TOWN OF PLAINVILLE,
COMMONWEALTH OF MASSACHUSETTS

WATER & SEWER USE REGULATIONS

Approved as Amended
March 2021

PLAINVILLE BOARD OF WATER & SEWER COMMISSIONERS
TOWN OF PLAINVILLE – WATER & SEWER USE REGULATIONS

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WATER & SEWER USE REGULATIONS

REGULATIONS GOVERNING THE USE OF PUBLIC AND PRIVATE SEWERS, WATER MAINS, WATER SERVICES AND DRAINS, PRIVATE SEWAGE DISPOSAL, 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; IN THE TOWN OF PLAINVILLE, NORFOLK COUNTY, COMMONWEALTH OF MASSACHUSETTS.

Be it ordained and enacted by the Water & Sewer Commission of the Town of Plainville, Commonwealth of Massachusetts, as follows:

SECTION 1: GENERAL

SECTION 1A: APPLICABILITY & AUTHORITY

1. These regulations govern all water and sewer construction within dedicated public ways, Town easements and construction within private subdivisions, and are issued under the authority given to the Board under the Town of Plainville's Bylaws.

2. These specifications also apply to water and sewer work completed by Town employees, by virtue of its adoption as a standard by the Board.

3. When so stated in the contract, these specifications shall govern the work of private contractors doing work under contract to the Town.

4. These specifications shall govern the work of private contractors doing work for developers, contractors, etc. within the Town rights-of-way and/or "easements", which shall later be accepted by the Town as Town ways.

5. All water and sewerage system project designs shall be in accordance with Commonwealth of Massachusetts, Department of Environmental Protection (MassDEP) and industry standards as well as the specifications set forth in these Regulations.

6. All plans for new sewerage systems, extensions and changes to existing systems must be submitted for review and approval as required by the MassDEP and the Town. All plans for new water systems, extensions and changes to existing systems must be submitted for review and approval by the Town.

7. These specifications shall govern the installation of water and sewer service connections. No service connections can be completed and approved until inspected by a duly authorized Board representative.

8. Invalidation of Section – The invalidity 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.

9. Changes in Rules and Regulations – 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 therefor, 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.

10. Force and Effect – These rules and regulations shall be in full force and effect from and after its approval and recording with the Town Clerk.

SECTION 1B: DEFINITIONS

Unless specifically indicated in these Rules and Regulations, the meaning of terms used shall be as follows:

1. Abbreviations – The following abbreviations shall have the designated meanings:

ASTM - American Society of Testing Materials
BMP - Best Management Practice
BMR - Baseline Monitoring Report
BOD - Biochemical Oxygen Demand (5-day)
CFR - Code of Federal Regulations
CIU - Categorical Industrial User
COD - Chemical Oxygen Demand
DEP - Massachusetts Department of Environmental Protection
EPA - United States Environmental Protection Agency
gpd - Gallons per day
IU - Industrial User
l - Liter
mg - Milligrams
mg/l - Milligrams per Liter
NPDES- National Pollutant Discharge Elimination System
NSCIU - Non-Significant Categorical Industrial User
POTW - Publicly Owned Treatment Works (owned & operated by the Town of Plainville)
RCRA - Resource Conservation and Recovery Act
SIC - Standard Industrial Classification
SIU - Significant Industrial User
SNC - Significant Noncompliance
SWDA - Solid Waste Disposal Act, 42 U.S.C. 6901, et. seq.
TSS - Total Suspended Solids

U.S.C. - United States Code
WPCF – Water Pollution Control Federation

2. Agents shall mean an authorized full time employee of the Town of Plainville Water & Sewer Department, a dually authorized employee representing licensed drain layer installers, or engineers hired as consultants for the Town of Plainville.

3. Board shall mean the Water & Sewer Commission of the Town of Plainville or any agent or officer duly authorized to act in its place.

4. Board of Health shall mean the Board of Health of the Town of Plainville or any agent or officer duly authorized to act in its place.

5. Building Drain shall mean that part of the lowest horizontal piping of a drainage system which receives the discharge from sanitary or approved waste inside the walls of the building and conveys it to the building sewer, ending ten (10') feet outside the inner face of the building wall.

6. Building Sewer shall mean the extension from the building drain to the public sewer or other place of disposal, also called house connection.

7. Contract Drawings shall be the construction drawings which have been approved by the Department of Public Works appointed representative signed "approved" and on file in his office.

8. Consumer shall mean the individual, firm, or corporation whose name the Water Department has on its books as the party who has applied for water service or any individual, firm, or corporation, who, in fact, uses the water service of the Town of Plainville.

9. Contractor shall be the party doing the construction: either a private contractor or Town of Plainville Employees, as the case may be.

10. Drain Layer A general term applied to one in the business of and licensed by the Town for laying drains from existing public sewers to the building drain of homes, commercial buildings, industrial buildings, and similar structures and properties.

11. Easement shall mean an interest in land owned by another that entitles its holder to a specific limited use or enjoyment.

12. Floatable Oil is oil, fat, or grease in a physical state such that it will separate by gravity from wastewater by treatment in an approved pre-treatment facility. A wastewater shall be considered free of floatable oil if it is properly pretreated and the wastewater does not interfere with the collection system.

13. Grease, Oil, and Sand Interceptors shall mean devices used to prevent grease, oil, and sand from entering the waste stream. Also known as "grease traps."

14. Infiltration is water other than wastewater that enters a sewer system from the ground from sources including, but not limited to, defective pipes, pipe joints, pipe connections, and manholes.

15. Inflow is water other than sanitary flow that enters a sewer system from sources including, but not limited to, roof leaders, sump pumps, yard, drains, areas drains, catch basins, and storm sewers.

16. Industrial Wastes shall mean the liquid wastes from the 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.

17. Inspector shall be understood to be a qualified construction inspector of the Town of Plainville appointed by the Water & Sewer Department.

18. Main is the water supply pipe laid in the street, from which house connections are made.

19. Person shall mean any individual, firm, company, association, society, corporation, or group.

20. POTW (Publicly Owned Treatment Works) shall mean the Town of North Attleborough owned treatment works, as defined in Section 212 of the Act (33 U.S.C. 1292). This definition includes any sewers that convey wastewater to the POTW treatment plant, but does not include pipes, sewers or other conveyances not connected to a facility providing treatment. For the purposes of this bylaw, "POTW" shall also include any sewers that convey wastewater to the POTW from persons outside the Town who are, by agreement with the Town, users of the Town's POTW.

21. Private Sewer shall mean a gravity or low pressure collection system operated on private property that ultimately connects into the public sewer.

22. Public Sewer shall mean a sewer in which all owners of abutting properties have equal rights and is controlled by public authority.

23. Sanitary Sewer shall mean a public sewer which carries sewage and to which stormwaters, surface waters, and groundwaters are not intentionally admitted.

24. Septage shall mean sludge produced in individual domestic on-site wastewater disposal systems such as septic tanks and cesspools.

25. Service pipe is the pipe running from the water main in the street to include the shut off, usually inside the cellar wall.

26. Sewer A main, pipe, lateral, or other conduit located in a street, highway, alley, right-of-way or easement that carries waste water from residences; commercial buildings; industrial plants, and institutions; equivalent to "Sanitary Sewer".

27. Sewer System shall mean all pipelines, conduits, pumping stations, force mains, and all other structures, devices, appurtenances, and facilities used for collecting, conveying, treating, and disposing of wastewater.

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

29. Superintendent shall mean Superintendent of the Water & Sewer Department or appointed representative, deputy, or agent.

30. Town shall mean the Town of Plainville, Massachusetts or any duly authorized officer, agent or representative of the Town of Plainville.

31. 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 sewers and wastewater treatment facilities provided.

32. Wastewater or Sewage shall mean the spent or used water of the community. From the standpoint of source, it may be a combination of the liquid and water-carried wastes from residences, commercial buildings, industrial plants, and institutions, together with any groundwater, surface water, and stormwater that may be present.

33. Wastewater Facilities shall mean the structures, equipment, and processes required to collect, transport, carry away and treat domestic and industrial wastes and dispose of the effluent.

34. 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 "wastewater treatment facility" or "Water Pollution Control Plant" or "sewage works".

SECTION 1C: QUALITY CONTROL

1. INSPECTION POWERS OF THE BOARD OF WATER & SEWER COMMISSIONERS

The Board and any duly authorized representative(s) bearing proper identification shall be permitted to enter, at reasonable times, all properties connected with the Public/Private Sewers for the purposes of inspection, observation, measurement, sampling and testing, all in accordance with the provisions of these regulations. They may inquire into any processes, including metallurgical, chemical, oil refining, ceramic, paper, plating, or other industrial activity, that contribute waters or wastes to the Public/Private Sewers but shall not order or demand information concerning any patented process or trade secret beyond that necessary to determine the kind, source and amount of sewage discharge from an industrial or commercial plant to the Public/Private Sewer.

The Board may require the internal and external inspection of building plumbing to ensure compliance with these regulations and to ensure that no unpolluted waters such as stormwater, surface water, groundwater, roof runoff, and/or subsurface drainage is being discharged to the sanitary sewer. These inspections may also be conducted in conjunction with other Town related work or inspections including building permit inspections, fire alarm inspections, water meter reading, etc. The intent of these inspections is to prevent the discharge of unpolluted waters to the sanitary sewer which can adversely impact the operation and capacity of the sewer collection system and publically owned treatment works.

Inspectors shall be authorized by the Board to inspect all construction conducted and materials furnished. Such inspection may extend to all or any part of the work, and to the preparation or manufacture of the materials to be used. In case of any dispute arising between the Contractor and the Inspector as to materials furnished or the manner of performing the work, the Inspector shall have the authority to reject material or suspend the work until the question at issue can be referred to and decided by the Superintendent. The Inspector shall not be authorized to revoke, alter, enlarge, relax or release any requirements of these specifications nor to approve or accept any portion of the work, nor to issue instructions, contrary to the Plans and Specifications.

The Inspector shall in no case act as a foreman or perform other duties for the Contractor or interfere with the work by the Contractor. Any advice, which the Inspector may give the Contractor, shall in no circumstances be construed as binding to the Superintendent or the Town in any way.

2. INSPECTION OF THE WORK

The Contractor shall not bury any pipes or casings or other appurtenances except in the presence of the "Representative" or the Inspector. To this end, proper notice shall be given the "Representative" by the Contractor of the time and place he intends to do the work. Any work which is done when the "Representative" or Inspector is not present or which is done contrary to the direction of the "Representative" shall be considered unauthorized and shall not be accepted.

The Contractor shall remove and replace such work to the satisfaction of the "Representative" when directed to do so. Such work satisfactorily replaced will then be accepted.

3. PERFORMANCE STANDARD FOR AGENT

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 agents 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 water or by reason of any acts of omission in the performance of his work. The Board reserves the right to authorize and allow only approved agents to perform work on building drains and sewers, and water services.

4. LICENSE FOR DRAIN LAYERS

Refer to Chapter 364-22 through Chapter 364-24 of the Town of Plainville Bylaws for more information. Refer to Appendix A for Drain Layer Application.

SECTION 1D: SPECIAL CONTROLS

1. EROSION CONTROL

The Contractor shall take due precautions to minimize the run-off of pollution substances such as silt, clay, fuels, oils, bitumens, calcium chloride and any other polluting materials harmful to humans, fish or other life into the waters of the Commonwealth of Massachusetts.

2. DUST CONTROL

Dust control shall be provided when deemed necessary by the Superintendent so as to prevent damage and nuisance to adjacent property owners and public streets. The means of dust control may include the use of water, calcium chloride or other approved methods.

3. TRAFFIC CONTROL

When, in the opinion of the Superintendent or police, public safety or convenience requires the services of the police, the Superintendent may direct the Contractor to request the Town Police Department to assign officers to direct traffic within the location of work. Police details shall be paid by the Contractor.

Nothing contained herein shall be construed as relieving the Contractor of any of his responsibilities for protection of persons and property. Nothing contained herein shall be construed as relieving the Contractor of any of his responsibilities for obtaining all required local, state and federal permits required to complete the work.

SECTION 2: WATER DISTRIBUTION SYSTEM

SECTION 2A: GENERAL PROVISIONS

1. APPLICATION FOR WATER SERVICE

All applications for introduction of town water to private premises shall be made at the office of the Water & Sewer Department by the owner of the property or by his authorized agent. The applications must be made upon the blank form furnished by the Department. An entrance fee is payable with all applications for normal single dwelling services requiring 1" meters. Entrance fees for other service applications will be set by the Water & Sewer Commissioners after reviewing the specifications and layout of the service application. Refer to Appendix B for the Fee/Penalty Schedule.

2. STREET OPENING & TRENCHING PERMITS

Excavation work in the Town of Plainville public right-of-way requires a Street Opening permit from the Town of Plainville. Applications must also obtain a permit prior to the creation of a trench on public and/or private property in accordance with Chapter 82A of the Massachusetts General Laws, as codified in section 14.00 of title 520 of the Code of Massachusetts Regulations. Refer to Section 6.C.4 of this document.

3. DEMOLITION PERMIT

When physically disconnecting an existing water connection for the purpose of dewatering, relocating, re-building, or rehabilitating, any building connected to the water system will require a permit and an associated fee shall be assessed. Refer to Appendix B: Schedule of Fees for the associated fee.

4. RESPONSIBILITY FOR CHARGES

Consumers of water will be charged with and held responsible for all water passing through their service pipe and meter until such time as they shall notify the Water & Sewer Department at its office in writing that they no longer desire the use of water and in case of the sale of the property such notice shall give the name of the new owner.

5. STATUS OF NEW OWNERS

New owners of buildings shall have no right to use the water until application and notification has been made for the same.

6. PROPERTY TRANSFER

Upon consideration of sale of any real estate serviced by Plainville Water & Sewer Department, it is required that the water service entry pipe between the curbstop at the property line and the meter or the main shutoff valve before the meter be inspected to determine the material of the service entry pipe (copper-tube, plastic, lead, or other miscellaneous pipe materials). If it is determined that the material is lead or another miscellaneous pipe material, it shall be the owner's responsibility to replace the service netry line with proper acceptable material, copper tube or plastic, at the owner's expense. The Town will supply the following: curb stop, curb stop box,

water works fittings for connection to existing Town-owned service line, as well as the main valve, and meter.

7. UNUSUAL CONSTRUCTION

Owners of property desiring any unusual construction, alterations, or attachments connected with the water supply must submit plans and specifications for the same to the Commissioners for their inspection and approval or disapproval, and for their determination as to whether the same are permissible. The Commissioners will determine the terms, charges, and conditions under which their use will be allowed.

8. TOWN TO HAVE FREE ACCESS TO PREMISES

No alterations shall be made in any of the pipes or fixtures inserted by the Town except by its agents who shall have free access at all times to the premises supplied to ascertain the quantity of water used, the manner of its use and whether there has been any waste, and when such access has been refused, the water will be shut off.

9. FIRES

Whenever a fire occurs in the Town, it is the duty of all consumers to discontinue, as far as practicable, all use of water.

10. CONDITIONS UNDER WHICH SERVICE IS FURNISHED

The Town does not guarantee constant pressure nor uninterrupted service, nor does it assure the consumer either a full volume of water or the required pressure per square inch necessary to effectually operate hydraulic elevators, sprinkler systems or other appliances, the same being subject to all the variable conditions that may take place in the use of water from the Town mains.

11. NO LIABILITY FOR INTERRUPTION OF SERVICE

No consumer shall be entitled to damages, or to have payment refunded, for any interruption of supply occasioned either by accident to any portion of the works, or by shutting off for the purposes of additions or repairs to the works, or by the stoppage or shortage of supply due to causes beyond the control of the Department, such as excessive drought, excessive use of and waste of water by other consumers, or by leaks or defects in the pipes or appliances owned by him or other consumers.

12. NO LIABILITY FOR CONSUMER'S PIPES OR DIRTY WATER

The Town assumeds no liability for conditions which exist in consumer's pipes and cause trouble coincident or following the repairs of any main pipe, service pipe, meter, or other appliance belonging to the Water & Sewer Department. The Town will not be responsible for damages caused by dirty water resulting from the opening or closing of any gate for repairs, the use of any hydrant, or the breaking of any pipe.

13. NO LIABILITY FOR COLLAPSED BOILERS

The Department reserves the right at any time, without notice, to shut off the water in the mains for purposes of making repairs, extensions, or for other necessary purposes. Persons having boilers or other appliances on their premises depending on the pressure in the pipes to keep them

supplied with water are hereby CAUTIONED against danger from these sources, and are required to provide at their own expenses, suitable safety appliances to protect themselves against such danger. In any event, it is expressly stipulated that the Department will not be liable for any damage resulting from water having been cut off, either through accident or necessity.

14. NO LIABILITY FOR SHUTTING OFF WATER WITHOUT NOTICE

When it becomes necessary to shut off the water from any section of the Town because of an accident or for the purpose of making changes or repairs, the Department will endeavor to give timely notice to as many of the consumers affected thereby as time and character of the repairs or the accident will permit, and will, so far as practicable, use its best efforts to prevent inconvenience and damage arising from any such cause but failure to give such notice will not render the Department responsible or liable for any damages that may result from the shutting off of the water or any coincident conditions.

15. VIOLATIONS OF REGULATIONS

Any violations of these regulations may result in the Water & Sewer Commissioners ordering the shutting off of the water to the violator's premises. When the water has been shut off for violations of rules, nonpayment of charges, or other offense, it will not be turned on again until the Department is satisfied that there will be no further cause of complaint, and a fee has been paid to cover the cost of shutting off and turning on the water. Refer to Appendix B: Fee/Penalty Schedule.

16. AIR CONDITIONERS

All air conditioners, dehumidifiers, and similar equipment shall use air cooled condensers where practicable. If water cooling is necessary, the system shall be closed or use a cooling tower approved by the Water & Sewer Commissioners.

SECTION 2B: CHARGES

1. USER FEES

Property owners will be billed and held responsible for all water service charges until such time as they shall notify the Sewer Division at its office, in writing, that they no longer desire the connection to water, and in case of the sale of the property such notice shall give the name and address, if different, of the new owner. Any outstanding charges shall remain with the property upon transfer of ownership.

Customers must contact the Water & Sewer Department to schedule a final billing for property transfer one week in advance of property closing. A final fee payment is required via cash, credit/debit card or certified check at the time of scheduling of a final bill. All customers requesting a final bill will be required to supply a forwarding address, and complete a transfer of ownership form with the name and mailing address of the new owner. Final bills must be paid via cash, credit/debit card, or certified check prior to the issuance of a final bill receipt.

All applicants for a new water service will be charged the minimum rate from the date the water is connected whether the water is used or not.

2. DATE OF CONSUMER'S LIABILITY TO PAY

All applicants for a new water service will be charged the minimum rate for the date the water is turned on, whether the water is used or not.

3. MORE THAN ONE PARTY ON A SERVICE

In existing cases where two or more users are supplied with water from the same service pipe, if any one of the parties fails to pay water charges when due, or to comply with any rule of the Water & Sewer Department, the Department has the right to turn off the water from the whole service until such charges are paid, or the rules strictly complied with.

4. COLLECTIONS OF MISCELLANEOUS WATER CHARGES

All bills for labor and material on consumers' property and charges of shutting off or turning on water will be subject to the same conditions as bills for water and the water will be shut off for failure to pay all such bills under the same procedure as for non-payment of water bills.

5. CHARGE FOR TURNING ON OR OFF WATER

A charge will be made for turning on or shutting of water. Refer to Appendix B: Fee/Penalty Schedule.

6. NO BUSINESS WITH DELINQUENTS

No person who owes an overdue bill for water charges shall be entitled to the further use of water at the same or any other premises until such water charges are paid in full, together with costs.

