

Bonus Tools

Manual



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1. INTRODUCTION

Microsoft Visual Basic for Applications (VBA) has been designed to provide high-level development capabilities inside off-the-shelf applications. Users of MS-Word and MS-Excel, for example, can make use of VBA to customize and enhance their word-processing or spreadsheet applications.

VBA is also fully integrated within Pythagoras. This results in a high-level development environment for enhancing and customizing Pythagoras. It includes an object model that provides complete read and write access to Pythagoras objects such as points, lines, circular curves, spirals, digital terrain models, and more), and it contains a complete set of sophisticated geometric calculation utilities. This has opened up a new world of capabilities for Pythagoras users around the world.

A few examples:

- ✚ Pythagoras VBA makes it easy to write your own report generators : legal descriptions, stakeout reports, volume calculation reports, etc.
- ✚ You can write customized reports directly to MS-Word documents.
- ✚ Develop macros for specialized tasks
- ✚ Build your own coordinate geometry commands to automate geometric problem solving.
- ✚ Create special macros for importing and exporting data : survey data, geometric data, digital terrain model data, establishing a real time link between Pythagoras and a total station or GPS receiver, etc.

The bottom line: Pythagoras VBA allows you to customize Pythagoras CAD+GIS to meet your particular needs. With VBA, Pythagoras has virtually unlimited power and functionality. If you'd like to find out more about developing your own VBA macros, please contact your local Pythagoras representative.

Of course, quite a number of VBA macros have already been developed to meet the specific needs of land surveyors and civil engineers throughout the world. Some of those VBA macros may be available through your local Pythagoras representative. Again, feel free to contact your local Pythagoras representative to find out more about available VBA macros.

Note : the following terms are used interchangeably : VBA macro, VBA routine, VBA program, VBA utility, etc. They all essentially mean the same thing. All are programs that extend the basic capabilities of Pythagoras.

2. SELECTION

2.1. POINTS INSIDE/OUTSIDE OF POLYGON

WHAT THE MACRO DOES

This macro selects all points that lay inside or outside a selected polygon.

USING THE MACRO

Select a polygon.

Select the menu option Bonus Tools – Selection– Points inside of polygon or Points outside of polygon.

The points defining the polygon will never be selected by this macro, but they can simply be selected by pressing the CTRL key while selecting the polygon.

2.2. POLYGON OBJECTS

WHAT THE MACRO DOES

It will select the points and lines that were used to create the polygon.

USING THE MACRO

Select a polygon, then select the macro function.

3. DRAW

3.1. CREATE POINTS ON LINE OR PATH

WHAT THE MACRO DOES

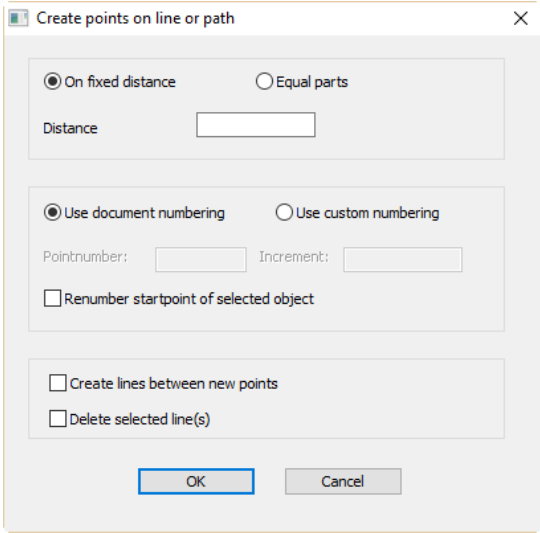
This macro creates new points on a line or path on a fixed distance or on equal parts.

USING THE MACRO

Select a line, arc or path on which you want to create points on.

Select the menu option Bonus Tools – Draw – Create points on line or path.

A dialog box will pop up.



Here you can choose:

How to divide the line:

- the new points have to be placed on a fixed distance
- the path or line will be divided in equal parts.

How the new points will be numbered:

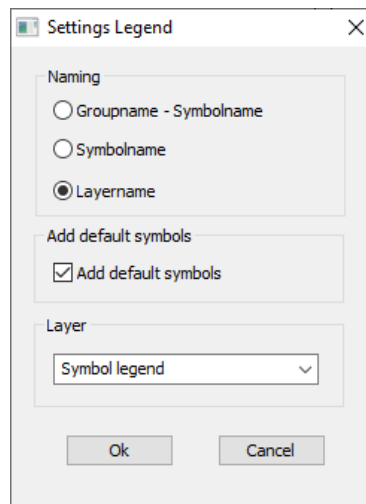
- The newly created points can get the default document numbering, to be set via Settings → Document Settings → Next point number
- A custom numbering. The custom numbering lets you define a start point number, and an increment.

- ✦ If the startpoint of the selected line or path also has to be renumbered.
- ✦ If you want to divide the original line(s) into multiple sub lines.
- ✦ If you want to delete the original line(s)

The created points will have the attributes as specified in the Default menu.

4. SYMBOL TOOLS

4.1. SETTINGS LEGGEND



You can set the legend names to groupname – Symbolname, symbolname or layername.

You can choose to add default symbols or not.

You can set the layer on which the legend appears.

4.2. CREATE LEGEND

WHAT THE MACRO DOES

This macro creates a legend that contains a list of used point styles (symbols), line styles and polygon patterns.

USING THE MACRO

Select the menu option Bonus Tools → Symbol tools → Create legend

The macro will create a table in page coordinates. All point styles, line styles and patterns used in the active document and available in the system library or in the document library will be represented in the legend.

If you would like to edit the legend, make sure to first select Page coordinates (instead of Local coordinates) from the control panel.

DRAW SYMBOL LIBRARY

All symbols, linestyles and patterns are created in the drawing.

5. CONNECT CLOSEST POINT

5.1. SET STARTPOINT – CONNECT CLOSEST POINTS

WHAT THE MACRO DOES

This macro connects series of points based on the shortest distance.

USING THE MACRO

Select the starting point

Select the menu option Bonus Tools → Connect closest points → Set startpoint

Select all points that need to be connected

Select the menu option Bonus Tools → Connect closest points → Connect points


Points with the same coordinates will not be connected. In this case only 1 of the points will be connected. There will be no warning.

6. CHANGE HEIGHT


6.1. TOOL COPY / PASTE



WHAT THE MACRO DOES

The private tool  can be used to copy/paste the height of one point to another point. Note that this function changes the height of points one by one.

USING THE MACRO

1. Select the private tool  from the Macro Tools menu.
2. Click on the first point to copy the height. The point will become green for a short time.
3. Click on the point whose height you want to change (paste the height). The point will become red for a short time.

Result: the second point will get the same height as the first point.

6.2. COPY / PASTE

WHAT THE MACRO DOES

This macro is intended to change the elevation of a number of points simultaneously. The function *Copy* copies the height of a selected point to the clipboard of the macro. The function *Paste* gives all selected points the height as stored on the macro's clipboard.

USING THE MACRO

1. Select a point whose height you want to assign to a number of points
2. Select the menu option Bonus Tools → Change height → Copy
3. Select the points whose height you want to change.
4. Select the menu option Bonus Tools → Change height → Paste

Result : the height of the selected points will be changed to the height of the first point.

7. POINT TOOLS

7.1. SET MULTITEXT OFFSET PARAMETERS

WHAT THE MACRO DOES

This macro sets parameters defining text to point proximity for the following macros described below: “Convert Multitext to Z”, “Convert Multitext to Pointnumber” and “Convert Multitext to Comment”.

