

Release Notes

CIVIL DESIGN AND ENGINEERING

January 2023

Quantm 2023.1

New and improved features	2
Carbon emission from construction embedded into the optimization	2
Add CO2 for construction items	2
Turn on/off CO2 traffic and noise in the alignment summary	4
Import reference alignment with cross section and structures	5
Add fixed section for road and rail	5
Max grade increased to +-55 %	6
Orthophoto attached to the project's mdb file	7
Crossing rule for culvert	7
Quantm Corridor able to display construction CO2	8
Review quantities in the Cross Section view	9
Cadastral calculated as clip footprint	10
Switch structures on/off	11
Fixed	12
Turn off white Geometric string in the Google Earth export	12
Export Alignment Summary to Excel with numbers	12
Import alignment HintCad, issue with tunnel (China)	12
Import HintCAD files with different start station (China)	12
GIS areas can now have unlimited points	13
Unlimited waystation radius	13
New Icons for "Fixed Section" and "Waypoint"	13
Crash when trying to cut alignments by start and stop chainage	13
Export dxf/dwg alignments with cut and fill	14
Export Alignment Summary to Excel with numbers	14
Reaching Sales, Support, and the Community	15



New and improved features

Carbon emission from construction embedded into the optimization

Quantm is now able to not only calculate the CO2 from construction, but also optimize alignment taking the CO2 into account during the submission.

Add CO2 for construction items

Possible to add a CO2 cost/tonne for carbon emissions coming from construction under “Cost Parameters” and the tab “global”

Cost Parameters

Global | Material | Geology | Fill | Template Materials | Bridge | Tunnel | Wall | Culvert | Area | Linear | Fixed

Earth movement cost			
Haul	8,00	\$/m³/km	2,00 CO2/m³/km
Dump	8,50	\$/m³	3,00 CO2/m³
Borrow	10,00	\$/m³	4,00 CO2/m³

CO2 1,00 \$/tonne

OK Cancel

The results will be shown in the alignment summary

Alignment Summary



Excel Worksheet



Item	Quantity		\$ %		CO2 %
Source					
Cut (m³)	1 080 000	6 610 000	1	3 130 000	2
Tunnel Debris (m³)	122 000	0 0		0 0	
Import (m³)	0	0 0		0 0	
Borrow (m³)	0	0 0		0 0	
Destination					
Fill (m³)	775 000	1 940 000	0	1 550 000	1
Export (m³)	0	0 0		0 0	
Dump (m³)	387 000	3 290 000	0	1 160 000	1
Template Materials		82 600 000	7	47 300 000	29
Mass Haul (m³ km)	865 000	6 920 000	1	1 730 000	1
Ret. Wall (m²)	101 158	809 000 000	67	62 700 000	38
Culvert (m)	0	0 0		0 0	
Bridge (m)	248	11 600 000	1	2 580 000	2
Tunnel (m)	2 440	56 100 000	5	10 700 000	6
Footprint Area (m²)	1 430 000	70 100 000	6	34 100 000	21
Linear (m)	47 110	0 0		0 0	
Cadastral	0	0 0		0 0	
Fixed Cost		0 0		0 0	
CO2 (Construction)		165 000 000	14	165 000 000	
Traffic Cost		1 280 0		1 280	
Total cost		1 210 000 000		165 000 000	

