

LAB 10 - Corridors and Template Drops

This lab demonstrates the initial procedures used when starting Roadway Designer. The exercises below define the path and cross section for the design model and determine what information is displayed in the Roadway Designer views.

Chapter Objectives:

- Create a corridor using a horizontal and vertical alignment
- Develop initial template drops
- Generate additional template drop details

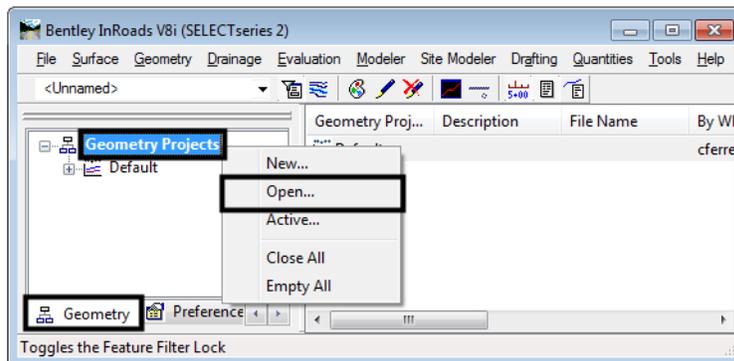
Before beginning this lab, verify that the following files are loaded:

- C:\Projects\12345\Design\Drawings\Reference_Files\12345DES_Model.dgn
- C:\Workspace\Workspace-CDOT_V8i\Standards-Global\InRoads\Preferences\CDOT_Civil.xin
- C:\Projects\12345\Design\InRoads\12345 existing ground.dtm
- C:\Projects\12345\Design\InRoads\12345DES_Geometry.alg
- C:\Projects\12345\Design\InRoads\DES12345_Templates.itl

Lab 10.1 - Create a Corridor

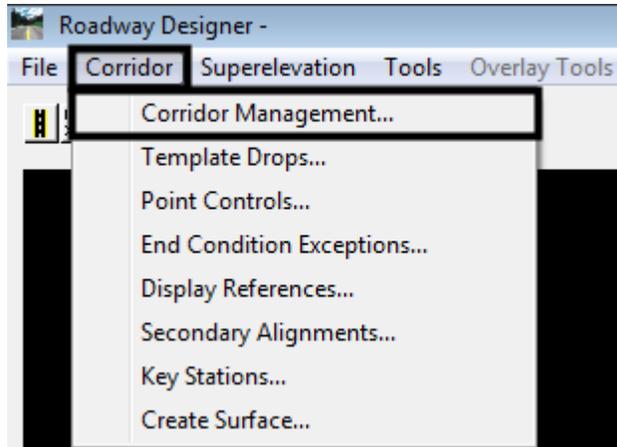
The first step in creating a design model is to create a corridor. The corridor defines where the model is located, both horizontally and vertically. The corridor in this example runs the total length of the alignment so no station limits are needed.

1. Select the **Geometry** tab in the *InRoads Explorer*.
2. <R> **Geometry Projects**, select **Open**, and select the **12345DES_Geometry.alg** file from the **|12345\Design\InRoads** directory.

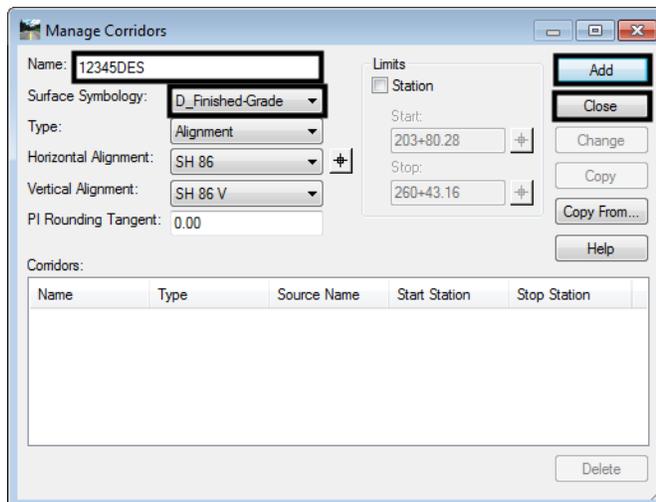


3. Verify that **SH 86** is the active horizontal alignment and **SH 86 V** is the active vertical alignment.
4. Select **Modeler > Roadway Designer** from the InRoads menu bar.