This macro is useful when you receive a 2D DXF/DWG file containing such text objects that contain different parameters of near points. Usually, all texts are situated with the same XY offset from the corresponding points.

USING THE MACRO

Select a point and the corresponding text object having typical XY offset concerning the point.

Select the menu option Bonus Tools → Convert text → Set Multitext offset parameters.

The vector from the selected point to the upper left corner of the text is stored, and in the subsequent convert operations a point and a text will match if the vector from this point to the text left upper corner of this text is closer than 1.5 times the stored vector.

7.2. SET MULTITEXT DISTANCE PARAMETERS

WHAT THE MACRO DOES

This macro sets a parameter defining a distance from a text to a point defining whether they will be treated as near when using the following macros described below: “Convert Multitext to Z”, “Convert Multitext to Pointnumber” and “Convert Multitext to Comment”.

USING THE MACRO

Select a point and the corresponding text object having typical distance one from another.

Select the menu option Bonus Tools → Convert text → Set Multitext distance parameter.

Distance from the point to the center of the text is stored, and in the subsequent convert operations a point and a text will be treated as near if distance from this point to the center of this text is not more than twice greater than the stored distance.

7.3. CONVERT MULTITEXT TO Z

WHAT THE MACRO DOES

This macro converts a selection of text objects into the corresponding point heights.

USING THE MACRO

Before calling the macro multitext parameters should be set as it is described in subsections above.

Select all text labels that contain the heights of corresponding points together with these points.

Select the menu option Bonus Tools → Convert text → Convert Multitext to Z

You will see that the text labels turn into a green color, indicating that the conversion is finished. If conversion is impossible (either no near point or text object content cannot be converted to real value) text labels turn into red color.

7.4. CONVERT MULTITEXT TO POINTNUMBER

WHAT THIS MACRO DOES

This macro converts a selection of text objects into the corresponding point numbers.

USING THE MACRO

Before calling the macro multitext parameters should be set as it is described in subsections above.

Select all text labels that contain the numbers of corresponding points together with these points.

Select the menu option Bonus Tools → Convert text → Convert Multitext to Pointnumber

You will see that the text labels turn into a green color, indicating that the conversion is finished. If conversion is impossible (no near point) text labels turn into red color.

7.5. CONVERT MULTITEXT TO COMMENT

WHAT THIS MACRO DOES

This macro converts a selection of text labels into the corresponding comments of points.

USING THE MACRO

Before calling the macro multitext parameters should be set as it is described in subsections above.

Select all text labels that contain the comments of corresponding points together with these points.

Select the menu option Bonus Tools → Convert text → Convert Multitext to Comment

You will see that the text labels turn into a green color, indicating that the conversion is finished. If conversion is impossible (no near point) text labels turn into red color.

This macro is useful when you receive a 2D DXF/DWG file containing such a text labels that contain information of the points that you want to appear in the comment.

The position of the text label relative to the point is very important and decisive to determine the multi text parameters. Only text labels and points that fall within the same specifications will be taken into account during the conversion.

8. POLYGON TOOLS

8.1. TEXT TO POLYGON COMMENT

WHAT THIS MACRO DOES

This macro copies texts that are located on top of polygons to the comment of the polygon.

USING THE MACRO

Select all texts and polygons, then select the macro menu item.

8.2. CONVERT POLYLINES TO POLYGONS

WHAT THIS MACRO DOES

The tool converts closed polylines to polygons.

USING THE MACRO

Select the polylines, and select the macro menu item.

8.3. SELECT POLYGON BY AREA

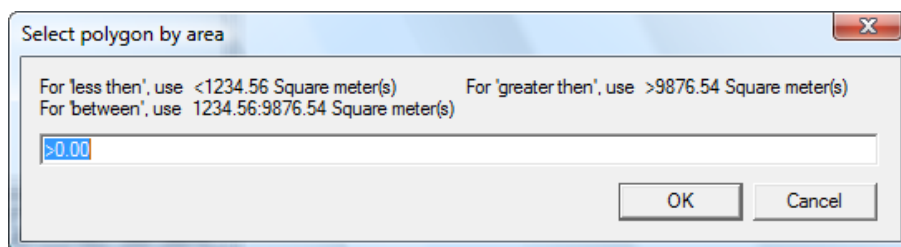
WHAT THE MACRO DOES

This macro selects all polygons that are smaller than a particular area, larger than a particular area or in an area range.

USING THE MACRO

Select the menu option Bonus Tools → Polygons → Select polygon by area

A dialog box will pop up.



If you would like to select all polygons larger than a particular area, enter the larger-than sign followed by the area, e.g. >2000

If you would like to select all polygons smaller than a particular area, enter the smaller-than sign followed by the area, e.g. <3000

If you would like to select all polygons larger-than, but smaller-than a particular area, enter the smallest area, followed by a colon (:) followed by the largest area, e.g. 2000:3000

Click the OK button in the dialog box.

The macro will select all polygons that fall within the specified area.

Note : the area will need to be entered in the units that correspond with the Area setting.

8.4. GET SYSTEM ELEMENTS

WHAT THIS MACRO DOES

This macro searches for the elements of the selected polygons that were auto created by the system and are hidden for the user. These elements will be moved to a layer of choice.

USING THIS MACRO

Select the menu option Bonus Tools → Polygons → Get system elements .

8.5. CREATE POLYGON BY TARGET

WHAT THE MACRO DOES

This macro creates target points to obtain an exact area for a polygon (e.g. a Lot).

Two methods are used:

- ✦ Hinge method : if the polygon, a line, and one of the end points of the line is selected, only 1 target point will be created.
- ✦ Parallel line method : If the polygon and a line are selected, two target points will be created.

USING THE MACRO

- ✦ Using the Hinge method :

Select the polygon for which you want to change the area, select the hinge point, and select the line

(thus, 3 items need to be selected).

Select the menu option Bonus Tools - Polygons – Create polygon by target

You can now enter the target area (e.g. 250 m²). Pythagoras will place the target point very clearly in the drawing (a red dot).

What is left for you to do is to manually move the point to the target point (Select the original point, then use the menu option Edit - Move to click and drag the point to the target point)

When you're done, you can select the menu option "Delete temporary target points" to delete the red dots.

🔧 Using the Parallel line method :

Select the polygon, select the line (you don't need to select any points now).

The rest works the same way as above. Only, now 2 points are calculated instead of one.

You will thus need to move the two points to the target positions.

Note : keep in mind that you don't *have* to use this macro to change the area of a polygon. Pythagoras allows you to move any point of a polygon (using Edit - Move or Edit - Rotate), and will show the area of the polygon in the center of the polygon, while you are moving the point around. This macro is, however, particularly useful if you want to obtain an *exact* area for a polygon.

8.6. DELETE TARGET POINTS

WHAT THIS MACRO DOES

This macro deletes all calculated target points

USING THIS MACRO

Select the menu option Bonus Tools - Polygons – Delete target points

9. TEXT TOOLS

9.1. POINT NUMBER TO COMMENT

WHAT THIS MACRO DOES

This macro copies the pointnumber of the selected points to their comment.

USING THE MACRO

Select all points.

Select the menu option Bonus Tools → Text Tools → Point number to comment.

9.2. POINTS ON TEXT

WHAT THIS MACRO DOES

This macro creates new points on the selected text labels. The height of a point will be the same as the height defined in the text label. If the text is not a number, the height of the point will be 0.