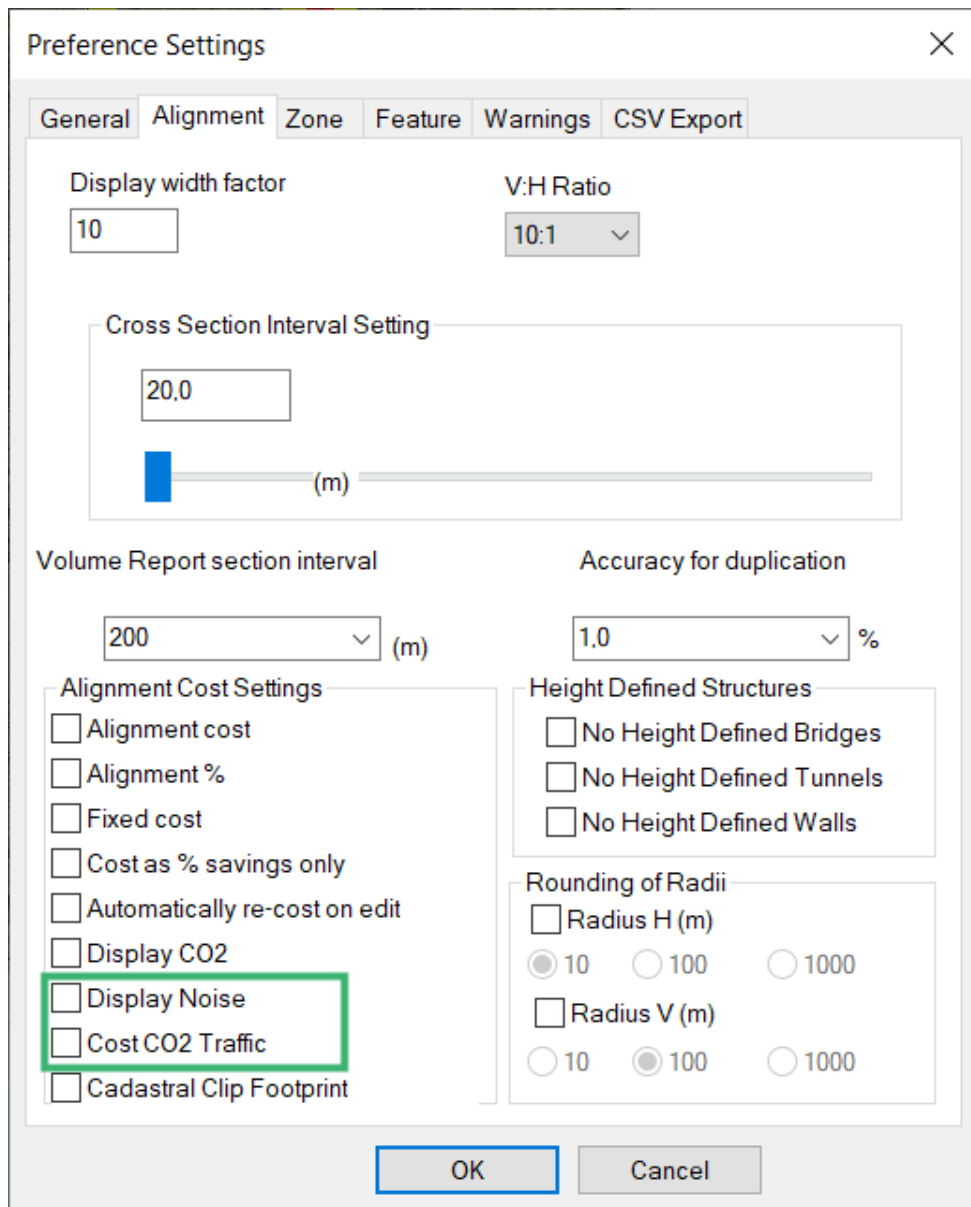
Item

[Geometric](#)

[Warnings](#) HR, HT, HX, VX

Turn on/off CO2 traffic and noise in the alignment summary

Under preference settings and alignment users can turn on/off the possibility to display CO2 from traffic and noise



The image shows a 'Preference Settings' dialog box with the 'Alignment' tab selected. The dialog has several sections: 'Display width factor' with a value of 10; 'V:H Ratio' set to 10:1; 'Cross Section Interval Setting' with a value of 20.0 and a slider; 'Volume Report section interval' set to 200 (m); 'Accuracy for duplication' set to 1.0 (%); 'Alignment Cost Settings' with checkboxes for 'Display CO2' and 'Display Noise' (both highlighted with a green box); 'Height Defined Structures' with checkboxes for 'No Height Defined Bridges', 'No Height Defined Tunnels', and 'No Height Defined Walls'; and 'Rounding of Radii' with radio buttons for 'Radius H (m)' and 'Radius V (m)', each with options for 10, 100, and 1000. The 'OK' button is highlighted with a blue box.

