

**REGULATIONS FOR USE OF THE
LISBON MUNICIPAL SEWERAGE SYSTEM**

Lisbon Water Pollution Control Authority

ARTICLE I - AUTHORITY

These Regulations for the use of the Lisbon municipal sewerage system are hereby established by the Lisbon Water Pollution Control Authority ("Authority") in accordance with the provisions of Chapter 103, and specifically Section 7-247, of the Connecticut General Statutes.

ARTICLE II - PURPOSE

A. Compliance with Water Pollution Control Plan

These Regulations are established to fulfill the objectives set forth in the Lisbon Water Pollution Control Plan adopted by the Authority on December 5, 2001 (the "Plan"). The Findings, Policies and Objectives set forth in that Plan are hereby adopted and are incorporated herein by reference.

B. Sewer Avoidance Policy

It is specifically the purpose of these Regulations to further the policy of sewer avoidance within the Town of Lisbon. The sewer avoidance policy seeks to preserve the character of the Town by recognizing and affirming that residential development has historically been, and should continue to be, limited and controlled by the natural ability of local soils to accommodate subsurface sewage disposal systems. Under the policy, sewers may not be used as a tool for residential development, but they may be used to alleviate existing community pollution problems and to provide, in appropriate areas, a tool for stimulating the development of commercial or industrial uses. Therefore, these Regulations provide for the extension of municipal sewers only to properties located within the Lisbon Sewer District, as established under Article III.

C. Connection Standards, Fees and Assessments

It is also the purpose of these Regulations to establish appropriate technical standards for the connection of privately owned property to the municipal sewerage system, as well as a fair and consistent method of determining appropriate fees for such connections and of assessing private property for the opportunity to be connected to the municipal sewerage system.

ARTICLE III - ESTABLISHMENT OF LISBON SEWER DISTRICT

The Authority hereby establishes a sewer district, to be known as the Lisbon Sewer District (the "District"), that includes the following parcels of land only:

- a. The parcel of land on which is located the commercial development commonly known as Lisbon Landing;
- b. Any parcel of land that abuts Connecticut Route 12 and that is located between Lisbon Landing and the Lisbon - Griswold Town Line;
- c. Any parcel of land that may be added to the District pursuant to the provisions of Article VII of these Regulations; and
- d. Any parcel of land that is required to be connected to the Town Facilities by lawful order, judgment or decree of the Connecticut Department of Environmental Protection, any other state or federal governmental agency having jurisdiction to issue such an order, or a state or federal court having jurisdiction to issue such an order, judgment or decree.

ARTICLE IV - AVAILABILITY OF SEWER CONNECTIONS

A. Limitations on Availability of Sewer Connections

The Town of Lisbon does not have its own wastewater treatment facilities. Rather, it has entered into certain contracts and agreements with the Borough of Jewett City for the treatment of wastewater collected by a system of sewerage pipes owned and/or regulated by the Town and the Authority (the "Town facilities"). The Town's ability to use the Borough's wastewater treatment facilities and its wastewater disposal capacity are limited by those contracts and agreements. Therefore, in order to assure that the limited capacity available to the Town is used in a manner that maximizes the purposes of the Plan and of these Regulations, no connection to the Town Facilities shall be permitted unless the parcel of land to which the connection would be made is located in the District and:

1. The use for which the connection would be made is a nonresidential use and such use has been approved by the Lisbon Planning and Zoning Commission or its authorized agent after the effective date of these Regulations; or
2. The use for which the connection would be made was in existence as of the effective date of these Regulations, and the Town's Director of Health or the Authority has determined that the sewage disposal system currently serving the use has failed or is in marginal physical condition (i.e., likely to fail in five (5) or fewer years); or
3. The use for which the connection would be made was established after the effective date of these Regulations, the sewage disposal system constructed to serve such use

was properly approved pursuant to all then-applicable laws and regulations, and the Town's Director of Health or the Authority has determined that the sewage disposal system serving the use has failed or is in marginal physical condition (i.e., likely to fail in five (5) or fewer years).

B. Legal and Technical Restrictions

In addition to the requirements and limitations set forth in Section IV.A, above, no connection to the Town Facilities shall be permitted unless the Authority finds:

1. That the connection would be in accordance with the relevant terms of all contracts and agreements with the Borough of Jewett City;
2. That there is sufficient excess capacity available to accommodate the additional wastewater flows; and
3. That the connection to and use of the Town Facilities would be in compliance with the Sewer Specifications set forth in Appendix A of these Regulations, which are adopted and incorporated herein by reference.

In order to protect the capacity and use of the Town Facilities, the Authority may limit the amount of wastewater that may be added to the system from any property and may establish reasonable rules and limitations for different categories of uses.

It is specifically the intention of the Authority and the purpose of these Regulations to prevent and exclude from connection to the sewerage system any individual properties not included in the categories set forth in this Article IV or described in Article VII, regardless of whether such excluded properties are proximate to, or contain any portion of, the sewer line.

