

Regulations Governing the Installation  
and Maintenance of the Public  
Sanitary Sewer System in the  
Town of Randolph, Massachusetts

**3/31/2009**

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**Wastewater Use Ordinance  
Town of Randolph, Massachusetts**

An ordinance regulating the use of public and private sewers and drains, the installation and connection of building sewers, and the discharge of waters and wastes into the public/private sewer system, and providing penalties for violations thereof: In the Town of Randolph, County of Norfolk, Commonwealth of Massachusetts.

Be it ordained and enacted by the Board of Public Works of the Town of Randolph, Commonwealth of Massachusetts as follows:

## **Definitions**

Unless the context specifically indicates otherwise, the meaning of terms used in this ordinance shall be as follows:

“Act” - Shall mean Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500), as amended.

“Applicant” or “Owner” - Shall mean any person(s) requesting permission to discharge industrial wastes or sanitary sewage into the sewage works of the Town of Randolph.

“Agent” - Shall mean any individual, firm or corporation hired by the applicant or owner to install a building drain or building sewer.

“Available” - A public/private sewer shall be considered available when the property upon which a building is situated abuts a street, easement, or right of way in which a public/private sewer is located. If said building is more than one hundred fifty feet (150') from the nearest public sewer, application may be made in writing requesting a declaration that public sewer “is not available”.

“Authority” - Shall mean the Massachusetts Water Resources Authority, Commonwealth of Massachusetts, or its duly authorized representative(s).

“Biochemical Oxygen Demand” (Denoted “BOD”) - Shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures in five (5) days at 20° C, expressed in milligrams per liter.

“Board” - Shall mean the Randolph Board of Public Works, or their duly authorized deputy, agent or representatives(s).

“Building Drain” – Shall mean that part of the lowest horizontal piping of the drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and convey it to the building sewer beginning five (5) feet outside the inner face of the building wall.

“Building Sewer” - Shall mean the extension from the building drain commencing at the inner face of the building wall and extending to the public/private sewer or other place of disposal.

“Chemical Oxygen Demand” (Denoted “COD”) - Shall mean the quantity of oxygen utilized in the chemical oxidation of organic matter with a strong chemical oxidant, expressed in milligrams per liter.

“Combined Sewer” - Shall mean a public/private sewer receiving both surface water runoff and sewage.

“Compatible Pollutant” - Shall mean a substance that is amenable to removal in substantial amounts by a sewage treatment plant. Compatible pollutants include, but are not limited to, coliform bacteria, suspended solids, and those that substances exert BOD.

“Controlled Wastes” - Shall mean solid, liquid or gaseous materials or substances discharged into the public/private sewer within certain limitations as described in MWRA sewer application form.

“DPW” – Shall mean Randolph Department of Public Works.

“Easement” - Shall mean a certain area of land designated by the Board for maintenance of the wastewater system. The owner is required to keep this “Easement” accessible and free and clear to the DPW.

“Equalization of Waste Flows” - Shall mean an averaging of variations in flow and composition of sewage from particular sources by an equalizing basin or other means to provide a flow of reasonably uniform volume and composition prior to discharge into a public/private sewer may be required.

“Excessive” - Shall mean amounts or concentrations of a constituent of sewage which, in the judgement of the Board or its designee, will cause damage to any sewage works, which will be harmful to a sewage treatment plant to the degree required to meet the limits set forth in the plant’s discharge permit, and/or which can constitute a nuisance.

“Floatable Oil” - Shall mean oil, fat or grease in a physical state such that, it will separate by gravity from sewage by treatment in an approved pretreatment facility.

“Garage” - Shall mean any building wherein is kept or stored one or more motor vehicles including among others a public or private garage, carport, motor vehicle repair shop or paint shop, service station lubritorium, car wash, or any building used for similar purposes.

“Garbage” - Shall mean solid wastes from the domestic and commercial preparation, cooking, and dispensing of food, and from the handling, storage and sale of produce.

“Illicit Connection” shall mean any connection to a sewer which allows inflow to discharge to a sewer system.

“Incompatible Pollutant” - Shall mean a substance that is not amenable to removal in substantial amounts by a sewage treatment plant. Incompatible pollutants include, but are not limited to, toxic metals and persistent organics.

“Industrial User” - Shall mean any user identified in the Standard Industrial Classification Manual of the U. S. Office of Management and Budget, as amended and supplemented, under the following divisions:

- A. Division A - Agriculture, Forestry, and Fishing
- B. Division B - Mining

C. Division C - Manufacturing

D. Division E - Transportation, Communication, Electric, Gas, and Sanitary Services

E. Division I - Services

“Industrial Wastes” - Shall mean the solid, liquid or gaseous wastes from industrial manufacturing, processing, trade or business as distinct from sewage discharged from residences or from commercial establishments whose sewage is similar in strength to that discharged from residences.

“Infiltration” - Shall mean the water entering the sewage system, including building sewers, from the ground or water body through such means as, but not limited to, defective pipes, pipe joints, connections or manhole walls.

“Inflow” - Shall mean the water discharged into the sewage works, including building sewers from such sources as, but not limited to, roof leaders, cellar, yard and area drains, foundation drains, cooling water discharges, drains from springs and swampy areas, manhole covers, cross connections from storm sewers and combined sewers, catch basins, storm waters, surface runoff, street wash water, drainage or sump pumps.

“Massachusetts Water Resources Authority (MWRA)” - Shall mean all the cities, towns and sewer districts served by the Authority in accordance with legislation.

“May” - is permissive.

“Milligrams per Liter” - (mpl) - Shall mean a unit of the concentration of water or sewage constituent. It is 0.001 gram of the constituent in one (l) liter of water.

“Municipality” - Shall mean any Town, town or sewer district that discharges sewage or septage into the Metropolitan Sewerage System whether the Town, town or district is a member of the MWRA Sewerage District or is served by contract with the Authority.

“Natural Outlet” - Shall mean any outlet into a watercourse, pond, ditch, lake or other body of surface or groundwater.

“Ordinance” - Shall mean Regulations Governing the Installation and Maintenance of the Public Sanitary Sewer System in the Town of Randolph, Massachusetts.

“Parcel” – Shall mean an area of land as marked on the assessment drawings on file in the office of the Town Assessor, Randolph, Massachusetts.

“Permit” - Shall mean the written application for either residential, commercial, or industrial waste sewerage service from the Board or Authority.

“Person” – Shall mean any individual, for company, association, society, corporation, group, or partnership.

“pH” – Shall mean the logarithm of the reciprocal of the concentration of hydrogen ions in moles per liter of solution.

“Pretreatment” - Shall mean any treatment of sewage to make it suitable for discharge to a public/private sewer.

“Private Sewer” - Shall mean a sewer which the public authority has not accepted control or ownership rights, or maintenance responsibilities.

“Prohibited Wastes” - Shall mean solid, liquid or gaseous materials or substances forbidden from discharge into the public/private sewer.

“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 inch (1/2”), in any dimension.

“Public Sanitary Sewer System” – Shall mean the public system of sanitary sewers installed by the Town of Randolph pursuant to the authority conferred by Acts of 1955, Chapter 273.

“Public Sewer” – Shall mean any portion of the municipal sanitary sewer system in which all owners of abutting properties have equal rights, and which is controlled by municipal authority.

“Receiving Waters” - Shall mean any watercourse, river, pond, ditch, lake, aquifer, ocean or other body of surface or groundwater receiving discharge of sewage or effluent.

“Representative” - Shall mean a duly authorized employee or person from the Authority or the town investigating or enforcing provisions of this ordinance or any other applicable Town, Federal or State rule, regulation or law.

“Regulations” – Shall mean Regulations Governing the Installation and Maintenance of the Public Sanitary Sewer System in the Town of Randolph, Massachusetts.

“Sanitary Sewage” – Shall mean a combination of the water-carried wastes from residences, business buildings, institutions, and industrial establishments, together with such ground, surface, and stormwaters as may be present.

“Sanitary Sewer” - Shall mean a public/private sewer which carries sewage and to which storm, surface and groundwaters are not intentionally admitted.

“Septage” - Shall mean the liquid and solid wastes of sanitary sewage origin that are removed from a cesspool, septic tank or similar receptacle.

“Sewage” - Shall mean a combination of the liquid and water-carried wastes from residences, commercial buildings, industrial plants, and institution, together with any groundwater, surface water and storm water that may be present.

“Sewage Treatment Plant” - Shall mean any arrangement of devices and structures used for treating sewage.

“Sewage Works” - Shall mean all facilities for collecting, pumping, treating and disposing of sewage.

“Sewer” - Shall mean a pipe or conduit for carrying sewage.

“Shall” - is mandatory, “May” is permissive.

