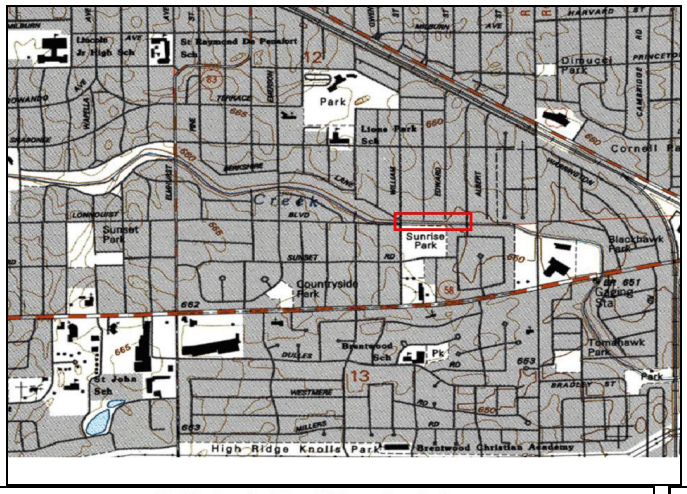
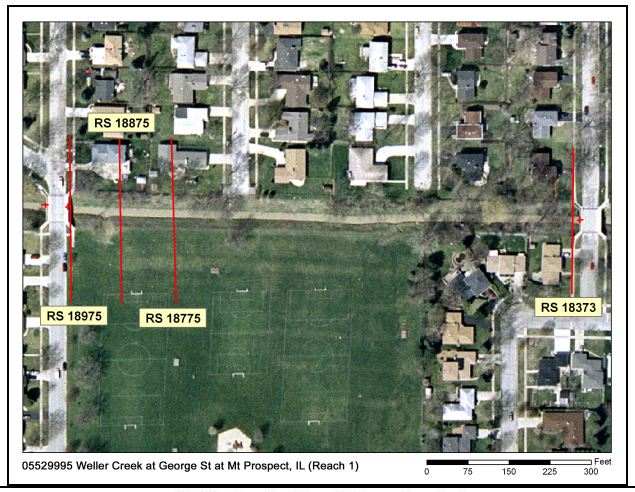
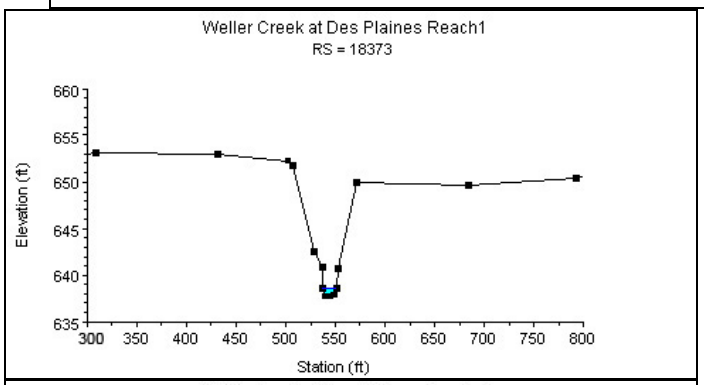
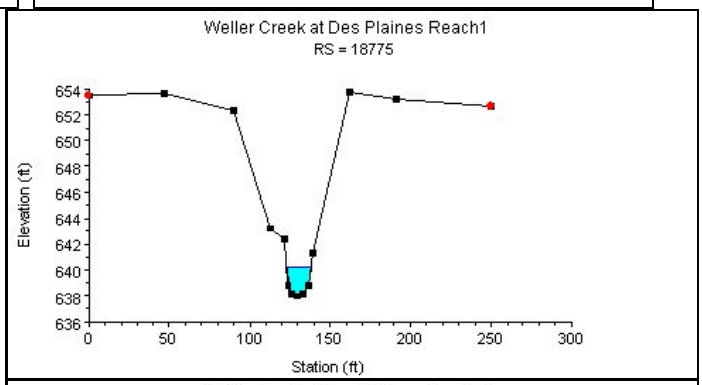
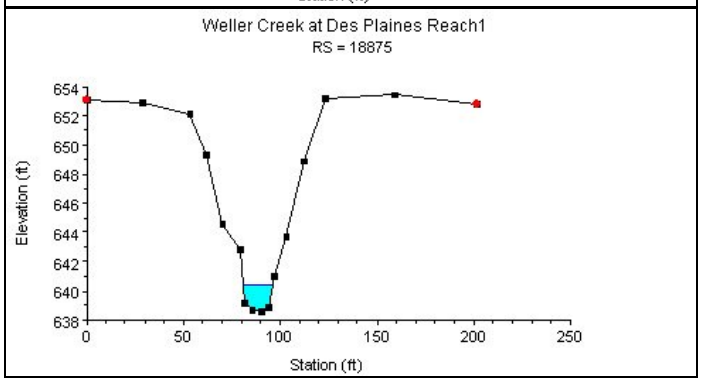
Weller Creek at George St at Mt Prospect, IL (Reach 1)