Preference Settings

General Alignment Zone Feature Warnings CSV Export

Display width factor: 10

V:H Ratio: 10:1

Cross Section Interval Setting: 20.0 (m)

Volume Report section interval: 200 (m)

Accuracy for duplication: 1.0 %

Alignment Cost Settings

- ☐ Alignment cost
- ☐ Alignment %
- ☐ Fixed cost
- ☐ Cost as % savings only
- ☐ Automatically re-cost on edit
- ☐ Display CO2
- ☐ Display Noise
- ☐ Cost CO2 Traffic
- ☐ Cadastral Clip Footprint

Height Defined Structures

- ☐ No Height Defined Bridges
- ☐ No Height Defined Tunnels
- ☐ No Height Defined Walls

Rounding of Radii

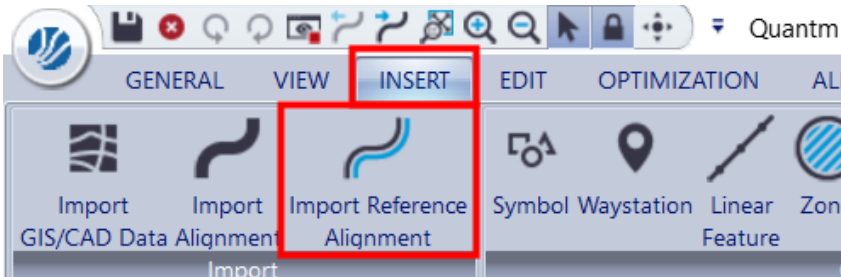
Radius H (m): ☒ 10 ☐ 100 ☐ 1000

Radius V (m): ☐ 10 ☒ 100 ☐ 1000

OK Cancel

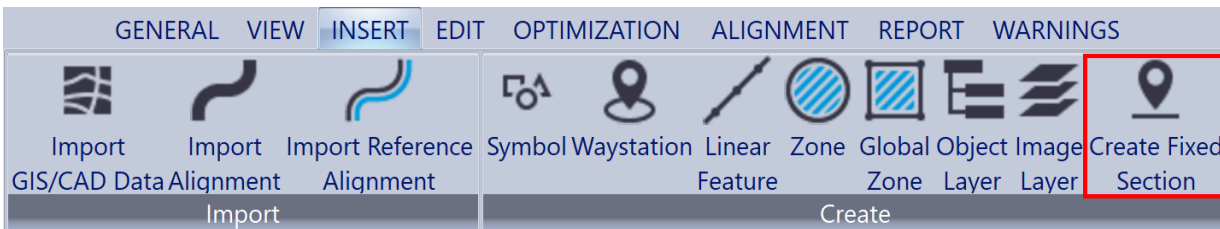
Import reference alignment with cross section and structures

You can now import LandXML reference alignments with cross sections and structures. This allows you to compare alignments in other software with alignments in Quantm.



Add fixed section for road and rail

You can now create a fixed station for both road and rail. This function is typically used for railways where a fixed station is required and for road/windmill projects where a typical platform is needed.



Max grade increased to +-55 %

It is now possible to have +-55% in max grade (before was +-35%)

Geometric Parameters

Geometry type

20

30

40

50

Horizontal

Vertical

Grade

Template

Downhill

Sustained grade...	Max Grad...	Sample Length (m)
<div><div></div><div>-8.000</div></div>	-55	20000.000

Uphill

Sustained grade...	Max Grad...	Sample Length (m)
<div><div></div><div>8.000</div></div>	55	20000.000

Minimum Grade


Downhill (%)

-5

Uphill (%)

5

TRANSFORMING THE WAY THE WORLD WORKS

 Trimble

Quantm 2023.1 Release Notes

6

Orthophoto attached to the project's mdb file

If the Orthophoto is stored in the Quantm project folder, it will automatically be included in the project if it's sent and opened by another user.

Crossing rule for culvert

It is now possible to set a crossing clearance (m) for culverts when it crosses features or areas.

River Feature

Name: New river Width (m): 10 Layer: River

Earth moving: No effect Usable (m3): 0 Unusable (m3): 0

Reference altitude: Natural surface

Crossing type: Culvert No. of cells: 1

Clearance (m): > 5.00

Culvert type
Default Culvert
New...

OK Cancel

Quantm Corridor able to display construction CO2

You can now review CO2 from construction with the Quantm Corridor version.

