EN

Civil Solutions 2027.0

Plateia by CGS Labs
Ferrovia by CGS Labs
Aquaterra by CGS Labs
Autopath by CGS Labs
Autosign by CGS Labs

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What is new in CGS Labs Civil Solutions 2027.0 |RAILWAY

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Content:

Supported CAD platforms

CGS Labs Civil Solutions 2027.0 is now compatible with the new Autodesk version 2027, as well as the latest BricsCAD v26.

With CGSLABS 2027 Civil Solutions, support for CAD platforms now includes the following CAD platforms:

Autodesk AutoCAD/Civil 3D	BricsCAD
2027	V26
2026	V25
2025	V24
2024	
2023	
2022	
2021	
2020	

CGS LABS 2027 Civil Solutions is a major version upgrade. Users can install the newest CGS LABS 2027 Civil Solutions side by side with previous CGS Labs versions (e.g. 2026, 2025 or older). Thus, preserving settings on existing CGS Labs software versions. Further updates are going to affect the latest CGSLABS 2027 version only.

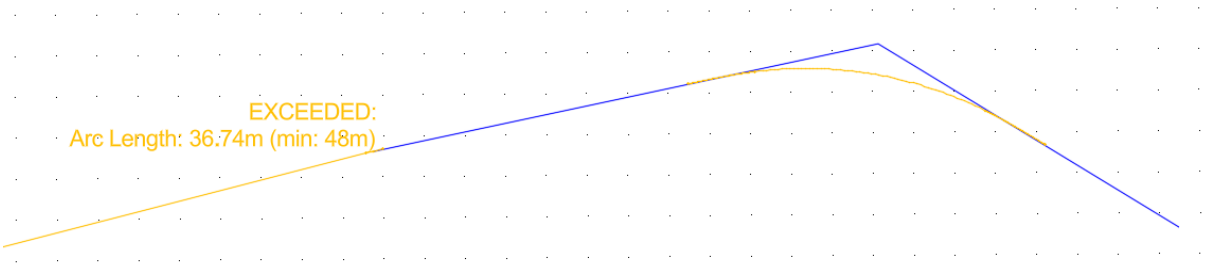
1. ENHANCEMENTS

22E, 22F - Interactive Horizontal Alignment Standard Compliance Check

A new interactive compliance check has been introduced to verify whether the horizontal alignment meets minimum and maximum design parameters for the selected road category. The check evaluates parameters such as minimum radius (Rmin), minimum curve length (Lc min), minimum clothoid parameter (A min), minimum spiral length (Ls min), and minimum and maximum tangent lengths (Lt min, Lt max), based on the selected country standard or technical specification.

If the previewed alignment exceeds defined limits, the affected elements are highlighted in orange, providing immediate visual feedback during design. This allows potential issues to be identified and corrected before the alignment is finalized, reducing the need for later adjustments.

The compliance check can be disabled when not required by selecting the Off option in the command line.

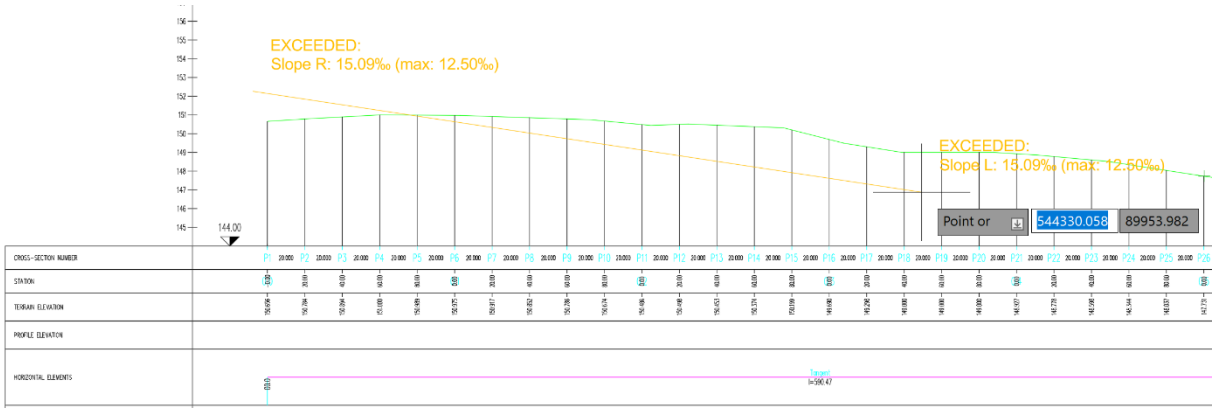


32G, 3H – Profile Line Standard Compliance Check

New interactive way of checking if the design is compliant with minimum/maximum design parameters for selected road category has been implemented. This now checks S max, R min convex, R min, concave and minimum distance between bends depending on the selected country standard or technical specifications.

This is now seen as orange line or text if the preview location is exceeding those parameters. This gives user visual feedback that something probably needs to be changed instead of only getting this information after the vertical alignment is already drawn.

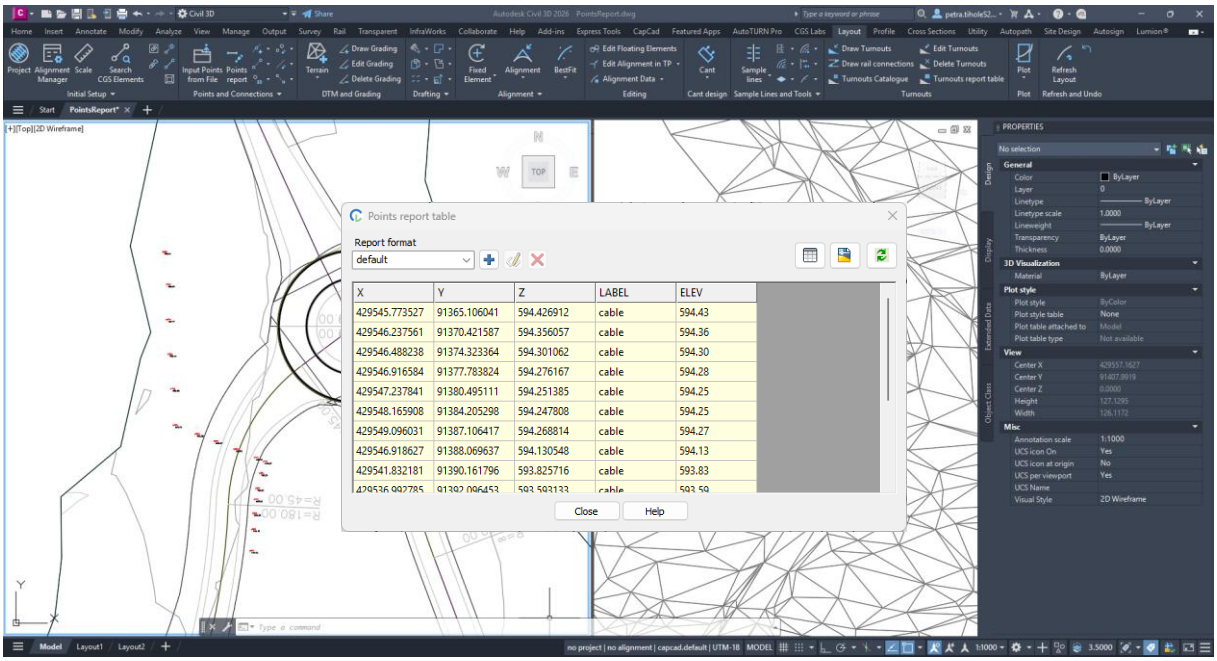
This can be of course turned off if not needed by selecting “off” option in the command line.



