

1.0 GENERAL INFORMATION

The City of Knoxville covers about 82 sq mi located in the northeastern portion of the State of Tennessee and has a population of approximately 165,000. Knoxville lies in the Ridge and Valley Physiographic Province of the Appalachian region and receives an average annual rainfall of about 46 inches. Sixteen major streams flow through or near the City, defining the major watersheds delineated on Map No. 1 submitted with the Part 1 permit application. Most of the major streams discharge directly into the Tennessee River. The three exceptions are Ten Mile Creek, which drains to a sinkhole; Woods Creek, and Love Creek which drain to the Holston River. The Tennessee River begins at the confluence of the French Broad River and Holston River near the eastern end of Knoxville. Flow in the Tennessee River through Knoxville is regulated by TVA dams, which cause the river downstream of Knoxville to behave more like a reservoir than a river. The portion of the Tennessee River around Knoxville is known as the Fort Loudoun Lake.

Drainage patterns in the Knoxville area are somewhat unique due to the Karst terrain in the region, areas of limestone terrain characterized by sinks, ravines, and underground streams. Unlike most areas where storm water flow in drainage channels discharges directly into a receiving water (i.e., a lake, river, or ocean), storm water flows from approximately 17 percent of Knoxville drain directly to sinkholes. Sinkholes form when the limestone dissolves due to water action, resulting in a direct connection between surface drainage and underground streams.

In general, most local drainage in Knoxville is conveyed by roadside ditches or gutters into larger open channels, with very few areas containing storm sewer networks consisting of more than 2,000 ft of pipe.

Slopes in Knoxville vary from flat to extremely steep (over 25 percent), with much of the City having moderate slopes ranging from 1 percent to 5 percent. Similarly, the depth to bedrock varies considerably throughout the City, with depths ranging from 0 to greater than 20 ft. The

depth to bedrock is greater than 5 ft in over half of the City and less than 20 inches in nearly a third of the City.

The differing soils in Knoxville lie in several bands that run in a general northeast to southwest direction, characteristic of the underlying geologic formations. The predominant soil association is the Fullerton-Dewey- Dunmore-Sequoia association. Most soil textures range from loam to silty clay loam, and the predominant hydrologic soil groups are B and C.

Historically, most of Knoxville has not been prone to major flooding problems for several reasons, including the regulation of flow in the Tennessee River, the well-defined channel sections of the major streams, and the lack of development in the floodplains. The most notable major flooding problem is along First Creek, where some remedial action has been pursued. The majority of the flooding problems in Knoxville are local or nuisance problems generally caused by improper design or maintenance.

Table 1-1 presents pertinent data concerning applicant name, address, contact persons and ownership status. The City does not own or maintain storm water systems associated with the interstates, federal facilities, and state facilities. In addition, the City does not own or maintain a number of private storm water systems that convey drainage from privately-owned facilities.

Table 1-1

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CITY OF KNOXVILLE, TENNESSEE

Individual Application

Joint Application

Name of Applicant: City of Knoxville, Tennessee

Contact Persons: 1. Samuel L Parnell Jr., P.E.
Director of Engineering
2. Ted Schuler, P.E.
Chief Planning Engineer

Address: City of Knoxville
Department of Engineering
City County Building
P.O. Box 1631
400 Hill Avenue
Knoxville, Tennessee 37901

Telephone No: (615) 521-2148

Ownership Status: City owns majority of storm sewer system with exception of major highways, state and federal facilities, and some private systems.