**Modeling a No Management Condition**

The model file represents the project area without stormwater control measures applied. This file can be compared to the files with stormwater control measures to evaluate the runoff and pollution reduction from the measures.

This example will set up the” No Management Condition” WinSLAMM Model File. The project area is a 7.29 acre commercial development. The data on the following pages is the data needed to describe the land use and source areas for the project area in the WinSLAMM model. Figures of the project area and source areas are found at the end of the example text.

Enter the following data into a new WinSLAMM model file.

*Note: You cannot save a file until at least one source area is entered.*

# *Parameter Files:*

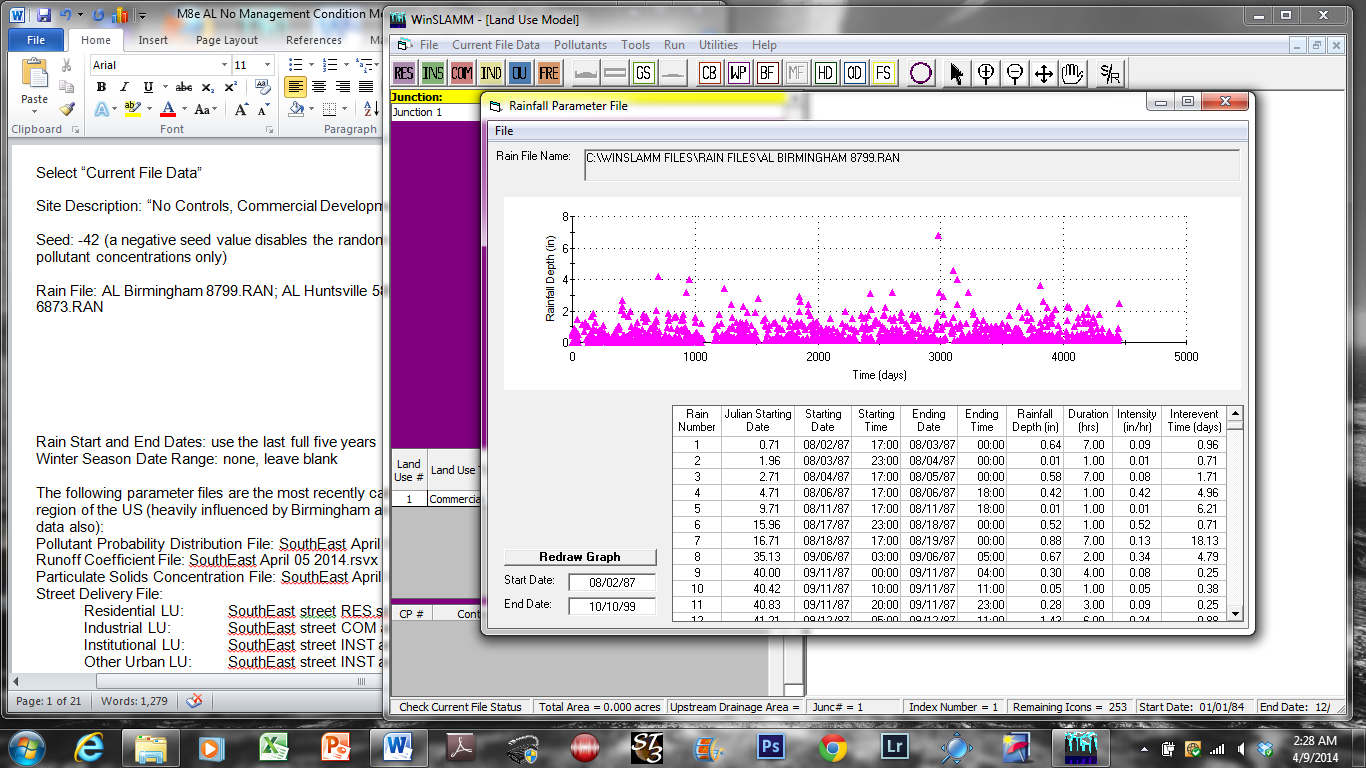
Select “Current File Data”

Site Description: “No Controls, Commercial Development” (anything descriptive can be used)

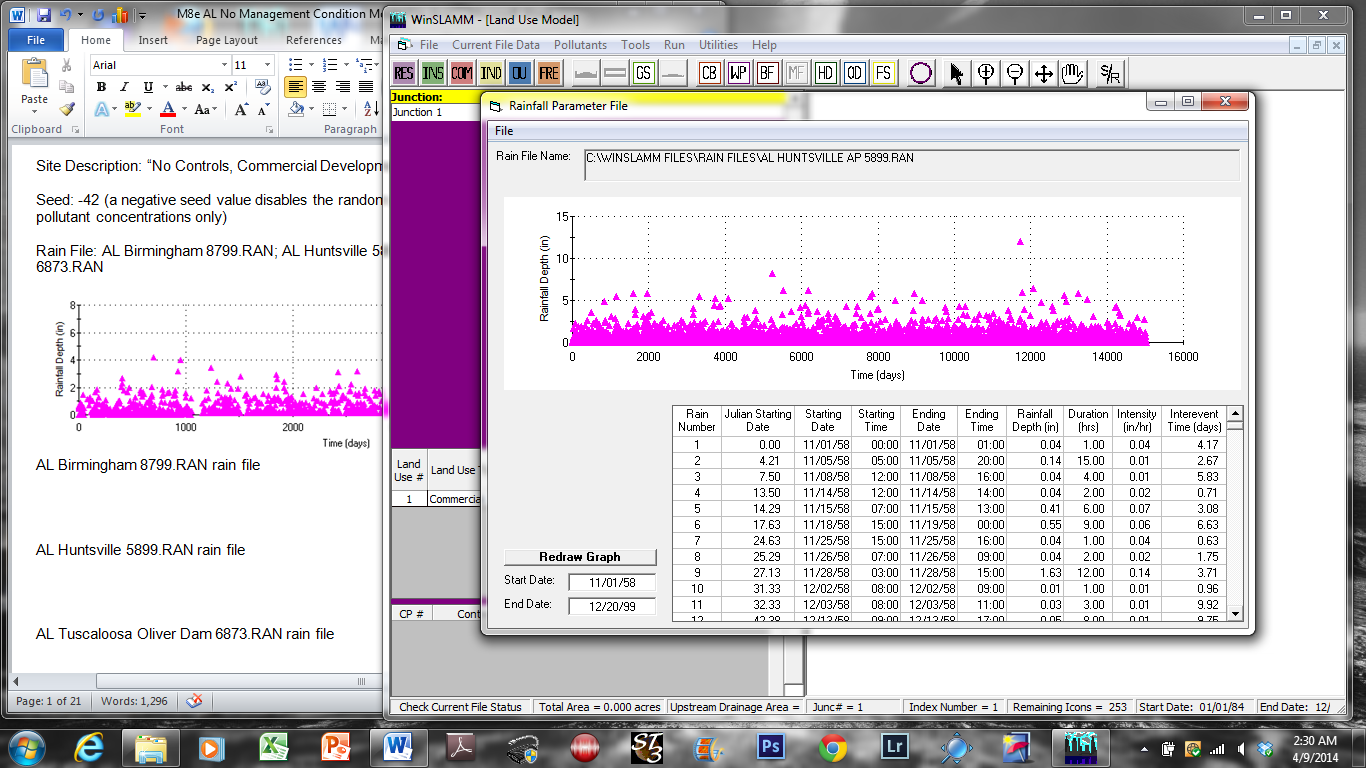
Seed: -42 (a negative seed value disables the random pollutant generator and uses mean pollutant concentrations only)

Rain File: AL Birmingham 8799.RAN; AL Huntsville 5899.RAN; or AL Tuscaloosa Oliver Dam 6873.RAN

