

**SP-090143  
(New)**



**Iowa Department of Transportation**

**SPECIAL PROVISIONS  
FOR  
TEMPORARY WASTEWATER BYPASS SYSTEM**

**Woodbury County**

**IM-29-7(51)149--13-97**

**Effective Date**

**July 19, 2011**

**THE STANDARD SPECIFICATIONS, SERIES 2009, ARE AMENDED BY THE FOLLOWING  
MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND SHALL PREVAIL  
OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.**

## **PART 1 GENERAL**

### **1.01 SECTION INCLUDES**

- A. Furnishing, installing, maintaining, and removing a temporary wastewater diversion system to bypass wastewater.

### **1.02 SYSTEM DESCRIPTION**

- A. Maintain continuous flow of wastewater at all times unless otherwise indicated. Provide all necessary equipment, temporary installations, and personnel to set up, test, and maintain diversion of wastewater around construction areas for the time necessary to accomplish the WORK. The CONTRACTOR will operate and monitor the system during construction activities.
  - 1. All wastewater shall be conveyed to acceptable downstream facilities.
  - 2. Flow shall not be allowed to back up or be restricted in any way.
  - 3. Do not spill wastewater.
  - 4. Temporary conveyance systems shall be designed to convey flows specified herein.
- B. The CONTRACTOR shall be responsible for damages (including settled materials removal) caused by wastewater backup due to the CONTRACTOR's operations.
- C. Redundant equipment (pumps, drive-units, power sources, etc.) and parallel pipe systems shall be included.
- D. Pressure piping system: The CONTRACTOR shall provide a multiple-pipe pressure system to convey the peak flow capacity listed herein. Each pipe shall be the same size and capable of conveying the average daily dry weather flow capacity listed herein. The complete system shall be in place and connected prior to start-up of the temporary conveyance system. Suitable valves shall be provided at the upstream and downstream end of each line for isolation purposes in the event of a rupture, leak or some other problem. Under normal conditions, these valves shall remain open.
- E. Pumps: Provide multiple pumps to meet the range of flows specified herein. All pumps shall be in place, connected, and ready to operate.

### **1.03 GENERAL**

- A. Develop an Emergency Spill Response Plan subject to the approval of the ENGINEER and Contracting Authority. The Plan shall have the minimum requirements:
  - 1. One set of repair clamps/coupling for each temporary forcemain pipe size and type shall be stocked on-site prior to starting any pumping of wastewater to perform the WORK. Any use of these spare materials will require immediate replacement within one calendar day.
  - 2. At minimum, CONTRACTOR will evaluate the condition of the bypass piping system at the beginning and end of each WORK day. CONTRACTOR shall continually monitor the bypass system during construction activities. A monitoring device shall be included in the bypass system to immediately notify responsible parties of possible system failure when the CONTRACTOR is not on site.
  - 3. For information purposes only, the CONTRACTOR shall train the Water Reclamation Plant operation and maintenance staff on the diversion system installed.
    - a. The CONTRACTOR shall provide an emergency contact person available 24 hours a day, 7 days a week.
  - 4. A monitoring device shall be included in the diversion system to immediately notify responsible parties of possible system failure.
  - 5. If a break or spill occurs, or if vandalism occurs that results in a spill, then the CONTRACTOR shall contact Plant staff. If the incident is due to vandalism, then the CONTRACTOR shall also notify the local police and obtain a police report.
  - 6. CONTRACTOR will have their emergency repair and cleanup respondents on site within one hour to assess the situation and initiate the appropriate action. The first response will be to stop the spill immediately. Depending upon the nature of the incident, the

- CONTRACTOR's responders may need to call in additional equipment and personnel.
7. CONTRACTOR's respondents will review the cause of the problem and will implement the appropriate corrective action. This corrective action may involve, but not necessarily be limited to, pumping wastewater into tanker trucks and hauling sewage to a downstream location until such time that repairs can be completed.
  8. Depending on the nature of the situation, a spill may result in standing wastewater in places. CONTRACTOR shall utilize appropriate equipment to pump or suction up the wastewater and dispose of it either by tanker truck or via the repaired system. This action will take place in a timely manner as logistics permit, but within 12 hours of the incident or a shorter time period if required by local or state authorities. Clean up shall be to the satisfaction of the Contracting Authority, ENGINEER, and local or state authorities.
  9. If in an appropriate area to do so, lime or gypsum should be sprinkled on those areas of spilled wastewater to buffer any excess nitrogen that may have been absorbed.
  10. The CONTRACTOR shall issue a report to the Contracting Authority and ENGINEER on the date and time of the incident, the estimated amount of spillage, the cause of the incident, and the action taken including both the corrective action and the cleanup activities. Attach any police reports, if applicable.
- B. Develop a Diversion Plan Checklist subject to approval by the Contracting Authority and ENGINEER. The Plan shall have the following minimum requirements:
1. Diversion Start Up Check List. Include notifications to the Contracting Authority and ENGINEER just prior to start up and provide a copy of completed check list showing that all conditions are met.
    - a. All equipment and materials necessary for the installation of the new facility are on site.
    - b. The bypass pipe was successfully hydrotested.
    - c. All required redundant back-up systems are in place and ready to function.
    - d. The Emergency Spill Response Plan has been approved and attendant has proper training and phone numbers.
    - e. Back-up repair couplings and/or clamps for each size and type used are on site.
    - f. The diversion set-up plan detailing the proposed method for temporary diversion of wastewater has been approved.
  2. Diversion Shutdown Check List. Include notifications to the Contracting Authority and ENGINEER just prior to shutdown and provide a copy of completed check list.
- C. Notify the Contracting Authority in writing a minimum of FIVE working days in advance of a planned connection or shut down. Notify the Contracting Authority verbally 48 hours in advance of the planned connection or shutdown.
- D. Prior to bypassing wastewater, hydrotest the bypass pipe to 150 psi or two times the operating pressure, and hold for two hours. The test fails if leakage is observed or if the pressure drop exceeds 5 percent of the test pressure over the two-hour test period. This hydrotest shall be repeated for each subsequent downstream lining where the pipe is disassembled and later reassembled.
- E. Do not begin the diversion of wastewater without the Contracting Authority's approval and evidence of a completed startup checklist. Do not terminate pumping/diversion of wastewater without the Contracting Authority's approval and evidence of a completed shutdown checklist. Coordinate with Contracting Authority for scheduling.
- F. The Contracting Authority will cooperate with the CONTRACTOR to assist in conducting any time duration testing the CONTRACTOR may feel is necessary to confirm the length of shutdown time available.
- G. CONTRACTOR shall have a Monitoring Plan with the following required:
1. At all times when any CONTRACTOR equipment, bulkheads or other devices are in the CONTRACTING AUTHORITY's sewer, CONTRACTOR shall provide a system with the means to detect or determine that flow is not backing up abnormally and is hence moving