“Slop Sink” – Shall mean a janitor’s type sink.

“Sludge” - Shall mean waste containing varying amounts of solid contaminants removed from water, sanitary sewage or industrial wastes by physical, chemical and biological treatment.

“Slug” - Shall mean any discharge of water, sewage, or industrial waste which in concentration of any given constituent or in quantity of flow exceeds, for any period of duration longer than fifteen (15) minutes, more than five (5) times the average twenty-four (24) hour concentration of flows during normal operation.

“Storm Drain” (sometimes termed “Storm Sewer”) - Shall mean a pipe which carries storm and surface waters and drainage; but sewage and industrial wastes, other than unpolluted cooling water, are intended to be excluded.

“Suspended Solids” (Denoted “SS”) - Shall mean solids that either float on the surface of, or are in suspension in water, sewage, industrial wastes, or other liquids, and which are removable by laboratory filtering.

“Toilet” – Shall mean each individual toilet bowl.

“Town” – Shall mean the Town of Randolph in the County of Norfolk, Commonwealth of Massachusetts.

“Toxic Wastes” - Shall mean wastes 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 sewage treatment process, constitute a hazard to humans or animals, create a public nuisance or create any hazard in the receiving waters of a sewage treatment plant and those wastes so specified in this ordinance and in the Act.

“Water Pollution Control Plant” – Shall mean any arrangement of devices and structures used for treating sewage.

“Watercourse” - Shall mean a channel in which a flow of water occurs, either continuously or intermittently.

## **Section 1**

### **General Information**

#### **1.1 Connection to Public/Private Sewer**

- A. The owner(s) of all houses, buildings, or properties used for human occupancy, employment, recreation, or other purposes, situated within the Town and abutting on any Street, easement, alley, or right-of-way in which there is now located or may in the future be located a public sanitary sewer of the Town, is hereby required at the owner(s)' expense to install suitable plumbing facilities therein, and to connect such facilities directly with the proper public sewer in accordance with the provisions of this ordinance, plumbing rules and regulations, or any other applicable rules and regulations of the Town, within 60 days after date of official notice to do so by the Board.
- B. The plumbing shall be so arranged as to keep such waters separate from the sanitary sewage and connections shall be made which will conduct the waters to the drain or watercourse and the sewage to the sanitary sewer.

#### **1.2 Abandoning Existing Cesspools/Septic Systems**

- A. All buildings with failed cesspools or septic systems shall be required to connect to the proper public/private sewer within a timeframe as determined reasonable by the Board of Health. All existing cesspools or septic tanks shall be emptied into licensed tank truck sewage disposal vehicles only, and then filled with crushed stone or gravel by the drain layer immediately upon sewer service being placed into active service. No contents of septic tanks or cesspools shall be discharged to the public sewer.

#### **1.3 General Information**

- A. All wastewater customers are responsible for cleaning, maintaining, repairing or replacing any particular sewers or service lateral from their property line to their building that fronts on a public way. All customers on a private way are responsible for all services, distribution pipes and pump stations up to the public way. The Town assumes the liability when located in the public way.
- B. If any waters or wastes are discharged, or are proposed to discharge to the public/private sewers, which contain the substances or possess the characteristics enumerated in these Regulations, and which, in the judgment of the Board, may have a deleterious effect upon the sewage works, processes, equipment, or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the Board may:
  - 1. Reject the wastes.
  - 2. Require pretreatment to an acceptable condition for discharge to the public/private sewers.
  - 3. Require control over the quantities and rates of discharge, and/or treatment of said fluids.

4. Require payment to cover the added cost of handling and treating the wastes not covered by existing taxes or sewer charges.
- C. Where installed, all grease, oil, and sand interceptors shall be maintained by the owner, at his expense, in continuously efficient operation at all times.
  - D. If the Board permits the pretreatment or equalization of waste flow, the design and installation of the plants and equipment shall be subject to the review and approval of the Board and MWRA and subject to the requirements of all applicable codes, ordinances and by-laws.
  - E. Notwithstanding the limitations set forth above, a special temporary permit or amendment to an existing permit between the MWRA and the Town and the user may be issued a special temporary permit whereby a waste of unusual character or strength may be accepted on a interim basis which is unusual or extraordinary circumstances compel special terms and/or conditions of temporary durations. Such permits or amendments will be issued only when they would not cause any interference with or disruption in the treatment works, would not violate the NPDES permit or Commonwealth water quality standards, and would not force additional controls on other discharges to achieve compliance with effluent limitations.
  - F. 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 Board at least forty-five (45) days prior to the change or connection.
  - G. No unauthorized 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 sewage works. Any person(s) violating this provision shall be subject to immediate arrest under charges of disorderly conduct.
  - H. No unauthorized person shall enter or remain in or upon any land or structure of the Water and Sewer works. Any person violating this provision shall be subject to charges of trespass.

#### 1.4 Prohibited Wastes

- A. It shall be unlawful for any person to place, deposit, or permit to be deposited in any unsanitary manner on public or private property within the Town, or in any area under the jurisdiction of said Town, any human or animal excrement, garbage, or other objectionable waste.
- B. It shall be unlawful to discharge to any natural outlet within the Town, or in any area under the jurisdiction of said Town, any wastewater or other polluted waters, except where suitable treatment has been provided in accordance with subsequent provisions of this ordinance.

- C. Except as hereinafter provided, it shall be unlawful to construct or maintain any privy, privy vault, septic tank, cesspool, or other facility intended or used for the disposal of wastewater.
- D. It is a violation of the Regulations to allow inflow/infiltration to exist. Should inflow/infiltration be suspected, the owner shall notify the DPW to investigate. Upon confirming the existence of a problem in the system, the owner will be notified and given ten (10) days to secure a contractor to make the necessary repairs. Should the violator fail to follow through within the given time period, a notice by Certified Mail shall be sent giving the violator a final ten (10) days to repair the failure, after which a fine maybe levied for each day thereafter.
- E. No person shall discharge or cause to be discharged any wastes, sewage, or industrial wastes in any manner or method without proper treatment subject to approval by the Board.
- F. All industries discharging into a public sewer shall perform such monitoring of their discharges as the Board and/or other duly authorized employees of the Town may reasonably require including installation, use, and maintenance of monitoring equipment, keeping records, and reporting the results of such monitoring to the Board. Such records shall be made available upon request by the Board or other Agencies having jurisdiction over discharges to the receiving waters.
- G. No person shall discharge, or cause to be discharged, any storm water, surface water, groundwater, cellar floor drainage, roof runoff, subsurface drainage, uncontaminated cooling water, unpolluted industrial process waters, exhaust from steam engines, or blow-off from boilers to any sanitary sewer.
- H. No person shall discharge, or cause to be discharged, or connect with the public sanitary sewers either directly or indirectly, any steam exhausts, boiler blow-offs, sediment traps, or pipes carrying hot circulating water.
- I. Storm water and all other unpolluted drainage shall be discharged to such drains as are specifically designated as storm sewers, or to a natural outlet approved by the Board. Industrial cooling water or unpolluted process waters may be discharged, on approval of the Board, to a storm drain or natural outlet.
- J. Except as hereinafter provided, no person shall discharge or cause to be discharged any of the following described wastes or wastes to any public/private sewers:
  - 1. Any gasoline, benzene, naphtha, fuel oil, crude oil, lubricating oils, flammable or explosive liquids, solids, or gasses, or any other oils or gasses of hydrocarbon or petroleum origin.
  - 2. Any waters or wastes containing toxic or poisonous substances, solids, liquids, or gasses in sufficient quantity, either singly or by interaction with other wastes, to injure or interfere with any sewage treatment process, constitute a hazard to

humans or animals, create a public nuisance, or create any hazard in the receiving waters of the sewage treatment plant.

3. Any waters or wastes having a pH lower than 5.5 or higher than 9.0, or having any other corrosive property capable of causing damage or hazard to structures, equipment, and personnel of the DPW.
4. Solid or viscous substances in quantities or of such a size capable of causing obstruction of the flow in public/private sewers, or other interference with the proper operation of the sewage works such as, but not limited to, ash, ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood rubber, latex, underground garbage, whole blood, paunch manure, hair and fleshings, entrails, paper dishes, cups, and milk containers, abrasive materials, etc., either whole or properly shredded by garbage grinders.
5. Any liquid or vapor having a temperature higher than one hundred fifty degrees Fahrenheit (150°F).
6. Any water or waste, whether emulsified or not or containing substances which may solidify or become viscous at temperatures between thirty-two degrees (32°F) and one hundred fifty degrees (150°F), (0°C and 65°C), which may contain more than 100 parts per million by weight of fat, wax, grease, or oils of vegetable or animal origin. The use of chemical or physical means (such as temperature variation, emulsifying agents, or mechanical mixers (to bypass or release fats, oils, and greases into the public/private sewer system is prohibited.
7. Any garbage that has not been properly shredded. The installation and operation of any garbage grinder equipped with a motor of three-fourths (3/4) horsepower (0.76 hp metric) or greater shall be subject to the prior review and approval of the Board.
8. Any waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions whether neutralized or not.
9. Any waters or wastes containing iron, chromium, copper, zinc, and similar objectionable or toxic substances; or wastes exerting an excessive chlorine requirement, to such degree that any such material received in the composite sewage at the sewage treatment works plant exceeds the limits established by the Board for such materials.
10. Any waters or wastes containing phenols or other taste or odor producing substances, in such concentrations exceeding limits which may be established by the Board, as necessary, after treatment of the composite sewage to meet the requirements of the State, Federal, or other public agencies or jurisdiction for such discharge to the receiving waters.

11. Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits which may be established by the Board in compliance with applicable State or Federal regulations.
12. Any material which exerts or causes:
  - a. Unusual concentrations of inert suspended solids (such as but not limited to, Fullers' earth, lime slurries, and lime residues) or of dissolved solids (such as, but not limited to, sodium chloride and sodium sulfate).
  - b. Excessive discoloration (such as, but not limited to, dye wastes and vegetable tanning solutions).
  - c. Unusual BOD, chemical oxygen demand, or chlorine requirements in such quantities as to constitute a significant load on the sewage treatment works plant operations.
  - d. Unusual volume of flow or concentration of wastes constituting slugs.
13. Any waters or wastes containing substances which are not amenable to treatment or reduction by the sewage treatment process employed, or are amenable to treatment only to such degree that the sewage treatment plant effluent cannot meet the requirements of other public agencies having jurisdiction over discharge into the receiving waters.
14. Grease, oil and sand interceptors shall be provided and maintained by the Owner (not the Town) when, in the opinion of the Board, they are necessary for the proper handling of liquid wastes containing 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 Board and shall be located outside the building as to be readily and easily accessible for cleaning and inspection. Each restaurant must have an approved grease trap. Each gasoline station must have an approved gasoline trap. Each car wash must have an approved sand trap.
15. All licensees are required to give a full written report to the Board within 24 hours in the event that prohibited substances are found in a sewer or house drain during the course of the work.

#### 1.5 Industrial Wastes

- A. Every user discharging industrial wastes to the public/private sewers or directly into the MWRA sewerage system shall obtain a joint permit from the MWRA and the Town. Industrial users proposing new discharges shall obtain such permits prior to constructing a building sewer. The MWRA and the Board may change the conditions of a permit from time to time as circumstances, including regulations enacted or promulgated by the Federal or State government or its agencies, may require. The Authority and permit will be issued. No user may increase the daily volume, strength or rate of his permitted

discharge without first securing an amendment to his permit. A permit shall not be reassigned or transferred.

- B. Known industrial users who have not filed a permit application will be notified promptly by the MWRA, the Board or its duly Authorized representative to apply for a permit. As additional users become identified through industrial waste surveys, they will be notified to apply for a permit. All industrial users are advised to apply for a permit prior to such notification. Permit application forms may be obtained from the MWRA and shall be filed within thirty (30) calendar days of notification.
- C. The MWRA and the Board shall evaluate the adequacy of data furnished in the application form. If insufficient data has been furnished, the Authority will notify the industrial user to provide additional data within a specified time. After acceptance of data, the MWRA will issue the permit. The MWRA and the Board may stipulate special conditions and terms upon which the permit may be issued.
- D. If an industrial users discharge amount or rates of pollutants in violation of these regulations, the Authority or the Board may revoke the existing permit. If an industrial user shows that changes in the industrial discharge, the permit may be modified upon application by the industrial user to the MWRA and the Board.
- E. Permits may contain the following conditions:
  - 1. Limits on rate, time and characteristics of discharge or requirements for flow regulation and equalization.
  - 2. Installation of inspection, flow measurement and sampling facilities including access to such facilities.
  - 3. Specifications for monitoring programs which may include flow measurement, sampling, chemical and biological tests, recording of data, and reporting schedule.
  - 4. Pretreatment requirements and schedules for implementation, including schedules for reporting progress towards meeting these requirements.
  - 5. Submission of discharge reports.
  - 6. Schedules for the payment of industrial cost recoveries.
  - 7. Special service charges or fees.
  - 8. Other conditions as deemed appropriate by the MWRA, the Board or their duly Authorized representative, to ensure compliance with these regulations and with applicable requirements of Federal or State law.

- F. When required by the permit, each industrial permittee shall submit a duly signed report to the Authority and the Board containing all information requested by the Authority, the Board or their duly Authorized representative. Such reports will be submitted at the specified intervals in a form acceptable to the Authority and the Board.
- G. Measurement and analyses of industrial wastes are to include the following list where applicable. If any item is not applicable, it shall be so stated on the report of the measurements and the reason for deletion stated.

Physical Parameters

Flow  
 pH  
 Temperature  
 Color  
 Specific Conductance

Chemical and Biological Parameters

|                        |   |
|------------------------|---|
| Total solids           | Sulfate                                       |
| Total volatile solids  | Sulfide                                       |
| Total suspended solids | Phenols                                       |
| Total dissolved solids | NH <sub>3</sub> (as N)                        |
| Acidity                | NO <sub>3</sub> (as N)                        |
| Alkalinity             | NO <sub>2</sub> (as N)                        |
| 5-day BOD              | Kjeldahl Organic Nitrogen (as N)              |
| COD                    | Ortho-phosphorus (as P)                       |
| Oil and grease         | Total phosphorous (as P)                      |
| Chloride               | Cr, Cu, Fe, Cd, Pb, Mn, Zn, F, As, Hg, Ni, Ag |

- H. For all industries with an average sewage flow of less than 3,000 gallons per day, flow shall be measured with a sealed water meter on the water supply line. For all industries with an average sewage flow of 3,000 gallons per day or more, a sewage flow measuring device of a type approved by the Board or their duly appointed representative may be installed and maintained by the owner at his expense for the purpose of sewage flow measurement.
- I. The MWRA and the Town may use the information provided in the permit applications, permits and reports as the basis for determining user charges and industrial cost recovery payments.

1.6 Illicit Connections

- A. Randolph's sanitary sewer collection system is designed to accommodate wastewater flows and is not designed to carry storm water or groundwater. However, inflow and infiltration (I/I) reach the sanitary sewer system under wet weather conditions in such volume to cause the system to surcharge.

- B. The purpose of these Regulations is to more clearly set forth provisions that prohibit illicit I/I connections to its sanitary sewer system and provide notice as to the procedures the Town will undertake to enforce the ordinance provisions. The intent is to strictly enforce the ordinance provisions to assure no illicit connections or discharges are made to the sanitary sewer system.
- C. Upon finding and verifying an illicit sump pump, roof, or area drain connection to the Town sanitary sewer system, the Town shall initiate the separation process with a certified Letter of Violation to the property owner responsible for that illicit connection. The letter will detail the illicit connection, inform the property owner of the violation of the Town Code, and advise the property owner on how to proceed to eliminate the illicit connection, and to notify the Town for an inspection at the time of separation.
- D. If there is an adequate outlet, separation shall generally be required in 30 days. If excavation is required, the time frame may be extended to avoid winter excavation in frozen ground conditions. There will be a provision to allow a property owner to request additional time for separation, but only upon demonstration of unusual conditions and agreement to a compliance schedule acceptable to the Town.
- E. If there is not an adequate outlet, the Town shall determine what is necessary to provide an adequate outlet and schedule. Once the Town makes an adequate outlet available at the property line, a follow-up letter will be delivered to the property owner notifying the property owner to complete the separation within the upcoming 30 days.
- F. If compliance is not achieved within the time frame provided for in the Letter of Violation process, then the Town would initiate further enforcement action. The property owner would be served with a Notice of Violation and Order of Determination setting forth the required separation and reasonable time frame for completion. The property owner would be informed of potential penalties for violation.

## 1.7 Monitoring

- A. When required by the Board, 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 accessible and safely located, and shall be constructed in accordance with plans approved by the Board. 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.
- B. All measurements, tests, and analyses of the characteristics of waters and wastewater to which reference is made in this Ordinance shall be determined in accordance with "Standard Methods for Examination of Water and Sewage", published by the Public Health Service, and the latest edition of "Standard Methods for the Examination of Water and Wastewater", published by the American Public Health Association. In the event that no special manhole has been required, the control manhole shall be a

sampling point acceptable to the Board. In the event that no special manhole shall be considered to be the nearest downstream manhole in the public/ private sewer to the point at which the building sewer is connected.