5. Select **Corridor > Corridor Management** from the Roadway Designer menu bar or <D> the corridor management button .



6. In the *Manage Corridors* dialog box, key in **12345DES** in the *Name* field.
7. Select **D_Finished-Grade** for the *Surface Symbology*.
8. <D> **Add**.
9. <D> **Close**.

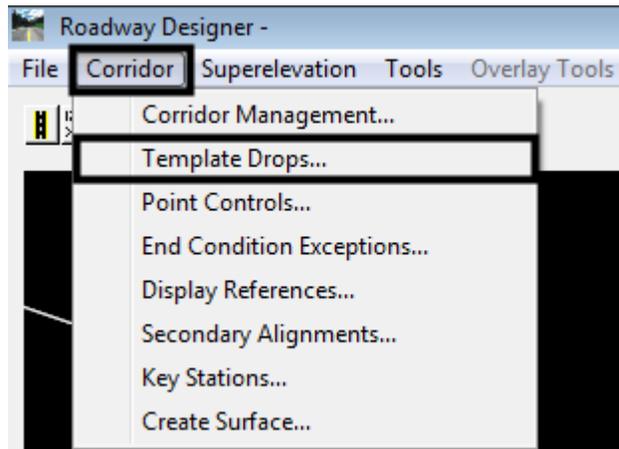


Note: By default, the **Type** is set to **Alignment** and the **Horizontal Alignment** and **Vertical Alignment** are set to the active alignments, though any alignment can be selected. Notice that data is now displayed in the Roadway Designer views.

Lab 10.2 - Develop Initial Template Drops

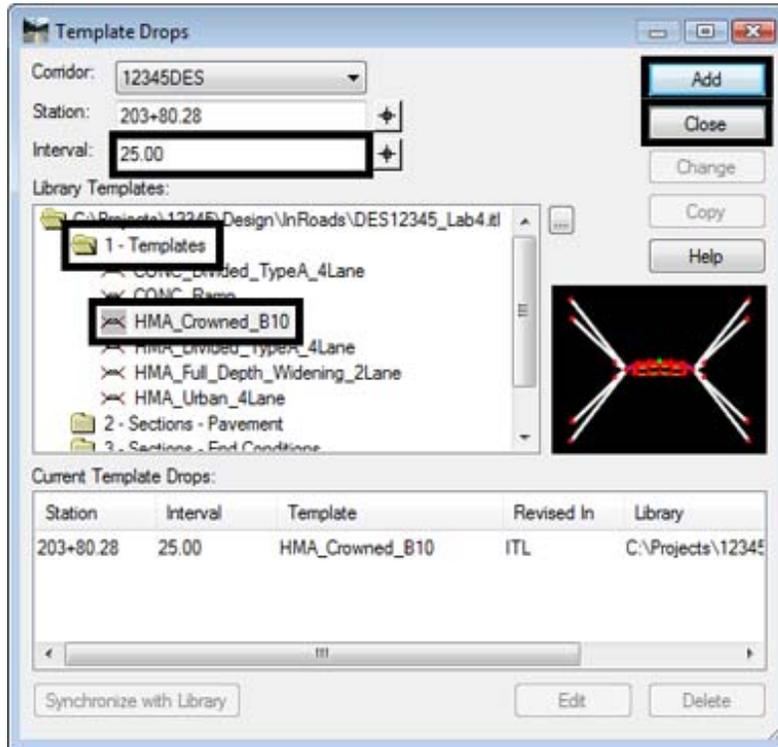
Design model cross sections are developed by applying templates along a corridor. A template drop needs to be defined at any location where the cross section of the corridor changes. Template drops are assigned to the corridor through the Template Drops dialog box. This exercise uses a single template drop that runs the entire length of the corridor. The starting station for the template drop defaults to the beginning of the alignment. Therefore, all that needs to be done is to select the desired template and set the interval.