11FB - Enhanced Point Report with Automatic Display of All Point Attributes

The Point Report has been improved to automatically display all attributes available on the selected points. Along with the basic geometric data (X, Y, and Z coordinates), the report now includes attributes such as labels, elevations, and other point-specific information by default.

Previously, these attributes could also be included, but users had to manually define a custom report format and add the required fields. With this enhancement, the additional configuration step is no longer required, which simplifies the workflow and reduces preparation time.



Users still have full access to tools for creating custom report formats, giving them flexibility to adapt the report output to different project requirements.

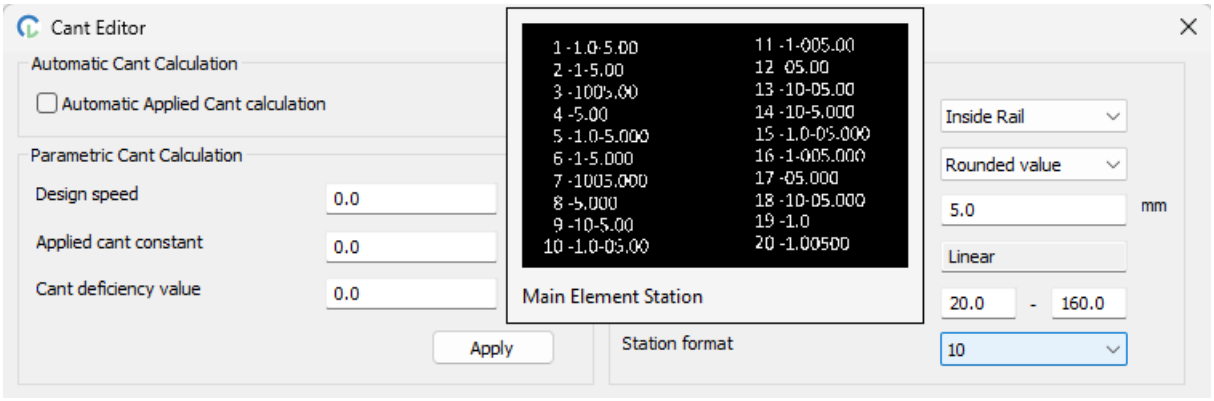
22E1 – Added "Back" Option to Tangent Polygon

An option to go back one step (or more) when drawing Tangent Polygon alignment was missing from horizontal alignment creation. This is now added and can be used while drawing a new alignment or while editing it.

22Q2 - Station Format Preview Added to Cant Editor

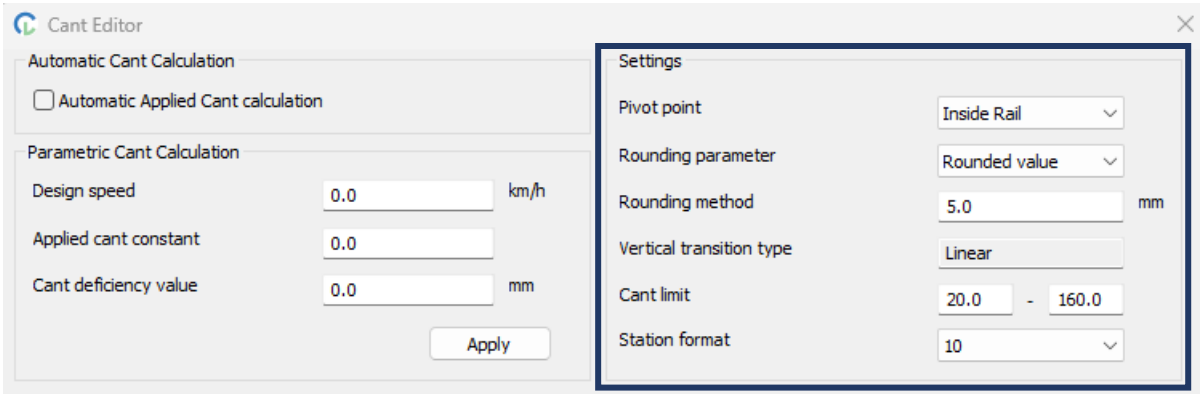
A preview window has been added to the Station Format selection in the Cant Editor. The preview displays sample station values for the available station formats (1–20), allowing users to see how each format will appear in the table before applying it.

Previously, users had to select a station format and apply the settings to review the result. With this improvement, different formats can be quickly reviewed and compared in advance, making station format selection clearer and more efficient.



22Q2 - Cant Editor Settings Are Now Preserved Between Sessions

The Cant Editor now automatically saves all values defined in the Settings section when the dialog is closed. The saved settings are restored the next time the Cant Editor is opened.



Previously, users had to re-enter these parameters each time they reopened the dialog. With this improvement, commonly used settings such as pivot point, rounding options, cant limits, and station format are retained, reducing repetitive input and streamlining the workflow.

Default values are used when no previously saved settings are available.

32E5 – Rescale Multiplier User Input and Displayed Value

CGS labels within Profile View were always rescaled based on the difference of scale for the whole Profile View. Based on requests and challenges using it, we added additional multiplier option so that CGS labels can be scaled independently of other elements within Profile View