- C. 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 outfalls 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 24-hour composites of all outfalls whereas pH's are determined from periodic grab samples.

#### 1.8 Notice of Accidental Discharge

- A. Any person responsible for, or becoming aware of the discharge to a public/private sewer, accidental or otherwise, of any prohibited substance or of any sludge as defined herein, shall report same immediately by telephone to the Board or its duly authorized representative so that necessary precautions can be taken to minimize any harmful impact to the system. The event shall be followed, within 15 days of the date of occurrence, by a detailed written statement to the MWRA and the Board describing the causes for the accidental discharge and the measures being taken to prevent future occurrence. Such notification will not relieve users of liability for any expense, loss or damage to the MWRA Sewerage System and the Town's sewage works, or for any fines imposed by the Authority or the Town.

#### 1.9 Penalties

- A. Any person found to be violating any provision of this Regulation, shall be served by the Town with written notice stating the nature of the violation and providing a reasonable time limit for the satisfactory correction thereof. The offender shall, within the period of time stated in such notice, permanently cease all violations.
- B. Any person who shall continue any violation beyond the time limit provided shall be charged to the fullest extent of the law. Each day in which any such violation shall continue shall be deemed a separate offense. If the violation continues, the Board shall direct Town Counsel to seek an injunction in the Superior Court of the Commonwealth of Massachusetts requiring the offender to cease all violations.
- C. Any person violating any of the provisions of these Regulations shall become liable to the Town for any expense, loss, or damage occasioned by the Town by reason of such violation.
- D. Penalties are for a misdemeanor offense and shall be \$200.00 for every illicit connection per day per violation. All other violations of these regulations are subject to a penalty of \$100 per day of violation.

## 1.10 Application of Regulations

- A. The validity of any section, clause, sentence, or provision of these Regulations shall not affect the validity of any other part of these Regulations which can be given effect without such invalid part or parts.
- B. The Board may from time to time, add to, delete from, change or clarify any of these rules and regulations. Any request for amendment of these rules and regulations must be submitted in writing, with the reasons therefore, to the Board for its approval. Said amendment shall be in force only after its passage, approval, recording and publication as provided by the law.
- C. In addition to the rules and regulations set forth in this Regulation, all persons shall comply, in full, with the Sewer Use Ordinance of the Massachusetts Water Resources Authority.
- D. These Regulations shall supersede any and all previous Rules and Regulations and shall be in full force and effect from and after passage, recording, and publication as provided by law.

## 1.11 Submittals

- A. The developer may be required by the Board to submit plans for review and approval of proposed subdivisions and/or private pumping stations. All plans shall conform to the following parameters:
  - All plans must be standard 24" x 36". Scaling shall be 40 (horizontal) and 4 (vertical).
  - Stamped by a Registered Professional Engineer in Massachusetts.
- B. Plans shall depict the following information, if applicable:
  - Sewer main and force main plan and profiles.
  - Datum.
  - Bench elevations.
  - Locations of existing utilities including pipe size and material (sewer, water, drain, gas, telephone, etc). Existing utilities must be clearly marked "Existing" with flags and/or broken lines. Proposed utilities must be clearly marked "proposed" with flags and/or solid lines.
  - Site plan of pump station wetwell, pumps, controls, generator, fence, etc.
  - North arrow.
  - Water bodies.
  - Wetlands, wetland flags, and buffer zones.
  - Easement boundaries.
  - Boring locations.
  - The Title Block must describe the location with reference to existing streets, some known place, or other approved plan.

- C. The following information, if applicable, shall be submitted to the Board for review and approval:
- Amount of sewage to be handled by sewer system (gallons/day).
  - Calculations showing that all downstream sewers can handle flows generated from the development.
  - Nature of waste.
  - Boring logs.
  - Pump station capacity.
  - Pump curves.
  - Wet well capacity.
  - Methodology of pump station construction.
  - Methodology of wet well construction.
  - Size of pump station emergency generator (auxiliary power must be provided with automatic transfer).
  - Pump station alarm system.
- D. The proposed design shall conform to the following requirements:
- Sewer manholes, pipe, fittings, and appurtenances shall conform with the materials specified in these Regulations.
  - Minimum cover on PVC pipe is 5-feet depending on geology and location.
  - Minimum cover on DI pipe is 4-feet depending on geology and location.
  - Gravity sewer is preferred where possible.
- E. The developer shall comply with the following general requirements:
- The developer will obtain all necessary permits and permission to do work on Federal, State and Town property, also the cost for easements, rights, permits and/or bonds will be paid for by the developer.
  - Construction and maintenance costs do not exclude developer or future owner from sewer assessment for tying into the public sewer system and use of the public system.
  - Only a licensed Tile Layer or Sewer Contractor shall be approved as the General Contractor.
  - All cost of construction and maintenance of the new system shall be paid for by the developer.
  - Only original plans (on mylar) may be submitted for review and approval. These will be held by DPW. Prints and working drawings may be submitted for discussion.
  - No construction shall start until permission is given in writing by the Board, and a permit is granted.
  - Construction can be stopped at any time, when in the opinion of the Board, the work is not satisfactory or it is in the best interest of the Town to do so.
  - No changes shall be made to the original approved plan accepted by the Board. Any changes that are to be made must have the Board's approval.
  - Record drawings must be submitted at the completion of the project construction. Record drawings will show center of all sewer manhole covers, rims and inverts, sizes of sewer pipes and distances from the center of the manholes to any wyes,

tees, etc. A minimum of three ties to permanent structures will be provided to determine their location. All houses, lot numbers, property lines, roadways and any easements shall be shown.

- If the property is sold, the agreement between the Town and original owner shall be conveyed to the new owner regarding the bonds, permits, fees, maintenance, etc.

## **Section 2 Licensing**

### 2.1 Master Drain Layers Licensure

- A. Master plumbers, journeyman plumbers and drain layers of established reputation and experience will be licensed by the Board as Master Drain Layers authorized to perform work, subject to compliance with the following requirements:
1. Applicants for licenses are required to pay a filing fee in accordance with the fee schedule adopted by the Board annually as Master Drain Layer, payable to the Town, all of which will be refunded to the applicant if his application is rejected.
  2. If approved by the Board, applicants for licenses shall file with the Board a proper and acceptable Performance and Guarantee Bond in the amount of \$2,000.00, which shall remain in full force and effect for a period of one year from the date of application.
  3. Applicants for licenses, after approval by the Board, shall file with the Board a Certificate of Insurance in the sums of \$100,000 - \$300,000 to cover Public Liability and Certificate of Insurance in the sum of \$50,000 covering Property Damage, including explosion, underground, and collapse. In addition, a Certificate of Insurance covering Workmen's Compensation shall be filed, all of which shall remain in full force and effect for a period of at least one year from the date of approval. Said insurance shall indemnify the Board and the Town of Randolph against any and all claims, liability or action for damages, incurred in or in any way connected with the performance of the work by a Master Drain Layer, and for or by reason of any acts of omission of said Master Drain Layer in the performance of the work by a Master Drain Layer, and for or by reason of any acts or omission of said Master Drain Layer in the performance of his work.
- B. The Board will license Master Plumbers, Journeyman Plumbers and Drain Layers who are personally engaged in the installation of sewer and drain connections upon payment of a license fee in accordance with the fee schedule adopted by the Board annually.
- C. All licenses expire on December 31st at midnight and no licenses are transferable. The fee for each renewal thereof shall be in accordance with the fee schedule adopted by the Board annually which shall be due and payable on or before January 15th.
- D. Failure to review said license by January 15th will require the filing of a new application for a license.
- E. The business address of all licensed drain layers must be registered with and immediate notice of change therein given to the Board.

- F. The Board reserves the right to revoke any license if any provision of said license is violated.
- G. All licenses are required to give personal attention and be present during all installations and shall employ only competent workers.
- H. No person, firm or corporation, except a duly licensed Master Drain Layer shall make connection to any public sewer.
- I. All agents shall agree to perform work according to all rules, regulations and conditions of the Board prior to any work done in the Town. The agent shall be fully insured and shall indemnify the Town against any and all claims, liabilities, or actions for damages incurred in, or in any way connected with, the performance of the work on the building drain or sewer, or by reason of any acts of omission in the performance of his work.

## **Section 3 Permits and Fees**

### 3.1 Preamble

- A. The applicant agrees to pay to the Town of Randolph, all the costs, past and present, to connect with the common sewer in said street including all labor and materials or any other expense incurred necessary for the proper sewer connections. The applicant further agrees for himself, his heirs, devisees and assignees that the said Board shall have access at all reasonable hours to the said premises to see that all laws, ordinances, rules and regulations relating to the sewer are complied with. The applicant further agrees to strictly conform to the laws and ordinances relating to sewers and to the rules and regulations that are now in force or may be adapted in relation thereto and also to the plumbing laws and ordinances so far as they relate thereto.