7. REBATES FOR NON-USE OF WATER

No rebates shall be made for non-use of water service unless a written notice is filed at the office of the Water & Sewer Department at the time of discontinuance of use of such service and all rebates will date from the filing of such notice. No rebate will be made for less than one month's non-use of water.

8. CLAIMS FOR ADJUSTMENT ON BILLS

All claims for adjustments of water bills shall be made within thirty days in the case of semi-annual bills and within fifteen days on monthly or quarterly bills.

9. ALL METERED WATER TO BE PAID FOR

All water passing through a meter must be paid for whether used or wasted.

10. WHEN METER IS OUT OF ORDER

If a meter gets out of order or fails to register, the consumer will be charged at the average daily consumption as shown by the meter when in order, and under similar conditions.

11. NO RIGHT TO FURNISH WATER TO OTHER PREMISES

A consumer of water by meter may use it for any and all purposes on his own premises, but will not be permitted to supply the premises of another person, except in special emergencies, and then only with the approval of the Water Commissioners.

12. WATER FROM NON-METERED SOURCE

All water for any purpose shall be drawn from a metered service if available. If necessary to draw water from a non-metered source, a fee is payable with a temporary 7-day application to be filed with the Water & Sewer Department office subject to the review and approval of the Superintendent of the Water & Sewer Department. If request is estimated in excess of 5,000 gallons, the application must be referred to the Board of the Water & Sewer Commissioners. Refer to Appendix B: Fee/Penalty Schedule.

SECTION 2C: METERS

1. METER INSTALLATION

An approved stop valve shall be installed near the outlet of the meter by the consumer, at his expense, to permit removal of the meter without back flow from the house pipes.

2. CONSUMERS TO PAY FOR METER REPAIRS

All repairs or injuries to meters from freezing, hot water, or external causes shall be charged to the consumer. No sale or other transfer of title of property in the Town of Plainville shall operate to bar the Water & Sewer Department in the collection of any balance due for meter repairs.

3. THE SIZE OF METERS SPECIFIED BY WATER DEPARTMENT

The proper size, type, and kind of water meter required for any given service shall be approved by the Water & Sewer Department.

4. METER NOT TO BE REMOVED

All meters shall be set by an employee of the Water & Sewer Department, and shall not be moved or disturbed except by the same.

5. PAYMENT FOR METER BOXES

Installation of meter boxes shall be at the consumer's expense.

6. TOWN'S RIGHT TO CHANGE METERS

If, in the opinion of the Commissioners, a meter does not fit the conditions of the service installation, the Department has the right to change such meter. Such changes shall be made in accordance with current regulations.

7. CHECK-VALVE

If, in the opinion of the Commissioners, the installation of an approved check-valve on the property side of a meter of any consumer is considered necessary for the safety of the water system, such approved check-valve shall be immediately installed at the expense of the consumer after due notice in writing has been given to the consumer by the Water & Sewer Commissioners.

8. AUXILIARY METERS

Where the supply of water through a service is covered by a single meter, the Department will read and maintain but this one meter. If additional or auxiliary meters are wanted for showing sub-divisions of such supply, they may be furnished and installed by the Department, at the expense of the consumer, who must assume all responsibility of reading and maintaining the same.

9. REPAIRING METERS

The Department will have the right to remove, repair, or replace any meter at any time it sees fit. All meter installations on services which cannot be shut off for meter repair shall be equipped with a metered by-pass at the expense of the consumer.

10. ACCESS TO THE METER

It shall be the duty of all consumers to see that meters on service connections wherever located shall be readily accessible at all times to the Water & Sewer Commissioners or their duly authorized agents. Failure to remove any obstruction which prevents access to the meter within seven days after being notified by the Department will cause the water to be shut off from the premises and it will not be turned on until all obstructions are removed, and all regulations complied with, and all expense for shutting off and turning on the water paid.

11. TESTING METERS BY REQUEST

All meter testing shall comply with Massachusetts General Law, Chapter 40, Section 39I. The accuracy of the meter on any premises will be testing by the Department upon written request of the owner, who shall pay in advance a fee to cover the cost of the test. If, on such test the meter is found to register over two percent more water than actually passes through it, the meter will be repaired and the fee will be refunded and the water bill for the current period will be adjusted in accordance with the result of the test; if, however, it appears that the person was charged or has paid for less water than he should have been charged with or should have paid for, he shall forthwith, be charged with the proper additional amount and shall pay the same, together with the expense of the examination and test, to the Town. Refer to Appendix B for Fee/Penalty Schedule and Appendix C for the Meter Testing Policy – Billing Abatement.

12. NOTICE OF EXCESSIVE USE OF WATER

The Department will endeavor to notify consumers of excessive use of water at the periodic readings of meter, but failure to send such notification on inability to read the meter from any cause shall not form basis for allowance on an abnormal water bill.

SECTION 2D: SERVICE PIPES AND FIXTURES

1. WATER WASTE

Consumers must keep their water pipes and fixtures in good repair and protected from frost at their own expense, and they will be held responsible for any damage resulting from their failure to do so. They shall prevent any waste of water.

2. ALL SERVICE PIPES TO BE INSPECTED

All new service pipes must be inspected by the Water & Sewer Department before covering the trench. All pipe and trench shall meet the approval of the Water & Sewer Department.

3. RIGHT TO REPAIR SERVICE PIPES

All service pipes between the curb stop and the cellar wall may be repaired or re-laid by the Department when it deems it necessary for the protection of the supply or the giving of satisfactory water service and the cost of the same charged to the consumer.

4. TEMPORARY SERVICE FOR ADJACENT PREMISES

When permission to open a permanently paved street is refused by the Board of Selectmen or for any physical reason it is impossible to open a street and the applicant requests that water be furnished temporarily from an adjacent service, the same may be done at the expense of the consumer if considered practicable by the Water & Sewer Commissioners.

5. EXTRA LARGE OR SPECIAL SERVICE PIPE

Any consumer requiring, because of special conditions in connection with his use of water, a service pipe between the main and the street line which is of a different type or larger than one-inch shall be at the expense of the consumer.

6. CHARGES FOR REPAIRS

The pipe from the street to the building (or all pipe beyond the town curb stop) is the property of the consumer, and all repairs to the same must be made at this expense.

7. MATERIAL ON PRIVATE PREMISES

All fittings supplied by the Department to the consumer shall be billed to the consumer.

8. IRREGULAR SERVICE

Services for other than permanent structures, or which are used only a part of the year may, at the option of the Water & Sewer Commissioners, be put in at the expense of the consumer.

9. ONE SERVICE TO EACH PREMISE

Except by special consent of the Commissioners, but one service connection will be made for the same premises, and where standby or emergency services will be installed the same may be metered and the expense of the installation and maintenance of the service pipe shall be at the expense of the consumer.

10. NO PIPES FURNISHED IN WINTER

No new services or main extensions will be granted during the period of November 1st through April 1st except in such cases as the Commissioners shall deem emergencies.

11. SERVICE PIPE TRENCHES

Service pipes shall not be placed within three feet of other utilities except under special conditions and with the approval of the Water & Sewer Commissioners. The Water & Sewer Department will not be responsible for damage to other utilities laid within three feet of a water service pipe.

12. STANDBY FIRE PROTECTION

The Water & Sewer Department will furnish standby fire protection service in accordance with rates and charges in Appendix B: Fee/Penalty Schedule. All equipment for this purpose shall be installed entirely at the expense of the consumer and with the approval of the Water & Sewer Department. Such pipes must not be used for the supplying of water for any other purposes and must be so arranged that easy inspection can be made by the Water & Sewer Department. Whenever it is considered necessary for the protection of the water supply and in the interest of the Town of Plainville, the Department shall have the right to require the installation of meters, alarms, or other accessories, the installation and upkeep of such equipment, to be at the consumer's expense.

13. TESTING FIRE SYSTEM

No water shall be taken or used through private fire systems for the purpose of testing, unless the Department issues a special permit. Such test must be conducted under the supervision of the Department.

14. RIGHT TO RESTRICT THE USE OF WATER

The Water & Sewer Commissioners have the right to restrict the use of water during dry seasons or under other emergency conditions.

15. USE OF FIRE HYDRANTS

The use of fire hydrants, town and private, is restricted to members of the Fire Department of the Town of Plainville and to employees of the Water & Sewer Department. Other persons may use the fire hydrants only with the specific permission of the Board of Water & Sewer Commissioners.

16. VALVE OPERATION

The opening and closing of valves shall only be performed by the Water & Sewer Department personnel.

17. INSTALLATION OF NEW MAINS BY DEVELOPER OF SUBDIVIDER

The size of all mains installed by a subdivider or developer shall be determined by the Water & Sewer Commissioners and installed under the supervision of the Water & Sewer Department. The contractor shall reimburse the Town for the cost of the supervision. No work shall be done without the supervisor being present.

In the event the Commissioners require larger than eight inch main, the difference between the cost of an eight inch main and the size required by the Commissioners may be submitted to the Town Meeting by the applicant and, if approved, will be paid by the Town. However, if not approved by the Town Meeting and the developer or subdivider wishes to proceed, he must install the larger size at his own expense.

All mains installed in subdivision shall be maintained by the subdivider for one year after the water is turned on or until roads within the subdivisions have been legally accepted by the Town, and then become the property of the Water & Sewer Department.

The Water & Sewer Department retains the right at all times to operate new water mains, gate valves, hydrants, etc., within new subdivisions or streets, so as to protect the health and well-being of the inhabitants of the town and to assure proper operation and management of the water system

Refer to Appendix A for Water Installer Application.

18. GUIDELINES FOR CONSIDERING WATER MAIN EXTENSIONS

Refer to Appendix D for the Guidelines for Considering Water and Sewer Main Extensions, which was adopted on December 11, 2012.

SECTION 3: WATER REQUIREMENTS & SPECIFICATIONS

SECTION 3A: GENERAL

All materials shall be North American made.

All materials and procedures shall conform to AWWA Standards, DEP guidelines and Town of Plainville regulations. The most stringent of the three shall apply.

All necessary easements for water connections shall be obtained by the property owner and recorded in the Registry of Deeds or Land Court prior to the connection to the water system.

SECTION 3B: PIPE AND FITTINGS

All pipe shall conform in design and manufactured to the latest issue of AWWA Standards C151, "Ductile-Iron Pipe, Centirfugally Cast, For Water or Other Liquids." Pipe shall havea pressure class of 350.

All fittings shall be ductile iron and conform in design and manufacturered to the latest issue of AWWA Standard C110, "Ductile-Iron and Gray-Iron Fittings," 3-inch Through 48-inch For Water and Other Liquids.

All pipe and fittings shall have a double cement-mortar lining inside and a bituminous seal coat applied both inside and outside to conform to AWWA C104, "Cement-Mortar Lining For Ductile-Iron Pipe and Fittings For Water."

Push-on and mechanical joints are permitted and shall conform in design and manufactured to the latest issue of AWWA Standard C111, "Rubber-Gasket Joint For Ductil-Iron Pressure Pipe and Fittings."

SECTION 3C: VALVES

All valves shall conform in design and manufactured to the latest issue of AWWA Standard C509, "Resilient-Seated Gate Valves For Water Supply." Acceptable valves are Mueller or approved equal.

All valves shall have a two-inch operating nut, mechanical joint hubs (except for wet taps), and open in a counter clockwise direction. If shallow depth of bury or other conditions of service require that the valve be installed in a horizontal position, a nut-operated bevel gear shall be fitted to the valve for service operation through a valve box.

SECTION 3D: HYDRANTS

Hydrants shall conform in design and manufacture to the latest issue of AWWA Standard C502, "Dry Barrel Fire Hydrants." Acceptable hydrants are Kennedy K81, Mueller A423, or approved equal.

Hydrants shall be compression type, i.e. the main valve shall open against and close with water pressure. Hydrants shall be of the dry top design with "O" ring seals to ensure that the operating threads will be protected from water entry. Dry top design is to include a factory-lubricated operating mechanism that allows supplemental lubricant to be added in the field without the removal of the top section. The downward travel of the main rod and valve assembly to the full open position shall be controlled by a travel stop device located in the upper stem section of the rod or have a positive stop in the base of the hydrant shoe. The drain mechanism shall be an integral part of the valve assembly. All internal parts shall be removable through the top of the hydrant when the bonnet has been removed.

Hydrants shall comply with the following:

1.) Main valve opening: 5.25 inches
2.) Outlets:
    a. Hose connections: 2 to 2.50 inches
    b. Steamer connection: 1 to 4.50 inches
3.) Shoe: six-inch mechanical joint (range 6.90 to 7.10 outside diameter).
4.) Direction of opening: counterclockwise (open left)
5.) Height (bury line to operating nut): 28.75 inches minimum
6.) Model: traffic (breakaway design)
7.) Color:
    a. Connections to typical distribution system: Safety red body, White bonnet and caps.
    b. Connections to booster pump station or high pressure distribution systems: Safety red body, Safety yellow bonnet and caps.

All hydrants shall have a permanently mounted marking device approved by the Water & Sewer Department.

SECTION 3E: COVER OVER PIPE

Pipe shall have five feet of cover measured to finish grade of the street. Pipe to be hand-covered one foot with sand or stone free gravel and compacted and tamped around pipe to give good support and protection.

In case of any excavations in swamp or when unsuitable material is encountered, the Contractor shall replace the same with a good material to provide proper support and alignment of the pipe line. If required by the Department, the Contractor shall use crushed stone for good bedding. Trench backfill shall be suitable material taken from the excavation, approved common borrow or gravel hauled in. No mud, frozen earth, stones larger than six inches or other objectionable material is to be used for refilling.

SECTION 3F: LEDGE

All ledge shall be removed to a width two feet greater than the diameter of the pipe and one foot below the underside of the pipe. A bed of sand shall be placed in the trench prior to laying pipe.

SECTION 3G: BLASTING

All blasting shall be completed within a distance of 50 feet from any water service or water main.

SECTION 3H: EXCAVATION WITHIN PUBLIC WAYS

A street opening permit shall be obtained from the Town before any excavation can begin within any town-accepted street. The work shall be performed in accordance with permit.

SECTION 3I: SERVICE PIPES

The service pipe shall be at least 1-inch in diameter. Service pipe material shall be Type K, soft copper tubing conforming to ASTM specifications B-75, B-88 and B-68 as applicable to Type K Copper Tubing and Federal Specification WW-T 7996.

No sweat fittings or unions shall be allowed between the curb stop and the meter regardless of meter location. Where the service length is 100 feet or greater, the size of the service pipe shall be subject to approval by the Water & Sewer Department. One union shall be allowed for 2-inch diameter service pipe.

Plastic service pipes shall be copper tubing size with a 200 psi working pressure. The pipe shall be grounded at both ends with 12 gauge solid copper wire and with stainless steel inserts at all connections.

SECTION 3J: AWWA BRASS

Preferred manufacturer shall be Mueller, Ford or Red Hed.

Connection style – Compression.

Corporations shall be ball type with CC threads.

Curb stops must have a drain and shall be Open Left.

SECTION 3K: CURB AND GATE BOXES

Curb boxes shall be 94 E Buffalo style slide type.

Gate boxes shall be 3 piece type with "Water" stamped on top.

SECTION 3L: PIPE HANDLING

The Contractor shall arrange for the delivery of the pipe sections at approved locations in the vicinity of that portion of the water line in which the pipe sections are to be laid. To this end, he shall do such work as is necessary for access and for delivery of the pipe. Pipes shall be stored in an approved, orderly manner so that there will be a minimum of re-handling from the storage area to the final position in the trench and so that there is a minimum of obstruction and inconvenience to any kind of traffic.

Deliveries shall be scheduled so that the progress of the work is at no time delayed and also so that large quantities of pipe shall not be stored for excessive lengths of time in crowded locations

or in locations where large storage areas might be considered objectionable. Storage of pipe will be restricted to approved or permitted areas. PVC pipe shall be protected from sunlight during storage.

The spigot end of all pipes shall be stored on a block to prevent damage. The bell or groove end of each length of R.C. pipe shall be placed in storage on a block to prevent damage. Care shall be taken that the lengths do not roll together.

Each pipe section shall be handled into its position in the trench in such manner and by such means as the Superintendent approves as satisfactory, and these operations will be restricted to those considered safe for the workmen and such as to cause no injury to the pipe or to any property.

The Contractor will be required to furnish slings, straps and/or approved devices to provide satisfactory support of the pipe when it is lifted from delivery areas to the trench shall be restricted to operations which can cause no injury to the pipe units.

The pipe shall not be dropped from trucks or into the trench.

The Contractor shall have on the Job-site with each pipe-laying crew all the proper tools to handle and cut the pipe. The use of hammer and chisel, or any other method, which results in rough edges, chips and damaged pipe, shall be prohibited.

Damaged pipe coating and/or lining shall be restored before installation is approved or directed by the Superintendent.

SECTION 3M: PREPARATION OF PIPE BEDDING

The Contractor shall arrange for the delivery of the pipe sections at approved locations in the vicinity of that portion of the water line in which the pipe sections are to be laid. To this end, he shall do such work as is necessary for access and for delivery of the pipe. Pipes shall be stored in an approved, orderly manner so that there will be a minimum of re-handling from the storage area to the final position in the trench and so that there is a minimum of obstruction and inconvenience to any kind of traffic. Where ledge is encountered, the trench shall be excavated to 12" below the proposed pipe invert elevation and a minimum of 12" of bedding material installed below the pipe.

SECTION 3N: LAYING PIPE

Each pipe length shall be inspected for cracks, defects in coating or lining, and any other evidence of unsuitability.

Pipe shall be laid in the road and at no time shall water in the trench be permitted to flow into the Sewer.

The pipe shall then be laid on the trench bedding as shown on the Standard-Trench Section, and the spigot pushed home. Jointing shall be in accordance with the manufacturer's instructions and appropriate ASTM Standards, and the Contractor shall have on hand for each pipe-laying crew,

the necessary tools, gauges, pipe cutters, etc., necessary to install the pipe in a workmanlike manner. Pipe lying shall proceed upgrade with spigot ends pointing in the direction of flow, unless otherwise approved by the Superintendent.

Blocking under the pipe will not be permitted except where a concrete cradle is proposed, in which case pre-cast concrete blocks shall be used.

After the pipe has been set to grade, additional bedding material shall be placed in 6-inch layers up to the spring line of the pipe. Tamping bars shall be carefully employed to assure compaction of the bedding under the lower quadrants of the pipe.

After this, the bedding material shall be carefully placed in 6-inch layers to a depth of 12 inches over the crown of the pipe. Each layer shall be thoroughly compacted with mechanical equipment. Care shall be taken that the equipment does not damage the pipe.

At this point, the pipe shall be checked for line and grade and any debris, tools, etc., shall be removed.

If inspection of the pipe is satisfactory, the Contractor may then refill or backfill the remainder of the trench in accordance with the Standard Trench Section.

At any time that work is not in progress, the end of the pipe shall be suitably closed to prevent the entry of animals, earth, etc.

At the end of each day's work or at intervals of no more than 200 feet of pipe, the Superintendent, with the Contractor, will inspect the pipe for alignment with lamps or mirrors. Unsatisfactory work shall be dug up and re-installed to the satisfaction of the Superintendent.

SECTION 3O: COVER OVER PIPE

Pipe shall have five feet of cover measured to finish grade of the street. Pipe to be hand-covered one foot with sand or stone free gravel and compacted and tamped around pipe to give good support and protection.

In case of any excavations in swamp or when unsuitable material is encountered, the Contractor shall replace the same with a good material to provide proper support and alignment of the pipe line. Trench backfill shall be suitable material taken from the excavation, approved common borrow or gravel hauled in. No mud, frozen earth, stones larger than eight inches or other objectionable material is to be used for refilling.

