

# TOWN OF SHIRLEY, MASSACHUSETTS



## SEWER USE RULES AND REGULATIONS

**JULY 2007**  
(Revised July 2007)

RULES REGULATING THE DESIGN, CONSTRUCTION AND USE OF PUBLIC AND PRIVATE SEWERS, THE INSTALLATION AND CONNECTION OF BUILDING SEWERS, AND THE DISCHARGE OF WATERS AND WASTES INTO THE PUBLIC SEWER SYSTEM: AND PROVIDING PENALTIES FOR VIOLATIONS THEREOF: BY THE SHIRLEY SEWER COMMISSION IN THE TOWN OF SHIRLEY, COUNTY OF MIDDLESEX, COMMONWEALTH OF MASSACHUSETTS, PURSUANT TO CHAPTER 83 SECTION 10, OF GENERAL LAWS OF COMMONWEALTH OF MASSACHUSETTS.

# **TOWN OF SHIRLEY, MASSACHUSETTS**

## **SEWER USE RULES AND REGULATIONS**

These rules regulate the design, construction and use of public and private sewers, the installation and connection of building sewers, and the discharge of waters and wastes into the public sewer system.

The objectives of these rules and regulations are:

- (A) To prevent the introduction of pollutants into the public wastewater collection system which will interfere with the operation of the collection system;
- (B) To prevent the introduction of pollutants into the public wastewater collection system, which pass through the Town of Shirley's collection system, and may interfere with the treatment ability of the Devens Wastewater Treatment Facility.

These rules provide for the regulation of the users of the wastewater system through enforcement of general requirements for users, and through the issuance of permits to certain non-domestic users, authorizes monitoring and enforcement activities, requires non-domestic user reporting, and assumes that capacity for the properties within the Shirley Sewer Area will not be preempted.

These rules shall apply to the Town of Shirley, MA. Except as otherwise provided herein, the Board of Sewer Commissioners shall administer, implement, and enforce the provisions of these rules and regulations.

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## ARTICLE I

### Definitions

For the purposed of these regulations, the following words and terms used herein are hereby defined or the meaning thereof explained. Other words or terms and phrases not defined herein shall be construed according to the common and approved usage of the language, but technical words, terms and phrases which may have acquired a particular and appropriated meaning in law shall be construed and understood according to such meaning.

**Section 1.** "Act" shall mean the Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 USC 1251 et seq.

**Section 2.** "BOD" (denoting biochemical oxygen demand) shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in five (5) days at 20° C, expressed in terms of milligrams per liter (mg/L).

**Section 3.** "Building drain" shall mean that part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer, beginning ten (10) feet from the outside face of the building wall.

**Section 4.** "Building sewer" or "house connection" shall mean the extension from the building drain to the public sewer or other place of disposal.

**Section 5.** "Combined sewer" shall mean a sewer intended to receive both wastewater and storm or surface water.

**Section 6.** "COD" (denoting chemical oxygen demand) shall mean the quantity of oxygen utilized in the chemical oxidation of organic matter under standard laboratory procedure, expressed in terms of milligrams per liter (mg/L).

**Section 7.** "Commercial wastewater" shall mean wastewater from commercial establishments such as retail businesses, restaurants, banks and other businesses which discharge only domestic or sanitary wastewater.

**Section 8.** "Composite Sample" shall mean a combination of a series of aliquots taken on either a time or flow proportional basis over a period of time.

**Section 9.** "Cooling Water" shall mean the water discharged from any system of condensation, air conditioning, cooling, refrigeration, or other system of heat transfer.

**Section 10.** "Daily Maximum Limit" shall mean the highest allowable concentration for any Pollutant in a wastestream.

**Section 11.** "DEP" shall mean the Massachusetts Department of Environmental Protection.

**Section 12.** "Discharge" or "Discharge Pollutants" shall mean any addition of any pollutant

or combination of pollutants to waters of the Commonwealth from any source, including but not limited to, discharges from surface runoff which are collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person, which do not lead to a POTW; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any indirect discharger.

**Section 13.** “Easement” shall mean an acquired legal right for the specific use of land owned by others.

**Section 14.** “Effluent” shall mean a discharge of pollutants into the environment, whether or not treated.

**Section 15.** “Effluent Limitation” or “Effluent Limit” shall mean any requirement, restriction, or standard imposed by the Department on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into waters of the Commonwealth or to publicly owned treatment works.

**Section 16.** “EPA” shall mean the United States Environmental Protection Agency.

**Section 17.** “Federal Act” shall mean the Federal Clean Water Act, as amended, 33 U.S.C. 1251 *et seq.*

**Section 18.** “Floating solids” are only those solids that float on top of the liquids, such as oil, grease, fats, etc.

**Section 19.** “Garbage” shall mean the animal and vegetable waste resulting from the handling, preparation, cooking, and serving of food, and from the handling, storage, and sale of produce.

**Section 20.** “Grab Sample” shall mean an individual aliquot collected over a period of time not exceeding fifteen minutes.

**Section 21.** “Hazardous Waste” shall mean a hazardous waste pursuant to the Massachusetts Hazardous Waste Regulations, 310 CMR 30.000.

**Section 22.** “Improperly Shredded Garbage” shall mean wastes from the domestic and commercial preparation, cooking, and dispensing of food, and from the handling, storage and sale of produce, excluding rubbish and trash, which has particles greater than one-half (1/2) inch or 1.27 centimeters in any dimension so as to prevent the particles from being carried freely under normal flow conditions in the Shirley sewerage system.

**Section 23.** “Industrial waste” shall mean any liquid, gaseous, or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business or from the development or recovery of any natural resources.

**Section 24.** “Infiltration” shall mean groundwater entering a sewerage system from a water

body through such means as, defective building drains and sewers, pipes, pipe joints, connections, or manhole walls.

**Section 25.** “Inflow” shall mean the discharge water into the sewage system, including service connections, from such sources as, but not limited to, roof drains, cellar drains, yard drains, and area drains, foundation drains, sump pumps, cooling water discharges, drains from springs and swampy areas, manhole covers, cross connections from storm sewers, catch basins, surface stormwater runoff, or street wash water.

**Section 26.** “Massachusetts Water Quality Standards” shall mean the Massachusetts Surface Water Quality Standards (314 CMR 4.00) and the Massachusetts Ground Water Quality Standards (314 CMR 6.00).

**Section 27.** “National Categorical Pretreatment Standards” shall mean any regulation containing pollutant discharge limits promulgated by the EPA in accordance with Section 307(b) and (c) of the Act (33 USC 1347) which applies to a specific category of industrial users.

**Section 28.** “Natural outlet” shall mean any outlet including storm sewers into a watercourse, pond, ditch, lake, or other body of surface water or groundwater.

**Section 29.** “Permit” shall mean an authorization issued pursuant to M.G.L. c.  $\Downarrow$  43 and 314 CMR 2.00 and 3.00, 5.00, or 7.00, to implement the requirements of the State and Federal Acts and regulations adopted thereunder.

**Section 30.** “Permittee” shall mean any person issued a Sewer Use Connection Permit under these regulations.

**Section 31.** “Person” shall mean any agency or political subdivision of the Commonwealth, the Federal government, any public or private corporation or authority, individual, partnership or association, or other entity, including any officer of a public or private agency or organization, upon whom a duty may be imposed by or pursuant to any provisions of M.G.L. c. 21,  $\Downarrow\Downarrow$  26 through 53.

**Section 32.** “pH” shall mean the logarithm of the reciprocal of the hydrogen-ion concentration. The concentration is the weight of the hydrogen ions in grams per liter of solution. Neutral water, for example, has a pH value of 7 and a hydrogen-ion concentration of  $10^{-7}$ .

**Section 33.** “Pollutant” shall mean any element or property of sewage, agricultural, industrial or commercial waste, runoff, leachate, heated effluent, or other matter, in whatever form and whether originating at a point or major non-point source, which is or may be discharged, drained or otherwise introduced into any sewerage system, treatment works or waters of the Commonwealth.

**Section 34.** “Pollution” shall mean the presence in the environment of pollutants in quantities or characteristics which are or may be injurious to human, plant or animal life or to property or which unreasonably interfere with the comfortable enjoyment of life and property throughout such areas as may be affected thereby.

**Section 35.** “Pretreatment” shall mean the reduction of the amount of pollutants, the

elimination of pollutants, of the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW.

**Section 36.** “Properly shredded garbage” shall mean the wastes from the preparation, cooking, and dispensing of food that have been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one-half (q/2) inch in any dimension.

**Section 37.** “Public sewer” shall mean a common sewer owned, operated and maintained by the Town of Shirley through the Wastewater Committee, its successors or assigns.

**Section 38.** “Receiving Waters” shall mean any watercourse, river, pond, wetland, ditch, lake, aquifer, ocean, or other body of surface or groundwater receiving discharge of wastewater or effluent.

**Section 39.** “Sanitary sewer” shall mean a sewer that carries liquid and water-carried wastes from residences, commercial buildings and institutions, industrial plants, together with minor quantities of groundwater, storm, and surface waters that are not admitted intentionally.

**Section 40.** “Separator” shall mean a device designed and installed to separate deleterious or undesirable matter from normal wastes and to retain such deleterious or undesirable matter while permitting normal sewage or liquid wastes to discharge into the sanitary sewer system by gravity.

**Section 41.** “Septage” shall mean liquid and solid sanitary sewage removed from a cesspool, septic tank, or similar receptacle.

**Section 42.** “Sewage” is the water-carried human or animal wastes from residences, buildings, industrial establishments or other places, together with such ground water infiltration an surface water as many be present.

**Section 43.** “Sewer” shall mean a pipe or conduit and appurtenants that carries wastewater or drainage water.

**Section 44.** “Sewer Commission” shall mean the commission elected by General Election or Appointment for a term of three (3) years.

**Section 45.** “Sewer Extension” shall mean the addition to a sewer system of a sewer pipe, together with appurtenant works, which when connected to the sewer system becomes the property of, and is operated and maintained by, the person owning the sewer system.

**Section 46.** “Sewer Superintendent” shall mean the superintendent of wastewater facilities of the Town of Shirley or the Sewer Commissioners authorized deputy, agent or representative.

**Section 47.** “Sewer Use Connection Permit” shall mean a permit issued by DEP pursuant to MGL. c. 21, ↓ 43 and 314 CMR 7.00 to connect to a Shirley Sewer or to a Municipal Sewer tributary to the Shirley Sewerage System, or to construct, effect, modify, or maintain a sewer extension or connection to the Shirley Sewage System. All industrial discharges, sewer extensions, sewer connections over 15,000 gpd, and any sewer connection with a pump station is

required to obtain a Sewer Use Connection Permit from the DEP.

**Section 48.** “Shall” is mandatory; “may” is permissive.

**Section 49.** “Sludge” shall mean the solid, semi-solid, and liquid residue removed from water, sanitary sewage, wastewater, or industrial wastes by a treatment process, including removal by a wastewater treatment process or drinking water treatment process.

**Section 50.** “Slug” shall mean any discharge of water or wastewater which in concentration of any given constituent or in quantity of flow, which exceeds for any period of duration longer than fifteen (15) minutes more than five (5) times the average twenty-four (24) hour concentration or flows during normal operation, adversely affect the collection system.

**Section 51.** “Solid waste” shall mean any unwanted or discarded solid material, consisting of putrescible or nonputrescible solid waste material, including garbage and rubbish.

**Section 52.** “Storm drain” (sometimes termed “storm sewer”) shall mean a drain or sewer for conveying water, groundwater subsurface water or unpolluted water from any source.

**Section 53.** “Suspended solids” shall mean total suspended matter that either floats on the surface of, or is in suspension in, water, wastewater, or other liquids, and that is removable by laboratory filtering as prescribed in “Standard Methods for Examination of Water and Wastewater” and referred to as nonfilterable residue.

**Section 54.** “Toxic Pollutants” shall mean those pollutants identified in 314 CMR 3.16, or any other pollutants, or combination of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly through food chains, may, on the basis of information available to the Division, cause death, disease, behavioral abnormalities, cancer, mutations, physiological malfunctions, biochemical abnormalities, including malfunctions in reproduction, or physical deformations, in such organisms or their offspring.

**Section 55.** “Treatment System” or “Pretreatment System” shall mean any and all devices, equipment, or works used in the pumping, storing, treating, recycling, and reclaiming of sewage and/or industrial waste.

**Section 56.** “Unpolluted Water” is water of quality equal to or better than the effluent criteria in effect or water that would not cause violation of receiving water quality standards and would not be benefited by discharge to the sanitary sewers and wastewater treatment facilities provided.

**Section 57.** “Waste” shall mean sewage and all garbage, refuse, sludge, and discarded material, whether in liquid, solid, or gaseous form.

**Section 58.** “Wastewater” shall mean the sewage, industrial waste, other wastes or any combination of the three.

**Section 59.** “Wastewater facilities” shall mean the structures, equipment, and processes required to collect, carry away, and treat domestic and industrial wastes and dispose of the

effluent.

**Section 60.** “Wastewater treatment works” shall mean an arrangement of devices and structures for treating wastewater, industrial wastes, and sludge. Sometimes used as synonymous with “wastewater treatment plant” or “water pollution control plant.”

**Section 61.** “Watercourse” shall mean a natural or artificial channel for the passage of water either continuously or intermittently.

## ARTICLE II

### Use of the Public Sewers

**Section 1.** No person shall discharge or cause to be discharged any unpolluted waters such as storm water, groundwater, roof runoff, subsurface drainage, sump pump, roof drain, area drain, or uncontaminated cooling water to any sanitary sewer.

**Section 2.** Stormwater and all other unpolluted drainage shall be discharged to such sewers as are specifically designated as storm sewers or to a natural outlet. Unpolluted industrial cooling water or process waters may be discharged to a storm sewer or a natural outlet on approval of the Sewer Commission.

**Section 3.** Unpolluted water including, but not limited to, cooling water, process water or blow-down from cooling towers or evaporative coolers shall be discharged to such sewers as are specifically designated as storm drains, or to a natural outlet upon receiving approval from applicable local state and federal agencies as required.

**Section 4.** Garbage grinder wastes.

Waste from garbage grinders shall not be discharged into a public sewer except:

- i. Waste generated in preparation of food normally consumed on the premises; or
- ii. Where the user has obtained a permit for the specific use from the Sewer Commission, and agrees to undertake whatever self-monitoring is required to enable the town to determine equitably the charges and fees based on the waste constituents and characteristics. Such grinders must shred the waste to a degree that all particles will be carried freely under normal flow conditions prevailing in the public sewer. Garbage grinders shall not be permitted for grinding plastic, paper products, inert materials or garden refuse.

**Section 5.** No person shall discharge or cause to be discharged any of the following described waters or wastes to any public sewers:

- (a) Any gasoline, kerosene, benzene, naphtha, toluene, xylene, ethers, alcohols, ketone, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides, sulfides, fuel oil, other flammable or explosive liquid, solid, or gas, and any other substance which is a hazard to the system.
- (b) Any waters containing toxic or poisonous solids, liquids, or gases in sufficient quantity, either singly or by interaction with other wastes, to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, create a public nuisance, or create any hazard in the receiving waters of the Town of Shirley's wastewater treatment plant.
- (c) Any waters or wastes having a pH lower than 5.5 or higher than 9.5, or having

any other corrosive property capable of causing damage or hazard to structures, equipment, and personnel of the wastewater facilities.

- (d) Solid or viscous substances in quantities or of such size capable of causing obstruction to the flow in sewers, or other interference with the proper operation of the wastewater facilities such as, but not limited to ashes, bones, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, whole blood, cooking oil, grease, ungrounded garbage, whole blood, paunch manure, animal parts, hair and fleshings, entrails, and paper dishes, cups, milk containers etc., either whole or ground by garbage grinders.
- (e) Septage wastes from cesspools, privies, tight tanks, septic tanks, distribution boxes, holding tanks or any industrial process water from holding tanks or storage facilities.
- (f) Any waters from a major contributing industry containing an incompatible pollutant in excess of concentrations or amounts allowed under standards or guidelines of the Industrial Pretreatment Ordinance.

**Section 6.** The following described substances, materials, waters, or waste shall be limited in discharges to the wastewater facilities to concentrations or quantities which will not harm either the sewers, wastewater treatment processes or equipment, will not have an adverse effect on the receiving stream, or will not otherwise endanger lives, limb, public property, or constitute a nuisance.