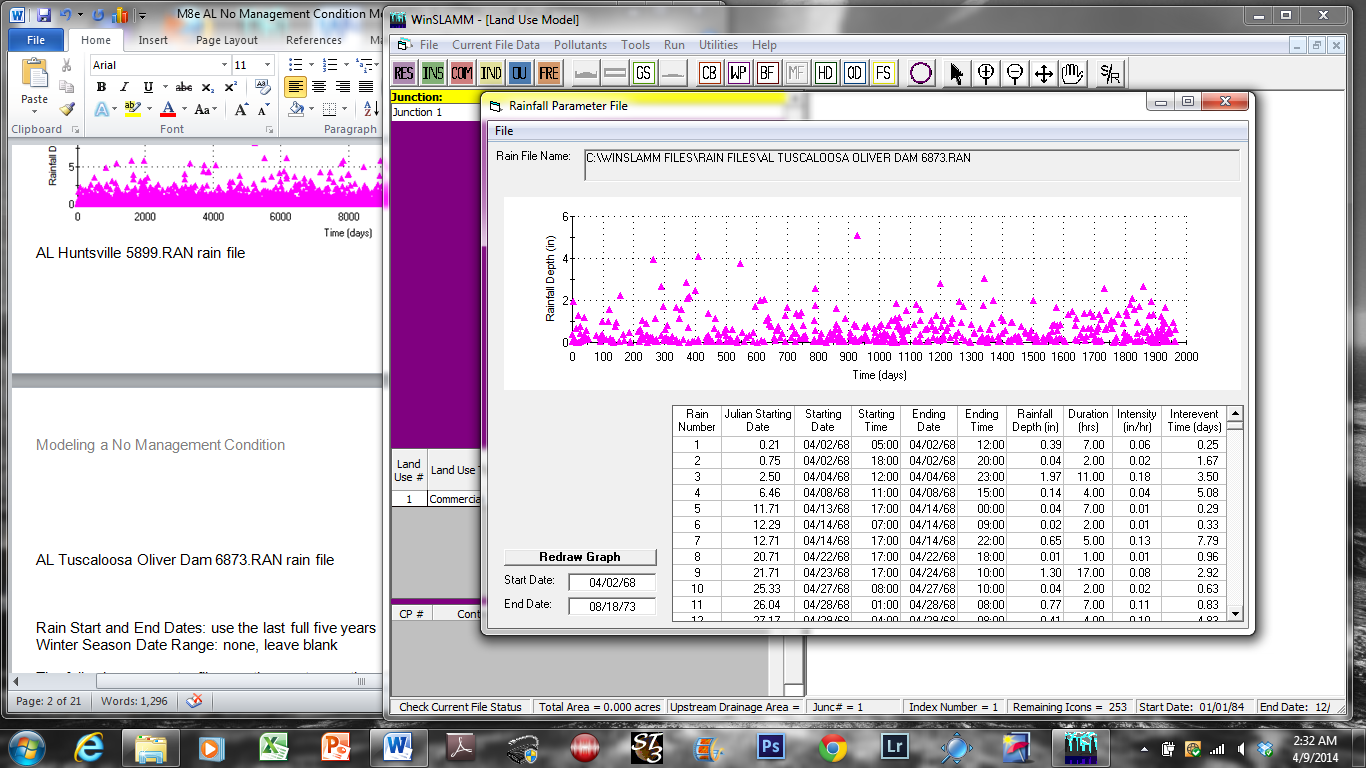
These rain files are shown below (event total rain depths):



AL Birmingham 8799.RAN rain file



AL Huntsville 5899.RAN rain file



AL Tuscaloosa Oliver Dam 6873.RAN rain file

Rain Start and End Dates: use the last full five years

Winter Season Date Range: none, leave blank

The following parameter files are the most recently calibrated files available for the Southeast region of the US (heavily influenced by Birmingham and Tuscaloosa data, plus some Huntsville data also):

Pollutant Probability Distribution File: SouthEast April 05 2014.ppdx

Runoff Coefficient File: SouthEast April 05 2014.rsvx

Particulate Solids Concentration File: SouthEast April 05 2014.pscx

Street Delivery File:

Residential LU: SouthEast street RES.std

Industrial LU: SouthEast street COM and IND.std

Institutional LU: SouthEast street INST and OTHER URBAN.std

Other Urban LU: SouthEast street INST and OTHER URBAN.std

Commercial LU: SouthEast street COM and IND.std

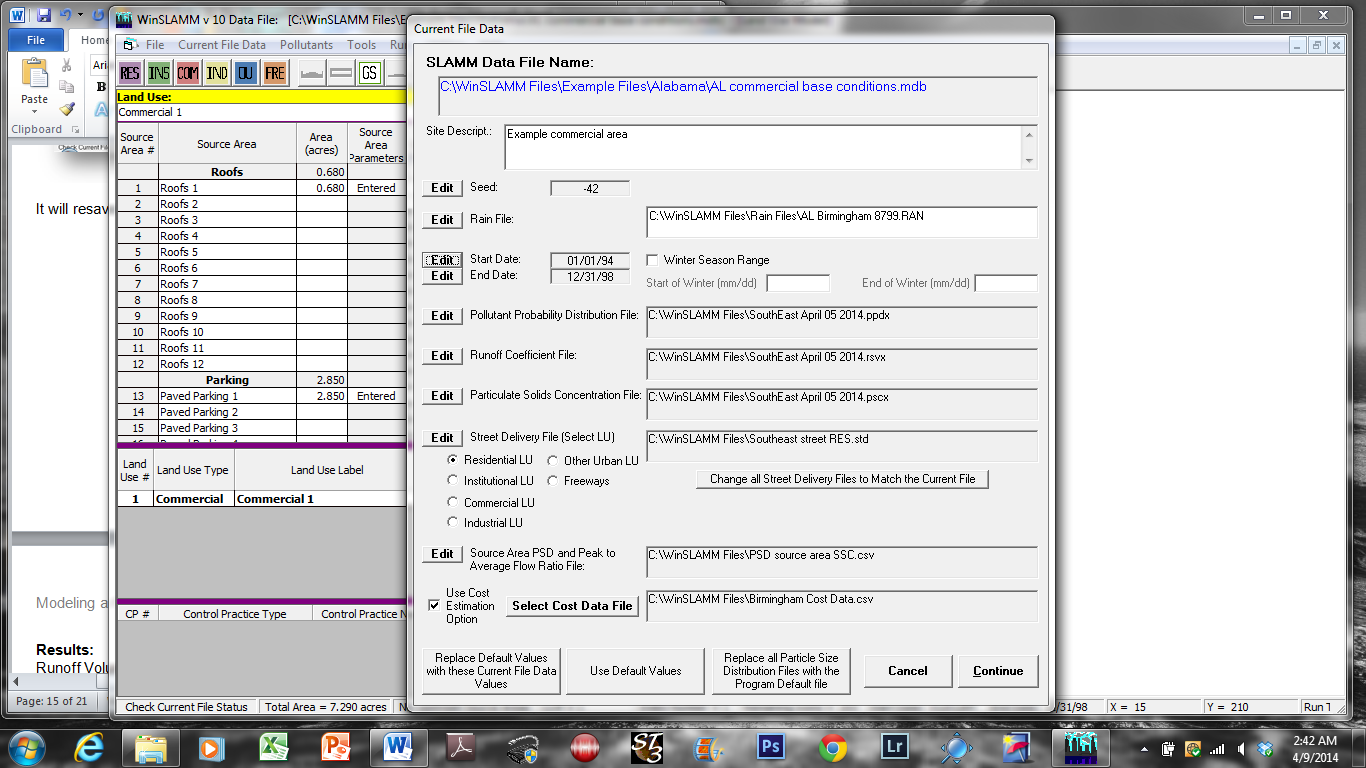
Freeways: SouthEast Freeway.std

Source Area PSD and Peak to Average Flow Ratio File: PSD source area SSC.csv (the flow data is not entered in this file as the model currently has not been modified completely to use this information)

Use cost estimation option Birmingham Cost Data.csv

Select “Continue” when finished to save your edits and leave the form.

