

# STORMWATR LIFT STATION—WHEATON SANITARY DISTRICT



## Stormwater Pumping within Existing Facilities

The Wheaton Sanitary District Staff was concerned with the unsafe and tenuous conditions of the existing storm water lift station located in the Main Control Building. The existing lift station served as the influent pumping station to the plant. However, as the plant was expanded the lift station was converted to a storm water lift station and piping was modified for the lift station to receive storm water from Catch Basins “A” and “B” through the existing influent piping into the station’s wet well.

During major storms, there was a tendency to pool storm water run-off near Catch Basin “A” which required the operator to manually observe and control the existing storm water pumps to prevent flooding in and around the Main Control Building. Further noted was the poor condition of the dry well and pumping equipment and the difficulty in observing the condition of the existing wet well.

Although the original staff preference was for an external, submersible lift station and removal of the existing lift station under the control building, our cost analysis pointed to rehabbing the existing lift station with emphasis on safe access and automatic control. The primary obstacle that was overcome was the limited existing wet well level and capacity for proper operation of the pumping equipment. The equipment was installed in phases to allow for continuous service while completing the construction.

**Client: Wheaton Sanitary District**

Rempe-Sharpe:

- ◆ Identified drainage area and obtained coordinates and grade elevations at structures, manholes, pipe inverts, and appropriate locations
- ◆ Conducted Storm Water Study to determine design flow rates
- ◆ Established drainage area and identify areas of permeable and impermeable surfaces
- ◆ Developed storm water model of drainage area with Runoff Coefficient ( $C_N$ ) and Time of Concentration ( $T_C$ ).
- ◆ Calculated peak flow rates to be utilized in the design of the storm water lift station, storm sewers, and force main
- ◆ Sized Storm Water Lift Station: by determining the flow rate and head for the Storm Water Lift Station based on the Storm Water Study
- ◆ Selected pumps and piping arrangement to meet the required peak flow rate for the design storm
- ◆ Determined wet well sizing for proper operation of the selected pumps
- ◆ Located proposed storm water lift station and piping arrangements on Site Plan:
- ◆ Evaluated potential lift station sites
- ◆ Evaluated storm sewer routing alternatives
- ◆ Resolved methods to de-commission the existing storm water pumping station located in the basement of the control building including power, controls and SCADA removal or modifications.
- ◆ Determined location of new lift station control panel and source of power for lift station.

Construction Cost: \$840,000

### REFERENCE:

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