The Board of Sewer Commissioners may set limitations lower than the limitations established in the regulations below if their opinion such more severe limitations are necessary to meet the above objectives. In forming their opinion as to acceptability, the Board of Sewer Commissioners will give consideration to such factors as the quantity of subject waste in relation to flows and velocities in the sewers, materials of construction of the sewers, the wastewater treatment process employed, capacity of the wastewater treatment plant, degree of treatability of waste in the wastewater treatment plant, and other pertinent factors. The limitations or restrictions on materials or characteristics of waste or wastewaters discharged to the sanitary sewer, which shall not be violated without approval of the Board of Sewer Commissioners, are as follows:

- (a) Wastewater having a temperature higher than one hundred fifty degrees Fahrenheit (150°F) (65°C).
- (b) Wastewater containing more than twenty-five (25) mg/L of petroleum oil, non-biodegradable cutting oils, or product of mineral oil origin.
- (c) Wastewater containing floatable oils, fat or grease in excess of 100 mg/l.
- (d) Any garbage that has not been properly shredded. Garbage grinders may be connected to sanitary sewers from homes, hotels, institutions, restaurants, hospitals, catering establishments, or similar places where garbage originates from the preparation of food in kitchens for the purpose of consumption on the premises or when served by caterers.

- (e) Any waters or wastes containing iron, chromium, copper, zinc, and similar objectionable or toxic substances to such degree that any such material received in the composite wastewater at the wastewater treatment works exceeds the limits established by the Board of Sewer Commissioners for such materials.
- (f) Any waters or wastes containing odor producing substances exceeding limits which may be established by the Board of Sewer Commissioners.
- (g) Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the Board of Sewer Commissioners in compliance with applicable state or federal regulations.
- (h) Waters or wastes having a pH in excess of 9.5.
- (i) Materials which exert or cause:
  - iii. Unusual concentrations of inert suspended solids (such as, but not limited to, Fullers earth, stone dust, lime slurries and lime residues) or of dissolved solids (such as, but not limited to, sodium chloride and sodium sulfate) or containing suspended solids in concentrations greater than 300 milligrams per liter.
  - iv. Excessive discoloration (such as, but not limited to, dye wastes and vegetable tanning solutions).
  - v. BOD in concentrations greater than 250 milligrams per liter, unusual chemical oxygen demand, or chlorine requirements in such quantities as to constitute a significant load on the wastewater treatment works, or which may cause the effluent limitations of the said treatment works' discharge permit to be exceeded.
  - vi. Quantities of flow, concentrations of wastes or both which constitute a "slug" as defined herein.
- (j) Waters or wastes containing substances which are not amenable to treatment or reduction by the wastewater treatment processes employed, or are amenable to treatment only to such degree that the effluent from the Town of Shirley's wastewater treatment plant cannot meet the requirements of other agencies having jurisdiction over discharge to the receiving waters.
- (k) Any water or wastes which, by interaction with other water or wastes in the public sewer system, release obnoxious gases, interfere with the collection system or create a condition deleterious to structures and treatment processes.
- (l) Dilution of a waste shall not be an acceptable method of reducing the waste concentration.
- (m) Contents of septic tanks or equivalent facility, except at locations designated by

the Sewer Commission.

**Section 7.** If any waters or wastes are discharged, or are proposed to be discharged to the public sewers, which waters contain the substances or possess the characteristics enumerated in Section 3 of this Article, and which, in the judgment of the Board of Sewer Commissioners, may have deleterious effect upon the wastewater facilities, processes, equipment, or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, except were expressly authorized to do so, the Board of Sewer Commissioners may:

- (a) Reject the wastes,
- (b) Require pretreatment to an acceptable condition for discharge to the public sewers,
- (c) Require control over the quantities and rates of discharge, and/or
- (d) Require payment to cover the added cost of handling and treating the wastes not covered by existing taxes or sewer charges under the provisions of Town of Shirley Regulations of Usage Fees and Civil Penalties provided that such agreements do not violate any requirements of existing Federal or Commonwealth laws, and/or regulations promulgated thereunder, are compatible with any user charge and industrial cost recovery system in effect, and do not waive applicable National Categorical Pretreatment Standards.

If the Board of Sewer Commissioners permits the pretreatment or equalization of waste flows, the design and installation of the plants and equipment shall be subject to the review and approval of the Board of Sewer Commissioners, and subject to the requirement of all applicable codes, ordinances, laws and the Town of Shirley's wastewater treatment facility's discharge permit, and any applicable State and EPA categorical pre-treatment standards. Further, such pretreatment installations must be consistent with the requirements of any state or federal pretreatment permit issued to the industry.

**Section 8.** Grease, oil, or sediment interceptors shall be provided when, in the opinion of the Board of Sewer Commissioners, they are necessary for the proper handling of liquid wastes containing floatable grease in excessive amounts, or any flammable wastes, sand, or other harmful ingredients, except that such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be of a type and capacity approved by the Sewer Superintendent, and shall be located as to be readily and easily accessible for cleaning and inspection, and shall be maintained by the owner at his expense, in a continuous, efficient operating condition at all times.

In maintaining these interceptors the owner shall be responsible for the proper removal and disposal of the captured material and shall maintain records of the dates and means of disposal. These records shall be made available for the review by the Sewer Superintendent. Any removal and hauling of the captured materials not performed by the owner's personnel shall be performed by a currently licensed waste disposal firm.

**Section 9.** Where pretreatment or flow-equalizing facilities are provided or required for any waters or wastes, they shall be maintained continuously in satisfactory and effective operation by

the owner at his expense.

**Section 10.** The owner of any property serviced by a building sewer carrying industrial wastes shall install a suitable control manhole together with such necessary meters, and other appurtenances in the building sewer to facilitate observation, sampling, and measurement of the wastes. Such manhole, when required, shall be accessibly and safely located, and shall be constructed in accordance with plans approved by the Board of Sewer Commissioners. The manhole shall be installed by the owner at his expense, and shall be maintained by him so as to be safe and accessible at all times.

Industries discharging into a public sewer shall perform such monitoring of their discharges as the Board of Sewer Commissioners may reasonably require, including installation, use, and maintenance of monitoring equipment, keeping records and reporting the results of such monitoring to the Town of Shirley's Sewer Superintendent. Where industrial pretreatment permits are issued by the Commonwealth of Massachusetts, monitoring records must also be submitted to the Board of Sewer Commissioners in accord with such permit.

**Section 11.** The Board of Sewer Commissioners may require a user of sewer services to provide information needed to determine compliance with these rules and regulations. These requirements may include:

- (a) Wastewater discharge peak rate and volume over a specified time period.
- (b) Chemical analyses of wastewaters.
- (c) Information on raw materials, processes, and products affecting wastewater volume and quality.
- (d) Quantity and disposition of specific liquid, sludge, oil, solvent, or other materials important to sewer use control.
- (e) A plot plan of sewers of the user's property showing sewer and pretreatment facility location.
- (f) Details of wastewater pretreatment facilities.
- (g) Details of systems to prevent and control the losses of materials through spills to the public sewers.

**Section 12.** All measurements, tests, and analyses of the characteristics of waters and wastes to which reference is made in these regulations shall be determined in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater," published by the American Public Health Association, and shall be determined at the control manhole provided, or upon suitable samples taken at said control manhole. In the event that no special manhole has been required, the control manhole shall be considered to be the nearest downstream manhole in the public sewer to the point at which the building sewer is connected. However, the Board of Sewer Commissioners may require that a suitable manhole be installed, at the owner's expense.

Sampling shall be carried out by customarily accepted methods to reflect the effect of constituents upon the sewage works and to determine the existence of hazards to life, limb, and property. The particular analyses involved will determine whether a twenty-four (24) hour composite of all out-falls of a premise is appropriate or whether a grab sample or samples should be taken. Normally, but not always, BOD and suspended solids analyses are obtained from twenty-four (24) hour composites of all out-falls whereas pHs are determined from periodic grab samples.

**Section 13.** Any industry held in violation of the provisions of these regulations may have its wastewater discharge authorization terminated.

## ARTICLE III

### Building Sewers, Sewer Extensions and Connections

**Section 1.** No person shall uncover, make any connections with or opening into, use, alter, or disturb any public sewer or appurtenance thereof without first obtaining a written permit from the Shirley Board of Sewer Commissioners. Any person proposing a new discharge into the system or a substantial change in the volume or character of pollutants that are being discharged into the system shall notify the Shirley Board of Sewer Commissioners at least forty-five (45) days prior to the proposed change or connection.

- (a) Construction of all sewers, extensions, laterals, and building drain connections shall be approved by the Shirley Sewer Commission. The Sewer Commission may, upon request of the owner of land and payment by the owner of the actual cost thereof, construct a particular sewer from the street line to a house or building pursuant to Chapter 83, Section 3 of the Massachusetts General Laws in Appendix B. Said rights shall be exclusive unless on specific permits when the Sewer Commission determines it is unable to perform such work; then such work may be performed by a licensed drain layer as provided under Article A-II, Section 4 of this regulation, or an authorized contractor meeting all other requirements of this regulation or the terms of a bid document(s) which may be prepared for a specific project by the Sewer Commission. The Sewer Commission reserves the right to contract portions of work as may be required to construct said sewers, extensions, laterals, and building drain connections.

**Section 2.** No person shall construct, effect, maintain, modify or use any sewer extension or connection without a currently valid permit from the Massachusetts Division of Water Pollution Control, as required by 314 CMR Section 7.00: Massachusetts Sewer System Extension and Connection Permit Program (Appendix B).

**Section 3.** The Shirley Center Pressure Sewer Service Area has, by design, a strict limitation to the total number of sewer connections allowable. The design intent, approved by the Massachusetts Department of Environmental Protection and by the Town at Town Meeting, was to provide sewer service to Shirley Center in order to alleviate chronic failing on-site treatment systems, but with a limited capacity to restrict development and maintain the historic and rural characteristics of the area. The pressure sewer system is constructed to service all existing buildings in the service area; and any vacant land in the service area that may be developed under a Planning Board classification "Approval-Not-Required" (ANR) lot. Any additional sewer connections, other than those previously mentioned and shown on the Contract 2 Pressure Sewer System Drawing (December 2000) by Woodard & Curran, may have a negative impact on the operation of the system, and is in conflict with the original intent of Shirley Center sewer service area approved and funded by the State and Town. The Board of Sewer Commissioners has the sole authority to approve any additional services connections.

**Section 4.** Sewer main extensions shall be constructed within the roadway right-of-way. Sewer extensions constructed outside of roadway right-of-ways shall only be permitted with written permission from the Shirley Board of Sewer Commissioners. Such extensions constructed outside the roadway right of way shall be installed in an approved and deeded right-of-way with year round vehicle access.

**Section 5.** There shall be two classes of building sewer permits: (a) for residential and commercial service discharging only domestic sewage (Form No.1), and (b) for service to establishments producing industrial wastes (Form No. 2). In either case, the owner or his agent shall make application on a special form furnished by the Sewer Commission. The permit application shall be supplemented by any plans, specifications, or other information considered pertinent in the judgment of the Sewer Commission to evaluate the proposed Discharge. The application and permit fee in the amount shown on the Fee Schedule (Usage Fee Regulation, Appendix A, Section II. Other Fees) for residential or commercial building sewer permit and for an industrial building sewer permit shall be paid to the Sewer Commission at the time the application is filed.

**Section 6.** Application and permit fees, and fees for inspection services for sewer extensions and assessments shall be determined in accordance with **Usage Fee Regulation, Appendix A, Section II. Other Fees.**

**Section 7.** All costs and expenses incident to the installation and connection of the building sewer shall be borne by the owner. The owner shall indemnify the Town from any loss or damage that may directly or indirectly be occasioned by the installation of the building sewer.

**Section 8.** A separate and independent building sewer shall be provided for every building; except where one building stands at the rear of another on an interior lot and no private sewer is available or can be constructed to the rear building through an adjoining alley, court, yard, or driveway. The building sewer from the front building may be extended to the rear building with the permission of the Sewer Commission.

**Section 9.** Old building sewers may be used in connection with new buildings only when they are found, on examination and test by the Sewer Superintendent or designated Representative, to meet all requirements of these regulations. All costs for this testing are to be borne by the Building Owner.

**Section 10.** The size, slope, alignment, materials of construction of a building sewer, sewer extension, force main and appurtenances, and the methods to be used in excavation, placing of the pipe, jointing, testing and backfilling the trench shall conform to Appendix A – Regulations for Sewer Design and Construction. In the absence of Code Provisions or in amplification thereof the materials and procedures set forth in appropriate specifications of the American Society of Testing Materials (ASTM), the Water Pollution Control Federation (WPCF) Manual of Practice No. 9, New England Interstate Water Pollution Control Commission’s “Guides for the Design of Wastewater Treatment Works: (TR-16)”, and the State Plumbing Code shall apply.

**Section 11.** Whenever possible, the building sewer shall be brought to the building at an elevation below the basement floor. In all buildings in which any building drain is too low to permit gravity flow to the public sewer, sanitary sewage carried by such building drain shall be lifted by an approved means and discharge to the building sewer. Lift Systems shall meet the Board of Health Standards and State Electrical and Plumbing codes.

**Section 12.** No person shall have or make connection of roof downspouts, foundation drains, areaway drains, or other sources of surface runoff of groundwater to a building sewer or building drain, which in turn is connected directly or indirectly to a public sanitary sewer.

**Section 13.** The connection of the building sewer into the public sewer shall be made gas tight and watertight (verified by proper testing) as defined in Appendix A – “Regulations for Sewer Design and construction.” Any deviation from the prescribed procedures and materials must be approved by the Sewer Commission before installation.

**Section 14.** The applicant for the building sewer permit shall provide reasonable notice to the Sewer Superintendent when the building sewer is ready for inspection and connection to the public sewer and prior to backfilling trench. The connection shall be made under the supervision of the Sewer Superintendent or his representative.

**Section 15.** All excavations for building sewer installation shall be adequately guarded with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways, and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the Town Highway Surveyor or Director of Town DPW.

**Section 16.** After completion of building sewer installation, the owner shall maintain the building sewer from the building drain to the main sewer. The Town will maintain the main sewer and the lateral to the edge of the road right-of-way.

**Section 17.** After completion of the building sewer installation, the existing septic tanks and leach fields shall be disconnected and abandoned in accordance with the Board of Health regulations.

**Section 18.** All connections to the sewer system shall be made within two years of completion of the sewer project.

**Section 19.** Any owner of property in the Sewer Service Area, who owes the Town of Shirley monies in connection with the development of the Shirley Sewer System, shall be required to pay a connection surcharge equal to the amount owed prior to being allowed to connect to the Shirley Sewer System. The Shirley Sewer Commission shall be required to provide the debtor property owner with notice of the surcharge and a statement of the debt prior to imposing any such surcharge pursuant to this regulation. Once imposed, such surcharge shall run with the property owner’s land and shall be required to be paid by any subsequent owner thereof. The Town may, in addition to the debt principal, collect from the property owner interest at the statutory rate, to be calculated from the time that notice of the debt is given to the property owner. Any person aggrieved by the imposition of a surcharge pursuant to this regulation shall be entitled to a hearing thereon before the Board of Sewer Commissioners, which may affirm, modify or rescind the surcharge as justice may require.

## ARTICLE IV

### Protection from Damage

**Section 1.** No Person(s) shall maliciously, willfully, or negligently break, damage, destroy, uncover, deface, or tamper with any structure, appurtenance or equipment, which is a part of the wastewater facilities.

**Section 2.** No person(s) shall introduce any wastewater that adversely effects the operation or maintenance of the sewer system and Wastewater Treatment Facility, causing violation of the conveyance or treatment system process.

## ARTICLE V

### Powers and Authority of Inspectors

By application for a permit to connect to a sewer the permittee and successors authorize the following:

**Section 1.** The Sewer Superintendent and other duly authorized employees of the Town bearing proper credentials and identification shall be permitted to enter all properties for the purposes of inspection, observation, measurement, sampling, and testing pertinent to the discharge of wastewater to the public sewers in accordance with the provisions of these rules and regulations.

**Section 2.** The Sewer Superintendent or other duly authorized employees are authorized to obtain information concerning industrial processes, which have a direct bearing on the kind and source of discharge to the wastewater collection system. The industry may withhold information considered confidential. The industry must establish that the revelation to the public of the information in question might result in an advantage to competition.