1. Select **Corridor > Template Drops** from the Roadway Designer menu bar or <D> the template drops button .



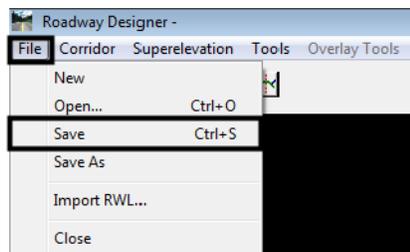
2. In the **Template Drops** dialog box, key in **25** for the **Interval**.
3. Expand the **1- Templates** folder in the **Library Templates** area. of the **Template Drops** dialog box.
4. <D> on the **HMA_Crowned_B10** template.
5. <D> **Add**.

6. <D> Close.



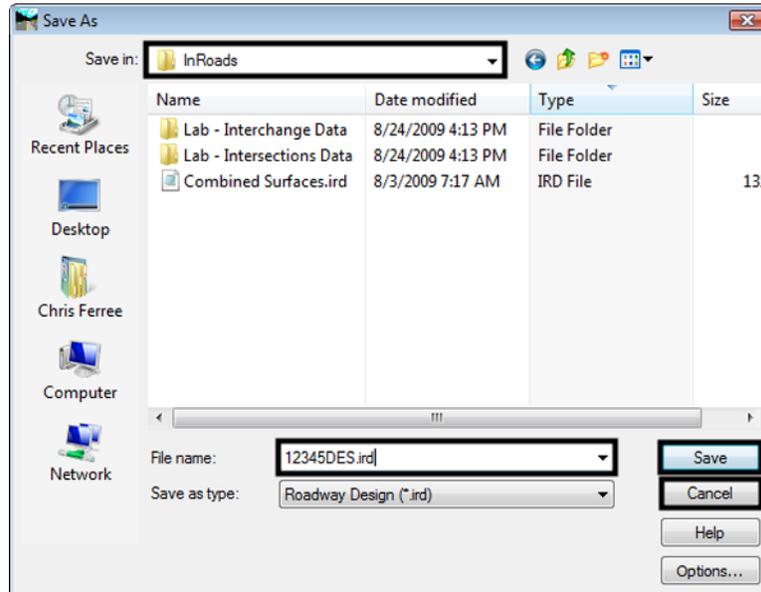
This is a good spot to save the roadway designer (IRD) file.

7. Select **File** > **Save** from the Roadway Designer menu bar.



8. Verify that the file is being saved to the directory *C:\Projects\12345\Design\InRoads*.
9. In the *File name* field, key in **12345DES.ird**.

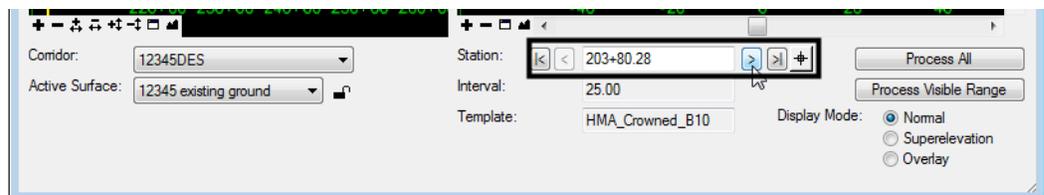
10. <D> Save then <D> Cancel.



