

Sinnissippi Watershed Assessment

Introduction

Material presented in the following summary documents current stormwater management and flooding issues for the Sinnissippi Watershed. Information presented is based on a review of available information related to current conditions in the drainage basin. No comprehensive analysis of stormwater management and flooding issues in the watershed has been performed in the last 20 years.

Watershed Description

Description and Land Use

The Sinnissippi watershed is located in the northern part of the City of Rockford on the east side of the Rock River. The watershed drains approximately 1,500 acres at its mouth. 100% of the watershed is located within the City of Rockford. The watershed is compact, with the receiving stream being the Rock River to its West.

The Sinnissippi watershed is 100% developed.

The Sinnissippi watershed contains the heavily commercialized developments on the eastern side of the Rock River that characterize the “downtown” area of Rockford. There are the large, Swedish American Hospital and UIC Medical Center, many office buildings, and commercial storefronts in the western section of the watershed. To the east, Sinnissippi development is dense single-family residential. There is also a cemetery, the Sinnissippi Park Golf Course, a school, some small park and recreation facilities and a railroad located in the watershed.

Watershed Statistics: Sinnissippi	
Total Area:	1,492 ac.
Total Area within City:	1,492 ac.
% of City within Watershed:	3.8%
Other Stakeholders:	None
No. of Detention Facilities	0
No. of Outfalls	13

Topography and Soils

The topography of the Sinnissippi watershed that of a relatively flat and compact watershed on the East bank of the Rock River. Ground elevations within the watershed range from about 800 feet NAVD near Green Meadow Road to about 700 feet NAVD near the ditch’s confluence with the Rock River. The watershed slope is relatively flat and gradual.

Soils within the Sinnissippi watershed consist primarily of type B soils, with a thin strip of type A soils at the River, and two large pockets of type D soils in the southwestern corner and center of the watershed. Type B soils are soils with moderately low runoff potential when thoroughly wet. Water can be transmitted through these soils without impediment. Type B soils typically have less than 20 percent clay, and between 50 and 90 percent sand with a loamy sand or sandy loam textures. These soils have moderately fine to moderately coarse textures. Type A soils have a high infiltration rate even when very wet. They consist of well-drained sands and gravels, and have less than 10% clay. The runoff potential is low, as water absorbs quickly into these soils. Type D soils are characterized by properties that restrict water movement through the soil. Type D soils typically have greater than 40 percent clay, less than 50 percent sand, and have clayey textures. They have high runoff potential when thoroughly wet.⁴ The predominance of type B soils in the Sinnissippi watershed should facilitate infiltration of rainfall in pervious areas, thereby contributing to lower runoff volumes and rates than in basins with less pervious soil types.

Primary Receiving Stream

The Rock River is the receiving stream for the Sinnissippi watershed. The watershed is flat and the gentle slope to the River is the direction of runoff flow. There is a small drainage ditch in the northern section, near UIC Medical Center.

Due to the lack of a receiving stream within the watershed itself, there are no impoundments or gauging stations in Sinnissippi.

There is no readily available flow data for the Sinnissippi watershed as the watershed's contribution to the Rock River can not be feasibly measured.

Given the character of the watershed, flooding within Sinnissippi is primarily caused by pooling due to wet weather events. As shown in Figure SI-1, the floodplain along the Rock River is very small, and along the Sinnissippi boundary, it does not enter any developed area.

Records maintained by the Federal Emergency Management Agency (FEMA), indicate that no letters of map revision (LOMRs) have been issued for development projects in the Sinnissippi watershed during the past 30 years.

Water Quality and NPDES Discharges

SCORE has one storm water collection site, R2, in the Sinnissippi watershed. Table Sn-1 provides metadata for this site. Figure Sn-3 shows the location.

⁴ Burke, Christopher and Thomas Burke. HERPICC Stormwater Drainage Manual. West Lafayette, Indiana: Purdue Research Foundation, 1994.

Figure Sn-3
SAMPLING SITES
SINNISSIPPI WATERSHED, ROCKFORD, ILLINOIS

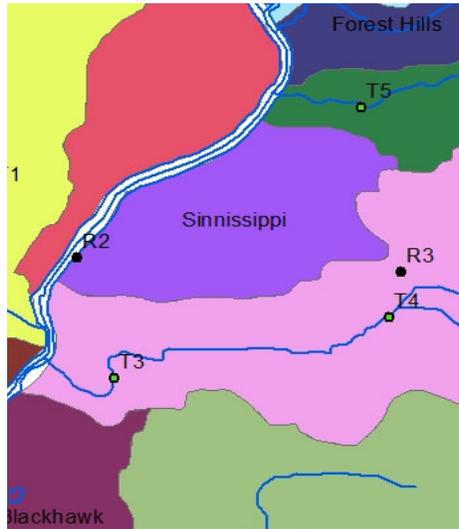


Table Sn-1
SAMPLING SITES
SINNISSIPPI WATERSHED, ROCKFORD, ILLINOIS

Station	Location	Station Type	Number of Samples (2003-2008)	Parameters Measured
R2	Market Street and North First	Storm water	16	pH, Fecal Coliform, BOD, COD, TSS, TDS, FOG, Hardness, Ammonia-N, Nitrate-N, TKN, P, Cyanide, Cu, Cd, Zn, Pb, phenol

For all water quality parameters; TSS, TDS, BOD, COD, ammonia nitrogen, nitrate nitrogen, total kjeldahl nitrogen, total p, copper, zinc, lead, hardness, and coliform, R2 results show that the concentrations are moderate when compared to the other storm water sampling sites.