C. Connection Expenses

No connection may be made to the Town Facilities unless the owner of the property or operator of the use to be connected enters into a written agreement with the Authority specifying the terms and conditions of such connection. The owner or operator must agree to comply with all pertinent terms and conditions of these Regulations, including, but not limited to, the payment of all assessments and fees required pursuant to Articles V and VI. If the owner or operator undertakes any expansion or extension of the Town Facilities, the Authority may, but shall not be obliged to, consider a reasonable offset of any assessments it is authorized to make against such properties pursuant to Section 7-249 of the Connecticut General Statutes. The Authority may also, but shall not be obliged to, consider a formula for reimbursement to such owner or operator if future connections are allowed to any portion of the sewer main extended at the cost of such owner or operator, but the Authority shall have no obligation, under any circumstances, to make any offset or reimbursement agreement

ARTICLE V - SEWER ASSESSMENTS

A. Benefited Properties

Sewer assessments shall be levied on all properties that are benefited by the municipal sewer system. Properties that are benefited include properties that are actually connected to the system and properties to which a connection has been made available pursuant to the Lisbon Sewer District Regulations.

B. Amount of Assessment

The assessment charged against any benefited property shall be the lesser of:

1. The maximum amount lawfully permitted pursuant to Conn. Gen. Stat. § 7-249, as it may be amended; or
2. The amount determined by multiplying (i) the total number of gallons of wastewater per day that the WPCA allows the affected property to discharge into the municipal sewerage system, times (ii) \$52.00 (Fifty-Two Dollars).

C. Expanded Buildings

Where buildings or structures are expanded or constructed after the initial assessment, the property containing the expanded buildings will be charged any additional assessment necessary to produce a total assessment for the property that is equivalent to the assessment that would have been charged if the new or expanded buildings or structures had existed at the time of the initial assessment.

D. Payment of Assessments

Assessments shall become due and payable at such time as is fixed by the authority after a public hearing pertaining to such assessment. The due date, or due dates if installment payments are permitted by the WPCA, shall be identified on the sewer assessment notice. Each required payment must be made within 30 days of the relevant due date to avoid statutory interest and penalties.

E. Public Hearings

A public hearing shall be provided for each landowner who may be affected by a proposed assessment to the extent required by law.

ARTICLE VI - SEWER CONNECTION FEES

A. Benefited Properties

Sewer connection fees shall be levied on all properties that are permitted to be connected to the municipal sewerage system in accordance with the Lisbon Sewer District Regulations.

B. Amount of Connection Fees

The connection fees charged against any property that is permitted to be connected to the municipal sewerage system shall be the sum of:

1. The charge the Town incurs or incurred to have the property appraised for purposes of determining the proper assessment to be paid pursuant to Article V, above, plus an administrative fee of fifteen percent (15%); plus
2. The actual costs and expenses incurred by the Town in connection with the physical connection of the property to the municipal sewerage system (including but not limited to engineering review and necessary consultants' fees), plus an administrative fee of fifteen percent (15%); plus
3. An amount determined by multiplying Five Dollars (\$5.00) times the maximum number of gallons of wastewater permitted to be discharged from the property each day.

C. Allowance of Additional Flows

Whenever the WPCA permits any property to discharge more wastewater into the municipal sewerage system than the WPCA permitted at the time of the original connection, an additional connection fee shall be charged in accordance with Section B of this Article VI.

D. Payment of Connection Fees

All connection fees levied pursuant to Section B of this Article VI must be paid prior to the physical connection of the property to the municipal sewerage system. All connection fees levied pursuant to Section C of this Article VI must be paid prior to the discharge of the additional amount of wastewater permitted to be discharged by the WPCA.

E. Public Hearings

A public hearing shall be provided for each landowner who may be affected by a proposed connection fee the extent required by law.

ARTICLE VII - ADDITION OF PROPERTIES TO DISTRICT

As set forth in Article IV of these Regulations, it is the intention of the Authority that no properties other than those specifically identified in Articles III and IV be included within the District, regardless of whether such other properties may be near, abut, or contain any portion of the Town Facilities. Nonetheless, the Authority may amend the District by adding other properties if, and only if, all of the criteria in one or more of the following categories have been met:

A. First Category - Failing Systems

Properties in this category may be added to the District if both of the following criteria are met:

a. The Health Director of the Town of Lisbon, or his or her designee, certifies that a septic system has failed on the property, or that the physical condition of a septic system on the property is marginal (i.e., that the system is likely to fail in five (5) or fewer years); and

b. The failed or marginal septic system must have been either (i) in existence on the date of adoption of these Regulations, or (ii) constructed after the date of adoption of these Regulations in accordance with all then-existing local, state, and federal land-use, health, and environmental laws (including, but not limited to, statutes, ordinances, regulations and codes).

B. Second Category - Municipal Uses

Properties that are used or to be used exclusively for municipal purposes, including uses that are incidental and accessory to a municipal use, may be added to the District.

C. Third Category - Nonresidential Uses

Properties that have been designated as desirable for commercial or industrial development by the Planning and Zoning Commission may be added to the District.

ARTICLE VIII - ORDERS TO CONNECT

In accordance with Section 7-257 of the Connecticut General Statutes, the Authority may order the owner of any building to which the Town Facilities are available to connect such building to the Town Facilities. No such order shall be issued until after a public hearing with respect thereto after due notice in writing to such property owner. Any owner aggrieved by such an order may appeal in accordance with the provisions of the Connecticut General Statutes. If any owner fails to comply with an order to connect, the Authority shall cause the connection to be made and shall assess the expense thereof against such owner. It is the intention of the Authority that all properties within the District having septic systems that have failed be connected to the Town Facilities as soon as possible.

