Edina Recycle Basins
Edina, MN

The City of Edina retained Progressive Consulting Engineers, Inc. (PCE) to provide a backwash recycle system in which the bulk of the filter backwash water is recycled to the head of the plant with the solids retained in the backwash recycle detention tank pumped to the sanitary sewer. Work covered by the upgrade project includes: designing a backwash recycle detention tank to accommodate two back-to-back complete filter backwashes; designing a backwash recycle pump with the maximum pumping capacity equal to 10% of the plant capacity; designing a sludge pump and connection to the sanitary sewer system; and electrical controls.

The project includes structural design of the backwash recycle storage facility. The backwash water recycle tank will have a sloped floor with a water pipe grid to direct the sludge to the sump. Recycle pumping system and sludge pumps will be designed to recycle the backwash and pump the sludge to the sanitary sewer. Electrical and control design will consist of preparing plans and specifications for the electrical controls for the recycle and sludge pump at Water Treatment Plant No. 3.

Construction of each recycle tank will be of cast-in-place concrete. Tank overflow lines drain via gravity and discharge above grade to provide an air gap necessary to meet Minnesota Department of Health requirements. At each plant, overflow will flow to grade, run overland, and ultimately enter the same storm sewer system to which each plant currently discharges.

Filter backwash water will flow by gravity from the water treatment plants to the recycle basins. Backwash water will be allowed to settle in the recycle basins and then be pumped back to the head of the water treatment plant for retreatment. Periodically, the settled sludge will be pumped to the sanitary sewer. The recycle tank will be equipped with level transducers to control shut off of recycle and sludge pumps and to provide a high level alarm and plant shut down if the high water level is exceeded. At the high level alarm, a plant operator will be required to manually open a valve on the tank overflow line to allow overflow.

Client: City of Edina
Client Contact: Roger Glanzer, Utility Superintendent
Construction Year: 2003
Bid: $2573,649 Project Cost: $2,745,305

pce
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Water Treatment Plant

Water Engineering