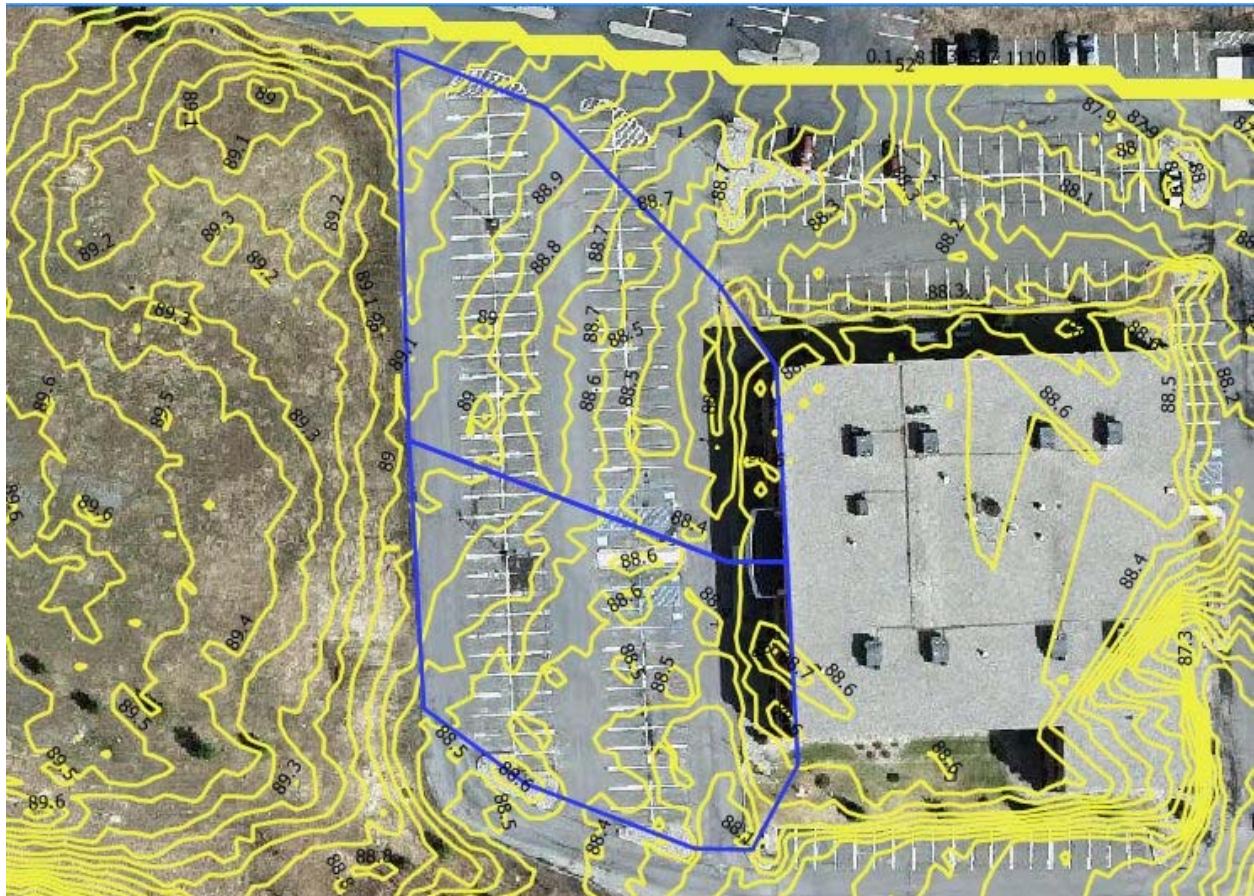


Urban Rational Example Answers:

Please note: Hydrology is a subjective field of engineering. There are many steps in the design process where you will make decisions others may disagree with. These notes represent one possible solution for this area.

Watershed Delineation:

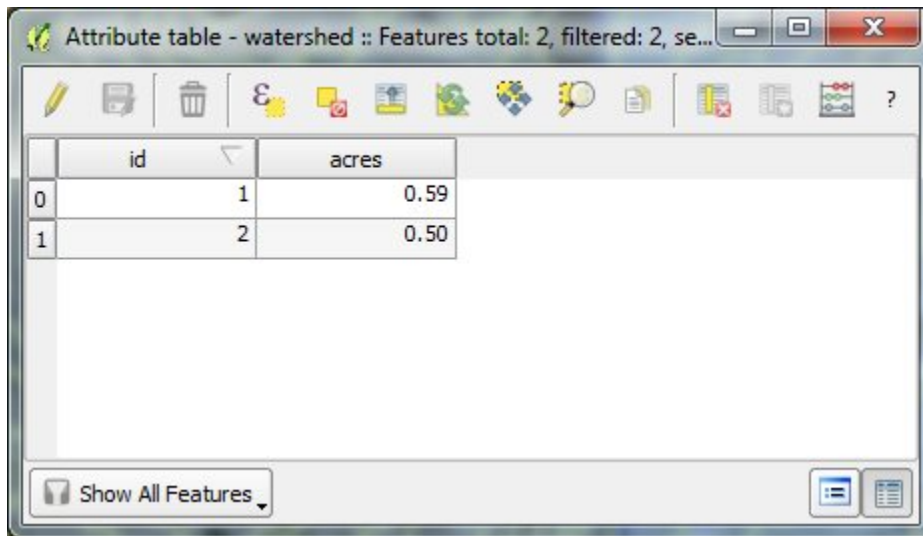
Like many parking lots, this one is very flat. Without lidar, we would need to do ground survey to determine the contours and low points in the area. I decided to display 0.1 meter contours for this map. Here are my watersheds.



Land Use Areas:

There is only one land use in these watersheds – impervious area. Since the CN for impervious area is the same for all hydrologic soil groups, soils data does not need to be gathered. However, in many jurisdictions, soils data will need to be supplied in reports to reviewing agencies.

I added an "Acres" column to the attribute table and got these results:



| | id | acres |
|---|----|-------|
| 0 | 1 | 0.59 |
| 1 | 2 | 0.50 |

Time of Concentration:

The tricky part about this is that one would think that there is sheet flow all the way across the parking lot to the catch basin. However, this distance exceeds the maximum allowable sheet flow limit in NY which is 100 feet. Also, in many closed drainage networks, there is channel flow at the inlets because they are located along a gutter or curb. In this case, they are in shallow depressions so there is no channel flow. Open up the answers HydroCAD file and see if your answers are similar to mine.

Running the Model:

When I run the model I get 4.24 cfs for the 2 year peak discharge. Your results may vary but they should be close to this.