Table Sn-2 provides the NPDES-permitted point sources in the watershed.

Table Sn-2
NPDES POINT SOURCES LOCATED WITHIN THE SINNISSIPPI WATERSHED
ROCKFORD, ILLINOIS

NPDES Permit #	Facility Name	Receiving Water
IL0003697	Ingersoll Milling Machine Co.	Rock River Via Storm Sewer
IL0049107	N-D Industries, Inc.	Not listed
IL0049344	Barnes John Corp.	Rock River
IL0054640	Highlander Foods, Inc.	Rock River
IL0073059	Rockford Register Star	Rock River
IL0076864	Harkins Pool	Not listed

Runoff from industrial sites is a potential pollutant source for receiving waters. Table Sn-3 lists eight industrial sites in the Sinnissippi watershed.

Table Sn-3
INDUSTRIAL SITES LOCATED WITHIN THE SINNISSIPPI WATERSHED
ROCKFORD, ILLINOIS

Name	Street	Land Use Code (LUC)	LUC Description
YMCA	Y Blvd.	7991	Rcrtn. – Amsnt. Social- Rlgs. w/S-Fac.
Rock Valley Culligan	Madison St.	3950	Miscellaneous Manufacturing (Dry)
American Lombardi Society	Olive St.	7992	Clubs & Services Organizations w/Food
Cellusuede Products, Inc.	Madison St.	2300	Apparel & Other Fin. Fabric Prods.
DDCI	State St.	7334	Printers
The Learning Center	1 st St.	7990	Rcrtn. – Amsnt. – Scl. & Flgs. w/o S-Fac.
US Cellular	State St.	6512	Office Bldg. – Shopping Center
Swedish American Realty Corp.	State St.	6513	Medical Centers

Existing Drainage Network

Drainage within the Sinnissippi watershed occurs through a mix of surface drainage paths and gravity storm sewers. The northern part of the watershed, surface drainage is the primary mode of stormwater conveyance, including the small drainage ditch noted above. The rest of the Sinnissippi watershed is drained by networks of storm sewers as shown in Figure SN-2.

Figure SN-2 also shows the general location of identified detention basins and storm sewer outfalls within the Sinnissippi watershed. The Sinnissippi watershed has no identified detention facilities which is expected due to the age of the infrastructure in this watershed, along with the density of development. The 13 identified storm sewer outfalls within the watershed are located scattered in the center of the watershed, with the largest number concentrated along the bank of the Rock River.

Available Data Resources

Previous Drainage Studies

“Drainage Report, UIC College of Medicine.” Arnold Lundgren & Associates, February 2005.

Historic Flow Data

No source of historic flow data has been identified for the Sinnissippi watershed.

Historic Water Quality Data

No source of historic water quality data has been identified for the Sinnissippi watershed.
(pending input from David Pott)

Other

Flood Insurance Study:

Winnebago County and Incorporated Areas, (FEMA, 2006)

Soil Characteristics:

“Soil Survey Geographic (SSURGO) database for Winnebago County, Illinois.”

Fort Worth: U.S. Department of Agriculture, Natural Resources Conservation Service, 2007.

[URL:<http://SoilDataMart.nrcs.usda.gov/>](http://SoilDataMart.nrcs.usda.gov/)

Drainage Issues

Table SN-1 (at the end of this section) provides a summary listing of current identified drainage issues and projects within the Sinnissippi watershed. The general locations of these issues and projects are shown on Figure SI-1.

The most significant stormwater management/flood control problem in the Sinnissippi Watershed seems to be localized ponding due to inadequate drainage during wet weather events, as well as flooding due to overtopping of clogged or undersized drainage channels. The City is already addressing some flood complaints Parkwood Avenue by restoring the small drainage channel as part of the Neighborhood Plan (#5). In other areas the City needs to look at ways of addressing recurring flooding issues. This may require deepening ditches, scheduling more regular channel maintenance, or installation of a larger, or parallel storm sewer conduit (#1) at Chamberlain and Longwood, where the 96" sewer is backing up.

The City also receives ponding complaints from the Sinnissippi watershed in response to major storm events and responds to the best of their ability. Further evaluation of site-specific stormwater management/flood control improvement needs is required to provide a basis for effective planning, budgeting, and prioritization of potential projects.

