

Size of pipe.	Fall in feet per 100 feet of sewer.
8 inches	0.40 feet
10 inches	0.29 feet
12 inches	0.22 feet
15 inches	0.16 feet
18 inches	0.12 feet
20 inches	0.10 feet
24 inches	0.08 feet

The sewers should have a capacity when flowing half full sufficient to carry twice the future average flow twenty-five years hence, plus a sufficient allowance for ground water infiltration.

When grades lower than those given are used, an explanation and reasons for the use of such grades should be included in the engineer's report. On each sheet of profiles must be given, under the title, an index of the streets appearing on that sheet. Profile sheets shall be numbered consecutively.

Detail drawings of sewer sections except where terra cotta or iron pipe is used, and of all sewer appurtenances, such as manholes, lampholes, flush tanks, inspection chambers, siphons and any special structures, shall accompany the general sewer plans.

The detail plans shall be drawn to such a scale as to show suitably and clearly the nature of the design and all details, such as manhole frames and covers, iron pipes, valves, gates, etc.

Disposal Works.—The plans for the disposal works shall include a general plan upon which reserve areas or future extensions are clearly shown, and detail plans of the various units and structures which comprise the plant.

A weir or other measuring device shall be provided at some convenient point, and the installation of a recording device is recommended, and in particular instances may be required.

The detail plans shall show longitudinal and transverse sections sufficient to explain the construction of each unit. They should also show the distributing and drainage systems, general arrangement of any automatic devices, sizes of stone, gravel, or sand used as filtering material, and such other information as is required for the intelligent understanding of the plans.

Drawings.—All drawings submitted shall be neatly and plainly executed and may be traced directly on tracing cloth, printed on transparent cloth, or printed on any of the various papers which give distinct lines. All prints shall be clear and legible.

With the exception of the map, the following dimensions are suggested for ordinary use: Distance from top to bottom, 20 or 30 inches; length, 24 inches, 32 inches, 40 inches or 48 inches, or thereabouts. By this section it is intended to prevent the use of long profiles and unnecessarily large maps, which are difficult to file or to use.

Each drawing shall have legibly printed thereon the name of the town or persons for whom the drawing is made, the name of the engineer in charge, the date, the scale, and such references in the title as are necessary for the complete understanding of each drawing.

A report, written by the designing or consulting engineer, should accompany all plans for complete sewerage systems, and shall give all data upon which the design is based, such as:

Information Concerning Sewer Systems.—(a) The nature and extent of the area which it is proposed to include within the present system of sewerage, and of the area which it is planned shall ultimately drain into this system.

(b) The population to be served, both present and estimated for twenty-five years hence.

(c) The estimated per capita daily flow of sewage to be cared for.

(d) The total and per capita water consumption of the town at the present time.

(e) The allowance made for leakage into the sewers.

(f) The estimated daily flow of sewage, including leakage.

(g) The character of the sewage (whether domestic or including manufacturing wastes, and in case of the latter, the nature and approximate quantity of the same stated in specific terms).

(h) Method of flushing or periodically cleaning the sewers.

(i) That portion of the sewers to be built at the present time.

(j) The minimum grades of sewers for each size used.

(k) If there are sections which cannot drain into this system, the extent of such sections and the probable future disposition of the sewage from these sections.

(l) Distance of sewer outlet from shore and depth of water at mean tide at outlet, if outfall discharges into ocean or large stream.

A list of bench marks or fixed elevations should be included in this report.

Information Concerning Disposal Plant.—With regard to the disposal plant, the engineer's report shall cover the following subjects:—

(a) The method of disposal to be adopted and a description of the units of the system.

(b) The rate of working of each unit.

(c) If disinfection is to be used, the name of the disinfecting substance, the quantity per million gallons of sewage and the method of application.

(d) The nature of the body of water into which the effluent discharges, with particular reference to the run-off during dry weather.

(e) The disposal of sludge.

(f) All conditions peculiarly characteristic of the locality and which in any way affect the design of the system.

(g) Special devices used in connection with the disposal system.

(h) Special methods of maintenance or operation of the system.

(i) The results expected from the purification system.

(j) Explain any provisions for reserve units in pump-plants, pipe lines, filters, etc.

Specifications and Estimate of Cost.—Specifications for the construction of the system of sewers and sewage disposal works and an estimate of the cost of the same shall accompany all plans for new or original systems. With plans for extensions of existing systems, specifications may be omitted, provided that these extensions are to be constructed in accordance with specifications filed previously with original plans.