*Note: Screen Captures of the entered data are found on the subsequent pages.*

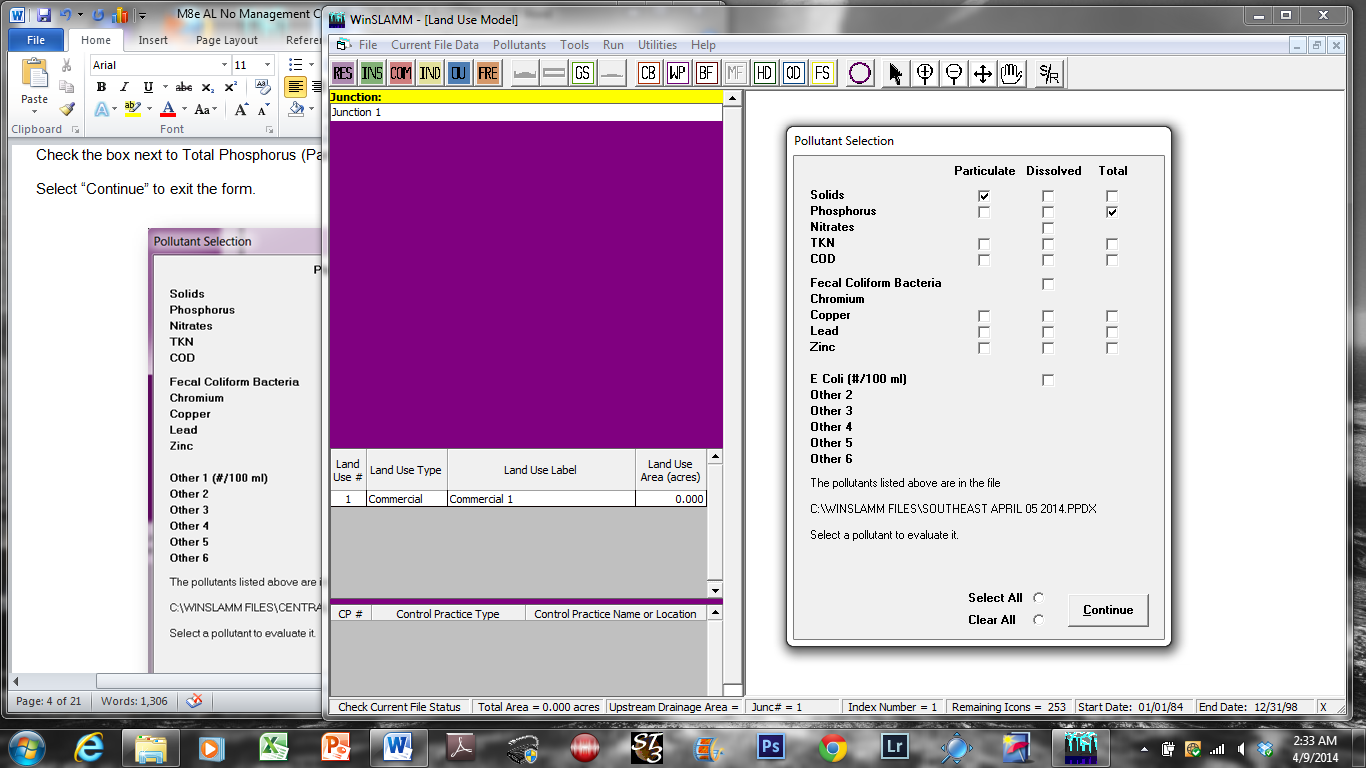


***Pollutants:***

Select “Pollutants”.

Check the box next to Total Phosphorus (Particulate Solids (SSC or TSS) will always be checked).

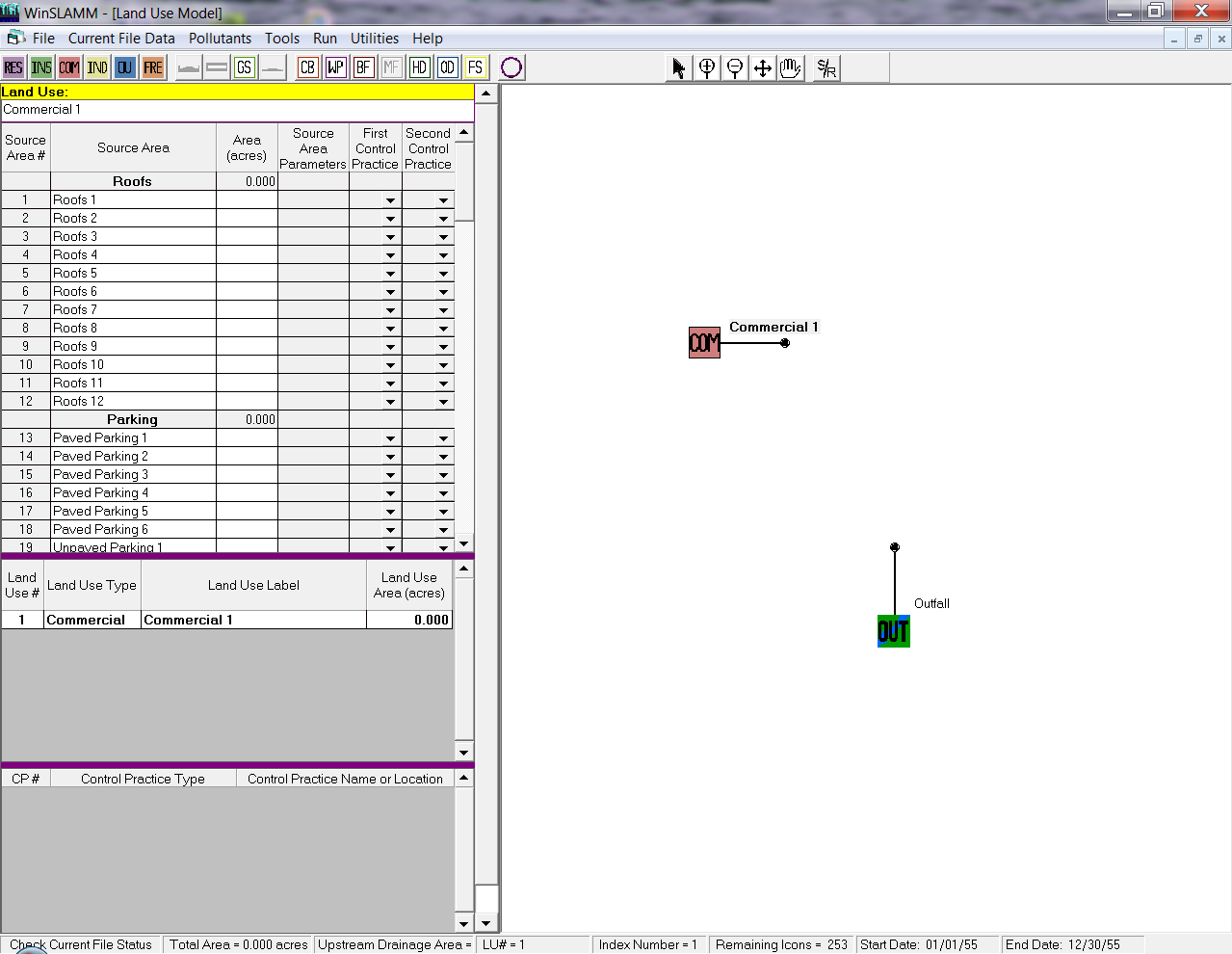
Select “Continue” to exit the form.



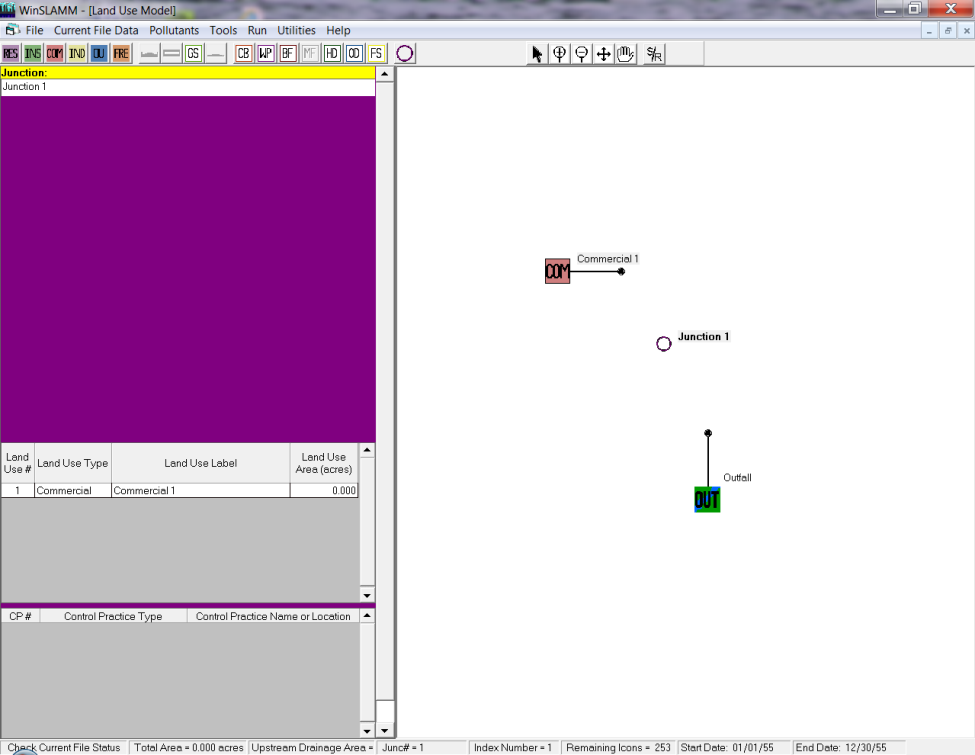
Next, set up the model network. Our project area has one land use and one drainage basin. Therefore, we will be setting up one modeled land use.

