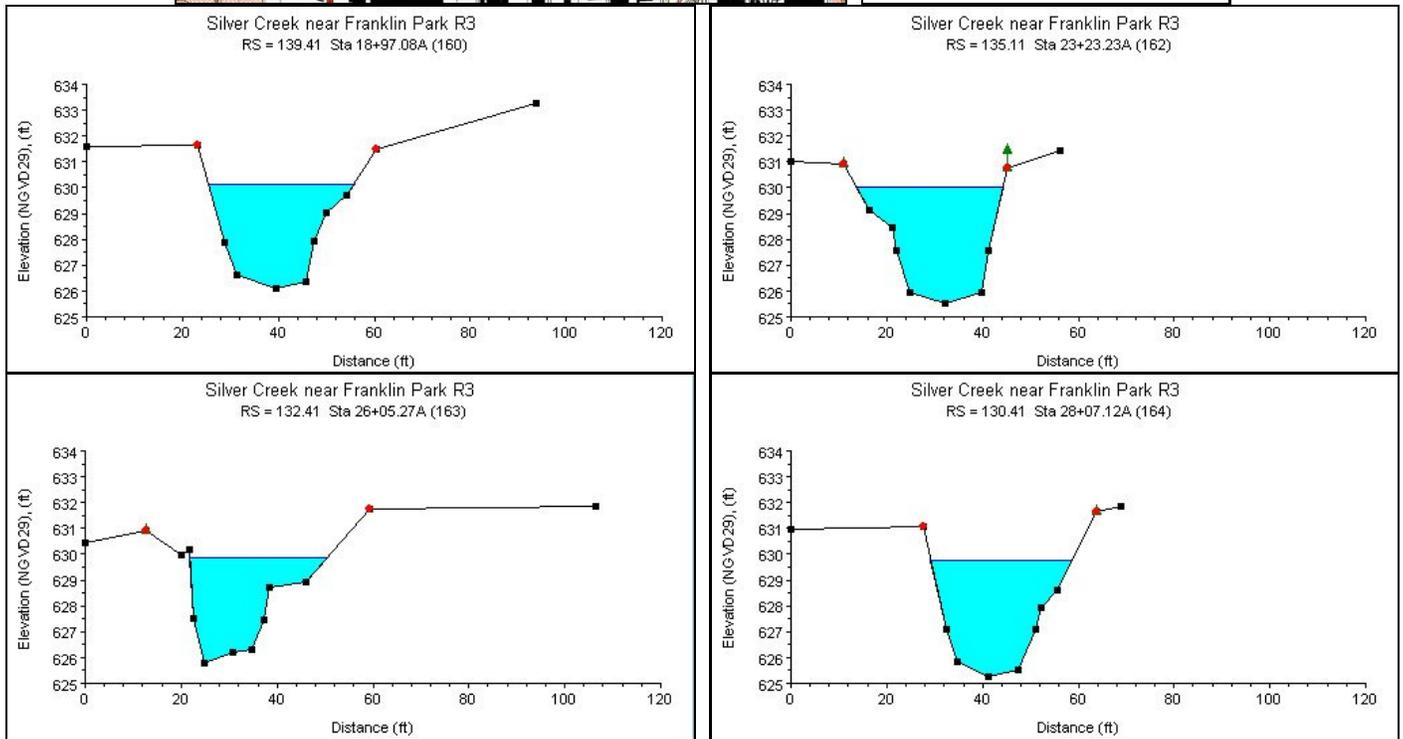
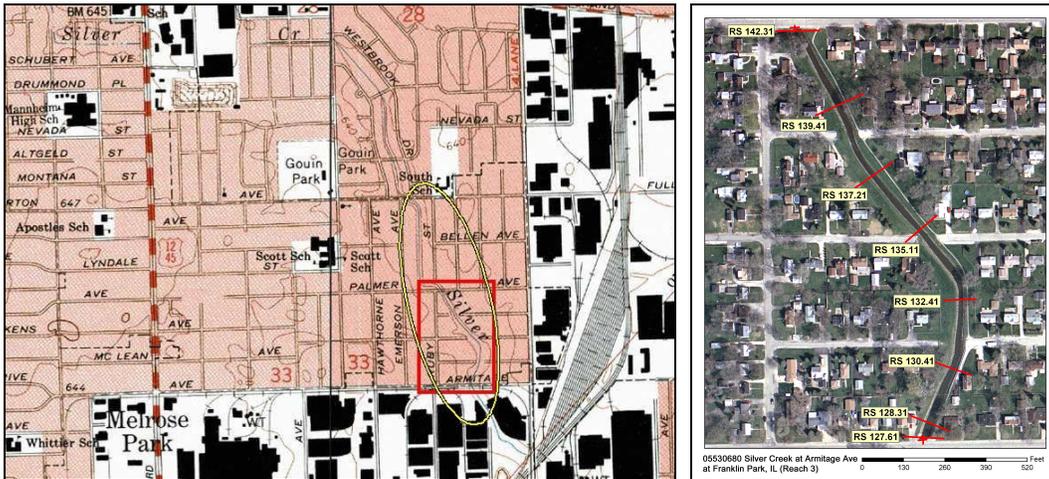