SECTION 3P: TESTING

Before acceptance by the Water & Sewer Department, the pipe shall be pressure-tested and chlorinated in accordance with "Installation of Ductile-Iron Water Mains and Appurtenances," AWWA Designation C651, latest edition.

No one shall pressure-test or chlorinate an installation without notifying the Water & Sewer Department at least 48 hours prior. An employee of the Department must be present for the duration of the pressure test and chlorination to witness and sign the results. All pressure-test reports shall consist of the actual distance of pipe by size, number of valves and hydrants and shall be sent to the Department. The water for disinfection and flushing shall be furnished by the Town.

Samples of water taken after the disinfection of the water pipes shall be delivered by the Department to a testing laboratory approved by the Commonwealth of Massachusetts. All costs associated with the pressure testing, chlorination and sampling shall be borne by the Contractor.

SECTION 4: SANITARY SEWER DISTRIBUTION SYSTEM

SECTION 4A: BUILDING SEWERS AND CONNECTIONS

1. PROHIBITIONS

For prohibitions refer to Chapter 364-6 of the Town of Plainville Bylaws.

2. GUIDELINES FOR CONSIDERING SEWER MAIN EXTENSIONS

Refer to Appendix D for the Guidelines for Considering Water and Sewer Main Extensions, which was adopted on December 11, 2012.

3. STREET OPENING & TRENCHING PERMITS:

In addition to the specific Sewer Connection Permit clauses herein, excavation work in the Town of Plainville public right-of-way requires a Street Opening permit from the Town of Plainville. Applications must also obtain a permit prior to the creation of a trench on public and/or private property in accordance with Chapter 82A of the Massachusetts General Laws, as codified in section 14.00 of title 520 of the Code of Massachusetts Regulations. Refer to Section 6.C.4 of this document.

4. SEWER CONNECTION PERMITS:

In accordance with Chapter 83, Section 10 of the Massachusetts General Laws, the Plainville Water & Sewer Commissioners have adopted the Sewer Growth Newtral Regulation for obtaining permits to enter the Town sewer system; use of public and private sewers; installation and connection of building sewers; and discharge of waters and wastes into the public sewer system. These rules became effective July 9, 2013, and are included in Appendix E.

Sewer Connection Permit Applications: Applications shall be made on the pre-approved Town of Plainville Sewer Connection Permit Application form only and filed with a complete Application Packet. Please refer to Appendix F for Town of Plainville Sewer Permit Application Package. Completed applications shall be forwarded to the Superintendent for approval. Applications for service to an existing building shall include a sketch showing proposed sewer including all bends, cleanouts, and other structures. Applications for service to a new building shall include design plans prepared and stamped by a professional engineer registered in the State of Massachusetts showing the sewer service, including but not limited to existing conditions, proposed grading and drainage, proposed site layout, proposed sewer profile, other utilities, details and other information considered pertinent in the judgment of the Superintendent. Applications for service to any building, existing or proposed, which is to be serviced by a low pressure sewer shall include design plans prepared and stamped by a professional engineer registered in the State of Massachusetts. All sewer connections shall be inspected by a member of the Water & Sewer Department prior to approval. Inspection shall include review of the interior of the property to assure that all sanitary codes are in compliance, when connection to the municipal system is

accomplished. Permit and inspection fees for connection permits shall be paid to the Town when an application is filed.

Refer to Chapter 364-7 of the Town of Plainville Bylaws for more information.

5. PERMIT LIMITS:

(i) Lapse: Refer to Chapter 364-7 of the Town of Plainville Bylaws for more information.
(ii) Drain Layers Permits: Refer to Chapter 364-22 through Chapter 364-24 of the Town of Plainville Bylaws for more information.

6. PERMIT AND INSTALLATION COSTS

a. CONNECTION COSTS

Sewer Connection Charges shall be as defined in Appendix B: Fee/Penalty Schedule.

b. INSTALLATION COST AND INDEMNIFICATION

Refer to Chapter 364-8 of the Town of Plainville Bylaws for more information.

c. USER FEES

Property owners will be billed and held responsible for all sewer charges until such time as they shall notify the Sewer Division at its office, in writing, that they no longer desire the connection to sewer, and in case of the sale of the property such notice shall give the name and address, if different, of the new owner. Any outstanding charges shall remain with the property upon transfer of ownership.

Customers must contact the Water & Sewer Department to schedule a final billing for property transfer one week in advance of property closing. A final fee payment is required via cash, credit/debit card or certified check at the time of scheduling of a final bill. All customers requesting a final bill will be required to supply a forwarding address, and complete a transfer of ownership form with the name and mailing address of the new owner. Final bills must be paid via cash, credit/debit card, or certified check prior to the issuance of a final bill receipt.

All applicants for a new sewer service will be charged the minimum rate from the date the sewer is connected whether the sewer is used or not.

3. DEMOLITION PERMIT

When physically disconnecting an existing sewer connection for the purpose of dewatering, relocating, re-building, or rehabilitating, any building connected to the sewer system will require a permit and an associated fee shall be assessed. Refer to Appendix B: Schedule of Fees for the associated fee.

7. GREASE, OIL, SAND INTERCEPTORS

Exterior Grease Traps/Interceptors shall be installed when required by the Town of Plainville Board of Health and Water & Sewer Department, and are necessary for the proper handling of liquid wastes containing grease in excessive amounts. They shall be required for all food preparation establishments with the exception of private living quarters or dwelling units. All traps/interceptors shall be of a type and capacity approved by the Town of Plainville Board of Health and installed as per Massachusetts State Plumbing Codes and shall be located as to be readily and easily accessible for cleaning and inspection. Traps/interceptors shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature; they shall be of substantial construction, watertight and equipped with easily removable covers which when bolted in place shall be gastight and watertight.

The Town, or its authorized agent, reserves the right to inspect the grease traps/interceptors and to sample effluent on a continual basis to ensure proper operation and maintenance. When it has been determined by the Town, or its authorized agent, that any user is discharging grease into the sewer system, a Notice of Violation (NOV) will be issued. The owner/operator of said establishment shall be granted 30 days from the Notice of Violation in which to permanently correct and abate the condition causing the grease to be discharged into the sewer system. Any further discharging of grease into the sewer system by the user which creates a condition requiring maintenance to eliminate the grease deposit shall be cause for suspension or revocation of the establishment's license.

All grease traps/interceptors shall be maintained by the owner, at the owner's expense, in continuously efficient operation at all times.

All exterior grease traps/interceptors shall be pumped and maintained on a quarterly basis with appropriate records kept and forwarded to the Water & Sewer Department within 14 days of each pump-out. Failure to submit exterior grease trap maintenance records in a regularly and timely manner shall be cause for suspension or revocation of the establishment's license.

All interior grease traps/interceptors shall be cleaned and maintained as required by the Plainville Board of Health. A maintenance log shall be kept in the establishment to record the dates the units are emptied and cleaned. Additionally, emulsification products shall not be used to clean traps/interceptors as these products cause the grease to solidify in the sewer collection system and cause back-ups.

Inspections of grease traps/interceptors, maintenance and accessibility, chemical inventory documentation and maintenance records shall be conducted by either the Town of Plainville Board of Health and Water & Sewer Department or the North Attleborough Department of Public Works Wastewater & Pretreatment Personnel. The inspections shall occur on a continuous, but random basis of any and all facilities that process food. Businesses shall be responsible for performing adequate testing and monitoring to ensure that grease traps/interceptors are functioning properly. Businesses shall keep records of all maintenance activities and monitoring/testing for a minimum of three (3) years.

. Refer to Chapter 364-31 of the Town of Plainville Bylaws for more information. Grease Traps shall comply with all the requirements of Title 5.

8. INDUSTRIAL WASTEWATER

See Section 4D: Industrial Wastewater (intentionally omitted).

9. SEPARATE BUILDING SEWERS REQUIRED

Refer to Chapter 364-9 of the Town of Plainville Bylaws for more information.

10. CONNECTION TO THE BUILDING DRAIN

The Building Sewer shall be insulated appropriately for protection from frost if a four foot depth is not achievable. The Building Sewer shall be laid at uniform grade and in straight alignment insofar as possible. All changes in direction shall be made with manholes or cleanouts subject to the approval of the Superintendent.

For existing buildings converted from septic to public sewer, all building connections shall have the building drain exit the building at approximately the same elevation and location that the current septic system pipe exits the building, unless specifically requested otherwise by the Superintendent.

Refer to Chapter 364-12 of the Town of Plainville Bylaws for more information.

11. PROHIBITED CONNECTIONS

Upon confirming the existence of a prohibited connection the owner will be notified and given ten (10) days to secure a contractor and to make the necessary repairs. Should the violator fail to follow through within the given time period, a fine maybe levied for each day thereafter in accordance with the penalty provisions provided for herein.

Refer to Chapter 364-13 of the Town of Plainville Bylaws for more information.

12. METHOD OF PIPE INSTALLATION AND BACKFILLING

a. General - All pipes shall be laid in accordance with Section 2, 3, 5C, and 6 of this document.

The connection of the Building Sewer into the Public Sewer shall conform to the requirements of the building and plumbing code or other applicable rules and regulations of the Town, or the procedures set forth in current specifications of the A.S.T.M and WPCF Manual of Practice No. 9.

All joints between pipes of different materials shall be made with pre-molded gasket joints approved by the Superintendent.

The connection of the Building Sewer into Public/Private Sewer shall be made at the "Y" or "T" branch if 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 Superintendent. Cutting the connection into the pipe by hand is prohibited.

Refer to Chapter 364-14 of the Town of Plainville Bylaws for more information.

b. Method of Construction – Refer to Chapter 364-11 of the Town of Plainville Bylaws for more information.

13. NOTIFICATION AND INSPECTION OF WORK

Refer to Chapter 364-15 of the Town of Plainville Bylaws for more information.

14. PROTECTION OF PUBLIC AND PROPERTY

Refer to Chapter 364-16 of the Town of Plainville Bylaws for more information.

15. REPORTING OF PROHIBITED SUBSTANCES FOUND IN SEWER

Refer to Chapter 364-20 of the Town of Plainville Bylaws for more information.

16. PROPER VENTING REQUIRED

Refer to Chapter 364-19 of the Town of Plainville Bylaws for more information.

17. WASTEWATER METERING

In the event a user is not connected to the public water supply, but is connected to the Public Sewer, said user shall install and maintain a water meter and associated meter reading equipment, at his expense, from which the Town may monitor the use of the Sewer. The type of meter and the method of installation shall be approved by the Water & Sewer Department. Fees for meter installation are defined in Appendix B: Fee/Penalty Schedule.

SECTION 4B: USE OF PUBLIC/PRIVATE SEWER

1. CONNECTION TO PUBLIC/PRIVATE SEWER

Refer to Chapter 364-5 of the Town of Plainville Bylaws for more information.

2. PROPERTY TRANSFER

Sewer lateral line inspection shall be required prior to any property transfer. Upon sale of property(s) connected to the municipal sanitary sewer system, it is required that the seller (owner) of the property contract with a qualified firm to internally inspect the sewer lateral from the connection to the plumbing system at the property to the street main. The purpose of the inspection is to determine the internal condition of the lateral regarding inflow nad infiltration, root intrusion, damage, or other potentially negative operational issues. This inspection must be performed 30 days prior to the date of the closing and transfer of ownership of the property. Refer to Appendix B: Schedule of Fees for the associated fee, which shall be due prior to the date of the inspection.

2. APPROVAL OF DISCHARGES

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 or their designees.

3. DISPOSAL OF UNPOLLUTED WATERS PROHIBITED

Refer to Chapter 364-26 of the Town of Plainville Bylaws for more information.

4. DISCHARGE METHOD SPECIFIED

Refer to Chapter 364-27 of the Town of Plainville Bylaws for more information.

5. PROHIBITED WASTES

Refer to Chapter 364-29 of the Town of Plainville Bylaws for more information.

6. CONTROLLED WASTES

No person shall discharge or cause to be discharged the following described substances, materials, waters, or wastes if, in the opinion of the Board or a duly authorized representative, such wastes can harm either the Public/Private Sewers, sewage treatment process, or equipment have an adverse effect on the receiving stream; or can otherwise endanger life, limb, public property, or constitute a nuisance. In forming an opinion as to the acceptability of these wastes, the Board will give consideration to such factors as the quantities of subject wastes in relation to flow and velocities in the Public/Private Sewers, nature of the sewage treatment process, capacity of the sewage treatment plant, degree of treatability of wastes in the sewage treatment plant and other pertinent factors. The controlled substances are:

a. Any liquid or vapor having a temperature higher than one hundred fifty degrees (150^0F), (65^0C).

b. Any water or waste containing fats, wax, grease or oils of vegetable or animal origin, whether emulsified or not, in excess of 100 mg/l or containing other substances which may solidify or become viscous at temperatures between thirty-two degrees (32^0F), and one hundred fifty degrees (150^0F), (0^0C and 65^0C). 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.

c. 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 or their duly authorized representative.

d. Any waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions whether neutralized or not.

e. Any waters or wastes containing iron, chromium, copper, zinc, any 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 Plant exceeds the limits established by the Board or MassDEP for such materials.

f. 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 or the Authority, 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.

g. Any radioactive wastes or isotopes of such half-life or concentration as my exceed limits which may be established by the Board in compliance with applicable state and federal regulations.

h. Any waters or wastes having a pH in excess of 9.5.

i. Materials which exert or cause:

i. 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).

ii. Excessive discoloration (such as, but not limited to, dye wastes and vegetable tanning solutions).

iii. Unusual BOD, chemical oxygen demand, or chlorine requirements in such quantities as to constitute a significant load on the sewage treatment plant.

iv. Unusual volume of flow or concentration of wastes constituting slugs, as defined in Division 1 –Section 1B.

j. 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 agencies having jurisdiction over discharge of the treatment plant.

7. DECISIONS OF THE BOARD

Refer to Chapter 364-30 of the Town of Plainville Bylaws for more information.

8. MAINTENANCE OF PRETREATMENT FACILITIES

Refer to Chapter 364-32 of the Town of Plainville Bylaws for more information.

9. CONTROL MANHOLES

Refer to Chapter 364-33 of the Town of Plainville Bylaws for more information.

10. WASTEWATER SAMPLING

Refer to Chapter 364-34 of the Town of Plainville Bylaws for more information.

11. MONITORING OF DISCHARGE REQUIRED

Refer to Chapter 364-35 of the Town of Plainville Bylaws for more information.

12. NOTICE OF ACCIDENTAL DISCHARGE REQUIRED

The event shall be followed, within 15 days of the date of occurrence, by a detailed written statement to the Superintendent 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 expenses, loss or damage to the Town's sewerage system or for any fines imposed by the Town.

Users shall inform their employees of the existence of these regulations and at least one copy shall be permanently posted on the user's bulletin board. Each user shall permanently post a notice advising employees who in their organization have been designated as the responsible individual for compliance with these regulations and who should be notified of any accidental discharges in violation of these regulations.

Refer to Chapter 364-36 of the Town of Plainville Bylaws for more information.

13. COMMERCIAL AND INDUSTRIAL USERS LOCATED WITHIN A CONTRIBUTING MUNICIPALITY.

Per the Intermunicipal Agreement, all sewer shall be generated within the Plainville town bounds. Refer to Chapter 364-37 of the Town of Plainville Bylaws for more information.

SECTION 4C: ADDITIONAL RULES

1. Building Sewers must be a minimum of six (6) inches in diameter and sized based on the anticipated flows. Building Sewers must have a tee-wye clean-out located (10) feet from the building's exterior wall.

2. Six (6) inch pipe must be used to within ten (10) feet of the building, at which point the plumbing regulations will be adhered to. If a four (4) inch pipe extends from the building, a four (4) to six (6) inch Fernco Flexible Coupling (or approved equal) will be used in joining the six (6) inch to the four (4) inch pipe. A licensed plumber must perform all work within ten (10) feet of the building.

3. All changes in direction are to be made with either twenty-two and a half (22½) or forty-five (45) degree bends with at least three (3) feet of horizontal pipe between fittings. At a minimum, where two bends are used to form a ninety (90) degree turn, a tee-wye clean-out shall be provided. A clean-out shall be provided every one hundred (100) feet. Where conditions warrant, as determined by the Superintendent, a sewer manhole shall be provided in lieu of a clean-out.

4. All clean-outs must be the same diameter as the horizontal Building Sewer into which the clean-out is connected; minimum of six (6) inches.

5. All clean-outs must be extended to finished grade and be provided with a screw on cap. A steel strap or piece of rebar shall be placed on or against the vertical section of pipe to aid in future recovery with a metal detector.

6. If a cleanout is installed under a paved or traveled area, an appropriate size frame and cover shall be provided and brought to grade with courses of barrel block, brick, and mortar. The frame and cover shall be installed as to prevent any load from being transferred onto the PVC riser or screw plug.

7. All commercial, industrial, and residential apartment and condominium buildings with 4 or more units shall use a sewer manhole, in place of a clean-out, outside of the building foundation and for changes in direction at the discretion of the Superintendent.

8. Crushed stone shall be placed a minimum of six (6) inches above and below and all around the Sewer pipe at full width of the trench and around any cleanouts.

9. Building Sewers must be installed at a minimum slope of 2.00% (1/4" per foot) and a maximum slope of 7.00%. The Town, depending on site conditions, may modify the slope requirements.

10. Sewers must not connect directly into any manhole without the prior written approval of the Superintendent. Inside drop connections for services to manholes are not permitted, unless prior approval of the Superintendent is granted.

11. All cleanouts or manholes must meet the Town's specifications included in these Regulations. When a cleanout frame and covers is installed, a LeBaron LA0910 cover or approved equal will be used. The cover, will be brought to finished grade, will have appropriate lettering and be installed according to specifications. Waterproof covers shall be installed on manholes in low areas or areas subject to flooding.

12. Garages and other establishments where gasoline is used shall not have floor drains connected to the common sewer. Grease, gasoline, oil or any other substance shall be disposed of in a safe manner and not into the sanitary system or drainage system.

13. All necessary easements for sewer connections shall be obtained by the property owner and recorded in the Registry of Deeds or Land Court prior to the connection to the sewer system.

14. The cost of cleaning, maintaining, repairing or replacing any particular sewer connection shall be paid by the property owners connected to said sewer system, up to the property line in a public way. The Town assumes the liability when located in the public way,

15. Whoever violates any of the provisions of these rules and regulations shall be punished according to existing Town By-Laws, state and/or federal laws for each offense.

16. These rules may be rescinded or modified or added to by the Board at any time when, in their opinion, such action is for the best interest of the Town of Plainville.

SECTION 4D: INDUSTRIAL WASTEWATER

****This Section Intentionally Omitted****

SECTION 5: SEWER REQUIREMENTS AND SPECIFICATIONS

SECTION 5A: P.V.C. SEWER PIPE

1. POLY VINYL CHLORIDE PIPE (P.V.C.)

All P.V.C. pipe and fittings shall conform to the most recent requirements of ASTM Specifications for Type PSM Poly Vinyl Chloride (P.V.C.) Sewer Pipe and Fittings.

P.V.C. Pipe conforming to Designation D-3034 shall be SDR-35 or greater.

P.V.C. Pipe conforming to Designation F-789 shall be PS-46 or greater. All P.V.C. Pipe shall have elastomeric gasket joints which shall conform to ASTM Specifications for sewer pipe joints using elastomeric seals designation D-3212. Manufacturer's certificate of compliance shall be furnished to the Superintendent, prior to installation. Methods of shipping and storage on site shall be such as to avoid injury to the pipe. Damaged pipe shall be rejected and removed from the job. Solvent cement joints shall not be allowed.

