

# ZSBridge

A ZSoil pre-processing tool for Rhino 3D



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# What is ZSBridge?

- A Rhino 3D plugin, aimed at facilitating the modelling of pre-stressed bridges in ZSoil



- Bridges are modelled with shells or volumics and cables

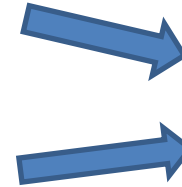


# Why Rhino?

- Rhino is a very **comprehensive 3D modelling tool** that is used by an increasing number of architects, designers and engineers
- Rhino provides **interfaces to** a large number of **formats**, including dwg, stl, step, ifc, iges, dxf
- Rhino can be used for many tasks other than 3D modelling, such as digitizing bitmaps, editing pdf's, integrating volumes, surfaces etc.
- At ~1000 EUR per licence Rhino is relatively **inexpensive**

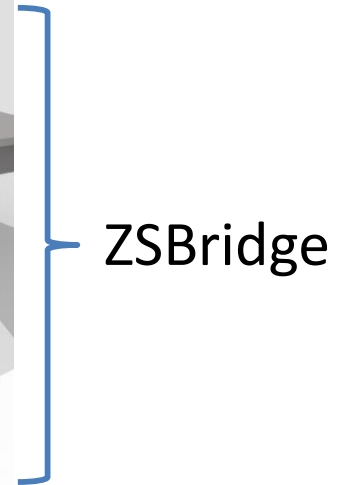
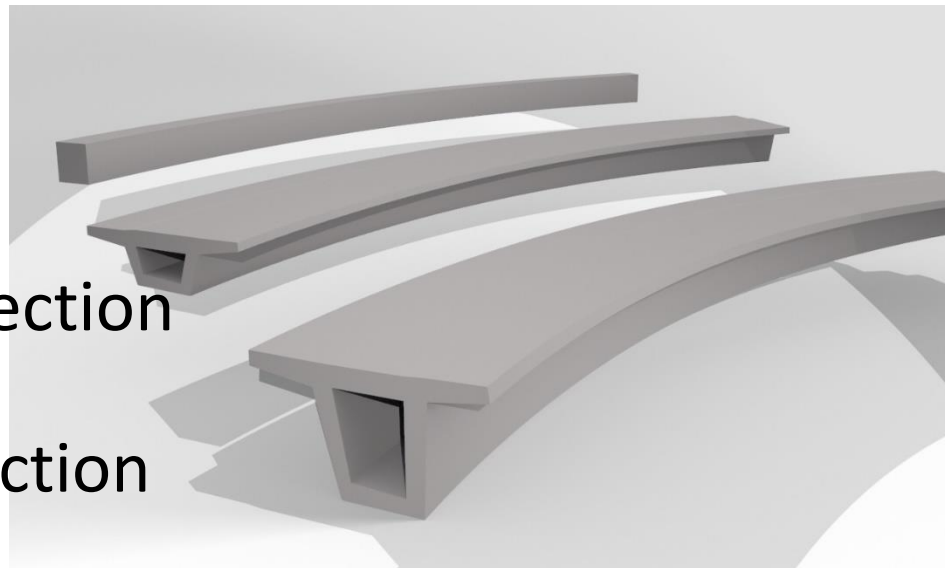
# Scope of ZSBridge

- Straight beam with axial pre-stress
- Straight beam with curved cable and pre-stress losses