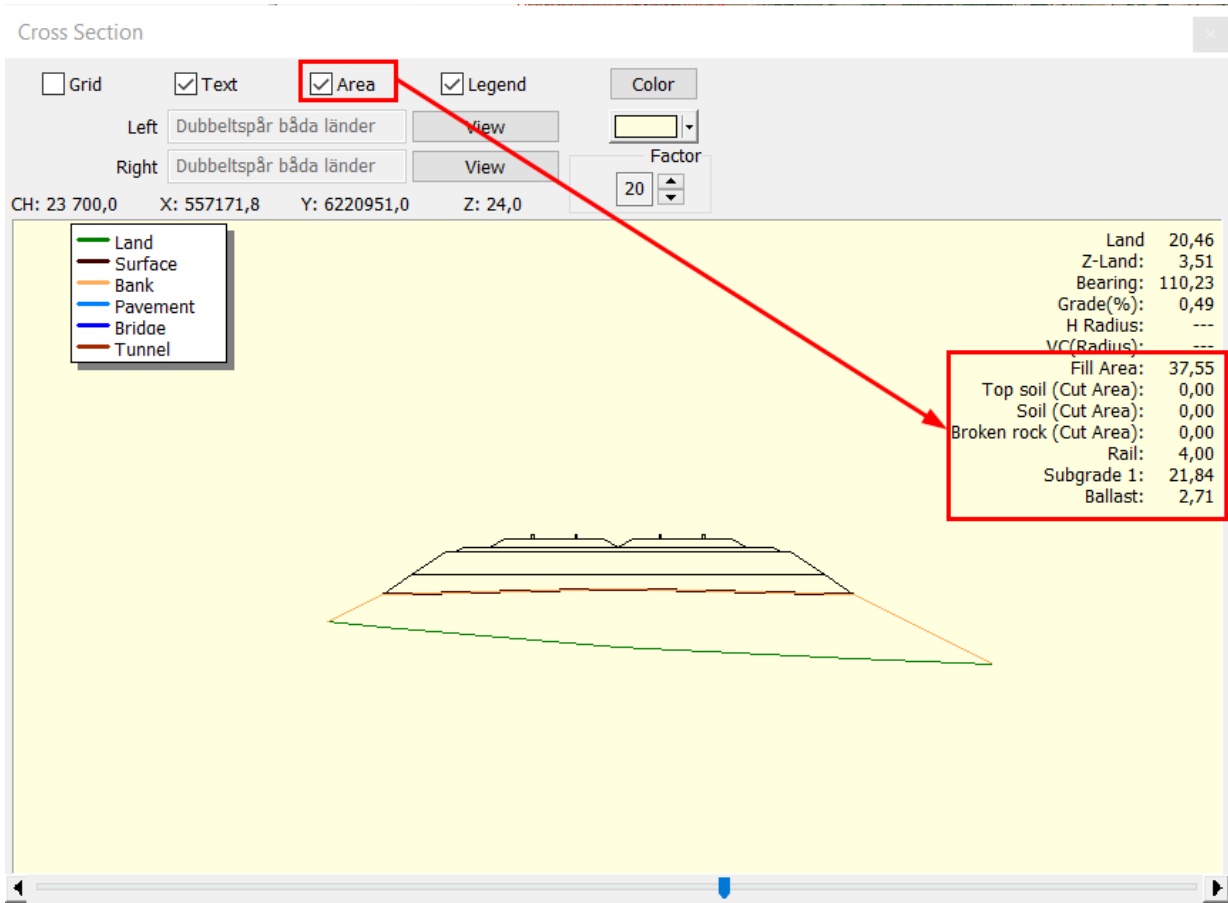
Alignment Summary

Excel Worksheet

Item	Quantity	kr %	CO2 %
Source			
Cut (m³)	0	0 0	913 000 1
Tunnel Debris (m³)	0	0 0	0 0
Import (m³)	0	0 0	0 0
Borrow (m³)	0	0 0	3 920 000 2
Destination			
Fill (m³)	0	0 0	25 800 000 16
Export (m³)	0	0 0	0 0
Dump (m³)	0	0 0	660 000 0
Template Materials		0 0	0 0
Mass Haul (m³ km)	0	0 0	3 720 000 2
Ret. Wall (m²)	0	0 0	372 000 0
Culvert (m)	0	0 0	0 0
Bridge (m)	0	0 0	0 0
Tunnel (m)	0	0 0	105 000 000 66
Footprint Area (m²)	0	0 0	0 0
Linear (m)	14 679	0 0	0 0
Cadastral	0	0 0	0 0
Fixed Cost		0 0	0 0
Construction Cost	90 100 000	0	159 000 000
Traffic Cost		0 0	398
Noise barrier		0 0	0
Total cost	90 100 000		159 000 000

Item

Review quantities in the Cross Section view



Cadastral calculated as clip footprint

Quantm can now consider cadastral areas as a clip footprint if it's activated in the preference setting.

