CE 3372 – Water Systems Design
Water Systems Design Project

Problem Statement and Background

Figure 1 is an aerial image of a portion of Houston, Texas. The red polygon is the drainage boundary for a storm sewer system that drains North from the part of the area near Westheimer Road to a tributary of Buffalo Bayou and East from the area. The drainage ditch, which drain to the East, is shown as the "blue" fuzzy line on the figure.
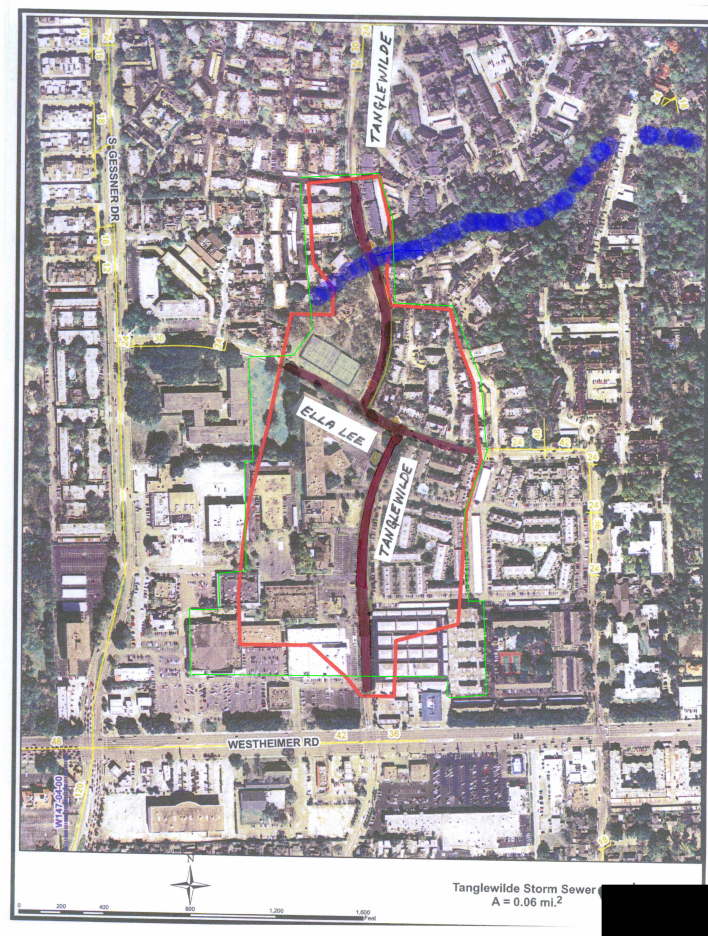

Figure 1: Tanglewilde Drive Study Area

The two main streets in the study area are highlighted in magenta. You are to size the storm water drainage system depicted in 2. Using your initial design from ES-16, which covers the same location, test the design using SWMM (Rossman, 2009) for a 5-yr, 6-hour storm. If the storm sewer surcharges, then modify the design to accommodate the storm. You should model the system as a dual-drainage system (surface street drainage, and sub-surface storm sewers). The applications manual has some examples of dual-drainage system (Gironas et al., 2009), as does the report by Cleveland (2008).
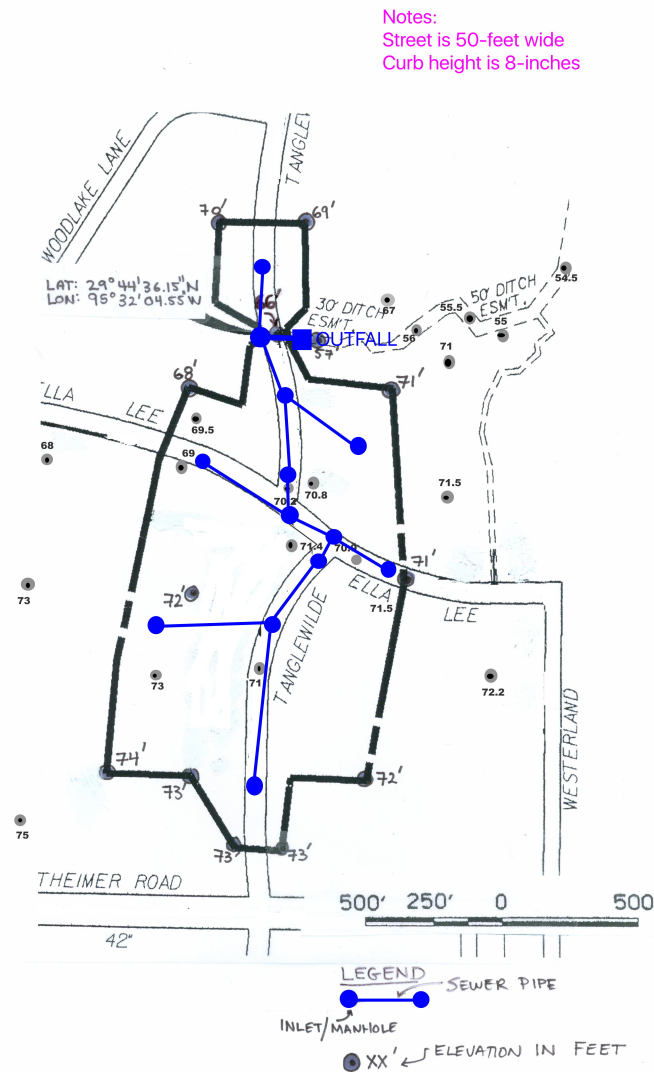

Figure 2: Tanglewilde Drive Drainage Area

Present your analysis and results in an engineering report. A report template is on the server – read and follow the template and construct the missing components, add an executive summary, results, and conclusions.[1]

References

Rossman, L. (2009). Storm Water Management Model user's manual version 5.0. Technical Report EPA/600/R-05/040, U.S. Environmental Protection Agency, National Risk Management Research Laboratory Cincinnati, OH 45268.

Gironas, J., L. A. Roesner, and J. Davis (2009). Storm Water Management Model applications manual. Technical Report EPA/600/R-09/077, U.S. Environmental Protection Agency, National Risk Management Research Laboratory Cincinnati, OH 45268.

Cleveland, T.G., and Botkins, W. (2008). Hypothetical Watershed Modeling - Block B. Harris County Flood Control District Research Report in Support of the Floodwise Block-B Study. http://www.rtfmps.com/resumes/MyWebPapers/project_reports/SWMM_hypothetical/

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[1]You will have to build from scratch your own Word Document using the template as the guidance document.