

Novapoint Tunnel



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Novapoint tunnel is a tool for detailed modeling of tunnels. The tunnel connects to a road project and is therefore automatically updated whenever the road model is revised. Novapoint Tunnel supports seamless data flow to different guidance systems for drilling rigs. This part of the system is developed by Bever Control. Novapoint Tunnel supports import of scanner data and 3D-visualization of the designed tunnel together with the scanned tunnel surface.

Geometry modeling

In Novapoint Tunnel the tunnel geometry is modeled relatively to the road geometry. The inner profile geometry connects to the road surface edge lines in the road model. The blasting outline connects either to the inner profile or it can be modeled independently. The base can be modeled either to follow the lower layer of the road superstructure (including closed ditches) or the user can model the base himself by snapping to points in the road superstructure. Attachment bolts, pavements and free vehicle clearance boxes can be modeled in Novapoint Tunnel as well.

Drawing production

Novapoint Tunnel includes functionality for automatic production of plan-, longitudinal profile- and cross-section drawings. The functionality used to produce plan drawings and longitudinal profiles in Novapoint Tunnel is identical to the one used for producing the same type of drawings in Novapoint Road. Due to this the road project can be drawn together with the tunnel. The user can select which tunnel lines to be included in the drawing. The cross-sections are drawn with automatic annotations and measure lines. It is also possible to produce cross-section drawings showing geometry tables with all necessary key values for drilling rig control. For all the different drawing types, the user can configure the layer names, line types and colors.

3D-visualization

3D-visualization is an extremely useful method for quality control of the designed tunnel. Novapoint Tunnel includes functionality to draw the designed tunnel geometry in 3D in AutoCAD. Additionally Novapoint Tunnel includes functionality for triangulation and visualization of scanner data. By showing the designed tunnel together with the triangulated model, the user will achieve an excellent visual comparison of the designed tunnel and the built tunnel.

Export of data

Data from the tunnel model can be exported to several other systems. The road lines and the tunnel geometry can be exported to software systems for drilling rig control. This export functionality is developed in collaboration with Bever Control. It supports drilling control software from several vendors. Survey data can be exported in the LandXML-format. The export functionality also supports proprietary software systems from major survey equipment vendors such as Leica.

Volume calculations

A flexible tool for tunnel volume calculation and reporting is included in Novapoint Tunnel. You can specify the chain age intervals for the volume calculation and the offset values for the perimeter and the base independently. The volume reports are exported to Excel. You must have Excel installed on your computer to use this functionality.