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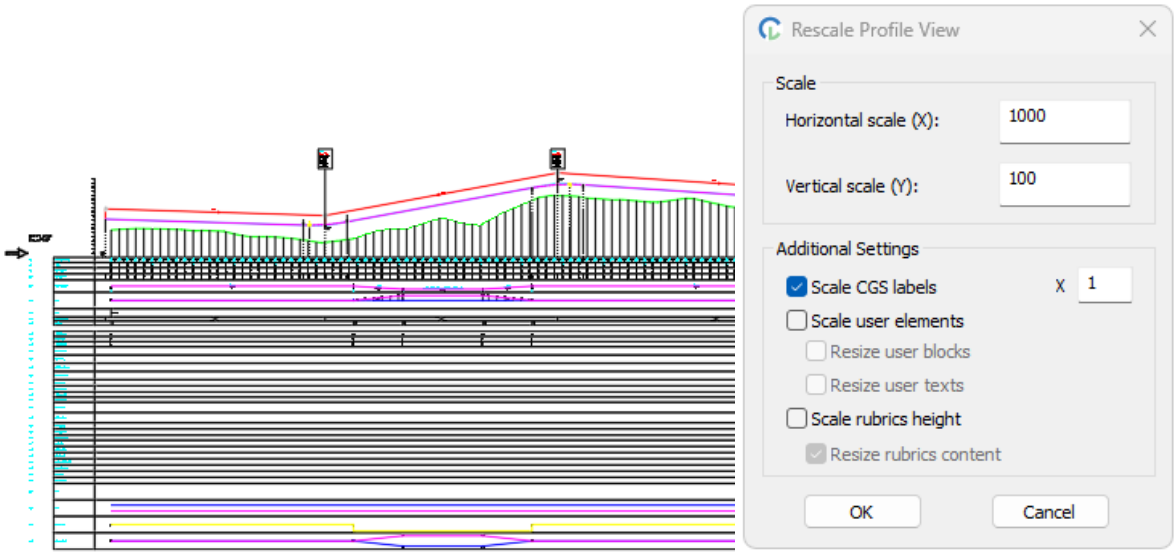

LandXML Export – Added Cross-Sections Option

Continuing the improvements to LandXML export, cross sections (sample lines) have now been added to the list of elements available for export in CGS. Station, name, elevation, and offset data are read from the cross sections and Profile and exported in LandXML 1.2 format.

```
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        </CrossSectSurf>
    </CrossSect>
    <CrossSect sta="5." name="P2">
        <CrossSectSurf name="0">
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        </CrossSectSurf>
    </CrossSect>
    <CrossSect sta="10." name="P3">
```

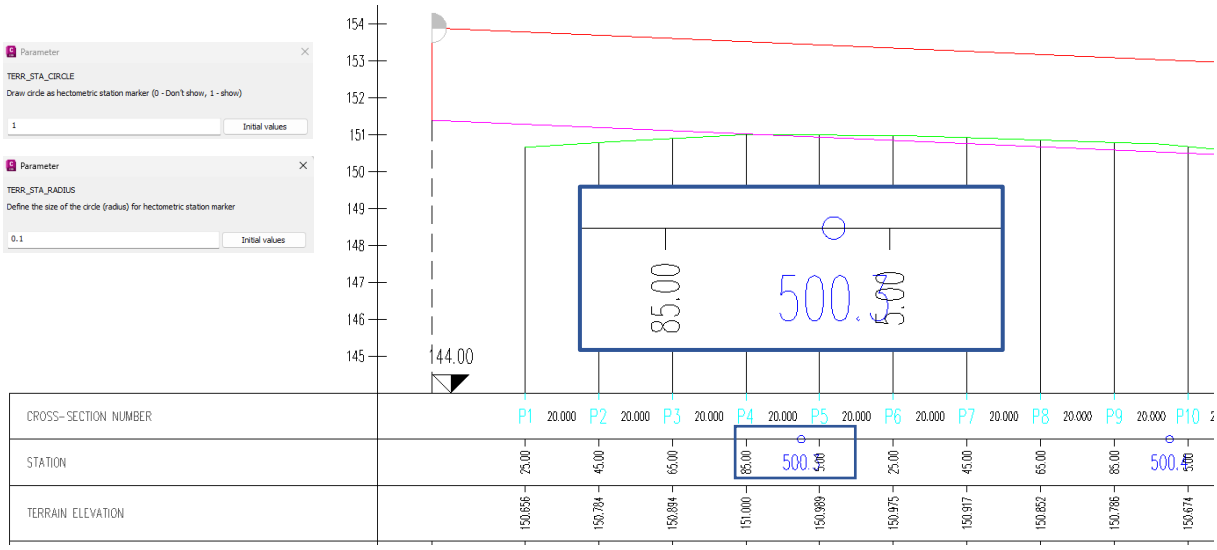
32E1 - Automatic Hectometric Station Marker in Longitudinal Profile

The longitudinal profile now automatically displays a graphical marker for each hectometric station value. In addition to the numeric station text, a circular marker is drawn at the corresponding position, making the exact location of hectometric stations easier to identify.

Previously, hectometric stations were shown only as text, without a visual indicator of their position along the profile. Users often had to manually measure the exact location in the drawing. This enhancement makes station positions immediately visible, saving time and simplifying the workflow. The marker updates automatically when the profile is regenerated and can be enabled or disabled in the Longitudinal Profile settings.

The following parameters are now available in the Longitudinal Profile Settings:

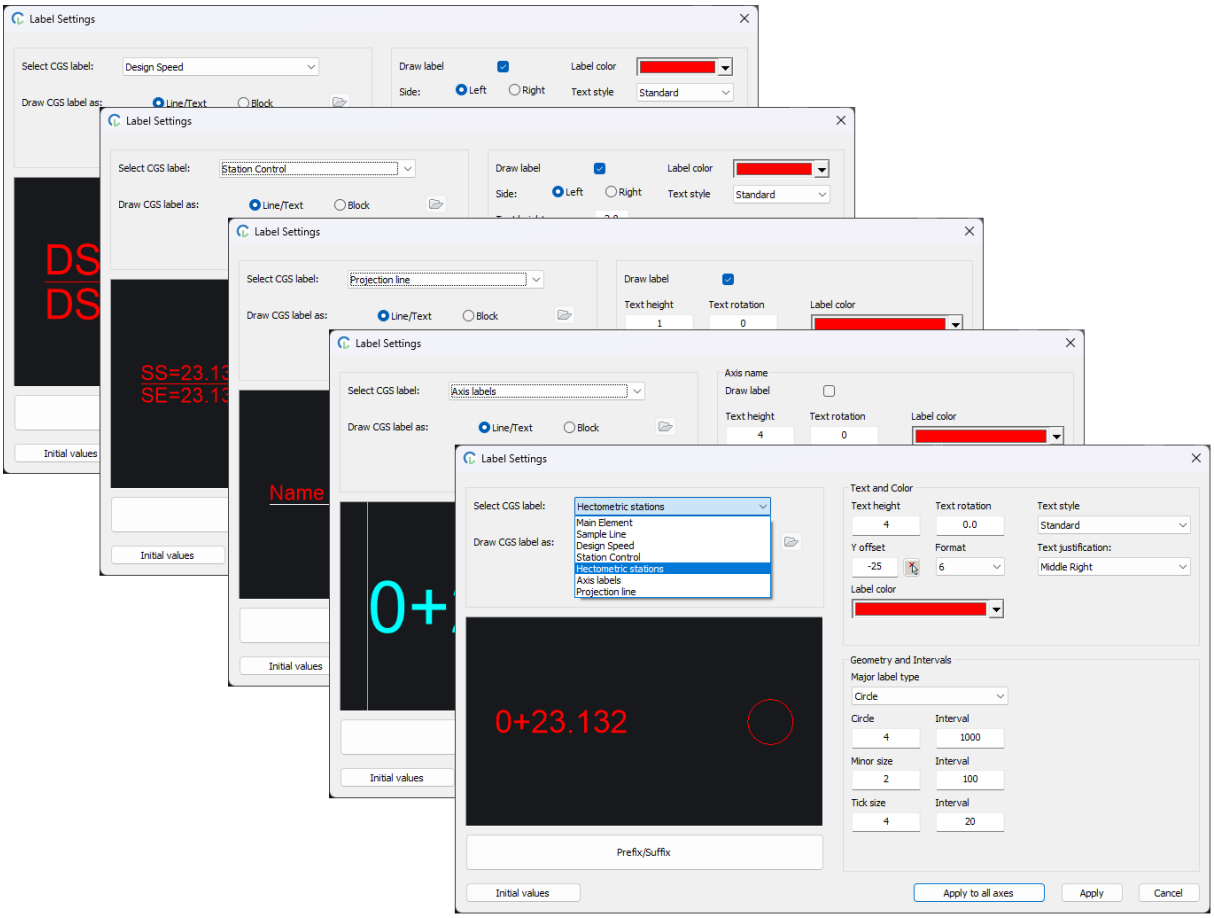
- **300227** – Draw circle as hectometric station marker (0 - Don't show, 1 - show)
- **300228** – Define the size of the circle (radius) for hectometric station marker.



