Trimble Business Center

Utility Conformance Workflow

Contents

Introduction and background information

The ***'Utility Conformance Report'*** provides reporting functionality for as-built strings against a surface and displays grades, cover, and location. This command is ideal for reporting underground conduits and subsoils. The following workflow shows users how to perform conformance reporting on data typically seen on civil projects.

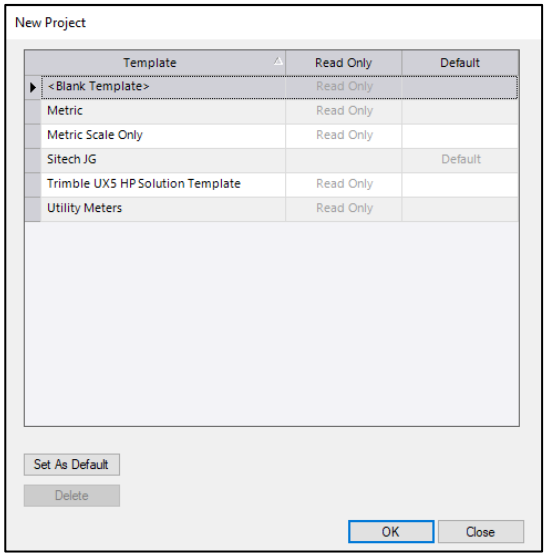
1. Importing Data

Launch a new project

In Trimble Business Center, do either of the following:

1. On the Start Page, click the **New Project** button.
2. In the TBC ribbon, select **File > New**.

The **New Project** window will display.

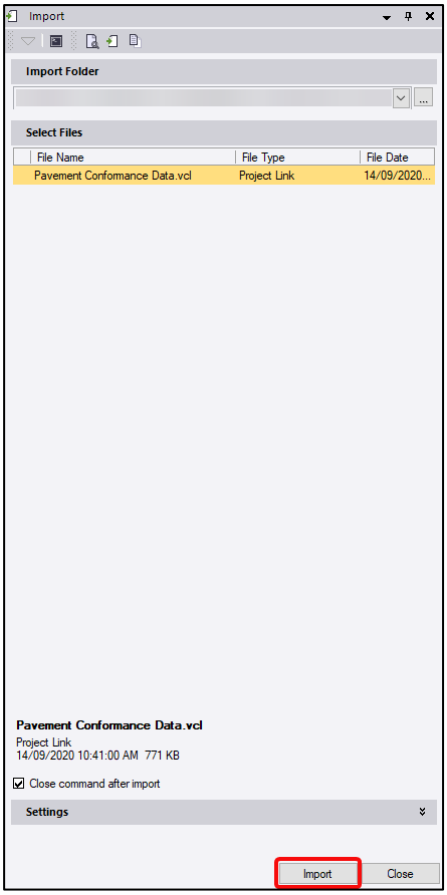


Select *Metric* template or your own default template and click **OK.** The **Plan View** will then display.

Import data

To import data:

1. Start by opening the import window. Navigate to **Home > Data Exchange > Import.**
2. In the import window **click** the ... **icon**. The Import Folder window should display.
3. Navigate to the folder containing the drainage data you wish to import. **Click OK**.
4. In the import window **select** the file containing the data you wish to import. Change the settings if required. **Click Import**.



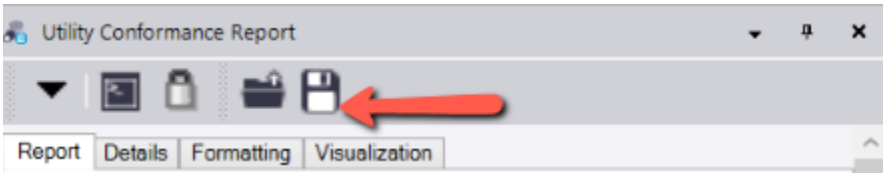
2. Open the command

Navigate to the **Utility Conformance** icon on the ribbon to open the command or press F12 and type in the command name.

3. Save and Load Templates

The utility conformance report tool allows tolerance templates to be saved and loaded into the reporting tool. This means the user can fill out information in each settings tab, then save it as a template for future use. Once you have all relevant data filled in and the report is ready to be created the template can be exported by:

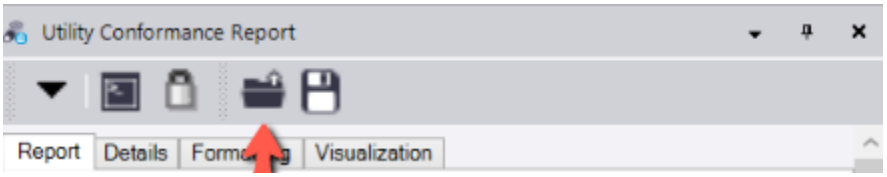
- Clicking the icon at the top of the tool bar.



