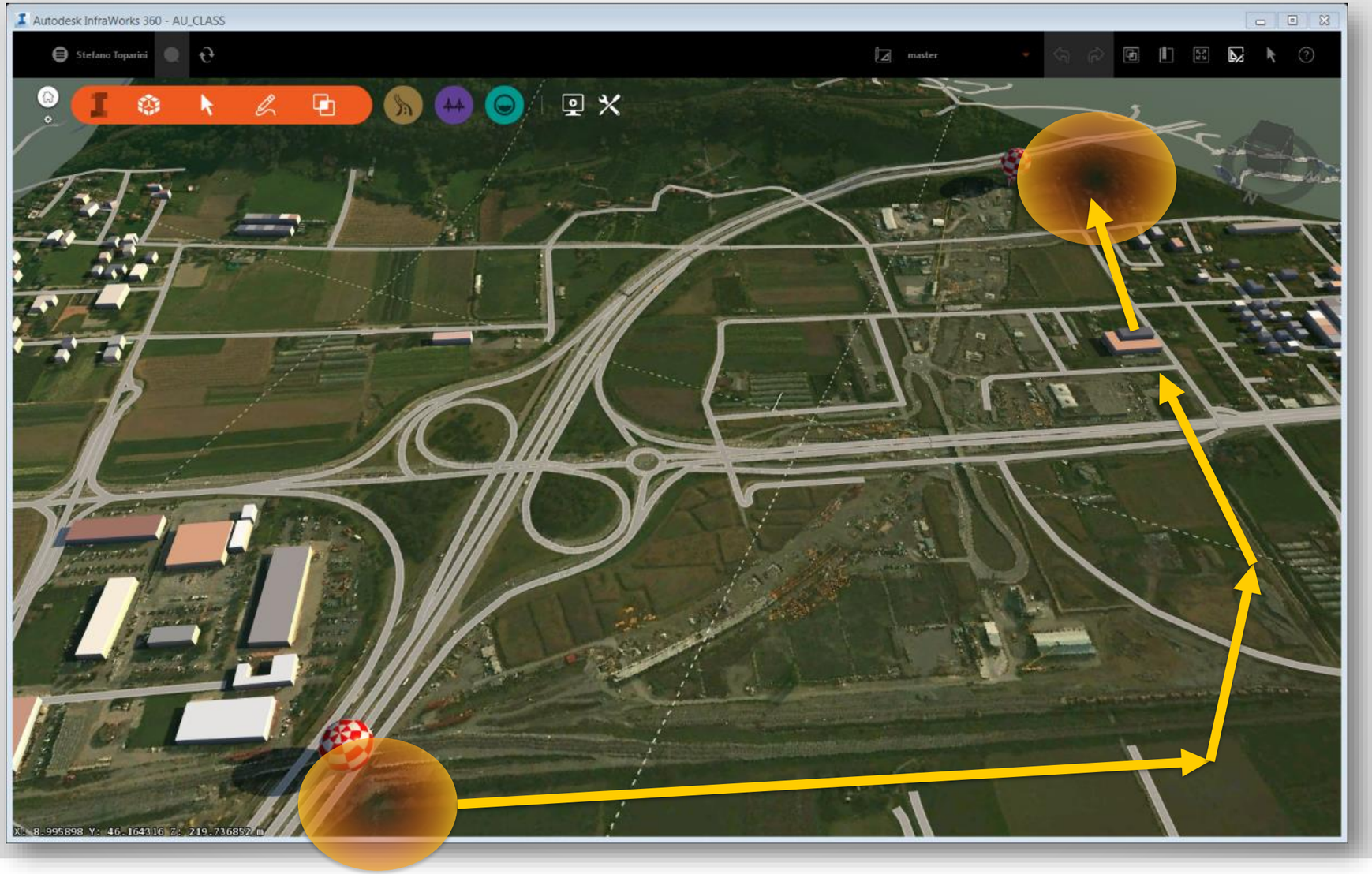
Step 1 : InfraWorks 360
Conceptual Design: from here...



