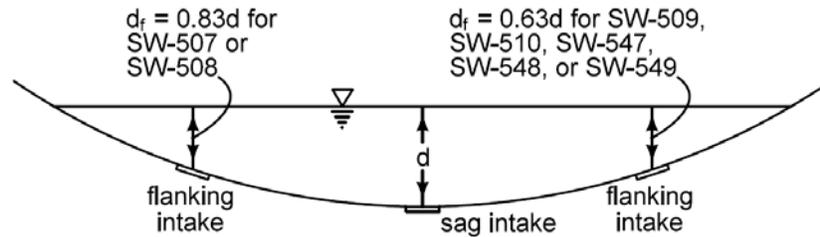


Locating Flanking Intakes for a Sag Intake

Flanking intakes should be located so each intake intercepts half of the flow to the sag intake should the sag intake become completely clogged, see the figure below. The locations are determined by calculating the depth required at the flanking intake (d_f) to intercept half of flow intercepted by the sag intake.



For this, the intakes are assumed to be in weir flow. The equation to determine the depth of flow is (assuming an intake with a depression, see Section [4A-7](#) for more information):

$$d = \left[\frac{Q}{2.3 \times (L + 3.6)} \right]^{0.67}$$

where:

d = Depth of ponding at maximum allowable spread for the minor storm.

Q = Intercepted flow, ft³/s (m³/s).

L = Length of throat opening.

For an SW-509 or SW-510, $L = 8$ ft, so:

$$d = \left[\frac{Q}{2.3 \times (8 + 3.6)} \right]^{0.67} = 0.1108Q^{0.67}$$

SW-507 or SW-508 is used as Flanking Intake

If an SW-507 or SW-508 is used, $L = 4$ ft. The depth at the flanking intake (d_f) required to intercept $0.5Q$ is:

$$d_f = \left[\frac{0.5Q}{2.3 \times (L + 3.6)} \right]^{0.67} = \left[\frac{0.5Q}{2.3 \times (4 + 3.6)} \right]^{0.67} = 0.0924Q^{0.67} \approx 0.83 \times 0.1108Q^{0.67} = 0.83d$$

This means the flanking intakes should be located at an elevation of $(1 - 0.83)d$ above the sag intake.

SW-509 or SW-510 is used as Flanking Intake

If an SW-509 or SW-510 is used as a flanking intake, the depth at the flanking intake (d_f) required to intercept $0.5Q$ is:

$$d_f = 0.1108(0.5Q)^{0.67} = 0.5^{0.67} \times 0.1108Q^{0.67} = 0.63d$$

This means the flanking intakes should be located at an elevation of $(1 - 0.63)d$ above the sag intake.

SW-547, SW-548, and SW-549 Barrier Grate Intakes

When SW-547, SW-548, or SW-549 barrier grate intakes are being used, the flanking intake will be the same size as the sag intake. This is similar to the situation above for SW-509 or SW-510 being used as

flanking intakes. As a result, flanking intakes are located in the same manner: $(1 - 0.63)d$ above the sag intake.