Preference Settings

GeneralAlignmentZoneFeatureWarningsCSV Export

Display width factor

1

V:H Ratio

10:1

Cross Section Interval Setting

38.2

(m)

Volume Report section interval

200

(m)

Accuracy for duplication

1.0

%

Alignment Cost Settings

☒ Alignment cost

☒ Alignment %

☒ Fixed cost

☐ Cost as % savings only

☒ Automatically re-cost on edit

☐ Display CO2

☐ Cadastral Clip Footprint

Height Defined Structures

☐ No Height Defined Bridges

☐ No Height Defined Tunnels

☐ No Height Defined Walls

Rounding of Radii

☐ Radius H (m)

☒ 10

☐ 100

☐ 1000

☐ Radius V (m)

☐ 10

☒ 100

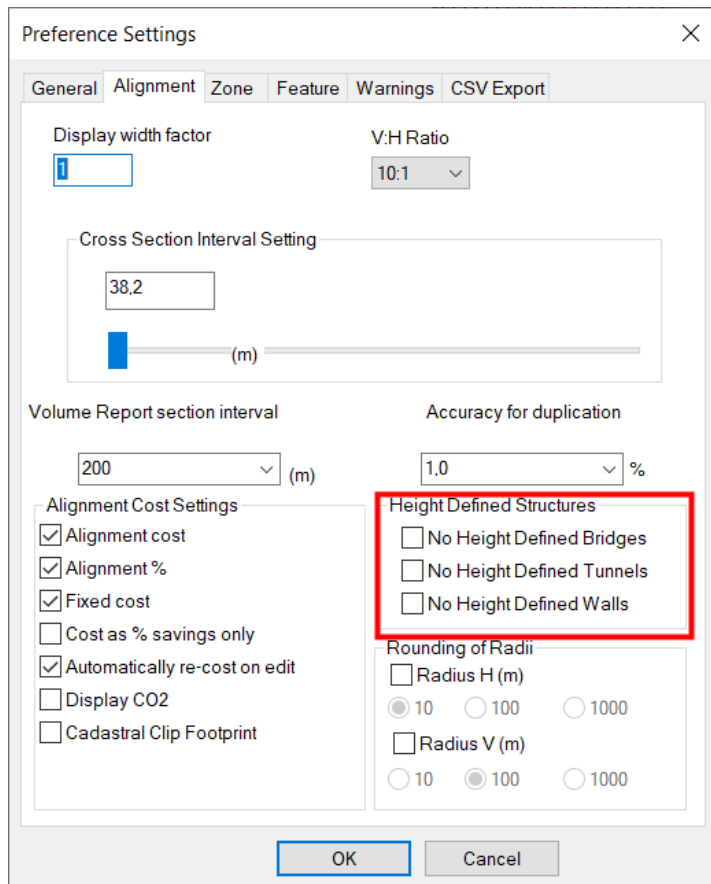
☐ 1000

OK

Cancel

Switch structures on/off

It's now possible to turn off walls, bridges, and/or tunnels.



The image shows the 'Preference Settings' dialog box with the 'Feature' tab selected. The 'Height Defined Structures' section is highlighted with a red box, containing three unchecked checkboxes: 'No Height Defined Bridges', 'No Height Defined Tunnels', and 'No Height Defined Walls'. Other visible settings include 'Display width factor' (1), 'V:H Ratio' (10:1), 'Cross Section Interval Setting' (38.2), 'Volume Report section interval' (200), 'Accuracy for duplication' (1.0), and 'Alignment Cost Settings' with various cost-related checkboxes.

Preference Settings

General Alignment Zone Feature Warnings CSV Export

Display width factor: 1

V:H Ratio: 10:1

Cross Section Interval Setting: 38.2 (m)

Volume Report section interval: 200 (m)

Accuracy for duplication: 1.0 %

Alignment Cost Settings

- ☒ Alignment cost
- ☒ Alignment %
- ☒ Fixed cost
- ☐ Cost as % savings only
- ☒ Automatically re-cost on edit
- ☐ Display CO2
- ☐ Cadastral Clip Footprint

Height Defined Structures

- ☐ No Height Defined Bridges
- ☐ No Height Defined Tunnels
- ☐ No Height Defined Walls