USING THE MACRO

Select all text labels that contain the heights of the new points.

Select the menu option Bonus Tools → Text Tools → Point on text

The point will be created on the snappoint of the text. The snapping is the horizontal and vertical alignment from the text.

9.3. CONVERT RICH TEXT TO TEXT

WHAT THIS MACRO DOES

This macro convert Rich Text Objects to normal texts.

USING THE MACRO

Select one or more Rich Text Objects and select the macro menu item.

9.4. SEARCH AND REPLACE

WHAT THIS MACRO DOES

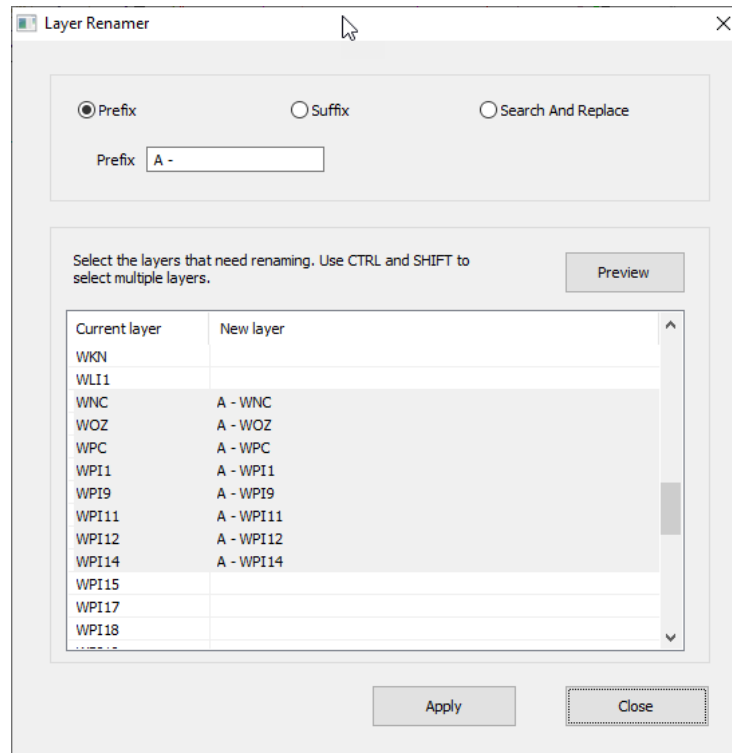
This macro searches for texts with a certain content in the active document.

USING THE MACRO

- ✦ Select the texts that need to be searched.
- ✦ Input the string to search for.
- ✦ Input the string to replace.

10.LAYER TOOLS

10.1. LAYER RENAMER



WHAT THIS MACRO DOES

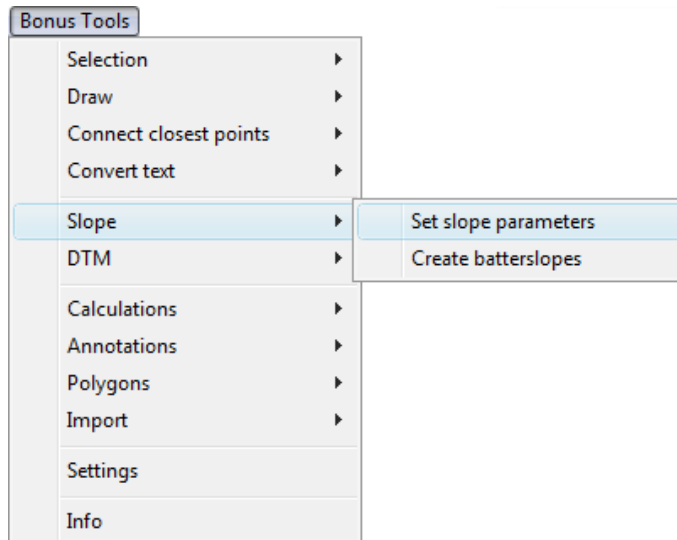
It lets you rename layers in an automatic way: you can add a prefix, a suffix, or you can search and replace texts.

USING THIS MACRO

- ✦ Open the macro menu item.
- ✦ Choose between prefix, suffix or Search and Replace.
- ✦ Select the layers in the list where the renaming needs to be applied to.

11.SLOPE

11.1. CREATE BATTER SLOPES



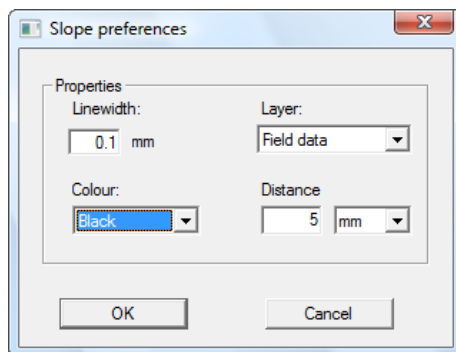
WHAT THE MACRO DOES

This macro creates a number of lines that indicate the slope of a batter.

USING THE MACRO

1. Defining the slope line parameters :

Select the menu option Bonus Tools → Slope → Set slope parameters

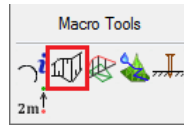


In this dialog box you can specify the characteristics of the lines the macro will create.

2. Creating the batter slopes :

1. Create a path that defines the bottom line of the slope and another path that defines the top line of the slope.

2. Select the menu option Bonus Tools – Slope – Create batter slopes
3. Select the private tool “Slope lines” from the Tools menu:



4. Click on the bottom path first and then on the top path.
5. Slope lines will be added to your drawing.

12.DTM

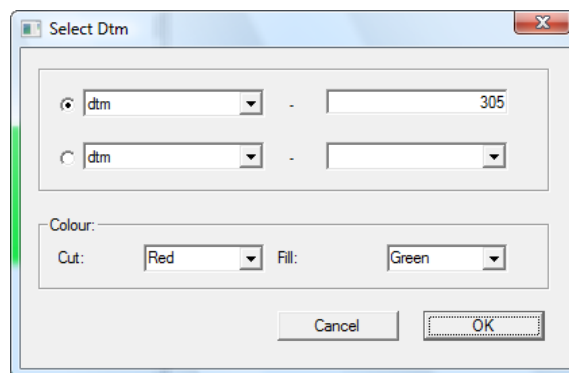
12.1. CUT & FILL

WHAT THIS MACRO DOES

This macro calculates the surface (m^2) of cut and fill. It will generate a colorized map based on whether there is cut or fill.

USING THE MACRO

Select the menu option Bonus Tools → DTM → Cut and Fill

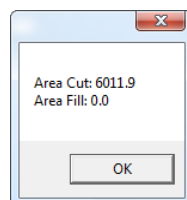


The first option will calculate the difference between a DTM and a fixed height.

The second option will calculate the difference between 2 DTM's.

Cut means the value of the first DTM is higher than the given fixed height or the second DTM. When the value is negative it will be Fill.

When the macro has calculated the Cut & Fill areas, the values will be shown in a message box.



12.2. SLOPE DIRECTION

WHAT THE MACRO DOES

This macro assigns a small arrow (as a point style) to each of the points on the grid.

The direction of the arrow represents the direction of the slope at that particular point.

USING THE MACRO TO CREATE A SLOPE DIRECTION GRID

Select the menu option Bonus Tools - DTM – Slope direction

Depending on the size of your drawing, it may take 10 seconds or more to create the grid and assign direction to all the points, so please give it some time.