ARTICLE IX - PENALTIES FOR NONCOMPLIANCE

If the Authority finds that any connection to or use of the Town Facilities has been made in violation of any provision of these Regulations, the Authority may order the disconnection of the noncomplying property from the Town Facilities or may issue such other orders or take such other actions as may be allowed by law to bring such properties into compliance with these Regulations.

ARTICLE X - AMENDMENTS

These Regulations may be amended by the Authority from time to time as it deems necessary.

ARTICLE XI - VALIDITY

If any section, paragraph, subdivision, clause, or provision of these Regulations is adjudged invalid, such adjudication shall apply only to the section, paragraph, subdivision, clause, or provision so adjudged, and the remainder of these Regulations shall be deemed valid and effective.

ARTICLE XII - EFFECTIVE DATE

The date of adoption and the effective date of these Regulations, as amended, is June 19, 2002.

LISBON WATER POLLUTION CONTROL AUTHORITY

By _____
Robert L. LaChapelle
Its Chairman
Duly Authorized

APPENDIX A

TOWN OF LISBON SANITARY SEWERS - SPECIFICATIONS

A. GENERAL

1. All buildings connected to the Lisbon WPCA sanitary sewer system shall have their water supply, whether public or private, metered. The metered water usage will be utilized to evaluate the actual sewage flows from any building or use so connected to the Lisbon system.
2. The standards, specifications and details contained in these documents are intended to provide a uniform standard for everyone. However, situations may arise that have not been addressed within this document and these shall be addressed on a case by case basis subject to the approval of the Lisbon WPCA or its designated agent.

B. PERMITS

1. No person(s) shall uncover, make any connection with, alter, repair, or disturb any public or private sewer main connected to the Lisbon WPCA pipe, or appurtenances unless a valid permit shall have been duly issued by the Lisbon WPCA.
2. Construction permits shall only be issued to : (i) A licensed Contractor holding a valid State of Connecticut license to perform the unsupervised installation of sewer mains, services, and appurtenances; or, (ii) a person installing or repairing a sewer service pipe within the confines of a single-family residential lot owned and occupied by such person, as long as such person is the only one doing the work. Acceptable Contractor license categories shall be P-1, P - 7 Plumbing & Piping contractors Licenses only.
3. No permit shall be issued nor any connection made until a Developers Agreement has been approved and consummated with the Lisbon WPCA.
4. Prior to issuance of any construction permit, the Owner will be required to pay all outstanding fees, charges, assessments, and other conditions applicable to the sewer installation. In addition, the permittee shall obtain a Connecticut Underground Utility Permit (Call Before You Dig) number (1-800-922-4455), and, when working outside the confines of private property, obtain an excavation permit from the proper regulatory agency.
5. Licensed Contractors shall also be required to post with the Lisbon WPCA a Certificate of Insurance, Surety Bond for \$5,000.00, for a period of one year, and a copy of their current Plumbing Contractor's License Certificate.

6. In all instances requiring that the permittee be a licensed Contractor, the Plumbing Contractor's License, Certificate of Insurance, and Surety Bond submitted to the Lisbon WPCA shall be those of the permittee only.
7. The Certificate of Insurance shall name the Town of Lisbon as additional insured. The minimum insurance requirements shall be for Public Liability \$500,000.00/\$1,000,000.00 and for Property Damage insurance \$100,000.00/\$250,000.00. Workman's Compensation Insurance in the amount of statutory limits shall also be included in the insurance requirements. The insurance shall remain in force for at least 12 months from the date of Application for a Permit. Each insurance certificate and policy shall contain a statement by the insurance carrier not to cancel the policy except upon fifteen (15) days notice to the WPCA
8. All connections requiring easements and/or agreements must have such easements and/or agreements approved, executed, and recorded on the Land Record prior to issuance of a permit for connection to the Lisbon WPCA system.
9. No trench containing a sewer main, service pipe, or other appurtenance shall be backfilled until the WPCA inspector or his duly authorized agent has completed an inspection and found the work to conform to the requirements of the WPCA in all respects and to be satisfactory as to the quality of the workmanship and materials. The permittee shall notify the Inspector twenty-four hours before starting any work authorized under the permit. It shall be the responsibility of the Permittee to comply with any applicable safety requirements concerning the installation or repair of sewer mains, services, and/or appurtenances, and to provide the necessary safety equipment and conditions needed for inspection of such installations and/or repairs. The Inspector or his or her duly authorized agent may order all or any portion of the work to be halted, revoke such permit for the work, and/or refuse inspection for non-compliance with the applicable construction and/or safety requirements.
10. If any person who constructs, installs, alters, or repairs any sewer main, service pipe or appurtenance within the WPCA's jurisdiction is in violation of any section of these Specifications and/or any other Regulations of the WPCA or fails to give adequate notice to the Inspector for an inspection of the work, the Inspector may order all or any portion of the work to be halted and/or uncovered for inspection and approval.
11. Permits may be revoked and annulled by the WPCA's authorized representative for any violation of the Regulations of the WPCA, or suspended for a reasonable period of time, to permit the WPCA to make an investigation to determine if there has been a violation of the regulations.
12. Permits shall be valid for a period of thirty days (30) except in the event the property changes ownership before the work is completed or if another contractor is chosen to perform or complete the work, in which event the original permit shall become void and a new permit shall be obtained by the new parties in interest. In the event that the

permit is for construction of a main line, the permit can be re-issued without additional fees upon expiration up to a maximum of eleven (11) renewals.