- Choose the folder you wish to save the template to and click **save**.

To load a saved template:

- Click the icon at the top of the tool bar.



- Navigate to the file containing the template, select the file and click **Open.**

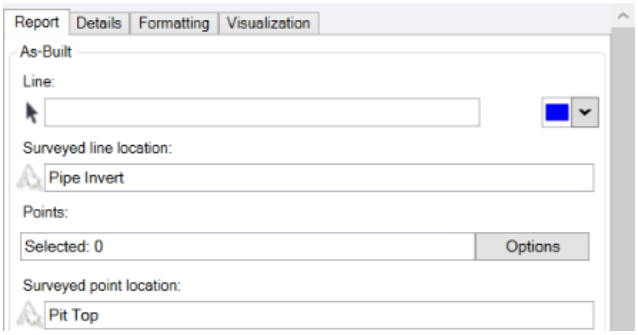
The file should load into the tool and automatically fill the predefined fields in each tab.

4. Reference File Data

When using the reports, the following picker is available on some selection boxes. When you see the “Ref…” button it means that you can select a line from a reference file. This allows you to keep the design and as-built files as separate TBC projects, reducing duplication.

5. Report Settings Tab

The report setting tab provides selection fields for the data being reported as well as options and tolerance settings.



As-built

This section allows selection of the as-built utility line and points to be reported on. A line or points or both can be used to run the report. *Note: Reporting intervals are required to be used if a line is selected.*

The ‘Surveyed line location’ and ‘Surveyed point location’ are the location names that will be used in the column headings of the report.

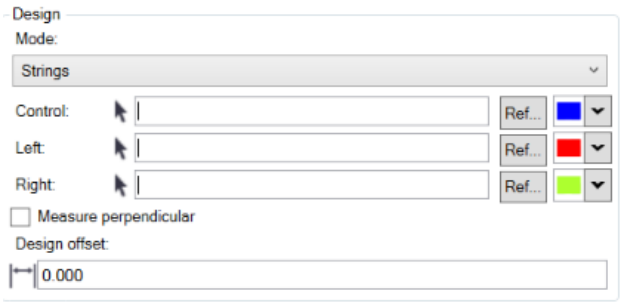
Design

There are two design modes for the utility conformance report.

1. **Surface** mode allows a surface to be selected to compare the as-built data to. Select Surface mode and in the dropdown select the design surface.

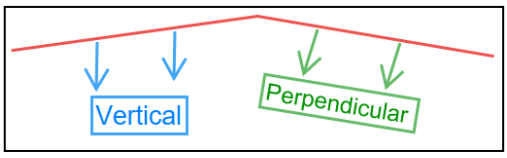
OR

2. **Strings** mode allows a control, left and right string to be selected to compare against.



Measure Perpendicular

The Measure perpendicular tick box changes the computation type from vertical to perpendicular.



If required, **click the box** to select the perpendicular measurement type.

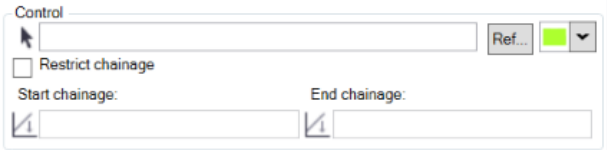
Design Offset

If you are performing conformance to a pavement subsurface layer, a surface offset depth can be applied.

- If required, click in the **Design offset** field, and enter a surface offset in metre units. This will be applied either vertically or perpendicular depending on the above setting chosen.

Control Line

The report uses an control or alignment string to report the conformance against. This is required as the report contains chainage, offset and direction details.



Restrict Chainage

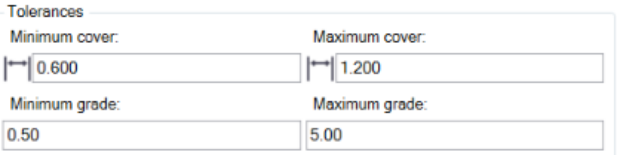
Restrict chainage allows you to limit the start and end chainage.

- Either type in a start and end chainage or select the values in the plan view.