A grid of points will be created that covers the entire active terrain model. Each of the points will have a small arrow assigned to it as point style, and the direction of the arrow will represent the direction of the slope at that point.

12.3. CHANGE ELEVATION

WHAT THE MACRO DOES

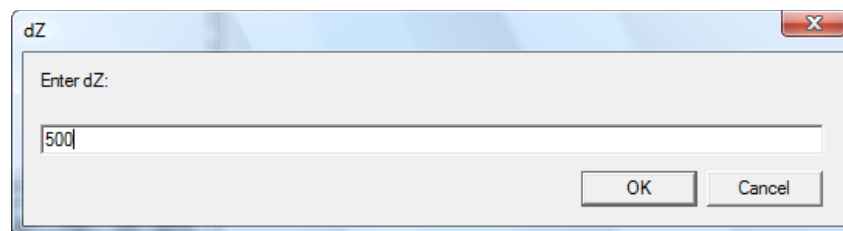
This macro changes the elevations from selected objects.

BEFORE USING THIS MACRO

Since this macro makes use of a Digital Terrain Model, you will first need to make sure that you created at least one terrain model in your Pythagoras drawing, and that the appropriate terrain model is active.

USING THE MACRO

Select the menu option Bonus Tools → DTM → Change elevation.



The macro will change the elevation from all selected objects (points, lines, arcs, ...) but not from the original DTM, with the given difference in height.

It allows you to generate a new DTM quickly, based on shifted elevations.

12.4. 2D POINTS → DTM

WHAT THE MACRO DOES

This macro will adjust the elevation of the selected points to the elevation of the underlying DTM.

BEFORE USING THIS MACRO

Place the 2D points in a new layer when copying them to the DTM. It will be easier to select them afterwards.

USING THE MACRO

Select the 2D points.

Select the menu option Bonus Tools → DTM → 2D points → DTM

The height of all selected 2D points in the DTM will be adjusted to the DTM.

12.5. DTM TO GRIDFILE

WHAT THE MACRO DOES

This macro will create a gridfile of format X Y Z with a predefinable gridsize and a save location.

You can then use this gridfile to import it again as a pointcloud.

BEFORE USING THE MACRO

Make sure you have at least 1 DTM in your file. When having more than 1 DTM, make sure only 1 is visible.

USING THE MACRO

Select the menu option Bonus Tools → DTM → DTM → Gridfile.

The macro will ask for the grid distance, and a save location.

It will display a warning when the textfile will be larger than 100 MB.

13. CALCULATIONS

13.1. AVERAGE POINT

WHAT THE MACRO DOES

This macro creates a point with the average N, E and Z values (X, Y and Z) from a number of selected points. This macro may be useful for calculating the average point from a number of GPS readings for the same point.

USING THE MACRO

Select multiple points by holding down the shift key while clicking on the individual points, or click and drag a rectangle over a range of points that you want to select (or you can also use the Edit - Find tool to select points based on a number of criteria). Max 10

Select the menu option Bonus Tools – Calculations - Average point.

A new point will be created that represents the average values of the X, Y and Z coordinates of all the selected points. The point will be red, so it is really visible.

If you no longer need the original points (the ones you selected), you can simply hit the delete key on your keyboard to delete the original points. That way, the only point remaining will be the calculated average point.

You can change the color and style of the average point by double clicking it.

13.2. AVERAGE HEIGHT

WHAT THE MACRO DOES

This macro calculates the average height of some selected points.

USING THE MACRO

Select the menu option Bonus Tools → Calculations → Average height

This macro calculates the average height of max. 10 points, the result will be displayed in a dialog box. No new point will be created.

13.3. CHANGE SIGN

WHAT THE MACRO DOES

This macro inverses the sign from a selection of points.

USING THE MACRO

Select the menu option Bonus Tools → Calculations → Change sign

The macro will change all signs from the selected points from positive into negative or opposite.

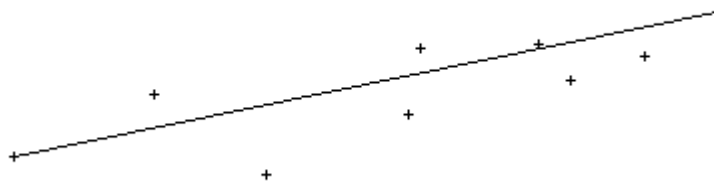
13.4. CREATE CROSS SECTION

WHAT THE MACRO DOES

This macro creates a path from a selection of points. The resulting path can be used to generate Cross Sections and Profiles.

USING THE MACRO

This macro is useful when the measured points you want to use for the calculation of the cross section are not linear.



Draw one straight line from the start till the end point of the profile, select this line and the points to be used for the cross section and select the menu option Bonus Tools → Calculations → Create cross section

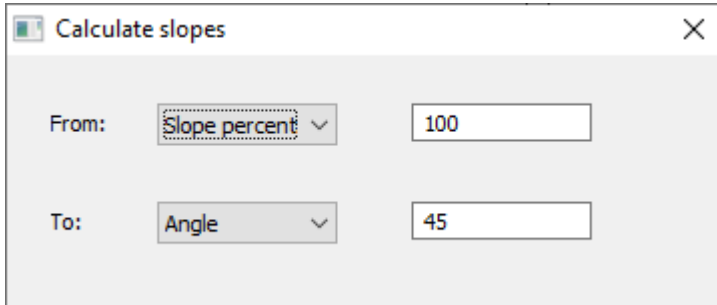
The macro will create a path using the projections of the selected points on the selected line.

This path can be used to generate Cross Sections and Profiles.

Note : only 1 line can be selected, curves or arcs are not allowed.




13.5. CALCULATE SLOPES

WHAT THE MACRO DOES





The screenshot shows a window titled "Calculate slopes" with a close button (X) in the top right corner. Inside the window, there are two rows of controls. The first row is labeled "From:" and contains a dropdown menu with "Slope percent" selected and a text input field containing the number "100". The second row is labeled "To:" and contains a dropdown menu with "Angle" selected and a text input field containing the number "45".

This tool lets you convert slopes from:

-  Slope percentage
-  Fourths
-  Angle

To:

-  Slope percentage
-  Angle

USING THE MACRO

Enter a value in the “from” field.

Select the correct conversion values.

The result will appear in the “to” field.

14.DEVIATIONS




The functions in the menu Deviations allow to annotate the deviations of a set of measurements relative to their designed positions. In order to distinguish the measurements and the designed positions, both sets should be in a different layer. The points (measurements, designed position) must also be present in pairs. The pairs (measurement, designed position) are formed by searching pairs of point in the given layers that are close together.

The deviations in dX and dY will be calculated using the currently active coordinate system.

A report will be created with the deviations in dX, dY and optionally dZ, or dS.

USING THE MACRO

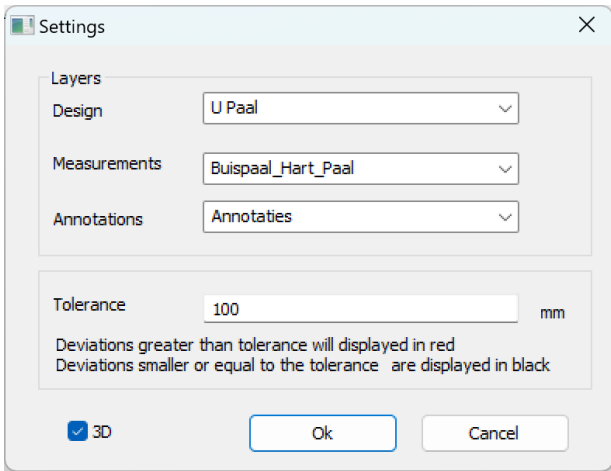
Select the menu option Bonus Tools - Deviations - Settings to choose the layers. In this dialog box, you have to set the layers for:

-  Measured points
-  Designed points
-  Annotations. The arrows and texts created by the macro will be placed on this layer.