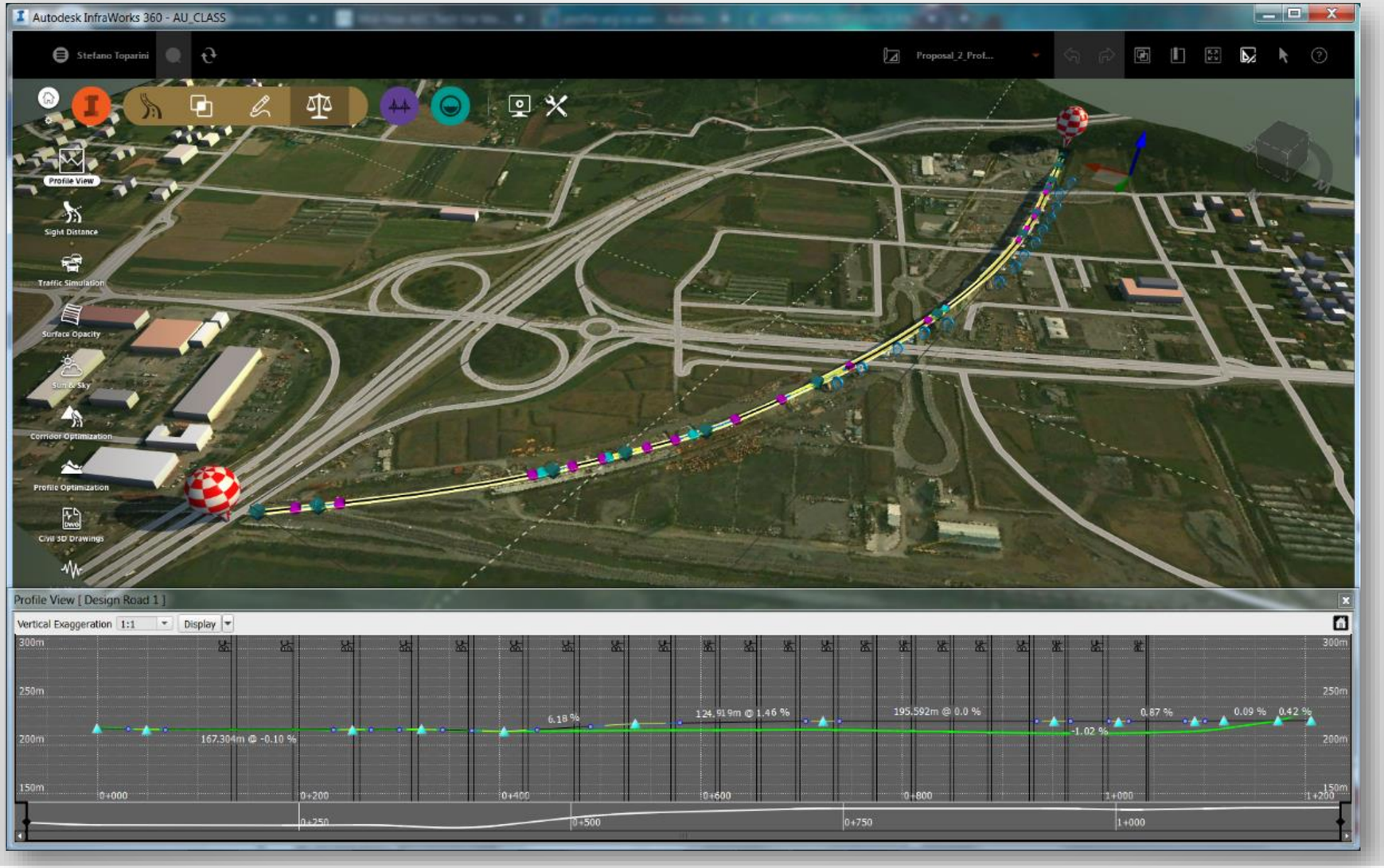
Step 1 : InfraWorks 360
...to here