Tolerances

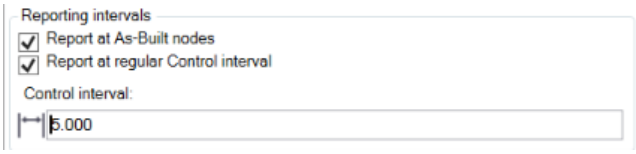
Tolerances are defined as upper and lower values in metre units for cover and percentage for grade.

- **Click** in the **Upper tolerance** field, enter a suitable value. Repeat for **lower tolerance**.



Reporting Intervals

At least one reporting interval is required to be ticked to report the as-built line. If neither option is selected the report will only work for the points selected. If no points are selected the report will not generate.



Report As-Built nodes

This reports only the nodes on the as-built line string.

Report at regular Control interval

This reports at regular intervals you specify in **Control interval** along the as-built line string rather than or as well as at nodes.

Display Options

The display options are used to toggle on or off columns that will be displayed in the report.

Combine points and lines

This option will include the as-built line and selected points into the same vertical summary of the report. If there are no **Reporting Intervals** selected, then use this to report the points only. If unchecked points and lines are reported separately.

Include as-built grades

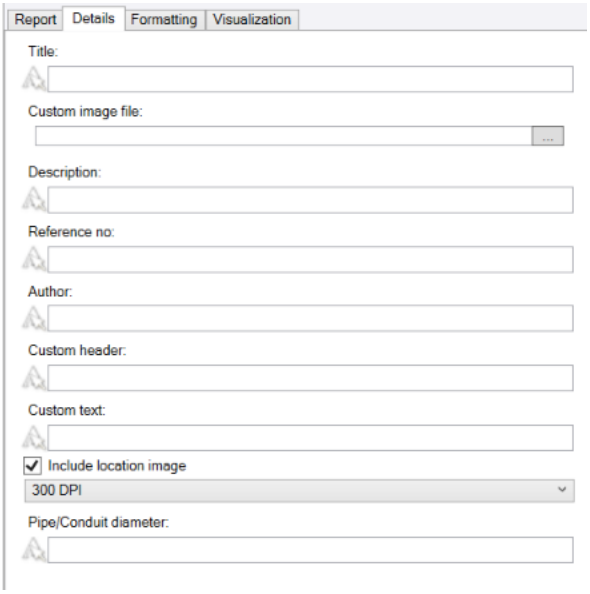
This is to include the as-built grades in the report.

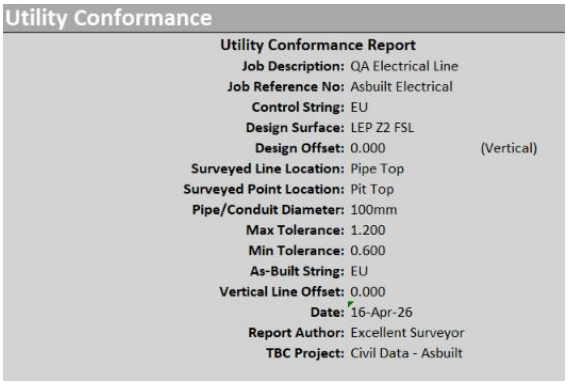
6. Details Settings Tab

The details settings tab provides fields to add report information such as the report title, description, reference number (job number) and surveyor name are all defined by the user in this tab. There is also a custom header and custom text area for the user to define their own.

Select a “png” or “bmp” image file to be added as a custom image file to the top right corner of the report. E.g., company Logo or project image. This only appears if you have a ***Title*** filled out.

Check the **Include location image** box to add a snapshot of your current view to the report. The image clarity can be controlled by the DPI dropdown.