**Section 3.** While performing the necessary work on private properties referred to in Article V, Section 1, above, the Sewer Superintendent or duly authorized employees of the Town shall observe all safety rules applicable to the premises established by the company, and the company shall be held harmless for injury or death to the Town employees and the Town shall indemnify the company against loss or damage to its property by Town employees and against liability claims and demands for personal injury or property damage asserted against the company and growing out of the, gauging and sampling operation, except as such may be caused by negligence or failure of the company to maintain safe conditions.

**Section 4.** The Sewer Superintendent and other duly authorized employees of the Town bearing proper credentials and identification shall be permitted to enter all properties through which easement has been granted for the purposes of, but not limited to, inspection, observation, measurement, sampling, repair and maintenance of any portion of the wastewater facilities lying within said easement. All entry and subsequent work, if any, on said easement, shall be done in full accordance with the terms of the duly negotiated easement pertaining to the private property involved.

## ARTICLE VI

### Penalties and Cost

**Section 1.** Whoever shall violate these regulations and bylaws, and the applicable provisions of G.L. c 83 shall be subject to civil penalties and fines in accordance with the Civil Penalties, Fines and Usage Fee Regulation appended hereto and entitled Appendix A, section III, fines. Each day in which any such violation shall continue, shall be deemed a separate offense. Any person who violates any provision set forth herein shall be subjected to civil penalty not exceeding \$5000 per violation. Additionally, any person who violates any provision set forth herein shall be subject to a fine of \$300 per violation, which may be enforced by the Sewer Superintendent or Town Police Officer.

**Section 2.** Any person violating any of the provisions of these rules and regulations shall become liable to the Town and the Treatment Authority for any expense, loss, or damage occasioned the Town and the Treatment Authority by reason of such offense.

**Section 3.** Be advised that General Laws Chapter 83, section 13, authorizes the Supreme Judicial Court and Superior Court to restrain violations of regulations and to enforce said chapter.

**Section 4.** Any person found having violated any provisions of these regulations except Article V may be served by the Town with written notice stating the nature of violation and the offender shall permanently cease all violations. The Superintendent or duly authorized designee may immediately halt or prevent any discharge of pollutants which reasonably appears to present an imminent endangerment to the health or welfare of persons. In the event that the Superintendent, or his or her duly authorized designee, determines that a discharge of pollutants reasonably appears to present an imminent endangerment to the health or welfare of persons, the Superintendent, of his duly authorized designee, may provide informal (oral or written) notice of such determination to the discharger. Said discharger shall immediately stop or eliminate such discharge, and shall submit written proof thereof to the Superintendent, or his or her duly authorized designee, within forty-eight (48) hours of receipt of notice of the Superintendent's determination. If said person fails to halt voluntarily, such discharge, the Superintendent or his or her duly authorized designee, will take such actions as he or she deems necessary to prevent or minimize endangerment to the health or welfare of persons. Such actions include, but are not limited to, seeking ex parte temporary injunctive relief, entry onto private property to halt such discharge, severance of the sewer connection, suspension of wastewater disposal service, suspension or revocation of a discharge permit, and institution of legal action. After such discharge has been halted, the Superintendent or duly authorized designee may take such other and further actions as may be necessary to ensure elimination of said discharge and compliance with the terms of these Regulations and any discharge permits issued hereunder.

## ARTICLE VII

### Validity

**Section 1.** All ordinances or regulations or parts thereof in conflict herewith are hereby repealed.

**Section 2.** The invalidity of any section, clause, sentence, or provision of these rules and regulations shall not affect the validity of any other part of these rules and regulations, which can be given effect without such invalid part of parts.

## ARTICLE VIII

### Delinquent Sewer Bills

**Section 1.** Sewer Bills shall be considered delinquent if full payment is not received within 30 days of the date of Billing. A late payment charge, which will not exceed the rate of one and one-half (1-1/2%) on the balance due per month from the date of billing, will be appended to the unpaid Balance.

**Section 2.** Delinquent sewer bills that remain unpaid for one year shall be transferred to the Tax Collector's Office and shall be treated as a municipal loan. The amount to be transferred will be the balance due with attached accumulated interest.

**Section 3.** Any owner of property in the Sewer Service Area, who owes the Town of Shirley monies in connection with the development of the Shirley Sewer System, shall be subject to the terms of ARTICLE III, Building Sewers, Sewer Extensions and Connections, Section 19.

**ARTICLE IX**

**Regulations in Force**

**Section 1.** These rules and regulation shall be in full force and effect from and after its passage, approval, recording, and publication as provided by law.

**Section 2.** Passed and adopted by the Sewer Commission, Town of Shirley, Commonwealth of Massachusetts on the \_\_ day of \_\_\_\_\_, 200\_.

Effective \_\_\_\_\_

Signed \_\_\_\_\_

Sewer Commissioner

## APPENDIX A

### REGULATIONS FOR SEWER DESIGN AND CONSTRUCTION TOWN OF SHIRLEY, MASSACHUSETTS

- A-I Definitions
  
- A-II Requirements for Building Sewer and Sewer
  - Section 1 - General Requirements
  - Section 2 - Permit Requirements
  - Section 3 - New Developments or Subdivisions
  - Section 4 - Licenses, Bonds, Insurance Coverage
  - Section 5 - Special Conditions
  - Section 6 - Record Drawings
  - Section 7 - Right of Waiver
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  - Section 9 - Additional Rules and Requirements
  
- A-III Sewer Design
  - Section 1 - Size of Sewer
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  - Section 5 - Alignment
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- A-IV Materials for Construction of Building Sewers and Public Sewers
  - Section 1 - Building Sewers
  - Section 2 - Public Sewers
  - Section 3 - Materials for Pipe Installation
  
- A-V Construction of Building Sewers and Public Sewers
  - Section 1 - Notification and Permits
  - Section 2 - General Requirements
  - Section 3 - Permits and Use of Explosives
  - Section 4 - Excavation
  - Section 5 - Dewatering Trenches
  - Section 6 - Excavation Support
  - Section 7 - Pipe Bedding, Pipe Installation and Blanket Placement
  - Section 8 - Backfilling Trenches
  - Section 9 - Backfilling Around Structures
  - Section 10 - Surplus Material
  - Section 11 - Pavement
  - Section 12 - Protection of Slope
  - Section 13 - Leakage Testing
  - Section 14 - Pressure Testing - Gravity Sewers
  - Section 15 - Pressure Testing - Force Mains
  - Section 16 - Relation to Water Mains
  - Section 17 - Cleanouts
  - Section 18 - Elbows - Bends

## A-VI Appurtenant Works

- Section 1 - Interceptors - Grease
- Section 2 - Interceptors/Separators - Oil
- Section 3 - Interceptors - Sediment (Solids)
- Section 4 - Roof Drains
- Section 5 - Floor Drains
- Section 6 - Sumps and Ejectors
- Section 7 - Grinder Pump Systems
- Section 8 - Wastewater Pumping Stations
- Section 9 - Equipment Inside Buildings
- Section 10 - Low Pressure Sewers

## EXHIBITS - Construction Details

- A - Typical Building Sewer Trench Detail
- B - Precast Manhole Section
- C - Manhole Frame and Cover
- D - Typical Building Sewer Connection
- E - Typical Precast Sewer Chimney
- F - Grinder Pump Installation
- G.1 – Typical Pump Station
- G.2 – Typical Pump Station Valve Manholes
- G.3 – Typical Pump Station Electrical Enclosure
- G.4 – Typical Pump Station Electrical Enclosure Cut-A-Way View
- G.5 – Typical Pump Station Electrical Single-Line Diagram

## ARTICLE A-I

### Definitions

For the purpose of these regulations, the following words and terms used herein are hereby defined or the meaning thereof explained. Other words or terms and phrases not defined herein shall be construed according to the common and approved usage of the language, but technical words, terms and phrases which may have acquired a particular and appropriate meaning in law shall be construed and understood according to such meaning.

**Section 1.** "Building drain" shall mean that part of the lowest horizontal piping of a drainage system, which receives the discharge from soil, waste and other drainage pipes inside the walls of the building and conveys it to the building sewer, which begins ten (10) feet from the outside face of the building wall.

**Section 2.** "Building sewer" shall mean the extension from the building drain to the public sewer or other place of disposal.

**Section 3.** "Cleanout" shall mean piping and appurtenances designed and installed to provide access to horizontal or vertical sewer lines for cleaning and inspection.

**Section 4.** "Commercial wastewater" shall mean wastewater from commercial establishments such as retail businesses, restaurants, banks and other businesses which discharge only domestic or sanitary sewage.

**Section 5.** "Confined space" shall mean an enclosed space that: (a) is large enough and so configured that an employee can bodily enter and perform assigned work, (b) has limited or restricted means for entry or exit (some examples are tanks, vessels, silos, storage bins, hoppers, vaults, pits and diked areas), and (c) is not designed for continuous employee occupancy. "Permit-required confined space" shall mean a confined space that has one or more of the following characteristics: 1. Contains or has a known potential to contain a hazardous atmosphere, 2. May contain a material with the potential for engulfment of an entrant, 3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or a floor which slopes downward and tapers to a smaller cross-section, or 4. Contains any other recognized serious safety or health hazard.

**Section 6.** "Drain Layer" shall mean a contractor, licensed by the Town of Shirley, and retained by property owners for the purpose of installing building sewers.

**Section 7.** "Easement" shall mean an acquired legal right for the specific use of land owned by others.

**Section 8.** "Entry" shall mean the action by which a person passes through an opening into a permit required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space. "Floor drain" shall mean a receptacle to receive and convey runoff water or other liquid from building floors to the building drain system.

**Section 9.** "Grease interceptor" shall mean a device to separate light density liquids (grease,

fats, cooking oils, etc.) from wastewater and retain for easy removal.

**Section 10.** "Industrial connection" shall mean the building sewer connected to the public sewer and extending to the building drain for industry flows, separate from the building drain carrying sanitary waste.

**Section 11.** "Interceptors - sediment (solids)" shall mean a device to separate and retain solids such as plaster, broken glass, hair, lint, sand or other materials detrimental to the sewage works.

**Section 12.** "Interceptors/separators - Oil" shall mean a device to separate light density oils from wastewater and retain and divert the collected oils to a storage tank.

**Section 13.** "Person" shall mean any agency or political subdivision of the Commonwealth, the Federal government, any public or private corporation or authority, individual, partnership or association, or other entity, including any officer of a public or private agency or organization, upon whom a duty may be imposed by or pursuant to any provisions of M.G.L. c. 21, §§ 26 through 53.

**Section 14.** "Pressure System" shall mean the sewer system comprised of a pressurized sewage main and distributed grinder pumps supporting each building sewer separately.

**Section 15.** "Public sewer" shall mean a common sewer owned, operated and maintained by the Town of Shirley, through the Sewer Commission, its successors or assigns.

**Section 16.** "Roof drain" shall mean a receptacle to receive and convey rainwater from roof to a storm water drainage system.

**Section 17.** "Sanitary sewer" shall mean a sewer that carries liquid and water-carried wastes from residences, commercial buildings and institutions, industrial plants, together with minor quantities of groundwater, storm and surface water that are not admitted intentionally.

**Section 18.** "Sewage" is the water-carried human or animal wastes from residences, buildings, industrial establishments or other places, together with such ground water infiltration an surface water as many be present.

**Section 19.** "Sewer Superintendent" shall mean the superintendent of wastewater facilities of the Town of Shirley, or his authorized deputy, agent or representative.

**Section 20.** "Shall" is mandatory; "may" is permissive.

**Section 21.** "Sewer Extension" shall mean a continuation of the public sewer on public property and/or an easement granted to the Town of Shirley.

**Section 22.** "Sewer Saddles" shall mean the pipefitting installed on an existing public sewer for connection of a building/house service. These fittings use the existing sewer pipe as part of the service wye support for the building/house service.

**Section 23.** "Sewer Commission" shall mean the commission elected by General Election for a term of three (3) years.

**Section 24.** "Wastewater" shall mean the sewage, industrial waste, other wastes or any combination of the three.

**Section 25.** "Wastewater facilities" shall mean the structures, equipment, and processes required to collect, carry away, and treat domestic and industrial wastes and dispose of the effluent.

**Section 26.** "Wastewater treatment works" shall mean an arrangement of devices and structures for treating wastewater, industrial wastes, and sludge. Sometimes used as synonymous with "wastewater treatment plant" or with "water pollution control plant."

## **ARTICLE A-II**

### **Requirements for Building Sewer and Sewer Extensions**

#### **Section 1. General Requirements**

- (a) No person shall uncover, make any connections with or opening into, use, alter or disturb any public sewer, appurtenance thereof without first obtaining a written permit from the Sewer Commission and if required, a permit from the Massachusetts Division of Water Pollution Control in accordance with 314 CMR Section "1.00: Massachusetts Sewer System Extension and Connection Permit Program (Appendix B).
- (b) All costs and expenses incidental to the installation and connection of the building sewer to the public sewer or to a house service connected to the public sewer shall be borne by the property owner. The property owner shall indemnify the Town of Shirley from any loss or damage that may directly or indirectly result from the installation of the building sewer.
- (c) All residents within the pressure sewer system shall provide free and clear access to grinder pumps and the associated underground piping.

#### **Section 2. Permit Requirements**

- (a) **Building Sewer(s):** Building sewer applications (Form No. 1) may be obtained from the Sewer Superintendent. The completed application and a permit fee of in the amount shown on the Fee Schedule (Usage Fee Regulation, Appendix A. Section II. Other Fees) per building sewer shall be submitted to the Sewer Commission. Existing public sewer and/or building/house service location (if any) may be obtained from the Sewer Commission. The application shall list the name of property owner and contain all the information requested. The application for building sewer(s) shall be submitted to the Sewer Commission forty-five (45) days prior to the anticipated date of installation.

The developer of any subdivision shall submit a completed application form and permit fee for the building sewer for each unit before installing any building sewer.

- (b) **Industrial Connection(s)** (See Form No. 2):
  - (1) Industrial connection(s) applications shall be requested in writing from the Sewer Commission. The request for an application shall include a description of the project, description of the Industrial Process, estimated flow rates and expected growth, and list all materials to be discharged into the public sewer.
  - (2) The applicant shall be responsible for compliance with the requirements set forth in the Town of Shirley's "Regulation of Sewer Design, Construction and Use." The applicant shall submit engineered plans of proposed sewer connection(s). The applicant shall provide all information on the operation of

systems, which will discharge into the public sewer.

- (3) No toxic wastes shall be discharged to the public sewer or wastes that will harm the biological system at the wastewater treatment plant. Industries that will discharge concentrated wastes or wastes determined to require pretreatment shall pretreat at their expense.
  - (4) Completed application for industrial connection(s) shall be submitted to the Sewer Commission and shall allow sixty (60) days to make preliminary investigation into any wastes proposed for discharge.
  - (5) Permits shall be issued for a specific time period, not to exceed five (5) years. A permit may be issued for a specific period less than a year or may be stated to expire on a specific date. The user shall apply for permit reissuance a minimum of one hundred eighty (180) days prior to expiration of the user's permit. The terms and conditions of the permit may be subject to modification by the Commission based upon the Devens N.P.D.E.S permit or other just cause exists. The user shall be informed of any proposed changes in his permit at least thirty (30) days prior to the effective date of the change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.
  - (6) Permitted Industrial Users shall provide a licensed wastewater operator on-site during periods of operation at the request of the Sewer Commission.
- (c) Sewer Extension(s):
- (1) A sewer extension in a private way, or for a subdivision, or which requires the Town to extend the public sewer, shall be applied for in writing to the Sewer Commission. An engineered plan of the sewer extension with a horizontal scale of one (1) inch equals forty (40) feet and a vertical scale of one (1) inch equals four (4) feet on standard 24 inch x 36 inch sheets shall be submitted with the application. Plans shall be submitted in electronic (AutoCAD) format as well as hard copy. Proposed drawings are to be provided with separate layers for each utility and the profiles are to be presented on the same sheet as the corresponding plan view. See appendix D for typical plan and profile layout. The Sewer Commission will require forty-five (45) days for review of plans for sewer extension. Application and permit fees and fees for inspection services for sewer extensions shall be determined in accordance with Usage Fee Regulation, Appendix A, Section II. Other Fees and shall be paid before plans for sewer extensions are reviewed.
  - (2) The Sewer Commission reserves the right to reject any and all applications not meeting the requirements of the Town of Shirley's "Regulation of Sewer Design, Construction and Use."
  - (3) All costs for sewer extension for construction on private property or for the sole benefit of a private concern shall be paid by the applicant.

