

November 17, 2023

Mr. Kevin Zelinsky  
Remington & Vernick Engineers  
262 Chapman Road, Suite 105  
Newark DE, 19702

RE: Read Street Discharge Valve Assessment

Kevin,

The purpose of this correspondence is to provide an assessment of the options available relating to the installation of flow control valving for Read Street. Specifically, it relates to the determining factors associated with placing one vs three valves into operation.

### **Background**

The Town of Dewey Beach has identified the need for the installation of tidal control valves at the discharge end of the three existing storm sewer pipes. Insituform has submitted a proposal to install the valves (flap gate valves) to the end of the pipes by fusing the HDPE pipe to the valves. The activity will require that the installation take into account the impact of tidal conditions and that the installation activity provide provisions to account for this impact for the duration of the project.

Insituform is planning to install 3 HDPE 36-inch flap gate valves manufactured by Westatlantic Tech (model number WA-PTK-BS9000) by fusing them to the end of each pipe outlet section. The Town is questioning the financial benefit/risk impact associated with capping two of the sections and installing only one valve.

Insituform has been requested to assess the prudence of implementing a three valve system vs an alternate concept of keeping only one active and capping the other outlets.

### **Assessment**

The assessment considers two primary factors in question. One would be the need for redundancy and the second, financial benefit.

#### Redundancy

The initial design was based upon a requirement that the three existing discharge pipe sections are to remain active. It has been suggested, however, that one active line is capable of handling the flow rates generated from storm conditions and the run-off accumulated. No calculations have been provided to either support or reject this assumption. Regardless, the system does provide for necessary redundancy.

Redundancy is critical for Read Street as a failure will result in extreme flooding with no avenue for storm water to escape into the bay. As a minimum, it is recommended that two valves be

installed. This number may be increased to three in the event that calculation supports the need for two in order to meet anticipated design flow rates.

It must be recognized that flat valves have a tendency to fail in the event that they are not properly maintained or damaged from external forces beyond the control of the operating entity (The Town of Dewey Beach in this case). Once an existing pipe is capped, it will remain out of service and unavailable to perform in the event of an emergency. Opening of a cap pipe will require much the same effort (if done properly) as that required for valve installation. In addition, the cap will have to be cut from the pipe, further reducing the effective pipe length.

Installing redundant valves will provide the Town of Dewey Beach the option of operating one, two, or three valves based upon performance. The inactive valves can be locked in a closed position until required for service. This may address any concern relating to loss of head pressure that may occur due to overcapacity on the outlet end.

### Financial

Standard Pipe has offered a complete system with built in redundancy that can be modified to operate as a one, two, or three valve system at approximately **\$52,000** (excluding any contingencies).

### **Recommendation**

It is recommended that the Town of Dewey Beach proceed with the installation of all three tidal flap gate valves (2 as a minimum) in order to maintain the ability to discharge storm water in rapid fashion from Read Street, utilizing the proposal submitted by Standard Pipe Services. Elimination of the additional outlets may result in a capacity limitation for discharge and will definitely introduce the risk of total failure. In addition, it is further recommended that a sequence of routine maintenance (inspection and cleaning) activities be implemented to ensure that the active valves remain functional (cleaning).

Sincerely,

Jonathan R. Bacher, P.E.