Table Sn-4
SUMMARY OF STORMWATER/FLOOD CONTROL ISSUES AND PROJECTS
SINNISSIPPI WATERSHED, ROCKFORD, ILLINOIS

#	Brief Description of Issue	Issue Type				Action			
		Over-bank Flooding	Major Surface Flooding	Localized/Nuisance Flooding	Water Quality Impacts	Improvements Completed	Maintenance Required	Future Project	Proposed Project
1	NE of Chamberlain and Longwood Streets - Several blocks are experiencing backyard flooding. This area is currently drained by a 96-inch storm sewer.			•					
2	2nd and Lover Jefferson Streets - Roadway ponding			•					
3	Longwood and Benton Streets - Roadway ponding			•					
4	Parkview Avenue and Spring Creek Road - Intersection is currently experiencing flooding caused by the unnamed ditch overtopping near the intersection of Crabapple Lane. To reduce the frequency of flooding the City is looking to retrofit the detention facility north of the crossing.		•					•	
5	Parkwood Avenue and Rural Street - Channel restoration between James and Parkwood Avenues. This project is part of the Neighborhood Plan.								•

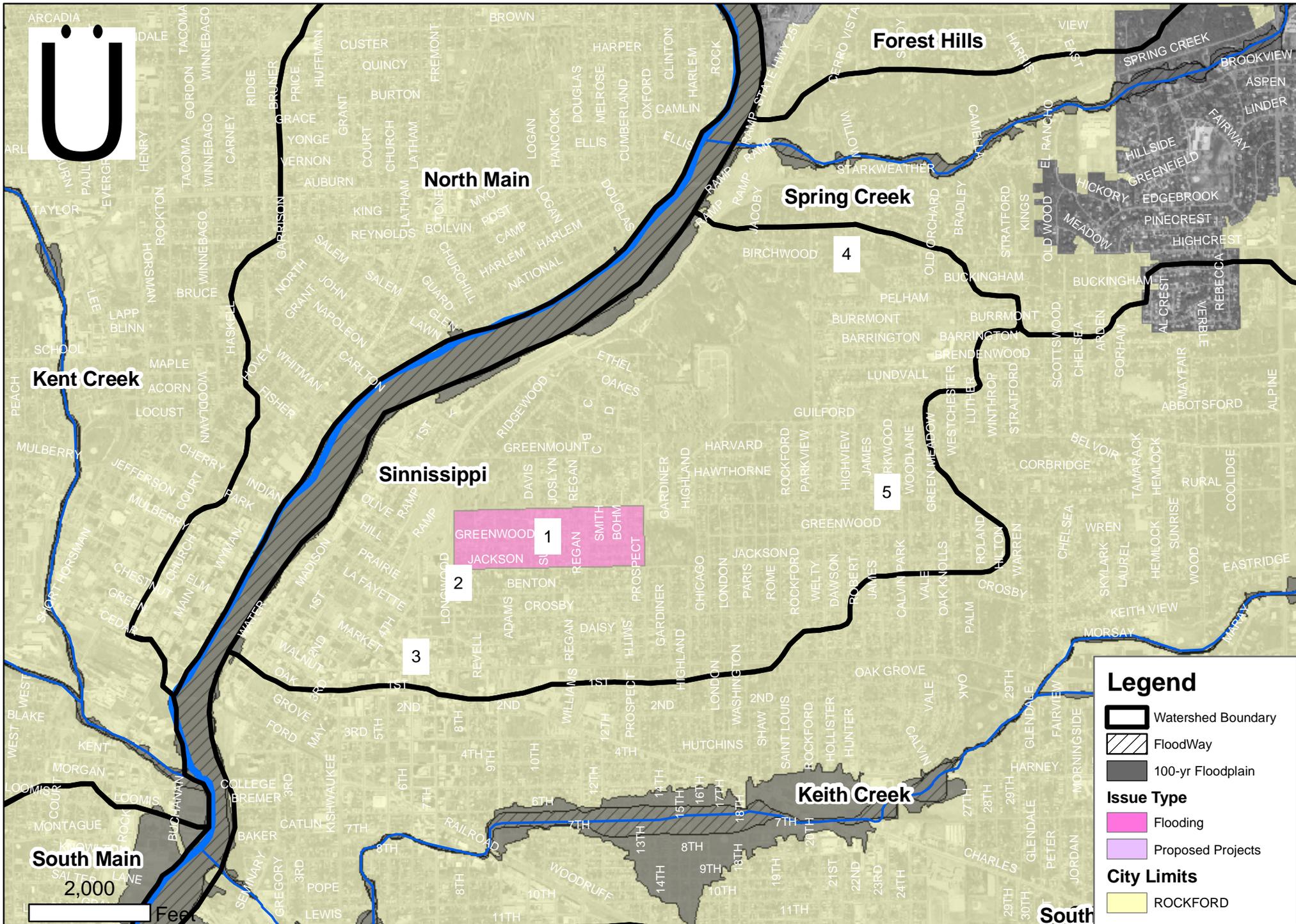


Figure Sn - 1