- (4) Sewer extension projects with 35 housing units and a projected flow into the sewer system of 15,000 gpd shall apply for a Sewer Extension Permit with the Division of Water Pollution Control of the Department of Environmental Protection under 314 CMR 7. All subdivisions, which include a pumping, station serving more than one house shall comply with 314 CMR 7.
- (5) The Town of Shirley may provide access from the public sewers to the property lines. The Town is not obligated to extend the public sewer to connect a private or commercial building, a subdivision, or other development. The Town of Shirley will not extend the public sewer onto private property unless by specific easement and maintainable right of way is granted to the Town of Shirley.
- (6) Connection of apartment complexes, condominiums, and industries, which require a sewer extension across private property, shall be completed and maintained at the owner's expense or by means not limited to a tenant's association. Any private sewer found to be defective shall be repaired by the property owner at the property owner's expense.
- (7) Sewer extensions shall meet the requirements of the Division of Water Pollution Control Sewer Extension and Connection Permits, 314 CMR, M.G.L. Chapter 7.00, as most recently amended. Plans shall be prepared in accordance with New England Interstate Water Pollution Control Commission's "Guides for the Design of Wastewater Treatment Works" (TR-16), latest edition.

### **Section 3. New Developments or Subdivisions**

- (a) The developer of any subdivision, located within the Shirley Sewer Service Area (as expanded) and within a reasonable distance of an existing public sewer, shall connect the sewer in the subdivision to the public sewer, provided all other conditions of Section 2 are met and capacity is available in the system. The cost of connecting the sewer to the existing public sewer shall be borne by the developer. Determination by the Sewer Commission of what constitutes a reasonable distance shall take into account the size, nature and location of the subdivision.
- (b) All sewers installed by a developer are to be located in new streets or maintainable rights-of-way in anticipation of the extension of an existing public sewer, the cost of installing building sewers shall be borne by the developer. All proposed service laterals are to be brought to the edge of the road or right of way easement.
- (c) The design of any proposed wastewater facilities must be approved by the Sewer Commission and the Town of Shirley's Sewer Superintendent prior to issuance of permit for construction. Construction of wastewater facilities must be inspected and approved by authorized agents of the Sewer Commission and the cost for engineering and inspection of the construction shall be borne by the developer or other sponsoring parties or agencies.

- (d) Developers shall meet all requirements set forth by the Town of Shirley's Planning Board for the acceptance of a subdivision. Design and/or construction, and/or inspection and approval of the wastewater facilities by the Sewer Commission shall not serve as the Town's acceptance of any other constructed utilities, road or way on behalf of the Town.

#### **Section 4. Licenses, Bonds, Insurance Coverage**

(a) Licenses:

- (1) All contractors (drain layers) retained by property owners for the purpose of constructing and installing building sewers for the connection of residential, commercial, and industrial buildings within the Town, including installation, saddles, manholes and other related materials, shall be licensed by the Town of Shirley Sewer Commission.
- (2) Licenses to install building sewers and make connections to the building/house service or the public sewer will be issued to experienced and competent contractors upon payment of the licensing fee in the amount shown on the Fee Schedule. Licenses must be renewed for each calendar year for the fee shown on the Fee Schedule.
- (3) Violation of the requirements of these regulations shall be cause for revocation of license.

(b) Bonds:

- (1) Drain layers shall post a bond in the amount of \$5,000 to assure the satisfactory completion of work. The bond shall remain in full effect for a period of one year after satisfactory completion of the most recent work performed by the drain layer. For the period of one (1) year from the date of completion of the work, the drain layer shall repair, without cost to the property owner or Town, all defects in the work or parts of the work furnished or built by the drain layer and any damage resulting from faulty workmanship performed by the drain layer or due to faulty or imperfect material or equipment furnished by the drain layer.
- (2) Developers constructing subdivisions, housing complexes or multi-housing units of which all or part are intended for private sale, and the wastewater facilities for the project are to be accepted, operated and maintained by the Town, shall include in the performance bond and labor and material payment bond required by the "Rules and Regulations Governing Subdivision of Land," coverage for the construction cost of the sewer lines, pumps, manholes and building/house service intended for Town acceptance. This coverage shall remain in force until the work is successfully completed and accepted by the Sewer Commission. Work not completed in accordance with these regulations to the satisfaction of the Sewer Commission, will be completed at the developer's expense. The payment bond shall remain in force for a period of (1) one year from the date of successful completion of

all the work planned for Town acceptance. Any and all defects in workmanship and materials, and any damage resulting from the defects, shall be repaired by the developer without cost to the Town, during the one (1) year period.

- (3) This bond requirement serves as coverage for the construction of building sewers and wastewater facilities installed by developers. Bond requirements for wastewater facilities contracted by the Town shall be established in those contracts.

(c) Insurance Coverage:

- (1) Drain layers doing work hereunder shall maintain minimum insurance coverage as follows:

Public Liability	\$500,000	Bodily Injury
Property Damage Liability	\$500,000	each occurrence

Drain layers shall file a certificate of insurance with the Sewer Commission. These insurance limits shall serve as coverage for construction of building sewers only. Insurance coverage for public sewer projects contracted by the Town shall be established in those contracts.

**Section 5. Special Conditions**

- (a) Two or more buildings located on separate parcels of land may be connected to a single building sewer subject to the following conditions:
  - (1) Access to the public sewer system by the individual building is not available. (See Regulation of Sewer Design, Construction and Use - Article III, Section 7.)
  - (2) Multiple connections shall be sized so that no more than two (2) buildings share a single 6-inch diameter building sewer.
  - (3) Cleanouts shall be provided at the junction of two (2) building sewers.
  - (4) Proof of easement agreements, as recorded with the Registry of Deeds, shall be provided to the Sewer Commission.
- (b) Only one building shall use a pressure building sewer discharge line unless as specified under *Article A-VI*, Section 10 for a low-pressure sewer system.

**Section 6. Record Drawings**

- (a) All work performed under these rules and regulations shall be recorded on a set(s) of record drawings conforming to the specifications of the Sewer Commission in both electronic AutoCAD format and paper format (see section 2c (1)). Location to

include swing tie measurements to manholes, cleanouts, wyes, building/house service stubs, etc. Invert elevations, slope calculations and any other deviation to the plans shall be recorded pursuant to M.G.L. Chapter 21, Sections 27(8) and 45. Location of cleanouts shall be furnished along with location of building sewers and commercial and industrial connections.

### **Section 7. Right of Waiver**

- (a) The Sewer Commission reserves the right to waive any portions of these rules and regulations, which may cause undue hardship, or during emergency conditions, or within the best interest of the Town. Each request for waiver shall be made in writing to the Shirley Sewer Commission. All waivers to be posted and recorded in the official Committee meeting minutes and forwarded to Town Clerk. Waivers shall not be effective until posted. Nothing stated in this section shall be interpreted to mean that the Sewer Commission has the right to waive any Massachusetts General Laws or State regulations referenced in these rules and regulations, as these references are only provided to be of assistance to the applicants.

### **Section 8. Appeals**

- (a) Any person requesting appeal of rulings by the Sewer Superintendent made under these rules and regulations shall do so in writing to the Sewer Commission within twenty-one (21) days of the ruling. A hearing will be scheduled at the next regular meeting of the Sewer Commission following one (1) week of public notice. Cost of public notice shall be borne by the applicant and pre-paid to the Sewer Commission prior to the hearing date. The Sewer Commission shall forthwith and no later than fourteen (14) days, set a date for said hearing and notify the public in a newspaper of general distribution in Town at least 5 days prior to day of hearing. All decisions of the Sewer Commission shall be final. All appeals to be posted and recorded in the official Commission meeting minutes and forwarded to the Town Clerk. Appeals shall not be effective until posted.

### **Section 9. Additional Rules and Requirements**

- (a) The Town of Shirley and the Sewer Commission reserves the right to adopt from time to time, additional rules and regulations as it shall deem necessary and proper relating to connections and extensions.
- (b) In addition to the sewer design requirements listed in this Appendix, proposed wastewater collection system extensions shall conform to the Massachusetts DEP "Technical Design Guidance for Review of Sewer Connection/Extension" latest revision.

## **ARTICLE A-III**

### **Sewer Design**

#### **Section 1. Size of Sewer**

- (a) No public, main line, gravity sewers shall be less than eight (8) inches in diameter.
- (b) Building sewers shall be a minimum of six (6) inches in diameter.
- (c) Force main sewers shall be sized to provide, at design average flow, velocity in excess of 2 feet per second. In no case shall force mains be less than 4 inches (10.2 cm) in diameter.
- (d) Low-pressure sewers shall be a minimum of 1-1/2 inches in diameter and be sized to provide, at design average flow, velocity in excess of 2 feet per second.

#### **Section 2. Depth of Sewer**

- (a) No building sewer shall have less, than 4 feet cover over the crown of the pipe unless approved by the Sewer Superintendent. No sewer extensions or other public sewers shall have less than 5 feet cover over the crown of the pipe unless approved by the Sewer Superintendent. The Sewer Commission reserves the right to impose special conditions on such approvals.
- (b) When the vertical distance between the main line sewer and the building/house service, at the location of the main line sewer, is greater than four (4) feet, a vertical pipe riser (chimney connection) shall be used to connect the building/house service to the main line sewer.

#### **Section 3. Slope**

- (a) All sewers shall be so designed and constructed to give mean velocities, when flowing full, of not less than 2.0 feet per second, based on Manning's formula using an "n" value of 0.013. Use of other "n" values may be permitted by the Commission if deemed justifiable on the basis of research or field data presented. The following are the minimum slope (S) which should be provided; however, slopes greater than these are desirable:

### Minimum Slope in Feet

<u>Sewer Size (inch)</u>	<u>S (Feet per 100ft)</u>	<u>S (ft per ft)</u>	<u>Flow (gpm)</u>
6	2.0 (1/4" per foot)	0.0200	349
8	0.40	0.0040	336
10	0.28	0.0028	510
12	0.22	0.0022	735
14	0.17	0.0017	975
15	0.15	0.0015	1,100
16	0.14	0.0014	1,263
18	0.12	0.0012	1,600
21	0.10	0.0010	2,204
24	0.08	0.0008	2,814

- (c) Under special conditions, if detailed justification is presented, slopes slightly less than those required for the 2.0 feet per second velocity when flowing full may be permitted. Such decreased slopes will only be considered where the depth of flow will be 0.3 of the diameter or greater for design average flow. Whenever such decreased slopes are selected, the design engineer must furnish with the sewer design plans, a report containing detailed justification for the decreased slopes and computations for the depths of flow in such pipes at minimum, average, and daily or hourly rates of flow. Decreased slopes may cause additional sewer maintenance expenses. The Sewer Commission reserves the right to impose special conditions when decreased slopes are approved.
- (d) Sewers shall be laid with uniform slope between manholes. Sewers on 20 percent slope or greater shall be anchored securely.

#### Section 4. Sewer Length

- (a) No gravity building sewer shall exceed 300 feet in length. Cleanouts shall be provided for lengths greater than 100 feet at 100 foot intervals and at direction changes greater than forty-five degrees (45°). Cleanout shall be at grade and water tight.
- (b) No gravity sewer main shall exceed 300 feet between manholes. Manholes shall be installed at points of direction change or grade change in each sewer main.

#### Section 5. Alignment

- (a) All sewer extensions and other public sewers shall be laid true to line and grade so that inspection can be performed by sighting through the pipe from manhole to manhole. Changes in grade or slope shall warrant the installation of manholes for such transitions.
- (b) Building sewer deflection may be permitted within the limitations of the pipe joint

and shall in no case exceed 5 degrees (5°). The use of elbows shall be required for greater deflection. No elbow shall be used which is greater than a 45-degree angle. Two 45 degree elbows may be used provide a minimum (2) two foot straight section of pipe is used between each elbow and a cleanout is provided at the second elbow.

#### **Section 6. Manholes (See Exhibit B and C)**

- (a) Location: Manholes shall be installed at the end of each line; at all changes in grade, size or alignment; at all intersections; and distances not greater than 300 feet.
- (b) Drop Type: An inside drop pipe or an outside drop pipe shall be provided for a sewer entering a manhole at an elevation of 24 inches or more above the manhole invert. Where the difference in elevation between the incoming sewer and the manhole invert is less than 24 inches, the invert should be filleted to prevent solids deposition. For larger sewers where this would be impracticable, the invert of the manhole shall be so constructed so that there is a smooth transition of flow in the manhole.
- (c) Diameter: The minimum diameter of regular manholes shall be 48 inches. Manholes with inside drop pipe shall be 60 inches in diameter. A minimum access diameter of 24 inches shall be provided.
- (d) Inverts and Bench: The flow channel through manholes shall be made to conform to shape and slope of the sewers entering and leaving the manholes. The bench shall be constructed so that under peak design conditions the flow will remain in the channel.
- (e) Frames and Covers: Provide standard manhole frames and covers (See Exhibit C, Figure 4).
- (f) Watertightness: Watertight covers shall be used in areas where the top of the manhole will be below FEMA flood levels and in areas known to be subject to flooding.

## **ARTICLE A-IV**

### **Materials for Construction of Building Sewers and Public Sewers**

#### **Section 1. Building Sewers**

- (g) Existing building sewers may be used only when they meet all requirements of this regulation.
- (h) The building sewer shall be polyvinyl chloride (PVC) sewer pipe, SDR35 (standard dimension ratio), and conform to ASTM D3034 (Type PSM Polyvinyl Chloride Sewer Pipe and Fittings), [See Section 2. (d) Materials].
- (i) All joints in PVC pipe shall be made using rubber rings furnished by the manufacturer of the pipe and installed in strict accordance with the manufacturer's recommendations. Joint gaskets shall be installed and secured into place so that they cannot be dislodged during the joint assembly. The completed joint shall be watertight.
- (j) Pipes, which are bent or bowed, shall not be used. Appropriate adapters shall be used when changing from one kind of pipe to another. Bell and spigot (ball and socket, push on) adapters and/or clamp and oil resistant gaskets by Fernco, or approved equal shall be used. Substitution of other types of joints shall be made only with the approval of the Sewer Superintendent.
- (k) Pipe Adapters: Pipe adapters for connecting building sewers to building drains shall be flexible rubber for adapting 4 inch to 6 inch with stainless steel clamps by Fernco Co. or equal. Standard pipe reducers shall conform to the pipe standards and shall be bell and spigot joints.
- (l) Pipe joint lubricant shall be as provided by the pipe manufacturer. The use of automotive grease and/or petroleum based lubricants is not permitted.

#### **Section 2. Public Sewers**

- (a) Requirements for public sewers shall be applicable to sewer extensions, and sewer systems in developments and subdivisions. All plans for public sewers, sewer extensions, and proposed developments and subdivisions shall be submitted for review called for in Article A-II, Section 2.(c) and Section 3. The following material specifications shall be used as guidelines for submittal of plans for review. Changes in these specifications may be required, if the nature of wastes carried or design/ construction problems require a change in the materials used. These changes are to be reviewed and approved by the Sewer Commission and its Engineer.
- (b) Reference in the specifications to any article, device, product, material, fixture, form, or type of construction, etc. by name, make or catalog number is included to establish a standard of quality. Any article, device, product, material, fixture, form or type of construction, which, in the judgment of the Sewer Superintendent, is

equal to that named, may be substituted.