22A6 – Multiple Labels Added to Label Settings

With CGS 2026.1, a new interface for configuring label settings was introduced. In this release, additional labels have been added to the list, including Design Speed, Station Control, Axis Name and Station, Projection Lines, and Hectometric labels.

Each of these now includes extended settings for color, justification, length, and more, making it easier to customize labels as needed. All labels can be defined individually for each alignment and previewed in a dynamic window.



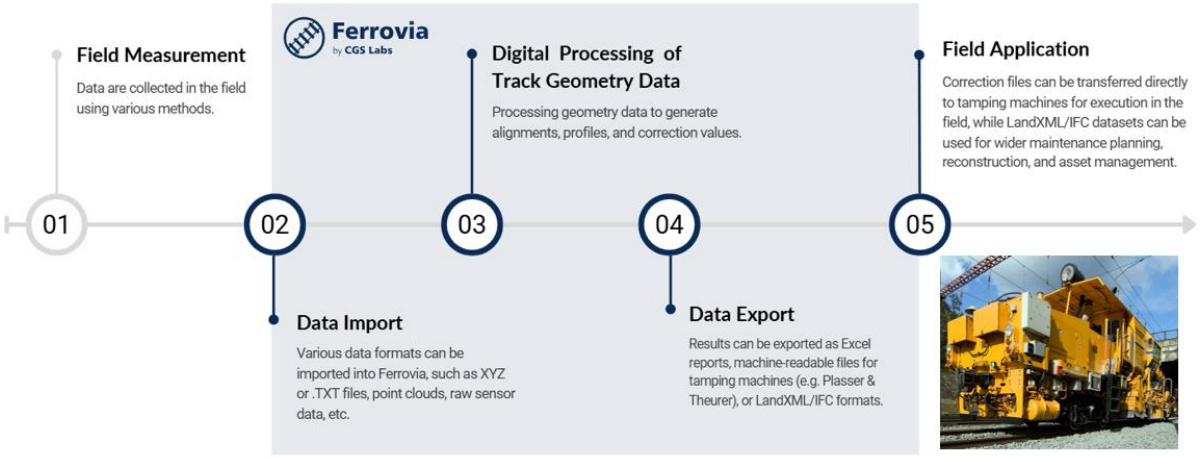
Czech Localization Enhancements for Layout and Longitudinal Profile

Additional labels and annotations have been introduced for the Czech localization of Ferrovia. These elements are available in both layout drawings and longitudinal profiles and are designed to comply with Czech national standards.

This improvement ensures that project documentation created in the Czech version of Ferrovia meets local requirements and reduces the need for manual adjustments.

Beta Version – New Features for Railway Maintenance Operators

We are developing a fully integrated digital workflow for railway track realignment, designed for railway maintenance operations. The workflow connects data acquisition, analysis, and preparation of correction measures into a single process. The approach is based on collecting measurement data using specialized measurement trolley, importing the raw data directly into Ferrovia, and automatically analyzing deviations to prepare correction data for tamping machines. Direct data processing significantly reduces the time between measurements and execution, helping to shorten track closures and reduce manual work.



As the first step in this workflow, a new tool has been introduced to support the import of **RRR files**, containing raw measurement data recorded by Sensors that are located on track measurement trolleys that measure both left and right rails. This enables direct import of measurement data from Leica sensors into Ferrovia without intermediate processing.

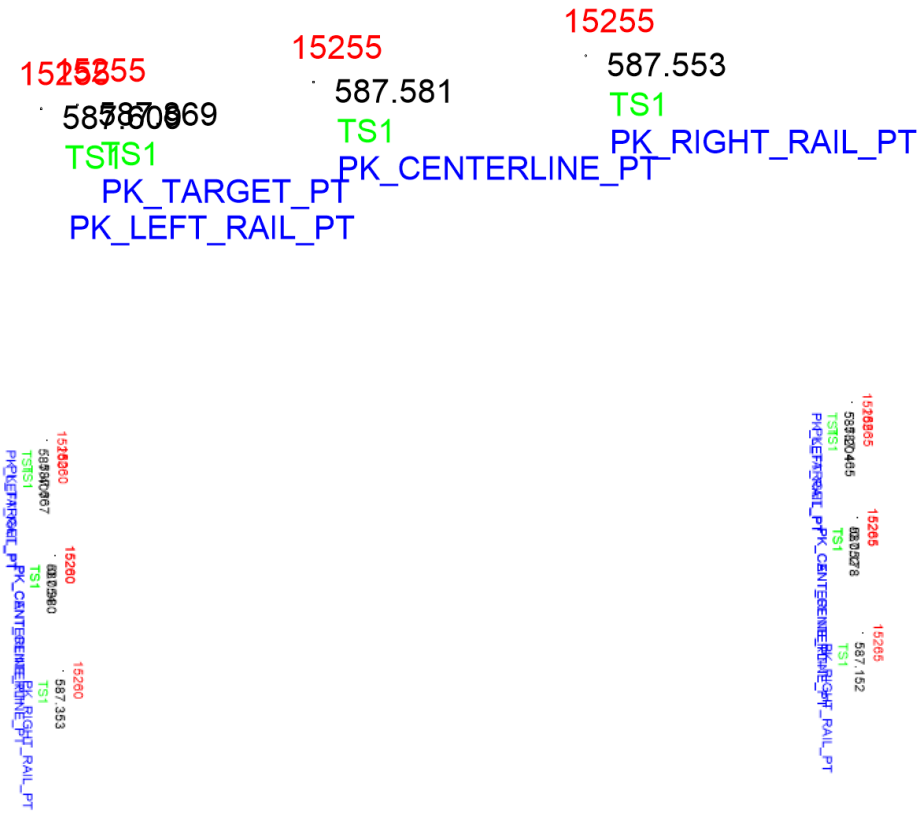
Due to the limited time available for track closures, measurements are often performed using a split-team approach, where one team surveys the track geometry while another surveys reference points. A new tool is being developed to automatically merge these datasets and recalculate coordinates, eliminating the need for manual data processing or external software.