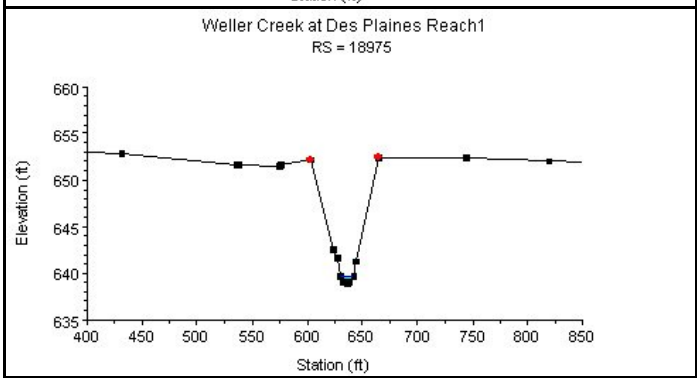












Study Reach.--The channel reach under consideration is constructed in an urban setting, as shown in the quadrangle map on the top left. The study reach, about 980 ft long, is located from South William Street bridge to South George Street bridge. Four surveyed cross sections (surveyed by the U.S. Corps of Engineers, May 2003) are available for describing the channel geometries in the study reach. The channel alignment, approximate variations in channel width and bank conditions, and locations of cross sections are shown in the aerial photo on the top right. Cross-sectional plots at four river stations (RSs), as shown above, are selected to illustrate the variation in cross-sectional geometry.

Gage Location.--The location of discharge measurement is lat 42°03 05 , long 87°55 30 . This study reach is at SW1/4 SE1/4 SE1/4 sec.12, T.41N., R.11E., Cook County, Hydrologic Unit 07120004, on right bank 10 ft upstream from bridge on State Highway 58 (Golf Road) in Des Plaines, 2 mi west of US Highway 45 and at mile 3.6. The study reach is located upstream from the gagehouse. The USGS streamgage-station number is 05529995.

Drainage Area.--12.81 sq mi.

Gage Datum and Elevations of Reference Points.--Datum of gage is 634.02 ft.; RP2 is a bolt in the concrete guardrail on the downstream side of Williams Street bridge located about midchannel, elevation = 656.492 ft.; RP1 is a bolt in the concrete guardrail on the upstream side of George Street bridge located about midchannel, elevation = 654.325 ft. All elevations are in NGVD 1929 convention.

Stage, Discharge Measurements, and Computed n-Values.--Water surface elevations are made by taping down from RP-1 on the upstream side of George Street bridge, and from RP-2 on the downstream side of Williams Street bridge. Discharge measurements are made from the downstream side of Williams Street Bridge. Wading measurements are made in the vicinity of the downstream side of the bridge. For extreme low flows the reach is considered to extend from the George Street bridge until the first riffle, about 270 ft upstream of the bridge. When possible, multiple discharge measurements were made during a rise and recession to provide data for calculating n-values over a range in stage. The computed n-values are listed in the following table. Whenever possible, the computed n-values are associated with a photo taken at the time of the measurement. The photos are arranged from low stage to high stage in order to illustrate contributing factors of n-value at a particular stage.

Date of Observation	Discharge (ft^3/s)	Average Cross Section Area (ft^2)	Hydraulic Radius (ft)	Mean Velocity (ft/s)	Slope	Coefficient of Roughness *n*
5/2/2006	8.4	11.3	0.81	0.78	0.001450	0.092
4/25/2007	48.4	22.3	1.38	2.21	0.001330	0.044
4/25/2007	51.2	23.2	1.43	2.25	0.001340	0.044
6/26/2006	60.6	28.3	1.65	2.17	0.001330	0.050

05529995 Weller Creek at George St at Mt Prospect, IL (Reach 1) 06/03/03
Downstream end of reach, bed and bank material

05529995 Weller Creek at George St at Mt Prospect, IL (Reach 1) 06/03/03
Looking Downstream at gabion boxes

05529995 Weller Creek at George St at Mt Prospect, IL (Reach 1) 05/02/06
From upstream, looking downstream

05529995 Weller Creek at George St at Mt Prospect, IL (Reach 1) 05/02/06
From downstream, looking upstream

05529995 Weller Creek at George St at Mt Prospect, IL (Reach 1) 06/26/06
Looking upstream from bridge

05529995 Weller Creek at George St at Mt Prospect, IL (Reach 1) 05/26/06
Looking downstream at riffle

05529995 Weller Creek at George St at Mt Prospect, IL (Reach 1) 06/26/06
Looking downstream

Description of Channel.--This channel has been modified. The streambed material consists of coarse sand and gravel in 12 inch monoslab pavers. The bank consists of gabion boxes at the toe with predominantly short grass and weeds up the banks. The cross sections are fairly uniform and nearly trapezoidal. Light tree cover occurs just upstream of George Street bridge. The channel is straight.

Floods.--Maximum discharge during period of record, 1,590 ft^3/s on June 10, 1967, gage height, 15.09 ft.

Estimated n-Values using Cowan s Approach.--