- (c) Each straight pipe and standard fitting shall have cast upon it, or stamped on the pipe, the manufacturer's name and trademark, nominal pipe size and material designation.
- (d) Materials:
  - (1) Polyvinyl Chloride Pipe - Gravity Sewer (*See Table I*): Polyvinyl Chloride (PVC) gravity sewer pipe and fittings shall conform to SDR35 (standard dimension ratio), and conform to ASTM D3034 (Type PSM Polyvinyl Chloride Sewer Pipe and Fittings). Joints shall be elastomeric gasket joints, providing a watertight seal, conforming to ASTM D3212 (Joints for Drain and Sewer Plastic Pipes Using Flexible, Elastomeric Seals).
  - (2) Polyvinyl Chloride Pressure Pipe
    - (A) Force Main: Polyvinyl chloride force main shall be Class 150-DR18 push-on joint pressure pipe conforming to AWWA C900 (Polyvinyl Chloride (PVC) Pressure Pipe, 4 Inch Through 12 Inch for Water). Fittings shall be mechanical joint ductile iron conforming to ANSI A21.10 (Grey-Iron and Ductile-Iron Fittings, 3 Inch Through 48 Inch, for Water and Other Liquids). Pipe and fitting joint shall conform to ANSI A21.11 (Rubber-Gasket Joints for Ductile-Iron and Grey-Iron Pressure Pipe and Fittings) and shall include plain rubber gaskets suitable for use with raw sewage. Fittings shall be cement lined and seal coated inside and out in accordance with ANSI A21.4 (Cement Mortar Lining for Ductile-Iron and Grey-Iron Pipe and Fittings for Water).
    - (B) Low Pressure Sewers: Polyvinyl chloride sewers shall be push-on joint pressure pipe meeting ASTM 2241 with wall thickness rating of SDR 21, pipe sizes from 1-1/2 inch to 8 inch. Fittings shall be push-on pressure type meeting ASTM D3139 rated wall thickness of SDR 21. Pipe gaskets shall meet ASTM F-477.
  - (3) Ductile Iron Pipe and Fittings: Ductile iron pipe and fittings shall conform to ANSI A21.51. (Ductile Iron Pipe, Centrifugally Cast in Metal Molds and Sand-lined Molds -Thickness Class 51 minimum). Fittings shall be Class C and conform to ANSI 21.10. Ductile iron pipe shall be a bell and spigot joint. Ductile iron pipe shall have nominal laying length of at least sixteen (16) feet. Pipe and fittings shall be given an exterior coating of bituminous paint and an inside cement mortar lining in accordance with ANSI 21.4 (Cement-Mortar Lining for Ductile-Iron and Gray-Iron Pipe and Fittings). The cement mortar lining shall be given a protective coating of bituminous paint.
  - (4) Valves: Gate, air release, corporations, curb stops.
    - (A) Gate valves for force main drains and cleanouts, shall be ductile iron

solid wedge gate valves made in accordance with AWWA Specification C-500 or Resilient-seated gate valves made in accordance with AWWA Specification C-509. Valves to be rated for 125 psi working pressure. Valve body and bonnet to be coated inside and out with fusion bonded epoxy.

(B) Air release and vacuum release valves are to be installed at high points in force mains and shall be designed for use in sewage and shall have a cast iron body conforming to ASTM A48, Class 30 or A126, Class B with stainless steel floats and stainless steel trim conforming to ASTM A276 or Bronze trim conforming to ASTM B62, and pressure rated for 0 to 300 psi.

(C) Valves for low pressure sewers shall be bronze conforming to ASTM B62 Alloy C83600 for corporation stops and curb stops and shall be full ported ball valves with threaded AWWA taper or AWWA I.P.T. conforming to AWWA C300 standard for underground service lines. Valves to be as manufactured by Mueller Co., Ford or equal. Valves to have large operating head, one piece body and be rated by AWWA for 300 psi working pressure.

(D) Check valves for low pressure services shall be bronze, swing check type, conforming to ASTM B62 Alloy C83600 as manufactured by Mueller Co. or equal, pressure rated to 250 psi, or PVC housing with Buna-N flapper gasket and stainless steel hardware as manufactured by Environment One Corporation, or equal.

(E) Curb boxes shall be steel extension type, with cast iron lid with brass pentagon head plug, with stationary rod, and cast iron arched base. All boxes to be coated with asphalt base paint. Cast iron Sewer Cleanout covers marked "SEWER" shall be placed over all low pressure curb boxes for proper identification

(5) Other Pipe Materials: As technology changes, other materials may be considered for substitution by the Sewer Commission.

(6) Manholes:

(A) Barrels and Cone Sections: Manhole barrels and cone sections shall be precast reinforced concrete and shall conform to ASTM C478 (Precast Reinforced Concrete Manhole Sections) except as specified otherwise.

(B) Base Section: Manhole base sections shall be monolithic to a point six inches above the crown of the incoming pipe and shall conform to ASTM C478, except as specified otherwise. For inside or outside drop manholes, openings for pipes shall be a minimum of six inches from any horizontal joint.

(C) Inverts and Shelf: Manhole inverts and shelf shall provide a smooth sloped channel constructed to conform to the size and the shape of the inlet and discharge pipe or pipes. The invert shall be constructed of brick Grade SS meeting ASTM C32 (Sewer and Manhole Brick) and shall be constructed

with mortar using Type II Portland cement. The base work below the brick shall be suitable materials consisting of cast-in-place concrete or solid brick construction, subject to the approval of the Sewer Superintendent.

Alternate invert construction may include a one-piece fiberglass flume, shelf and bells precast into the manhole base. Channels shall be at least the same depth as the pipe diameter and the shelf shall have a non-skid surface. The bells shall either accept the "boot" connector or a properly sized rubber ring to seal the pipe to the manhole connection in accordance with ASTM C 923 and ASTM C 1244.

(D) Horizontal Joints: Horizontal joints between sections of precast concrete barrels shall be of a type approved by the Sewer Superintendent, and shall have an elastomeric or mastic-like gasket for watertightness.

(E) Corbel of manhole (between manhole cone and frame and cover) shall be constructed of brick Grade SS meeting ASTM C32 (Sewer and Manhole Brick) and shall be constructed with mortar using Type II Portland cement. Outside of corbel shall be coated with mortar and sealed. Care shall be made to provide watertight construction. Flexible gaskets or mastic-like gasket shall be placed between the manhole frame casting and the top course of brick to provide added sealing against leaks, which may be caused by thermal or frost action against the manhole cover. Frame chimney seals may be required as specified in Section 2(d)(9).

- (7) Manhole Rings: Manhole rungs shall be steel reinforced copolymer, polypropylene plastic of an approved design. Rungs shall not be less than twelve (12) inches wide. Rungs shall be manufactured by M.A. Industries, Inc., East Point, Georgia or Improved Construction Method, Inc., Jacksonville, Arkansas.
- (8) Cast Iron Manholes Frames and Covers: Cast iron manhole frames and covers shall be heavy duty suitable for a minimum H-20 loading or more at the discretion of the Sewer Commission and conform to the standards of the Town, as regards pattern, dimensions and weight. They shall be gray cast iron. Castings shall be true to pattern and free from flaws. The bearing surfaces of manhole frames and covers shall be machined to give continuous contact along the entire perimeter. Manhole frames and covers shall be manufactured by E.L. LeBaron Foundry Company (LB268-3), or Neenah Foundry Company, or equal with 30 inch clear opening and 32-inch covers minimum. All covers shall have the word "SEWER" cast into the top surface.
- (9) Watertight Cast Iron Manhole Frames and Covers: Watertight manhole frames and covers shall be used in sewers constructed in floodplain or floodway areas. Manhole covers shall be type BW or SW manufactured by E.L. LeBaron Foundry Company (LBW268-1), or Neenah Foundry or equal with 26 inch diameter covers, and 24 inch diameter clear openings and shall be supplied with inner cover and locking bar. Covers shall have the word "SEWER" cast into the top surface.

- (10) Watertight covers and standard covers subject to flooding or covers in cross country sewers shall be installed with a flexible manhole frame chimney seal consisting of an internal or external rubber compound conforming to ASTM C923 standards, with a minimum 1,500 psi tensile strength, maximum 18% compression set and hardness (durometer) of 48. Bands shall be used to compress the rubber seal to the corbel and shall be 16-gauge stainless steel conforming to ASTM A240, type 304 with screws conforming to ASTM F593 and 594, type 304.
- (11) Ductile iron manhole frames and covers shall be manufactured of flake graphite (gray iron) complying with the requirements of ASTM A48-83 or spheroidal or nodular graphite iron (ductile iron) complying with the requirements of ASTM A536-80. Frames and covers shall be round Model GTS, Class 400 as furnished by Quality Water Products, Inc. or equal. Frames and cover shall meet a test load rating of 88,000 pounds. Frames and cover shall be of the locking type with blocking keys. Frames shall have a polyethylene gasket. Covers shall have cast in the word "SEWER". Watertight covers shall have a watertight "O"- ring and shall be rated to 15 psi external pressure. Cover shall be secured by means of 6 cams and stainless steel bolts.
- (12) Pipe joint lubricant shall be as provided by the pipe manufacturer. The use of automotive grease and/or petroleum based lubricants is not permitted.

### **Section 3. Materials for Pipe Installation**

- (a) Pipe Bedding: Material for pipe bedding shall be washed and screened sharp gravel, well graded in sizes from 1/4 inch to 1 1/2 inch inclusive. It shall be clean, hard, durable and free from dust, clay or organic matter. It shall be well compacted in place. Pipe bedding shall be used to cover the pipe to a height of 6 inches above the crown of the pipe.
- (b) Blanket Materials: Material to be installed from 6 inches above the crown of the pipe to one (1) foot above the crown of the pipe shall be clean sharp sand or the following:
  - (1) Subsoil - material excavated on site which is friable, natural soil composed of gravel, sand, or silty or clayey gravel and sand; free from debris, concrete or other rubble, organic matter, muck, peat, excavated rock and boulders over 6 inches in maximum dimensions; or
  - (2) Crushed Gravel - crusher run gravel consisting of inert material that is hard durable stone and coarse sand, free from loam or clay, surface coatings' and deleterious material. Gradation shall be in conformance with MDPW Specification for Processed Gravel for Sub-base, M1.03.1 and the following gradation limits:

<u>Sieve Size</u>	<u>Percent Passing by Weight</u>
3 inch	100%
1-1/2 inch	70 - 100%
3/4 inch	50 - 85%
No. 4	30 - 60%
No. 200	0 - 12% (based on fraction passing the No. 4 sieve.)

- (c) **Backfill Materials:** Material to be used as backfill shall be common fill defined in (b)(1) above as subsoil.
- (d) **Unsuitable Materials:** Materials unsuitable for use as backfill materials include cut or broken pavement, debris, concrete or other rubble, organic materials, muck, peat, silty soils or clayey soil, rock over 6 inches in maximum dimension and any material which will not provide sufficient support or maintain the installed sewers or appurtenant construction in a stable condition.
- (e) **Excavation Support:** Lumber used for sheeting, walers, struts, shores, bracing, and other system members shall be free from loose knots and other defects that may impair its strength or durability. Lumber shall be spruce, fir or equal.
- (f) **Rip-Rap Material:** Stone for rip-rap shall be sound, of approved quality, nearly cubical in shape and consist of field stones, boulders, quarry stones or rock fragments. At least fifty percent (50%) shall be not less than twelve (12) inches in the least dimension. The remainder shall be graded to form a compact mass when installed.

## ARTICLE A-V

### Construction of Building Sewer and Public Sewers

#### Section 1. Notification and Permits

- (a) Massachusetts General Law, Chapter 82, Section 40 requires that all public utility companies shall be notified in writing at least 72 hours (excluding Saturdays, Sundays and legal holidays) before excavation in a public way. Such notification gives the companies the opportunity to cooperate in protecting underground cables, pipe, structures, etc., from possible accidental damage or resulting service interruption.
- (b) Excavation required in a public way or street under the Town of Shirley's jurisdiction shall be made only with the permission of the Town of Shirley Highway Surveyor. Excavation required in a public street under the jurisdiction of the Commonwealth of Massachusetts Department of Public Works (MDPW) shall not begin until a permit has been obtained from the MDPW. Excavation near or under railway structures shall not begin until a permit has been obtained from Amtrak or the Governing Rail Authority.
- (c) The owner of any particular underground structure shall be notified promptly of damage to the structure. Whenever the Sewer Commission, Town, or public utility companies may require, pipes or other underground structures encountered in excavating or trenching shall be properly supported across the excavation or trench. Obtain locations of other public utilities of the Town that may be encountered in the sewer installation. All requirements of these utilities in the form of, and not limited to, fees, permits and repair methods shall be met. The Town of Shirley utilities are not registered under "Dig-Safe" therefore notification of each utility not covered by "Dig-Safe" is required.

#### Section 2. General Requirements

- (a) All excavations required for building sewers and public sewers shall be open trench work unless otherwise approved by the Sewer Commission. Pipe laying and backfill shall be done in accordance with the standard practice to provide proper support, drainage, and freedom from rock damage in backfilling in accordance with Article A-IV Section 3 Materials for Pipe Installation. No backfill shall be placed until the pipe has been inspected.
- (b) Before excavation is started, the bituminous or concrete street surface shall be cut vertically in a line parallel to the center line of construction, and slightly wider than the trench width, using an approved hand or power operated tool, so as to allow for trench excavation without further disturbing the surface on either side of the trench. All excavation shall be of sufficient width and depth with proper allowance for sheathing and bracing.
- (c) Excavation, concrete work, backfill, embankments and paving shall not be performed during freezing weather or upon frozen material and are subject to

approval by highway surveyor. New work shall be bonded to old or existing work, all subject to the approval of the Sewer Superintendent. The Sewer Superintendent shall have the right to decide when the weather is unsuitable.

### **Section 3. Permits and Use of Explosives**

- (a) Obtain all required licenses, permits and insurance for the use of explosives.
- (b) Use explosives only in compliance with local regulations, laws, and ordinances and as approved by the Sewer Superintendent. Blasting shall be conducted with all possible care so as to avoid injury to persons and property. Cover all blasting charges with mats or heavy timbers and take every precaution for the adequate protection of all persons, traffic, building, trees and other property. Sufficient *warning shall* be given to all persons in the vicinity of the work before blasting. Caps or other exploders shall not be kept in the same place in which dynamite or other explosives are stored.

### **Section 4. Excavation (See Exhibit A)**

- (a) Entrances and exits to abutting properties, private ways, alleys and streets for ordinary traffic in and out of all premises shall be provided and maintained. Carry out the work in such a manner so as to minimize the interference and inconvenience to business concerns on account of the construction work. Truck away excavated materials to a stockpile and truck the materials back to the construction site for use as backfill if the Sewer Superintendent deems it necessary as a means of minimizing interference and inconvenience to business concerns.
- (b) Length of Trench allowed to be Open:
  - (1) The length of trench allowed to be open shall be subject to approval by the Sewer Superintendent. The total running length of all work in each section shall be kept as short as practical.
  - (2) At traveled way areas, trenches shall not remain open overnight or weekends, trenches to be safely barricaded and lighted and checked regularly.
- (c) Excavation shall be carried to a point at least six (6) inches below the bottom of the pipe. If the bottom of any excavation has been removed below the required grade, it shall be brought to grade by refilling with gravel or other selected material which shall be well compacted. Materials shall be compacted to 90% maximum density (Modified Proctor) at optimum moisture content.
- (d) Where the excavation is close to existing underground structures or utilities, the excavation shall be dug by hand to insure against damage of utilities or against disturbing load bearing soil.

## **Section 5. Dewatering Trenches**

- (a) The trenches and all other excavations shall be kept entirely free of water at all times until the sewers are laid, backfilled and tested and all other structures are finished ready for operation. Sand, silt, and debris entering the building sewer, sewer extensions or other public sewer due to improper removal of water or by neglect of the work shall be removed. During excavation the installed pipe shall be capped at all times to prevent the entrance of groundwater, silt, mud, debris, and overflow of septic tanks, dry wells, leach fields, storm drains and any other inflow.

## **Section 6. Excavation Support**

- (a) Furnish, put in place, and maintain such sheeting, shoring and bracing, as may be required to support the sides of the excavation and to prevent any movement which could in any way injure the work, cause safety hazard, diminish the necessary width of trenches or other excavations, or otherwise delay the work or endanger adjacent structures.
- (b) All sheeting, shoring and bracing shall be of the sizes and strength needed to properly support the superimposed loads and to prevent any movement, displacement or settlement of adjacent structures, properties and utilities, pursuant to OSHA regulations 20 CFR, Part 1926.
- (c) Sheeting shall be driven where needed for stability, and excavation work conducted in such a manner as to prevent the material in back of the sheeting- from running under the sheeting and into the excavation. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled, and well compacted. Sheeting shall not cross the pipe line nor shall it be driven to such a depth at manholes that it will bear upon the pipe.
- (d) Sheeting shall not unnecessarily be driven below the sewer invert. But where this is necessary, it shall not be removed, but cut two (2) feet higher than the top of the pipe and left in place.
- (e) The sheeting, shoring, bracing or parts thereof, shall be left in place after the completion of the work in locations where necessary to support existing structures. All sheathing, which is left in place, shall be cut off at least two (2) feet below the surface. Lumber removed may not be reused.
- (f) The Sewer Superintendent has the right to order sheeting and bracing installed and/or left in place, but this shall not be construed as creating any obligation on his part to issue such orders, and his failure to exercise his right to do so shall not relieve the excavating contractor from liability for damages to persons or property occurring from or upon the work occasioned by negligence or otherwise growing out of a failure on the part of the excavating contractor to install or leave in place in the excavation, sufficient sheeting and bracing to prevent any caving or moving of the ground adjacent to the sides of the excavation.