Minimum "pipe stiffness" (F/y) at 5% deflection shall be 46 psi for all sizes when tested in accordance with ASTM Method of Test D-2412, "External Loading Properties of Plastic Pipe by Parallel Plate Loading".

Each length of pipe in compliance with this specification shall be clearly marked at intervals of 5 feet or less. Pipe conforming to designation D3034 shall be marked with the manufacturer's name or trademark, nominal pipe size, the P.V.C. cell classification (i.e. 12454-\B), the legend "Type PSM SDR-35 P.V.C. Sewer Pipe," and "ASTM D-3034". Pipe conforming to Designation F-789 shall be marked with the manufacturer's name or trademark, the P.V.C. cell classification (i.e. 12164-B), Modulus Indicator (i.e. T-1, T-2, or T-3), the legend "PS-46 P.V.C. Gravity Sewer Pipe," and "ASTM F-789'.

P.V.C. pipe used for force main shall conform to ASTM D-2241 and D-1784 (Class 12454-B) and safety factor of 2.5 shall be used for pressure rating determination with a standard dimension ratio (SDR) no higher than 26.

2. P.V.C. FITTINGS

Wye branches and bends shall have elastomeric gasket joints, and conform to "ASTM D-3034" (SDR-35 only) or ASTM F-789. They shall be manufactured and furnished by the pipe supplier (or approved equal) and have bell and spigot joints compatible with that of the pipe.

Each fitting in compliance with this specification shall be clearly marked with manufacturer's name or trademark, nominal size, material designation "P.V.C.", "PSM" (for SDR-35 only), and "ASTM D-3034" or "ASTM F-789". All fittings shall be either SDR-35 or PS-46 and shall be the same as the pipe being used.

3. JOINTS FOR P.V.C. PIPE

Joints shall be of the bell and spigot type with a gasket as previously specified. No solvent joints are permissible. Manufacturer's instructions shall be followed.

4. ALLOWABLE DEFLECTION

A maximum of 7 1/2% deflection in the pipe diameter will be allowed. Deflection shall be measured as the reduction in the vertical diameter of the pipe.

SECTION 5B: CEMENT LINED DUCTILE IRON SEWER PIPE

1. CEMENT LINED DUCTILE IRON PIPE

Cement lined ductile iron pipe and fittings shall conform to ANSI Standards A21.50 and A21.51. Cement-mortar lining shall be double thickness and conform to ANSI A21.4. Manufacturer's certificate of compliance shall be furnished to the Superintendent, prior to installation. Methods of shipping and storage on site shall be such as to avoid injury to the pipe. Damaged pipe shall be rejected and removed from the job site.

Cement lined ductile iron pipe and fittings shall be Class 50, unless otherwise noted on the plans.

Each length of pipe shall be marked with the manufacturer, trade name, and class.

2. CEMENT LINED DUCTILE IRON FITTINGS

Fittings shall conform, to ANSI A21.11 and shall be of the same class and type as the pipe on which they are used.

3. JOINTS FOR CEMENT LINED DUCTILE IRON PIPE

Joints shall be rubber gasket oil resistant joints of the push-on type in conformance with ANSI AWWA C-111 (A21.11). Manufacturer's instructions shall be followed.

SECTION 5C: INSTALLATION OF SEWER PIPE

1. PIPE HANDLING

The Contractor shall arrange for the delivery of the pipe sections at approved locations in the vicinity of that portion of the Sewer line in which the pipe sections are to be laid. To this end, he shall do such work as is necessary for access and for delivery of the pipe. Pipes shall be stored in an approved, orderly manner so that there will be a minimum of re-handling from the storage

area to the final position in the trench and so that there is a minimum of obstruction and inconvenience to any kind of traffic.

Deliveries shall be scheduled so that the progress of the work is at no time delayed and also so that large quantities of pipe shall not be stored for excessive lengths of time in crowded locations or in locations where large storage areas might be considered objectionable. Storage of pipe will be restricted to approved or permitted areas. PVC pipe shall be protected from sunlight during storage.

The spigot end of all pipes shall be stored on a block to prevent damage. The bell or groove end of each length of R.C. pipe shall be placed in storage on a block to prevent damage. Care shall be taken that the lengths do not roll together.

Each pipe section shall be handled into its position in the trench in such manner and by such means as the Superintendent approves as satisfactory, and these operations will be restricted to those considered safe for the workmen and such as to cause no injury to the pipe or to any property.

The Contractor will be required to furnish slings, straps and/or approved devices to provide satisfactory support of the pipe when it is lifted from delivery areas to the trench shall be restricted to operations which can cause no injury to the pipe units.

The pipe shall not be dropped from trucks or into the trench.

The Contractor shall have on the Job-site with each pipe-laying crew all the proper tools to handle and cut the pipe. The use of hammer and chisel, or any other method, which results in rough edges, chips and damaged pipe, shall be prohibited.

Damaged pipe coating and/or lining shall be restored before installation is approved or directed by the Superintendent.

2. CONTROL OF ALIGNMENT AND GRADE

The location of the pipe, manholes, and other appurtenances shall be established in accordance with the contract drawings. Benchmarks shall be established along the route of the pipeline at convenient intervals for use in checking the pipe and manhole invert and other elevations throughout the project.

The Contractor may use a laser beam to assist in setting the pipe provided he can demonstrate satisfactory skill in its use.

The use of string levels, hand levels, carpenters levels or other relatively crude devices for transferring grade or setting pipe will not be permitted.

3. PREPARATION OF PIPE BEDDING

As soon as excavation has been completed to proper depth, as shown on the 'Standard Trench Section ' a layer of bedding material shall be placed to the elevation necessary to bring the pipe to grade and compacted. It shall be the "Contractor's" responsibility to control any water in the trench below the pipe invert. If directed by the Superintendent, the Contractor shall place concrete, clay or other impermeable material in the bedding at intervals to prevent horizontal movement of the groundwater which might induce settling of the bed, or make it difficult to handle water in the trench. Where ledge is encountered, the trench shall be excavated to 12" below the proposed pipe invert and a minimum of 12" of bedding material installed below the pipe.

4. LAYING PIPE

Each pipe length shall be inspected for cracks, defects in coating or lining, and any other evidence of unsuitability.

Pipe shall be laid in the road and at no time shall water in the trench be permitted to flow into the Sewer.

The pipe shall then be laid on the trench bedding as shown on the Standard-Trench Section, and the spigot pushed home. Jointing shall be in accordance with the manufacturer's instructions and appropriate ASTM Standards, and the Contractor shall have on hand for each pipe-laying crew, the necessary tools, gauges, pipe cutters, etc., necessary to install the pipe in a workmanlike manner. Pipe lying shall proceed upgrade with spigot ends pointing in the direction of flow, unless otherwise approved by the Superintendent.

Blocking under the pipe will not be permitted except where a concrete cradle is proposed, in which case pre-cast concrete blocks shall be used.

After the pipe has been set to grade, additional bedding material shall be placed in 6-inch layers up to the spring line of the pipe. Tamping bars shall be carefully employed to assure compaction of the bedding under the lower quadrants of the pipe.

After this, the bedding material shall be carefully placed in 6-inch layers to a depth of 12 inches over the crown of the pipe. Each layer shall be thoroughly compacted with mechanical equipment. Care shall be taken that the equipment does not damage the pipe.

At this point, the pipe shall be checked for line and grade and any debris, tools, etc., shall be removed.

If inspection of the pipe is satisfactory, the Contractor may then refill or backfill the remainder of the trench in accordance with the Standard Trench Section.

At any time that work is not in progress, the end of the pipe shall be suitably closed to prevent the entry of animals, earth, etc.

At the end of each day's work or at intervals of no more than 200 feet of pipe, the Superintendent, with the Contractor, will inspect the pipe for alignment with lamps or mirrors. Unsatisfactory work shall be dug up and re-installed to the satisfaction of the Superintendent.

5. COVER OVER PIPE

Pipe shall have five feet of cover measured to finish grade of the street. Pipe to be hand-covered one foot with sand or stone free gravel and compacted and tamped around pipe to give good support and protection.

In case of any excavations in swamp or when unsuitable material is encountered, the Contractor shall replace the same with a good material to provide proper support and alignment of the pipe line. Trench backfill shall be suitable material taken from the excavation, approved common borrow or gravel hauled in. No mud, frozen earth, stones larger than eight inches or other objectionable material is to be used for refilling.

SECTION 5D: SEWER SERVICE CONNECTIONS

1. MATERIALS

Materials for private house services, wye branches, and chimneys shall be of the same material and quality as that for the public Sewer. Concrete for encasement shall be Class A (3000 psi) concrete.

2. INSTALLATION

Installation shall be as shown on the "House Sewer Details." House services shall not be connected directly to manholes, unless otherwise approved by the Superintendent. The opening of the house service, wye branch, or chimney shall be plugged with a suitable watertight cap or plug.

The minimum size for the Building Sewer shall be 6".

The minimum slope for the Building Sewer shall be 1/4" per foot, unless otherwise approved by the Superintendent.

Before backfilling, the Contractor shall notify the Inspector so that he may make the necessary measurements to locate the opening later. In addition, an approved ferrous rod or pipe shall be placed over the plugged opening at the property line, extending to within 2 inches of the final ground surface.

3. SADDLE CONNECTIONS

On reinforced concrete, and cement lined ductile iron sewers, saddle connections may be installed in lieu of wye branches using cast iron branch connections conforming to ASTM A-48, Class 50. These connections shall be fastened by a stainless steel strap, stainless steel nuts and bolts, and watertight gasket between the main pipe and the fitting, and shall have a rubber gasket providing a watertight seal with the service pipe. Holes shall be made only in a manner recommended by the pipe manufacturer and approved by the Superintendent. The hole in the main must be the full diameter of the inside of the fitting to prevent obstructing the flow. The entire connection must be watertight.

Saddles may not be used on PVC sewer.

SECTION 5E: PROXIMITY TO WATER MAINS

Should construction operations reveal or expose a waterline main or service running approximately parallel and less than 10 feet horizontally from the proposed Sewer installation and where it is not practicable to relocate the Sewer, the following methods of protection must be employed:

If 5 feet of horizontal separation cannot be achieved, the Sewer shall be encased in concrete, as shown on these drawings; or else, ductile iron pipe of the same size shall be utilized. Appropriate manufactured fittings shall be employed to adapt the iron pipe to the contract Sewer pipe.

Whenever the waterline crosses over the new Sewer with less than 18 inches of separation, the Sewer pipe for a distance of 9 feet on each side of the waterline shall be class 52 ductile iron pipe. Appropriate manufactured fittings shall be employed to adapt the iron pipe to the contract Sewer pipe. As an alternative, the waterline "may "be raised, if feasible, to achieve the required separation.

Should the waterline in either situation be at or below the sewer elevation, the waterline or the Sewer must be relocated to achieve 10-ft. horizontal separation or 18-inches vertical separation.

SECTION 5F: MANHOLES

1. GENERAL

The work covered by this section includes the furnishing of all plant, labor, equipment, appliances, and materials, and performing all operations in connection with the satisfactory installation of manholes, and all incidental work, complete, in strict accordance with the specifications and applicable drawings and standard details.

The Contractor shall provide the Superintendent with shop drawings of all precast material and a description of all methods of jointing he proposes to use on this portion of the contract.

It is the intention of these specifications that the manhole, including all component parts, has adequate space, strength and leak-proof qualities considered necessary for the intended service. Space requirements and configurations shall be as shown on the drawing. Manholes may be an assembly of pre-cast sections with or without steel reinforcement, with approved jointing.

In any approved manhole, the complete structure shall be of such material and quality as to withstand loads of 8 tons without failure and prevent leakage in excess of one gallon per day per vertical foot of manhole, continuously for the life of the structure. A period generally in excess of 25 years is to be understood in both cases. It is further intended that any pointing of joints shall be accomplished after leakage tests have been satisfactorily completed.

2. DESCRIPTION

Manholes shall be constructed at the locations, to the elevations, and in accordance with notes and details show on the drawings as well as the Town's standard details.

Manholes shall be as shown on the standard details and shall conform to the following:

a. Barrels and cone sections shall be pre-cast reinforced or nonreinforced concrete.
b. Base sections shall be monolithic to a point 6" above the crown of the incoming pipe, and shall be pre-cast reinforced concrete or precast non-reinforced concrete.
c. Horizontal Joints between sections of pre-cast concrete barrels shall be of an overlapping type and, shall, in general, depend for watertightness upon an elastomeric or mastic-like sealant.
d. Pipe to manhole joints shall depend for water-tightness upon either an approved non-shrinking mortar, elastomeric sealant, or elastomeric, rubber, sleeve with watertight Joints at the manhole opening and pipe surfaces.
e. Cone sections shall be eccentric - see standard detail.
f. Steps for precast manholes shall be of steel reinforced polypropylene plastic, or approved equal. All steps shall be in conformance with ASTM C-478 and shall be aligned vertically.
g. All pre-cast sections and bases shall have the date of manufacture and the name or trademark of the manufacturer impressed or indelibly marked on the inside wall.

3. MATERIALS

Pre-cast concrete barrel sections, cones, and bases shall conform to ASTM C-478 except as may be otherwise shown on the Standard Details.

Manhole frame and cover shall provide a 30" diameter clear opening. The cover shall have the letter "S" or the word Sewer in 3" letters cast into the top surface. Covers shall have two lift holes, 180 degrees apart, on the perimeter.

The castings shall be of good quality, strong, tough, even-grained cast iron, smooth, free from scale, lumps, blisters, sandholes, and defects of every nature, which would render them unfit for the service for which they are intended. Contact surfaces of covers and frame seats shall be machined at the foundry, before shipment to prevent rocking of covers in any orientation.

All castings shall be thoroughly cleaned and subject to a careful hammer inspection.

Castings shall be at least Class 30 conforming to the ASTM Standard Specification for Gray Iron Castings, Designation A48.

4. INSTALLATION OF MANHOLE BASES AND SECTION

Pre-cast bases shall be placed on a 6" layer of compacted bedding material as described below. The excavation shall be properly de-watered while placing bedding material and setting the base or pouring concrete. Waterstops shall be used at the horizontal Joint of cast-in-place manholes.

Inlet and outlet stubs shall be connected and sealed in accordance with the manufacturers recommended procedure, and as shown on the Standard Details, or cast integrally with the cast base.

Barrel sections and cones of the appropriate combination of heights shall then be placed, using manufacturers recommended procedure for sealing the horizontal Joints, and as shown on the Standard Details or the remaining barrel of the manhole shall be cast above the base.

A vacuum test shall then be made.

Following satisfactory completion of the vacuum test, the frame and cover shall be placed on the top or some other means of preventing accidental entry by unauthorized persons, children, animals, etc., until the Contractor is ready to make final adjustment to grade.

Bedding Material shall consist of crushed stone in accordance with Section 6D.

5. BRICK MASONRY

This section applies to brick masonry, for the shelf, invert, and grade adjustment.

Brick: The brick shall be sound, hard, and uniformly burned brick, regular and uniform in shape and size, of compact texture, and satisfactory to the Superintendent. Brick shall comply with the ASTM Standard Specifications for Sewer Brick (made from clay or shale), Designation C32, for Grade SS, hard brick.

Rejected brick shall be immediately removed from the work site.

Mortar: The mortar shall be composed of Portland cement, hydrated lime, and sand, in the proportions of 1 part cement to 1/2 part lime to 4 1/2 parts sand, (by volume). The proportion of

cement to lime may vary from 3-:1/4 for hard brick to 1:3/4 for softer brick, but in no **case shall** the volume of sand exceed three times the sum of the volume of cement and lime.

Cement shall be Type II Portland cement conforming to ASTM C-150, Standard specifications for Portland Cement.

Hydrated lime shall be Type S conforming to the ASTM Standard Specification for Hydrated Lime for Masonry Purposes, Designation C207.

Sand shall consist of inert natural sand conforming to the ASTM Standard Specifications for Concrete (Fine) Aggregates, Designation C33 and in accordance with Section 2D. Fineness Modulus shall be 2.3 -3.1.

Laying Brick: Only clean bricks shall be used in brickwork for manholes. The brick shall be moistened by suitable means, as directed, until they are neither so dry as to absorb water from the mortar nor so wet as to be slippery when laid.

Each brick shall be laid in a full bed and joint of mortar without requiring subsequent grouting, flushing, or filling, and shall be thoroughly bonded as directed.

Curing: Brick masonry shall be protected from too rapid drying by the use of burlap bags kept moist or by other approved means, and shall be protected from the weather and frost, all as required.

6. SETTING MANHOLE FRAMES AND COVERS

Manhole frames shall be set with the tops conforming accurately to the grade of the pavement or finished ground surface or as indicated-on the drawings. Frames shall be set concentric with the top of the masonry and in a full bed of mortar so that the space between the top of the manhole masonry and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed all around and on the top of the bottom flange. The mortar shall be smoothly finished and have a slight slope to shed water away from the frame.

A minimum of 8" and a maximum of 12" of brick and mortar shall be allowed for grade adjustment.

SECTION 5G: FINAL SEWER TESTS

1. GENERAL

a. Work Included:
   i. Final Sewer testing work includes the performance of testing and inspecting each and every length of Sewer pipe and each Item of appurtenant construction.
   ii. Perform testing at a time approved by the Superintendent, which may be during the construction operations, after completion of a substantial and convenient section of the work, or after the completion of all pipe-laying operations.
   iii. Provide all labor, pumps, pipe, connections, gauges, measuring devices and all other necessary apparatus to conduct tests.

2. PERFORMANCE

a. General
   i. All "sewers", manholes, appurtenant work, in order to be eligible for approval by the Superintendent, shall be subjected to tests that will determine the degree of watertightness, horizontal and vertical alignment, and deflection (P.V.C. sewers only).
   ii. Thoroughly clean and/or flush all Sewer lines to be tested, in a manner and to the extent acceptable to the Superintendent, prior to initiating test procedures.
   iii. Perform all tests and inspections only under the direct supervision of the Superintendent.
   iv. Perform Testing by test patterns determined or approved by the Superintendent.
   v. Remedial Work:
      Perform all work necessary to correct deficiencies discovered as a result of testing and/or inspections.
      Completely re-test all portions of the original construction on which remedial work has been performed.
      Perform all remedial work and re-testing in a manner and at a time approved by the Superintendent.

b. Leakage Tests (Gravity Sewers):
   i. Test all gravity Sewer lines for leakage by conducting low pressure air tests conforming to ASTM C828 after the installation of house service fittings and leads and after completely backfilling the Sewer line trench.
   ii. Equipment:
      Pneumatic plugs shall have a sealing length equal to or greater than the diameter of the pipe to be inspected.
      Pneumatic plugs shall resist internal test pressures without requiring external bracing or blocking.
      All air used shall pass through a single central panel.