After the data is merged, the measured geometry can be compared with an existing alignment, or a new reference alignment can be reconstructed from measured points using regression methods when documentation is missing. Based on this analysis, correction values required to restore the track geometry can be calculated.

Once correction values are prepared, Ferrovia supports export of results to Excel for reporting and to machine-readable formats used by tamping machines, such as Plasser & Theurer systems. Support for LandXML and IFC export also ensures compatibility with BIM and other infrastructure management workflows. In the final stage, correction data is transferred to tamping machines, which restore the track geometry according to the calculated values.

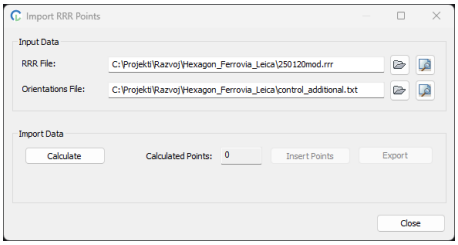
1. *Import of RRR Files*

A new tool has been introduced to support the import of raw measurement data from Leica sensors mounted on track measurement trolleys. The command automatically imports RRR files and recalculates the raw measurement data into XYZ coordinates that can be used directly within the Ferrovia environment. Survey is based on target position on the measurement trolley, along the rails. After the calculation, each survey/measurement results in several points: left rail, right rail, centerline position (alignment point) and target position.

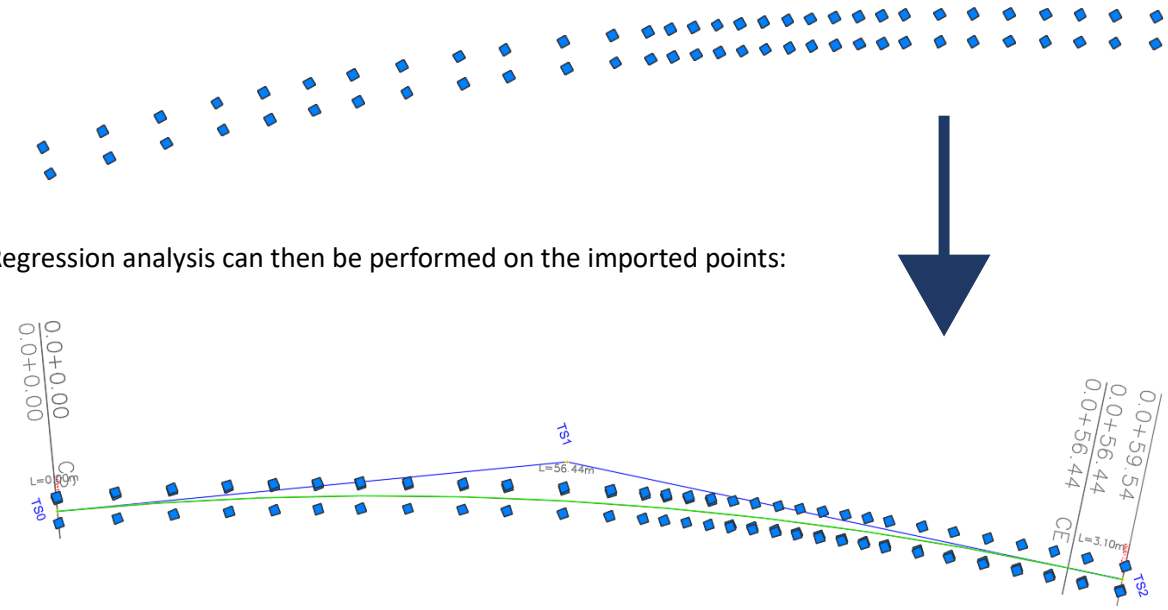


After the recalculation, user can either save the results to CSV format (for later use) or insert them directly into the DWG drawing. Points are inserted as CGS Labs points (CAD blocks with predefined attributes).

This improvement simplifies the initial data processing workflow and eliminates the need for manual data conversion before further analysis or design steps.



Import points into the drawing:

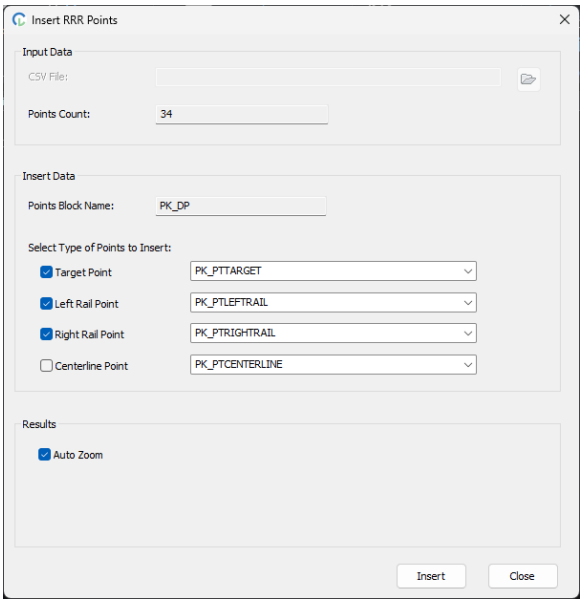


Regression analysis can then be performed on the imported points:

2. *Insert RRR Points (calculated points in CSV format)*

This tool allows users to insert calculated points into the drawing when the data has been previously saved to a CSV file using the RRR import tool. Users can select which point types should be inserted into the drawing, depending on project requirements.

All point parameters, including coordinates and attributes, are read from the calculated points, either directly from the calculation or from an external CSV file. The selected points are inserted into the drawing as CGS Labs points (CAD blocks with predefined attributes), ensuring consistent structure and compatibility with further processing.