### 3.2 Prohibitions

- A. No unauthorized person shall uncover, make any connections with or opening into, use, alter or disturb any public or private sewer or appurtenance thereof without first obtaining a written permit from the Board or their duly authorized representatives(s). Any person proposing a new discharge into the sewage works or a substantial change in the volume or character of pollutants that are being discharged into the sewage works shall notify the Board at least forty-five days (45) prior to the proposed change or connection in order to obtain approval.
- B. No person shall break, cut or remove any pipe of the public/private sanitary sewer or make or cause to be made any connection to said sewer except through the connection branches provided for that purpose unless, in another manner, approved by the Board.
- C. Drain layers shall only install building sewers during the normal working hours of the Sewer Department. Emergency working hours shall be approved in writing by the Board.

### 3.3 Permits

- A. The owner or his agent shall file an application on a special form titled "Application for Connection to Sewerage System" furnished by the DPW. The permit application shall be supplemented by any plans, specifications, or other information considered pertinent in the judgment of the Board. A permit inspection fee shall be paid to the Town of Randolph at the time the application is filed in accordance with the fee schedule adopted by the Board annually.
- B. For any permits, if said permit is granted, the permit shall be valid for no more than one thirty (30) calendar days from the date of issue. If the project does not commence within this time period, the permit shall become invalid.

- C. The owner or his agent shall give the Sewer Department, Water Department, and gas company a minimum of 24-hours notice prior to sewer construction.
- D. No licensed drain layer shall have more than five permits outstanding at any time.
- E. One copy of the permit shall at all times be available for inspection at the site of the work.
- F. All costs and expenses incidental to the installation, inspected by the Sewer Department, and connection of the building sewer to the public/private sewer shall be borne by the owner or his agent. The owner shall indemnify the Town from any loss or damage that may directly or indirectly be occasioned by the installation and connection of the building sewer.

### 3.4 New Service Connection Fees

- A. If the owner is seeking a new service connection for residential, commercial, or industrial use onto an existing sewer main, the owner shall pay a fee for the privilege to tie-in a new service from the existing sewer main to the owner's property line. The connection fee **does not include** installation by the Town. Fees paid to Town of Randolph shall be in accordance with the fee schedule adopted by the Board annually.
- B. This fee shall be paid at the time the application is filed and shall be considered in addition to the permit inspection fee.

### 3.5 Infiltration/Inflow Removal Fees

- A. Prior to receiving approval from the Board to connect to the sewerage system, the owner or his agent shall be responsible to comply with the Town's infiltration/inflow (I/I) mitigation program. The owner shall have the option of choosing one of the following two methods:
  1. The owner shall pay a one-time fee of \$5.00 per gallon of new flow into the sewer system. For residential use, the amount of new flow shall be calculated as 110 gallons per bedroom. For commercial or industrial use, the amount of new flow shall be provided by the owner and verified by the Board. This fee shall be considered in addition to the permit inspection fee and the new service connection fee, if applicable.
  2. The owner shall remove I/I from Randolph's existing sewerage system at a rate of four (4) gallons of I/I for every one (1) gallon of sewage added to the system. For residential use, the amount of new flow shall be calculated as 110 gallons per bedroom. For commercial or industrial use, the amount of new flow shall be provided by the owner and verified by the Board. The owner shall comply with the requirements of the current "Manual of Practices, Wastewater Collection Systems" published by NASSCO. It shall be the owner's responsibility to

provide written documentation to the Board showing the amount I/I removed from the system.

## **Section 4**

### **Building Connection Requirements**

#### 4.1 General Requirements

- A. All particular sewer or building connections shall be of such type and size, laid at such depth and gradient, and in such location as provided by a Massachusetts registered Professional Engineer and approved by the Board.
- B. 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 building 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 and the whole considered as one building sewer with the written approval of the Board. A manhole shall be constructed at the junction of the front building sewer and the rear building sewer.
- C. All necessary easements for sewer connections shall be obtained by the property owner and recorded in the Registry of Deeds or Land Court.
- D. All plumbing outlets in any building served by a public sewer shall discharge to the building sewer.
- E. Old building sewers may be used in connection with new buildings only when, on examination and test authorized by the Board, they are found to meet all requirements of these Regulations.
- F. The applicant for the building sewer permit shall notify the Board when the building sewer is ready for inspection and connection to the public/private sewer. The connection shall be made under the supervision of the Board or their representative. No building sewer or drain shall be backfilled without inspection.
- G. Notification of the completion of the work with certification that all conditions have been complied with shall be filed in writing with the Board within 24 hours after the completion of the work covered in each permit.

#### 4.2 Installation Requirements

- A. The size and slope of the building sewer service shall be subject to the approval of the Board, but in no event shall the diameter be less than 6-inches and laid with a minimum depth of cover of 42-inches. The slope of such 6-inch pipe shall not be less than one-quarter (1/4) inch per foot.
- B. The alignment, materials of construction of a building sewer and the methods to be used in excavating, placing of the pipe, jointing, testing and backfilling the trench, shall all conform to the requirements set forth in appropriate specifications of the American

Society of Testing Materials (ASTM) and Water Pollution Control Federation (WPCF) Manual of Practice No. 9.

- C. Whenever possible, the building sewer shall be brought to the building at an elevation below the basement floor. The depth shall be sufficient to afford protection from frost. The building sewer shall be laid at uniform grade and in straight alignment insofar as possible. In all buildings in which any building drain is too low to permit gravity flow to the public/private sewer, sanitary sewage carried by such building drain shall be lifted by approved artificial means and discharged to the building sewer. Such lifting devices shall be installed and maintained by the owner with no liability assumed by the Town.
- D. All changes in direction shall be made with clean outs or manholes subject to approval by the Board.
- E. The connection of the building sewer into the public/private sewer shall be made at the "Y" or "T" branch, if such branch is available at a suitable location. If no branch is available, a connection may be made by tapping the existing sanitary sewer by an approved method as approved by the Board, and then inserting a PVC "Y" or "T" saddle, all encased in concrete. Cutting the "Y" in the pipe by hand is prohibited.
- F. All pipe shall be made gas tight, watertight and laid properly. In instances where groundwater may back up into the basement, a well compacted backfill seal may be placed around the building drain at the building. In areas where the sanitary sewer surcharges, a backflow prevention device may be installed, and maintained by the owner, to the building drain to prevent building backups with no liability assumed by the Town.
- G. At all times when pipe installation is not in progress, the open ends of the pipe shall be closed with temporary watertight plugs or by other approved means.
- H. All joints between pipes of different materials shall be made with approved premolded gasket joints.
- I. All construction for new buildings shall have the building drain exit the building through the basement floor and connect with the building sewer at an elevation below the basement floor whenever possible. There shall be a clean out located on the outside wall with access for rodding the service lateral.
- J. No building shall be connected to public/private sanitary sewer system unless said building has a soil line extended to a point above the roof, properly vented according to building and plumbing codes.
- K. Any sewer connection over 100-feet in total length shall require a clean out for individual dwellings and a manhole for multiple connections.

- L. The Board may require, at any time, for such grease traps or ventilating pipes, to be installed as it may deem necessary for the proper maintenance of said particular sewer or common sewers. In every case where any restaurant, hotel or business of a similar nature is carried on, a suitable grease trap must be installed as approved by the Board.
- M. Garages and other establishments where gasoline is used and which are connected with the common sewer shall be supplied with a suitable trap or separator satisfactory to the Board.
- N. All traps or separators shall be kept in good condition and cleaned frequently. Whereas grease, oil, or any other substance cleaned from such traps or separators shall be disposed of in a safe manner and not into the sanitary system or drainage system.
- N. All sewer connections shall be installed in separate trenches from other utilities, 10-feet apart and 18-inches below water pipe(s) as provided by Title V, unless submitted and approved by the Board.
- O. No building sewer shall be laid parallel to and within 5-feet of any bearing wall.
- P. The owner shall inspect each pipe and fittings before being installed. No pipe shall be laid unless it is generally straight and free from defects. Any pipe unit or fitting discovered to be defective either before or after installation shall be removed and replaced with a sound unit at the owner's expense.
- Q. All excavations for building sewer installations 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 at the owner's expense, in a manner satisfactory to the Town. Temporary bridges shall be installed over trenches when deemed necessary in the judgment of the Board, to provide convenient public travel.
- R. All excavations required for the installation of a building sewer shall be open trench work unless otherwise approved by the Board. Pipe laying and backfill shall be performed in accordance with ASTM Specifications except that no backfill shall be placed until the work has been inspected.
- S. The bottom of the trench shall be excavated to a flat grade of 6-inches below the pipe invert for trenches in earth and 12-inches below the pipe invert in trenches in rock. When rock or ledge is encountered it shall be also removed to such widths as will give a clearance of at least 12-inches on each side of the pipe or other structure. Should material at grade prove unsatisfactory for a suitable foundation, additional depth must be excavated and refilled with acceptable material (Sub Base Gravel) and compacted.
- T. The width of trenches shall be sufficient to allow thorough compacting of the refill adjacent to the lower quarters of the pipe. At pipe joints, such additional width and depths shall be excavated as is necessary to give ample room for properly making and inspecting the pipe joints.