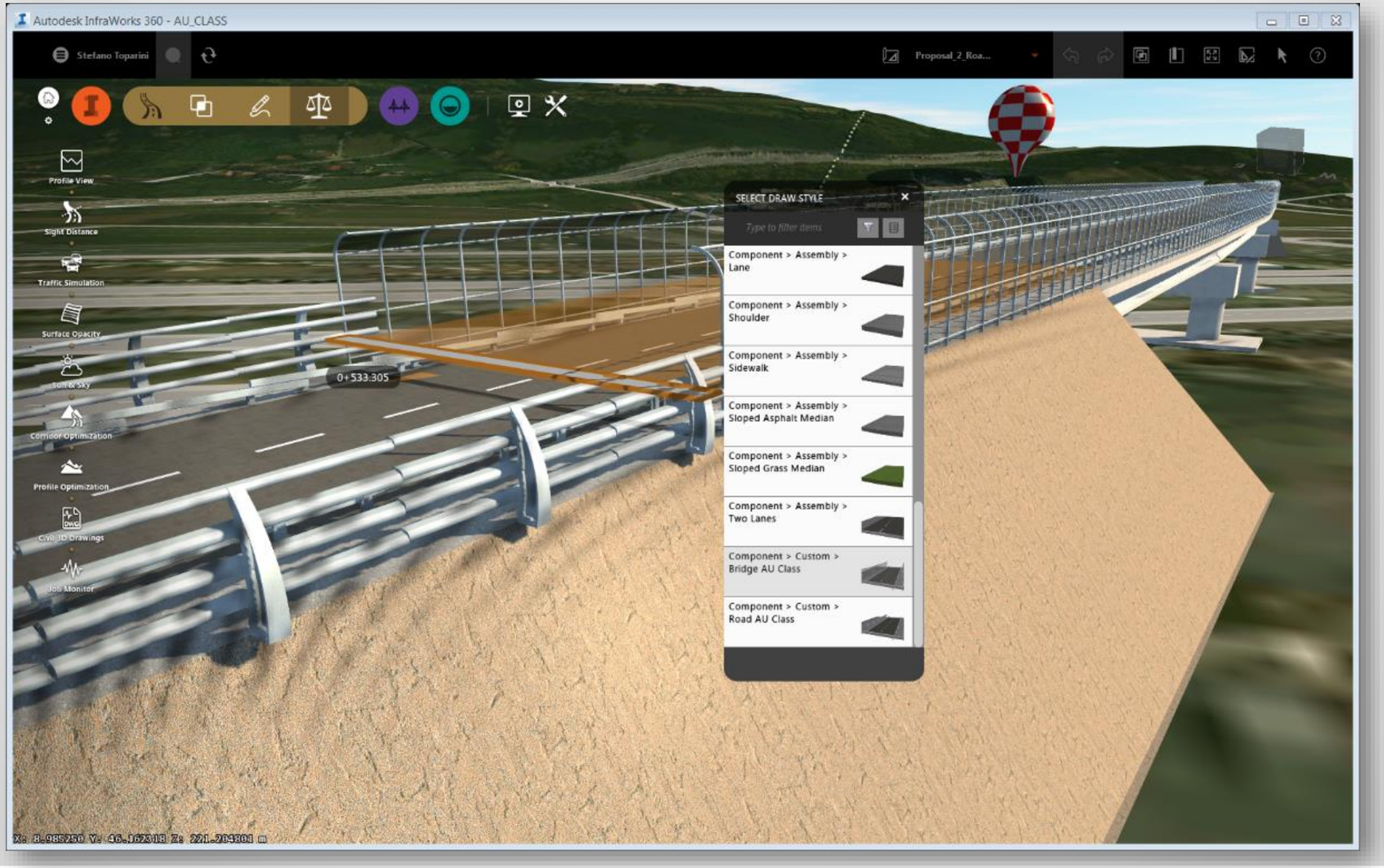
Step 1 : InfraWorks 360 “Alignment”