Select the land use the source areas are associated with by clicking on the land use icon. Because the project area is a commercial development, choose the Commercial Land Use Icon.

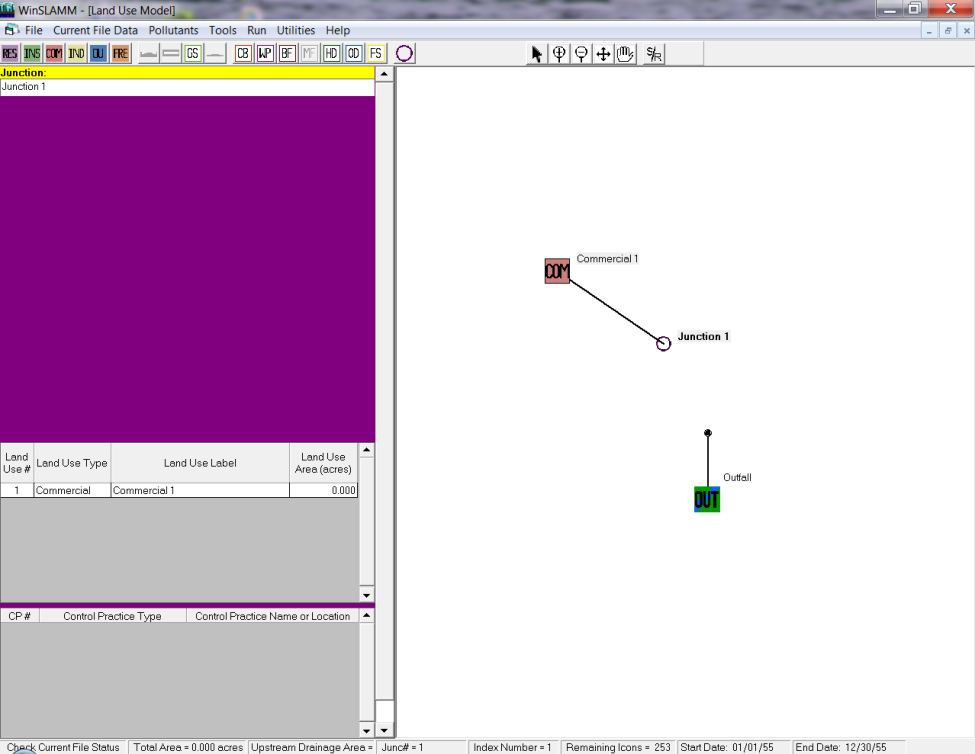
Next, click anywhere on the white map area. The land use icon will appear.



# Notice the “tails” or “handles” on the icons. All “handles” must be connected to Junctions. Junctions are represented by the “O” Icon on the main tool bar. Click on the “O”, then click anywhere in the white map space.



# To connect the handle to the Junction, click the left mouse button on the Commercial Icon handle and drag the handle over to, and on top of, the Junction Icon. Release the hold. The Commercial Icon is now connected to the Junction.



# Now, connect the Outfall handle to the Junction just as you connected the Commercial Land Use to the Junction. You can move the screen icons around the map with the mouse (left click and hold on the icon symbol and drag it to the desired location).

*Note: All model files can only have one Outfall and all Icons must eventually be routed to the Outfall.*

# Connecting to a outfall.bmp

# This model file will not include Control Practices. Therefore, there are no other Icons to add.

# *Source Area Data:*

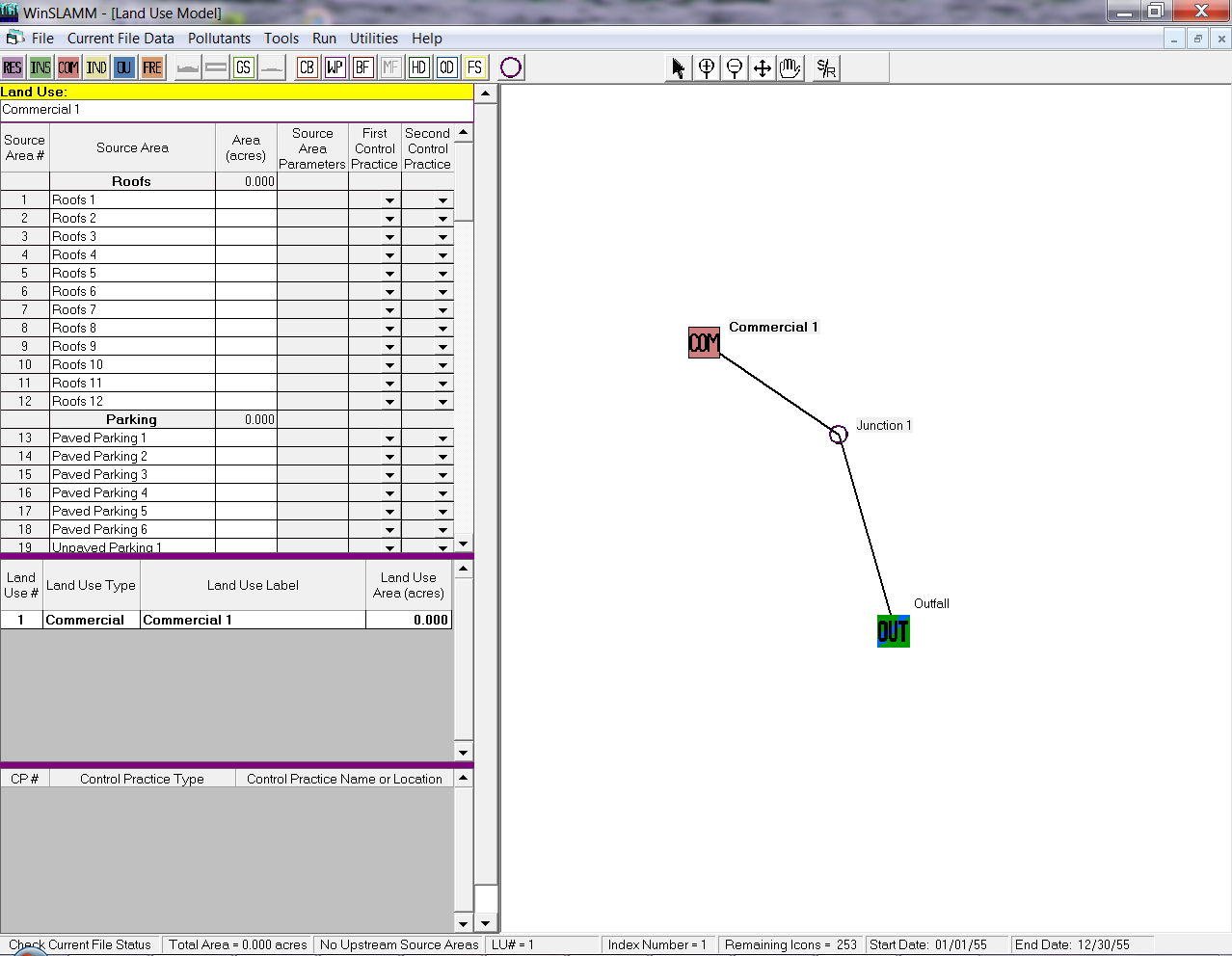
Next, enter the data describing the source areas in the model. The Table 1 describes the source areas.