13. The issuance of a permit does not authorize the Contractor or Permittee to operate valves, curb stops, or other appurtenances connected to the WPCA system.
14. The Contractor or Permittee is responsible for obtaining all State and Town road opening permits as required.

C. DESIGN CRITERIA - MAIN LINE SEWERS

1. Specifications for Sanitary Sewer Improvements

All sanitary sewer construction materials and procedures shall conform to the requirements of Connecticut State Highway Department Standard Specifications for Roads, Bridges and Incidental Construction, Form 814A 1995 as amended, the Town of Lisbon Public Improvement Specifications, and Water Pollution Control Authority Regulations and Guidelines For The Design Of Wastewater Treatment Works, TR-16, 1998 Edition as prepared by The New England Interstate Water Pollution Control Commission, and any amendments thereto.

2. Special Sanitary Structures

Details of special or unusual sanitary structures shall be submitted to the Lisbon WPCA, or its designated agent, for review and approval before construction.

3. Sanitary Sewer Design Criteria

- a. Average daily flow and peak flow for domestic, commercial and industrial generators are to be based on Engineering Documentation. Hydraulic design of the sewer shall be based on the Manning formula for a pipe flowing 0.8 full at peak design flow capacity under open channel flow conditions at all points.

The following values of "N" roughness coefficient have been adopted for use with Manning Formula:

<u>Description</u>	<u>Roughness Coefficient "N"</u>	
New Sanitary Sewers	RCP	.015
	DI	.013
	PVC	.010
Existing Sewers	PVC	.011
	PVC	.011
	RCP	.015

- b. Minimum slopes shall insure that the velocity is greater than or equal to 2.0 fps with the pipe flowing full and/or 2.5 fps in the upper reaches of sewers. Building sewer shall be laid to a reasonable straight line and preferably at not less than 2% grade (1/4" per foot) except that where this is impractical or where a hardship would be created by such a grade the pipe may be laid to a grade of not less than 1% (1/8" per foot).
- c. Proposed sewers shall be designed to provide the required capacity (peak flow, infiltration and other wastewater) to handle all projected flow from upper waste shed based on current zoning. The design flows shall be based on an average daily per capita flow of sewage of not less than 100 gallons per day (this figure is assumed to cover normal infiltration amounts in new construction). For the existing portions of the collection system, additional allowances for inflow and infiltration may be required to account for actual flows in excess of this valve. The capacity of the sewer shall be designed to accommodate a peak design flow of four (4) times the average daily flow at build-out of the drainage area based on the maximum density allowed by zoning, unless otherwise determined by the generally accepted ratios of peak to average daily flow and approved by the Lisbon WPCA.
- d. Sewers shall be laid at a minimum depth and no less than a minimum slope to insure that residences will receive basement service without the need for individual wastewater pumps. Sewers located in the right-of-way or low areas shall be constructed at depth with no less than four (4) feet of cover. Building sewers shall be constructed with a minimum of 3' 0" cover using PVC pipe. Special cases will be reviewed on a case by case basis.
- e. Manholes shall preferably be laid in the center of pavement when the sewer is under a paved roadway. If installed in a paved gutter area of a road where no other suitable alternative is available such as a shoulder area not subject to significant surface water flow, the manhole shall be provided with water tight frame and covers to exclude surface stormwater flows.
- f. Minimum size of pipe for sanitary sewer is eight (8) inches, inside diameter. Minimum size pipe for building sewers is six (6) inches inside diameter. Pipe shall be as a minimum SDR 35 PVC pipe.
- g. Manholes shall be provided at all sewer junctions, changes in direction, and changes in grade.
- h. Manhole spacing shall not exceed 300 feet.
- I. Manholes not in pavement areas shall have locking rims set above grade a minimum of 2", and maximum of 4", to avoid stormwater inflow. Water tight covers shall be used as directed by the WPCA or it's designated agent (See

Standard detail). Vented manhole covers shall only be used at high point in sewer line and every 900 feet.

J. Commercial/Industrial Sites

- 1) A manhole is required in the building sewer between the building and the main sanitary sewer line, located within the Town right-of-way, for all buildings in an Industrial or Commercial Zone.
- 2) If the waste discharge is greater than 5,000 gallons per day, or if discharge involves industrial process wastewater, then a DEP discharge permit shall be required.
- 3) Use of public sewers, physical and chemical limitations are defined by the rules and regulations of the Lisbon WPCA.

k. Pressure Sewer System

- 1) Pipe utilized in pressure sewer systems shall be rated at a minimum of 60psi (SDR 26, SDR 21, Schedule 40)
 - 2) Cleanouts shall be spaced at every 400 to 1000 feet for straight sections and at every change in pipes direction.
 - 3) Pipe shall be placed below frost line.
 - 4) Backup capability shall be provided with as a minimum a second pump with holding capacity.
 - 5) The pressure sewer system design shall be subject to the approval of the WPCA or its designated agent.
- l. Sewer easements outside of street lines, shall be a minimum of twenty (20) feet wide centered on the sanitary sewer main. For deep excavations (deeper than 8 feet from flow line), wider easements shall be required. It is the responsibility of the developer to acquire these easements. For a “cross country” sewer line, a “roadway” ten (10) feet wide shall be provided. This roadway shall consist of a gravel base a minimum of 8” deep with a filter fabric (where required) and shall provide sufficient support for typical Town of Lisbon maintenance vehicles. Four inches of topsoil, seeded and fertilized, shall be placed on top of the gravel. When a raised manhole is located within the “roadway”, the roadway shall be widened to provide sufficient room for vehicles to pass on both sides of the structure. This may require additional easement area beyond the minimum twenty (20) foot requirement.