# Silver Creek at Armitage Ave at Franklin Park, IL (Reach 3)



**Study Reach.**--The channel reach under consideration contains luncker structure at the toe of the bank and is in an urban environment. A study reach, 900 ft long, was selected located between the downstream side of Palmer Street bridge to the upstream side of Armitage Avenue bridge, as shown in the quadrangle map on the top left. Five surveyed cross sections (surveyed by the Illinois Department of Natural Resources in 1995) are available for evaluating the longitudinal and cross-sectional characteristics in the reach. Locations of these surveyed cross sections can be seen in the aerial photograph on the top right. The general shapes of channel geometries are represented using main channel cross sections at river station (RS) 139.41, 135.21, 132.41, and 130.41 (see plots above). Shape of the luncker structure is not included. The luncker structures at this location are wooden rectangular box with a 1 ft height and a 3 ft depth that are continuous in the study reach.

**Gage Location.**--The location of discharge measurement is lat  $41^{\circ}54' 54''$  , long  $87^{\circ}52' 04''$  .General location is at NW1/4

NE1/4 SE1/4 sec.33, T.40N, R.12E Cook County, Hydrologic Unit 07120004. USGS streamgage-station number is 05530680.

**Drainage Area.**--9.54 sq mi.

**Gage Datum and Elevations of Reference Points.**--Two reference points (RP-N) were established for the n-values study. The upstream reference point, RP-N6, is the top of a bolt located on the downstream face of Palmer Avenue bridge left of mid-channel, elevation=639.53 ft. Downstream, RP-N5 is two file marks located on the outer edge of the right-most green gate brace on the upstream face of Armitage Street bridge, elevation=633.68 ft. Elevations are reported in NGVD 1929 convention.

**Stage, Discharge Measurements, and Computed n-Values.**--The water-surface elevations were measured from reference points set on bridges and measured with a weighted tape before, during, and after a discharge measurement. Discharge measurements were made using the conventional current-meter method. 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-values at a particular stage.

Date of Observation	Discharge (ft <sup>3</sup> /s)	Average Cross Section Area (ft <sup>2</sup> )	Hydraulic Radius (ft)	Mean Velocity (ft/s)	Slope	Coefficient of Roughness <i>n</i>
5/2/2006	20.3	29.8	1.49	0.71	0.000259	0.046
6/26/2006	37.0	36.6	1.72	1.05	0.000315	0.038
4/25/2007	95.9	66.5	2.19	1.48	0.000239	0.028
1/13/2005	172.0	84.2	2.50	2.09	0.000330	0.026



05530680 Silver Creek at Armitage Ave at Franklin Park, IL (Reach 3) 06/19/97  
Low flow, looking Downstream at lunker structures



05530680 Silver Creek at Armitage Ave at Franklin Park, IL (Reach 3) 06/03/03  
Looking Upstream from Dickerson Rd



05530680 Silver Creek at Armitage Ave at Franklin Park, IL (Reach 3) 06/03/03  
Looking at luncker structures



05530680 Silver Creek at Armitage Ave at Franklin Park, IL (Reach 3) 05/02/06  
From upstream end, looking downstream



05530680 Silver Creek at Armitage Ave at Franklin Park, IL (Reach 3) 05/02/06  
From downstream end, looking upstream



05530680 Silver Creek at Armitage Ave at Franklin Park, IL (Reach 3) 06/26/06  
Looking downstream from bridge



05530680 Silver Creek at Armitage Ave at Franklin Park, IL (Reach 3) 01/13/05  
Looking Downstream from Palmer Rd



05530680 Silver Creek at Armitage Ave at Franklin Park, IL (Reach 3) 01/13/05  
Looking Downstream from Palmer Rd

**Description of Channel.**--This channel is constructed and contains luncker structures at the toe of the bank. Bed material consists of small to large cobbles in a sand-gravel mixture. Above the luncker structures, the banks are grass and weed covered. Channel cross sections are a trapezoidal shaped with bottom width (between lunckers) approximately 14 ft, top width 40 ft, and bank height 5 ft. The stream is straight.

**Floods.**--Maximum discharge, 15,500 ft<sup>3</sup>/s, Apr. 13, 1994, gage height, 20.46 ft.

**Estimated n-Values using Cowan s Approach.**--0.027 ~ 0.035