InRoads – Printing Cross Sections

Overview

Creating cross sections for alignments is a common part of the design process. Each cross section could be plotted using the *File* > *Print* command (fence plotting), but this process becomes tedious as the number of sections gets larger.

MicroStation's **Batch Print** is the recommended method of printing cross sections. Batch printing is particularly well suited to cross sections, but can also be applied to other printing tasks. The following steps will produce InRoads cross section files that batch plot in the correct scale, and provide settings to batch print to paper or electronic PDF.

Workflow

In MicroStation

Create a new DGN file using the **InRoads3D.dgn** or **PSE_Base.dgn** seed files.

1. Select the *File* > *New* command.
2. Choose a file path and type in a name
3. In the *Seed file* area, click on **Select**.
4. Choose **InRoads3D.dgn** or **PSE_Base.dgn** and click **OK**.
5. In the New dialog, click **OK**.

   NOTE: The batch printing process will also work with a **PSE_Sheet.dgn** seed file - see information below.

In InRoads

Create cross sections for batch printing.

1. Load the InRoads files containing the project data.
2. Set the active horizontal alignment.
3. Select the *File* > *Project Options* > *Factors* command.
4. Change the text, cell, and linestyle scale factors to match the desired scale of the cross sections.

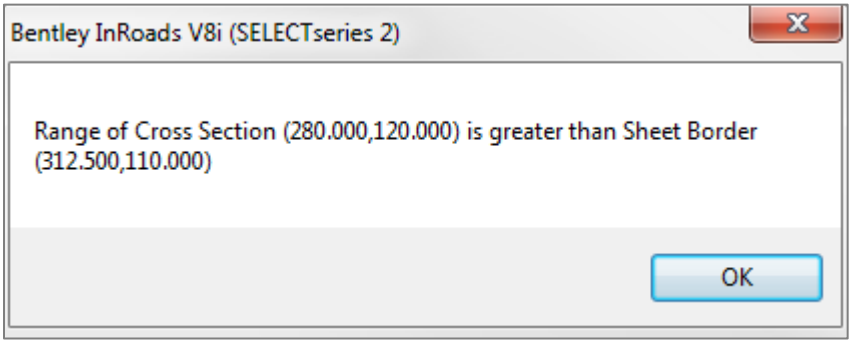
   For example, enter `50 for 1"=50'`.
5. Select the *Evaluation* > *Cross Section* >*Cross Sections* command.
6. Under the *Create Cross Section* folder, select and load the appropriate V8i preference.

   For this example, select *Base_50*.

   NOTE: Use the Base_* preferences in a DGN file based on **InRoads3D.dgn** or **PSE_Base.dgn** seed files, and Sheet_* preferences in a **PSE_Sheet.dgn** file. The number after the preference name is the preference scale. The cross section widths (left and right offsets) are preset and vary dependent on the preference scale.

- Base_05 & Sheet_05 display a 35’ grid on each side of CL
- Base_10 & Sheet_10 display a 70’ grid on each side of CL
- Base_20 & Sheet_20 display a 140’ grid on each side of CL
- Base_30 & Sheet_30 display a 210’ grid on each side of CL
- Base_40 & Sheet_40 display a 280’ grid on each side of CL
- Base_50 & Sheet_50 display a 350’ grid on each side of CL

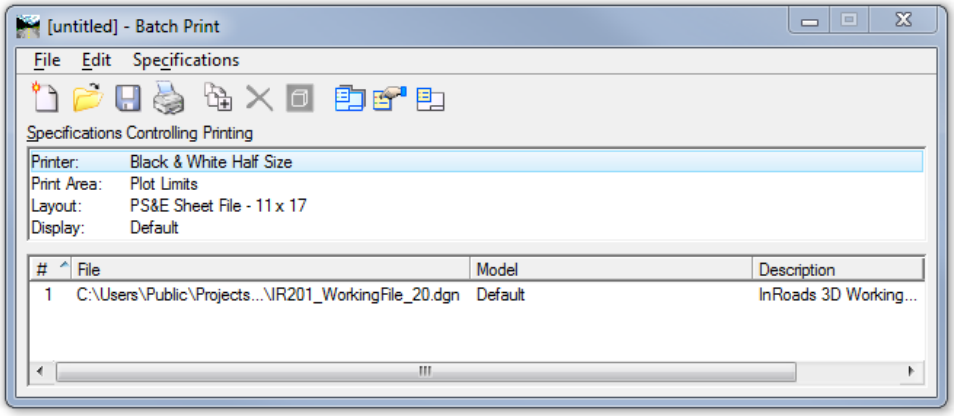
A “Range of Cross Section” error is typically generated if offsets are set in excess of the defaults. Verify the Project Options scale as described on page 1 and use the corresponding preference type (base or sheet) and scale.