Deviations outside "Tolerance" will be displayed in red color while the deviations inside tolerance will be black.

In the report, the deviations outside this tolerance will get a "*" in the column "Exceeding Tolerance"

Checkbox "3D" defines either all 3 dimensions will be used to calculate deviations, or only X and Y.



The image shows a 'Settings' dialog box with a title bar containing a close button (X). The dialog is divided into two main sections. The top section, titled 'Layers', contains three dropdown menus: 'Design' (set to 'U Paal'), 'Measurements' (set to 'Buispaal_Hart_Paal'), and 'Annotations' (set to 'Annotaties'). The bottom section contains a 'Tolerance' input field with the value '100' and the unit 'mm'. Below this, a note states: 'Deviations greater than tolerance will displayed in red' and 'Deviations smaller or equal to the tolerance are displayed in black'. At the bottom left, there is a checked checkbox labeled '3D'. At the bottom right, there are 'Ok' and 'Cancel' buttons.

14.1. ANNOTATE DX-DY

WHAT THE MACRO DOES

The macro calculates the deviation in the X and Y and optionally Z direction between the point in the measurement layer and the point in the Design layer. Two arrows, one in the x-direction and one in the y-direction, will indicate the direction of the deviation. The amount of the deviation (in current units) will be shown as text.

The active coordinate system will be used for the X and Y direction.

A report will be created in which the deviations are listed.

USING THE MACRO

Select a set of points. For each selected point in the Design layer there should be a nearby point selected in the Measurement layer.

Select the menu option Bonus Tools → Deviations → Annotate dx - dy

14.2. ANNOTATE DS

WHAT THE MACRO DOES

The macro calculates the deviation between the point in the measurement layer and the point in the Design layer. The deviation will be calculated either in XYZ space or in XY plane (actually between point projections) dependently on 3D checkbox state. An arrow will indicate the direction of the deviation. The amount of the deviation (in current units) will be shown as text. A report will be created in which the deviations are listed.

USING THE MACRO

Select a set of points. For each selected point in the Design layer there should be a nearby point selected in the Measurement layer.

Select the menu option Bonus Tools → Deviations → Annotate ds

15.ANNOTATIONS

15.1. LINE TABLE

WHAT THE MACRO DOES

This macro creates a line table for a number of selected lines.

USING THE MACRO

Select the lines that you would like to appear in the line table (you can hold down the shift key to select multiple lines).

Select the menu option Bonus Tools – Annotations - Line table

The macro will create a line table, in page coordinates, with 3 columns : description, bearing and distance.

The description column will contain the contents of the comment field for the line. Therefore, before creating the line table, it is a good idea to assign a description to the line, e.g. L1, L2, etc. You can do so by simply double clicking the line, and entering this description in the Comment field for the line.

If the comment field for the line does not contain anything (the comment field for the line is blank) the macro will simply identify the line by the point numbers of its two end points.

The number of decimal places used for the distance column is determined by the preference setting

Defaults - Preferences - Decimal Places - Line Lengths - Drawing

If you would like to edit the line table, make sure to first select Page coordinates (instead of Local coordinates) from the control panel.

Linetable		
Line	Bearing (GON)	Distance (m)
P171-P565	378.8528	55.23
P207-P196	156.7024	3.97
P253-P177	109.2596	1.68
P371-P545	389.9366	53.69

15.2. CURVE TABLE

WHAT THE MACRO DOES

This macro creates a Curve Table for a number of selected curves (circular curves or arcs).

USING THE MACRO

Select the curves (arcs) that you would like to appear in the curve table (you can hold down the shift key to select multiple curves).

Select the menu option Bonus Tools → Annotations → Curve table

The macro will create a curve table, in page coordinates, with 7 columns : description, delta, radius, tangent, length, chord, chord direction. It will also annotate the selected curves in the drawing, with the description corresponding with the first column of the curve table.

The description column will contain the contents of the comment field for the curve. Therefore, before creating the curve table, it is a good idea to assign a description to the curve, e.g. C1, C2, etc. You can do so by simply double clicking the curve, and entering this description in the Comment field for the curve.

If the comment field for the curve does not contain anything (the comment field for the curve is blank) the macro will simply identify the curve by the point numbers of its two end points.

The number of decimal places used in the curve table is determined by the preference setting

Defaults - Preferences - Decimal Places - Line Lengths - Drawing

If you would like to edit the curve table, make sure to first select Page coordinates (instead of Local coordinates) from the control panel.

Curvetable						
Curve	centre angle GON	Radius m	Tangent m	Length m	Chord m	Chord Direction GON
109 - 128	150.2352	1.84	4.47	4.35	3.41	55.3774
631 - 600	274.6404	2.00	3.01	8.63	3.33	352.2867
649 - 636	116.6370	5.20	6.77	9.52	8.24	275.5843

15.3. ANNOTATE GIS ATTRIBUTES

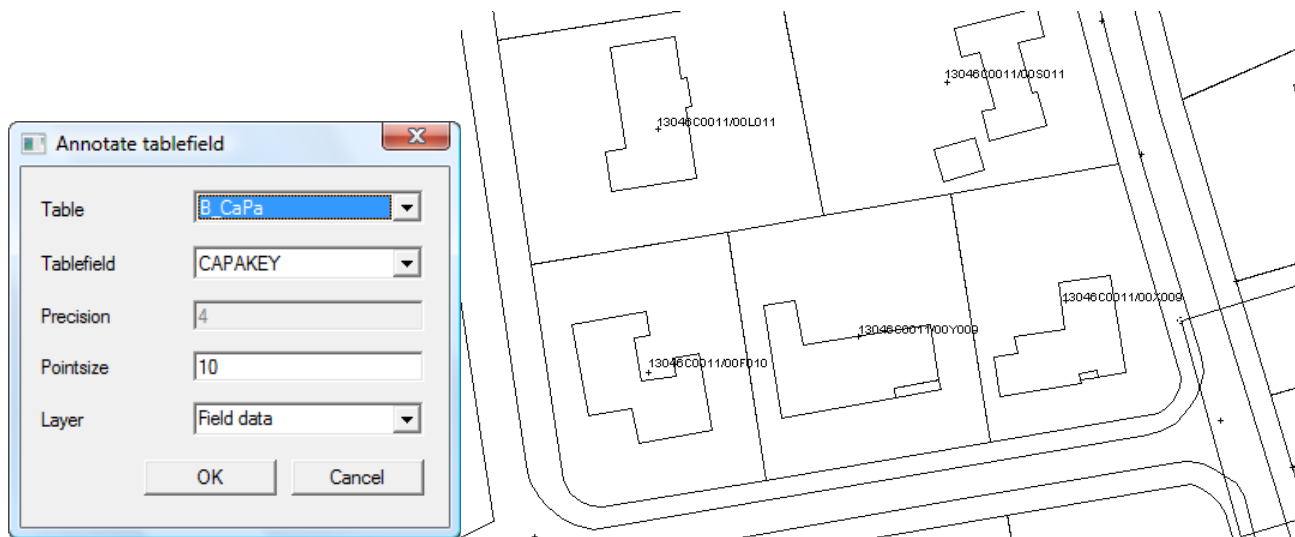
WHAT THIS MACRO DOES

Using this macro data from a database can be annotated on the drawing.

