

## RELATED EXPERIENCE

### WATERFORD TOWNSHIP DPW DRAIN SURVEYS RELATED TO WELL HEAD PROTECTION

Johnson & Anderson, Inc. has completed surveying and research activities related to the location of County Drains in Waterford Charter Township as they interact with well head protection areas. This

<b>Location:</b>	Waterford Township, MI
<b>Construction Date:</b>	2004-2007
<b>Engineering Fee:</b>	\$107,785
<b>Client:</b>	Waterford Township DPW
<b>Contact:</b>	Mr. Bill Fritz, PE Director of Public Works (248) 618-7451

project was undertaken over a period of 4 years beginning in 2004 with completion in 2007. The project was funded in part by grants from the Michigan Department of Environmental Quality. The research aspect of the project involved reviewing Township and County records for the original plans of the various drains. The Waterford Township Geographical Information System (GIS) was utilized to approximate the location of various drains in the scope of the study.

Once the approximate location was determined, historical plans were located and scanned so plans were available in a digital format.

Field survey activities on the project related to the following activities: profiles of the drains, cross sections at pre-established intervals, cross sections at changes in the drain, and cross sections at enclosures. Additional tasks related to verifying the boundary of the drainage districts in connection with previously established well head protection delineations, verification of the districts using two foot contour maps, and preparing maps of the watershed (drainage district) as it intersects the delineated well head protection area.

County Drains studied under this project are as follows: Birdsland Drain, Drayton Plains Drain, Otter Drain, Silver Crest Drain, Wilmont Drain, Tuttle Drain, Winkelman Drain, and McIvor Drain.