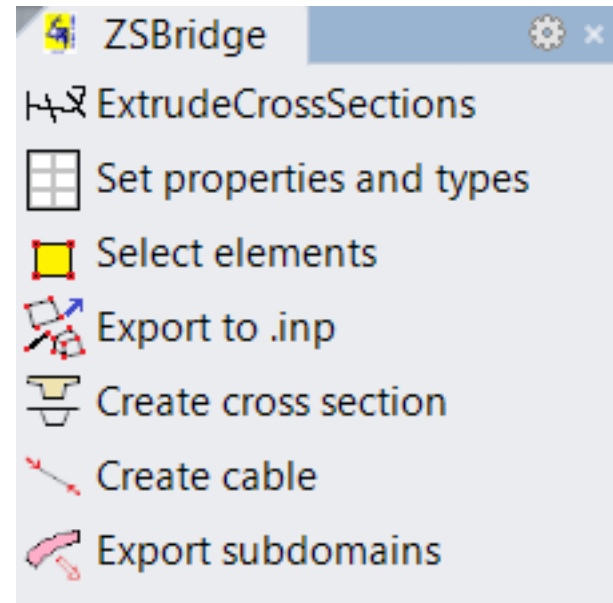
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- Curved beam
- Complex cross-section
- Variable cross section



# ZSBridge: A Rhino plugin

- A collection of python scripts providing additional functionality to Rhino
- ZSBridge Commands can be run from toolbar or command line
- User is guided interactively through pre-processing

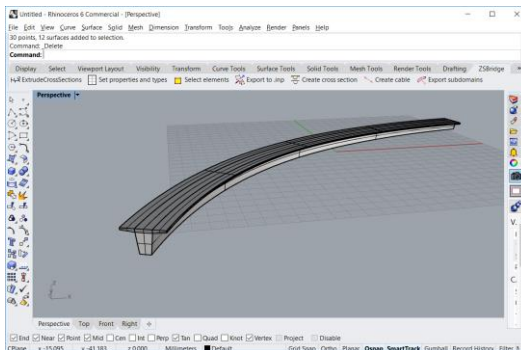
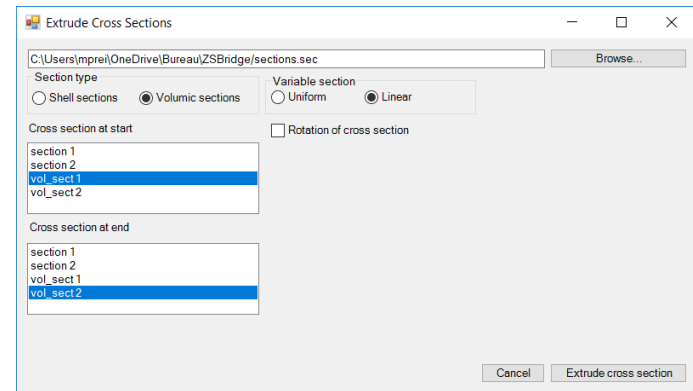
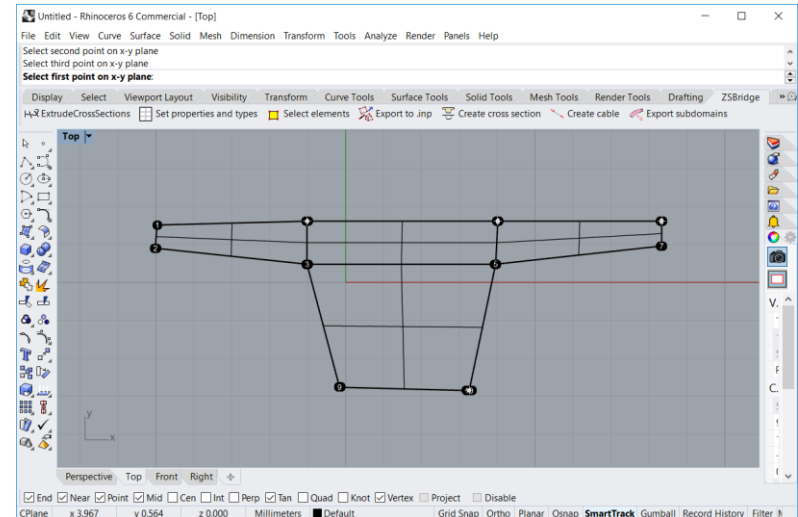


# ZSBridge: Demonstration

- Curved bridge segment with variable section:

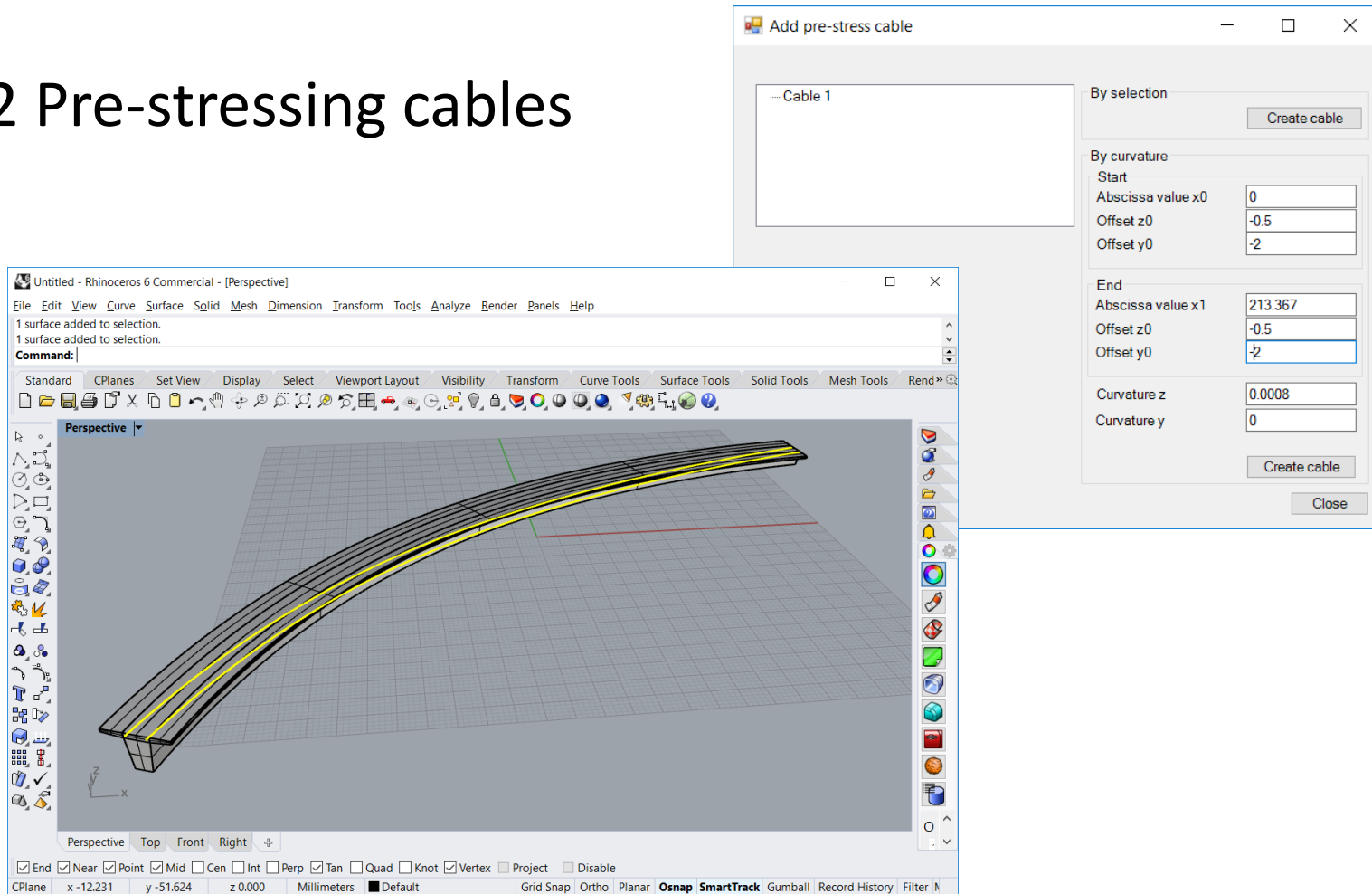
– Create cross section

– Extrude cross section along bridge skeleton



# ZSBridge: Demonstration

- 2 Pre-stressing cables



# ZSBridge: Demonstration

- Export to ZSoil as Subdomains (bridge) and polylines (cables)