## Table 1 - Project Source Areas

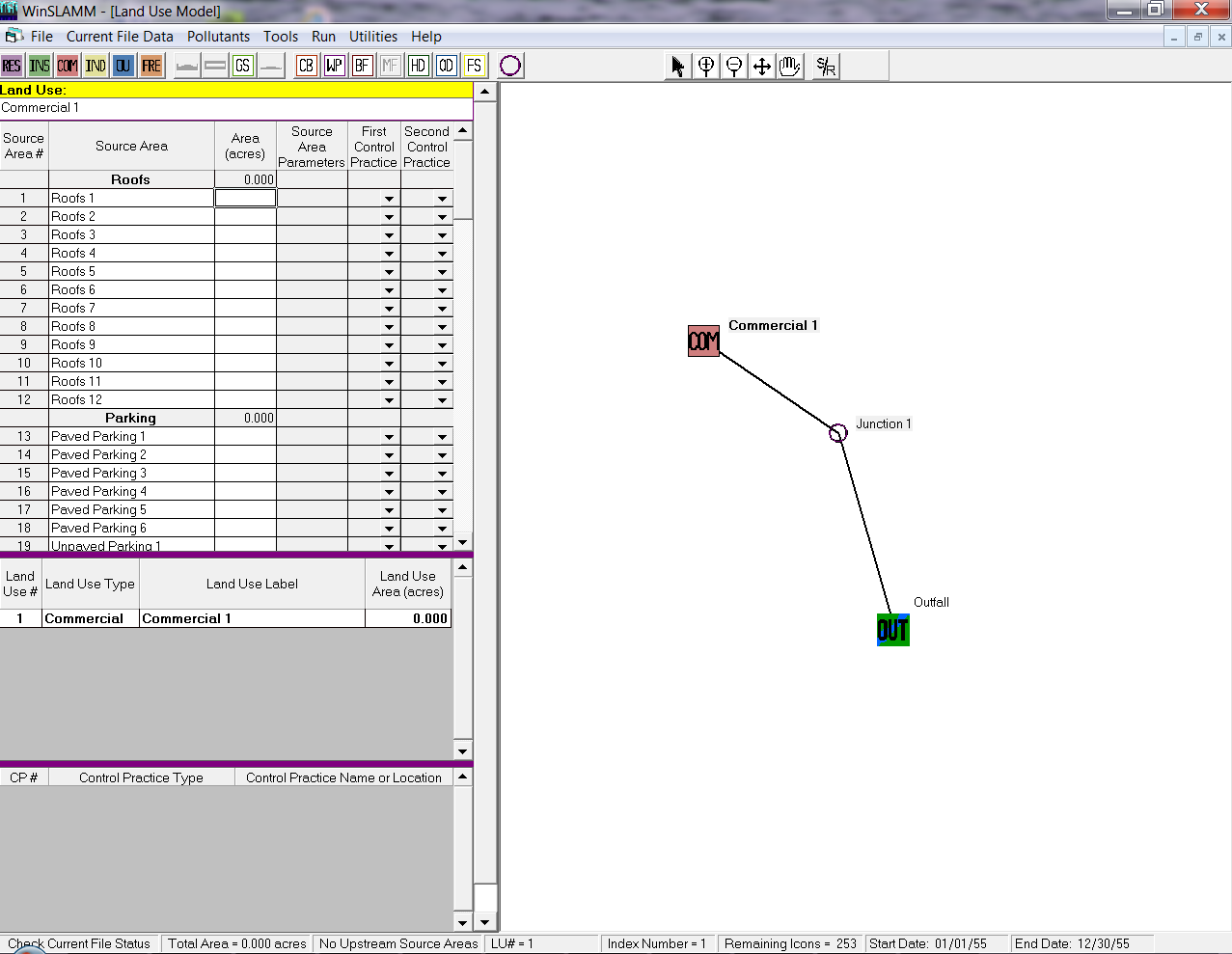
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Source Area** | **Area (acres)** | **Description** | **Directly connected?** | **Other needed information** |
| Roof 1 | 0.68 | Flat Roof | Directly connected or draining to a directly connected area |  |
| Paved Parking 1 | 2.85 |  | Directly connected or draining to a directly connected area |  |
| Driveway 1 | 0.17 |  | Directly connected or draining to a directly connected area |  |
| Sidewalk 1 | 0.32 |  | Drainage to a Pervious Area | Silty soil (normal compaction) |
| Large Landscaped 1 | 2.14 |  |  | Silty soil (normal compaction) |
| Small Landscaped 1 | 0.63 |  |  | Silty soil (moderately compacted, next to building and affected by construction compaction) |
| Small Landscaped 2 (Islands) | 0.50 |  |  | Silty soil (normal compaction) |
| **Total** | **7.29** |  |  |  |

To enter the commercial source area data, click on the Commercial Land Use Label next to the Commercial Icon.

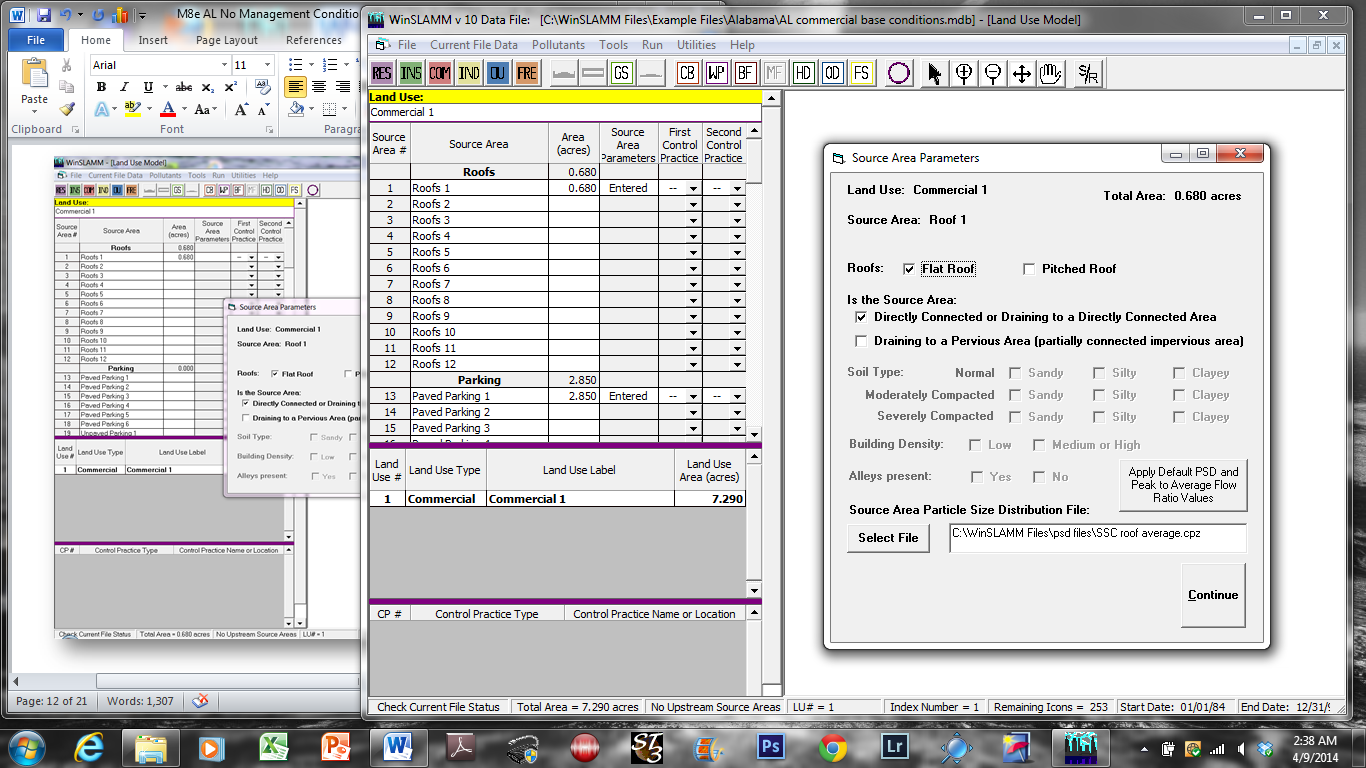
When the Label is clicked on (or selected), the Land Use name becomes bold and the source areas available in the land use appear in the Source Area Grid on the left side of the screen.

Next, click on the cell that intersects the Source Area name row and Area (acres) column.

