

SECTION 02740

FLOW BYPASS SYSTEMS

PART 1 – GENERAL

- A. Temporary bypass pumping may be necessary for the rehabilitation of existing sewer pipeline, installation of new sewer laterals, installation and rehabilitation of manholes and sewer pipeline point repairs. The Contractor shall conduct the flow bypass system in accordance with the specified requirements as stated herein.
- B. As an alternative to bypass pumping, flow control methods may be used if upstream system has adequate storage capacity, and is approved by Engineer 24 hours in advance of the Work.
- C. Under no circumstances will dumping of raw sewage be allowed on private property or public rights-of-way.
- D. Remove flow control after work is completed.
- E. Payment for flow bypass system shall be included with the bid prices.

1.01 SYSTEM DESCRIPTION

- A. Performance Requirements:
 - 1. It is essential to the operation of the existing sanitary sewer system that there will be no interruption in the flow of sewage throughout the duration of the Project. Provide, maintain, and operate all temporary facilities such as dams, plugs, flow-through plugs, pumping equipment (both primary and backup units), conduits, and all necessary power to intercept the sewage flow before it reaches the point where it would interfere with the Work, carry it past the Work, and return it to the existing sewer downstream of the Work.
 - 2. Design, install, and operate the temporary pumping systems.
 - 3. Convey the sewage safely past this Work area. Do not stop or impede the main flows under any circumstances.
 - 4. Maintain sewage flow around the Work area in a manner that will not cause surcharging of sewers, damage to sewers, and that will protect public and private property from damage and flooding, including the routing of sewage overflow in the event of failure of any bypass system.
 - 5. Protect water resources, wetlands, and other natural resources.
- B. Design Requirements:
 - 1. Provide flow through plugs, pumps of adequate size to handle peak flow, and temporary discharge piping, to ensure that the total flow of the sewer pipeline and service connections can be safely diverted around the section to be replaced.
 - 2. The pumping system shall be of sufficient capacity to handle existing flow plus additional flow that may occur during a rainstorm.
 - 3. If pumping is required on a 24-hour basis, engines shall be equipped in a

manner to keep noise to a minimum. All pumps shall be online, isolated by individual valves, and be ready for immediate use in the event of an emergency or breakdown of an on-line pump.

4. There shall be one redundant pump ready for immediate use in the event of an emergency or breakdown of any of the service connection pumps. Each pumping location shall have provisions for immediate installation of a redundant pump without shutting the system down.
4. Each individual discharge pipeline shall be of adequate size to convey the required flow for the system's normal operating pumps without causing upstream sewers to surcharge to more than 24 inches above the crown of the pipeline.
5. Provide onsite portable lights for emergency use only.
6. Provide standby generation facilities for emergency use if pumps are equipped with electric motors. Standby generators shall be noise-rated for residential zones and shall meet the City's ordinances.

1.02 SUBMITTALS

- A. Detailed plans and descriptions outlining complete flow diversion plan for routing of any piped flow and overflow.
- B. Where pumping is required, submit complete information on generation system.
- C. Where standby generators are required, submit complete information on generation system.

1.03 QUALITY ASSURANCE

- A. Contractor to be completely responsible for any overflow or spillage of raw sewage due to failure of any bypass system.
- B. Contractor to pay any fines or costs associated with such spillages.
- C. Contractor to be responsible for any cleanup or restoration resulting from such spillages.

PART 2 - PRODUCTS

2.01 PUMP SYSTEMS

- A. Noise control levels shall be within the City's noise ordinance.
- B. Pumps may be gas, electric, or diesel powered.
- C. Pumps may be end suction or submersible.
- D. Bypass piping shall be rubber gasketed, with no visible leaks under operating conditions.

PART 3 - EXECUTION

3.01 GENERAL

- A.** If pumping is required across a pedestrian walkway, street or driveway that cannot be closed to traffic, the discharge piping shall be temporarily buried, backfilled, and paved.
- B.** Where a potential system failure may result in spillage, full time monitoring shall be provided.
- C.** Contractor shall conform to all safety provisions pertaining to confined space entry when entering any manhole.

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