4. **Connection to Existing Mains**

Any newly installed sanitary sewer systems connected to an existing sanitary sewer main shall be plugged and the plug chained to the stairs or otherwise secured until the following activities are accomplished:

- all air testing and mandrel testing meeting these standards have been completed.
- an occupied facility is connected to the new line.
- the new line is cleaned out (flushing and removal of all construction debris and foreign material).

5. **Drop Inlets**

All drop inlets shall be outside drop inlets. No inside drop inlets shall be allowed.

6. **As-Built Drawings**

a. Reproducible as-built drawings shall be provided to the Town upon completion of the work. These shall be drawn to A-2 accuracy and shall have the original seal and signature of a Land Surveyor licensed in the State of Connecticut. The as-built drawing shall be a wash off fixed line or original plot mylar (sepia mylars are not acceptable).

b. Information Required

1) Plan (at same scale as approved plan)

- a) Any iron pins or monuments defining the Town's right of way or easement, including coordinates of the monuments.
- b) Easements, with distances, bearings and referral points, noting grantees and purpose.
- c) A-2 certification, LS seal and signature
- d) Curb lines and pavement widths
- e) Sanitary structures with horizontal and vertical (i.e. top frame elevations, invert elevations) locations.
- f) Location of any laterals including invert elevations at both ends and ties to the stub.(Data on laterals need not be certified by LS but must have been inspected by the Town and location documented by Contractor).

g) Any other underground utilities if known.

2) Profile (at same scale as approved plan)

- a) Centerline profile of pavement indicating grades at (approximately) 50 foot intervals, and existing grades of ground, if sewer is “cross-country”.
- b) If storm sewer is in pavement, show all catch basins, storm manholes, and all drainage lines between structures with all invert and top of frame elevations. Pipe size and materials shall be indicated.
- c) Sanitary sewer manholes and main lines including top of frame and invert elevations, sizes, lengths, type pipe and slopes must be shown.
- d) Finish floor elevations of existing or proposed houses.
- e) Any other underground utilities if known.

7. **Testing**

a. Manhole Testing

- 1) All new manholes shall be tested in the presence of a representative of the Lisbon WPCA prior to backfilling the manhole and shall meet the requirement of this section. Either water testing or vacuum testing shall be accomplished.
 - i) Water (Hydrostatic) Testing
 - a) The manhole shall be plugged at all pipe connections, the lift holes grouted and then filled with water.
 - b) The water shall remain in place for 24 hours at which time the drop in water level shall be measured.
 - c) Visual inspection of the exterior walls of the manhole shall be undertaken to determine if any leakage is observed.
 - d) The exfiltration rate shall not exceed one(1) gallon per vertical foot of manhole. (One gallon equals .1337 cubic feet)

- e) If the exfiltration rate exceeds the allowable, repairs or replacement of the manhole shall be accomplished and the manhole tested again.

3) Vacuum Testing

- a) The manhole shall be plugged at all pipe connections and the lift holes grouted.
- b) Installation and operation of vacuum equipment and indicating devices shall be in accordance with manufacturers recommendations.
- c) Testing shall be done by qualified personnel of an approved testing company.
- d) A vacuum of 10 inches of mercury (4.9 PSI) shall be drawn and the vacuum pump shut off. The test shall pass if the vacuum drop does not exceed 1 inch of mercury (.49 PSI) over the period of time as follows:

0 - 10 foot deep manholes	- 2 minutes
10 - 15 foot deep manholes -	- 2.5 minutes
Greater than 15 foot deep manholes	- 3 minutes
- e) If the manhole does not pass the test, repairs or replacement of the manhole shall be accomplished and the manhole tested again.

b. Pipe Testing

- 1) Air testing of the sanitary sewer line shall be accomplished as described in this section.
- 2) In addition to air testing, a deflection test shall be performed. A mandrel shall be passed through the pipe to determine the amount of deflection existing. A maximum of 7 ½ % is allowed. If the pipe fails to meet this standard, the pipe shall be repaired or replaced as necessary. The sewer system will not be deemed acceptable until these standards are met. The mandrel used shall be a rigid "Go-No Go" device.

3) Low Pressure Air Test

- a) General: Sewer lines shall be tested for leakage using low pressure air as specified herein. Tests will be made after the

pipe installation is complete, including all laterals, manholes, and backfill in the trench has been placed and compacted or consolidated as required by the WPCA or its designated agent. This test shall be completed before any bituminous pavement is in place and after all utilities under the roadway have been constructed.

