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Eagle Point Solution to a Frequently Asked Question

How to Design a Vegetated Waterway Using RoadCalc – Survey Method – Level

Summary:
This document explains the process of designing a vegetated waterway in RoadCalc using a profile obtained by using a level.

Product: Eagle Point Software™ 2004
Release: 2004 Q3 or 4.3.0 and greater
Platform: All
Related documents: *How to Design a Vegetated Waterway Using RoadCalc – Survey Method – Part II*

Survey Method

A level is used to obtain a profile of the proposed waterway centerline with cross-section taken about every 400' apart or closer as needed. Survey notes can be hand recorded. The closer together that the cross-sections are, the better the ability of the designer to obtain good earthwork quantities and determine proper fit of the plan waterway into the existing landscape. Cross-sections should be taken at the farthest upstream and downstream extents of the waterway in order to obtain complete earthwork quantities.

Notation Method

Button to Press *Displayed Text* **Icon** Action {Text to Enter} *Menu Item…*

Things to Do First

1. Create an Eagle Point project and have only one dwg file open.
2. In AutoCAD, click on *Tools… Options…System…*.
3. Checkmark *Single drawing compatibility mode*. Click OK.

Enter Survey Data

1. Open the WW Field Book.xls spreadsheet.
2. Click Enable Macros.
3. Click the Clear Cells button to remove existing entries. Click on the Info Tab to find out more about saving input data.
4. Input TBM elevation and backsight.
5. Input the Station, Offset and Grade Rod for each shot.
6. If a turn is needed, input the backsight in column F on the same row as the foresight. A new H.I. will show up.
7. When done entering survey data, click Export As Station/Offset.
8. Browse to the desired location to save the file.

9. Input a filename for the Waterway Cross Section data. E.g. {Jones WW1 xs}. This file format is *Station, Offset, Elevation.*
10. Click Save.
11. Click *File… Exit…* and close out of the spreadsheet without saving.

Starting a RoadCalc Sub-Project Using an NRCS Prototype

1. At the EP Main Menu click on *File… New….*
2. Highlight *RoadCalc Sub Project* and click Next.
3. Make sure that the correct main project name is highlighted in the top box.
4. Input a project description. E.g. {Jones WW 1}.
5. At the prototype setting, pull down to select *NRCS 11x17 Waterway*.
6. Click Next.
7. Highlight the main project drawing and click Finish.
8. At the Open Project box highlight the RoadCalc project.
9. Click OK.
10. Click on EP Main Menu *Tools…Plot Scales….*
11. Input the horizontal scale that you will use in a profile sheet. Example 1" = {100} feet. Press Tab.
12. Input the vertical scale that you will use in a profile sheet. Example 1" = {5} feet. Press Tab.
13. Click OK.
    Note: You can minimize the Eagle Point & RoadCalc menus but you should NOT close out the EP main menu.

Input Data for the Centerline

1. Click *NRCS/EP… Waterway RoadCalc>> Alignment: Edit Data….*
2. Click **New PI**.
3. Pull down Method = *Coordinates*.
4. In the Northing box, Input the value of the lowest stationing of the WW survey, E.g. {-30}.
5. Press Tab.
6. In the Easting box Input 0.
7. Click Apply.
8. In the Northing box Input the value of the highest stationing of the WW survey, E.g. {2600}.
9. Press Tab.
10. In the Easting box Input 0.
11. Click Apply.
12. Click Close.
13. Click Station Data. Input the Beginning Station as the lowest stationing of the WW survey, E.g. {-30}. Click Ok. Click Yes if you have changed the stationing.
14. Click Close.

Importing Survey into Cross-Sections

1. Click *NRCS/EP… Waterway RoadCalc>> Cross-Sections: Import….*
2. Browse to the Project folder and highlight the File Name to bring into the cross-sections. E.g. {Jones WW1 xs.txt}.
3. Pull down format as *Station-Offset*.
4. Click Settings.
5. Checkmark Station Tolerance and input 1. Press Tab.
6. Input Station Interval as 1. Press Tab.
7. Click OK to return to the Import Screen.
8. Click OK and points will be placed into the RoadCalc cross-sections.

View the Cross-Section Data

1. Click *NRCS/EP… Waterway RoadCalc>> Cross-Sections: Edit Data….*

2. Highlight the desired station in the top half of the screen and the data points for that station will appear in the bottom portion of the screen.
3. Click on the **Query Cross-Section** icon to preview of any cross-section. Use the + or – buttons to scroll through each of the cross-sections. Click Close when done.
4. Use Shift-click to highlight all the stations. Click **Modify Station** and checkmark Phantom.
5. Select the complete cross-sections that are going to be used for computing volumes and Use **Modify Station** to uncheck Phantom. Click OK. ***Note: The Phantom stations will be ignored for calculating earthwork quantities.***
6. Click Close.

View the Existing Ground Profile

1. Click *NRCS/EP… Waterway RoadCalc>> Profile*: *View Profile*….
2. Click Yes when asked to save the drawing. The Existing Ground Profile will appear.
3. Click *NRCS/EP… Waterway RoadCalc>> Profile*: *Convert Object…*.
4. Select the polyline. Press Enter.
5. Click Next.
6. Pull down Destination Profile name to *Ognd*.
7. Click Finish.

Continue with *How to Design a Vegetated Waterway Using RoadCalc – Survey Method – Part II*.

Submitted by Norman Friedrich.