7. Select the *General* leaf, and check on the desired surfaces and the interval.
8. The interval should be the same as your Roadway Designer template drops. If cross sections are created between template drops, the results will be an interpolation and may result in unusual graphics.
9. Select the *Include* leaf and check on or off **Components** as desired.
10. Minor vertical and horizontal grid lines are controlled from the *Grid* folder. Minor tick marks are still available on the grid borders when grid lines are turned off. Displaying minor grids in large sets will impact display performance.
11. Click **Apply** and data point in the DGN file to locate the bottom left corner of the cross section set.
12. If changes are made to the preferences, it’s most efficient leave the WSDOT standards and save settings as a custom preference.

Back to MicroStation

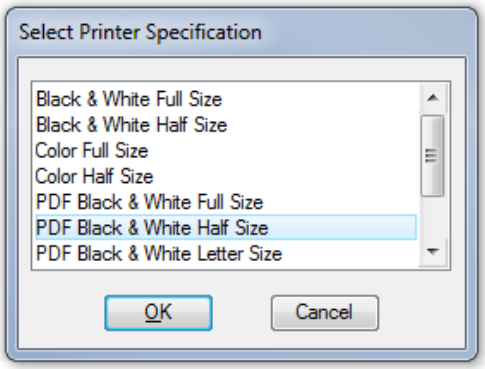
1. Select the *WSDOT > WSDOT Toolbox > Sheet Utilities > Batch Print* command.



Click on the *Edit > Add Active File* command. This loads all the models in the active DGN as locations to look for cross sections to be printed.

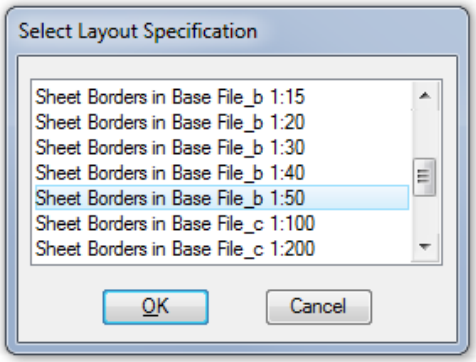
Note: Using the *Edit > Add Files* command allows printing from files other than the active one. If the active file contains models not needed for printing, highlight them and select the red **X** from the command icons to remove from the list.

2. Double-click on **Printer**. Half size are 11" x 17", full size are 22" x 34". There are also options here for PDF and color prints.

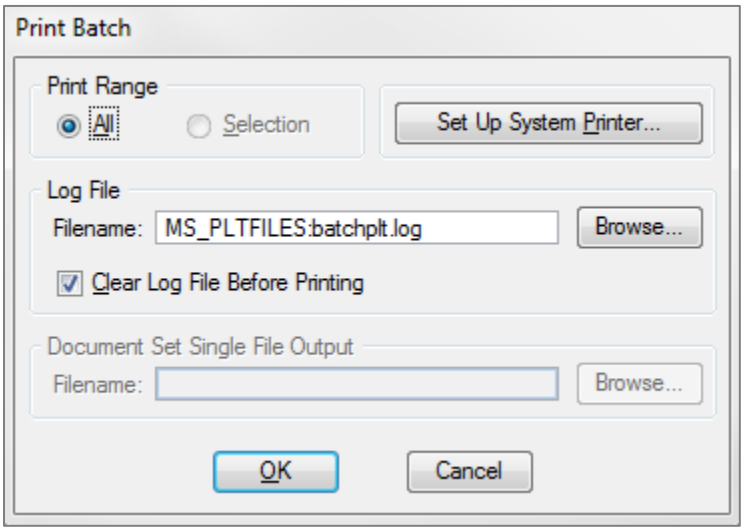


3. Double-click on **Layout**. Select the cross section *Layout Specification* that matches the print preference - in this example the **Sheet Borders in Base File_b 1:50**.

4. Note there are InRoads layouts for use with Base and InRoads 3d seed files, PS&E layouts for use with sheet files, and RW layouts for Right of Way sheets.



5. Select the *File* > *Print* command. If (as in this example) printing to PDF skip to step 7. For paper prints from sheet file preferences, click **Set Up System Printer** to set printer, and under **Preferences** set paper size, and orientation.



6. Click **Apply** to set the preferences, and then **Cancel** to exit the Print dialog.
7. In the Print Batch dialog, click **OK** to start the batch print.
8. When the cross sections print correctly, save the **Batch Job Set File** with the *File* > *Save As* command. Batch job files can be easily opened and printed again if needed.

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