The Contractor shall be required to provide all equipment, test plugs in the required sizes, appurtenances, connecting hose or pipe, labor and materials necessary to conduct and control the low pressure air test.

The tests may be conducted by the Contractor using his or her own equipment, if he or she is qualified, or a subcontractor approved by the WPCA or its designated agent. All equipment proposed for use in conducting the low pressure air test shall be subject to the approval of the WPCA or its designated agent.

All tests shall be conducted on the completed sewer pipeline between manholes. Testing of shorter sections of pipeline will only be permitted with the approval of the WPCA or its designated agent.

All gages, controls, and appurtenances for equipment used to conduct the test will be located out of manholes.

No one will be permitted in a manhole containing a test plug while air is under pressure in the pipeline being subjected to the test.

- b) Procedure: The contractor shall determine the elevation of the ground water table in the area of the pipeline being subjected to the low pressure air test.

When the prevailing groundwater is above the sewer being tested, test pressure shall be increased 0.50 psi for each foot that the water table is above the invert of the sewer.

After cleaning and flushing the line, test plugs will be installed in the pipeline being subjected to the low pressure air test, and braced as necessary to secure the plugs in place.

Utilizing the approved equipment, air at low pressure will be slowly introduced into the pipeline until the pressure within the pipeline being tested increases to 4 PSIG above the back

pressure due to the water table, or 4 PSIG if there is no back pressure to compensate for.

Disconnect the supply air hose from the source of air, and allow the air pressure within the pipe being tested to drop to 3.5 PSIG above the back pressure due to the water table (or 3.5 PSIG if there is no water table). At this point, start measuring the time for the pressure in the pipeline to drop 1 PSIG, (or to drop to 2.5 PSIG if there is no back pressure due to a water table).

The time necessary to drop 1 PSIG shall not be less than that indicated in Table I for the size and length of pipeline being tested. If the time is less than that indicated in Table I, the line will be considered as having failed the test.

Any section of pipeline that fails to meet this test will be repaired or replaced as necessary by the contractor, and re-tested, at no additional expense to the Town.

No sewer line will be considered acceptable until it successfully passes the requirements of this test.

All testing will be conducted by the Contractor or his or her approved subcontractor in the presence of a representative of the WPCA. The Contractor or his or her subcontractor shall keep a written record that will show the results of the tests conducted. The records should include sufficient data on length of line, pressure levels, time for pressure drop, and related features noted during the testing of each segment of the line. A copy of this record shall be given to the WPCA.

TABLE I
MINIMUM TIME REQUIRED FOR A PRESSURE DROP OF 1 PSIG AS
REQUIRED IN LOW PRESSURE AIR TEST SPECIFICATION-
MINUTES:SECONDS
(Based on 0.0015CFM/SQ FT of inside surface area of pipe)

Specification Time for Length (L) Shown (min: sec)

Pipe Diameter (in.)	100 feet	150 feet	200 feet	250 feet	300 feet
6	5:40	5:40	5:40	5:40	5:40
8	7:34	7:34	7:34	7:34	7:36
10	9:26	9:26	9:26	9:53	11:52
12	11:20	11:20	11:24	14:15	17:05
15	14:10	14:10	17:48	22:15	26:42
18	17:00	19:13	25:38	32:03	38:27
21	19:50	26:10	34:54	43:37	52:21
24	22:47	34:11	45:34	56:58	68:22

Note: If lateral sewers are included in the test, their lengths may generally be ignored in computing required test times. In the event a test section, having a total internal surface area less than 625 square feet, fails to pass the air test when lateral sewers have been ignored, the Engineer shall re-compute the test time including all lateral sewers.

D. CONSTRUCTION STANDARDS - MAIN LINE SEWERS

1. Developers Agreement

- a. No person or firm other than the Lisbon WPCA shall excavate, construct, install, lay, alter or remove any “public or “private” sewer without such activity being authorized by a “Developers Agreement” duly signed and approved. (This requirement does not apply to individual single family house laterals).
- b. The Lisbon WPCA or its designated agent shall enter into a Developers Agreement with any person or firm developing a piece of land for any purpose. Such agreement may be on a standard form approved by the WPCA

2. Materials Specifications

- a. Manholes shall be manufactured in accordance with ASTM C478. They shall consist of a precast reinforced concrete base section, riser section, and concentric top section. All section exteriors shall be waterproofed with a coal tar pitch coating applied in two coats. All precast products shall be cured a minimum of seven (7) days before being shipped to job site.
- b. Flexible manhole adapters shall be cast into the wall of the manhole sections in accordance with ASTM C443 or a flexible connector as approved by the Lisbon WPCA may be installed into a neatly cored opening in the section. For cored openings in existing brick manholes which, as determined by the Lisbon WPCA, are unsuitable for a flexible connector, utilize rubber ring water stop and non-shrink grout for the pipe to manhole connection.
- c. Manhole steps shall be as shown on the standard detail.
- d. Manhole frames and covers located in pavement shall be standard. Manhole frames and covers not located in pavement shall be Locking covers and those in areas subject to flooding shall be standard water tight (see details).
- e. All gravity sewer mains shall be polyvinyl chloride pipe SDR 35 with non-removable, integral, rubber compression gasket joints. No transition of pipe diameter or materials is allowed between manholes.
- f. All pipe and structure bedding materials and backfill materials shall be as indicated in the standard details.
- g. Any manhole that is greater than 20 feet in depth shall have a minimum of 5 foot inside diameter sections.