- U. ¾-inch crushed stone bedding shall be required for all gravity mains and laterals of any type of pipe. This material shall be placed below the pipe and extend half-way up the pipe barrel on both sides and thoroughly tamped by light tampers as placed. The owner shall provide suitable depressions in screened gravel to accept pipe bells, so that after placement, only the barrel of the pipe receives bearing pressure from the supporting material. After each pipe has been properly placed, enough gravel shall be placed between the pipe and the side of the trench, and thoroughly compacted, to hold the pipe in correct alignment. Bell holes (depressions), provided for jointing, shall be filled with screened gravel and compacted, and then screened gravel shall be placed and compacted to complete the pipe bedding.
- V. The owner shall backfill to a minimum depth of 12-inches above the top of the pipe with gravel borrow material, placed in 6-inch layers and compacted by hand tamping. No stones larger than 4-inches across the largest dimension will be allowed within this stratum of backfill. Material for backfilling the rest of the trench, except for sub-base (top 17-inches) shall be obtained from excavated trench material, if approved by the Board. Otherwise, the owner shall backfill with processed gravel borrow material. The compaction process will be gravel placed in 8-inch layers and thoroughly compacted by mechanical rammers, vibrators or a jetting process.
- W. When water is present in a trench a sump of crushed stone shall be constructed, and water shall be pumped at all times. The trench shall be kept dry at all times during construction.
- X. After laying of the pipe is completed, the interior of the sewer pipe line shall be thoroughly cleaned from construction debris. Pipe line shall be flushed to remove any foreign matter, with bulkheads placed at strategic locations to prevent wash of undesirable material through completed sections of the system. When deemed necessary by the Board, a closed circuit television inspection may be required of the sewer line.

#### 4.3 Inspections

- A. The owner shall grant the Board and other duly authorized employees of the Town permission to enter, at reasonable times, all properties for the purposes of inspection, observation, measurement, repair, maintenance, sampling, and testing in accordance with the provisions of this Regulation. 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.
- B. The Board or his representative shall have no authority to inquire into any processes including metallurgical, chemical, oil, refining, ceramic, paper, or other industries beyond that point having a direct bearing on the kind and source of discharge to the public/private sewers or waterways watercourses, natural outlets, or facilities for wastes sewage treatment.

- C. While performing the necessary work on private properties, the Board or duly authorized employees of the Town shall observe all safety rules applicable to the premises established by the owner. The owner shall be held harmless for injury or death to the Town employees, and the Town shall indemnify the owner 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 owner and growing out of the gauging and sampling operation, except as such may be caused by negligence or failure of the owner to maintain safe conditions.

#### 4.4 Sewer Main Pipeline Testing

- A. Care shall be taken to prevent earth, water, and other materials from entering the pipe. As soon as possible after the pipe and manholes are completed on any street, flush out the new pipeline, using a rubber ball ahead of the water, flushing water or debris will not be permitted to enter any existing sewer.
- B. The alignment of the pipe will be checked by shining a flashlight through the pipe from one manhole to the adjacent manhole. The inspector must be able to see the full circumference of the lighted pipe for its entire length when looking through the pipe from the adjacent manhole towards the manhole from which the light is being emitted.
- C. All sewer mains shall be tested before any connections are made to buildings. The owner shall provide all instruments, weirs, bulkheads, water and equipment required to test the sewer.
- D. The contractor shall determine the groundwater elevation from observation wells, excavations or other means. Where the groundwater level is more than 1-foot above the top of the pipe at its upper end, the Contractor shall conduct either infiltration tests or low pressure air tests. Where the groundwater level is less than 1-foot above the top of the pipe at its upper end, conduct either exfiltration tests or low pressure air tests.
- E. For making the low-pressure air tests, the contractor shall use equipment specifically designed and manufactured for the purpose of testing sewer pipelines using low-pressure air. The equipment shall be provided with an air regulator valve or air safety so set that the internal air pressure in the pipeline cannot exceed 8 psig. The leakage test using low-pressure air shall be made on each manhole-to-manhole section of pipeline after placement of the backfill. Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be tested. Pneumatic plugs shall resist internal test pressures without requiring external bracing or blocking. All air used shall pass through a single control panel. Low-pressure air shall be introduced into the sealed line until the internal air pressure reaches 4 psig. greater than the maximum pressure exerted by the groundwater that may be above the invert of the pipe at the time of the test. However, the internal air pressure in the sealed line shall not be allowed to exceed 8 psig. When the maximum pressure exerted by the groundwater is greater than 4 psig, conduct only an infiltration test. At least two minutes shall be allowed for the air

pressure to stabilize in the section under test. After the stabilization period, the low-pressure air supply hose shall be quickly disconnected from the control panel. The time required in minutes for the pressure in the section under test to decrease from 3.5 to 2.5 psig (greater than the maximum pressure exerted by groundwater that may be above the invert of the pipe) shall not be less than that shown in the following table:

| Pipe diameter in inches | Minutes | Pipe diameter in inches | Minutes |
|-------------------------|---------|-------------------------|---------|
| 6                       | 3.0     | 18                      | 9.0     |
| 8                       | 4.0     | 21                      | 10.0    |
| 10                      | 5.0     | 24                      | 11.5    |
| 12                      | 5.5     | 27                      | 13.0    |
| 15                      | 7.5     |                         |         |

- F. For making the infiltration tests underdrains, if used, shall be plugged and other groundwater drainage shall be stopped to permit the groundwater to return to its normal level insofar as practicable. Upon completion of a section of the sewer, dewater it and conduct a satisfactory test to measure the infiltration for at least 24 hours. The amount of infiltration, including manholes, tees, and connections, shall not exceed 200 gal. per inch diameter per mile of sewer per 24 hours.
- G. For making the exfiltration tests, the sewers shall be subjected to an internal pressure by plugging the pipe at the lower end and then filling the pipelines and manholes with clean water to a height of 2 ft. above the top of the sewer at its upper end. Where conditions between manholes may result in test pressures that would cause leakage at the stoppers in branches, provisions shall be made by suitable ties, braces, and wedges to secure the stoppers against leakage resulting from the test pressure. The rate of leakage from the sewers shall be determined by measuring the amount of water required to maintain the level 2 ft. above the top of the pipe. Leakage from the sewers under test shall not exceed the requirements for leakage into sewers as hereinbefore specified.
- H. Should the sections under test fail to meet the requirements, the owner shall do all work of locating and repairing leaks and retesting as the Board may require without additional compensation.
- I. If, in the judgment of the Board, it is impracticable to follow the procedures specified in these Regulations for any reason, acceptable modifications in the procedures shall be made as required, but in any event the owner shall be responsible for the ultimate tightness of the line.

#### 4.5 Manhole Vacuum Testing

- A. Vacuum tests will be performed prior to backfilling manholes and, if necessary, again after backfilling.
- B. Vacuum testing after backfilling should be performed only after a successful non-backfill test has been completed in accordance with ASTM C1244.

- C. For making the vacuum tests, the contractor shall use equipment specifically designed and manufactured for the purpose of testing manholes using the vacuum test as outlined in ASTM C1244.
- D. When utilizing ASTM C1244, a vacuum of 10 inches Hg is drawn on the manhole after all lift holes are plugged, and pipes entering the manhole are temporarily plugged and securely braced. The time is measured for the vacuum to drop to 9 inches Hg. The manhole is accepted if the measured time meets or exceeds the values presented in Table 1 of ASTM C1244. If the manhole fails the initial test, it may be repaired by an approved method until a satisfactory test is obtained.
- E. ASTM C 1244 requires a vacuum between 10 inches Hg and 9 inches Hg (-5 psig to -4.5 psig) be maintained for 74 seconds.
- F. ASTM C 923 requires resilient connectors to withstand a hydrostatic pressure of 13 psig when installed in a straight alignment and 10 psig when axial deflected 7 degrees.

## **Section 5 Materials**

### 5.1 General Requirements

- A. All material used shall be approved before installation by the Board and shall be installed in accordance with the manufacturer's recommendations.
- B. Where standards are referenced in these regulations, they shall be the latest standards in effect at the date a permit is granted.

