**Section 373.APPENDIX C Hydraulic Parameters**

In order to utilize the modified Streeter-Phelps dissolved oxygen model specified in Section 373.304, it is necessary to determine specific hydraulic parameters including mean stream depth, mean stream velocity and time of travel. These factors can be estimated for the critical 7-day 10-year low flow condition through basic open-channel hydraulic calculations (Manning Equation) for each stream segment.

The critical stream length must be divided into one or more segments of uniform hydraulic, geometric and water quality characteristics. The characteristics of importance in this analysis include volumetric flow rate, average stream velocity, depth and width of flow, stream slope, channel geometry, and BOD5 and total ammonia nitrogen concentrations. As a rule of thumb, therefore, a new segment should begin where:

a) there is a wastewater discharge to the stream,

b) the stream channel undergoes a change in slope or cross sectional geometry, or

c) stream flow increases through addition of another point source discharge, or confluence with another stream with non-zero 7-day 10-year low flow.