

# Bypass Pumping Form

**Project Information**

Project Name	
LW Project Number	
Project Location (Address or Cross Streets)	
LW Inspector Name/Number (if known)	

**Emergency Contact Information**

In the event of a pump failure, the auto dialer will call out to the list of Contractor(s) in this order (if failure - contractor must reach out to LW and alert - LW personnel identified on contact list (if specified) or the project-assigned LW inspector):

Contact [include name, company name]	Cell Phone

**Bypass Pumping Details** (Information required for each bypass, if multiple will occur)

Approximate date of start (MM/DD/YEAR)	
Approximate duration of bypass activity (Days)	
Suction Manhole (MH-?)	
Discharge Manhole (MH-?)	
Distance (Feet)	
Design Flow (MGD)	
Proposed Pumps (Manufacturer, Size, Quantity Operating, Quantity on Standby)	
Pipe Materials (Manufacturer, Type)	

**Attachments**

Description of pump around, including but not limited to:

- No. of discharge pipes,
- manifolded,
- method of installation,
- staging area for pumps,
- buried or surface piping,
- freeze protection needs,
- temporary supports or anchoring,
- sewer plugging method, and
- type of plugs (air)
- air release valves
- type of noise enclosure required to meet County noise ordinances

Sizing calculations for bypass system, including but not limited to:

- suction and discharge elevations / manhole invert and top elevations,
- pipe sizes,
- pipe materials to be used,
- friction losses,
- flow velocities,
- pump curves showing pump operating range, and
- float elevations / alarm elevations
- emergency storage volume (volume of pipes and manholes above alarm elevation and below overflow or lowest basement floor elevation.)

Drawing/sketch depicting bypass pumping setup, site access point

**Additional Reference Information:**

Where an existing public sewer is subject to being rerouted, or a manhole or fittings must be cut into a public sewer, bypass pumping may be required to transmit flow during the work. Pumping will be required, unless the flow is sufficiently small as to make detention within the system, or pump and haul practical for the entire duration of the work, including the time needed for testing. Use of newly installed pipe to convey flow is prohibited, until that pipe has successfully undergone acceptance testing and inspection.

Where bypass pumping is determined to be necessary, the following features must be incorporated into the pump-around system.

1. one standby pump, in addition to the pump or pumps sized to convey the flow. Both auto prime pumps equipped with auto dialer. All pump and auto dialer equipment must be owned by one entity.
2. engine(s) or generator(s) to run the pumps
3. sufficient above ground hard piping to reliably convey flow to the receiving manhole.
4. float system to control the pumps and provide an alarm in the event of system failure
5. auto dialer to transmit warning of alarm condition by telephone

NOTE: Provide information regarding how the auto-dialer is powered (battery or other) and procedure on how to keep the dialer charged during pumping operations (lag pump run time or other).

6. an emergency response plan response time to be half of the time it takes to fill the emergency storage space. Response time to be no more than 2 hours regardless of emergency storage capacity.

For each pump-around, the installation contractor will submit a bypass pumping plan to Loudoun Water for review and approval.

## Sanitary Sewer By-Pass Pump Test and Operation

The following steps depict the responsibilities and requirements for testing, operation, and maintenance for any sewer by-pass pumping operations and MH #'s for pump set up and MH #'s for discharge.