## **Section 7. Pipe Bedding, Pipe Installation and Blanket Placement (See Exhibit A)**

- (a) All building sewers, sewer extensions, and other public sewers shall be bedded in a clean gravel [see Article A-IV, Section 3.(a)] or other selected material, acceptable to the Sewer Superintendent. Blocking under the pipe is not permitted. Bedding material shall be properly compacted and shaped to fit the barrel of the pipe.
- (b) Each pipe shall be laid true to line and grade and in such manner as to form a close concentric joint with the adjoining pipe and to prevent sudden offsets of the flow line. As the work progresses, the interior of the sewer shall be cleared of all silt, mud, debris and materials.
- (c) Pipe laying shall proceed upgrade with the spigot ends pointing in the direction of flow. Joining pipes shall be performed in accordance with the manufacturer's recommendations.
- (d) After installing the pipe on the bed, the bedding material shall be placed and compacted to the spring line (horizontal center line) of the pipe. **BEDDING MATERIAL SHALL BE THEN PLACED TO A LEVEL OF 6 INCHES ABOVE THE CROWN OF THE PIPE.** Pipe/trench shall be inspected by Sewer Commission or appointed Engineer.
- (e) Blanket: Blanket materials [see Article A-IV, Section 3.(b)] shall be placed from the top of the bedding material to a level 12 inches above the crown of the pipe and compacted.
- (f) Compaction: Place and compact bedding and blanket material in continuous layers not exceeding six (6) inches loose depth. Materials shall be compacted to 90% maximum density (Modified Proctor) at optimum moisture content.

## **Section 8. Backfilling Trenches (See Exhibit A)**

- (a) As soon as practicable after the pipe has been installed and the blanket material has been installed and compacted, the backfilling shall begin and shall thereafter proceed expeditiously.
- (b) Backfill: Material for backfilling (see Article A-IV, Section 3. (c)] shall be placed and compacted to depths, contours and grade required. Backfill systematically and as early as possible, to allow maximum time for natural settlement. Each layer of backfill shall be compacted after it is placed.
- (c) Place and compact backfill in continuous layers from the top of the blanket as follows:
  - (1) **Under Grassed Areas:** Twelve (12) inches loose depth to four (4) inches below finish grade.

- (2) **Under Paving:** Six (6) inches loose depth to underside of road base or sub-base.

All backfill materials shall be compacted to 90% maximum density (Modified Proctor) at optimum moisture content.

- (d) Hydro-hammers used to prepare the base or sub-base for the road surface shall not be used within three (3) feet of the top of the pipe. Hydro-hammers may be used at distances greater than three (3) feet above the top of the pipe if the backfill has been compacted to 90% maximum density (Modified Proctor) at optimum moisture content.
- (e) No stone or rock fragment shall be backfilled into the trench nor shall masses of backfilling material be dropped, as from a bucket on excavating equipment, into the trench in such a manner as to endanger the pipe.
- (f) Care shall be taken to prevent stones and lumps becoming nested. All voids between stones shall be completely filled with fine material.
- (g) Any voids left by the removal of sheeting shall be completely refilled with suitable materials thoroughly compacted.
- (h) Pieces of bituminous pavement shall be excluded from the backfill unless expressly permitted by the Sewer Superintendent, in which case the bituminous pavement pieces shall be broken up as directed.
- (i) If, in the opinion of the Sewer Superintendent, the material to be used in backfilling is unsuitable material [see Article A-IV, Section 3.(d)], the material shall be removed and replaced with suitable material.
- (j) Excavated material, which is acceptable for surfacing or pavement sub-base shall be placed at the top of the backfill to such depth as, may be specified elsewhere by the highway surveyor or as directed. The surface shall be brought to the required grade and stones raked out and removed.

### **Section 9. Backfilling Around Structures**

- (a) As soon as practicable after the pipes and manholes have been placed, leakage tests shall be made after which backfilling shall begin and shall thereafter be prosecuted expeditiously. Unequal pressure shall be avoided by carrying the backfill material up evenly. The materials shall be placed and compacted in accordance with Section 8.(c).

### **Section 10. Surplus Material**

- (a) All surplus material is to be removed as directed by the Sewer Superintendent, or property owner.

## Section 11. Pavement

- (a) Road pavements constructed over pipe trenches shall match the existing road surface and be installed after the backfill has been thoroughly compacted. All work shall be done as directed by the Town Highway Surveyor, and shall be in accordance with the standards of the Town of Shirley for Town roads. For state roads all work shall be done in accordance with the Commonwealth of Massachusetts, Department of Public Works Standard Specifications for Highway and Bridges, dated 1988.
- (b) Where the sewer is laid in a paved shoulder, or in a gravel shoulder, or in existing or new rights-of-way including private property, the area disturbed by construction shall be resurfaced to match the original conditions and surface. All sewers laid within right of ways shall be provided with a surface, which is capable of having full access maintained by the highway department, and shall be approved by the highway surveyor.
- (c) Where there is reinforced concrete slab under bituminous concrete top, the reinforced concrete slab shall be restored.
- (d) Where the trench is in a paved road or shoulder or sidewalk or pavement of any kind, after the trench is backfilled, apply a temporary bituminous concrete patch, which shall be maintained so as not to create a nuisance or a traffic hazard until the final surface is applied. All patching and paving work on the Town roads subject to approval by the Town of Shirley Highway Surveyor.

## Section 12. Protection of Slope

- (a) Any slope of the filled-in area, exposed to flooding shall be protected by rip-rap at finished grade. Thickness of rip-rap layer shall be not less than twelve (12) inches.
- (b) All other slopes shall be covered with six (6) inches of loam and properly seeded.

## Section 13. Leakage Testing

- (a) The installed sewer and manholes shall be gas and water tight. Leakage tests shall be made.
- (b) Infiltration shall not exceed 100 gallons per inch diameter in 24 hours per mile of sewer; measured during maximum groundwater conditions.

Calculations:

Infiltration in gallons per day

$$\text{GPD} = \text{Pipe Diameter-inch} \times \frac{\text{Distance - Ft.}}{5280 \text{ ft/mile}} \times 100 \text{ gallons}$$

- (c) Manhole leakage shall not exceed one eighth inch (1/8") drop per hour, after absorption, during a 24 hour water drop test. Manhole testing to be completed prior to construction of invert channels where practicable.
- (d) Building/house services shall be tested by either a dye test of each pipe joint during new construction or a pressure test of the entire line as described in Section 14.

**Section 14. Pressure Testing - Gravity Sewers**

- (a) Pressure testing of gravity sewers shall be of the following methods:
  - (1) Water Drop Test: The sewer shall be subjected to internal pressure by plugging the pipe at the lower end and then filling the sewers and the high manhole with clean water to a height of eight (8) feet above the top of the pipe. The leakage from the sewer will be measured by the volume of water added to the high manhole to maintain the water level in the manhole. Ex-filtration shall not exceed 100 gallons per inch diameter per 24 hours per mile of pipeline [see Section 13.(b)].
  - (2) Air Testing (Preferred Method): If low pressure air testing of the pipe lines is used, air is to be applied slowly until the pressure reaches 4 psi. Allow 2 minutes for temperature adjustment. The test, made between two manholes 300 feet apart, shall conform to the following requirements:
    - (A) Air pressure at start 3.5 psi. Air pressure shall be adjusted 0.433 psi for each foot below ground water table. Water drop test will be adjusted in same manner. Infiltration test may be substituted for air test in high groundwater areas subject to the approval of the Sewer Superintendent.
    - (B) Air pressure at stop 2.5 psi or better for the testing time listed below:

<u>Pipe Size</u>	<u>Time</u>
6'	5 min. 40 sec.
8"	7 min. 36 sec.
10"	11 min. 52 sec.
12"	17 min. 05 sec.
15"	26 min. 42 sec.
18"	38 min. 27 sec.

- (b) Should the sections under test fail to meet the requirements, the leak shall be located and the repairs necessary to eliminate the leak shall be accomplished. The sewer shall then be retested.

**Section 15. Pressure Testing - Force Mains**

- (a) Force mains shall be tested for pressure and leakage in accordance with AWWA C600 - Installation of Ductile Iron Water Mains and Their Appurtenances, except as amended or added below:

- (1) Test Duration: 2 hours.
- (2) Test Pressure: 150% of maximum operating pressure.
- (3) Allowable Pressure Loss: Pressure shall not vary more than  $\pm 5$  psi for the duration of the pressure test.
- (4) Allowable Leakage: Allowable leakage shall be determined by the following formula:

$$L = \frac{SD(P)^{1/2}}{133200}$$

L = allowable leakage, in gallons per hour.  
 S = length of pipe tested, in feet.  
 D = nominal pipe diameter, in inches.  
 P = average test pressure, in psi (gauge).

- (5) Allowable leakage, in gallons per hour, per 1000 feet of pipeline can be determined from the following chart.

Avg. Test Pressure psi	Nominal Pipe Diameter-in.						
	3	4	6	8	10	12	14
250	0.36	0.47	0.71	0.95	1.19	1.42	1.66
225	0.34	0.45	0.68	0.90	1.13	1.35	1.58
200	0.32	0.43	0.64	0.85	1.06	1.28	1.48
175	0.30	0.40	0.59	0.80	0.99	1.19	1.39
150	0.28	0.37	0.55	0.74	0.92	1.10	1.29
125	0.25	0.34	0.50	0.67	0.84	1.01	1.18
100	0.23	0.30	0.45	0.60	0.75	0.90	1.05

**Section 16. Relation to Water Mains and/or Water Services (See Exhibit A)**

- (a) Whenever possible, sewers shall be installed with a minimum of 10 feet horizontal separation between the sewer and potable water lines. Should a lateral separation of 10 feet not be possible, one of the following methods of protection shall be employed. In both methods, the water main invert shall be 18 inches above the sewer crown. Sewer main shall be installed with minimum vertical separation of 18 inches below water main.
  - (1) Lay sewer and water main in separate trench.
  - (2) Lay the sewer and water main in same trench with the water main at one side on a bench of undisturbed earth.
- (b) Whenever sewers must cross under water mains, the sewer shall be laid at such an elevation that the top of the sewer is at least 18 inches below the bottom of the water main. When the elevation of the sewer cannot be varied to meet the above

requirements, the water main shall be relocated to provide this separation or reconstructed with mechanical-joint cement lined ductile iron pipe for a distance of 10 feet on each side of the sewer. One full length of water main should be centered over the sewer so that both joints will be as far from the sewer as possible.

- (c) When it is impossible to obtain horizontal and/or vertical separation as stipulated above, both the water main and sewer shall be constructed of mechanical-joint cement lined ductile iron pipe or other material based on equivalent watertightness and structural soundness. Both pipes shall be pressure tested by an approved method to assure watertightness or both pipes shall be encased in concrete.

#### **Section 17. Cleanouts**

- (a) Cleanouts shall be made of durable corrosion resistant materials conforming in size and thickness to that required for pipe and fittings to which the cleanout will be connected. The design shall be such that the closure plug when properly secured will make a gas-tight and watertight seal.
- (b) Cleanouts shall be installed in building sewers not more than 100 feet apart and at each change of direction, which is greater than forty-five degrees (45°).
- (c) Cleanouts shall have removable plugs or caps and a cast iron cover at finished grade.

#### **Section 18. Elbows - Bends**

- (a) No elbow or bend greater than 45° shall be installed in building sewers. The use of 2 or more 45° elbows may be used upon approval of the Sewer Superintendent. In such cases, a (2) two-foot minimum straight section of pipe shall be installed between each elbow with a cleanout for a practical length to facilitate sewer rooting and cleaning equipment.

## ARTICLE A-VI

### Appurtenant Works

#### Section 1. Interceptors-Grease

- (a) A 1000 gallon (minimum volume) grease trap of design approved by the Sewer Superintendent and in conformance with the requirements of 310 CMR 15.230 – Pretreatment Units – Grease Traps (listed below) shall be installed in the discharge lines of all restaurants, cafeterias, hotels, hospitals, institutional facilities, factories, clubs with food processing facilities, food processing and meat packing facilities, supermarkets, bakeries, and other commercial establishments where grease or other kitchen waste are discharges. Under-the-sink grease traps for new construction are not acceptable.
- (b) The Sewer Use Connection Permit shall include a schedule for maintenance of the grease trap and reporting to the Sewer Superintendent by the Permittee.

#### REQUIREMENTS FOR GREASE TRAPS - 310 CMR 15.230

##### 15.230: Pretreatment Units – Grease Traps

- (1) Grease traps shall be provided for kitchen flows at restaurants, nursing homes, schools, hospitals and other facilities from which quantities of grease can be expected to be discharged.
- (2) Grease traps shall be installed on a separate building sewer serving kitchen flows into which the grease will be discharged. No flow other than kitchen flow shall be discharged to the grease trap.
- (3) Grease traps shall have a minimum depth of four feet and a minimum capacity of 1,000 gallons, and shall have sufficient capacity to provide at least a 24-hour detention period for the kitchen flow. Kitchen flow shall be calculated in accordance with 310 CMR 15.203.
- (4) Grease traps shall be watertight and constructed of the materials specified in 310 CMR 15.221 and 15.226(1) and (2).
- (5) The inlet tee shall extend to the mid depth of the tank. The outlet tee shall extend to within 12 inches of the bottom of the tank. Tees shall be cast-iron or Schedule 40 PVC and properly supported by a hanger, strap or other device.
- (6) Grease traps shall be installed on a level stable base that has been mechanically compacted and onto which 6 inches of crushed stone has been placed to minimize uneven settling.

- (7) Grease traps shall be provided with a minimum 20-inch diameter manhole frame and cover to grade over the inlet and outlet tees.
- (8) Grease traps shall be accessible for inspection and maintenance. No structures shall be constructed directly upon or above the grease trap access locations.
- (9) The invert elevation of the inlet of a grease trap shall be at least two inches above the invert elevation of the outlet. The inlet and outlet shall be located at the center line of the tank, and at least 12 inches above the maximum groundwater elevation.
- (10) Backfill around the grease trap shall be placed in such a manner as to prevent damage to the tank.
- (11) Grease traps shall be maintained in accordance with 310 CMR 15.351.
- (12) Grease removal by other devices located within the building as part of the internal plumbing are not within the jurisdiction of 310 CMR 15.000 and shall not be considered for compliance with 310 CMR 15.230 except with the prior written approval of the Department.

## **Section 2. Interceptors/Separators - Oil:**

- (a) Garages, parking lots, and places where petroleum-based products are used or stored, where Wastes containing petroleum-based grease in levels above those allowed under these regulations are produced or stored, or where oily and/or flammable Wastes, sand, or other harmful materials are produced or stored shall have Separators to intercept such substances prior to their discharge to the Sewerage System.
- (b) The size, capacity, type, and location of each separator shall be subject to approval by the Sewer Superintendent. The applicant shall be responsible for completing and providing to the Sewer Superintendent calculations, design criteria, plans and specifications necessary for approval of the proposed equipment.
- (c) Separators shall be located to allow ready and easy access for purposes of removing the cover, and for service, maintenance, and inspection.
- (d) Separators shall be properly service and maintained. The schedule for service and maintenance of a Separator shall be subject to approval by the Sewer Superintendent. The operator of the premises where the Separator is located shall maintain a log describing the date and type of all service and maintenance performed in connection with the Separator, the identity of the Person who performed the service and/or maintenance, the amount of residue removed from the Separator on each date and the method of disposal of the residue. The log entries shall be maintained for six years and shall be made available for inspection and copying by the Sewer Superintendent.
- (e) In addition to complying with these regulations. Separators shall conform to the regulations of the Board of State Examiners of Plumbers and Gas Fitters, 248 C.M.R. 2.00 (State Plumbing Code), as amended from time to time, and all other

applicable laws.

- (f) Both the owner of the premises where a Separator is required and the owner and/or operator of the establishment or business conducted on the premises, shall be jointly and severally responsible for installing a Separator acceptable to the Sewer Superintendent and for properly servicing and maintaining the Separator.