3. Installation Methods

- a. No sewer main shall be installed until an application form has been completed by the Owner and all necessary permits have been secured. If work is within a Town or State Road, an Encroachment Permit must be obtained and the construction requirements of that Permit must be followed.
- b. All trenching, excavation, and maintenance of traffic shall be in strict accordance with all applicable Federal, State, and Local Regulations.

The Permittee shall be responsible for the stability and safety of the trench and adjacent structures. The Permittee shall use such trench support and bracing as required by all applicable regulations, to ensure the stability and safety of all trenches.

The Permittee shall provide all equipment necessary to comply with Federal OSHA confined space regulations.

The Permittee shall comply with all Manual of Uniform Traffic Control Devices Standards for traffic safety including any amendments or update.

If a safe trench and work area is not maintained, Lisbon WPCA personnel or designated agents shall refuse to work in or make an inspection until the trench or area is made safe. This requirement does not in any way relieve the Permittee of the responsibility and liability for maintaining a safe and adequate trench excavation at all times and at any depth.

The Permittee shall maintain all excavations in proper condition for carrying on the work, and to this end, shall do all bailing, draining, or pumping which may be necessary to keep the trenches or other excavations free of water, and shall not under any conditions allow groundwater to enter the pipe(s).

- c. The Permittee shall verify all elevation measurements before proceeding with the laying of any sewer main. All sewer mains shall be installed with the use of an approved laser beam system.
- d. All trenches shall be open cut and of sufficient depth to afford protection from frost. In general, such depth shall not be less than four feet below final, finished grade at all points.

When excavation is in rock, there shall be no projecting rock within twelve inches of the outside of the pipe on the sides, top and bottom. The bottom twelve (12) inches of the trench shall be refilled with ¾" broken stone before the pipe is laid. All excavated rock shall be disposed of and the trench refilled with suitable bankrun sand or gravel.

When the bottom of an excavation is in unsuitable or unstable soil, a special bedding material may be required as determined by the Inspector. Such material may include ¾" broken stone, filter fabric, sand, gravel, or any combination thereof.

- e. All pipe, fittings, and appurtenances shall be examined carefully for damage and other defects immediately before installation. No pipe, fitting, or appurtenance shall be installed which is known to be defective.

Should any defective pipe or other casting be discovered after being laid, it shall be removed, and replaced or repaired to the satisfaction of the Inspector.

- f. During loading, transporting, and unloading, more than ordinary care shall be taken to prevent damage to the pipes and fittings. All pipe, fittings, manholes, etc., shall be handled in a proper manner using slings, hooks, pipe tongs and hoists. Under no circumstances shall such material be dropped.
- g. All sewer mains shall be laid and maintained to lines and grades established by the plans and specifications. It shall be the responsibility of the Permittee to have properly staked, to the satisfaction of the Inspector, line and grade, lot lines and or lot corners, easement boundaries, etc., as needed to determine an accurate installation of the sewer main. The Permittee shall be responsible for the accuracy and maintenance of all line and grade stakes, as well as the installation of the sewer main. No work shall begin prior to the stakes being set.
- h. In accordance with the State of Connecticut Department of Public Utility Control Regulations, the Permittee shall notify "Call Before You Dig", (Telephone 1-800-922-4455) prior to start of any construction.
- i. The trenches shall be excavated to a depth of six inches below the invert of the proposed sewer main. The bottom six inches of the trench shall be refilled with ¾" broken traprock and leveled to grade before the pipe is laid. Once the pipe is laid and set to grade, a minimum of six inches of ¾" broken traprock shall be placed to the center line of the pipe, for the entire width of trench. Where pipe is in groundwater, the traprock shall be placed to the top of the pipe. Sand shall be placed over the traprock to a depth of 12" over the top of the pipe. (See Standard Detail).

Pipe placed in groundwater shall have clay stops installed a maximum 100 feet apart in accordance with the standard detail.

The trench bottom shall be cut true and even to provide support for the full length of the pipe barrel, except that a slight depression may be provided to allow for withdrawal of pipe slings or other lifting tackle without damaging the pipe coating.

- j. Pipe cutting shall be done in a safe, workmanlike manner without creating damage to the pipe or cement-mortar lining. Cut ends and rough edges shall be ground smooth, and for push-on joint connections, the cut end shall be re-beveled using a suitable file or other approved means.
- k. At times when pipe-laying is not in progress, the open ends of the pipe shall be closed with approved watertight plugs or caps. The water level in the trench shall be maintained at a level below the pipe before the plugs are removed and while pipe is being laid, and until such time as it has been inspected, approved, and back-filled. Care must be taken to prevent pipe flotation, should the trench fill with water.
- l. As soon as practicable after the sewer main has been laid and inspected the trenches shall be back-filled. Backfill shall be placed in accordance with all Federal, State, and Local Regulations. In no case shall stones larger than 6" in size, excavated rock, clay, loam, organic material, or silt be used as backfill.

Green plastic warning tape, a minimum of 2" in width and stating "Caution-Sewer Line Below", shall be placed in the sewer trench in accordance with "Call Before You Dig" requirements.