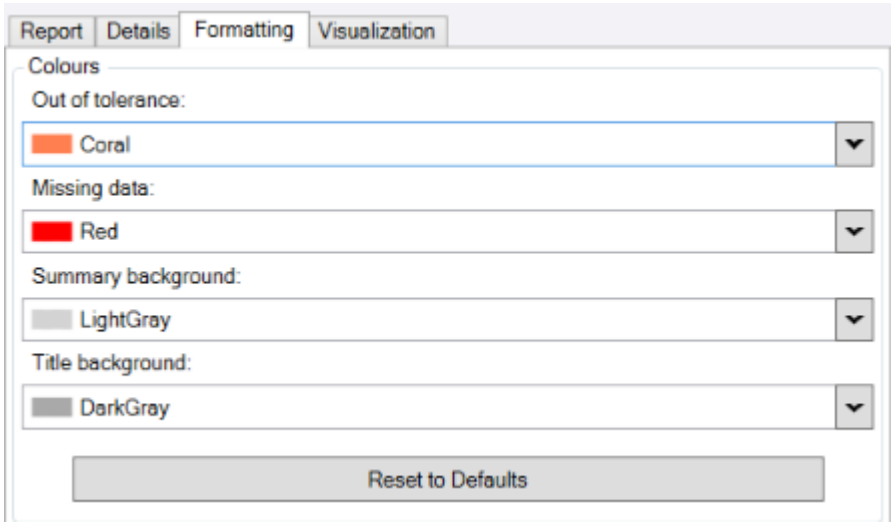




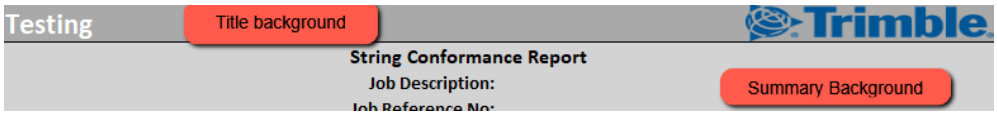
7. Formatting Settings Tab

The formatting tab is used to adjust the colour variations to the generated report.

Use **Reset to Defaults** to revert to the default colours, shown below.

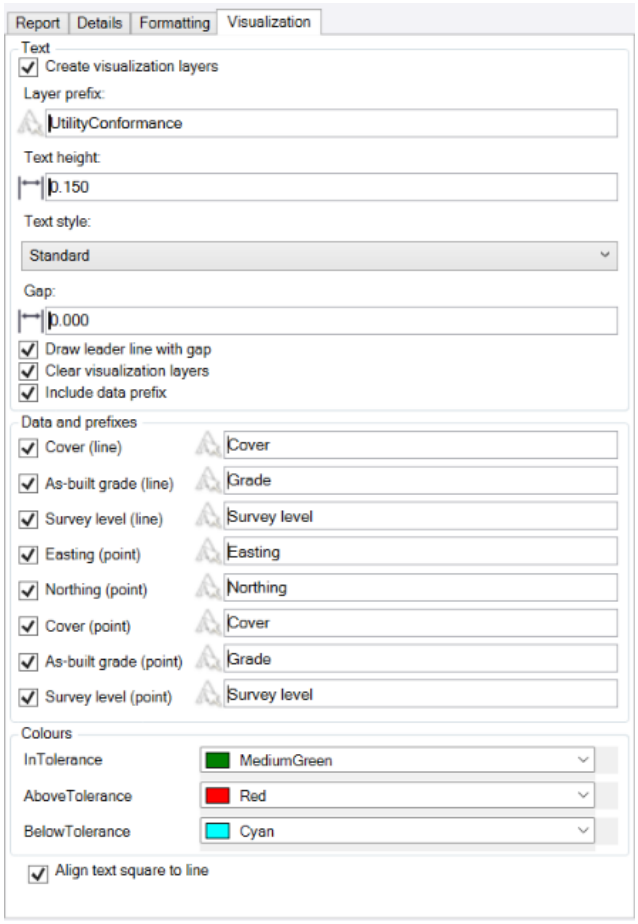


Note: Title background is active when there is a Title used in the details tab, shown in #6.



8. Visualization Settings Tab

The visualization tab provides options to create CAD text data displaying information about the conformance point and tolerances.



- **Click** the **Create visualization layers** box to enable the creation of CAD text detailing the conformance point.

Layer prefix

The layer prefix field sets a text prefix to the layers created to store the visualization text data. The default prefix is 'UtilityConformance'. If the default value is not suitable, replace the text in the Layer prefix field.

Text height

The text height field is used to set the size of the CAD text created. **Input** the desired **text height**.

Text Style

The text style drop down is used to choose an existing or create a new text style for the conformance text. **Select** an **existing text style** or create a **new text style**.

Gap

The Gap setting is the distance in metres that the insertion point of the text will be right of the node it is created for.

Clear visualization layers

Clears all visualization point object layers each time the Visualize button is clicked. By default, this box is ticked.

Include data prefix

The include data prefix allows the data prefix such as conformance, design, As-built etc. to be toggled on or off. By default, this box is ticked.

Data

This allows the user to toggle on or off the text associated with the report. The headings can be adjusted by the user.

