

23. Blowoff Connections.

a. Design Requirements for Blowoff Connections.

- 1) Blowoff connections are required for the following water pipeline sizes:
 - a). For 16-inch and larger pipelines, see Type “A” and Type “B” Blowoffs under Types of Blowoffs, in this section.
 - b). For 6-inch and smaller pipelines, see Type “C” Blowoff under Types of Blowoffs, in this section.
- 2) Locate all blowoffs for pipelines 16-inch and larger, including fire hydrants designed as blowoffs, as close as possible to an existing/proposed sanitary sewer manhole to allow for the disposal of the chlorinated water into the sanitary sewer.
- 3) Under no circumstances shall discharge water from the blowoff piping pass directly to a storm drain pipe or sanitary sewer pipe and/or any type of storm drain or sanitary sewer structure (inlet, manhole, etc.).
- 4) For blowoff manhole requirements for minimum and maximum depths, see the guidelines in Part Two, Section 18 (Manhole Depth Design).
- 5) For information on setting the manhole frame and cover, see Part One, Section 16 (Design of Structures).
- 6) Verify that the location of blowoff manholes and valves as shown on the Standard Details is suitable for the proposed design. If the location is not suitable, provide notes and dimensions on the drawings for modifying the Standard Details to show the location of the manhole off the mainline pipe, see Part Three, Section 6, (Modifications to Specifications and Standard Details).

b. Types of Blowoff Connections.

- 1) Type "A" blowoffs are designed so that a hose or a pump can be connected to the blowoff and can be discharged directly into a sanitary sewer manhole. This design provides versatility for the collection and disposal of the discharged chlorinated water.
 - a) For 16-inch to 30-inch diameter water pipelines there are two options for draining the pipeline.
 - (1) If the mainline pipeline is located within a roadway, design the blowoff to be a fire hydrant. For design requirements for fire hydrant settings and spacing, see Part One, Section 24 (Fire Hydrants). Verify that the fire hydrant will fully function to the Fire Marshall's standards, and design the connection as a Type "A" blowoff. When fire hydrants are designed as blowoffs, they serve a dual purpose and offer economy in design.
 - (2) In all other areas, design Type "A" blowoffs, as shown in Standard Detail W/3.0. This connection consists of a 6-inch branch from the mainline pipeline which drains into a blowoff manhole, allowing the water level in the pipeline to be drained by gravity to the invert elevation of the 6-inch connection at the mainline pipeline.
 - b) For 36-inch and larger diameter water pipelines, design Type "A" blowoffs, as shown in Standard Detail W/3.02. This connection consists of a 6-inch branch that is rotated down forty-



five (45°) degrees at the mainline pipeline, which then drains into the blowoff manhole, allowing the water level in the pipeline to be drained completely.

2) **Type "B" blowoffs** are designed to discharge directly into a stream or channel, when the stream or channel has the capacity to handle the volume of discharged water without causing any downstream flooding, erosion, or damage and there are no environmental restrictions prohibiting the discharge of the chlorinated water. Contact MDE for permit restrictions, before incorporating a Type "B" blowoff into the design.

a) For 16-inch to 30-inch diameter water pipelines designed using Type "B" blowoffs, see Standard Detail W/3.04. This connection consists of a 6-inch branch connection from the main, which discharges directly into a stream or channel. This type of blowoff will not allow the pipeline to be drained completely by gravity; it only allows the pipeline to drain down to the elevation of the discharge point at the endwall.

b) For 36-inch and larger diameter water pipelines designed using Type "B" blowoffs, see Standard Details W/3.03 and W/3.04. This connection consists of a 6-inch branch that is rotated down forty-five (45°) degrees at the mainline pipeline, and drains either into a manhole or to an endwall. This type of blowoff will allow the water level in the pipeline to be drained completely when it is drained into the manhole. This design includes a Type "A" connection for greater versatility when dewatering and chlorinating.

c) When a Type "B" blowoff cannot be provided either due to environmental restrictions or stream or channel limitations, design the blowoff as a Type "A" blowoff.

3). **Type "C" blowoffs are designed for 6-inch and smaller pipelines that are not looped or connected to another pipeline (dead end mains). This connection is designed for flushing smaller diameter pipelines and consists of a 4-inch connection with a 2-1/2" fire hose connection; see Standard Details W/3.07 and W/3.08.**

a) **Design the connection a maximum 15 feet from the cap or plug on the mainline pipeline.**

b) **Located the blow-off setting (2-1/2" fire hose connection) in a non-traffic area and not in sidewalks or driveways.**

c. Blowoff Connection to the Mainline Pipeline.

1) Blowoff connections for pipelines 20-inch and smaller, use a tee connection.

2) Blowoff connections for pipelines 24-inch and larger, design the connection as a welded-on connection. Center the welded-on connection on a twenty (20) foot length of pipe, with both ends of the pipe section having the same elevation. In some cases, the welded-on connection can be designed so that the blowoff connection is closer to the end of the twenty (20) foot length of pipe, see requirements for welded-on connections in Part One, Section 7 (Allowable Fittings).

d. Drawing Requirements for Blowoffs.

1) On plan drawings, show the blowoff piping, the pipeline stations of the mainline pipeline, and reference the Standard Detail number.

2) On profile drawings, show the fitting sizes, station and invert elevation of the mainline pipeline, and reference the Standard Detail number.



- a) Locate the blowoff connections for 16-inch to 30-inch mainline pipelines at or near each well-defined low point along the pipeline alignment. For 36-inch and larger mainline pipelines locate at each well-defined low point along the pipeline alignment.
 - b) For Type "B" blowoffs also provide on the drawings a 1" = 10' scale profile showing fitting types and sizes, invert elevations, and a note stating "For additional blowoff details, see Standard Detail W/3.04".
- 3) Provide earth cover requirements for blowoff piping if the depth to the invert is greater than the following. Provide the blowoff piping valves in a manhole or vault and show details on the drawings for the valves to be designed in the manhole or vault.
- a) Water pipelines 16-inch to 30-inch, if the depth to invert of the mainline pipeline is greater than (twenty-one) 21 feet.
 - b) Water pipelines 36-inch and larger, if the depth to invert of the mainline pipeline is greater than fifteen (15) feet.