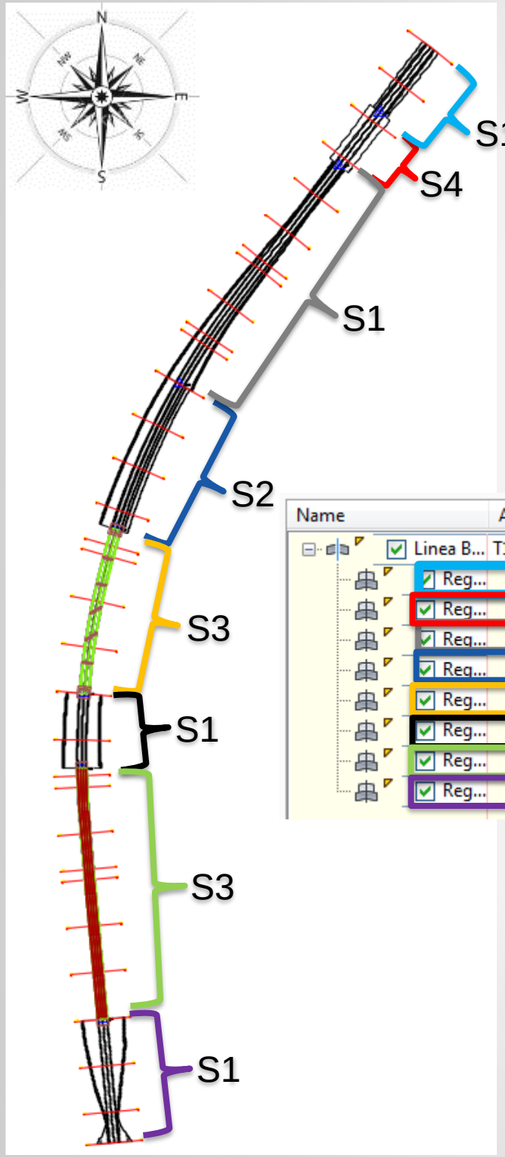
Step 1 : InfraWorks 360 Profile



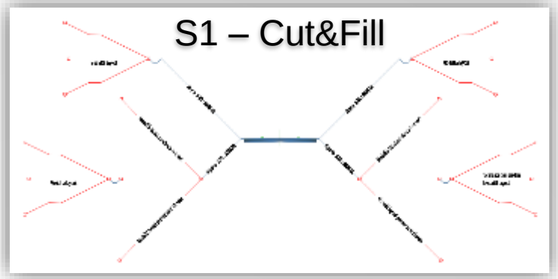
Step 1 : InfraWorks 360 Assemblies

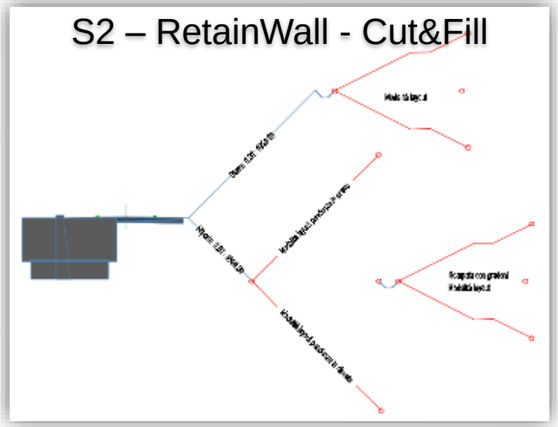


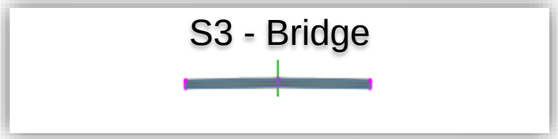
Step 2 : AutoCAD Civil 3D

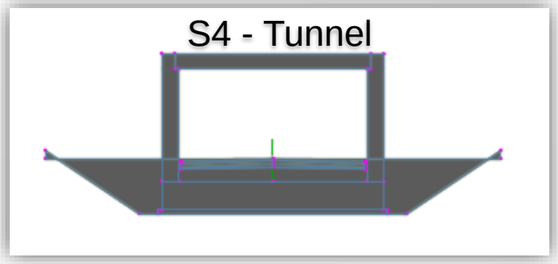


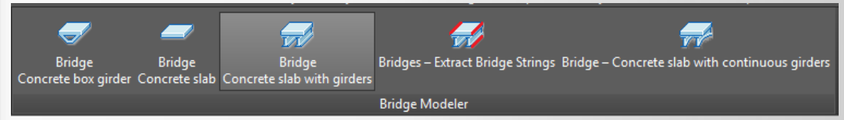
Name	Alignment	Profile	Assembly	Start Station	End Station
Linea B...	T1	Liv_T1		0+000.000m	1+283.122m
Reg...			S1_CutFill	0+000.00...	0+088.00...