### Contractor

- Submit a Loudoun Water By-Pass Pumping Form and obtain plan approval from a LW Engineer/ Project Manager. This plan must identify person(s) who will be responsible for the pump operation (contractor staff, bypass pump manuf contacts, etc.). Coordinate with LW Engineer/ PM to include operations and maintenance contact name and phone number for emergencies.
- Coordinate pump installation and testing with the LW inspector.
- Install pumps and piping per the approved plan; priming hoses must discharge to the suction manhole and not onto the ground.
- Provide fuel access or fuel tanks onsite to ensure pump refueling capabilities are established.
- Provide safety fencing around suction and discharge manholes.
- Ensure suction and discharge piping is restrained and secure.
- Sewer plug must have air hose with pressure gauge extended to top of manhole.
- Clean Water Test:
  - Once the by-pass pumping system is constructed, the pumps and force main will be tested with clean water. Contractor to provide a clean water source (tank) with enough volume to allow the pumps to operate and pressurize the force main. Fill and pressurize the discharge force main while allowing the inspector time to walk and visually inspect each joint along its entire length to ensure the force main is not leaking.
- Alarm testing:
  - Contractor will provide the list of emergency contacts who will respond to alarm conditions (include in the by-pass pumping plan originally submitted).
  - Each float will be tested.
  - Prior to Loudoun Water O&M arriving onsite to observe the clean water test and alarm testing, the contractor shall program the auto-dialer and notify each emergency contact on the list that the by-pass and auto-dialer are being tested. The contractor will have all (or at a minimum, the majority) of the emergency contacts on site for the auto-dialer alarm testing.
  - **Each emergency contact must verify receiving the alarm to the contractor. Instruct them to: Do Not Acknowledge Alarm.**
- Reliability Test:
  - After the clean water and alarm testing is completed, a minimum twenty-four hour reliability test with live sewer will be conducted on the by-pass system. A longer test may be required at LW discretion, based on by-pass circumstances.
- Daily Observation/Action Requirements (Contractor to complete attached log daily and have available for inspector to review):
  - The contractor shall conduct daily inspections of the entire by-pass pump operation including at a minimum:
    - Clean suction hoses and remove any debris from manhole.
    - Check sewer plug pressure reading. Refill if needed.
    - Refuel all pumps.
    - Run the secondary (lag) pump.

- Confirm the auto-dialer is powered and operating.
  - Confirm floats operate freely.
  - Inspect discharge force main to confirm it has no leaks.
  - Inspect and clean discharge manhole, removing debris.
- Requirements for Freezing Weather Conditions:
  - In the event of freezing weather conditions, the Contractor shall incorporate the following at a minimum:
    - Heat tape pumps and discharge piping where appropriate.
    - Insulate pumps and piping where appropriate.
    - Provide power source to heat tape. Daily, confirm tape is functioning.
    - Inspect floats often to insure they operate freely and are not frozen to piping or other.
    - Test lag pump more frequently (minimum 2x/day).

LW Inspector

- Ensures contractor has installed the by-pass operation consistent with the approved plan.
- Coordinates inspection and testing with O&M.
- Ensures contractor has a clean water source for testing purposes.
- Conducts testing with LW O&M.
- Communicates with O&M Admin to add sewer by-pass information to On-Call Schedule phone list. (Capital Engr on capital projects)
- Communicates (email) commencement of bypass pumping operations via "Service Disruption". (Capital Engr on capital projects)
- Performs daily, visual inspections of the by-pass operation, including confirmation that:
  - Security fence is still in place.
  - Suction manhole and pipe are free from debris.
  - Floats operate freely.
  - Discharge force main has no leaks.
  - Debris has not collected in the discharge manhole which could cause a back-up.
- Communicates with O&M Admin to remove sewer by-pass information from On-Call Schedule phone list, when by-pass pumping operations are complete. (Capital Engr on capital projects)
- Communicates (email) completion of bypass pumping operations via "Service Disruption". (Capital Engr on capital projects)

Bypass Pumping Log - Daily System Checklist

Contractor Name: \_\_\_\_\_

<u>Action</u>								<u>Initials of Person Performing Check / Comments</u>
Clean suction hoses and remove any debris from manhole								
Check sewer plug pressure reading - Refill if needed								
Refuel all pumps								
Run the secondary (lag) pump								
Confirm alarm auto-dialer is powered and operating								
Confirm floats operate freely								
Inspect discharge force main to confirm no leaks								
Inspect and clean discharge manhole, removing debris								
<b>Additional Requirements for Freezing Weather Conditions:</b>								
Confirm all insulation and heat tape is intact and heat tape is functioning								
Inspect floats (twice per day minimum) to insure they operate freely and are not frozen to piping or other								
Test lag pump more frequently (minimum 2x/day).								