Connect 3 individual hoses:

- From the control panel to the pneumatic plugs for inflation.
- From the control panel to the sealed sewer line for introducing the low pressure air.
- From the sealed sewer line to the control panel for continually monitoring air pressure rise in the sealed line.

iii. Groundwater Conditions:

a. In areas where groundwater exists, and at the time of installing the sewer line, install a 1/2 inch diameter capped pipe nipple, approximately 10 inches long, through the manhole wall on top of one of the Sewer lines entering the manhole.

b. Immediately prior to performing the line acceptance test, determine the groundwater by removing the pipe cap, blowing air through the pipe nipple into the ground to clear it, and then connecting a clear plastic tube to the nipple.

c. Hold the tube vertically and measure the height in feet. Divide this height by 2.3 to establish the pounds of groundwater pressure to be added to the air pressure test readings. (Example: Height of water is 11 1/2 feet, added groundwater pressure is 5 psig, minimum air pressure is 2.5 psig; therefore, the total minimum acceptable pressure is 7.5 psig).

iv. Testing Pneumatic Plugs:

a. Seal test all pneumatic plugs prior to using them in the actual test.

b. Lay one length of pipe on the ground and seal both ends with the pneumatic plugs to be tested.

c. Pressurize the sealed pipe to 5 psig.

d. The pneumatic plugs are acceptable if they remain in place without bracing.

v. Testing Sewer Pipeline:

a. After the trench has been backfilled, the sewer pipe cleaned and the pneumatic plugs checked, place the plugs in the sewer line at each manhole and inflate them.

b. Introduce low-pressure air into the sealed sewer pipeline until the air pressure reaches 4 psig greater than the average groundwater pressure.

c. Allow a minimum of 2 minutes for the air pressure to stabilize to a minimum of 3-5 psig greater than the ground-water pressure.

d. After the stabilization period, disconnect the air hose from the control panel to the air supply.

e. The pipeline will be acceptable if the pressure decrease is not greater than 1/2 psig in the time stated in the following table:

Pipe Diameter (inches)	Time (minutes)
4	2.0
6	3.0
8	4.0
10	5.0
12	5.5
14	6.5
15	7.0
16	7.5
18	8.5
20	9.5
21	10.0
24	11.5
27	12.5
30	14.0
36	17.0

vi. Testing Force Mains:

a. Force mains shall be tested in accordance with Section 4 of American Water Works Association Standard C600 "Installation of Cast Iron Water Mains", at a pressure equal to 150% of the design operating total dynamic head.

vii. Test Results:

a. If the installation fails the low pressure air test, determine the source of leakage.

b. Repair or replace all defective materials and/or workmanship and repeat low pressure air test.

c. Deflection Tests (P.V.C. Sewers Only)

i. Test all P.V.C. Sewer lines for deflection by conducting deflection tests using a rigid "Go-No Go" deflection gauge made as recommended by Johns-Manville or by an approved deflectometer.

ii. The acceptance limit for deflection tests of installed PVC Pipe Designation D-3034 and F-789, 4"-15" diameters, shall be 7 1/2% of the average inside diameter of the pipe. A test shall be conducted after a minimum of 30 days following their installation.

iii. Go-No Go Device

a. Pull a line through the pipe with which to pull the Go-No Go device using one of the following methods.

(1) Attach the pull line to the nozzle end of a hydro cleaner before the cleaning cycle starts. As the hose is pulled through the line, it will carry the pull line to the next manhole where it can be tied off.

(2) A parachute device can be blown through the line with a lightweight string attached. The pull line can then be attached to the string and pulled manually through the line.

(3) If water is available, a lightweight string can be floated through the pipe. The pull line can then be attached to the string and pulled manually through the line.

b. Attach a pull line to each end of the device to facilitate removal if an obstruction is encountered.

c. Pull the gauge through the line by hand using a smooth and easy motion.

d. If an obstruction is encountered, pull lightly to see if the gauge will clear the obstruction.

e. If the gauge will not clear the obstruction, record the distance from the manhole and pull the gauge back out.

iv. Repair or replace all defective materials and/or workmanship and repeat the deflection test on the repaired line.

d. Alignment Tests (Gravity Sewers):

i. Perform tests for the correctness of horizontal and vertical alignment on each and every length of gravity sewer pipeline between manholes.

ii. Beam a source of light, acceptable to the Superintendent, through the pipeline and directly observe the light in the manhole at the opposite end of each test section.

e. Inspection of Appurtenant Installations:

i. Completely inspect, at a time determined by the Superintendent all manholes and inlets to ascertain their compliance with the Drawings and Specifications.

ii. Provide access to each manhole and inlet and check the following characteristics:

a. Shape and finish of invert channels,

b. Watertightness and finish of masonry structures,

c. Location, type, and attachment of stops,

d. Elevation and attachment of frames, covers, and openings

e. Pattern and machining of covers, and

f. Drop connection arrangements.

f. Manhole Leakage Tests

i. Test manholes prior to backfilling, mortaring joints, and installing the bench and inverts.

ii. A vacuum pressure test may be carried out to the following criteria:

a. Initial vacuum gage test pressure shall be 10" Hg. Test hold time for a 1" Hg. pressure drop to 9" Hg shall be:

- At least 2 minutes for 10 feet deep manholes;
- At least 2-1/2 minutes7for 10-15 feet deep manholes; and
- At least 3 minutes for 15-25 feet deep manholes.

b. If the pressure drop exceeds the above limits the unit shall be repaired and re-tested and if a unit fails to meet a 1" pressure drop in 1 minute, the unit shall be water tested per (1) or (2) above.

iii. Correct all leakage by reconstruction using new materials. Using leadwool, expanding mortar and other repair methods shall not be permitted.

iv. Exfiltration tests shall be considered as an alternative only when specifically approved by the Superintendent. Perform an exfiltration test by plugging all pipes and-other openings and filling the manhole with water to the top of the cone section. After 15 minutes, if there is no visible leakage (no water visibly moving down the surface of the manhole) the manhole shall be considered watertight and backfilling may proceed. Any visible leakage into and out of manholes shall be considered unsatisfactory.

g. Re-testing Approved Lines

i. Prior to the final acceptance of any sewer lines, the Superintendent may require re-testing of up to 10% of all lines installed when more than 30 days have lapsed from the time of initial testing or, if in the opinion of the Superintendent, sufficient reason exists to suspect settling has occurred.

ii. If, during such re-testing, any lines are found to exceed the 7.5% maximum deflection, the Superintendent may require all lines to be re-tested.

SECTION 6: EARTHWORK REQUIREMENTS

SECTION 6A: CLEARING AND GRUBBING

1. SCOPE OF WORK

Clearing and grubbing within the public way shall be carried out where necessary. The Contractor will be allowed to remove only the trees and brush that are absolutely necessary for his construction operations and the Contractor must review clearing area with the Water & Sewer Commission prior to commencement of work. The Contractor shall be expected to save as many trees as is possible. The removal of all brush and trees, including their stumps necessary for construction purposes, shall be done in such a manner to meet the Tree Warden's satisfaction at the end of the work.

2. CLEARING

Clearing shall consist of felling, cutting and the satisfactory and legal disposal of trees, brush and other vegetation, downed timber, and rubbish.

3. GRUBBING

Grubbing shall be carried out where trees have been felled, and shall consist of the removal and disposal of stumps, including all roots larger than 3-in in diameter to a depth of 18-in. below ground surface and within a 3 ft. radius of the trunk.

SECTION 6B: EARTH EXCAVATION AND BACKFILL

1. SCOPE OF WORK

This section includes, except as elsewhere provided, trenching for pipe laying, and appurtenances, including drainage, sheeting and bracing, backfilling, disposal of surplus material and restoration of trench surfaces in the public way or "easements".

2. SHEETING AND BRACING

The Contractor shall furnish, put in place, and maintain sheeting and bracing if required to support the sides of the excavation and prevent loss of ground which could damage or delay the work or endanger adjacent structures.

3. DRAINAGE

The Contractor shall furnish all materials and equipment and perform all incidental work required to install and maintain the drainage system he proposes for handling any ground water or surface water encountered. The Contractor must alter his drainage methods if, in the opinion of the Superintendent, the trench bottom is unsatisfactory.

4. BACKFILLING

As soon as practicable after the pipe has been laid, jointed, properly bedded (and tested, if required) backfilling shall begin and thereafter be prosecuted expeditiously.

Sand or ¾ minus stone, which is free of other foreign material, shall be carefully placed to a depth of 1 ft. over the top of the pipe.

When the pipes are laid cross-country, the remainder of the trench shall be filled with approved material.
Wherever a loam or gravel surface exists prior to cross-country excavations, it shall be removed, conserved, and replaced to the full original depth. In some areas, it may be necessary to remove excess material during the cleanup process, so that the ground may be restored to its original level and condition. If the Contractor prefers not to store loam or topsoil, he may replace it with loam or topsoil of equal quality and quantity.

When the pipes are laid in streets, the trench above the 1ft. of selected material above the pipe shall be backfilled with suitable material in layers not to exceed 12" and thoroughly compacted by mechanical equipment. The last 1 ft. shall be backfilled with compacted bank-run gravel unless an increase is directed by the Superintendent.

Fragments of ledge and boulders not greater than 6 inches in. diameter may be used in trench backfill providing that the quantity, in the opinion of the Superintendent, is not excessive. Rock fragments shall not be placed until the pipe has at least 2 ft. of earth cover. Small stones and rocks shall be placed in thin layers alternating with earth to insure that all voids are completely filled. Large masses of filling shall not be dropped into the trench in a manner to endanger the pipe.

Bituminous paving shall not be placed in the backfill. Frozen material shall not be used under any circumstances.

All road surfaces shall be groomed immediately after backfilling. Dust control measures shall be employed at all times to the satisfaction of the Superintendent.

SECTION 6C: EXCAVATION BELOW NORMAL GRADE

1. SCOPE OF WORK

If, in the opinion of the Superintendent, the material at or below the normal grade of the bottom of the trench (6" below grade of pipe bottom) is unsuitable for foundation, it shall be removed to the depth as directed by the Superintendent and replaced by screened-gravel or as specified below.

2. EXCAVATION AND BACKFILLING

Excavation and backfilling below grade shall conform to all applicable provisions under Section 6B, including the requirements for sheeting and bracing and maintaining the trench.

3. FILL

Normally fill shall be screened gravel, as specified under Section 6D, however, if the material at the level of trench bottom consists of fine sand, sand and silt or soft earth which may work into the screened gravel notwithstanding effective drainage, the subgrade material shall be removed to the extend directed and the excavation refilled with 3/4" crushed stone. The Superintendent, before placement, shall approve the composition and gradation of gravel. Gravel shall be placed in 6-in. layers thoroughly compacted.

4. EXCAVATION WITHIN PUBLIC WAYS

A street opening permit shall be obtained from the Town of Plainville before any excavation can begin within any town-accepted street. The work shall be performed in accordance with the permit.

A street opening permit shall be obtained from the Massachusetts Department of Public Works before any excavation can begin on any State roads. The work shall be performed in accordance with all permits.

SECTION 6D: BACKFILL MATERIALS

1. SCOPE OF WORK

Bank run gravel may be used for the roadway base or sub-base under the pavement and for similar uses. Screened gravel or ¾" crushed stone shall be used for bedding pipe, as replacement material for ordered excavation below grade and as gravel cushion in ledge excavation. Sand may be used for pipe bedding and backfill, as directed. Common Fill may be used as backfill in all other non-structural locations. The Superintendent may order the use of gravel for purposes other than those specified if, in his opinion, such use is advisable.

2. BANK-RUN GRAVEL

Bank-run gravel (aka Aggregate Base) shall consist of hard, durable stone and coarse sand, essentially free from frost, frozen lumps, loam and clay, uniformly graded and containing no stone having any dimension greater than 3-in. The grading of sizes and material shall be such that the gravel may be thoroughly consolidated.

25 to 70% shall pass the ¼" sieve, not more than 20% shall pass the No. 4 sieve, and not more than 5% of the material shall pass the No. 200 sieve.

3. SCREENED GRAVEL

Screened gravel (aka ¾" Crushed Stone) conforming to ASTM C33 stone size No. 67 shall consist of hard, durable, round particles of proper size and gradation, and it shall be free from sand, loam, clay excess fines, and deleterious materials. The size of the particles shall be uniformly graded gravel such that not less than 100 per cent of the particles will pass a 3/4-in sieve and not more than 5 percent will pass a No. 200 sieve. Quality and gradation shall be acceptable to the Superintendent.

4. SAND

Sand shall consist of friable material and it shall be free from sand, loam, clay excess fines, and deleterious materials. The size of the particles shall be uniformly graded gravel such that 100 percent will pass the 3/8" sieve, 95-100 percent will pass the No. 4 sieve, 50-85 percent will pass the No. 16 sieve, and 2-10 percent will pass a No. 100 sieve. Quality and gradation shall be acceptable to the Superintendent.

5. COMMON FILL

Common fill shall consist of friable material and it shall be free from sand, loam, clay excess fines, and deleterious materials. The size of the particles shall be uniformly graded gravel such that no particle is more than 6-inches in diameter and no more than 30 percent will pass a No. 200 sieve. Quality and gradation shall be acceptable to the Superintendent.

SECTION 6E: PAVED ROADWAY REHABILITATION

All work within paved roadways shall be performed in accordance with the Highway Department standards and to the satisfaction of the Highway Superintendent.

SECTION 7: OPERATION OF LAW

SECTION 7A: PROTECT FROM DAMAGE

1. Prohibited Acts – Refer to Chapter 364-61 of the Town of Plainville Bylaws for more information.

2. Trespass – Refer to Chapter 364-62 of the Town of Plainville Bylaws for more information.

SECTION 7B: POWERS AND AUTHORITY OF INSPECTORS

1. Permission for Inspection – Duly authorized employees of the Town bearing proper credentials and identification shall be permitted 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 ordinance. Authorized representatives shall have no authority to inquire into any metallurgical, chemical, oil, refining, ceramic, paper or other industrial activity beyond that having direct bearing on the kind and source of discharge to the Public/Private Sewers, watercourses, natural outlets or facilities for sewage treatment. Refer to Chapter 364-66 of the Town of Plainville Bylaws for more information.

2. Requirements to Observe Safety Rules – While performing the necessary work on private properties referred to as under the powers and authority of inspectors in "Permission for Inspection", the duly authorized representatives shall observe all safety rules applicable to the premises established by the person , and the person shall be held harmless for injury or death to the Town employees, and the Town shall indemnify the person 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 person and growing out of the gauging and sampling operation, except as such may be caused by negligence or failure of the person to maintain safe conditions as required herein. Refer to Chapter 364-67 of the Town of Plainville Bylaws for more information.

3. Authority in Easements Acquired by the Town – The members of the Board, the Superintendent and other duly authorized representatives of the Town bearing proper credentials and identification shall be permitted to enter upon all private properties through which the Town holds a duly acquired easement for the purposes of, but not limited to, inspection, observation, measurement, sampling, repair maintenance, and testing of any portion of the sewer system lying within said easement. All entries and subsequent work, if any, on said easement, shall be done in full accordance with the terms of the duly acquired easement pertaining to the property involved. Refer to Chapter 364-68 of the Town of Plainville Bylaws for more information.

SECTION 7C: PENALTIES

1. Written Notice of Violation – Refer to Chapter 364-69 of the Town of Plainville Bylaws for more information.

2. Penalty for Continued Violation – Refer to Chapter 364-70 of the Town of Plainville Bylaws for more information.

3. Liability – Refer to Chapter 364-71 of the Town of Plainville Bylaws for more information.

PASSAGE

Passed and adopted as amended, by the Board of Water & Sewer Commissioners of the Town of Plainville, Commonwealth of Massachusetts on the day of MARCH 22 **, 2021 by the following vote:** UNANIMOUS

Board of Water & Sewer Commissioners

Brian Kelley_____

Jeff Johnson_____

Stanley Widak, Jr._____

APPENDIX A: DRAIN LAYER & WATER INSTALLER APPLICATIONS

OFFICE USE ONLY:
LICENSE NUMBER: _____
APPLICATION RECEIVED: _____
DPW APPROVAL: _____
BY: _____

APPLICATION FOR DRAIN LAYER LICENSE
TOWN OF PLAINVILLE

Application Type: ☐ New License ☐ License Renewal If Renewal, list previous License # _____

Name of Corporation: _____

Contact Person: _____

Mailing Address: _____

_____

Street Address: _____

_____

Phone: _____

FAX: _____

24-Hour Phone: _____

The Following items must be attached:

- ❑ A copy of Valid Heavy Equipment Operators License
- ❑ Insurance Certificate (Town must be listed as additionally insured)
- ❑ Performance Bond ($15,000)
- ❑ Three (3) references who are familiar with your work with telephone numbers (NOT REQUIRED FOR RENEWALS)
- ❑ License fee of $150.00

THE UNDERSIGNED HEREBY ACKNOWLEDGES RECEIPT AND UNDERSTANDING OF THE WATER & SEWER REGULATIONS, AND THAT HE/SHE HAS READ THE ENTIRE DOCUMENT.

Signature: _____ Date: _____

OFFICE USE ONLY:
LICENSE NUMBER: _____
APPLICATION RECEIVED: _____
DPW APPROVAL: _____
BY: _____

APPLICATION FOR WATER INSTALLER LICENSE
TOWN OF PLAINVILLE

Application Type: ☐ New License ☐ License Renewal If Renewal, list previous License # _____

Name of Corporation: _____

Contact Person: _____

Mailing Address: _____

_____

Street Address: _____

_____

Phone: _____

FAX: _____

24-Hour Phone: _____

The Following items must be attached:

- ❑ A copy of Valid Heavy Equipment Operators License
- ❑ Insurance Certificate (Town must be listed as additionally insured)
- ❑ Performance Bond ($15,000)
- ❑ Three (3) references who are familiar with your work with telephone numbers (NOT REQUIRED FOR RENEWALS)
- ❑ License fee of $150.00

THE UNDERSIGNED HEREBY ACKNOWLEDGES RECEIPT AND UNDERSTANDING OF THE WATER & SEWER REGULATIONS, AND THAT HE/SHE HAS READ THE ENTIRE DOCUMENT.

Signature: _____ Date: _____

Bond Number: _____

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____ (an individual, partnership, corporation or company) duly organized under the Laws of the State of Massachusetts, and having a usual place of business at:

_____

as Principal, and

_____ a corporation duly organized under the Laws of

the State of _____ and duly authorized to do business in the Commonwealth of

Massachusetts, and having a usual place of business at

_____ as Surety, are holden and stand firmly bond and obligated unto the Town of Plainville, Massachusetts, as obligee, in the sum of **Fifteen Thousand Dollars and no/cents ($15,000.00)** lawful money of the United States of America, to and for the true payments whereof we bind ourselves and, each of us, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal, by means of a written AGREEMENT (current revision of the Town of Plainville Sewer Regulations) shall install drains and sewers in the Town of Plainville in accordance with the regulations.

Whenever the Company shall be, and declared by the Town to be in default under the Sewer Regulations shall promptly remedy the default or complete the drain and sewer work.

No right of action shall accrue on the Bond to or for the use of any persons other than the Town named herein or the heirs, executors, administrators, successors and assigns of the Town.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this day _____ of _____.

(SEAL) Principal: _____ Surety: _____ (SEAL)

By: _____ By: _____

_____ _____

Title: _____ Title: _____

IMPORTANT

Surety Companies executing BONDS must appear on the U.S. Treasury Department's most current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of Treasury and be authorized to transact business in the State of Massachusetts.

The attention of the Surety Companies and Company executing this Performance Bond is directed to the fact that said Bond shall remain in full effect for a period of one (1) year from the effective date of the issuance of a Drain Layer's License.

