Section 2 – Maintenance & Documentation

Section 2 – Maintenance & Documentation is designed to offer assistance with the maintenance and documentation of your sewer system. Identifying problem areas and cleaning more frequently along with keeping a written schedule or plan of these inspections and cleanings may prevent sewer backups and identify future problems. If a backup occurs, written documentation will help in determining if reasonable maintenance has been done.

Sewer Liability Information section provides critical information on understanding that a sewerage back up due to the failure to properly maintain and document a sewer system may create costly claims for your District. In addition, the Maine Tort Claims Act does not provide any immunity or dollar cap for damages caused to others by failure to maintain a sewer system. This means you can be sued, and your liability is unlimited.

Exhibit 2.1: Sewer System Evaluation Form is a tool to assist you in the documentation:

- Infrastructure identification
- Inspection procedures
- Cleaning methodology
- Identification of problem/critical lines
- Manhole Inspection procedures
- Lift-Station Inspections
- Sewer Use Ordinance
- Emergency Planning
- Employee training
- Contractor consideration
- Scheduled system maintenance

Sample Inspection Forms document inspections, maintenance and identification of problem areas.

- Exhibit 2.2 - Manhole Inspection Form #1
- Exhibit 2.3 - Manhole Inspection Form #2
- Exhibit 2.4 - Line Inspection Form
- Exhibit 2.5 - Pump Station Inspection Form

SEWER LIABILITY

Sewer Statute

Title 30-A §3403, Proper maintenance of drains

After a public drain has been constructed and any person has paid for connecting with it, the municipality shall maintain and keep it in repair to afford sufficient and suitable flow for all drainage entitled to pass through it, but its course may be altered or other sufficient and suitable drains may be substituted in its place. If the municipality does not so maintain and keep it in repair, any person entitled to drainage through it may have an action against the municipality for damages sustained by the municipality's neglect.

Municipality Liability

- Generally, the municipality may be liable for deferred or inadequate maintenance. Backups due to other causes may not create liability.
- "A town is not liable for fault in the location, size, plan of construction, or general design of its sewers, but it may be liable for failure to keep them in repair." – Sherburne v. Inhabitants of Sanford (1915) Me., 113 Me.66 92 A. 997.
- Combined sewer systems or systems that experience surcharging, absent a blockage, may not create liability for the municipality.

Maintenance

- "Maintenance" is not defined by statute. The type of maintenance done and its frequency depends in part on the operator's knowledge of the line. Is there a prior history of blockages, are there restaurants or other sources of grease, is it a dead-end or low spot, what is the condition of the pipes? These and other factors will help to determine the "reasonableness" of the maintenance.
- What is proper maintenance? It can be annual inspection with a camera, periodic jetting or flushing, or visual inspections at the manhole cover. Identifying problem areas and cleaning more frequently along with keeping a written schedule or plan of these inspections and cleanings may prevent sewer backups and identify future problems. Written documentation is always crucial in defending a claim for damages.

What should you do after a backup?

- Never say "we will take care of it."
- Do not admit or insinuate fault.
- Always respond to the residence and find out if the backup was caused by a problem in your line.
- Clearly explain that you are not allowed to work on their private lateral line. Suggest that the homeowners submit the loss to their own insurance provider (most likely a homeowner's policy) and advise them that a loss notice will be submitted to your insurance carrier who will be in contact with them and conduct an investigation.
- Notify your liability coverage provider immediately.

Sewer System Evaluation Form

Size, Linear Feet, and Type of lines:

	Diameter	Linear Feet	Type
A.			
B.			
C.			
D.			
E.			

Any undersized lines and schedule for replacement/upgrade? Yes ☐ No ☐

Any private system lines connected to the system? Yes ☐ No ☐

Inspection/maintenance requirements for private system lines? Yes ☐ No ☐

Documented plan/schedule for system line cleaning with records maintained? Yes ☐ No ☐

Type of line cleaning performed.

☐ Rodding ☐ Jetting ☐ Other

Problem or critical lines identified and inspected cleaned more frequently? Yes ☐ No ☐

Problem or critical line locations:

A. _____

B. _____

C. _____

D. _____

Frequency of inspection of critical/problem lines:

☐ Weekly ☐ Monthly ☐ Quarterly ☐ Biannual ☐ Annual

Has a video survey of the system been completed? Yes ☐ No ☐

If yes, what percentage of the system has been video surveyed?

☐ 10% ☐ 25% ☐ 50% ☐ 75% ☐ 100%

Plan to avoid downstream surges, how is it controlled? Yes ☐ No ☐

Documentation of inspected lines maintained? Yes ☐ No ☐

Maintenance and inspection logs include the following information?

a. Date of inspection, cleaning, or repair. Yes ☐ No ☐
b. Location of line and manhole. Yes ☐ No ☐
c. Name(s) of operator(s)/Contractor. Yes ☐ No ☐
d. Size of the line cleaned. Yes ☐ No ☐
e. Equipment used. Yes ☐ No ☐
f. Any unusual findings or occurrences. Yes ☐ No ☐

Exhibit 2.1

Percentage of entire system cleaned annually?