properly through the sewer and/or temporary diversion piping. System shall be such that should a problem start, the CONTRACTOR is alerted by the system and the CONTRACTOR can respond within 60 minutes to the site. Any device(s) that the CONTRACTOR uses shall be tested or checked daily and a log of such shall be maintained.

- a. CONTRACTOR shall maintain the system and shall have access to spare parts as necessary to keep it functioning properly. Maintenance on the system shall be recorded in the log.
- H. Reschedule as needed due to wet weather conditions at no additional cost to the CONTRACTING AUTHORITY.
- I. Upon completion of the WORK and flow transfer, the temporary diversion system shall be removed and all affected surface improvements shall be restored to a condition equal to or better than the condition existing prior to construction.

## **PART 2 PROCEDURE**

### **2.01 PROJECT CONDITIONS**

- A. See contract drawings for site layout.
- B. The following are for estimating purposes only. Flow monitoring has not been completed. Conveyance System Performance Estimates:
  - (36 inch Diameter Sewer)
    1. Average Daily Dry Weather Flow: 2.43 mgd; 1,690 gpm.
    2. Peak Dry Weather Flow Capacity: 9.73 mgd; 6,760 gpm
  - (12 inch Diameter Sewer)
    1. Average Daily Dry Weather Flow: 0.27 mgd; 188 gpm.
    2. Peak Dry Weather Flow Capacity: 1.08 mgd; 752 gpm
- C. Pump Performance:
  1. Pump Requirement:
    - a. Provide dry or vacuum prime pump mounted at grade with suction pipe into upstream manhole. If submersible pumps are used, submit a plan for mounting inside the manhole.
    - b. Provide two pumps to operate based on level in the manhole. The two pumps shall have a combined capacity to meet the peak dry weather flow listed herein.
- D. Electrical Requirements.
  1. The CONTRACTOR shall provide a control panel for each electrically driven pump. Each control panel enclosure shall be rated to protect internal components from weather and contamination. Each shall contain/be provided with:
    - a. Operator interface devices on the front of the control panel to allow operation of the pumping equipment.
    - b. A collective alarm contact closure output, rated 10A at 120VAC, to indicate any alarm/fail conditions occurring within the pump control panel. This will be wired to the CONTRACTOR's mobile phone.
- E. The CONTRACTOR will monitor the diversion system during construction. If a spill occurs and is related to a deficiency in the equipment or diversion system assembly, then the CONTRACTOR is responsible for cleanup.

### **2.02 SUBMITTALS**

- A. Upon Notice to Proceed, provide the following items related to the temporary wastewater bypass system:
  1. Emergency Spill Response Plan.
  2. Diversion Plan Check List.

3. Monitoring Plan. Shall include details on devices used, how maintained, how monitored, and response time in the event of a problem.
- B. Submit a detailed proposed method for temporary diversion of sewage that follows the general guidelines defined in this spec.
  1. The proposed method shall include:
    - a. Suction pipe and valves for multiple wastewater pumps.
    - b. Manufacturer, type, capacity, hp, full load amperage, mounting details, and location of wastewater pumps including pump curves.
    - c. Size and material of discharge pipe and valves from wastewater pumps.
    - d. Electrical power input connections to wastewater pumps.
      - 1) Include information on physical characteristics and electrical capacity of the connections.
    - e. Controls for wastewater pumps.
    - f. Schedule for flow transfers and/or facility shutdowns.
- C. For each bypass set-up, submit a detailed proposed method for temporary bypass of sewage. The proposed method shall include the method of bulkheading the existing pipe(s), connection to the existing pipe(s), size and material of the bypass pipe, and related operations and equipment. Submittals shall show the required redundancy and capacities of all equipment, etc. Submittals shall show all services and laterals into the system and how each is being accounted for and diverted. Submittals shall show pipe support into temporary pipe discharge location.

## **2.03 QUALITY ASSURANCE**

- A. CONTRACTOR shall provide mechanical maintenance of the pumps as required during the equipment rental period.

## **PART 3 MEASUREMENT AND PAYMENT**

### **3.01 METHOD OF MEASUREMENT**

- A. CONTRACTOR shall be paid a lump sum price for bypass pumping.

### **3.02 BASIS OF PAYMENT**

- A. This shall be full compensation for furnishing all labor, equipment, materials and system removal necessary for bypass pumping activities and monitoring.

**END OF SECTION**