APPENDIX B: SCHEDULE OF FEES

APPENDIX B - SCHEDULE OF FEES

SERVICE CHARGES:

	Fee
Water or Sewer Demolition Permit fee	**$250**
Sewer Lateral Inspection upon property transfer	**$100**
Install water meter in structure (no municipal water service)	**$325**
Charge for Turning On or Off water	**$40 (business hours)** **$160 (after-hours)**
Charge for Drawing Water from Non-Metered Source	**$45**
Meter Test Fee	**$3/test (M.G.L. Chapt. 40, Sec. 39I)**
Final Meter Read Fee	**$30**
Standby Fire Protection Services	**Case by Case Basis**
Private Fire Hydrant – Initial Installation/Inspection Fee	**$100 per hydrant**
Private Fire Hydrant – Bi-Annual O&M Inspection Fee	**$120 per hydrant**
Design review of control structure	**Case by Case Basis**
Inspection of grease trap, gasoline trap, or sand interceptor ***(Only applies to outdoor grease traps located 10 feet outside the foundation of the building. Grease traps located inside the building are the responsibility of the Board of Health.)***	**Time and Materials based on plan review and inspection.**
Drainlayer's License	**$150 annually**
Penalty for non-payment (water or sewer bill)	**$5 after 30 days, followed by 14% interest applied each year**
Penalty for Accidental Discharge	**Case By Case Basis**
Violation of Regulations/Bylaws	**$500 - $700**

Penalty for *Continued* Violation	**An additional penalty of between $20 and $50 per day will be charged if the violation continues after 14 days**
Septic discharge fee	**Prohibited**

USER FEES: (subject to change)
Sewer rate per thousand gallons: Tier 1 $7.57 Tier 2 $9.08
Water rate per thousand gallons: Tier 1 $6.92 Tier 2 $8.30
Annual Fire Suppression charges $ (see chart below)
Annual Water Capital Fee $240
Annual Sewer Capital Fee $115

ANNUAL FIRE SUPPRESSION CHARGES	
CONNECTION SIZE	FEE
1"	$95
1.5"	$191
2"	$305
3"	$572
4"	$954
6"	$1,908
8"	$3,053
10"	$4,389

NEW SEWER SERVICE PERMIT/ENTRY/CONNECTION FEE	FEE
4" RESIDENTIAL GRAVITY SERVICE	$1000
6" RESIDENTIAL GRAVITY SERVICE	$1500
6" TO 8" COMMERCIAL- INDUSTRIAL, GRAVITY	$3000
RESIDENTIAL LOW PRESSURE PUMPED	$1500
COMMERCIAL PUMPED	$2000

WATER SERVICE ENTRANCE/CONNECTION OR DEMOLITION & RECONNECTION CHARGES	FEE
UP TO 1" SERVICE CONNECTION	$1200
2" SERVICE CONNECTION	$2000
3" SERVICE CONNECTION	$3000
4 " SERVICE CONNECTION	$4000
6" OR GREATER SERVICE CONNECTION	$6000

APPENDIX B
TOWN OF PLAINVILLE – WATER & SEWER USE REGULATIONS

WATER CAPACITY FEE

A System Development Charge shall be assessed for new, upgraded and or change of use connections at $10 PER GALLON PER DAY of anticipated flows in accordance with Title V and CMR 15.203 for all residential, commercial and industrial service connections. (See Application)

Special Circumstances; The Board may consider a Cap, reduction or waiving of the Capacity fee under Special Circumstances, on a case by case basis.

INCREASED CONNECTION FEE EXEMPTION

On March 22, 2021, the Board voted to approve connection fee increases to take effect on May 1, 2021. The Boards vote added a condition to allow for an exemption to the fee increases for applications of existing properties with access to installed, in service, water and sewer mains of adequate capacity and as follows:

A. Exemption Eligibility: Applications for Water and or Sewer Connections to existing buildings with direct access to the existing public water and or sewer mains currently in service and of adequate capacity to deliver drinking water and or accept flows of wastewater.

B. Exemption Duration: Applications received on or before October 31, 2022.

C. Exemption Allowed: Applications meeting the above criteria shall be assessed connection fees in accordance with the connection fees incorporated in the Plainville Water and Sewer Regulations, approved March, 2014 and therefore are not subject to the amended changes effective May 1, 2021.

WATER & SEWER SERVICE CHARGES:

	Straight Time ($/hr)	**Overtime ($/hr)**
One staff & one truck	**$45**	**$65**
Two staff & one truck	**$75**	**$110**
Two staff & two trucks	**$85**	**$125**
Backhoe	**$75**	**$125**

APPENDIX B
TOWN OF PLAINVILLE – WATER & SEWER USE REGULATIONS

APPENDIX C: METER TESTING POLICY – BILLING ABATEMENT

APPENDIX C

Board of Water and Sewer Commissioners

METER TESTING POLICY

Customers questioning their water, sewer utility bill or seeking an abatement of said bill, have the right to request that the water meter servicing the property in question tested as follows. The process has been established within the Massachusetts General Laws Chapter 40 § 39I. The following is further clarification for anyone considering this action. Testing of the meter will require that the meter be removed from the premises and delivered by P.W.S.D. personnel, to a company typically engaged in such testing procedures; therefore, a new meter will be installed in its place. The cost associated with the installation of the new meter is $195.00, which is our cost to purchase the new meter.

1. The request must be made in writing to the Board of Water and Sewer Commissioners within 30 days of the bill date
2. The charge for the testing of the meter; $3.00 shall be paid to the P.W.S.D. (the Town), with this signed request.
3. If the testing of the meter, which must be performed by an approved and competent person or firm having the experience and equipment necessary to do so, appears to indicate accurate registration, an additional charge covering labor costs associated with the test will be assessed to you accordingly.
4. if the testing of the meter shows that it is under registering (favors the customer) an adjustment for error will be assessed
5. if the testing shows over registration (favors the Town), beyond the allowance by Massachusetts General Law, the bill will be adjusted accordingly and the $3.00 testing fee will be returned to the customer.

I have read, understand and agree to the terms listed above and hereby request that the meter servicing my property at:

_____ be tested accordingly.

_____.

Sign and Date here and return to Plainville Public Works Department

APPENDIX D: GUIDELINES FOR CONSIDERING WATER AND SEWER MAIN EXTENSIONS

In determining whether the approval of an extension is appropriate the Board of Water & Sewer Commissioners shall consider whether the proposed extension promotes any or all of the following factors. These Guidelines do not, nor intend to, supersede any State Federal rule or regulations that govern the use of municipal water or sewer systems. Exceptions to these guidelines may be considered in the case of a hardship.

Water Main Extensions

1. Does the extension of an existing water main provide for looping of the water system that will improve water flows or pressure to existing residential development?
2. Does the extension improve fire service?
3. Does the proposed extension provide water service to existing residences that have significantly impaired or lost water supplies?
4. Will the proposed project involve making a substantial improvement to public utility infrastructure, or otherwise confer a significant public benefit which improves the current or future general health, safety or welfare concerns or needs of the community, even though the proposed extension by itself doesn't satisfy the above criteria?

Sewer Main Extensions

1. Does the proposed extension fall within, or immediately adjacent to, an area designated for expansion in accordance with the latest Wastewater Facilities Plan?
2. Does it improve capacity of an existing overloaded sewer line or otherwise eliminate conditions which pose a public health threat?
3. Does it eliminate the need for a pump station serving existing residential development?
4. Will the proposed project involve making a substantial improvement to public utility infrastructure, or otherwise confer a significant public benefit which improves the current or future general health, safety or welfare concerns or needs of the community, even though the proposed extension by itself doesn't satisfy the above criteria?

Adopted on December 11, 2012

APPENDIX E: SEWER GROWTH NEUTRAL REGULATION

Sewer Growth Neutral Regulation July 9, 2013

In accordance with Chapter 83, Section 10 of the Massachusetts General Laws, the following rules and regulations have been adopted by the Plainville Water & Sewer Commissioners for obtaining permits to enter the Town Sewer System; use of public and private sewers; installation and connection to building sewers; and discharge of waters and wastes into the public sewer system.

1. These rules and regulations shall become effective Jul 9, 2013.

The Town has adopted the Waste Water Facilities Plan Update dated March 2007 which was accepted by the Board of Water & Sewer Commissioners on February 15, 2006. This facilities Plan Update was a project evaluation Report (PER) and included an Environmental Notification Form filing based on the DRAFT Comprehensive Wastewater Management Plan (CWWP) dated December, 2005. The Secretary of Environmental Affairs approved the filing and issued a Certificate on April 21, 2006 determining an Environmental Impact Report was NOT required. The Subsequent March 2007 Facilities Plan Update established three (3) sewer needs sub in section 5 as shown on Figures 5-1, 5-2, and 5-3 and allocates flow to these needs areas based on the local zoning and state and use codes in effect at the time of the plan. In 2021, the Town completed the public sewer installation for Sewer Needs Subarea 3-West Bacon Street Area. The Sewer Needs Areas are summarized below.

Recommended Sewer Needs Area	Project Size (Feet of Sewer)	Current Capacity Need for existing structures	Forecasted Build-out Capacity
Subarea # 2 Northern South Street Area	18,800 Linear Ft	25,000 GPD Avg Daily Flow	210,000 GPD
Subarea #3 West Bacon Street Area	Completed 2011 - 2012		
Subarea #5 North Lake Mirimichi Area	18,050 linear Ft	27,000 GPD Avg Daily Flow	82,500 GPD

2. The Facilities Plan Update Included the 1.06 MGD limit of the Total Average daily flow to North Attleborough as governed by the Intermunicipal Agreement between Plainville and North Attleborough originally executed on April 27, 1967, amended March 14, 1979, and June 23, 1986, limits expansion of the sewer system for service to those existing parcels within the above listed sewer needs areas. The Facilities Plan Update was accepted to prevent unchecked and uncontrolled residential growth into area of Town not

Identified as needed public sewers. No expansion of the sewer system outside an approved needs area is allowed for residential growth.

3. Those seeking Sewer Expansion in commercially and industrial zoned areas of Plainville may apply to the Board of Water & Sewer Commissioners for access to the public sewer system, should capacity exist under the total limit established in the Intermunicipal Agreement.
   Commercial or Industrial expansion of the sewer system is allowed following the filing and approval, at the expense of the proponent of said expansion, the appropriate Sewer Extension Application, and as necessary the appropriate filing with the Massachusetts Environmental Policy Act (MEPA) office.

APPENDIX E

APPENDIX F: WATER AND SEWER PERMIT APPLICATION PACKAGE

APPENDIX F
TOWN OF PLAINVILLE
Department of Public Works

PERMIT APPLICATION CHECKLIST

Date Submitted: _____

PERMIT TYPE:

- ☐ **RESIDENTIAL/COMMERICAL**
- ☐ **INDUSTRIAL**

REQUIRED:

- ☐ **PERMIT APPLICATION WITH SIGNATURE**
- ☐ **I AND I FORM WITH SIGNATURE**
  - ☐ **Single-Family Residential**
  - ☐ **Multi-Family Residential**
  - ☐ **Commercial**
  - ☐ **Industrial**
- ☐ **APPLICATION FEES**
- ☐ **PLOT PLANS** (APPLICATIONS FOR A PROPOSED UTILITY SHALL BE ACCOMPANIED BY AN ACCURATE SURVEYOR'S PLAN; THIS INCLUDES NEW UTILITIES AND REPLACEMENT OF OLD UTILITIES)

Note: The application will be processed when all materials are submitted. The Water & Sewer Department has up to 20 days to complete the review. You will receive a call as soon as the Review is complete.

TOWN OF PLAINVILLE
Department of Public Works

PERMIT APPLICATION APPROVAL SHEET (TO BE FILLED OUT BY APPLICANT OR APPLICANT'S REPRESENTATIVE)

APPLICANT'S NAME: **Click here to enter text.** PHONE: **Click here to enter text.** ADDRESS: **Click here to enter text.** EMAIL:

Click here to enter text. APPLICANT'S REPRESENTATIVE: **Click here to enter text.** PHONE: **Click here to enter text.**

PROPERTY OWNER'S NAME: **Click here to enter text.**

PROPERTY LOCATION: **Click here to enter text.**

INTERIOR WORK ONLY: ☐ YES ☐ NO ADDRESS ONLY: ☐ YES ☐ NO

BRIEF DESCRIPTION OF PROJECT (i.e. Addition, etc...)
Click here to enter text.

THE FOLLOWING INDICATED FIXTURES WILL BE CONNECTED TO THE PROPOSED BUILDING SEWER:

NUMBER FIXTURE NUMBER FIXTURE

Click here to enter text. Kitchen Sinks Click here to enter text. Water Closets
Click here to enter text. Lavatories Click here to enter text. Bath Tubs
Click here to enter text. Laundry Tubs Click here to enter text. Showers
Click here to enter text. Urinals Click here to enter text. Garbage Grinders

INSTALLATION OF GREASE TRAPS: ☐ INTERIOR ONLY ☐ EXTERIOR ONLY ☐ BOTH ☐ N/A

In consideration of the granting of this permit, the undersigned agrees:

1. To accept and abide by all provisions of the "Water & Sewer Rules & Regulations" of the Town of Plainville, and all other pertinent ordinances or regulations that may be adopted in the future.
2. To pay all the cost of said particular sewer and its connection with the common sewer in said street, including all labor and materials or any other expense incurred necessary for the proper construction of said particular sewer as determined by the Water & Sewer Commissioners. 3. To maintain the building sewer at no expense to the Town.
4. For himself, his heirs, devisees and assigns, that the said Water & Sewer Commissioners shall have access at all reasonable hours, to the said premises, to see that all the laws, ordinances, rules and regulations relating to the sewer are complied with.
5. To notify the Board when the building sewer is ready for inspection and connection to the public sewer, but before any portion of the work is covered.
6. That construction of the sewer connection will be completed within sixty (60) days of issuance of this permit.

_____ _____ PROPERTY
OWNER SIGNATURE APPLICANT SIGNATURE

TO BE FILLED OUT BY THE WATER & SEWER DEPARTMENT FOR APPROVAL

STREET: Click here to enter text. HOUSE NO.: Click here to enter text. MAP/LOT/PARCEL NO.:

Click here to enter text. (given/edited/verified by Assessors)

UTILITIES	EXISTING	MUST INSTALL	DATE COMPLETED	REMARKS
WATER	☐	☐	Click here to enter text.	Click here to enter text.
SEWER	☐	☐	Click here to enter text.	Click here to enter text.
DRAIN	☐	☐	Click here to enter text.	Click here to enter text.

TOWN OF PLAINVILLE
Department of Public Works

APPROVED FOR APPLICATION TO OTHER DEPARTMENTS:

_____ ☐ Not Approved

Supervisor of the Water & Sewer Operations & Date

NOTE: ANY REQUIRED UTILITY MAINS ARE TO BE INSTALLED, INSPECTED AND TESTED PRIOR TO ACTIVATION OF SERVICE LINES. (ALL OLD UTILITY CONNECTIONS ARE TO BE CAPPED AT THEIR RESPECTIVE MAIN)

Prior to receiving an occupancy permit from the Building Inspector, a SURVEY RECORD (as-built site plan) must be submitted to the Water & Sewer Department showing the exact locations of all structures, all property utilities and street mains/utilities, all on-site stormwater measures, all curb cuts, all driveways, all retaining walls, all impervious area and all other information as required under the Rules & Regulations and all attachments and/or addendum. All plans/lots other than those having a single or a two family dwelling shall comply with ALTA/ACSM standards. ***Note: All work to be on the North American Vertical Datum of 1988 (NAVD 88)***

To be filled in by Water/Sewer/Drain Division:

FS#: _____ WS#:_____ SS#: _____ SS Fee: _____

TOWN OF PLAINVILLE
Department of Public
Works

NOTICE OF INSPECTION REQUIREMENTS

All construction, including I/I Mitigation Projects, which are permitted under the Public Works Department, must be inspected. AT A MINIMUM, A FORTY-EIGHT (48) HOUR NOTICE IS REQUIRED BY THE PERMITTED CONTRACTOR TO THE WATER & SEWER OPERATIONS CENTER. **Inspections may be arranged by calling (508) 695-6871, 8:00 A.M. to 4:30 P.M., Monday through Thursday, and 9:00 A.M. to 12:00 P.M. on Friday, excluding holidays.**

The following shall apply to all construction, which includes but is not limited to: drainage pits, curb cuts, sewer connections, water connections, drain connections, I/I Mitigation Projects, etc.

1. No work shall commence without the proper permit being applied for at the Water & Sewer Department. 2. No back filling shall occur until a full inspection is made.
3. No back filling shall be allowed unless the proper materials are in place and the proper construction methods have been follows
4. Note that if a follow up inspection is needed it must be scheduled by phoning the above number 48 hours in advance of the required inspection.
5. All water and sewer main installations must be tested before connections to the corresponding main are permitted.
6. I/I Mitigation Projects require scheduling prior to beginning work.

I/I MITIGATION PROCEDURES

1. The Town of Plainville Water & Sewer Rules & Regulations state the Town shall require the removal of five gallons of infiltration and inflow (I/I) for each additional gallon of wastewater flow that will be discharged to the sewer system.

2. The Town Water & Sewer Rules & Regulations state I/I procedures for residential, commercial, and industrial permit applicants. All flows are based on 310 CMR 15.000 Title 5 design flows.
   a. Residential Fees are as follows:
      Number of Bedrooms, times (x) 110 GPD/bedroom, times (x) 5, times (x) $3.60/gallon
   b. Commercial & Industrial Fees are as follows:
      Gallons of flow per day, times (x) 5, times (x) $3.60. There is a $1,000 minimum.
   c. The Town may charge a fee, require an I/I removal projects, or require a combination of both.

3. One-year rule shall apply to all applicants.
   a. Property that has been vacant, unused, unplumbed, unoccupied, available, brand new, awaiting final fit-out or otherwise idle for a period of one year (based on commonly available record data including but not limited to water consumption records, building permits, tax records, inspection reports and other public documents) shall be deemed and considered to be a new use for the purpose of Plainville Water & Sewer Rules & Regulations.
   b. All sewage flows shall be calculated for the new use and the I/I Mitigation fee and / or project shall be calculated based on a vacant property.

TOWN OF PLAINVILLE
Department of Public Works

INFILTRATION AND INFLOW MITIGATION FEE COVENANT AND PAYMENT FORM

SINGLE-FAMILY RESIDENTIAL

1. Owner of Property

Name: Click here to enter text. **Telephone:** Click here to enter text. **Address:** Click here to enter text. **Fax:** Click here to enter text.

Click here to enter text. **E-mail:** Click here to enter text.

2. Project Location

Address (hereafter, Property): Click here to enter text.

Number of Bedrooms prior to Construction: Click here to enter text.

Number of Bedrooms after the Construction: Click here to enter text.

3. Service to be performed:

☐ **Extension** ☐ **Replacement** ☐ **Relocation** ☐ **Expansion**

The above and ensuing information related to this Covenant is provided by the Owner of the Subject Property. By executing this Covenant the Owner represents, certifies and warrants the truth and accuracy of all information contained herein and understands and agrees that the city is relying on this.

The Town also reserves the right, which is agreed and assented to by the Owner, to check and reassess the Property's Use and retest or recalculate the flow of sewer gallonage from the Property from time to time and correct and recalculate Owner's I/I Mitigation obligations when and where appropriate.

The Owner / Applicant agrees to the following:

1. To accept and abide by all provisions of the general ordinances of the Town of Plainville governing the use of sewers. 2. To pay all installation costs of said sewer and its connection to the public sewer in said street, including labor, materials, testing, engineering, design, legal, permitting, inspection costs, and other expenses necessary for the proper construction of said sewer as determined by the Town.

3. To maintain the sewer at no expense to the Town.

4. For himself, his heirs, devisees and assigns, that the Town shall have access to said premises at all reasonable hours to see that the sewer complies with all laws, by-laws, ordinances, rules and regulations relating to the sewer.

5. If applicable, to notify the Board of Health at (508) 695-3010, one business day in advance of when the septic system is to be abandoned.

6. To provide the Water & Sewer Department with as-built plans prior to receiving an occupancy permit from the Building Department.

_____ Click here to enter text. **Applicant Signature Date**

Office Use Only

FEE WORKSHEET (to be calculated by the Superintendent of the Water & Sewer Department)

☐ **Single-Family Residential**

Number of bedrooms _____ (x) 110 GPD/bedroom (x) 5 (x) $3.60/gallon

($1,000 minimum, rounded up to nearest $100 increment) $ _____ From 310

CMR 15.200 requires 110 gpd per bedroom (Title 5)

_____ _____ **(Authorized by Supervisor of Water & Sewer Operations) (Date)**

TOWN OF PLAINVILLE
Department of Public Works

INFILTRATION AND INFLOW MITIGATION FEE COVENANT AND PAYMENT FORM

MULTI-FAMILY RESIDENTIAL

1. Owner of Property

Name: Click here to enter text. **Telephone:** Click here to enter text. **Address:** Click here to enter text. **Fax:** Click here to enter text.

