InRoads – Generating Detention Ponds

Overview

There are many methods for generating detention ponds with InRoads. Two methods covered here are:

1) Creating a surface with features from graphics, and

2) Generating sloped surfaces to an existing DTM

For some ponds, a combination of these methods may be necessary.

Method 1

This method uses MicroStation graphics capabilities to draw the geometry of the pond, then imports those graphics into a surface as features.

1. Generate MicroStation graphics in a 3D DGN file.

   These graphics should be complex chains or shapes, with one graphic element per pond feature.

2. Assign elevation to known features.

   Move using key-in *xy=#,#,elevation*

3. In InRoads, create a surface.

4. Import each graphic element into the surface.

   Settings include **From Single Element**, **Use Element Elevations**, and enter feature information including point type.

5. View the surface triangles.

Method 2

This method starts with a MicroStation graphic element depicting a controlling element of the pond, such as the pond bottom. It uses InRoads commands to generate a design slope to an intercept surface.

1. Generate a graphic element in a MicroStation 3D DGN file.

   These graphics should be complex chains or shapes, with one graphic element per feature.

2. Assign elevation to known features.

   Move using key-in *xy=#,#,elevation*

3. In InRoads, create a pond surface.

4. Select the *Surface* > *Design Surface* > *Generate Sloped Surface* command

   Settings include: **Input Intercept Surface**, **Destination Surface**, **Interval**, **Cut and Fill Slopes**; toggle OFF the **Apply to Both Sides**, and enter feature information.

5. Click **Apply** and follow MicroStation instructions.

Refine the surface features

Some features may need to be refined by editing feature point elevations or changing point density intervals to create a smooth and accurate surface.

Edit feature elevations

1. Select the *Surface* > *Edit Surface* > *Edit Feature Point* command
2. Select the surface feature that contains the point
3. Browse through the point list to the specific point
4. Revise the elevation
5. Click **Apply** to save the change.

Revise the Point Density Interval

1. Select the *Surface* > *Features* > *Feature Properties* command
2. Revise the *Point Density Interval* to a value that will get the most isometric triangles from the data.
3. Click **Apply** to save the change.

For questions or comments on this tech note, contact your regional CAE Support Coordinator or the WSDOT CAE Help Desk at (360) 709-**8013**.