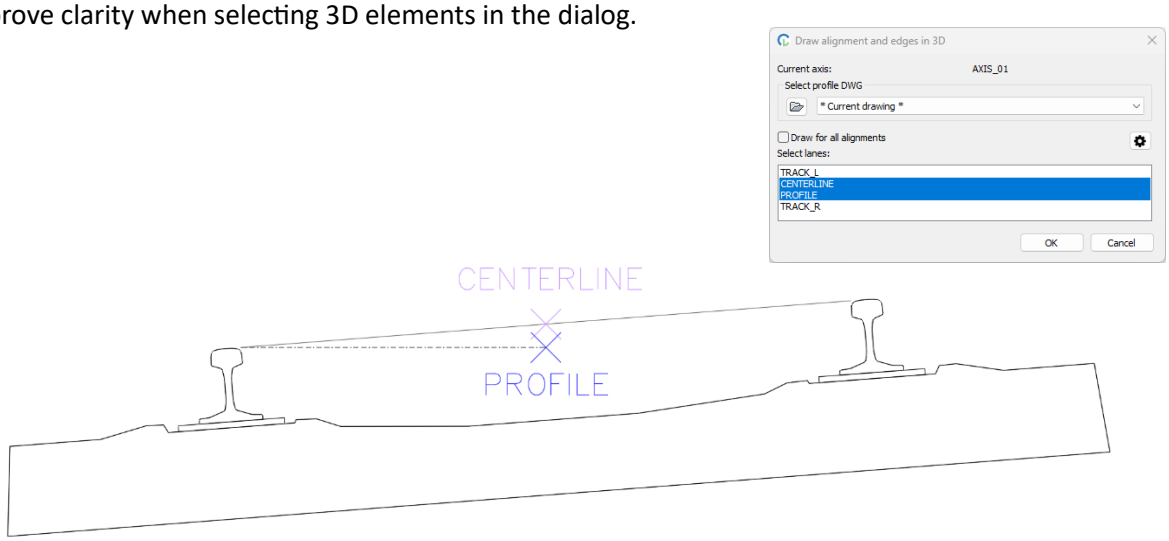
2. CHANGES

22P1 - New Option to Draw 3D Centerline

A new option has been added to generate a 3D centerline representing the longitudinal position of the track center. The centerline elevation is calculated as the average height between the left and right rails, ensuring accurate representation of the track center in both straight and curved sections.

Previously, only rail lines and a profile line following the lower rail were available. With this enhancement, users now have both options available and can clearly distinguish which 3D polyline represents the lower rail profile and which represents the track centerline.

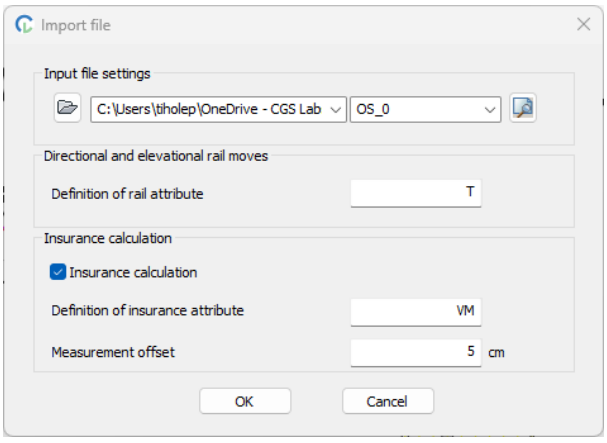
In addition, the existing AXIS line has been renamed to PROFILE to better reflect its purpose and improve clarity when selecting 3D elements in the dialog.



32O1 - Last Entered Values Are Now Remembered in Import File Dialog

The Import File dialog now remembers the last entered values within the current drawing and automatically restores them the next time the command is used. This includes previously selected file paths, axis selection, and related input parameters.

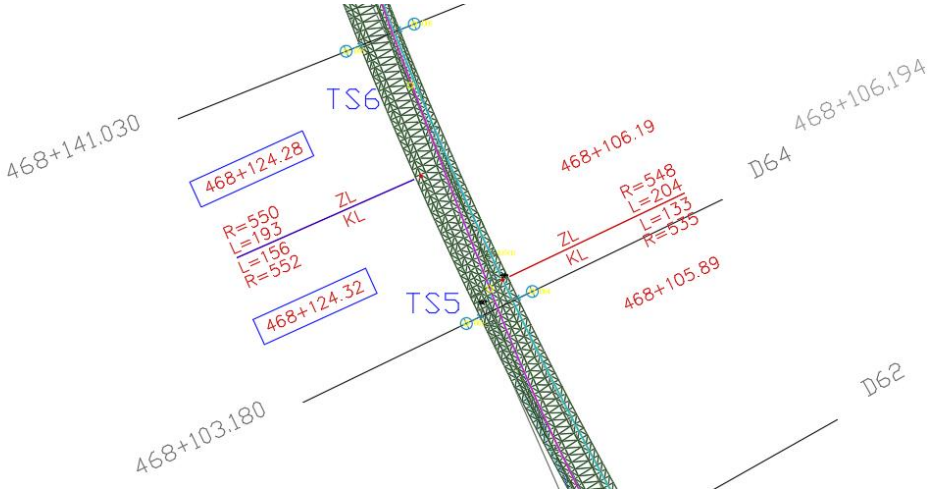
Previously, users had to re-enter these values each time the dialog was opened. With this improvement, repeated imports within the same drawing are faster and require less manual input.



22E9 - Consistent Station Values Displayed in Main Element Labels

Station calculation at connections between adjacent elements has been improved to ensure consistent results. The start and end station values of connected elements, such as transition curves and circular arcs, are now calculated using the same method.

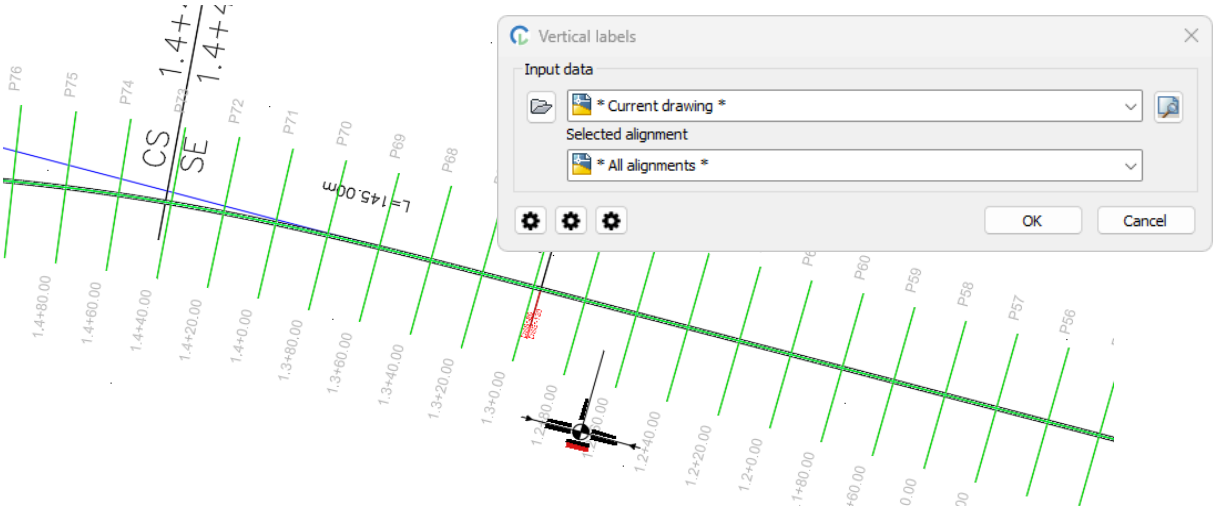
Previously, different rounding approaches could be applied when calculating station values for connected elements, which could result in small differences being displayed in labels, even though the elements shared the same station. This change ensures consistent and accurate station values throughout the alignment.ive



22O1 - Option Added to Mirror Vertical Labels Across the Axis

An option has been added to mirror vertical labels to the opposite side of the axis. This allows selected labels to be repositioned across the alignment while maintaining correct orientation and parameter values.