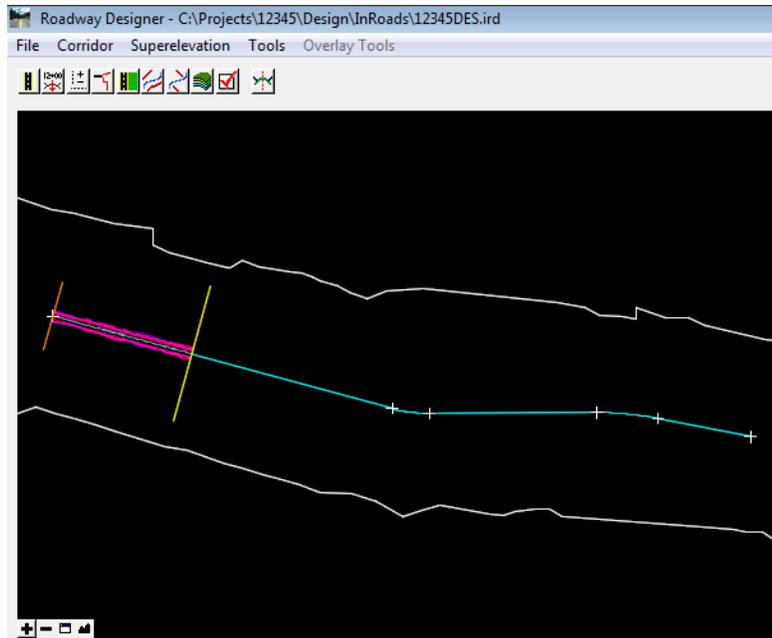
The template data is displayed in the cross section view of the Roadway Design. Notice, in the template view of the Roadway Designer, that the end conditions have already been solved.

There are two options for scrolling through the design, 1) using the station arrows below the template view and 2) using the station line in the plan view.

11. To navigate to a specific station <D> on the station arrows to scroll through the stations or type in the station to review.



12. To get a quick overview of how the template is working through the corridor, <D> and Hold on the yellow station line. Move the pointer back and forth to scroll through the design.



The model is now ready to be evaluated.

Lab 10.3 - Generate Additional Details for Template Drops

Between the regular station intervals defined by a template drop, design data is generated using straight line interpolation. In order to generate precise data at “stations of interest” other than a regular station (i.e. stations for drainage structures), those stations need to be identified as an *Event Points* and then processed using the Roadway Designer. Other standard “stations of interest” that are usually not at regular station intervals are *Cardinal Points*.

The Roadway Designer Options dialog box determines which of the “stations of interest” get processed and what information is added to the template view window. The data generated by the Roadway Designer options provides the designer additional real time information that is useful in the evaluation and analysis of the proposed design.

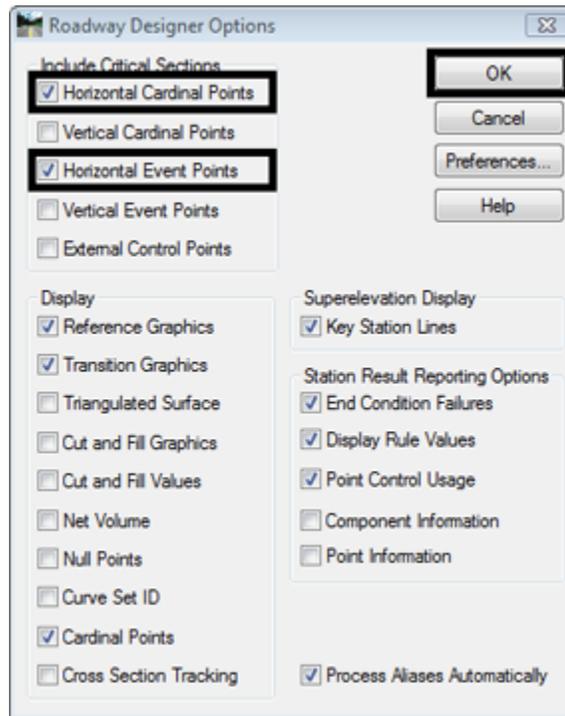
This exercise will demonstrate several of the options including:

- Processing cardinal and event points
- Displaying cut and fill information
- and Generating a report of component and point information.

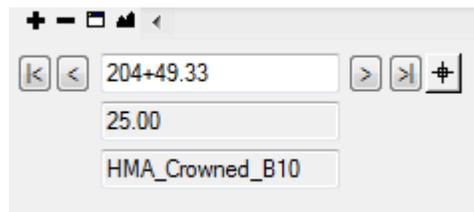
The first series of steps tell the Roadway Designer to process the horizontal cardinal and event points.

1. From the Roadway Designer menu bar, select **Tools > Options**.
2. In the *Roadway Designer Options* dialog box, toggle on **Horizontal Cardinal Points** and **Horizontal Event Points**.