- m. Any roadway, driveway, parking lot, sidewalk, curbing, grass or landscaped area, fences, guide rails, and other structures which are in any way disturbed by the work, shall be restored by the Permittee to as good or better condition than they were previous to the commencement of the work.
- n. All gravity sewer mains and building lateral connections laid incidental to the sewer main shall be subjected to an air test as described in the design section of these regulations.

If any air test discloses leakage greater than that specified, the Permittee shall, at his own expense, locate and make approved repairs as necessary, until leakage is within the specified allowance.

No pipe shall be placed into service prior to satisfactory completion of an air test and a mandrel test.

- o. All new sewer mains shall be cleaned and camera inspected before acceptance by the Lisbon WPCA. Acceptance of lines is to be decided upon reviewing the tapes.

E. SANITARY LATERAL CONNECTIONS

1. Design Criteria

- a. Minimum slope for a sanitary lateral pipe connected to the sanitary main shall be 2% (1/4" per foot). Where this is impractical because of a hardship, the pipe may be laid to a grade of not less than 1% (1/8" per foot) with the approval of the Town Engineer or local WPCA Authority.
- b. Minimum size of pipe for a sanitary lateral pipe shall be 6". Pipe shall be as a minimum SDR 35 PVC pipe.
- c. Sanitary lateral pipe shall be constructed with a minimum of 3' 0" cover over the pipe.
- d. Low pressure pump systems shall be installed such that the pipe shall be placed below the frost line (42" minimum).
- e. When the sanitary lateral is to be placed closer than 10 feet to a water line, the pipe shall be water tight pipe SDR 26, SDR 21 or Schedule 40, and a pressure test shall be performed before the line is activated.
- f. All service connections shall be made to an existing capped lateral line or when necessary a main line or a manhole connection created by the Applicant subject to the approval and supervision of the WPCA or its designated agent.
- g. All sewer connections constructed in seasonal high groundwater areas shall be air or water pressure tested to the satisfaction of the WPCA or its representative.
- h. Where seasonal high groundwater is present, clay stops shall be installed, see standard detail.

2. Construction Criteria

- a. **Trench Requirements:** When working within the pavement of a Town road, the initial pavement cut shall be made with a saw or jack hammered. Once the work is complete within the trench, the pavement shall be saw cur, prior to placing bituminous concrete within the area, if the initial cut was jack hammered. The trench backfill material shall be subject to approval by the Town and shall be compacted in maximum of 6" lifts for small widths or 12" lifts for widths wide enough for a vibratory roller. Typical patch details are included in these procedures and shall be the basis for any work within the Town ROW. The trench repair shall be maintained by the permit holder for a period of 6 months, or at the end of one winter-spring cycle, at which time the permit holder shall saw cut one (1) foot beyond and around the entire

circumference of the initial trench repair and remove all bituminous concrete within that area. The edges of the remaining bituminous concrete shall have a tack coat applied and the new bituminous concrete placed within the trench to the depth of the original pavement thickness or a minimum of 2 inches, whichever is greater.

- b. **Backfilling**: No backfilling shall occur until the new service connection is inspected and backfilling is authorized by the WPCA or its designated agent.
- c. **Traffic Control**: It is the responsibility of the permit holder to provide dedicated traffic control personnel whenever machinery or personnel are on the roadway. These personnel shall be trained in the proper techniques of traffic control as indicated in the Manual of Uniform Traffic Control Devices Millennium Edition or any new update.
- d. **Restoration**: The permit holder shall be responsible for restoring any non pavement areas which were disturbed by the work or storage of equipment and material or damage caused by their equipment and/or personnel. This restoration shall include but not be limited to grading, topsoil, fertilizing, seeding, mulching, or sodding, to bring the disturbed areas to the same condition as it was before the disturbance including installation and maintenance of necessary soil and erosion control measures including any additional measures requested by the Town.
- e. **Control of the Work**: Control of the work shall be the responsibility of the permit holder and shall be in accordance with the current Town of Lisbon specifications and requirements.
- f. **Road Closure**: Closure of any Town road shall be avoided if possible. Any Town road closure shall have prior approval of the First Selectman, and notification shall have been given to the public at least five (5) days prior to closure. Signs notifying the traveling public shall be placed in conformance with the Town requirements and consistent with the Manual of Uniform Traffic Control Devices Millennium Edition or any amendment made thereto.
- g. **Erosion and Sedimentation Control**: The permit holder shall be responsible to keep the work site from creating erosion and sedimentation problems at the work site and the area around the work site. Sediments shall not be allowed to be deposited beyond the work site and shall be cleaned up from the work site before the work is completed.

Proper erosion and sedimentation control measures shall be employed and shall conform to the "Guidelines For Soil Erosion and Sedimentation Control, Connecticut", published by the Connecticut Council of Soil and Water conservation, latest edition, the Town of Lisbon Regulations, and current best management practices.

3. **Permit Requirements**

- a. Before any connection to a Town sewer is made, a permit shall be obtained.
- b. Permits shall be issued by the Lisbon Water Pollution Control Authority or its designated agent.
- c. All required testing shall be conducted in the presence of and subject to the approval of the designated WPCA agent.
- d. All backfilling after final inspection shall be conducted subject to the supervision and approval of the designated WPCA agent.