### **Section 3. Interceptors-Sediment (Solids)**

- (a) All bottling establishments, slaughter houses, barber shops, car washes and other similar locations, as required by the Sewer Superintendent, where wastes bearing plaster, hair, lint, entrails, broken glass, sand, strings or other solids are produced, shall install sediment interceptors as defined and described to separate solids from wastewater entering the building drainage system, public sewer or other point of disposal.
- (b) Construction: Sediment interceptors shall be made of durable corrosion-resistant materials, and shall be equipped with a basket, screens or similar intercepting device, which is removable for cleaning. Sediment interceptors shall be designed in accordance with the requirements of 310 CMR 15.223 – 15.227 Septic Tanks (listed below)
- (c) Installation: Sediment interceptors shall be installed where required, and located accessible for easy cleaning, and subject to approval of the Sewer Superintendent. On lavatories and sinks, the sediment interceptor shall provide a trap seal within the body to serve as the fixture trap. Installation of a sediment interceptor shall preclude the introduction of sanitary wastes into separation.

### **REQUIREMENTS FOR SEDIMENT INTERCEPTORS - 310 CMR 15.223 – 15.227**

- (1) For design flow of 1,000 gallons per day or less, provide a single tank with a minimum effective liquid capacity of 200% of the design flow or a minimum hydraulic detention time of 48 hour, whichever is greater. In no case shall the effective liquid capacity of the tank as measured below the outlet invert elevation be less than 1,500 gallons.
- (2) For design flows greater than 1,000 gallons per day, a two compartment tank or two tanks in series which meet(s) the design criteria specified in 310 CMR 15.203 is required. The minimum effective liquid capacity of each compartment or each tank in series shall be 200% of the design flow. In no case shall the effective liquid capacity of each tank be less than 1,500 gallons.
- (3) The minimum liquid depth of the tank, measured from the outlet tee invert to the bottom of the tank, shall be a minimum of four feet.
- (4) Tanks which are rectangular in cross-section shall have a minimum inside length to width ratio of no less than 1.5 to 1. Round tanks may be allowed. The inside length of all tanks, measured from the inlet tee to the outlet tee, shall be a minimum of six feet. The inside width of the tank shall be a minimum of three feet. Larger length to width ratios are preferred.

- (5) Vertical cylindrical tanks shall have a minimum diameter of five feet.
- (6) Horizontal cylindrical tanks shall have a minimum length of six feet and a minimum width at the liquid surface of three feet.
- (7) For compartmental tanks:
  - (a) The number of compartments shall not exceed two.
  - (b) The first compartment shall be sized to provide a minimum hydraulic detention time of 48 hours based on the design flow.
  - (c) The second compartment shall be sized to provide a minimum hydraulic detention time of 24 hours based on the design flow.
  - (d) The compartments shall be interconnected by a minimum four inch vented, inverted U-shaped pipe that extends below the bottom of the scum layer.
  - (e) The outlet tee and the compartment interconnection shall be equipped with a corrosion resistant gas baffle.
- (8) For tanks in series:
  - (a) The number of tanks shall not exceed two.
  - (b) The design criteria of each tank shall correspond to the requirements of compartmental tanks in 310 CMR 15.224.
  - (c) Tanks in parallel shall not be allowed.
- (9) Construction of sediment interceptors shall be in accordance with the requirements of 310 CMR 15.226.
- (10) Inlet and outlet tees shall be constructed of cast iron, Schedule 40 PVC, or cast in place concrete, and shall extend a minimum of six inches above the flow line of the tank and be on the center line of the tank located directly under the clean-out manhole. Cross-sectional flow baffles shall not be used as substitutes for inlet or outlet tees.
- (11) The minimum separation between inlet and outlet tees shall be no less than the liquid depth of the septic tank and shall be the longest direction (which shall not include the diagonal distance) across the tank in plan view.
- (12) Inlet and outlet tees for rectangular tanks shall be set in the end walls or into a side wall within 12 inches of the end wall. For circular tanks, the inlet and outlet tees shall be set and stabilized on opposite ends of the diameter of the tank.
- (13) There shall be an air space of at least three inches between the tops of the tees and the inside of the tank cover. The tops of the tees shall be left open to provide ventilation or separate ventilation shall be provided. The outlet tee and compartment baffles shall be equipped with gas baffles.

- (14) The inlet pipe elevation shall be no less than two inches nor more than three inches above the invert elevation of the outlet pipe.
- (15) The inlet tee shall extend a minimum of ten inches below the flow line. The outlet shall be provided with a tee extending below the flow line in accordance with the following table:

Liquid Depth in Septic Tank	Depth of Outlet Tee Below Flow Line
4 feet	14 inches
5 feet	19 inches
6 feet	24 inches
7 feet	29 inches
8 feet	34 inches

**Section 4. Roof Drains**

- (a) General purpose, parapet, gutter, cornice, deck or control flow roof drains shall not be connected directly or indirectly to the wastewater collection system.

**Section 5. Floor Drains**

- (a) All areas, which are subject to water spillage, overflow of washing equipment or cleaning water shall have an approved floor drain installed. Every public rest room shall have not less than one (1) approved floor drain connected to the sanitary system. One floor drain shall be installed for each 400 sq. ft. of floor areas or major fraction thereof. All areas where food is either handled or processed shall have sanitary type of floor drains installed.
- (b) Construction:
  - (1) Floor drains shall be constructed of cast iron, bronze or other durable corrosion resistant materials. All internal surfaces shall be sloped to outlet to facilitate drainage. Floor drains installed in rooms which are required to have waterproof floors shall have an integral flange, seepage openings and clamping device which will securely clamp the waterproof membrane. Each floor drain grate must be load rated to safely bear the maximum anticipated load, which will pass over it. Floor drains, which receive debris laden wastewater, shall have a suitable sediment bucket in the drain body, which will intercept and retain this debris.
  - (2) In food handling/processing areas, sanitary floor drains shall have an acid resistant porcelain enamel interior, (or equivalent, as approved by the Sewer Superintendent or Plumbing Inspector), and either a bronze or nickel bronze top rim and grate. Food scraps, peelings and miscellaneous kitchen debris shall be intercepted by a sediment bucket inserted in drain body. Sediment bucket shall be easily removable to permit frequent cleaning.

- (c) Installation: Floor drains shall be installed at the low points of the area to be drained, with tops of drains set flush with finished floor. Drains shall be easily accessible for maintenance.

## **Section 6. Sumps and Ejectors (Internal Plumbing Only)**

- (a) Portions of building drains which cannot be discharged to the building sewer by gravity flow shall be discharged into a tightly covered and vented sump from which the contents shall be lifted (pumped) and discharged into the building gravity drainage system by automatic pumping equipment or by any equally efficient method approved by the Sewer Superintendent. Only such drains that must be lifted for discharge shall be discharged into sumps. All other drains shall be discharged by gravity.
- (b) Design: Sump and pumping equipment shall be so designed as to discharge all contents accumulated in the sump during operation of the emptying cycle. The storage of drainage in a sump or ejector shall not exceed a period of twelve (12) hours.
- (c) Venting:
  - (1) The system of drainage piping below the sewer level shall be installed and vented in a manner similar to that of the gravity system.
  - (2) Building sump vents shall be sized in accordance with the Commonwealth of Massachusetts Plumbing Code.
  - (3) Vents from pneumatic ejectors or similar equipment shall be carried separately to the open air as a vent terminal.
- (d) Duplex Equipment: Sumps receiving the discharge from six (6) or more water closets shall be provided with duplex pumping equipment. The sump vent shall be of proper size to meet the venting requirements based on the discharge rate of the sump pump.
- (e) Sewage Ejectors or Sewage Pumps: A sewage ejector or sewage pump receiving discharge from water closets or urinals shall have a minimum discharge capacity of 20 gallons per minute. In one family dwellings, the ejector or pump shall be capable of passing a 1-1/2 inch diameter solid ball and the discharge piping of each ejector or pump shall have a backwater valve and be a minimum of 2 inches. In other than one-family dwellings, the ejector or pump shall be capable of passing a 2-inch diameter solid ball and the discharge piping of each ejector or pump shall have a backwater valve and be a minimum of 3 inches.
- (f) Sumps for floor foundations and french drains for conveyance of ground water shall not be connected to the building drain or to the wastewater collection system. Discharge of storm waters to the sanitary sewer is forbidden (see "Regulation of Sewer Use Article II, Section 2).

- (g) System shall have audible alarm in a location suitable to warn the building occupants.

## **Section 7. Grinder Pump Systems (Building Sewer Drains)**

- (a) Individual building drains which cannot be discharged to the sewer by gravity flow due to elevation or excessive distance (as defined in Article A-III, Section 4(a)) shall be discharged into a tightly covered and vented pump chamber, basin, or station, from which the contents shall be lifted (pumped) by automatic, grinder type, pumping equipment or by any equally efficient method approved by the Sewer Superintendent and discharged into the gravity sewer system or to a Low Pressure Sewer System which shall discharge to a gravity sewer system.
- (b) Grinder pump stations shall be of the wet pit/dry pit type and shall consist of a grinder pump suitably mounted in a basin having minimum capacity of 60 gallons and constructed of fiberglass reinforced polyester (FRP) resin or corrugated high density polyethylene (CHDPE) with a smooth inner surface. Each basin shall be furnished with an EPDM grommet or PVC closet flange to accept a minimum 4.5" O.D. DWV pipe. Discharge piping shall be 304 stainless steel and terminate outside the pump chamber with 1-1/4 inch NPT fitting. All penetrations in the tank to be factory installed and sealed.
- (c) All outside installations shall be provided with a poured in place, concrete anti-floatation collar of sufficient size and weight to overcome buoyancy forces. Inlet and discharge piping shall be installed at a minimum depth of 4 feet to assure maximum frost protection.
- (d) The Grinder Pump System shall be provided with a NEMA 4X electrical quick disconnect, pump removal system, shut-off valve, anti-siphon valve, and full-ported check valve assembled within the basin, with remote NEMA 3R, UL listed electrical alarm/disconnect panel with all necessary internal wiring and controls. Pumps are to have alarm light and bell with external silence push-button switch, push-to-run switch, and be capable of connection to emergency power source. Duplex units shall have alarm lights, which shall indicate which pump requires service. Pump systems must be capable of either inside or outside installation. For ease of serviceability, all pump systems shall be of like type and horsepower as manufactured by Environment One Corporation or equivalent.
- (e) The grinder pumping equipment must include an integral grinder capable of handling any reasonable quantity of "foreign objects" such as plastic, wood, paper, glass, rubber and the like which find their way into a building sewer drain as a result of carelessness or accident on the part of the building occupants. The grinder pump must be capable of processing such foreign objects without jamming, stalling, overloading or undue noise. Grinder shall process these materials to particles, which will freely pass through the pump and 1-1/4 inch pipe system. The grinder shall be of a configuration to provide a positive flow of solids into the grinding zone with sufficient action to scour the tank free of deposits or sludge banks, which could otherwise accumulate and dislodge and impair the operation of the pump.

- (f) The grinder shall be direct driven by a single, one piece stainless steel motor shaft. The grinder impeller assembly shall be securely fastened to the pump motor shaft. The grinder will be of the rotating type with a stationary hardened and ground chrome steel shredding ring spaced in accurate close annual alignment with the driven impeller assembly, which shall carry two hardened type 400 series stainless steel cutter bars.
- (g) Pumps for low pressure sewer systems shall be semi-positive displacement, progressing cavity, type rated at 11 gpm against a total dynamic head of 92 feet (40 psig) and 9 gpm at 138 feet (60 psig.). The pump(s) shall be capable of operating at negative heads without overloading the motor(s). Motor shall be a minimum of 1 HP, 1725 RPM, 240 volt, 60 Hertz, 1 Phase with a minimum starting torque of 8.4 foot pounds. Pump shall have U.L. certification and be provided with motor protection sized for locked rotor and overload conditions.
- (h) All maintenance functions for the Grinder Pump Station must be possible without entry of the grinder pump station under "OSHA 1910.146 Permit Required Confined Spaces." Therefore each pump and motor unit shall be provided with double lifting hooks with nylon lift out-harness to facilitate pump removal. Outside or underground installations shall provide access through an integral extension of the wet well assembly and shall be provided with a lockable fiberglass cover. All electrical and mechanical connections must be provided with easy accessibility and disconnecting means.
- (i) Low pressure sewer systems shall have redundant check valves and anti-siphon valves. Multiple connections to a low pressure sewer system may be permitted if designed by a qualified Professional Engineer and approved by the Town.
- (j) No more than one single family home may be connected to a single pump unit.

**RECOMMENDED GRINDER PUMP DESIGN TABLE**

<u>OCCUPANCY TYPE</u>	<u>FLOW</u>	<u>PUMP UNITS</u>	<u>STORAGE</u>
<u>ALLONS</u>			
Single Family	0 - 500 gpd	1	60
Duplex	500 -1200 gpd	1	120
Multi-family (3-6 units)	1200-1500gpd	2	120

Applications with greater than 6 units shall be subject to review on a case by case basis.

- (k) Low Pressure sewers shall have pressure sewer cleanouts provided if in excess of between 400 and 600 feet or at junctions of one or more low pressure lines.

**Section 8. Wastewater Pumping Stations**

- (a) Wastewater Pumping Stations shall be protected from physical damage by the 100 year flood and shall remain fully operational and accessible during the 25 year flood. A suitable superstructure, preferably located off the right of way of streets

and alley, shall be provided. The station shall be readily accessible during all weather conditions.

- (b) Pumping stations shall be located on a separate parcel deed to the Town of Shirley, under the control of the Sewer Commission. Each parcel and pump station shall conform w/local zoning and building codes.
- (c) Where it may be necessary to pump wastewater prior to grit removal, the design of the wet well shall receive special attention and the discharge piping shall be designed to prevent grit settling in pump discharge lines of pumps not in operation. Vertical runs of discharge piping shall be kept to a minimum.
- (d) Wastewater pumping stations shall be vacuum-assist, self priming, above ground type. Other types as described herein may be approved where circumstances justify their use. Design considerations shall include, at a minimum, the following items.

(1) Pump Station Requirements

(A) Duplicate pumping equipment shall be provided. If only 2 pumps are provided, either shall be capable of handling peak design flows. Where 3 or more pumps are provided, they shall be designed to fit actual flow conditions and must be so designed that with any one pump out of service the remaining pumps will have capacity to pump peak design flow.

(B) Pumps shall be capable of passing spheres of at least 3 inches (7.6 cm) in diameter. Pump suction and discharge openings shall be at least 4 inches (10.2 cm) in diameter.

(C) Pumps shall be designed for the specific application. Designer shall submit for review, factory certification of pump performance under the proposed operating conditions. Such information shall include static suction lift as measured from "Lead Pump Off" elevation to center line of pump suction, friction and other hydraulic losses of the suction piping, vapor pressure of the liquid, and altitude corrections, required net positive suction head, and a safety factor of at least 6 feet

(D) Vacuum-assist pumps shall be equipped with dual vacuum pumps capable of automatically and completely removing air from the suction lift pump. The vacuum pumps shall be adequately protected from damage due to intake of sewage. The combined total of dynamic suction head at design operating conditions shall not exceed 22 feet (6.7 m).

(E) Motors shall be premium efficiency type, which may be eligible for applicable Massachusetts Electric Company financial assistance, or other similar agency serving Shirley and Groton. If variable speed motors are used, they shall be controlled by variable frequency drives and shall reliably recover from losses of system power.

(F) Provisions shall be made in the piping system for the installation of

in line sewage grinders and odor control devices. Flow measurement devices shall be installed in stations. Run time meters shall be provided for each pump.

(G) Pumping Station wet well shall be reinforced concrete precast or cast-in-place and designed for the structural and buoyant uplift loads. The wet well, or dry well if applicable, shall be thoroughly water proofed with high build epoxy or equal. The effective capacity of the wet well should provide a holding period not to exceed ten minutes for the design average flow. Pump cycle times should be large enough to prevent motor damage. Motor starts should be limited to 6 per hour under average design conditions. Alternating pump cycles shall not be considered as a means to reach the motor start criteria. Floor slope shall have a minimum slope of 1 to 1 to the hopper bottom. The horizontal area of the hopper bottom shall be no greater than necessary for proper installation and function of the inlet. Suction inlet shall be of the bellmouth type. Minimum clearance from suction inlet to bottom of wet well floor shall be  $d/3$  where  $d$  is the suction pipe diameter in inches.