Source Area Grid



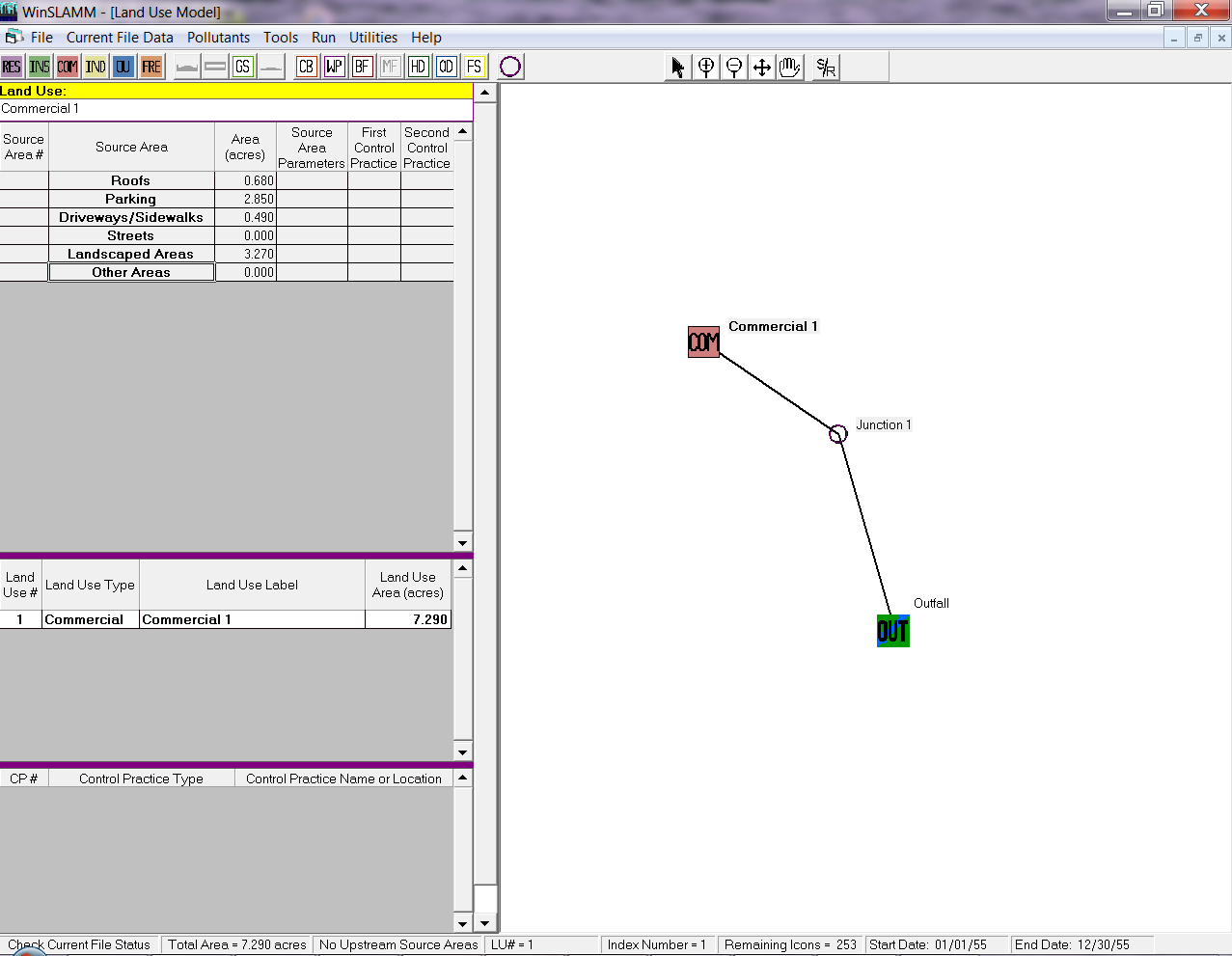
Enter the area of the Source Area in acres. Select “Enter” on your keyboard to move to the next cell under “Source Area Parameters”. Select “Enter” again to enter the Source Area Parameter data. The project source area parameter data is shown on the Table on Page 8.



Enter the remaining data listed in the table for the source area. Select “Continue” to leave the form.

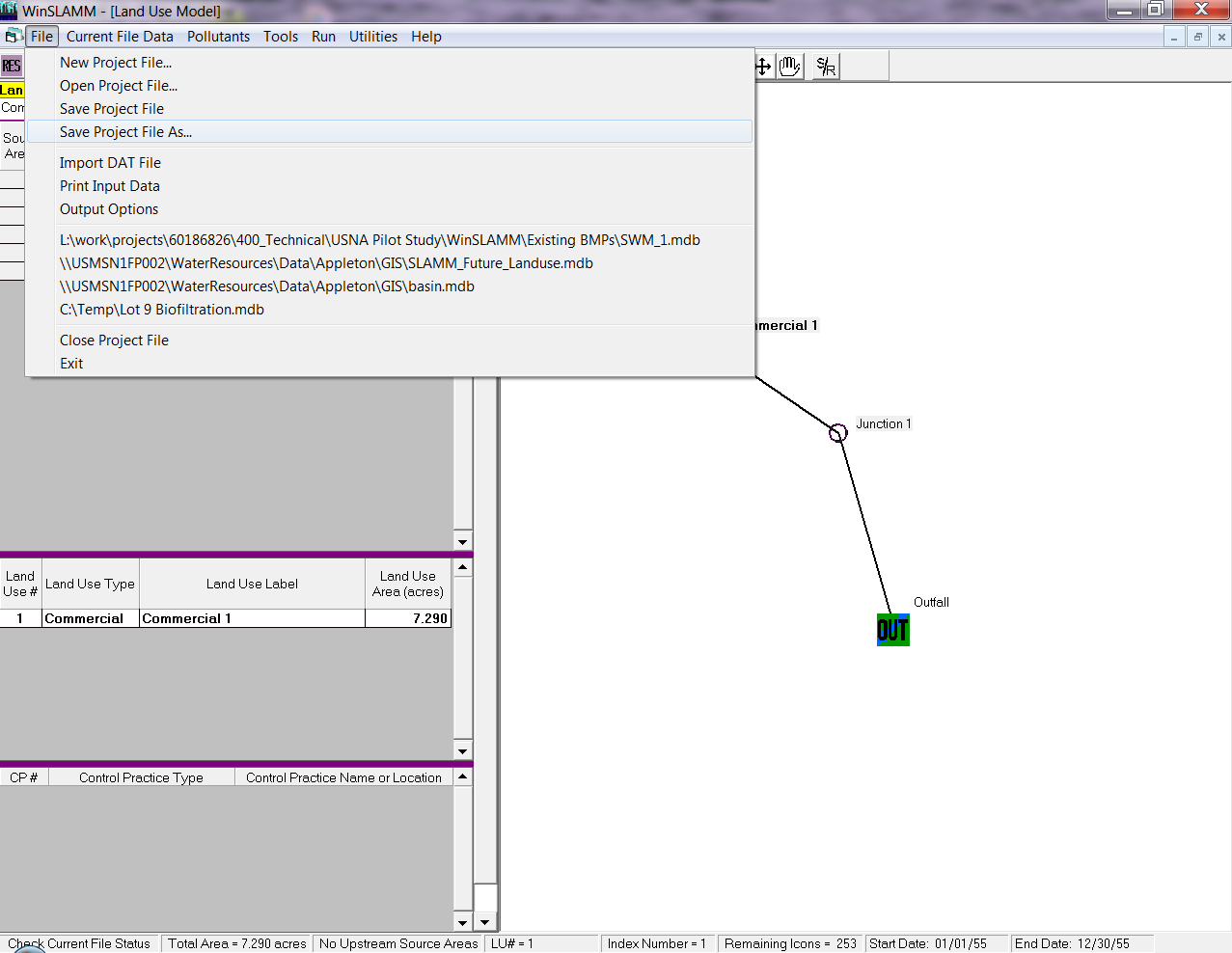
Enter the remaining data for the project area.

When you are finished entering data, check that the land use totals in the Land Use grid match and that the Total Area in the Status Bar matches.