Reg...			S4_Tunnel	0+088.00...	0+160.00...
Reg...			S1_CutFill	0+160.00...	0+450.00...
Reg...			S2_RetainW...	0+450.00...	0+620.00...
Reg...			S3_Bridge	0+620.00...	0+800.00...
Reg...			S1_CutFill	0+800.00...	0+880.00...
Reg...			S3_Bridge	0+880.00...	1+150.00...
Reg...			S1_CutFill	1+150.00...	1+283.12...











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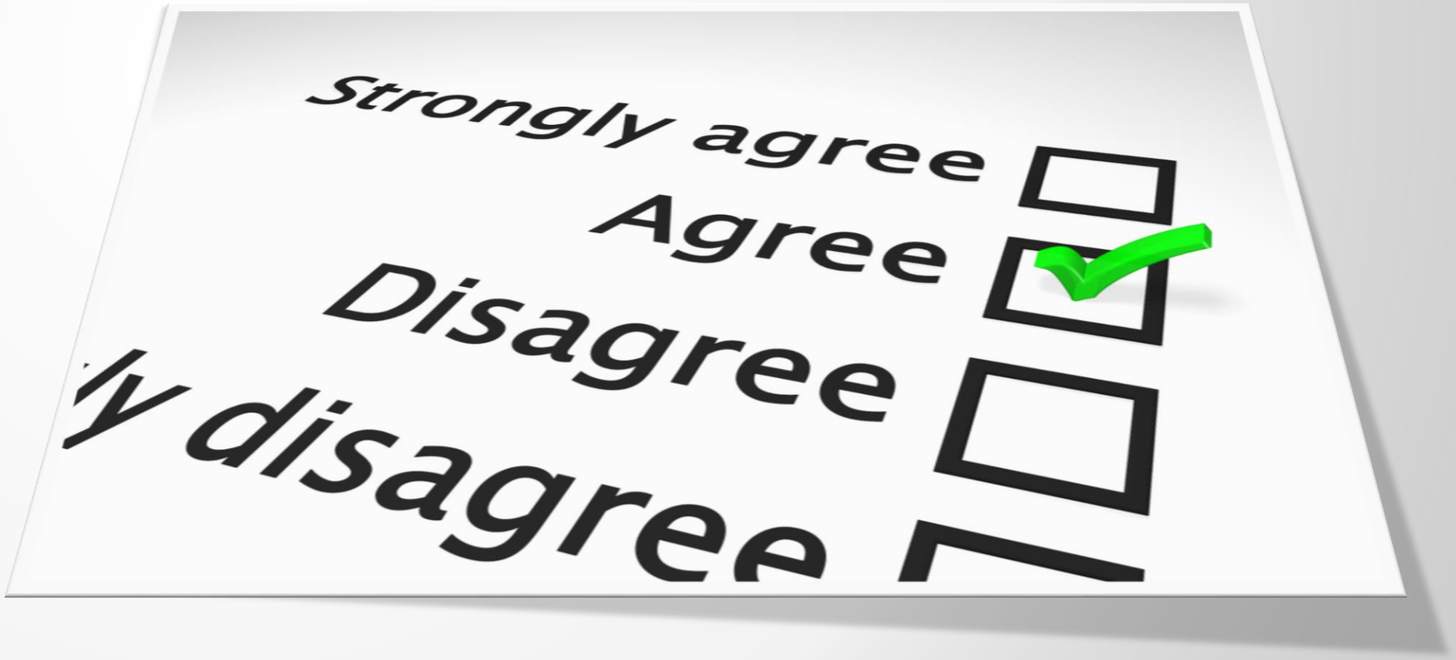

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