

## Sewer System Overview

The City of Berea is served by a separate sanitary sewer system composed of 9% common trench and 91% separate trench sewers with a total sanitary sewer system length of 383,600 linear feet (LF). The common trench sewers in Berea are believed to be constructed entirely with common trench standard manhole (common standard) configuration. The sewer system serves a population of approximately 18,609<sup>1</sup> in a total area of 5.8 square miles. Sewer system trench types and lengths are summarized in **Table ES-1**.

Table ES-1. Berea Sanitary Sewer System Trench Types		
Trench Type	Length (LF)	Proportion
Separate Trench	349,400	91%
Common Trench Standard Manhole	34,200	9%
Total	383,600	100%

### Common Trench Sewers

Common trench sewer systems were primarily constructed prior to 1960 and likely represent the largest single cause of problems in the SWI area. **Figure ES-2** shows the common trench standard manhole configuration. Other common trench configurations, including over/under (invert plate) and dividing wall, are not known to exist in Berea. Leaky common trench sewers may:

- Contribute large amounts of sanitary sewer stormwater infiltration and inflow (I/I) which can cause surcharging, SSOs, and potential BBUs.
- Allow crossflow of sanitary sewage and storm sewer flows, which can contaminate stormwater.
- Contribute to solids deposition in sanitary sewers and allow undetected dry weather overflows.
- Make sewer system operation, maintenance, and repairs (O,M&R) more difficult.

<sup>1</sup> US Census Bureau, Quick Facts Berea, OH, July 1, 2019, population estimate; <https://www.census.gov/quickfacts/bereacityohio>

### Common Trench Standard Manhole Systems (Common Standard)

The common standard sewer configuration constructed the storm sewer above and offset laterally from the sanitary sewer in the same trench as shown in **Figure ES-2**. Two separate manholes provide independent access to the storm and sanitary sewers. Although there is no direct hydraulic connection in the common standard system, there is an increased potential for stormwater exfiltration entering the sanitary sewer due to the proximity and relative elevations of the storm and sanitary sewers. **Figure ES-3** shows locations of the modeled sanitary sewers and associated trench types for Berea.

**Figure ES-2. Common Trench Standard Manholes**

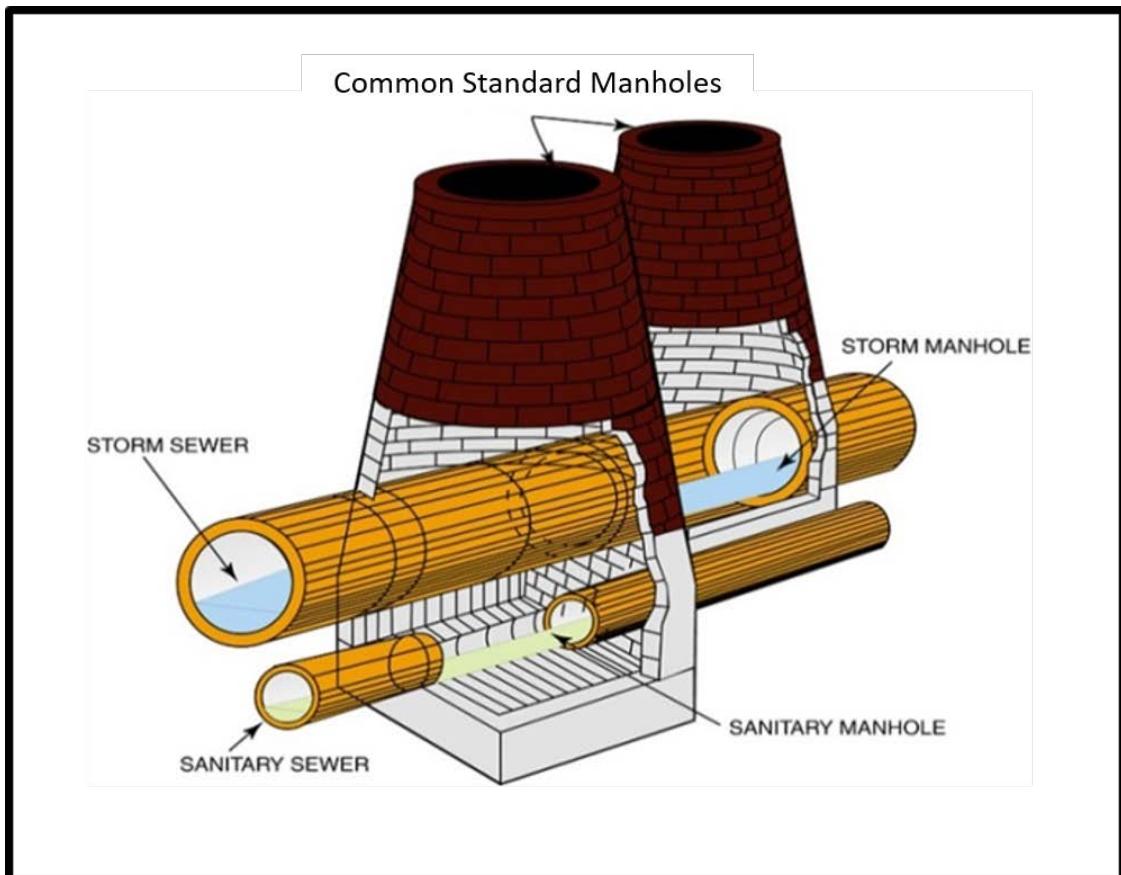


Figure ES-3. Sewer System Trench Types