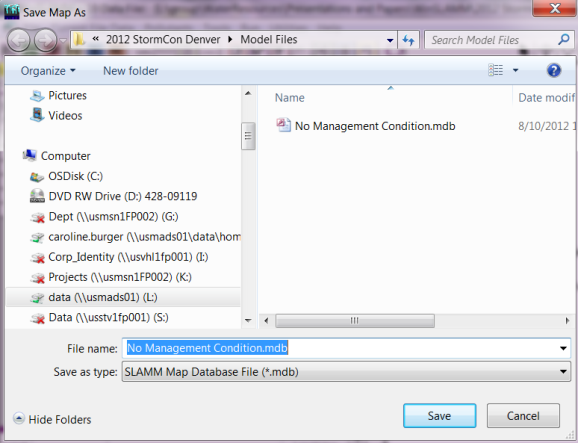


*Note: To show only the totals of each major source area heading, either double click on each major source area heading or right-mouse click anywhere on the source area grid and select “Collapse Source Area List” from the popup menu.*

Save the File by selecting “File”, then “Save Project File As…”

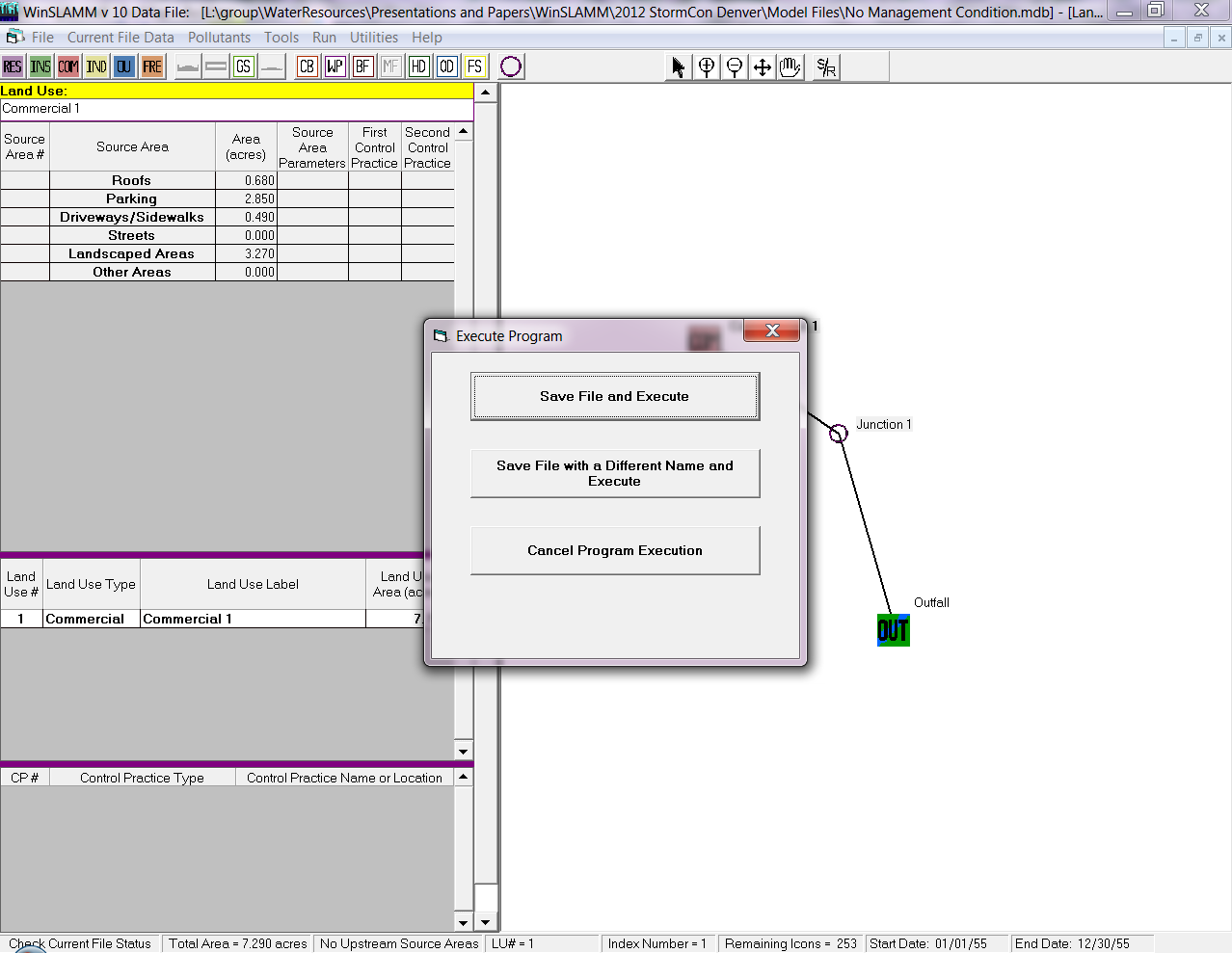


Navigate to your project folder, name the model file, and select “Save”.



# *Running the File:*

To run the file either select “Run”, then “Current Project File”. Then, select “Save File and Execute”. Or, select the “S/R” Icon in the Main Tool Bar



It will resave the file with the same name originally chosen in the project directory it was created.

**Results:**

Years in model run: 4.98

Runoff Volume: 3,181,000 ft3 (639,409 ft3/yr)

Particulate Solids Concentration: 67.7 mg/L

Particulate Solids Yield: 13,439 lbs (2,701 lbs/yr)

Particulate Solids Percent Reduction: N/A

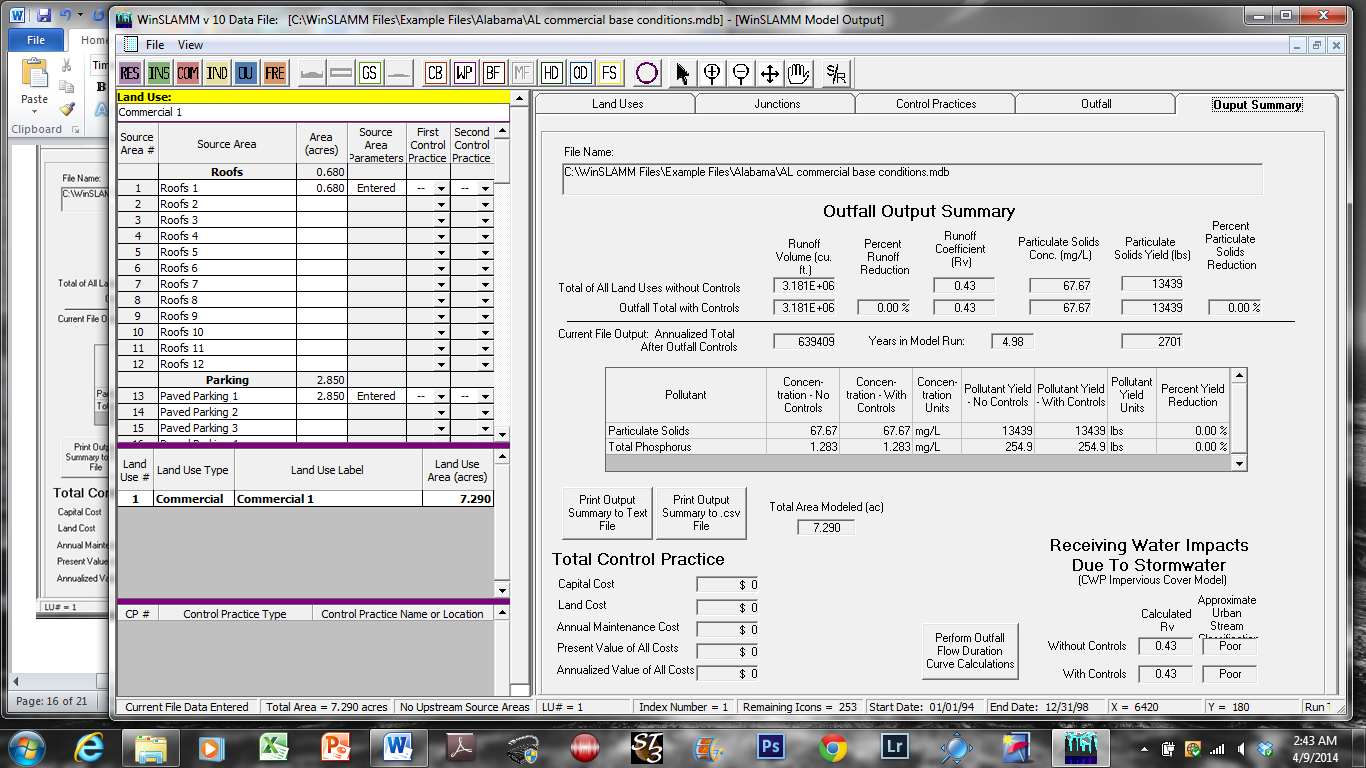
Total Phosphorus Concentration: 1.28 mg/L