### 5.2 Submittals

- A. Two sets of shop drawings and/or catalog cuts of manholes, covers, frames, pipe, pipe fittings, and sealing materials to be utilized and any other sewer work material shall be submitted for approval by the Board.

### 5.3 Precast Concrete Sewer Manholes

- A. Manhole walls (barrels and cones) shall be precast concrete sections. The top of the cone (not to be more than 12-in.) shall be built of brickwork to permit adjustment of the frame to meet the finished surface.
- B. Precast concrete sections, including cones, shall conform to ASTM C478 with the following exceptions and additional requirements:
  - All cast-in-place concrete shall be Class A.
  - Type II cement shall be in accordance with ASTM C150.
  - 4-foot diameter manholes shall have minimum of 4,000 psi - 28 days compressive strength with 5-inch minimum thickness.
  - 5-foot diameter manholes shall have minimum of 4,000 psi - 28 days compressive strength with 6-inch minimum thickness.
  - 6-foot diameter manholes shall have minimum of 5,000 psi. - 28 days compressive strength with 6-inch minimum thickness.
  - Sections shall be cured by subjecting them to thoroughly saturated steam at a temperature between 100 and 130 degrees F for a period of not less than 12 hours or, when necessary for such additional item as may be needed to enable the sections to meet the strength requirements.
  - No more than two lift holes may be cast or drilled in each section.
  - The date of manufacture and the name of trademark of the manufacturer shall be clearly marked on the inside of the barrel.
  - Acceptance of the sections will be on the basis of material tests and inspection of the completed product.
- C. Manholes shall be 4-feet in inside diameter for sewer pipes up to 24-inches in diameter unless the angle between two 24-inch pipes is less than 120 degrees. In such cases, and

when the size is 36-inches, a 5-foot inside diameter shall be used. For any manholes with a pipe size greater than 36-inches, a 6-foot diameter manhole shall be used.

- D. All manholes shall have extended 6-inch concrete bases. Invert channels may be formed in the concrete of the base or brickwork upon the base. The tops of the bases shall be suitably shaped by means of accurate bell-ring forms to receive the barrel sections.
- E. All sewer manholes shall have an outside tar coating.
- F. All holes for pipes shall be cast in the base sections during the manufacture of the base so that there is a clear distance of four inches minimum between the inside bottom of the base section and the pipe invert.
- G. The bottom slab of 4-foot diameter sewer manholes shall have a minimum thickness of 6-inches and the bottom slab of 5-foot and 6-foot diameter sewer manholes shall have a minimum thickness of 8-inches.
- H. The inverts shall conform accurately to the size of the adjoining pipes. Side inverts shall be curved and main inverts (where direction changes) shall be laid out in smooth curves of the longest possible radius which is tangent, within the manhole, to the centerlines of adjoining pipelines.
- I. Manhole steps shall be either aluminum or plastic. Aluminum Manhole Steps shall be the aluminum drop-front type. Plastic manhole steps shall encase 1/2-inch grade 60 steel reinforcing rod conforming to ASTM A-615. Steps shall cast into walls of the precast sections to form a continuous ladder with a distance of 12-inches between steps.
- J. Rubber gaskets shall be installed between manhole sections in accordance with ASTM C443.
- K. All top sections of sewer manholes shall have bearing of a minimum of eight 8-inches for support of cast iron frame and cover. The access hole in the top section of manhole shall be 24-inches to accommodate frame and cover.
- L. Manhole frames and covers shall be at least Class 25 conforming to the ASTM Standard Specifications for Gray Iron Castings, Designation A48. Manhole frames and covers shall be heavy duty, 24-inch diameter, with a Marblehead Pattern. Each frame and cover shall have a minimum weight of 450 pounds and the cover shall be marked with 3-inch letters "SEWER".
- M. Pipe seals shall conform to ASTM C-923. Seals shall provide a watertight joint and shall be pre-molded elastomeric-sealed joints fitted or cast integrally into the pipe opening of the manhole base and/or wall section. A maximum 10-degree omni-directional deflection shall be allowed.

- N. There shall be a minimum 12-inches concrete on the portion of the wall above or below the hole for each pipe connection. There shall be a minimum of 5-inches between the base floor and pipe invert elevation. All grab holes shall be filled inside and out, before backfilling.
- O. Sewer manhole tables and inverts shall be constructed of a hard red brick set in concrete mortar using no lime. The size and shape of the invert shall accurately conform to the adjoining sewer pipes. The tables shall pitch a minimum of 1-inch per foot from the outside diameter to the center of the invert. The filler material under the table brick shall be a semi-dry mixture of sand,  $\frac{3}{4}$ -inch stone and Portland cement, no lime. The table shall be constructed at an elevation even with the top of the pipe, and shall slope up toward the sidewalls. Inverts shall be constructed in a manner to provide smooth flow through manholes, with no sharp turns or projecting portions of brick. Bricks for inverts shall be placed on edge and laid flat for table.
- P. Drop connections for sewer manholes shall be inside drops and constructed utilizing polyvinyl chloride pipe conforming to ASTM D3034 and shall be SDR35, elastomeric sealed joints core bored in sewer manholes drops being cast-in-place or precast shall have the drop on the outside of the sewer manholes. The inside diameter for all manholes with inside drop connection shall be 5-feet minimum.
- Q. For manholes within easements, the rim elevation of the manhole frame is to be 1-foot above ground elevation. In wetland areas, swales, or areas subject to flooding the rim elevation shall be located at an acceptable level above the estimated flood or high water elevation. The ground around the manhole is to be raised at a 2:1 slope to provide satisfactory cover for the manhole. In areas where this is unacceptable or considered impractical by the Board, a watertight frame and cover shall be used.

#### 5.4 Sewer Pipe, Fittings, and Accessories

- A. The smallest sewer line connecting one sewer manhole to another sewer manhole shall be 8-inch diameter installed at a slope no less than 0.004 ft/ft.
- B. Wherever possible, gravity sewer mains shall be composed of polyvinylchloride (PVC) pipe. PVC pipe with diameters between 4-inch through 15-inch shall be in conformance with ASTM D3034. PVC pipe with diameter between 18-inch and 27-inch shall be in conformance with ASTM F679. Pipe shall have pipe diameter to wall thickness ratio (SDR) of 35. Fittings shall be of the same material and class as the pipe they are to be used with and shall be consistent therewith in strength, dimensions, and utility. Rubber gaskets shall be used to form a fluid tight seal.
- C. If the new sewer main is to be installed with less than 5-feet of cover, ductile iron (DI) pipe shall be used. DI pipe shall be Class 52, cement lined, tar coated and supplied in eighteen to twenty (18 -20) foot lengths. Pipe shall be in full conformance with ANSI specifications (A21.51 and A21.11) for mechanical joint or push-on, or push-on joint ductile iron pipe with cement lining conform to ANSI A21.4. Joints shall be pushed or

mechanical joints conforming to AWWA C111. Rubber gaskets shall be used to form a fluid tight seal.

#### 5.5 Wyes

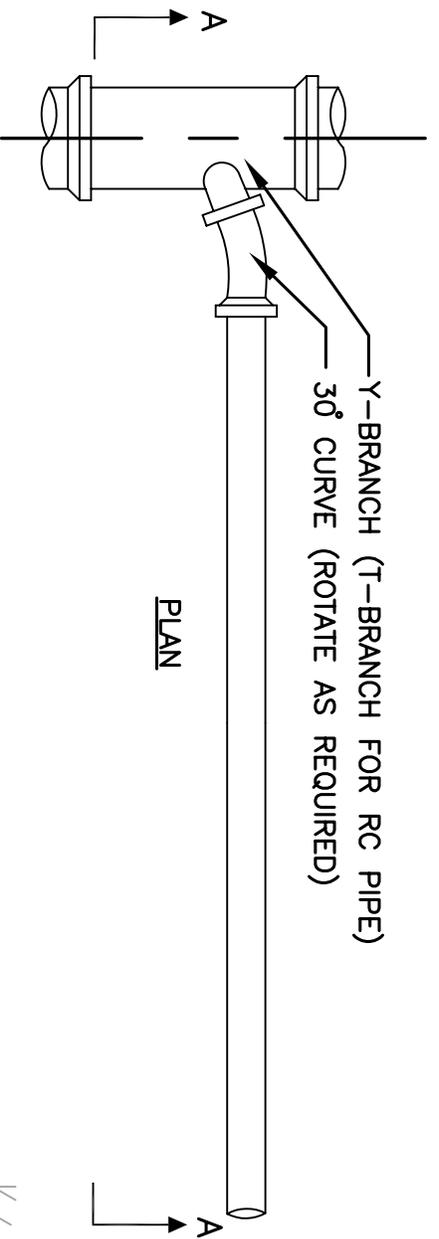
- A. House service wye's for new PVC sewer main shall be 45-degree wye's placed in such a location to allow the straightest line as possible to the house. The wye will be of adequate size to fit the main and on the lateral side it will be 6-inches to the point it meets the existing service coming out of the house.

