



Appendix C
Buffer Line SOP



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This institution is an equal opportunity provider.

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Standard Operating Procedure for Avenue A Buffer Line:

The Avenue A bufferline is a 48" reinforced concrete pipe that is 750 feet long that lies under Avenue A (see attached Figure #1). It starts at the West entrance of the Food City Parking Lot (near the Greenfield Savings Bank) and ends just past Bob's Auto Body. The purpose of the bufferline is to store extra flow when the sewer collection system reaches its capacity, and overflows to the bufferline. This storage helps to reduce the surge of high flows at the Clean Water Facility (CWF) on Greenfield Road.

The bufferline starts filling when the flow in Avenue A increases until it flows over the brick weir wall (see attached Photo #1) at **Manhole #AV-13** (GIS labels, see attached Figure #1). The bufferline system ends at the Gate **Manhole # AVP-3** (see attached Photo #2), a 5' manhole which houses a gate valve. The 12" x 18" gate has a 5" x 6" cut-out (orifice plate) (see attached Photo #3), allowing the bufferline to self-drain at a slower rate, reducing the peak flow surge at the Clean Water Facility. In July of 2023, an ADS ultrasonic flow meter will be placed in **Manhole #AV-14**. Details about the alarm setpoint are unknown at this time but will be used to indicate to personnel when the bufferline has reached a certain capacity.

If anything out of the ordinary is found which could potentially affect the CWF, personnel will contact the CWF and discuss a strategy.

Equipment needed:

- Safety cones
- Magnetic manhole lid lifter, or other means to open a manhole cover
- T-handle gate key
- Flashlight (if inspecting at night)
- Wire brush (for annual maintenance)
- Grease (for annual maintenance)

Procedures:

1. The bufferline gate should always be in the lowest (or “closed” position).
2. **BEFORE** a rain-event, DPW personnel inspects the gate Manhole to ensure the bufferline is empty and there is no debris blocking the gate orifice plate.
3. **AFTER** a rain event, DPW personnel inspects the gate manhole to ensure the bufferline is draining and there is no debris blocking the gate orifice plate.
4. **DURING** a rain event, there are no tasks to complete. During a significant (amount or time) rain event, personnel shall periodically inspect the bufferline gate for blockages.
5. When the high flow alarm is triggered at the CWF, personnel should inspect the gate orifice plate for signs of blockage. If no blockage is found and everything seems to be functioning, no further action is needed.
6. If upon inspection the gate orifice plate is blocked, access the ADS meter data (mobile phone app) OR open Manhole #AV-16 or #AV-19 to estimate the volume level of the bufferline (25% full, 50% full, 100% full, etc.) and contact the CWF to determine if/when they have the capacity at the plant to accept this slug of water from the bufferline. Be sure to mention if something looks out of the ordinary (color/odor/debris etc.) If given clearance to open the gate to unblock built-up debris, DPW personnel shall slowly open/raise the gate (10 turns, then wait) in the Avenue A bufferline and relay the time the gate was opened to the rest of the crew. Open the gate the rest of the way if needed. Approximately 30-40 minutes after the Avenue A gate has been opened, the flow will reach the CWF.
7. When the buffer line has emptied, lower/close the gate all the way.
8. *(To be edited after flow meter installation)* FLOW METER: An ADS ultrasonic flow meter will be (July 2023) placed in **Manhole #AV-14**. It will alarm when the bufferline reaches a certain volume/water height. At this time, personnel should inspect the gate orifice plate for blockages. If no blockages are found, tell the CWF that the bufferline is full.

Operation & Maintenance:

1. Exercise gate up and down fully once a year and grease the threaded gate stem.
 - a. It takes about 40 turns to fully open/close the gate
 - b. Apply grease into grease fitting. Raise gate all the way, close gate all the way.
 - c. Wire brush stem as needed, to ensure stem is free of debris.
 - d. Inspect gate manhole using Manhole Inspection Form (attached)

2. Inspect Bufferline weir (Manhole #10) once a year using Manhole Inspection Form (attached)
 - a. Check for debris or blockages
 - b. Replace block (indicates there was flow went over the weir) if needed



Photo 1: Avenue A Overflow Weir Manhole #AV-13



Photo #2: Avenue A Gate Manhole # AVP-3



Photo #3: Avenue A Bufferline Gate Orifice Plate