Click here to enter text. **E-mail:** Click here to enter text.

2. Project Location

Address (hereafter, Property): Click here to enter text.

Number of Bedrooms prior to Construction: Click here to enter text.

Number of Bedrooms after the Construction: Click here to enter text.

3. Service to be performed:

☐ **Extension** ☐ **Replacement** ☐ **Relocation** ☐ **Expansion**

The above and ensuing information related to this Covenant is provided by the Owner of the Subject Property. By executing this Covenant the Owner represents, certifies and warrants the truth and accuracy of all information contained herein and understands and agrees that the city is relying on this.

The Town also reserves the right, which is agreed and assented to by the Owner, to check and reassess the Property's Use and retest or recalculate the flow of sewer gallonage from the Property from time to time and correct and recalculate Owner's I/I Mitigation obligations when and where appropriate.

The Owner / Applicant agrees to the following:

7. To accept and abide by all provisions of the general ordinances of the Town of Plainville governing the use of sewers. 8. To pay all installation costs of said sewer and its connection to the public sewer in said street, including labor, materials, testing, engineering, design, legal, permitting, inspection costs, and other expenses necessary for the proper construction of said sewer as determined by the Town.

9. To maintain the sewer at no expense to the Town.

10. For himself, his heirs, devisees and assigns, that the Town shall have access to said premises at all reasonable hours to see that the sewer complies with all laws, by-laws, ordinances, rules and regulations relating to the sewer.

11. If applicable, to notify the Board of Health at (508) 695-3010, one business day in advance of when the septic system is to be abandoned.

12. To provide the Water & Sewer Department with as-built plans prior to receiving an occupancy permit from the Building Department.

_____ Click here to enter text. **Applicant Signature Date**

Office Use Only

FEE WORKSHEET (to be calculated by the Superintendent of the Water & Sewer Department)

☐ **Multi-Family Residential**

Number of bedrooms _____ (x) 110 GPD/bedroom (x) 5 (x) $3.60/gallon

($1,000 minimum, rounded up to nearest $100 increment) $ _____ From 310 CMR

15.200 requires 110 gpd per bedroom (Title 5)

_____ _____ **(Authorized by**

Supervisor of Water & Sewer Operations (Date)

TOWN OF PLAINVILLE
Department of Public Works

INFILTRATION AND INFLOW MITIGATION FEE COVENANT AND PAYMENT FORM

COMMERCIAL

1. Owner of Property

Name: Click here to enter text. **Telephone:** Click here to enter text. **Address:** Click here to enter text. **Fax:** Click here to enter text.

Click here to enter text. **E-mail:** Click here to enter text.

2. Project Location

Address (hereafter, Property): Click here to enter text.

Use: Click here to enter text.

Square footage: Click here to enter text.

Estimated Gallons per Day (Calculated using Title 5 Regulations*): Click here to enter text. *Required – Gallons Per Day Use Calculated by Massachusetts P.E. with date and stamp by Title 5 Regulations 3. Service to be performed:

☐ **Extension** ☐ **Replacement** ☐ **Relocation** ☐ **Expansion**

The above and ensuing information related to this Covenant is provided by the Owner of the Subject Property. By executing this Covenant the Owner represents, certifies and warrants the truth and accuracy of all information contained herein and understands and agrees that the city is relying on this.

The Town also reserves the right, which is agreed and assented to by the Owner, to check and reassess the Property's Use and retest or recalculate the flow of sewer gallonage from the Property from time to time and correct and recalculate Owner's I/I Mitigation obligations when and where appropriate.

The Owner / Applicant agrees to the following:

1. To accept and abide by all provisions of the general ordinances of the Town of Plainville governing the use of sewers. 2. To pay all installation costs of said sewer and its connection to the public sewer in said street, including labor, materials, testing and other expenses necessary for the proper construction of said sewer as determined by the Town. 3. To maintain the sewer at no expense to the Town.

4. For himself, his heirs, devisees and assigns, that the Town shall have access to said premises at all reasonable hours to see that the sewer complies with all laws, by-laws, ordinances, rules and regulations relating to the sewer.

5. If applicable, to notify the Board of Health at (508) 695-3010, one business day in advance of when the septic system is to be abandoned.

6. To provide the Water & Sewer Department with as-built plans prior to receiving an occupancy permit from the Building Department.

_____ Click here to enter text. **Applicant Signature Date**

Office Use Only

FEE WORKSHEET (to be calculated by the Superintendent of the Water & Sewer Department) Commercial ($1,000 minimum, rounded up to nearest $1)

Gallons of flow per day _____ x 5 x $3.60 $ _____

Example: From 310 CMR 15.203, an office building produces 75 gpd per 1,000 sqft
A 10,000 sqft office building produces 750 gallons per day
The fee in lieu of removal = 750 x 5 x $3.60 = $13,500

_____ _____ **(Authorized by**

Supervisor of Water & Sewer Operations (Date)

TOWN OF PLAINVILLE
Department of Public Works

Application for Water Service

Name of Property Owner: _____

Address: _____

Telephone/Email: _____

Size of Service Requested:(_)1" (_)2" _____Other(Please specify)

Residential (_) Number of Bedrooms _____

Commercial (_) Use and Daily Gallons of Flow_____

I/We, herby make application for water service at _____(Assessor Map and Parcel #;) and also do agree to abide by the By-Laws, Rules and Regulations of the Town of Plainville and of the Plainville Water Department now in affect and as amended in the future.

WATER CONNECTION FEES

WATER SERVICE ENTRANCE/CONNECTION OR DEMOLITION & RECONNECTION CHARGES	FEE
UP TO 1" SERVICE CONNECTION	$1200
2" SERVICE CONNECTION	$2000
3" SERVICE CONNECTION	$3000
4 " SERVICE CONNECTION	$4000
6" OR GREATER SERVICE CONNECTION	$6000

WATER CAPACITY FEE

A System Development Charge shall be assessed for new, upgraded and or change of use connections at $10 PER GALLON PER DAY of anticipated flows in accordance with Title V and CMR 15.203 for all residential, commercial and industrial service connections. (See Application worksheet)

Office Use Only

WATER CAPACITY FEE WORKSHEET

☐ **Single-Family Residential**

Number of bedrooms _____ (x) 110 GPD/bedroom (x) $10.00/gallon = $_____

From 310 CMR 15.200 requires 110 gpd per bedroom (Title V)

☐ **Multi-Family Residential**

Number of bedrooms _____ (x) 110 GPD/bedroom (x) $10.00/gallon =$_____

From 310 CMR 15.200 requires 110 gpd per bedroom (Title V)

☐ **Commercial Industrial**

***Gallons of flow per day _____ x $10.00/gallon = $ _____**

*Example: From 310 CMR 15.203, an office building calculates @ 75 gpd per 1,000 sqft
A 10,000 sqft office building is assessed at 750 gallons per day
The Capacity fee assessed is 750gpd x $10.00/gallon = $7,500

Connection Fee **$_____**

Capacity Fee **$_____**

Connection Charge **$_____**

TOWN OF PLAINVILLE
Department of Public Works

Application for Water Service

Forms Attached:

- **Application Fee** **$**_____
- **Current Drainlayers assigned:** _____
- **Proposed Plan of work**
- **Acknowledgement of Page 3; initial** _____

Owners Signature_____
Date_____

APPROVAL (for submission to the Board of Water & Sewer Commissioners)

Approved by _____**Fee Paid** _____**Date**_____

Approval by the Plainville Board of Water & Sewer Commissioners

Approved by_____**Date**_____

TOWN OF PLAINVILLE
Department of Public Works

Water Connection Application - Notice of Requirements:

All connections to the Plainville Water System shall be made by a properly licensed Drainlayer/Water Installer approved by the Plainville Water Department.

No connection shall be made to water mains or service lines located within ten (10) feet of any sewer line, cesspool, cesspool drain line entering cesspool or septic system, well, or dry well. No connections will be made to water service lines located within four (4) feet of any other utility line(s).

Where water services enter the building, it shall be made at 90 degree angle to the floor and parallel with the building wall or foundation. It shall not be closer than 6" from the wall nor less than 12" inches above the floor and shall be located adjacent to an exterior wall. No installation shall be allowed to terminate under stairs, landings, or closets, in order to allow for proper access and maintenance of the required water meter which shall attach to it. No coupling device or joint of any type shall be closer than ten (10) feet outside of the building wall or foundation. Water service curb stop and valve box shall be located on town property at the property line beyond any obstruction such as stone wall, fence, gate etc. to allow proper accessibly Water Department personal at all times. In no instance shall the curb box be located on private property.

No water shall be turned on until the meter is properly installed and all inspections have been made. Only employees or duly authorized agents of the Plainville Water Department are allowed to turn water on or off at the curb stop and or remove the water meter for any purpose. The installation contractor shall be subject to a fine of $100.00 for any instance(s) where water is turned on by others and water service shall not be turned on until any said fine(s) are paid.

A site plan showing proposed location of water and or sewer utility installations is required to be submitted to the Water Department prior to approval of this application. As "as-built" plan with ties for location purposes is required prior to water being turned on. These plans need not to be engineered drawings, but must be drawn in a clean, clear, and concise method for record keeping.

Construction of the water connection will be completed within sixty (60) days of issuance of the permit.

APPENDIX G: STANDARD SPECIFICATIONS AND DETAILS

SANITARY SEWERS

PART 1 SCOPE

1.01 The CONTRACTOR shall furnish all sanitary sewer pipe and fittings, jointing materials, labor, tools, and equipment necessary to lay and joint the pipe in accordance with the specifications herein.

PART 2 MATERIALS

2.01 GENERAL

Materials for new sanitary sewers shall be of new and unused material and shall conform to the requirements specified herein.

2.02 PLASTIC PIPE SPECIFICATIONS (SMALL DIAMETER 4" TO 27")

A. Plastic sewer pipe and fittings (PVC) shall conform to ASTM D-3034, SDR 35 only, polymer compounding and classification shall be accordance with ASTM D-1784 (Class 1254B).

1. Pipe stiffness, measured in accordance with ASTM D2412, shall be a minimum of 45 psi at 5% deflection.

2. Joints shall be push-on, bell, and spigot-type.

3. Joint seals, for PVC pipe, shall be oil resistant compression rings of elastomeric material conforming to ASTM D-3212.

4. PVC fittings shall SDR-35 rated.

2.03 LARGE DIAMETER PLASTIC PIPE SPECIFICATION (LARGE DIAMETER 27" TO 36")

A. Large diameter ribbed gravity sewer pipe - Pipe shall conform to ASTM F-794.

1. Pipe stiffness shall be 46 psi for Series 46 pipe when tested in accordance with ASTM D2412.

2. Joints shall be push-on, bell and spigot type.

3. Joint seals, for large diameter PVC pipe shall be oil resistant compression rings of elastomeric material conforming to ASTM D-3212.

2.04 DUCTILE IRON PIPE, FITTINGS AND JOINTS

A. Ductile iron pipe and fittings shall be Class 52, unless noted otherwise on the drawings, and shall conform to the following Standards of the United States of America Standards Institute:

A21.4 Cement mortar lining for cast iron and ductile iron pipe and fittings for water

A21.10 Gray iron and ductile iron fittings, 3 inches through 48 inches for water or other liquids

A21.50 Thickness design of ductile iron pipe

B. Joints

1. Joints and gaskets shall be any of the following types:

a. mechanical with GRIP RING joint restraint
b. push-on
c. ball and socket

2. Joints and gaskets shall be oil resistant and shall conform to:

A21.11 Rubber gasket joints for cast iron and ductile iron pressure pipe and fittings (mechanical and push-on types). Ball and socket joints shall be boltless Usiflex Flexible Joint Pipe and manufactured by U.S. Pipe, Snap-Lok River Crossing Pipe or an approved equal.

PART 3 INSTALLATION OF PIPE

3.01 PIPE HANDLING

A. The CONTRACTOR shall arrange for the delivery of the pipe sections at approved locations in the vicinity of that portion of the sewer line in which the pipe sections are to be laid. To this end, he shall do such work as is necessary for access and for delivery of the pipe. Pipes shall be stored in an approved, orderly manner so that there will be a minimum of rehandling from the storage area to the final position in the trench and so that there is a minimum of obstruction and inconvenience to any kind of traffic. Deliveries shall be scheduled so that the progress of the work is at no time delayed and also so that large quantities of pipe shall not be stored for excessive lengths of time in crowded locations or in locations where large storage areas might be considered objectionable. Storage of pipe will be restricted to approved or permitted areas.

B. Each pipe section shall be handled into its position in the trench in such a manner and by such means as the ENGINEER AND/OR OWNER approved as satisfactory, and these operations will be restricted to those considered safe for the workmen and such as to cause no injury to the pipe or to any property.

C. The CONTRACTOR shall be required to furnish slings, straps, and/or approved devices to provide satisfactory support of the pipe when it is lifted. Transportation from delivery areas to the trench shall be restricted to operations which can cause no injury to the pipe units.

D. The pipe shall not be dropped from trench or into the trench.

E. The CONTRACTOR shall have on the job site with each pipe laying crew, all the proper tools to handle and cut the pipe. The use of hammer and chisel, or any other method which results in rough edges, chips, and damage pipe, shall be prohibited.

F. Damaged pipe coating and/or lining shall be restored before installation as approved or directed by the ENGINEER AND/OR OWNER.

3.02 CONTROL OF ALIGNMENT AND GRADE

A. The CONTRACTOR will establish the location of the pipe, manholes and other appurtenances, and will establish benchmarks along the route of the pipeline at convenient intervals for his own reference in checking the pipe and manhole invert and other elevations throughout the project.

B. The CONTRACTOR may elect to use this information to set lines and use a level or transit to set grade.

C. The CONTRACTOR shall use a pipe laser beam to assist in setting the pipe provided he can demonstrate satisfactory skill in its use.

D. The use of string levels, hand levels, carpenters levels, or other relatively crude devices for transferring grade or setting pipe will not be permitted.

E. During construction, the CONTRACTOR shall provide the ENGINEER AND/OR OWNER, at his request, all reasonable and necessary materials, opportunities, and assistance for setting stakes and making measurements including the furnishing of one or two rodmen or chainmen as needed at intermittent times. He shall not proceed until he has made timely demand upon the ENGINEER AND/OR OWNER for, and has received from him, such controls and instructions as may be necessary as the work progresses. The work shall be done in strict conformity with such controls and instructions. The CONTRACTOR shall carefully preserve benchmarks, reference points and stakes, and in case of willful or careless destruction by his own men, he will be charged with the resulting expenses and shall be responsible for any mistakes or delay that may be caused by their unnecessary loss or disturbance.

3.03 PREPARATION OF BED

A. As soon as excavation has been completed to proper depth as shown on the Standard Trench Section, a layer of bedding material shall be placed and compacted to the elevation necessary to bring the pipe to grade.

B. The compacted bed shall be rounded so that at least the bottom quadrant of the pipe shall rest firmly for the full length of the barrel. Suitable holes for bells or couplings shall be dug around the pipe joints to provide ample space for making tight joints.

C. It shall be the CONTRACTOR's responsibility to control any water in the trench below the pipe invert and he shall place concrete, clay or other impermeable material in the bedding at intervals to prevent horizontal movement of the groundwater which might induce settling of the bed, or make it difficult to handle water in the trench.

3.04 LAYING PIPE

A. Each pipe length shall be inspected for cracks, defects in coating or lining, and any other evidences of unsuitability. Before lowering in place, the pipe shall be struck with a suitable tool to verify its soundness.

B. Pipe shall be laid in the dry and at no time shall water in the trench be permitted to flow into the sewer.

C. The pipe shall then be laid on the trench bedding as shown in the Standard Trench Cross-Section, and the spigot pushed home. Jointing shall be in accordance with the manufacturer's instructions and appropriate ASTM Standards and the CONTRACTOR shall have on hand for each pipelaying crew, the necessary tools, gauges, pipe cutters, etc. necessary to install the pipe in a workmanlike manner. Pipe laying shall proceed upgrade with spigot ends pointing in the direction of the flow.

D. Blocking under the pipe will not be permitted except where a concrete cradle is proposed in which case precast concrete blocks shall be used.

E. After the pipe has been set to grade, additional bedding material shall be placed in 6-inch layers up to the spring line of the pipe. Tamping bars shall be carefully employed to assure compaction of the bedding under the lower quadrants of the pipe.

F. After this, the screened sand blanket shall be carefully placed in 6-inch layers to a depth of 12 inches over the crown of the pipe. Each layer shall be thoroughly compacted with mechanical equipment. Care shall be taken so that the equipment does not damage the pipe.

G. At this point, the pipe shall be checked for line and grade and any debris, tools, etc. shall be removed.

H. If inspection of the pipe is satisfactory, the CONTRACTOR may then refill or backfill the remainder of the trench in accordance with the Standard Trench Section detail _____.

I. At any time that work is not in progress, the end of the pipe shall be suitably closed to prevent the entry of animals, earth, etc.

J. Clean outs shall be installed at intervals of not more than 100 feet and at any change of direction.

K. Clean outs in paved areas will be protected and made accessible by the use of a typical cast iron water valve box with diameter 2 inches greater than the installed clean out. A blank cover or the word "water" will be removed by means satisfactory to the ENGINEER AND/OR OWNER. Valve box will be installed flush to finish surface. See detail in this section.

L. At the end of each day's work or at intervals of not more than 200 feet of pipe, the ENGINEER AND/OR OWNER, with the CONTRACTOR, will inspect the pipe for alignment with lamps or mirrors. Unsatisfactory work shall be dug up and reinstalled to the satisfaction of the ENGINEER AND/OR OWNER.

3.05 BACKFILLING

A. Bedding for polyvinyl chloride and ductile iron pipe shall consist of crushed stone placed to a depth of at least 6 inches below the bottom of the pipe and to the springline.

B. Bedding and cover for insulated pipe shall be sand.

C. Cover ductile iron pipe to 12 inches over crown with sand blanket.

D. Cover polyvinyl chloride pipe to 12 inches over crown with sand blanket.

E. For reinforced concrete pipe, bedding shall be 6 inches of crushed stone under pipe and up to springline. Shape bedding to fit pipe for a depth of not less than 10-% of its total height. Dig troughs to accommodate bell. If ledge rock, rocky soil, hard pan or other unyielding foundation material is encountered at the normal grade of the culvert bed, excavate to 12 inches below invert grade and 12 inches on each side of the interior face of the pipe wall and refill with compacted gravel.

F. Cover reinforced concrete pipe to 12 inches over crown with sand blanket.

3.06 LEAKAGE TESTS

A. General

1. At intervals along the sewer work not to exceed 1000 feet, all portions of all sewers shall be subjected to leakage tests under the direction of the ENGINEER AND/OR OWNER and witnessed by the ENGINEER AND/OR OWNER. The CONTRACTOR shall have on hand, all plugs, pumps, weirs, water trucks, etc. necessary to conduct the tests. Allowable leakage shall be limited to not more than 50 gallons per inch of diameter per mile of pipe per day. Should the work fail the leakage test, corrective action shall be taken by the CONTRACTOR in a manner approved by the ENGINEER AND/OR OWNER and WATER & SEWER COMMISSION. If directed by the ENGINEER AND/OR OWNER, all portions of the section that failed the test shall be dug up and relayed.