#### 5.6 Service Wye Saddles

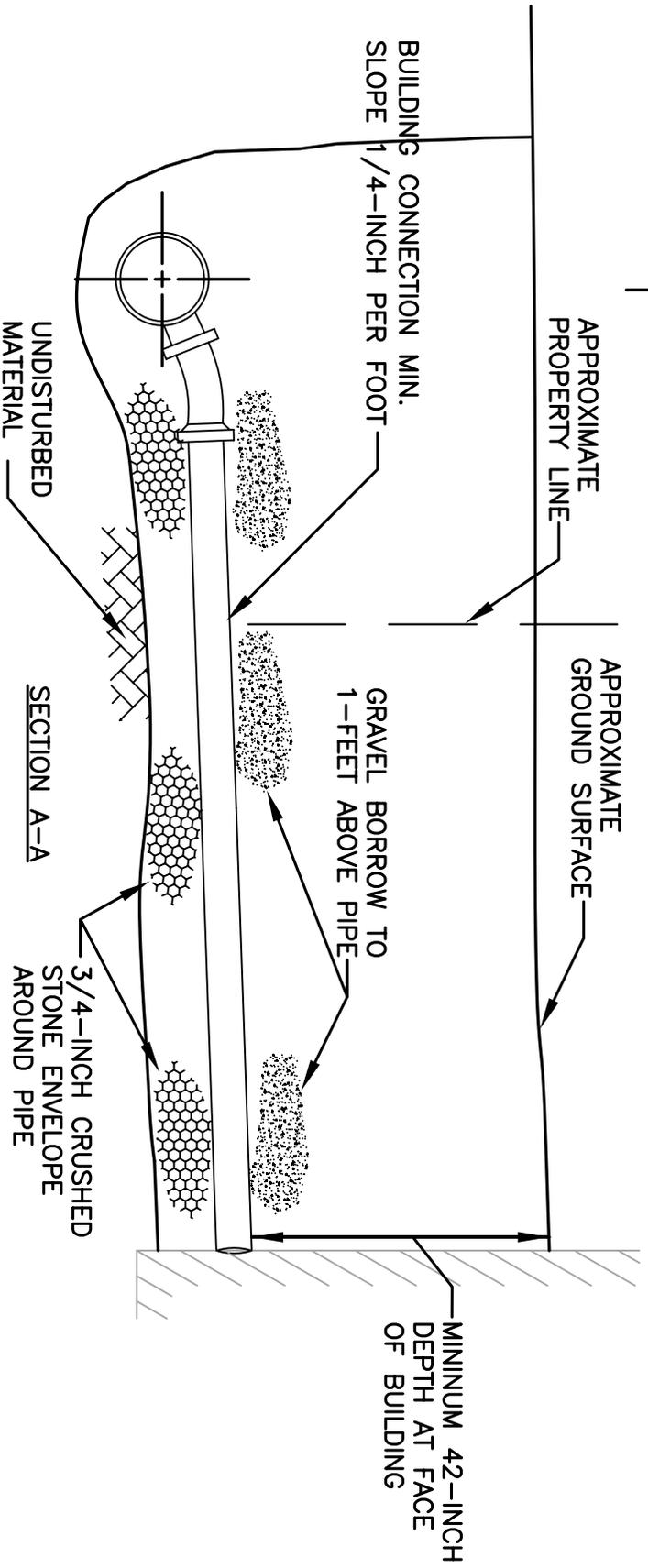
- A. Service wye saddles shall be strap-on style for sewer, cast iron body with gasket bell inlet. There shall be an O-ring gasket held in place with mastic on the side of the saddle that fits against the pipe to provide a leak proof connection. A stainless steel band with stainless bolts attached and stainless nuts will be used to hold cast iron body in place. The service saddle will be 45-degree angle wherever possible. The bell joint shall be 6-inches in size for connecting ASTM D-3034 and shall be SDR-35 PVC. All saddles shall have a contour to properly fit the type and size pipe they are going to be attached to.

#### 5.7 Clean Outs

- A. Clean outs on sewer service laterals shall be at every 100-linear feet of service line and have an access cover just below the finished grade, also to be installed at any sharp bends. The cover, which will be brought to finished grade, shall be marked "SEWER".



PLAN

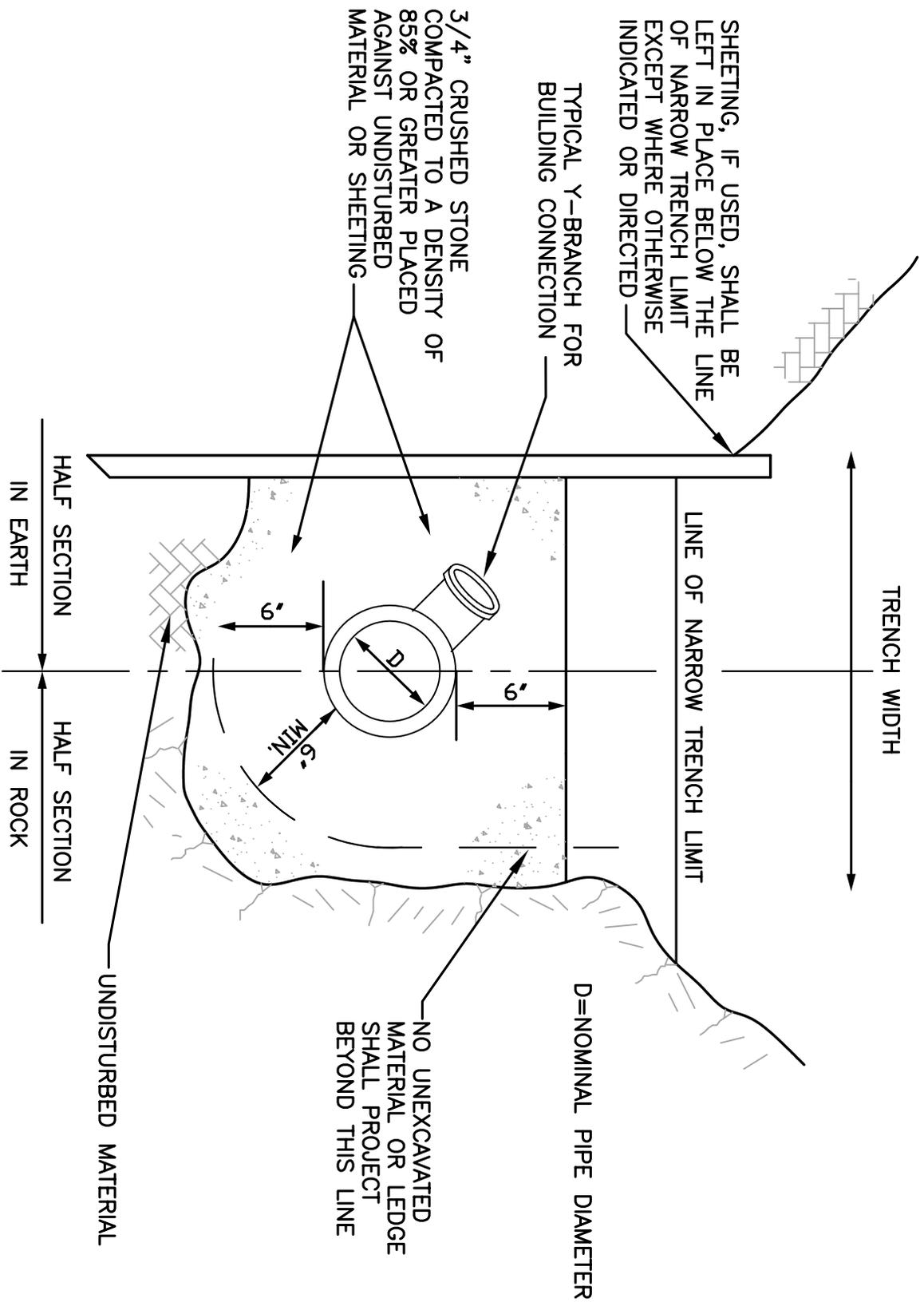


SECTION A-A

TOWN OF RANDOLPH, MA  
STANDARD DETAILS

TYPICAL GRAVITY  
SEWER SERVICE

A.1



TOWN OF RANDOLPH, MA  
STANDARD DETAILS

TYPICAL GRAVITY  
SEWER MAIN TRENCH

A.2