USING THIS MACRO

Select the menu option Bonus Tools → Annotations → Annotate GIS attributes

In the next dialog box you can specify which data should be shown on the drawing. Select a Table, Table field and the point size. The layer can be created 'on the fly'.



15.4. ROAD ANNOTATIONS

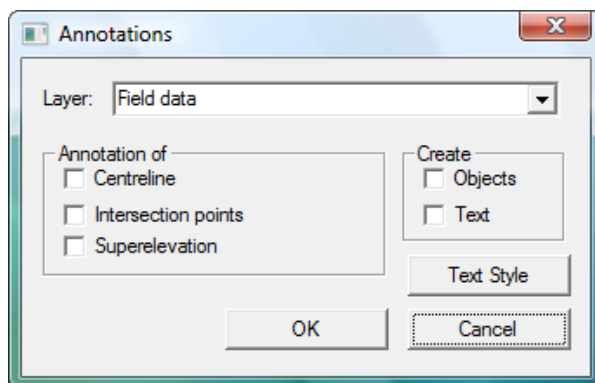
WHAT THIS MACRO DOES

This macro allows you to annotate the centre line of a road, intersection points and/or superelevation.



USING THIS MACRO

Select a road before running the macro.

Select the menu option Bonus Tools → Annotations → Road annotations



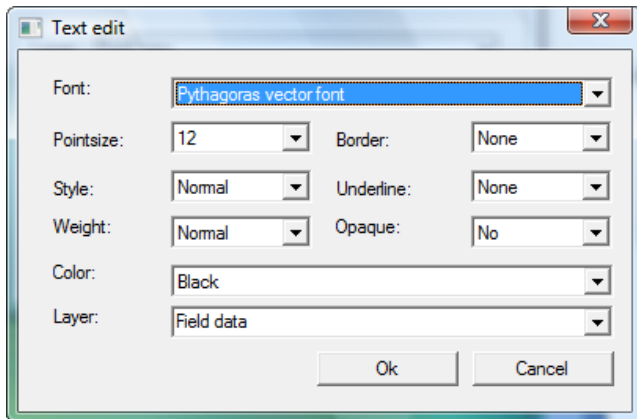
The appearing dialog box offers 3 possible types of annotations:

-  Centreline
-  Intersection points

Superelevation

A specific layer can be given where ALL created objects and texts will be stored.

Text style can be defined for all annotations :

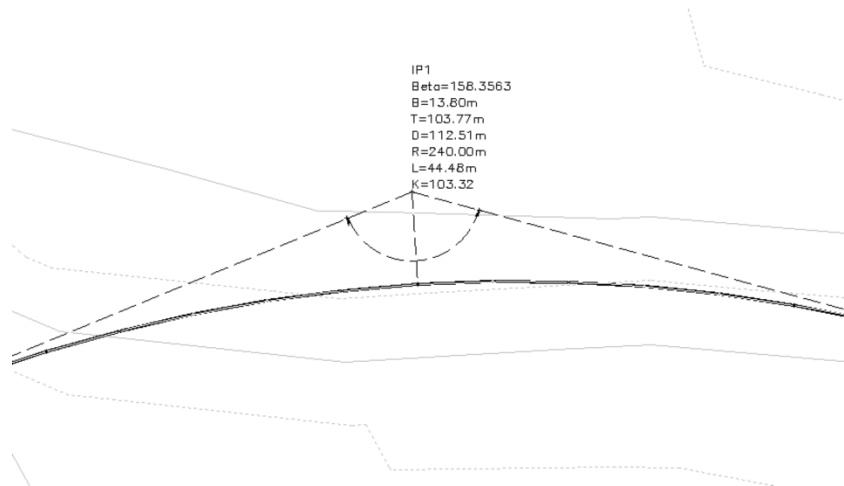


The selection of 1 or more possibilities for annotations results in a dressed up drawing.

- for the centreline



- for the intersection points



Different abbreviations have below meanings :

IP* => name of intersection point, starting with 1

Beta => angle between the tangent lines

B => distance from the IP to the road.

T => length of tangent line (in case 2 tangent lines have different length, T2 is from second tangent).

✚ in case of an arc

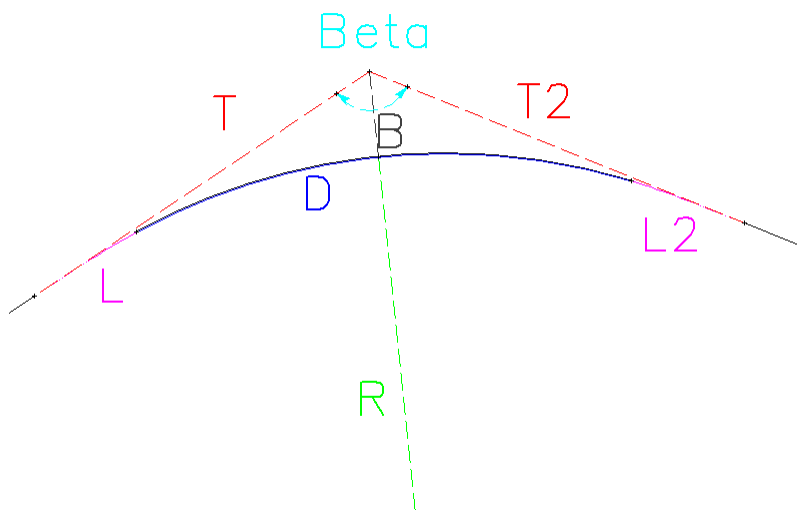
D => length of the arc.

R => radius of the arc, (or in case no arc : smallest radius of clothoïde)

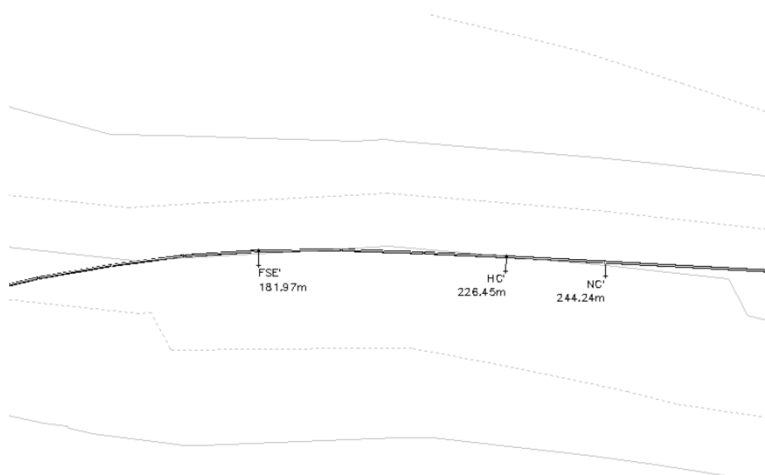
✚ in case of clothoïde

L => length of first clothoïde (in case 2 clothoïdes with different length, T2 is from second clothoïde)

K => clothoïde parameter (in case 2 clothoïdes with different K factor, K2 is from second clothoïde)



- for the super elevation elements



16.POLYGONS

17. EXPORTEER KADASTER

For Dutch version only.

WAT DE MACRO DOET

Deze functie creëert een rapport vereist voor de precadastratie.