3. <D> OK.



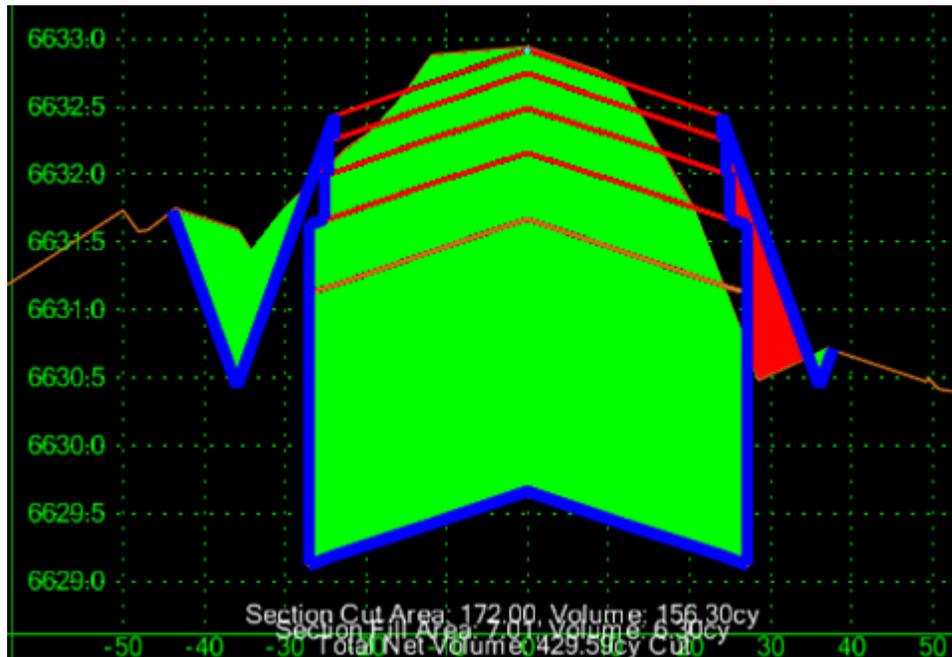
4. Scroll through the stations and notice that some stations do not fall on even intervals. These are the cardinal and event points.



The following series of steps adds volume information to the template view of the Roadway Designer.

5. Open the **Roadway Designer Options** dialog box again.
6. Toggle on **Cut and Fill Graphics**, **Cut and Fill Values**, and **Net Volume**.

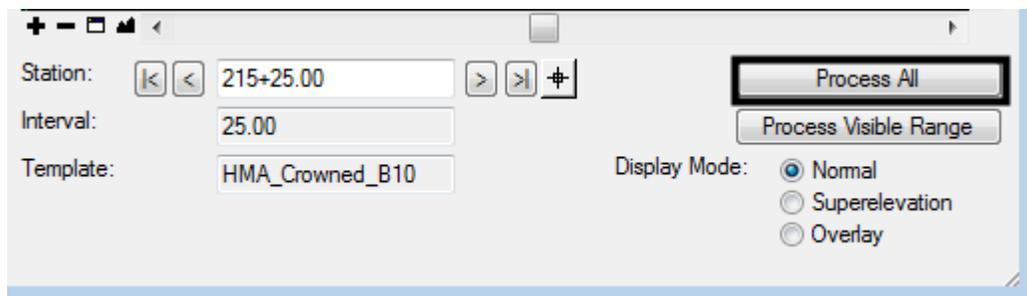
7. <D> OK.



8. Scroll through the stations and notice that Cut and Fill areas are shown graphically and areas and volumes are shown in text format at the bottom of the template view.

The final series of steps illustrates what is included in the default processing report and shows what information can be added to the report.