- Cover (line) – level difference from Line to surface
- As-built Grade (line) – grades between reported nodes on the line.

- Survey level (line) – As-built survey level of the position on the line.
- Easting (point) – Easting of point
- Northing (point) – Northing of point
- Cover (point) – level difference from point to surface
- As-Built grade (point) – grades between reported points only when no line grades are reported.
- Survey level (point) – As-built survey level of the point

Colours

Adjust the colours used in the plan view.

Click the **Visualize** button to create customised text in the model view (plan and 3D) on specific layers. View the results.

Align text square to line

Draw text perpendicular to the As-built line selected.

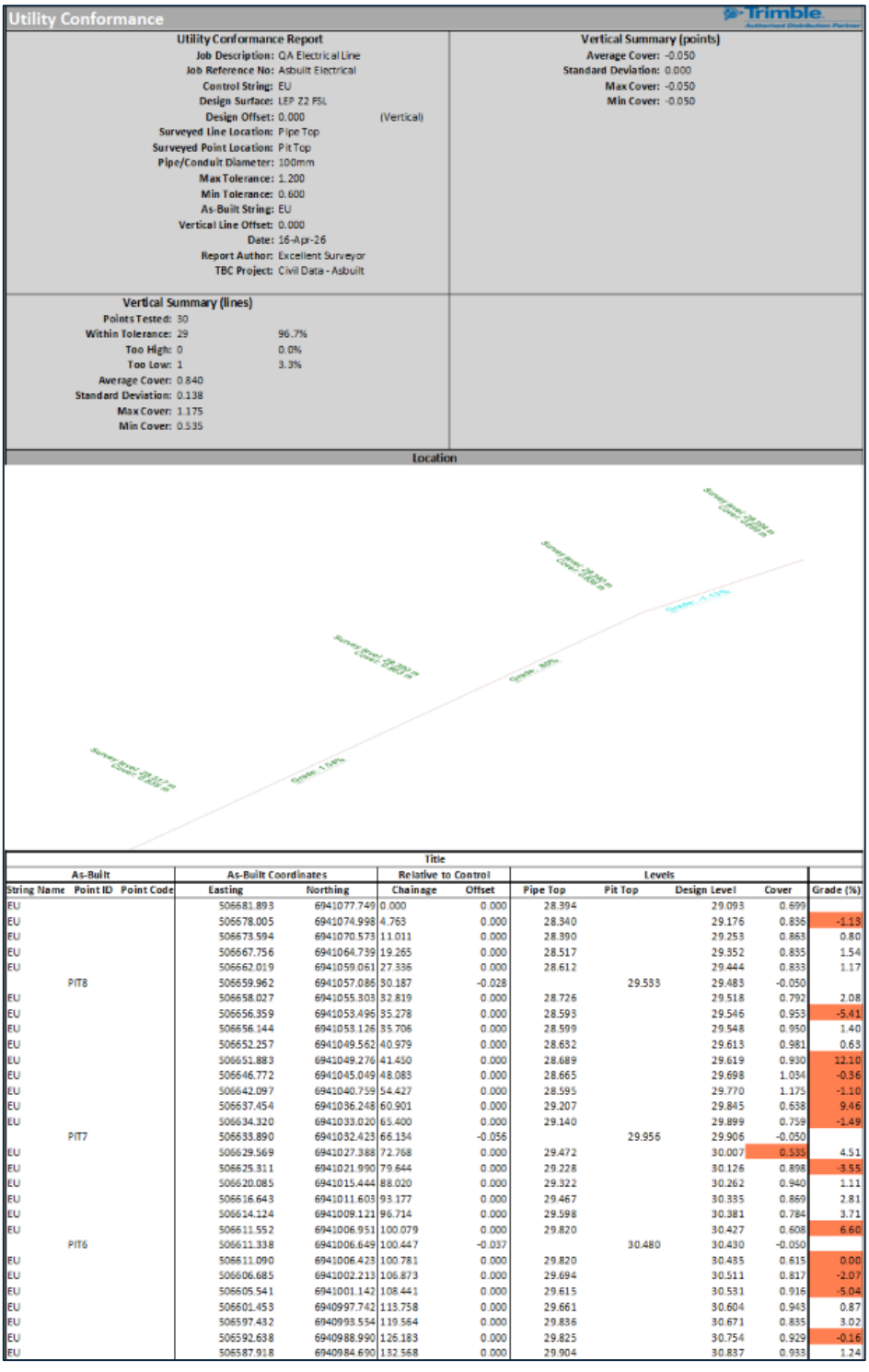
9. Create report

Review tabs as required to verify all options are set correctly.

