

DSN004-CON-1 (KC) or SC-11th Ave NW-KC-Conv

Alternative DSN004-CON-1 (KC) controls King County's 11th Ave NW CSOs by increasing the conveyance capacity from the 11th Ave NW Overflow Structure to the Ballard Regulator Station. Flows would be conveyed downstream of the Ballard Regulator Station to the Ballard Siphons or 84-inch-diameter tunnel crossing the Ship Canal. This alternative is an independent alternative and only controls King County CSOs.

Design Criteria

- An equivalent pipe diameter of 84 inches from the 11th Ave NW Overflow Structure to the Ballard Regulator Station, along with modifications to the Ballard Regulator Station, are required to control King County 11th Ave NW CSOs.

Description

Alternative DSN004-CON-1 (KC) consists of a conveyance pipe and regulator modifications to control King County 11th Ave NW CSOs. An equivalent pipe diameter of 84 inches is required to reduce overflows at the 11th Ave NW CSO Outfall to an average of one untreated discharge per year. For planning purposes, a new 84-inch-diameter conveyance pipe is assumed to parallel the existing Ballard Trunk from the 11th Ave NW Overflow Structure to the Ballard Regulator Station (see Figure G.1.1-2). It may be possible that the diameter of the new conveyance pipe could be reduced if it is determined that the existing Ballard Trunk is in adequate condition and could operate in parallel with the new pipe. Operating pipes in parallel could provide operational flexibility as well.

The main components of this alternative would include:

- Approximately 3,200 ft of 84-inch-diameter pipe, paralleling the existing Ballard Trunk from the 11th Ave NW Overflow Structure to the Ballard Regulator Station.
- Modifications to the existing 11th Ave NW Overflow Structure.
- Modifications to the existing Ballard Regulator Station, including two new weirs and a regulator gate.

Conveyance Upgrade

Approximately 3,200 ft of 84-inch-diameter pipe would parallel the existing Ballard Trunk from 11th Ave NW to the Ballard Regulator Station along Shilshole Ave NW. The new pipe would discharge to the Ballard Regulator Station where flows would continue downstream to the Ballard Siphons or 84-inch-diameter tunnel crossing the Ship Canal; see Figure G.1.1-2.

Regulator Modifications

Modifications would be required at the existing 11th Ave NW Overflow Structure to divert flows to the new 84-inch-diameter pipe or divert flows between the existing Ballard Trunk and new parallel pipe, depending on how the modified conveyance system is operated.

Modifications would also be required at the Ballard Regulator Station. Modifications would include adding a new weir gate structure that diverts flows to either the Ballard Siphons or the 84-inch-diameter tunnel. Under normal flow conditions, flows would be diverted to the Ballard Siphons. However, when the capacities of the dual siphons are exceeded, the new weir gate

structure would allow flows to overflow into the forebay structure of the 84-inch-diameter tunnel.

Construction Assumptions

King County's Tabula cost estimating program was used to develop a Class 5 estimate for this alternative. The attached documentation lists the construction assumptions used.