
To: Donald F. Geisser, P.E. *cc:*
From: John C. Perriello, P.E.
Re: Midland Avenue Conveyances/Regional Treatment Facility
Phase Two Project File – Influent Pump Station Physical
Model Study Justification
File: 006.54 (027.01)
Date: July 11, 2001

The 2000 edition of the Hydraulic Institute (HI) Standards which is being used as a basis for the design of the influent pumps for the Midland Avenue RTF require that a physical hydraulic model study be conducted for pump intakes with the following factors:

- Non-uniform or non-symmetric approach flow to the pump sump exists; and
- The pumps have flows greater than 40,000 gallons per minute (gpm) per pump or the total station flow is greater than 100,000 gpm.

The proposed influent pumps could potentially have a non-uniform or non-symmetric approach flow due to the confluence of the three large diameter CSO transmission pipelines (Tallman Avenue, Bellevue Avenue and Midland Avenue) into the wet well. In addition, the proposed pumping rates exceed the threshold requirement (influent pumps designed for 76,000 gpm and total station flow of 382,000 gpm).

The following are reasons why the recommended model study was not included in our scope of work dated September 25, 2000 but is currently recommended:

- The new HI Standards were not available until the latter part of 2000 (Note: we did not receive the revised standards until October 2000).
- The previous HI Standards (1994) recommended model tests for large pump systems; however, they were not required. By meeting all of the other HI Standard guidelines for pump intake design, we did not think the model study was required.
- Since our initiation of the design of the Midland Avenue RTF in April 2001, several pump manufacturers have recommended that a pump model test be conducted.