☐ 10% ☐ 20% ☐ 30% ☐ 40% ☐ 50%

Have areas not been cleaned in longer than 5 years? Yes ☐ No ☐

Plans to address these areas? Yes ☐ No ☐

If yes, describe:

Documented manhole inspection procedure in place? Yes ☐ No ☐

Procedure for obstructed/blocked manhole access? Yes ☐ No ☐

Lift stations are equipped with power failure alarms? Yes ☐ No ☐

☐ Local ☐ Onsite visual/audible ☐ Connected to SCADA ☐ 24 hour monitoring

Lift stations either have onsite generator for back-up power or generator connection point for portable generator? Yes ☐ No ☐

How many portable generators are available?

Lift stations equipped with high water or high flow alarms? Yes ☐ No ☐

Sewer Use Ordinance in place? Yes ☐ No ☐

The sewer use ordinance includes the following elements?

Requires installation of back flow preventers? Yes ☐ No ☐

Education of municipal residents on the need for periodic inspection of back flow preventers? Yes ☐ No ☐

Requires grease traps be installed at all commercial facilities such as restaurants? Yes ☐ No ☐

Prohibits property owners from directing sump pumps and down spouts into the sewer system? Yes ☐ No ☐

There is an emergency plan in place to ensure a timely and appropriate response if a back-up occurs? Yes ☐ No ☐

Emergency plans include the following elements?

A list identifying who will be called when a back-up occurs? Yes ☐ No ☐

A list of equipment needed and where it is stored? Yes ☐ No ☐

Employees have received training and are properly equipped for entering Confined Spaces? Yes ☐ No ☐

Confined Space entry equipment including harnesses, tripod, winch, atmospheric testing equipment, ventilation fans inspected and properly maintained? Yes ☐ No ☐

Employees have been properly trained in use of jetting/rodding/system cleaning equipment? Yes ☐ No ☐

Employees have been trained in proper work zone set up and have access to MUTCD information? Yes ☐ No ☐

The member has appropriate and sufficient number of traffic control devices? Yes ☐ No ☐

If contractors are used for any system maintenance or repairs Certificates of Insurance are presented and verified before work begins? Yes ☐ No ☐

Scheduled system maintenance, upgrade, line replacement, lining of existing lines.
1 year:

5 year:

10 year:

Capital Improvement Plan Funded? Yes ☐ No ☐

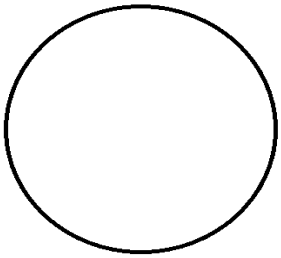
Other Municipality Entitles Using System? Yes ☐ No ☐
If yes, whom:
Other Municipal Entities following criteria listed on document? Yes ☐ No ☐
If yes, whom:
Recommendations:

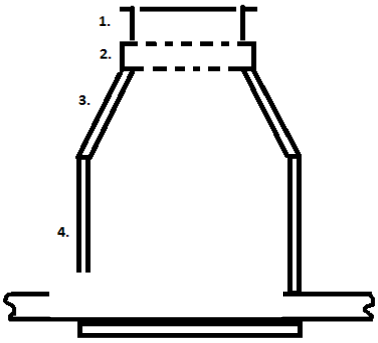
MANHOLE INSPECTION REPORT

MH NO: _____ **DATE:** _____ **TIME:** _____ **INSPECTOR:** _____

ELEVATION: _____ **DEPTH TO INVERT:** _____ **CLEANLINESS:** _____

CONSTRUCTION: _____ **STREET REFERENCES:** _____





1. Frame & Cover:
2. Chimney:
3. Cone:
4. Barrel:
5. Shelf:
6. Pipes or Channels:
7. Infiltration Noted:
8. Flow at time of Inspection:

	PIPE SIZE	LENGTH	TO MH#	EST. FLOW	TYPE FLOW
A-					
B-					
C-					
D-					

REMARKS: (Include need for repairs)