Rounding of Radii

Radius H (m): ☐ 10 ☐ 100 ☐ 1000

Radius V (m): ☐ 10 ☒ 100 ☐ 1000

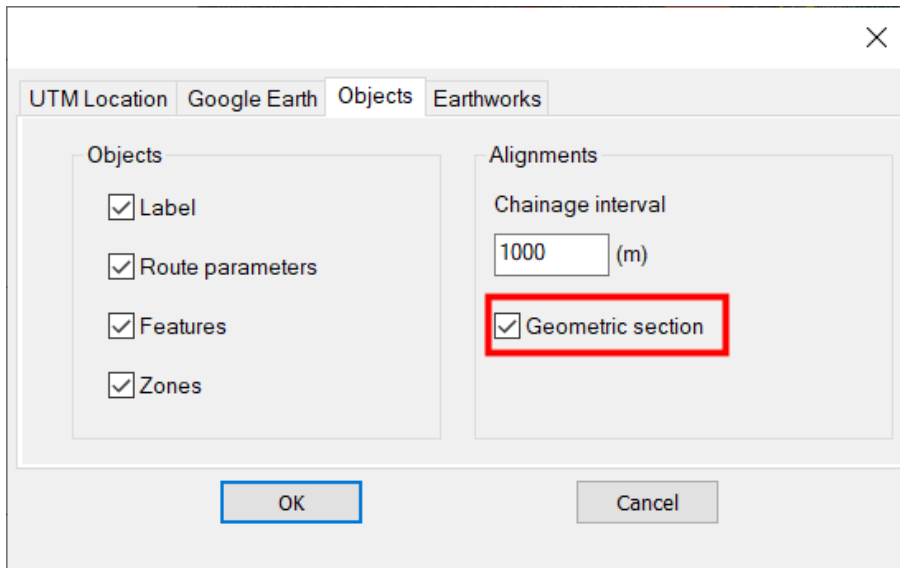
OK Cancel



Fixed

Turn off white Geometric string in the Google Earth export

You can now export alignments to Google Earth without including the white geometric line.



Export Alignment Summary to Excel with numbers

Before the exported Microsoft Excel sheet was general, now it will be numbered. This makes it easier to work with the Excel sheets, because you don't have separations between high numbers.

Import alignment HintCad, issue with tunnel (China)

Before, Quantm could not generate tunnels with CTR files when importing from HintCAD. It is fixed in this version. If you import alignments with HintCAD files, the tunnels and bridges can be generated correctly with the data in the CTR file.

Import HintCAD files with different start station (China)

You can now import HintCad files with different start stations.

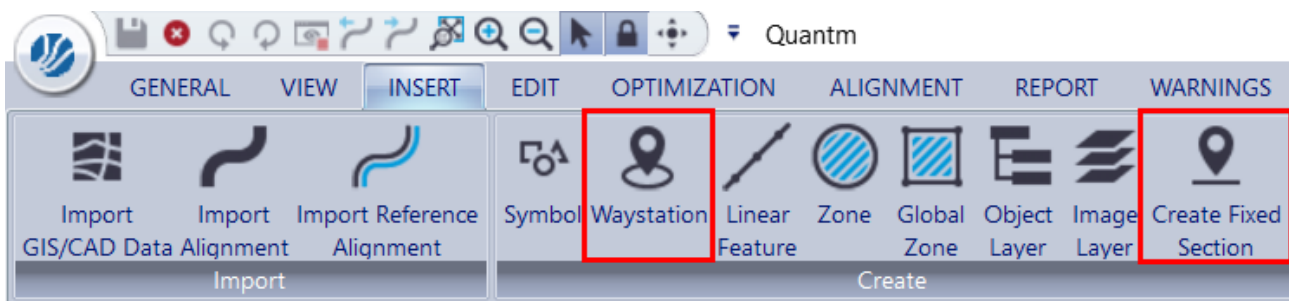
GIS areas can now have unlimited points

Before, a GIS zone could have 3000 points. If your project exceeded this value, a warning would appear in the data validation. Now you can have as many points as you need.