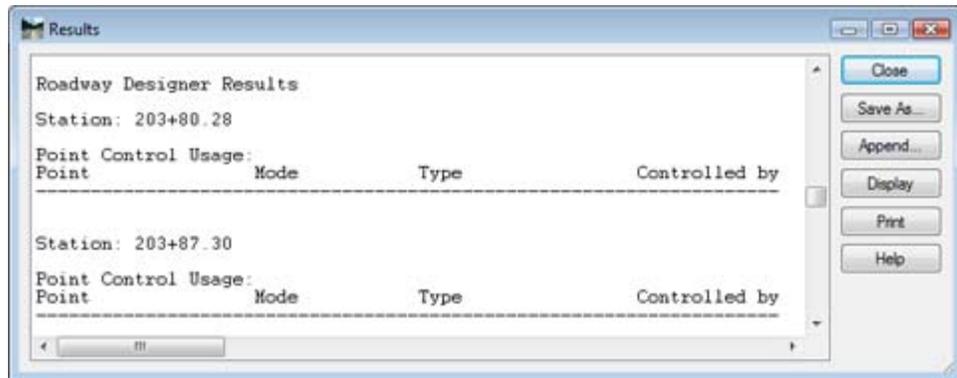
9. <D> the **Process All** button.



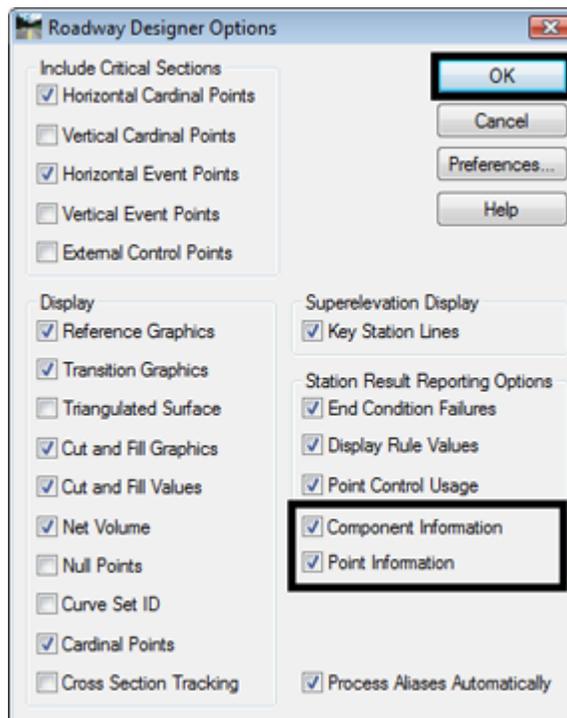
10. This displays the **Results** dialog box. Some of the information displayed includes:

- ◆ Stations where end conditions failed to intercept their target
- ◆ Results of display rule calculations, and
- ◆ Which point controls were used for each station processed.

This information should be used to determine problem areas of the model and what modifications should be made to the template or corridor controls.

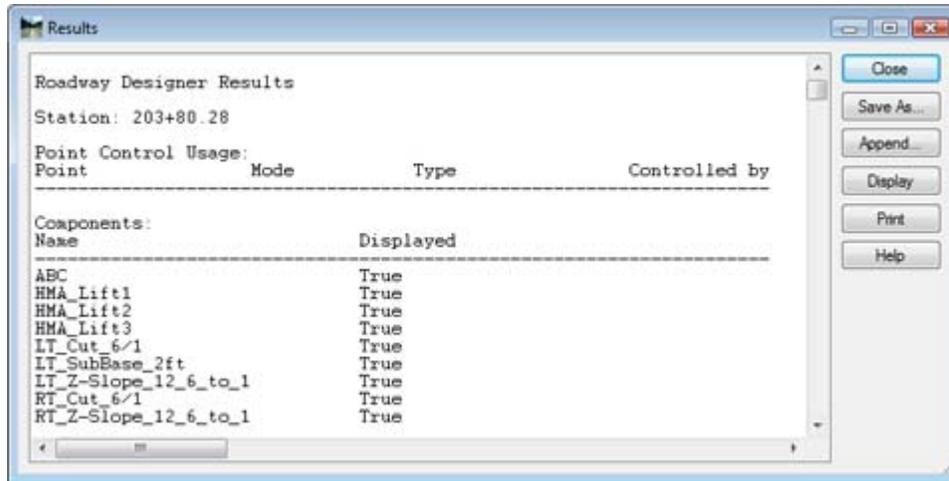


11. <D> **C**lose on the **Result** dialog box.
12. Open the **Roadway Designer Options** dialog box again.
13. Toggle on **Component Information** and **Point Information**.
14. <D> **O**K.