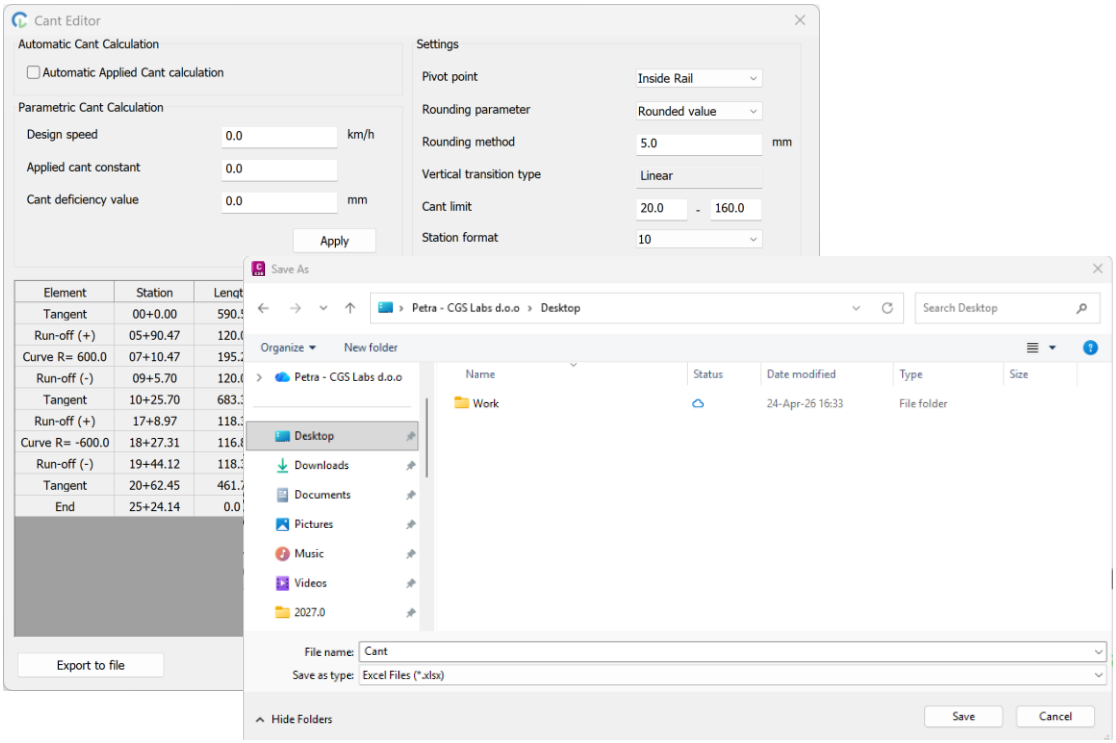
Previously, labels had to be manually rotated to move them to the other side of the axis. This could result in incorrect display of direction-dependent values, such as slopes, and required additional manual adjustments. With this enhancement, labels can now be mirrored directly, ensuring consistent and accurate label representation. This improvement is particularly useful when managing dense label layouts or when additional space is required on one side of the alignment.



22Q2 - Default Export File Type Changed to Excel (.xlsx)

The default file type for data export has been changed to **Excel (*.xlsx)**. This allows users to export data directly to Excel without selecting the file type from the dropdown list.

Previously, the default format was set to Text Files (*.txt), requiring users to manually change the file type. In some cases, users were not aware that Excel export was available. This improvement simplifies the export process and makes Excel export more accessible.



3. FIXES

CGS Labs crashes on BricsCAD V26.1.08

Due to changes in BricsCAD (version 26.1.08 or higher) and a missing JSON file, the application crashed after opening a new drawing or accessing the license manager. This issue has been resolved.

22A6 – Sample Line Labels Issues and Interface Can Be Opened Multiple Times

The text height and text style of sample line labels could sometimes only be changed when switching from the block option to the line/text label option. Another issue allowed the Label Settings window to be opened multiple times. Both issues have been fixed.

22C – Delete an Axis Removes Associated DCT Data

In CGS 2026.1, independent records for each alignment were added so that individual settings could be saved. However, these records remained even after an alignment was deleted from the drawing. If a new alignment was then created, it would inherit the old settings instead of the default ones. This issue has been fixed, and the associated records are now also deleted when an alignment is removed.

22O1 – Crash When Creating Labels at Large Coordinates

When drawing vertical labels with the 22O1 command, the application could crash if the alignment was located at large coordinate values. If there were also many decimal places, intersection points could not be calculated, which caused the crash. This issue has now been fixed.

22Q2 - Corrected Station Values Display in Cant Editor for Non-Zero Starting Stations

An issue affecting the display of station values in the Cant Editor has been resolved. Station values are now shown correctly when the starting station is set to a value other than zero.

Previously, when a custom starting station was used, the station values displayed in the Cant Editor appeared doubled, even though the stationing in the drawing remained correct. This fix ensures accurate station value display within the Cant Editor.

22T1 – Define Plot Area Does Not Generate Frames With Correct Paper Dimensions

Generating frames for plotting is based on calculating sections of the horizontal alignment based on width interval to fit each frame. The default interval was set to 1 meter, which could result in imprecise paper dimensions of up to 1 cm. A step size for width has now been added to the 22T1 command, giving users the option to achieve more precise paper dimensions.

22X - Cant Data Preserved When Refreshing Alignment from External Profile Drawing

An issue affecting cant data during alignment refresh has been resolved. Cant data in the layout is now preserved when refreshing the alignment, even when the profile is stored in a different drawing.

Previously, using the refresh command could delete existing cant data in the layout when the associated profile was located in another drawing. This fix ensures that existing cant information remains intact during the refresh process.

22X, 32X – CGS Refresh Affects BricsCAD V26 UI

Refreshing the layout with 21X or the Profile View with 31X in BricsCAD V26 no longer causes any changes to the UI (such as hidden toolbars or other elements). The issue has been fixed.

32E5 – Horizontal Offset Analysis Report and Text Misplacement

The horizontal offset analysis did not take into account the starting station of the horizontal alignment, which resulted in the offset values and graph being displaced horizontally by the starting station amount. This has been corrected, and the graph and text values are now positioned correctly.

32E5 – Labels Scale Removed After Rescaling Without Labels Option

When rescaling the Profile View without selecting the CGS labels option, the previously used scale factor information was reset, causing CGS labels to be scaled using default values again. This information is now retained in the Profile View, and the issue has been resolved.