Ties to Manhole

Exhibit 2.2

MANHOLE INSPECTION REPORT

1. INITIAL INSPECTION:

A. LOCATION:
- 1. Roadway
- 2. Gutter
- 3. Paved Alley
- 4. Unpaved Alley
- 5. Easement
- 6. Other

B. MANHOLE COVER
- 1. Serviceable
- 2. Damaged
- 3. Displaced
- 4. Missing Grout
- 5. Needs Raising
- 6. Needs Lowering

C. RING & FRAME:
- 1. Serviceable
- 2. Loose
- 3. Displaced
- 4. Missing Grout
- 5. Needs Raising
- 6. Needs Lowering

D. MANHOLE MATERIAL:
- 1. Brick
- 2. Concrete

E. SIZE M. H. COVER
- 1. 24 Inch
- 2. 30 Inch

F. MANHOLE SIZE:
- 1. 4 Foot
- 2. 5 Foot

11. STRUCTURAL INSPECTION

A. STEPS:
- 1. Serviceable
- 2. Unsafe
- 3. Missing (No.)
- 4. Corroded

B. CONE:
- 1. Serviceable
- 2. Broken
- 3. Sulfided
- 4. Misaligned
- 5. Leaking/Bad Joints

C. RISER
- 1. Serviceable
- 2. Broken
- 3. Sulfided
- 4. Misaligned
- 5. Leaking/Bad Joints

D. SHELF:
- 1. Serviceable
- 2. Broken
- 3. Dirty
- 3. Sulfided

E. CHANNEL:
- 1. Serviceable
- 2. Obstructed
- 3. Sulfided
- 4. Bad Pipe Joint
- 5. Silt
- 6. Poor Struct. Cond.

111. HYDRAULIC INSPECTION

A. INFLOW INDICATIONS:
- 1. Debris on Sides/Shelf

B. SURCHARGE INDICATIONS:
- 1. Grease/Debris Sides & Shelf

C. CLARITY OF FLOW:
- 1. Turbid Appearance
- 2. Clear Appearance

D. FLOW
- 1. Steady
- 2. Pulsing
- 3. Turbulent
- 4. Surcharging
- 5. Sluggish

E. FLOW DEPTH COMPARED TO ADJACENT MANHOLES:
- 1. Same
- 2. Lower
- 3. Higher

F: FLOW DEPTH:

_____ Inches

Time: _____ AM/PM

IV. VERMIN
- 1. Roaches
- 2. Rats
- 3. Other

OBSERVATION SUMMARY:

FOREMAN II RECOMMENDATIONS:

SUPERVISOR COMMENTS:

MANHOLE INSPECTION FORM

Manhole Inspection Report

Inspection Date: Manhole #:

Address: GPS Coordinates:

Weather Conditions: Inspector:

Gas Meter Reading: O2: LEL: Co2: H2S:

Cover Condition: ☐ Loose ☐ Tight ☐ Sealed ☐ Bolted ☐ Buried

Frame/Cover Status: ☐ Good ☐ Raise ☐ Lower ☐ Cover Replace ☐ Frame Replace

Manhole Interior Construction: ☐ Plastic ☐ Brick ☐ Concrete ☐ Metal ☐ Other

Interior Condition: ☐ Good ☐ Fair ☐ Poor

Manhole Access Rungs: ☐ Good ☐ Fair ☐ Poor

Grit Level: Inches Feet Root Intrusion: ☐ Yes ☐ No

Manhole Depth:

Infiltration Into Manhole: ☐ None ☐ Low ☐ Medium ☐ High

Connections Entering Manhole: Type Diameter

Alarms Tested and Working: ☐ Yes ☐ No

Observed Flow Rate: ☐ Normal ☐ Below Average ☐ Above Average

Further System Inspection Needed Due to Observed Conditions: ☐ Yes ☐ No

Repairs needed: ☐ Yes ☐ No

Component in need of Repair:

Repair Work Order Number:

Exhibit 2.3

Line Inspection & Cleaning Documentation

It is recommended that all line segments and manholes be clean or be cleaned to the point that the entire pipe or manhole is visible unless specified otherwise. Very light deposits may, in the opinion of engineer, be acceptable. However, any deposits that obscure a joint, obscure a potential defect or result in any "holding of flow" shall not be acceptable.

Pipe ID	Location	Diam (in)	Length (ft)	Material	Equipment	Frequency Days	Last Maintained	Comment
2-05-04	Water St	10	260	VC	Jet/vac	30	8/1/2014	**Good Flow**

Cleaning Results

Material	Clear	Light	Medium	Heavy	Not Rated
Debris					
Grease					
Roots					
Other					

Remarks:

_____

_____

_____

Recommended Actions:

Cleaning frequency: The Same _____ Increase _____ Decrease _____

Repair Pipe: No ___ Yes ___ Comment _____

Repair MH: No ___ Yes ___ Comment _____

Root Control: No ___ Yes ___ Comment _____

Completed by: _____ Date: _____

Supervisor: _____ Date: _____

Ensure that line segments have been cleaned prior to a CCTV survey.

Exhibit 2.4

Pump Station Checklist

Date: **Employee:** /

Station	P #1	P #2	P #3	2 Op	3 Op	Gen.	Gen. Oil	Gen Block Heater	Breakers	Test Pumps	Sump Pump	Alarm System	Temperature	Comminutor	Wet Well	Building	Grounds	Fire Ex.	Clean floats	Clean Multitrode	Clean Vac Bowls	Changed Filters	X Valves	Run Gen.	Pump Grease

Exhibit 2.5