CHAPTER 4

Sanitary Sewer Collection Systems*

A. The Nature and Composition of Sanitary Sewers

1. DESCRIPTION OF FACILITIES

Sanitary sewer collection systems provide a means of performing one of the most essential services required, if man is to exist in a communal fashion—the removal of wastes generated by him. Man cannot survive when too intimately surrounded by his own body wastes. These wastes including excreta are the breeding grounds of pestilence and the method of transmission of many diseases including cholera, typhoid and paratyphoid fevers, bacillary and amoebic dysentery, hookworm and ascaris infections, poliomyelitis and various other virus infections. As civilization evolved mankind has instinctively improved upon his methods of waste removal.

The origin of sanitary sewer collection systems employing water as the vehicle for transporting the waste is unknown, though portions of the Nippur, India, and Tell Asmar, Turkey, systems were constructed over 6,000 years ago. Waterborne waste systems were constructed throughout the then known world by the Romans. However, with the decline of the Roman Empire waterborne waste systems fell into disuse, and though the nucleus of many systems were subsequently constructed, they were installed as ground or surface drains, and the discharge of excreta into them was prohibited by law. Cesspools and pit privies replaced the water flushed devices in city homes, and as population concentrations increased the privies and cesspools proved to be inadequate. They tended to fill and overflow or otherwise malfunction, polluting the local ground and surface water, creating general nuisances and providing rodents and all manner of pests a friendly environment, thus contributing to the plagues that swept Europe during the middle ages.

Following a series of cholera epidemics in London at the beginning of the 19th century, it was demonstrated that the disease was waterborne through contamination of a water supply by leaching cesspools. To eliminate this problem, London in 1815 legalized the discharge of excreta into the existing drainage system of the city, and undertook the construction of facilities for the explicit purpose of providing drains from the existing cesspools to places where it was then considered safe to discharge their contents. These points of discharge were normally surface streams or rivers where the material would be flushed beyond the reaches of the community.

In providing a method of waste removal an even greater problem was created, that of stream pollution. When cholera again raged

*Prepared by Peter Rowan, Land and Facilities Development Administration, U.S. Department of Housing and Urban Development, with minor editing by committee staff.

70-132—66—vol. 1——10