DE MACRO GEBRUIKEN

- ✦ Selecteer de punten die in het rapport moeten verschijnen.
- ✦ Ga naar het menu Bonus Tools → Exporteer → Kadaster.
- ✦ Volgend formulier verschijnt:



Exporteer coördinaten als

Gemeente:

Afdeling:

Sectie:

Perce(e)(en):

☒ Nummers van de kavels:

Naam landmeter:

Voornaam landmeter:

LAN:

Opgemaakt op

Coörd

Lokaal


☐ Inclusief Z-coördinaten

☐ Open de coördinatenlijst na export

OK

Annuleer

- ✦ Vul dit in en druk OK.

-  Kies een locatie om het bestand weg te schrijven.

18. CRAB ZOEKEN

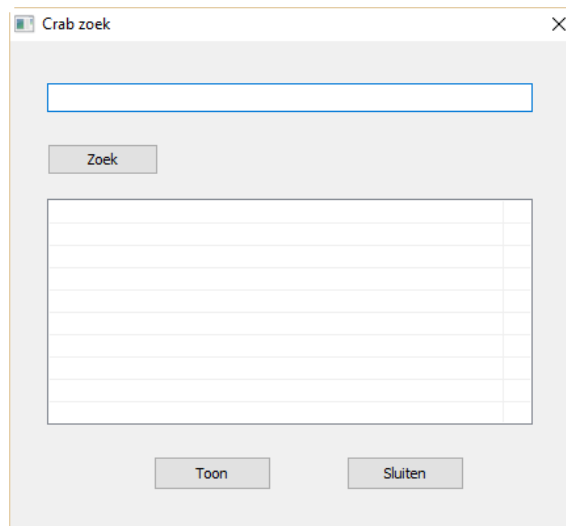
For Dutch version only.


WAT DE MACRO DOET

Deze functie maakt gebruik van het Centraal Referentieadressenbestand zodat een adres omgezet wordt naar een Lambert72-coördinaat.

DE MACRO GEBRUIKEN

- ✚ Open een nieuwe lege tekening.
- ✚ Ga naar het menu Bonus Tools → Crab zoeken → Adres naar coördinaat.
- ✚ Volgend formulier verschijnt:



- ✚ Vul in het bovenste veld een zoekwaarde in, bijvoorbeeld:
 - Markt, Brussel
 - Kerkstraat, Lokeren
 - Vuurkruisenlaan 11, Wijnegem
 - Nieuwstraat
- ✚ In de lijst worden dan alle mogelijkheden getoond. Bij dubbelklikken op een item in de lijst, wordt ofwel een punt  gecreëerd indien het om een adres gaat met een huisnummer, ofwel wordt een rechthoek getekend indien het om een straat of gemeente gaat. De coördinaten worden steeds in het Lambert72 teruggegeven.

19.IMPORT

19.1. XYZ

WHAT THIS MACRO DOES

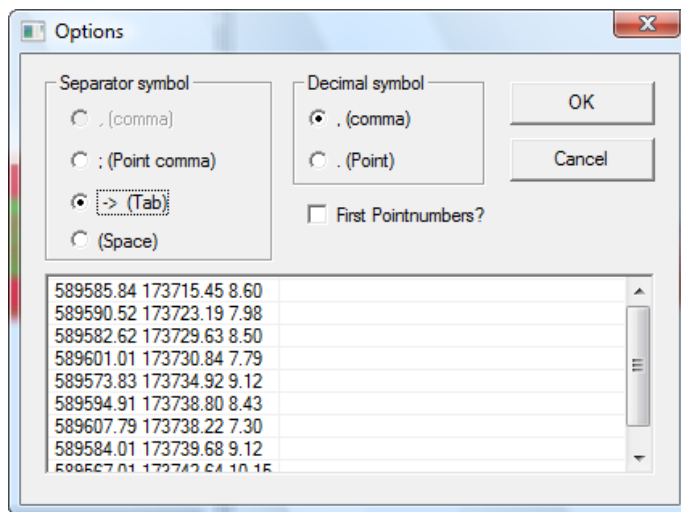
This macro imports a file with XYZ coordinates WITHOUT point numbers.

USING THIS MACRO

Select the menu option Bonus Tools → Import → Import XYZ

Choose the file that should be imported

In the dialog box 'Options' you can specify which sign was used as separator or decimal sign.



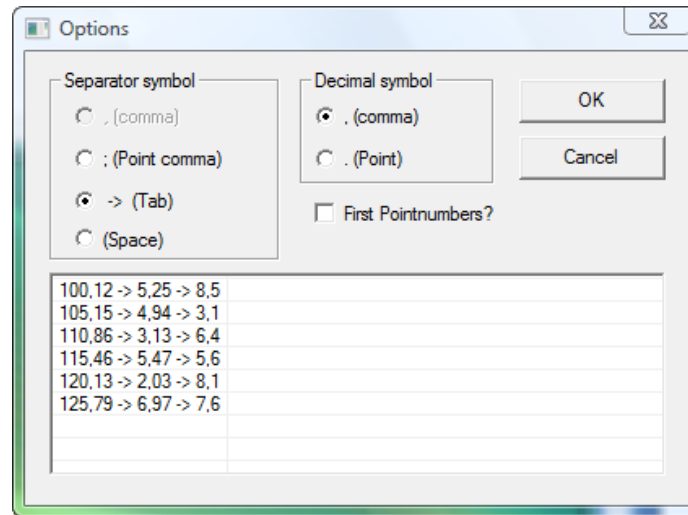
19.2. CDZ

WHAT THIS MACRO DOES

This macro imports a file with CDZ coordinates.

USING THIS MACRO

- ✦ Select a road or path
- ✦ Select the menu option Bonus Tools - Import – Import CDZ
- ✦ Choose the file that should be imported
- ✦ In the dialog box 'Options' you can specify which sign was used as separator or decimal sign.



19.3. CSV - COORDINATE LIST WITH DATA

WHAT THIS MACRO DOES

- ✚ Import a coordinate-list from a text-file
- ✚ Import a coordinate-list with data from a text-file into a new or in an existing Pythagoras Table.

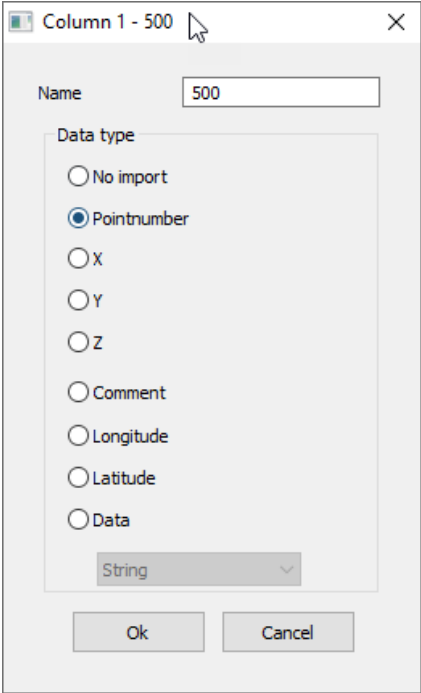
Features:

- ✚ Data can be in any order.
- ✚ Option to import only coordinates without linking to a table.