(H) Proper ventilation shall be provided for all pumping stations. There shall be no interconnection between the wet well and dry well or pump house ventilation. Adequate ventilation shall be provided for all wet wells where the pump pit is below ground, or equipment requiring maintenance and inspection are located within the wet well. For continuous operation, at least 12 air changes per hour shall be provided. For intermittent operation, at least 30 air changes per hour shall be provided.

(I) Access to pumps and wet well shall be sufficiently sized for the proper and safe removal of pumps and equipment or access for cleaning. All routine maintenance functions for the Pump Station must be possible without entry of the pump station under " OSHA 1910.146 Permit Required Confined Spaces."

(J) Level sensing devices shall be designed for pump control and high and low level alarms. Sensing devices shall be accessible for inspection and maintenance from the surface of the wet well. Fixed bubbler piping or fixed floats shall be designed to prevent clogging, fouling, or solids collection which would prevent or inhibit their proper operation.

(K) Design shall provide for emergency operations such as: power loss, phase power loss, pump failure, motor high temperature, seal leak, high and low wet well. All pumping stations shall be provided with an independent engine-generator sized so that it can handle peak flows under extended power failure conditions. Generator shall be capable of operating all pumps needed for peak flow periods, lighting, pump controls, alarm controls, heating ventilation and sump pumps. Generator shall be provided with automatic and manual start-up and automatic cut-in capability during loss of normal power or loss of any phase, and automatic exerciser, which may be set on any selected schedule to run generator through a full test cycle on a routine basis. Generator shall be provided with natural gas or diesel when utility

connection is not available in street. Alarms shall be monitored by pump controller and indicate by light and horn: power failure, phase loss, pump failure, high wet well, low wet well. Alarms shall be sent from the controller to an independent programmable alarm phone dialer, which shall notify operations personnel of alarm conditions.

(L) Pump Station building shall be designed to enclose all pumps, controls, and monitoring and generator equipment. Building to provide protection from the weather and shall be heated to prevent freezing and protect equipment from vandalism. Building shall provide access to equipment for maintenance and removal of equipment. The building shall be durable masonry designed to blend into the neighborhood with consideration for appearance, noise and odor control. Screening may be required and will be subject to review by the Commission. The building shall also be subject to local building codes and zoning limitations.

(M) Safety concerns shall be addressed by the designer. When chemical oxidizing agents are used for odor control or pretreatment, appropriate safety and storage facilities shall be provided. Operator emergency eye wash stations and showers are among considerations. Local power lock-out controls shall be provided for all pumps and chemical feed systems. Adequate lighting shall be provided with proper ventilation as defined in this regulation. Lift hooks for pump removal shall be placed over the equipment in a workable location, when possible. Any special tools, lifting devices or equipment needed for service of proposed equipment shall be provided. Safety nets at hatches over pumps or over wetwells are to be provided for protection from falls or to catch failing tools.

(2) Optional Pump Station Requirements

(A) Optional pump station types include dry well type, selfpriming suction-lift and submersible. These stations may be approved where circumstances justify their use. Applicable design considerations in Section 8 are to be met.

(B) Dry well stations shall provide a separate dry well and wet well with separate access and ventilation. Access to the dry well shall be by stairways for operations personnel. Access for equipment removal shall be through hatches with lift hooks to be provided. Dry wells shall be provided with dewatering sump pump(s) to remove leakage or drainage to a point of discharge above the wet well high water alarm. Floors shall be sloped at 0.02 feet per feet to the sump drain.

(C) Self-priming, suction-lift stations are not desirable due to energy requirements during priming.

(D) Self-priming, flooded suction pumps may be used in a dry well type station.

(E) Submersible stations may be considered with the approval of the Sewer Commission, provided they meet applicable requirements of Section 8 and provided the pumps and equipment are specifically designed for submerged use in wastewater. Submersible pumps shall be provided with an effective method of removal for maintenance and replacement without dewatering the wet well or disconnection of any piping in the wet well. Pumps shall be provided with shaft seal failure alarms. All wiring shall meet National Electrical Code for Class I, Division 2 locations. Ground fault interruption protection shall be provided to de-energize the circuit in the event of failure of the power cable or motor housing. Cables shall be provided with strain relief appurtenances. Level sensing devices shall be removable from the surface for cleaning and maintenance.

(F) Additional requirements may be made on the design of pumping stations, as required by the Sewer Commission. Additional requirements may also be made as stated in Article III, Section 2 and 8 of these regulations.

## **Section 9. Equipment Inside Buildings**

- (a) All interceptors (grease, oil and solids) and appurtenant works and equipment installed inside buildings shall be in compliance with the Massachusetts Plumbing Code and the installation shall be inspected by a Plumbing Inspector.

## **Section 10. Low Pressure Sewer Systems**

- (a) Low Pressure Sewer Systems serving more than one low pressure sewer service shall meet all conditions of these regulations including, Article A-IV, Section 3 relative to materials and Article A-VI, Section 7 Grinder Pump Systems.
- (b) Low pressure sewer systems shall be designed for a flushing velocity of 2 feet per

second based on the design flow, discharge head, friction loss, accumulative head loss, pipe size, number of grinder pumps connected to each branch.

- (c) Design to be certified by a Registered Professional Engineer.

Permit No. \_\_\_\_\_

Account No. \_\_\_\_\_

TOWN OF SHIRLEY, MASSACHUSETTS  
BUILDING SEWER APPLICATION AND PERMIT

The undersigned, being the ( ) property owner, ( ) property owner's agent  
of the property located at \_\_\_\_\_, does hereby  
(Number) (Street)

request the Board of Sewer Commissioners to provide a sewer connection to serve this

( ) Residence, ( ) Commercial Building, ( ) Other

Property Owner's Name \_\_\_\_\_ Phone \_\_\_\_\_

Property Owner's Mailing Address \_\_\_\_\_

\_\_\_\_\_, TAX MAP \_\_\_\_\_, LOT \_\_\_\_\_

1. The following indicated fixtures will be connected to the proposed

building sewer: (Check all that apply)

Residential connections: \_\_\_\_\_ Bedrooms

Multi - family: \_\_\_\_\_ Bedrooms

Commercial Connections: \_\_\_\_\_ Type of Business

Industrial Processes: \_\_\_\_\_

\_\_\_\_\_ Square ft. building

\_\_\_\_\_ Employees \_\_\_\_\_ Other

Note: Industrial Processes require completion of Form 2 Industrial Waste Discharge Application.

2. Plans and specifications for the proposed building sewer are attached  
here as "Exhibit A." In consideration of the granting of this permit, the undersigned  
agrees:

A. To accept and abide by the provisions of the Town of Shirley's "Regulation of  
Sewer Design, Construction, and Use" and of other pertinent ordinances or  
regulations.

B. To maintain the building sewer at no expense to the Town of Shirley.

C. To permit authorized employees to enter property for inspection.

Date: \_\_\_\_\_ Signed: \_\_\_\_\_  
(Applicant)

\_\_\_\_\_  
(Address of Applicant)

Submit the following fees with the completed application:

A. Application and Permit Fee.  
Make check(s) payable to "Town of Shirley."

Form No. 1

TOWN OF SHIRLEY, MASSACHUSETTS  
FORM NO. 2  
INDUSTRIAL WASTES DISCHARGE APPLICATION

Application to be completed in duplicate

Date \_\_\_\_\_

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Extension: \_\_\_\_\_

Contact Person: \_\_\_\_\_ Title: \_\_\_\_\_

WASTE DESCRIPTION

Check One

Flow \_\_\_\_\_ gpd industrial \_\_\_\_\_ Plug Flow \_\_\_\_\_ Continuous Flow

Flow \_\_\_\_\_ gpd sanitary \_\_\_\_\_ Plug Flow \_\_\_\_\_ Continuous Flow

Flow \_\_\_\_\_ gpd cooling \_\_\_\_\_ Plug Flow \_\_\_\_\_ Continuous Flow  
water

Flow \_\_\_\_\_ gpd other \_\_\_\_\_  
(describe)

Describe waste generation and type. Provide description of all processes involving waste material, such as chemical addition, dying, etc. Include process flow diagram and what hours discharges are planned. List any and all chemicals used that appear on EPA list of toxic chemicals.

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List Laboratory data from composite and grab samples taken by State Certified Labs

	Date	Date	Date
	_____	_____	_____
	mg/l	mg/l	mg/l
	Sample #1	Sample #2	Sample #3
Antimony	_____	_____	_____
Arsenic	_____	_____	_____
Beryllium	_____	_____	_____
COD	_____	_____	_____
BOD	_____	_____	_____
TSS	_____	_____	_____
Cyanide (dest. by. C12)	_____	_____	_____
Cyanide (total)	_____	_____	_____
Fluoride	_____	_____	_____
Aluminum	_____	_____	_____
Barium	_____	_____	_____
Cadmium	_____	_____	_____
Chromium (+6)	_____	_____	_____
Chromium Total	_____	_____	_____
Copper	_____	_____	_____
Lead	_____	_____	_____
Manganese	_____	_____	_____
Nickel	_____	_____	_____
Silver	_____	_____	_____
Tin	_____	_____	_____
Zinc	_____	_____	_____
pH, standard units	_____	_____	_____
Color (units)	_____	_____	_____
Oil & Grease	_____	_____	_____
Temp°F	_____	_____	_____
Sulfides	_____	_____	_____
Surfactants	_____	_____	_____
Selenium	_____	_____	_____
Mercury	_____	_____	_____
Suspended Solids	_____	_____	_____
Toxic Organics	_____	_____	_____
Petroleum Hydrocarbons	_____	_____	_____
Fats, Oils and Grease	_____	_____	_____

List other chemicals used by this operation and/or compounds

Sample #1 Description

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Sample #2 Description

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Sample #3 Description

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All lab data to be supplied by certified laboratory firm qualified by the Commonwealth of Massachusetts Division of Water Pollution Control.

General Information

Anticipated work force: \_\_\_\_\_

Number of shifts: \_\_\_\_\_

Type of industry: \_\_\_\_\_

Main product of industry: \_\_\_\_\_

Projected date for start of operation: \_\_\_\_\_

Other similar plants in area, state: \_\_\_\_\_

Description of plants: \_\_\_\_\_

The Board of Sewer Commissioners may at their option request further information and testing be performed. In all cases the intent is to provide data to show compliance with Division of Water Pollution Control and (NPDES) National Pollution Discharge Elimination System permits. The Board of Sewer Commissioners reserves the right to require pretreatment of any and all wastes not readily treatable in the Wastewater Treatment Facility. Monitoring of pretreatment systems and discharges to the public sewer shall be performed on a regular basis by the industry. The Board of Sewer Commissioners reserves the right to amend this form and/or the requirements as need be. The Board of Sewer Commissioners reserves the right to request monitoring equipment and or alarms as well as pretreatment as specified in the Town of Shirley's Regulation of Sewer Design, Construction and Use. Pretreatment of waste shall comply with the latest State and Federal Regulations for discharge of metals and toxic substances. The most stringent requirement from either Massachusetts Department of Environmental Protection or U.S. Environmental Protection Agency to be applicable.

I, the undersigned, acknowledge the requirements contained within this application. I certify that all statements made on behalf of the applicant company, by me, are correct and accurate to the best of my knowledge.

\_\_\_\_\_  
Company Officer signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

Application acknowledgement

\_\_\_\_\_  
Town of Shirley,  
Board of Sewer Commissioners

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date Received

Note: This is not a permit and shall not constitute any permit to construct or connect to the public sewer until all conditions are met.



TOWN OF SHIRLEY, MASSACHUSETTS  
FORM NO. 3  
DRAIN LAYER LICENSE APPLICATION

1. Statement of Drain Layer's Qualifications

This data must be included in and made part of the application.  
Failure to comply with this instruction is justification for rejecting the drain layer's application. Only experienced and competent persons may be licensed as drain layers per Appendix A, Article A-II, Section 4.

- A. Name of company and principal personnel.
- B. Business address.
- C. When organized.
- D. Where incorporated.
- E. How many years have you been engaged in the contracting business under the current name?
- F. General character of work performed by your company.
- G. Have you every failed to complete any work awarded to you?
- H. Have you ever defaulted on a contract?
- I. List your major equipment.
- J. List experience in the construction of work of similar magnitude.
- K. Background and experience of the principal members of your personnel including the officers.

2. Statement of Understanding

I \_\_\_\_\_ understand and have made myself  
Applicant

aware of the requirements of the Town of Shirley's Regulation of Sewer Design, Construction and Use and guarantee that all statements made in this application are true and accurate to the best of my knowledge. Failure to comply with the said rules and regulations and the conditions of a particular permit may result in revocation or suspension of this license.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

-----  
office use only

License Fee received \_\_\_\_\_ \$ \_\_\_\_\_  
Bond Certificate provided \_\_\_\_\_  
Insurance Certificate provided \_\_\_\_\_

Licensed Approved

\_\_\_\_\_  
Date

**APPENDIX B**

**CHAPTER 83 OF MASSACHUSETTS GENERAL LAWS  
TOWN OF SHIRLEY, MASSACHUSETTS**

**APPENDIX C**

**INDUSTRIAL DISCHARGE LIMITATIONS  
TOWN OF SHIRLEY, MASSACHUSETTS**

### Specific Discharge Limitations/Local Limits

The following Interim Industrial Discharge Limitations are based upon the Sewer Use Rules and Regulations for the Devens Sewerage Service Area.

(1) Interim Industrial Discharge Limitations. No person shall discharge or cause to be discharged, directly or indirectly into the Shirley Sewerage System waters or wastes containing concentrations in excess of the following values:

<u>Parameter</u>	<u>Maximum Concentration (mg/l)</u>
Antimony	10
Arsenic	0.30
Beryllium	0.30
Cyanide (total)	0.30
Chromium (total)	2.0
Cadmium	0.038
Copper	1.0
Lead	0.25
Nickel	1.0
Silver	0.0146
Zinc	0.75
Selenium	2.5
Mercury	0.001
Total BOD	400
Total Suspended Solids	400
Total Toxic Organics	5.0
Total Petroleum Hydrocarbons	100
Fats, Oils and Grease	100
pH (no units)	5.5 – 9.5

The maximum concentration is the maximum acceptable concentration from one of the following methods of collection:

- a. A grab sample representative of the waste stream.
- b. A composite sample of aliquots representative of the average daily discharge from the facility.
- c. The arithmetic average of the results for multiple samples taken over a 24 hour period or other duration determined by the MGLB and specified in the permit.

The method of sampling and analysis will be in conformance with EPA requirements for sampling and testing of wastewaters. As a minimum, samples will be taken monthly for the first twelve months of operation, then quarterly unless the sampling frequency is modified through written addendum to the permit by the MGLB. The sampling frequency may be modified at the discretion of the MGLB upon written petition by the permittee, based on the results of monthly and quarterly monitoring performed up to the date of the petition. Greater or lesser frequencies of sampling may be required as determined by the MGLB and specified in the discharge permit after review of information provided by the discharger at the time of initial application. All samples shall be taken during normal operations of the facility and should represent characteristics of the normal waste stream. Metal concentrations are total metals limits (i.e. the sum of dissolved and suspended forms). Samples taken for Total Toxic Organics (TTO) shall be 24 hour or normal

shift composites and shall be analyzed in accordance with EPA Methods #608, 624, and 625. The combined total concentration of TTO from these three methods shall be the reportable quantity of TTO and shall be used to evaluate the presence or absence of TTO in the permittee's discharge. In no event may discharge levels exceed applicable National Categorical Pretreatment Standards for industrial discharges defined in 40 CFR, chapter I, subchapter N.

(2) The above limits may be revised based on modifications to the wastewater treatment plant processes, changes in requirements for sludge quality, the nature of industrial discharges from Shirley and other communities, and other factors.



**APPENDIX D**

**TYPICAL PLAN AND PROFILE LAYOUT  
TOWN OF SHIRLEY, MASSACHUSETTS**

**APPENDIX E**

**314 CMR 7: SEWER SYSTEM  
EXTENSION AND CONNECTION PERMIT PROGRAM  
TOWN OF SHIRLEY, MASSACHUSETTS**

**APPENDIX F**

**MASSACHUSETTS DEP “TECHNICAL DESIGN GUIDANCE FOR REVIEW OF  
SEWER CONNECTION/EXTENSION”**

**APPENDIX G**

**GENERAL SEWER SERVICE AREA MAPS**

