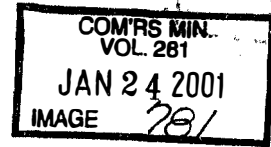


ARTICLE III

COMBINED SEWERS



Section 301 Construction; Extension of Sewers

The construction of and/or extension to combined sewers are hereby prohibited, unless approved by the District.

Section 302 Connections to Combined Sewers

Except as may be modified by the Codes of the State of Ohio and the City of Cincinnati, Ohio, Basic building Code-Plumbing Code Section 1151-69, individual properties shall install a separation manhole at the junction of the building sewer-storm and building sewer-sanitary at the public right-of-way for the purpose of discharging combined wastes to a public combined sewer in accordance with Standard Drawing Acc. No. 49063.

In selected areas designated by the Director, separation for residential properties shall be provided for all new connections to the combined sewer systems. For residential properties, a "Y" connection and cleanout in accordance with Standard Drawing Acc. No. 49047 may be used in lieu of a separation manhole.

Section 303 Detention Requirements for Stormwater Connections or Modifications

Stormwater connections or modifications which involve stormwater ultimately tributary to the combined sewer system shall be subject to the District's Policy for Stormwater Detention Facilities, as specified below:

POLICY FOR STORMWATER DETENTION FACILITIES

- A. The volume of stormwater detained shall be the difference in runoff volume from the predeveloped site over a ten-year event of one hour duration and the postdeveloped site under a twenty-five year event of one hour duration. The peak rate of runoff from the site after development for a twenty-five year storm event of one hour duration shall not exceed the predevelopment site peak runoff for a ten-year event of one hour duration.
- B. Peak flow rates shall be determined by the Rational Method which is appropriate for small drainage areas.

The basic formula for the Rational Method is $Q = CiA$

Where Q is the peak rate of runoff in cubic feet per second, C is the runoff coefficient, and i is the



average intensity of a storm of given frequency for a selected duration in inches per hour, and A is the area in acres.

- C. The required storage volume, S, in cubic feet, for the detention facility shall be computed by the following:

$$S = V*(1-Q1/Q2)*1.15$$

where V = Q2*3600 is the volume of runoff and 1.15 represents a 15 percent safety factor which may be applied at the discretion of the District.

Q2 is the post development peak flow for a twenty-five year storm of one hour duration and Q1 is the predevelopment peak flow for a ten-year storm of one hour duration. Q1 is also the maximum allowable release rate at storage volume S.

The above equation reduces to the simplified form:

$$S = 4140(Q2 - Q1)$$

or S = 3630 (Q2 - Q1) without the safety factor.

- D. The applicable rainfall intensities for these storm events are provided below:

i = 2.03 inches/hour (ten-year)

i = 2.42 inches/hour (twenty-five year)

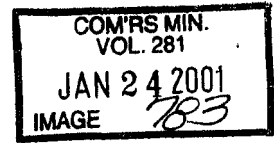
These rainfall intensities have been developed for Cincinnati from the latest precipitation data contained in the U.S. Department of Commerce Technical Memorandum NWS HYDRO-35 and Technical Paper No. 40, and supersede all previous work.

- E. Runoff coefficients (C-values) adopted for use in the Rational stormwater drainage in Cincinnati are provided below:

Runoff Coefficients
for the Rational Method

Land Use	Runoff Coefficient
Residential	0.5
Multi-family	0.6
Commercial and Business Districts	0.8
Industrial Districts	0.7

Open Space (parks, golf courses, cemeteries meadows, grass, woods, lawns, etc.)	0.3
Impervious Areas (parking lots, roads, rooftops)	0.9
Steep wooded hillside slope > 10 percent	0.5



Composite Runoff Coefficients- If the runoff coefficient varies over a subarea, a composite coefficient can be calculated as an average, weighted by the area of the various runoff coefficients.

- F. All detention facilities shall provide a passive emergency discharge outlet which shall be used only when the required storage volume is exceeded.
- G. Stormwater detention facilities shall be private with operation, maintenance and associated liability thereof being the responsibility of the owner.

A stormwater detention pond or lake location must have its private storm drainage limits prepared by the Developer or his Engineer on a record plat by the metes and bounds description. The record plat is to be submitted to MSD for review and approval. The District shall have the plat recorded.

The said limit area and all improvements in it shall be maintained continuously by the Owner. No structures, planting or other material, shall be placed or permitted to remain which may obstruct, retard or change the direction of the flow of water through the drainage channel in the said limits.

Similar requirements shall apply for private storm basin easement limits when multiple owners are involved.

- H. Any waiver of or exception to these requirements shall be determined by the Director on a case-by-case basis.

For protection of the environment and downstream property, the District's detention requirements may be more restrictive in sensitive areas.

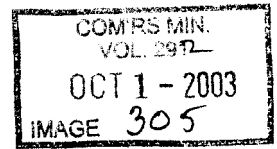
Responsibility for proper maintenance of detention facilities and appurtenances shall be with the property owner granted permission to make connection with the District's combined sewer system. It shall be the responsibility of any current or subsequent owner to transfer and record this responsibility should property ownership change.

Under no circumstances shall alterations affecting the volume, operation, or release rate be made without first obtaining written permission from the District.

Other governmental agencies may impose their own jurisdictional detention requirements providing the release rates and storage volumes meet or exceed those satisfactory to the District as determined by the Director.

Section 304 Amendments

October 1, 2003



ARTICLE III COMBINED SEWERS

Section 304 Basement Flooding Problems In Areas Served By Combined Sewers

~~The policy of the Board allows for consideration of cost sharing between the Board and a local jurisdiction for improvements made in an area served by a combined sewer system to alleviate chronic basement flooding, as provided below:~~

The Director of the Metropolitan Sewer District shall identify to the Board of County Commissioners each project proposed for the reduction of combined sewer basement flooding, and he shall describe the project scope, its estimated total cost, and his recommendation for apportionment of costs among participating agencies. The Board shall approve in advance of any such project being undertaken.

The Director shall recommend only those projects where he has determined that the combined sewer contributes to chronic basement flooding.

The Director shall determine that the combined sewer does not presently have the capacity to convey the flow from a 10-year, 24-hour storm.

The basement flooding must be localized to a small area.

The improvement must significantly reduce the incidence of basement flooding.

The proposed project shall be the most cost effective alternative for the resolution of the chronic basement flooding problem.

~~The MSD share of the proposed improvement shall be less than 50%.~~