Total Phosphorus Yield: 254 lbs/5 yrs

Rv: 0.43

Approx. Urban Stream Classification: Poor

Annualized Value: $0



*Because this is a model file without control practices the Total of All Land Uses without Controls will be the same as the Outfall Total with Controls.*

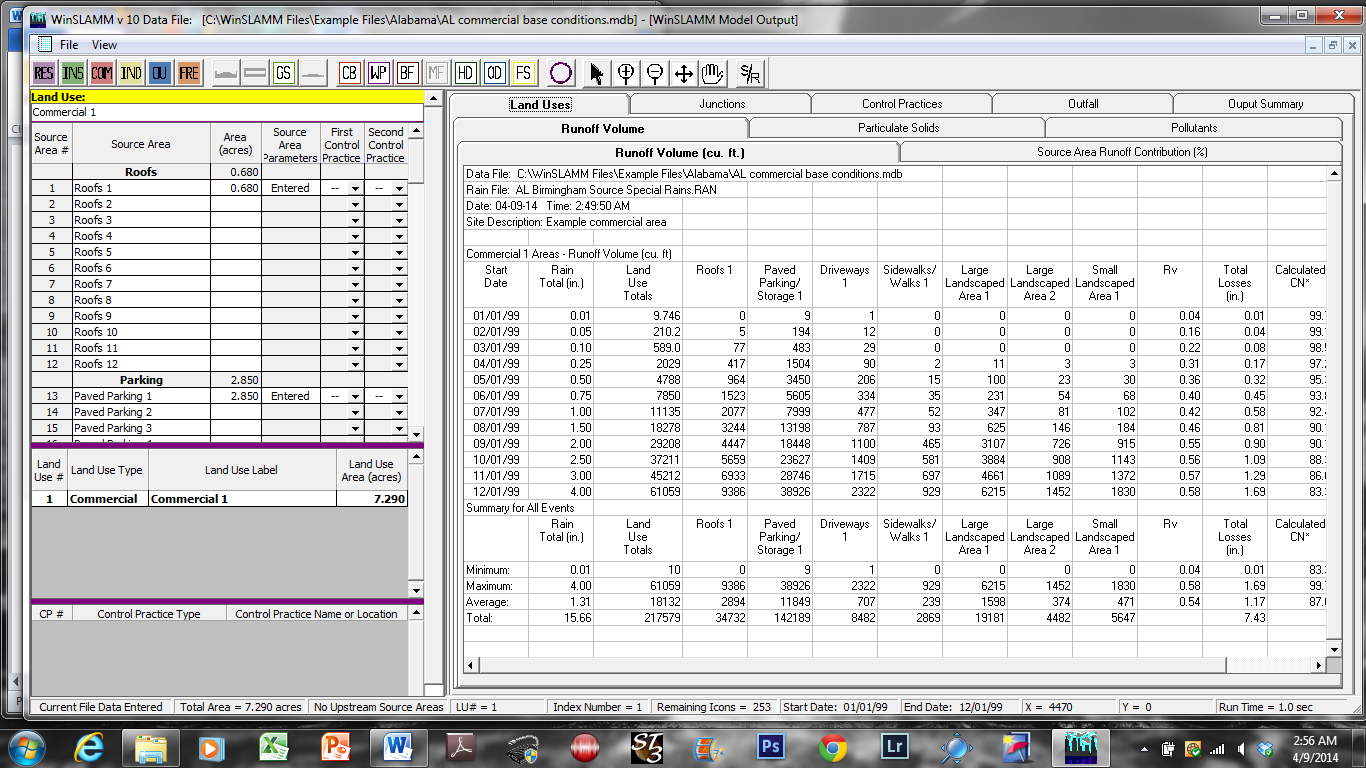
*The various output tabs display results at various locations in the modeled network.*

**Relative Sources of Contaminants**

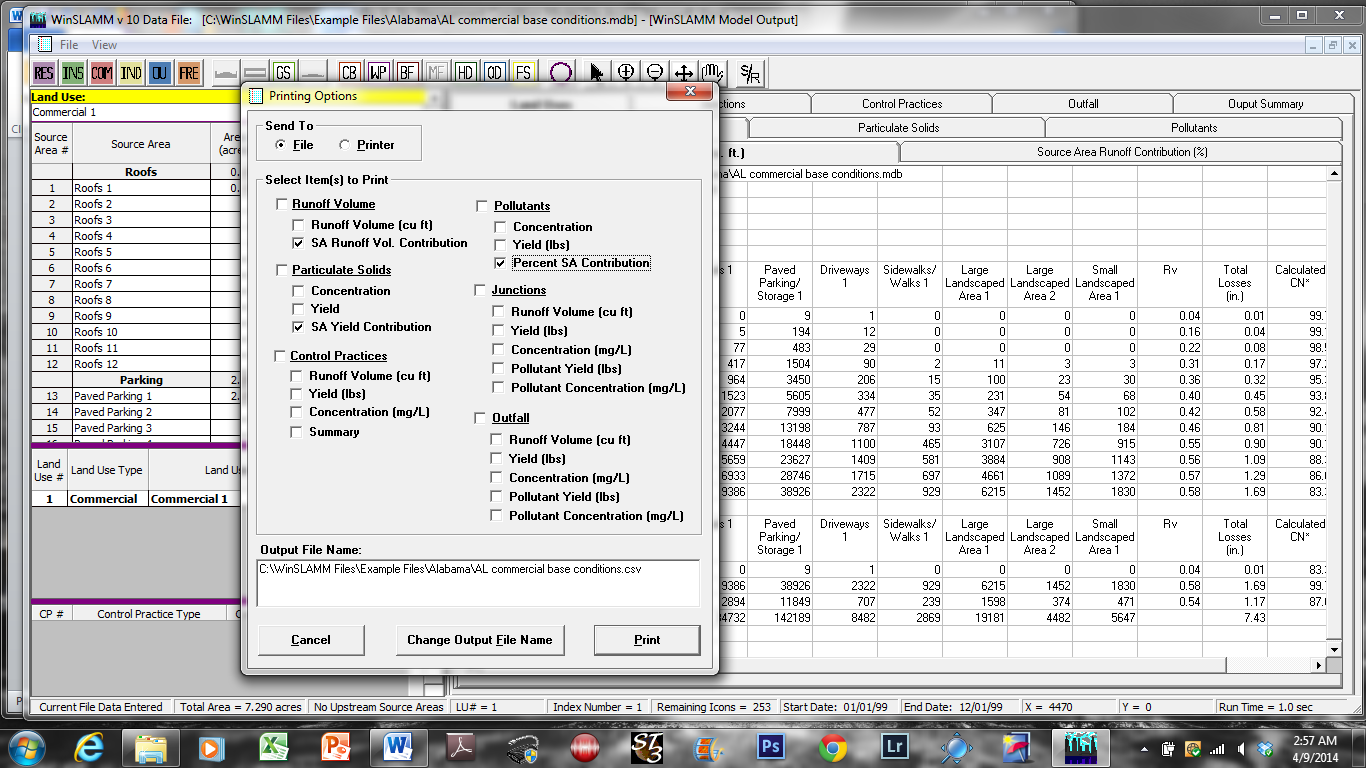
A simple rain file is available that has 12 events ranging from 0.01 to 4 inches (AL Birmingham Source Rains.RAN), as shown in the following table.

|  |  |
| --- | --- |
| Rain Number | Rain Total (in.) |
| 1 | 0.01 |
| 2 | 0.05 |
| 3 | 0.1 |
| 4 | 0.25 |
| 5 | 0.5 |
| 6 | 0.75 |
| 7 | 1 |
| 8 | 1.5 |
| 9 | 2 |
| 10 | 2.5 |
| 11 | 3 |
| 12 | 4 |

The model is run again using this rain series and produces the following set of data (under the runoff volume tab):



The file is then saved to a \*.csv file that can be opened in a spreadsheet:



The model calculates the percentage contributions of flows and pollutants for each rain. These data can be imported into a spreadsheet and simple area plots created to illustrate the relative contributions of these constituents for different rain conditions, as shown on the following plots (area plots prepared using EXCEL). The paved parking areas contribute about 70 to 90% of the runoff volume and particulate solids for rains from about 0.5 to 2 inches in depth. The landscaped areas contribute most of the phosphorus for the larger rain conditions. This is important information in helping to select an effective stormwater control program. Controls for the parking lot can reduce flows and particulates, while complete drainage area controls may be needed for phosphorus (or fertilizer reduction programs).