15. <D> the **P**rocess **A**ll button.

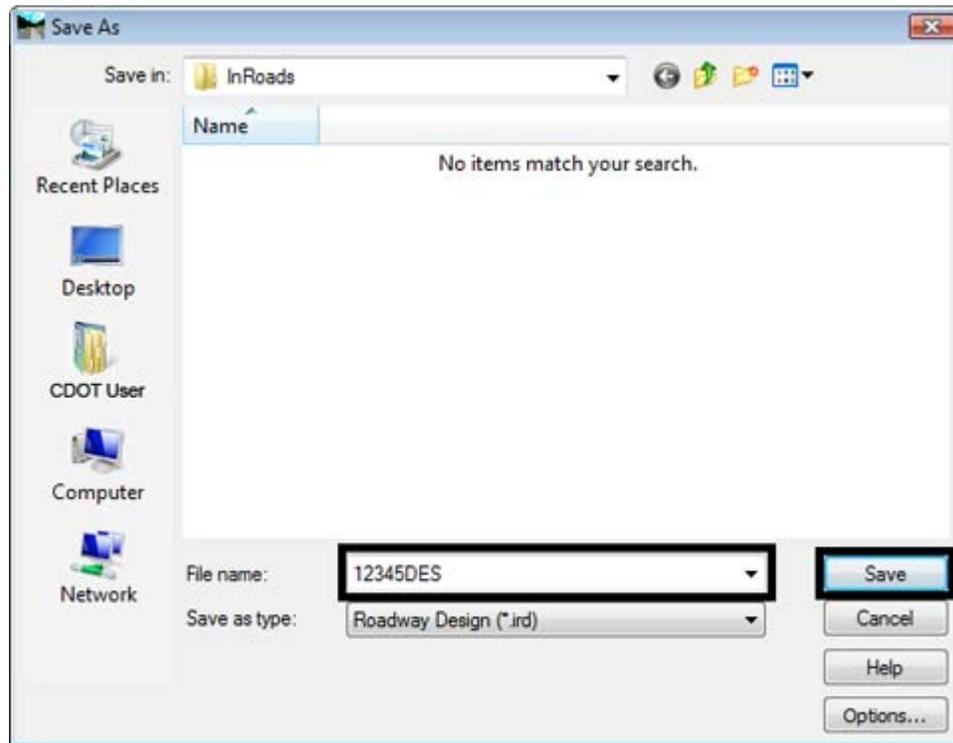
16. This report list detailed information about every component and point in the model. Like the previous report, this information can be used to help troubleshoot problems with templates and corridor controls.



Note: The Results dialog box is limited to a report of up to approximately 16,000 lines. This equals about 220 template drops (about a mile at a 25' interval) when using the HMA_Crowned_B10 template.

17. <D> **Close** on the **Result** dialog box.
18. Select **File > Save** from the Roadway Designer menu bar.
19. In the **Save As** dialog box, key in **12345DES** for the file name.

20. <D> **Save**.



21. <D> **Cancel** to dismiss the **Save As** dialog box.

22. <D> **Close** to dismiss the Roadway Designer window.

Chapter Summary:

- A corridor defines the horizontal and vertical location of the design. In [Lab 10.1 -Create a Corridor](#) a corridor was created using the active horizontal and vertical alignment.
- Templates define the prism of the project. These are processed at specific intervals along the corridor. In [Lab 10.2 -Develop Initial Template Drops](#) Template Drops for a two lane road template were added to the corridor.
- The options in Roadway Designer allow the user to see design evaluation information in real time. The user can also specify that geometry points are processed with template drops. In [Lab 10.3 -Generate Additional Details for Template Drops](#) various settings for the Roadway Designer options were used to add specific stations for processing, display volume information in the designer's template view, and add more detail to the processing report.