USING THE MACRO

- ✚ Choose the menu-item.
- ✚ Select a textfile. Any format is supported:
 - Comma, Semicolon, Tab, space separated
 - Decimal comma or point
 - First line is a header or not
 - Coordinates can be Cartesian (XY) or WGS84.
- ✚ The settings dialogue appears:

 Doubleclick on a row to edit the column properties:



Column 1 - 500

Name: 500

Data type:

- ☐ No import
- ☒ Pointnumber
- ☐ X
- ☐ Y
- ☐ Z
- ☐ Comment
- ☐ Longitude
- ☐ Latitude
- ☐ Data

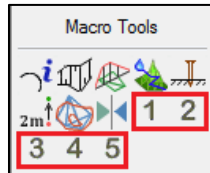
String

Ok Cancel

20.PROTOTYPES

WHAT THIS MACRO DOES

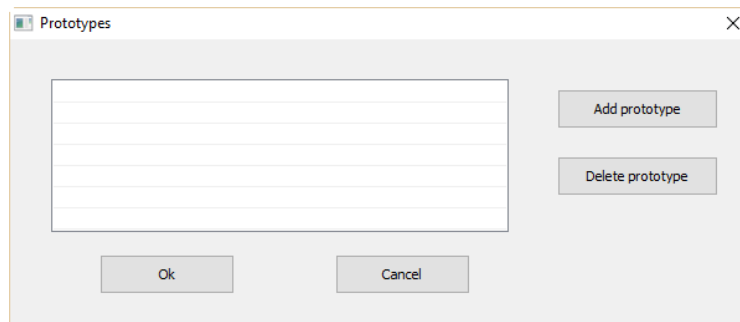
This function allows you to define up to 5 prototype drawings, of which a copy can easily be opened via the macro toolbar:



USING THIS MACRO

Go to the menu Bonus Tools → Prototype → Settings.

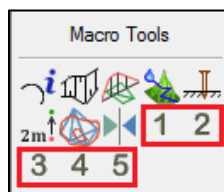
This form appears:



Press “Add prototype” and select a file (.PYT or .PPD). The path will appear in the listbox. Up to 5 prototype files can be added.

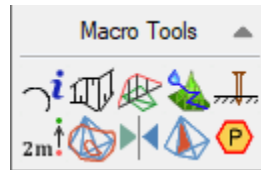
If you want to delete a prototype file, select it in the listbox and press “delete prototype”.

Press OK. The Macro Tools toolbar will now show a numbered icon for each selected prototype:



Selecting an icon in the Macro Tools toolbar will open a copy of the drawing.

21. TOOLS



21.1. ANNOTATE ARCS



WHAT THE MACRO DOES

This macro annotates a circular curve (arc) with a text object that contains Delta, Radius, Tangent, Length, Chord length and Chord Direction of the curve, all stacked on top of one another.

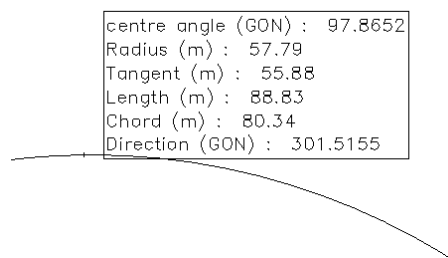
USING THE MACRO

Select  from the Macro Tools menu and click on a circular curve (arc).

A text object will be placed near the arc. This text object will contain Delta, Radius, Tangent, Length, Chord length and Chord Direction of the curve, all stacked on top of one another. Since this is a simple text object, you can click and drag it wherever you want within the Pythagoras drawing.

You can also double click the text object to edit the contents, or to change any other properties of the object. The preferences used for the text annotations (font size, etc.) are specified by using the menu option Defaults - Text.

Note : since selecting the menu option Bonus Tools – Annotations - Annotate arcs is the same as selecting any other tool, the way you de-select this tool, is by simply selecting another tool (e.g. the selection tool, which is the first tool - the one with the little arrow), or by hitting the space bar.



21.2. CREATE BATTER SLOPES



See 11.1 Create batter slopes.

21.3. CHANGE HEIGHT



See 6.1 Tool Copy / Paste.

21.4. FLOWPATH




WHAT THE MACRO DOES

This macro creates a line that indicates the water flow direction in a DTM.

BEFORE USING THIS MACRO

Since this macro makes use of a Digital Terrain Model, you will first need to make sure that you created at least one terrain model in your Pythagoras drawing, and that the appropriate terrain model is active.

USING THE MACRO

Select the tool  “Flow path” from the Macro Tools menu and click on the place where you want to drop a water drop and see how it flows in your DTM.

21.5. TOOL PICKET LINE



WHAT THE MACRO DOES

This macro adjust the height of the points on the picket line of a road.

USING THE MACRO

Select the tool  “Change Picket Line” from the Tools menu and click on:

- ✦ First, Axis of the road;
- ✦ Second, Axis of the side of the road;
- ✦ Third, Axis of the picket line;

Result: The macro will adjust the height of the point on the path of picket line.


21.6. TEXT -> HEIGHT



WHAT THE MACRO DOES

This macro changes the height of a point according to the clicked height-text.

USING THE MACRO

- ✦ In the toolbar “Macro Tools”, select  2m.
- ✦ First, click on the text object and then on the corresponding point.

You will see that the text label turns into a green color, indicating that the conversion is finished. You can now click on the next text object and the corresponding point.


21.7. ANNOTATE CONTOUR LINES

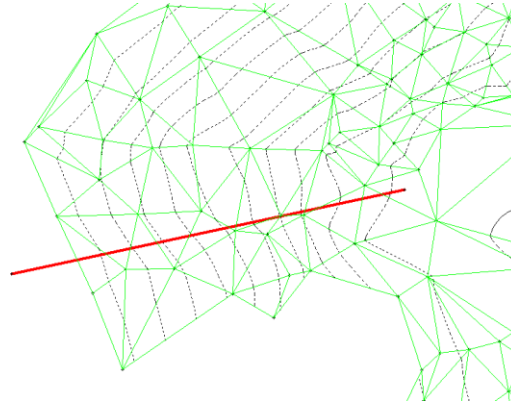


WHAT THE MACRO DOES

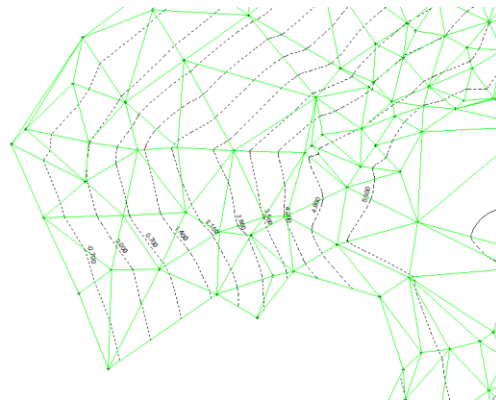
This tool allows you to annotate the height of multiple contour lines all at once, by defining a line. The text containing the height will be placed at the intersection points between the line and the contour lines.

USING THE MACRO

- ✦ Make sure you have a drawing with contour lines.
- ✦ Select the tool  in the macro tool menu.
- ✦ Click to define the starting point of the line.
- ✦ Move the cursor around. You now see a thick red line appear, which visualizes the intersection with the contour lines.



- ✚ Click a second time to define the end point of the line.
- ✚ Result: The texts containing the height will now appear on the drawing, aligned with the contour line.




21.8. MIRROR



WHAT THE MACRO DOES

This tool creates a mirrored image of the selected object relative to a selected mirror line.

USING THE MACRO

- ✚ Create a mirror line.
- ✚ Select the objects you want mirrored.
- ✚ Select the mirror-tool .
- ✚ Click on the mirrorline.