Unlimited waystation radius

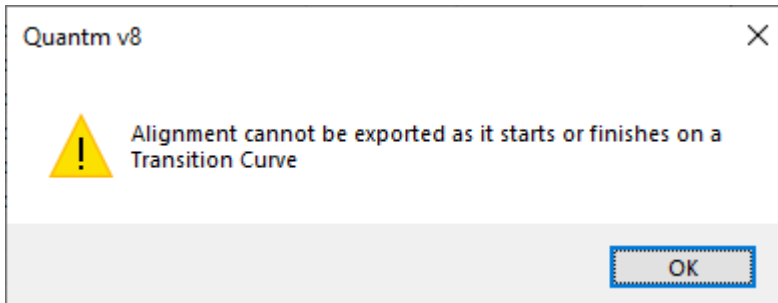
Before, the maximal radius of a waystation was 10.000 m. If this value existed, a warning would show up in the data validation. Now you can have waystations as large as you would like.

New Icons for “Fixed Section” and “Waypoint”



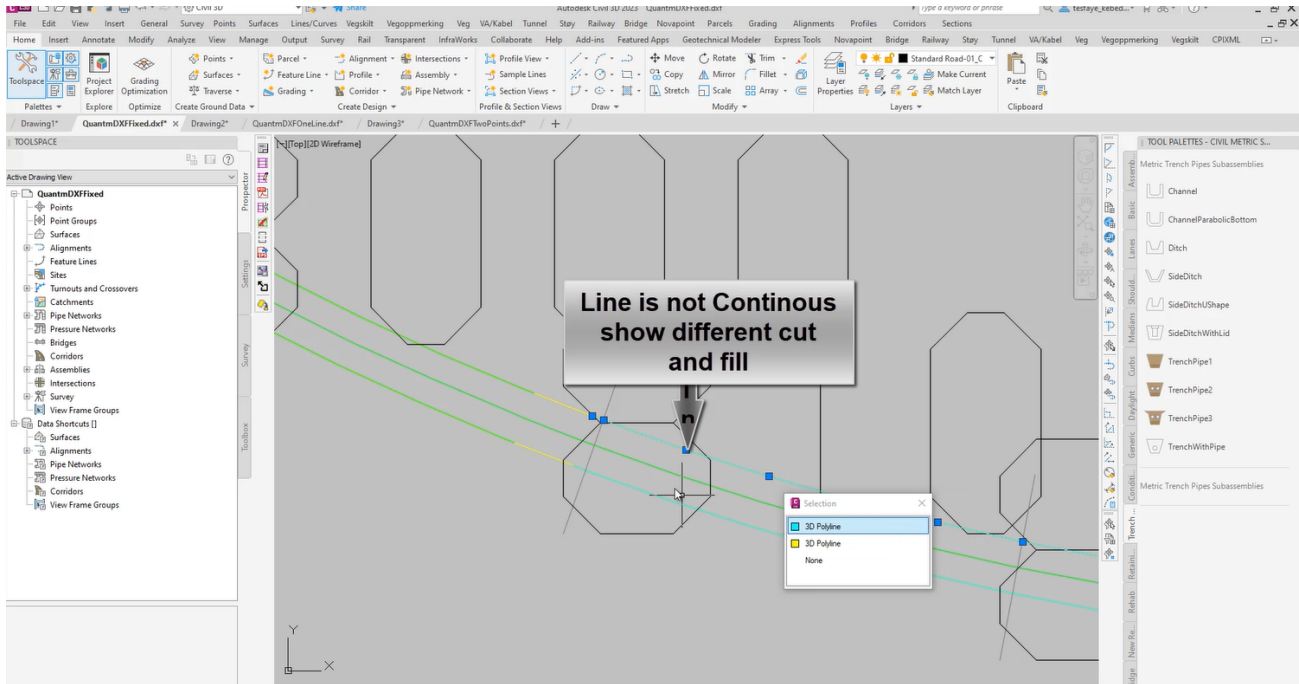
Crash when trying to cut alignments by start and stop chainage

If you cut an alignment in a transition curve, you will get this warning when you try to export.



Export dxf/dwg alignments with cut and fill

When exporting the Quantm centerline and footprint, you now have the ability to show whether the footprint is in cut or fill.



Export Alignment Summary to Excel with numbers

You can now export Microsoft Excel reports of the alignment summary with numbers.

Reaching Sales, Support, and the Community

For more information, please use these resources:

Quantm Resource Center

Search for release notes, installation guide, license activation guide, learning guides, and technical articles, and more in the [Quantm Resource Center](#)!

Quantm Support email

Visit civil.support@trimble.com.

Trimble Connected Construction

Read more about how Trimble construction software solutions connect each lifecycle phase of your civil construction projects [here](#).