- **Click** the **Create Report** button to generate Excel report.

Example report

Below is an example report.



Utility Conformance

Utility Conformance Report

Job Description:	QA Electrical Line
Job Reference No:	Asbuilt Electrical
Control String:	EU
Design Surface:	LEP Z2 FSL
Design Offset:	0.000 (Vertical)
Surveyed Line Location:	Pipe Top
Surveyed Point Location:	Pit Top
Pipe/Conduit Diameter:	100mm
Max Tolerance:	1.200
Min Tolerance:	0.600
As-Built String:	EU
Vertical Line Offset:	0.000
Date:	16-Apr-26
Report Author:	Excellent Surveyor
TBC Project:	Civil Data - Asbuilt

Vertical Summary (points)

Average Cover:	-0.050
Standard Deviation:	0.000
Max Cover:	-0.050
Min Cover:	-0.050

Vertical Summary (lines)

Points Tested:	30	
Within Tolerance:	29	96.7%
Too High:	0	0.0%
Too Low:	1	3.3%
Average Cover:	0.840	
Standard Deviation:	0.138	
Max Cover:	1.175	
Min Cover:	0.535	

Location

Title

As-Built			As-Built Coordinates		Relative to Control		Levels				
String Name	Point ID	Point Code	Easting	Northing	Chainage	Offset	Pipe Top	Pit Top	Design Level	Cover	Grade (%)
EU			506681.893	6941077.749	0.000	0.000	28.394		29.093	0.699	
EU			506678.005	6941074.998	4.763	0.000	28.340		29.176	0.836	-1.13
EU			506673.594	6941070.573	11.011	0.000	28.390		29.253	0.863	0.80
EU			506667.756	6941064.739	19.265	0.000	28.517		29.352	0.835	1.54
EU			506662.019	6941059.061	27.336	0.000	28.612		29.444	0.833	1.17
	PIT8		506659.962	6941057.086	30.187	-0.028		29.533	29.483	-0.050	
EU			506658.027	6941055.303	32.819	0.000	28.726		29.518	0.792	2.08
EU			506656.359	6941053.496	35.278	0.000	28.593		29.546	0.953	-5.41
EU			506656.144	6941053.126	35.706	0.000	28.599		29.548	0.950	1.40
EU			506652.257	6941049.562	40.979	0.000	28.632		29.613	0.981	0.63
EU			506651.883	6941049.276	41.450	0.000	28.689		29.619	0.930	12.10
EU			506646.772	6941045.049	48.083	0.000	28.665		29.698	1.034	-0.36
EU			506642.097	6941040.759	54.427	0.000	28.595		29.770	1.175	-1.10
EU			506637.454	6941036.248	60.901	0.000	29.207		29.845	0.638	9.46
EU			506634.320	6941033.020	65.400	0.000	29.140		29.899	0.759	-1.49
	PIT7		506633.890	6941032.423	66.134	-0.056		29.956	29.906	-0.050	
EU			506629.569	6941027.388	72.768	0.000	29.472		30.007	0.535	4.51
EU			506625.311	6941021.990	79.644	0.000	29.228		30.126	0.898	-3.55
EU			506620.085	6941015.444	88.020	0.000	29.322		30.262	0.940	1.11
EU			506616.643	6941011.603	93.177	0.000	29.467		30.335	0.869	2.81
EU			506614.124	6941009.121	96.714	0.000	29.598		30.381	0.784	3.71
EU			506611.552	6941006.951	100.079	0.000	29.820		30.427	0.608	6.60
	PIT6		506611.338	6941006.649	100.447	-0.037		30.480	30.430	-0.050	
EU			506611.090	6941006.423	100.781	0.000	29.820		30.435	0.615	0.00
EU			506606.685	6941002.213	106.873	0.000	29.694		30.511	0.817	-2.07
EU			506605.541	6941001.142	108.441	0.000	29.615		30.531	0.916	-5.04
EU			506601.453	6940997.742	113.758	0.000	29.661		30.604	0.943	0.87
EU			506597.432	6940993.554	119.564	0.000	29.836		30.671	0.835	3.02
EU			506592.638	6940988.990	126.183	0.000	29.825		30.754	0.929	-0.16
EU			506587.918	6940984.690	132.568	0.000	29.904		30.837	0.933	1.24