32E5 – Rescale Profile View Fails Until Profile Is Refreshed

Rescaling the Profile View could result in a crash if the lane width data was inconsistent between the internal library and what was drawn. This could be resolved manually by refreshing the Profile View (32X). The issue has now been fixed.

32E5 – Profile Vertical Lines and Tangents Circles Are Scaled Twice

Profile vertical lines and tangent circles were incorrectly scaled by both the label scale and the rubric scale. This has now been fixed so that scaling is controlled only by the label scale, which can now also be changed manually.

32E5 – Profile Line Removed After Rescaling

Due to corrupt or incorrect widening data in the dictionary, the rescaling process could not be completed fully, causing the Profile Line not to be reinserted. In such cases, the widening rubric is now left empty, allowing the rescaling process to complete successfully.

32E5 – Rescale Changes Axis Name in Profile View

If multiple alignments existed in the drawing and one without a Profile View was selected, it could unintentionally rename the Profile View of another alignment. An additional check has now been implemented to ensure that the currently active alignment has a Profile View, preventing this issue.

32G1 – Insert Profile View Crashes on Specific Case

The horizontal offset analysis did not take into account the starting station of the horizontal alignment, which resulted in the offset values and graph being displaced horizontally by the starting station amount. This has been corrected, and the graph and text values are now positioned correctly.

32G5 - Auxiliary Vertical Lines Correctly Generated for Non-Zero Start Stations

An issue affecting the generation of auxiliary vertical lines has been resolved. Auxiliary vertical lines are now generated correctly even when the starting station is not set to 0.

Previously, when a non-zero starting station was used, some auxiliary vertical lines were not fully generated. This fix ensures reliable display of all defined auxiliary vertical lines regardless of the starting station value.

32H9 – Table Without Vertical Curve, Mode »0« Move Table

If a Profile Line contained tangents without vertical curves and the label tables were moved, labels without vertical curve information could be positioned incorrectly because the EED data from the curve was missing. This has been fixed by computing the tangent point when it cannot be read from external data.

Additionally, when the NIV_CURV_TPMODE setting was set to “0” (table positioning mode based on reference height), the table labels could not be moved. Now, when the move command is used, the setting is automatically changed to “1”.

42E1 – CSs With Only Correspondent Sample Lines Can Now Be Created

When a horizontal alignment contained only corresponding sample lines from an adjacent alignment, but not its own sample lines, terrain data for cross-section creation was not read. This has been fixed, and cross sections can now be created for alignments that have only corresponding sample lines.

42H1 - Corrected Selection of Planimetric Quantity Names With Similar Prefixes

An issue affecting the selection of planimetric quantity names has been resolved. Names with similar prefixes are now correctly distinguished when reopening dialogs or editing existing settings.

Previously, if multiple quantity names shared the same beginning, the system could automatically select an incorrect entry. For example, a name such as *Brez* could be replaced with *Brezina* if both existed in the list. This fix ensures that the originally selected name is preserved and displayed correctly.

42H4 – Substructure With Offset Slope Inverted

When drawing a substructure element by selecting only an element on the right side of the alignment, the position of the new element was inverted (placed up instead of down). This issue has been fixed, and it now works correctly in all cases (selecting only the left side, only the right side, or elements on both sides).

42K2 – No Offset of Projection Lines in CS on AutoCAD

In some cases, projection lines could not be drawn in cross sections, even though the line existed in the layout. The issue was resolved by finding the closest point when an intersection was not detected due to CAD precision limitations. Projection points are now drawn in all cases.

42M1 – Planimetry Name Defined With Lower Case With Interactive Method

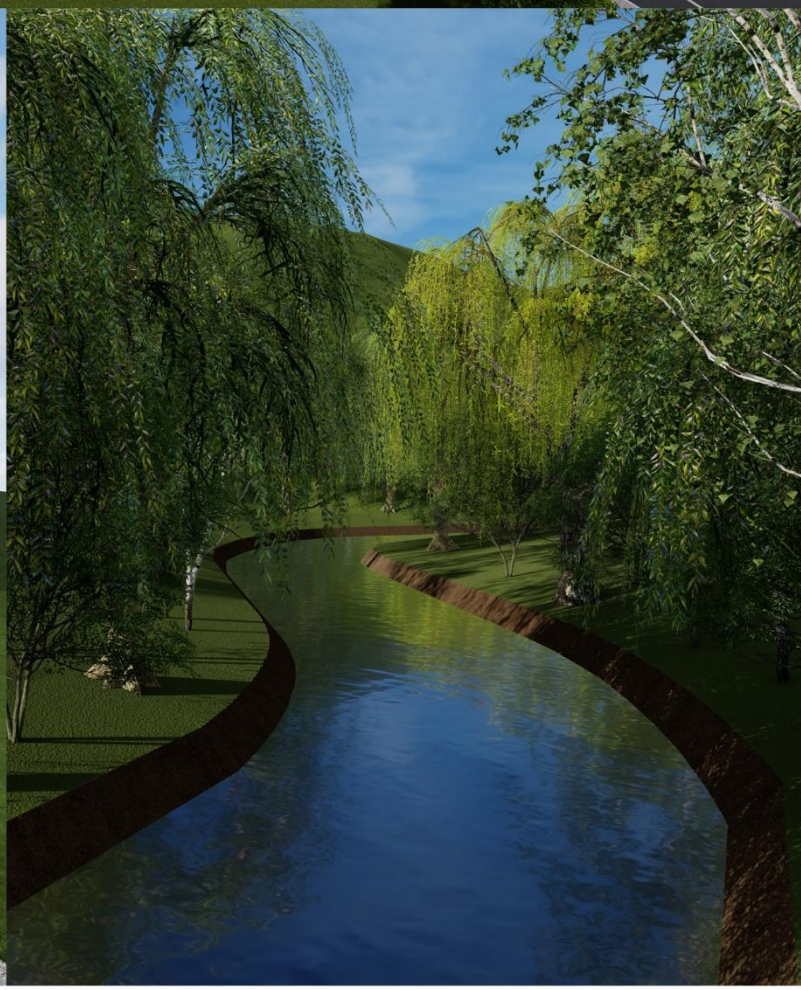
In CGS 2026.1, the interactive method for planimetry was incorrectly changed so that it differentiated between lowercase and uppercase letters, whereas previously only uppercase letters were used for quantities. This has been reverted, and planimetry quantities defined with either uppercase or lowercase letters are now recognized as the same quantities.

LandXML Export – Profile View Not Recognized

Depending on how horizontal alignments and Profile Views for multiple alignments were created, elements such as the profile terrain and design profile were sometimes not recognized during LandXML export. An additional check has been added to identify the correct alignment and associated elements for export, resolving the issue.

LandXML Import – File Not Read Because of the Boundary Data

The horizontal offset analysis did not take into account the starting station of the horizontal alignment, which resulted in the offset values and graph being displaced horizontally by the starting station amount. This has been corrected, and the graph and text values are now positioned correctly.



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