2. In general, the use of sealants, applied from the inside of the pipe, will not be approved.

B. Infiltration

1. Infiltration testing may be accepted if requested by the CONTRACTOR, provided the CONTRACTOR can show that the groundwater level is 2 feet or more above the highest part of the pipe, including house services. The test procedure shall be described in the "Handbook of PVC Pipe", by Uni-Bell Plastic Pipe Association.

C. Exfiltration

1. Exfiltration testing may be accepted if requested by the CONTRACTOR, provided the CONTRACTOR can show that the groundwater level is below the pipe. The test procedure shall be as described in the "Handbook of PVC Pipe", by Uni-Bell Plastic Pipe Association.

D. Air Test

1. All gravity sewer shall be air tested, unless other methods have been approved by the ENGINEER AND/OR OWNER. The test procedure shall be as described in the "Handbook of PVC Pipe", by Uni-Bell Plastic Pipe Association.

E. Sewer Force Mains

1. Force mains shall be tested in accordance with Section 13 of the AWWA Standard C-600, at a pressure equal to 150 percent of the design operating pressure.

F. Deflection Test

1. All PVC gravity sewers shall be deflection tested. The deflection test shall be performed after the trench has been completely backfilled and adequate time has passed to allow for any settlement. Adequate time shall be considered to be a minimum of 30 days. The test procedure shall be as described in the "Handbook of PVC Pipe", by Uni-Bell Plastic Pipe Association.

3.07 PIPE INSULATION

A. When sewer mains, services, or force mains are less than 5=-0" deep or are within 5=-0" of culverts, catch basins or other sources of below-freezing temperatures insulation shall be installed according to insulation details (see detail attached to this section).

B. Isolated short sections requiring insulation (such as culvert crossings) may be insulated with 2" rigid board insulation.

C. Sections with inadequate depth for extended lengths shall be protected with preformed 2" thick rigid pipe insulation and 0.020" thick PVC jacket.

3.08 IMPERVIOUS TRENCH DAMS

A. For sewers with slopes exceeding five percent (5%), impervious trench dams with underdrain discharge piping (SDR 35 PVC) shall be constructed at 200 feet maximum intervals to prevent migration of groundwater through sewer bedding material.

B. Within 20= downstream of brook or river crossings, impervious trench dams shall be constructed; underdrain discharge piping is not required at these locations.

C. Impervious trench dams shall be constructed of well compacted clay in contact with existing soils of the trench bottom and sides. The trench dam shall be a minimum of 3= long and extend 1=-6" above the top of sewer pipes; crushed stone bedding and sand cover will be omitted at trench dams. Groundwater flow interrupted by the trench dam must be conveyed into underdrains, storm water catch basins, or open ditches. The interrupted groundwater flow must not be allowed to surcharge the trench area and undermine roadway stability.

PART 4 HOUSE SERVICES, WYE BRANCHES, AND CHIMNEYS

4.01 SCOPE

A. The CONTRACTOR shall furnish and install services, wye branches, chimneys, and all appurtenances necessary to connect all existing buildings, vacant lots and building under construction which require sanitary, or as directed by the ENGINEER AND/OR OWNER.

B. The location of wyes, chimneys, and building services are not, in general, shown on the drawings, but shall be determined by the CONTRACTOR in cooperation with the ENGINEER AND/OR OWNER. All locations shall be approved by the ENGINEER AND/OR OWNER.

C. All sewer service lines shall be 6" dia. P.V.C., SDR 35, from the sewer main to the property line.

4.02 MATERIALS

A. Materials for house services, wye branches, and chimneys shall be of the same material and quality as that for the fittings specified in Part 2 of this section or as specified on the "House Sewer Details" Standard Sheet.

4.03 INSTALLATION

A. Installation shall be as shown on the "Typical Sewer Service Detail" in the manual. House services shall not, in general, be connected directly to manholes. The opening of the house service, wye branch, or chimney shall be suitably plugged with a watertight cap or plug.

B. Before backfilling, the CONTRACTOR shall notify the ENGINEER AND/OR OWNER so that he may make the necessary measurements to locate the opening later. In addition, an approved ferrous rod or pipe shall be placed over the plugged opening, extending to within 2 inches of the final ground surface.

PART 5 CONNECTIONS TO EXISTING SEWERS AND MANHOLES

5.01 GENERAL

A. The CONTRACTOR shall make all connections to the existing facilities as indicated on the drawings and as herein specified, or as directed.

B. The CONTRACTOR shall furnish all pipe, fittings, and appurtenances. The CONTRACTOR shall do all excavations and backfill as required.

C. Existing pipeline damaged by the CONTRACTOR shall be replaced by the CONTRACTOR at his own expense in a manner approved by the ENGINEER AND/OR OWNER.

5.02 INTERFERENCE

A. The CONTRACTOR shall develop a program for the construction and placing in service of the new work subject to the approval of the ENGINEER AND/OR OWNER. All work involving cutting into and connecting to the existing facilities shall be planned so as to interfere with operation of the existing facilities for the shortest possible time and when the demands on the system best permit such interference even to the extent of working outside of normal working hours to meet these requirements.

B. The CONTRACTOR shall have all possible preparatory work done and shall provide all labor, tools, material and equipment required to do the work in one continuous operations.

5.03 NORMAL JOINT CONNECTIONS

A. The CONTRACTOR shall make joint connections similar to those on the existing pipe or adaptable to such pipe unless specifically otherwise shown on the drawings or directed by the ENGINEER AND/OR OWNER.

5.04 CONNECTION TO EXISTING SEWERS AND MANHOLES

A. Public Sewers

1. Where new construction is intended to connect to an existing sewer, a new manhole shall be installed at the connection unless waived by the ENGINEER AND/OR OWNER. Special care shall be taken to insure a tight joint between the new and existing sewers.

B. Service Connections

1. Service connections constructed where there is no connection fitting, or where the fitting has been damaged by, or cannot be located by the CONTRACTOR shall be constructed of plastic or pvc saddles. Service connections made on existing reinforced concrete sewer pipes shall use a Kor-N-Seal type boot, installed after tapping the hole.

2. Existing sewers shall be tapped by mechanical tapping machines specifically designed for such work. Tapping by use of hammer and chisel shall not be allowed except if specifically authorized in writing by the ENGINEER AND/OR OWNER.

C. Manholes

1. Where new construction is intended to connect to an existing brick or block manhole, the existing manhole shall be replaced. If the existing manhole is of concrete or precast concrete, and in satisfactory condition as determined by the ENGINEER AND/OR OWNER, this requirement may be waived by the ENGINEER AND/OR OWNER and the WATER & SEWER COMMISSION. For connections to existing concrete or precast concrete manholes, a hole shall be mechanically cored and a Kor-N-Seal type rubber boot installed, to provide a watertight connection.

PART 6 PROTECTION OF WATER SUPPLIES

A. There shall be no physical connection between a public or private potable water supply system and a sewer, or sewer appurtenance which would permit the passage of any sewage or polluted water into the potable supply. No water pipe shall pass through or come in contact with any part of a sewer manhole.

B. Sewers shall be located outside a 400 feet radius centered at a municipal well; 200 feet radius centered at a small public well, and 75 feet radius centered at a private well.

C. Sewers shall be located during design, at least 10 feet, horizontally, from any existing or proposed water main, except that a deviation from this separation to avoid subsurface structures, including telecommunication chambers, interference of building foundations shall be allowed provided that the sewer is constructed as follows:

1. Sewer pipe shall be class 52 ductile iron for a maximum distance of 75 feet each side of the obstruction.

2. Joints shall be mechanical type water pressure rated with zero leakage when tested at 25 pounds per square inch for gravity sewers and 1-1/2 times working pressure for force mains.

D. Whenever sewers must cross water mains, the sewer shall be constructed as follows:

1. Sewer pipe shall be class 52 ductile iron for a minimum distance of 9 feet each side of the crossing.

2. Joints shall be mechanical type water pressure rated with zero leakage when tested at 25 pounds per square inch for gravity sewers and 1-1/2 times working pressure for force mains and joints shall not be located within 9 feet of the crossing.

3. Vertical separation of the sewer and water main shall not be less than 18".

PART 7 CONCRETE CRADLE

7.01 Where indicated on the drawings, or as directed by the ENGINEER AND/OR OWNER, sewer pipe shall be covered by a concrete arch encasement.

PART 8 SEWER FORCE MAINS

8.01 SCOPE

A. The CONTRACTOR shall furnish all pipe, valves, valve boxes, fittings, couplings, labor, tools and equipment necessary to lay and join all pipe in accordance with the specifications herein.

8.02 MATERIALS - GENERAL

A. Materials for new sewer force mains shall be of new and unused materials.

B. Forced service lines must have an in-line check valve for each sewer user installed in an accessible location. The valve shall be a single union ball check valve, shall have PVC body construction, with an elastomeric uniseat/seal, and shall be rated at 150 psi at 120NF, as manufactured by ASAHI/AMERICA or approved equal.

C. Force mains less than 4" in diameter shall be DR 26 or DR 21 PVC pipe and shall conform to the requirements specified herein.

D. Force mains 4" in diameter and greater shall be Class 52 ductile iron pipe. All pipe, fittings, and appurtenances shall conform to the requirements specified herein.

E. All force mains must have clean-out manholes installed every 600 feet or less. Install in accordance with the force main manhole detail in section 02572.

8.03 P.V.C. PIPE AND FITTINGS

A. Pipe: P.V.C. pipe used for force mains shall conform to ASTM D-2241 and D1784 (Class 1254-B). A safety factor of 2.5 shall be used for pressure rating determination with a standard dimension ratio no higher than 21. DR 21 PVC pipe is acceptable.

B. Fittings: Fittings to be used on P.V.C. pipe force mains shall be push-on joints with oil resistant compression rings of elastomeric material conforming to ASTM D-3212. All bends and tees must have a poured concrete thrust block. The size of the thrust block shall be determined by the ENGINEER AND/OR OWNER.

8.04 DUCTILE IRON PIPE AND FITTINGS

A. Pipe:

1. The ductile iron pipe shall be Class 52 (150 psi) modified and conforming to AWWA Specifications C151-76. The bell for this type of joint shall be cast with a shouldered gasket groove of a shape which will prevent the gasket from being blown or forced out of the joint. Rubber gasket joints shall be used per ANSI/AWWA specification C11/A21.11-85.

B. Fittings:

1. Fittings shall be ductile iron, 350 psi pressure rating. Ductile or cast iron fittings shall conform to ANSI A21.10/AWWA C110 with mechanical joints. Joints and gaskets shall conform to ANSI A21.11 AWWA C111. Joints shall be furnished with GRIP-RINGS joint restraints. Fittings shall be double cement-lined and seal-coated inside and out in accordance with ANSI A21.4/AWWA C104.

C. Lining and Coating:

1. The inside of ductile iron pipe and fittings shall be given a double cement lining and bituminous seal coat in accordance with AWWA Specifications C104.

2. The outside of ductile iron pipe and fittings shall be coated with bituminous varnish as required in AWWA Specification C151-76.

3. Machined surfaces shall be cleaned and coated with a suitable rust-preventive coating at the shop immediately after being machined.

D. Ductile Iron Ford FC1 Coupling (2" to 12")

Coupling shall be for plain end cast iron or ductile iron pipe made of ductile iron with grade 27 rubber gaskets and black, steel, track head bolts with nuts, as manufactured by Ford Meter Box Co., Wabash, Indiana.

E. Mechanical Joint Ductile Iron Solid Sleeve

The pipe coupling shall be of the mechanical type, with ductile iron body; minimum body length of 12 inches. The pitting pressure rating shall be 350 psi and shall conform to ANSI/AWWA A21.10/C100. The fitting shall be cement lined with interior and exterior seal coating in accordance with ANSI/AWWA A21.2/C104.

8.05 VALVES AND APPURTENANCES

A. Gate Valves

1. All gate valves shall conform to AWWA C-509 specifications for resilient seated gate valves. The wedge must be totally encapsulated in rubber and have molded delrin guide insert locked into gate slots. The valve body shall be ductile iron and the valve shall have a minimum of 10 mils of epoxy coating on all surfaces of the body and bonnet inside and out.

2. Gate valves shall open left. For reasons of standardization, the valves shall be a U.S. Pipe Metroseal or a Waterous series 500 gate valve.

3. All gate valves shall be mechanical joint with GRIP RING joint restraints or approved equal.

B. Valve Boxes

1. Unless otherwise specified or required, each buried valve shall be provided with a valve box. Valve boxes shall be of tough even grain cast iron and of the adjustable, slip, heavy pattern type. They shall be so designed and constructed as to prevent the direct transmission of traffic loads to the pipe or valve. Valve boxes shall be manufactured in the U.S.A. by Tyler, Bibby LaPearle, or approved equal.

2. The upper or sliding section of the box shall be provided with a flange having sufficient bearing area to prevent undue settlement. The lower section of the box shall be designed to enclose the operating nut and stuffing box of the valve. The boxes shall be adjustable trough at least 6 inches vertically without reduction of the lap between sections to less than 4 inches.

3. The inside diameter of boxes shall be at least 4 2 inches and the lengths shall be as necessary for the depth of the valves with which the boxes are to be used.

4. Covers shall be close fitting and substantially dirt-tight. The top of the cover shall be flush with the top of the box rim. An arrow and the word "OPEN" to indicate the direction of turning to open the valve shall be cast in the top of the cover. Covers shall <u>not</u> have the word "WATER" cast in.

C. Wrenches for Buried Valves

1. The CONTRACTOR shall furnish two(2) tee handle wrenches of sufficient length to permit operation of all buried valves, regardless of depth, by the operators of average height working in normal positions.

D. Painting

1. Interior surfaces of all valves, and exterior surfaces of valves shall be fusion-bonded epoxy and miscellaneous piping appurtenances shall be given a shop finish of an asphalt varnish conforming to Federal Specification TT-V-51c, for Varnish, Asphalt, as specified in AWWA Specification C500.

2. Parts customarily finished at the shop shall be given coats of paint filler and enamel or other approved treatment customary with the manufacturer.

3. After thorough cleaning exterior surfaces of various parts of valves and miscellaneous piping appurtenances exposed within structures shall be given one shop coat of an approved rush inhibitive primer compatible with the field coats and applied in accordance with the instructions of the paint manufacturer.

4. Ferrous surfaces obviously not to be painted shall be given a shop coat of grease or other suitable rust resistant coating.

8.06 INSTALLATION

A. Pipe and fittings

1. Laying pipe and fittings: Gasket-type joints shall be made up by first inserting the gasket into the groove of the bell and applying a thin film of special non-toxic gasket lubricant uniformly over the inner surface of the gasket which will be in contact with the spigot end of the pipe. Both push-on joint and mechanical joint gasket must be lubricate prior to use. The end of the plain pipe shall be chamfered to facilitate assembly. The end shall be inserted into the gasket and then forced past it until it seats against the bottom of the socket. All fittings shall be mechanical joint with GRIP-RING joint restraints or approved equal.

2. Pipe Supports: The CONTRACTOR shall furnish and install all supports necessary to hold the piping and appurtenances in a firm, substantial manner at the lines and grades indicated on the drawings or specified.

3. All bends, tees, and other fittings shall be backed up with Class C concrete thrust blocks placed against undisturbed earth where firm support can be obtained. Thrust blocks shall be as shown on the typical drawing included herein. If the soil does not provide firm support, then suitable bridle rods, clamps, and accessories to brace the fitting properly shall be provided. Such bridle rods, etc. shall be coated thoroughly and heavily with an approved bituminous paint after assembly or, if necessary, before assembly.

4. Handling and Cutting Pipe: The CONTRACTOR's attention is directed to the fact that ductile iron pipe and the cement lining are brittle. Every care shall be taken in handling and laying pipe and fittings to avoid damaging the pipe or lining, scratching or marring machined surfaces, and abrasion of the pipe coating or lining.

5. Any fitting showing a crack and any fitting or pipe which has received a severe blow that may have caused an incipient fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work.

6. In any pipe showing a distinct crack and in which it is believed there is no incipient fracture beyond the limits of the visible crack, the cracked portion, if so approved, may be cut off by and at the expense of the CONTRACTOR before the pipe is laid so that the pipe used may be perfectly sound. The cut shall be made in the sound barrel at a point at least 12 inches from the visible limits of the crack.

7. Excavation, bedding, backfill and compaction for sewer force mains and appurtenances shall conform to Section 02221 and the typical sewer detail sheets.

B. Valves and Appurtenances

1. Setting Valves: Valves and valve boxes shall be set plumb and centered with the valve box directly over the valve. Backfill around the valves shall be as specified under Section 02221.

2. All valves shall be carefully erected and supported in their respective positions free from all distortion and strain. Care shall be taken to prevent damage or injury to the valves or appurtenances during handling and installation.

3. All material shall be carefully inspected for defects in workmanship and materials, all debris and foreign material cleaned out of valve openings and seats, all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness. Valves and other equipment which do not operate easily or are otherwise defective shall be repaired or replaced at the CONTRACTOR's expense.

8.07 FORCE MAIN TESTING

A. Field Testing

1. The ductile iron pipe shall be given pressure and leakage tests in sections of approved length. For these tests, the Owner may supply a water meter to record water consumption. The CONTRACTOR shall furnish and install a suitable temporary testing plug or cap for the pipeline; all necessary pressure gauges, pumps, pipe connections, and other similar equipment; and all labor required; all without additional compensation. The meter and gauge shall be installed by the CONTRACTOR in such a manner that all water entering the section under test will be measured and the pressure in the section indicated, and they shall be kept in use during both tests.

2. The scheduling of pressure and leakage tests shall be as directed by the ENGINEER AND/OR OWNER, in accordance with AWWA Specification C600-64.

3. Unless it has already been done, the section of pipe to be tested shall be filled with water of approved quality, and all air shall be expelled from the pipe. If blowoffs or air releases are not available at high points for releasing air, the CONTRACTOR shall make the necessary excavation and do the necessary backfilling, and the CONTRACTOR shall make the necessary taps at such points and shall plug said holes after completion of the test with brass or bronze plugs.

4. For the pressure test, the CONTRACTOR shall, by pumping, raise the water pressure (based on the elevation at the lowest point of the section under test and corrected to the gauge location) to a pressure in pounds per square inch numerically equal to the class rating of the pipe. If the CONTRACTOR cannot achieve the specified pressure and maintain it for a period of one hour, the section under test shall be considered as having failed to pass the pressure test.

5. See Section 02555, part 4, section 4.01, paragraph 6 for allowable leakage calculations.

6. Following a successful pressure test, the CONTRACTOR shall make a leakage test by metering the flow of water into the pipe while maintaining in the section being tested, a pressure equal to the average pressure to which the pipe will be subjected under normal conditions of service. This shall be done by placing the section under system pressure or by pumping.

7. The amount of leakage which will be permitted shall be in accordance with the Specifications for Installation of Cast Iron Water Mains by AWWA C600.

8. If the section shall fail to pass the pressure test, the leakage test, or both, the CONTRACTOR shall do everything necessary to locate, uncover, even to the extent of uncovering the entire section, and repair or replace the defective pipe, fitting, or joint, all at his own expense.

PART 9 GREASE TRAPS

9.01 SCOPE

A. All food service and preparation establishments shall have an adequate grease trap installed between establishment and town sanitary sewer service connection point. Said grease trap is to be located on establishment property. Grease trap shall not be allowed on town property or in close approximation of the same.

9.02 MATERIALS GENERAL

A. Materials for grease traps shall be of new and unused material.

B. Grease traps shall be constructed of 4000 p.s.i. concrete designed for H-20 loading.

C. The grease trap shall be accessible from both ends. Access frames and covers shall be provided at same.

D. Grease traps shall generally conform to a rectangular shape of which the width shall be approximately one-half the length.

E. Outlet baffle shall extend to within 8 inches of bottom of grease trap bottom. Inlet baffle shall extend to a minimum of 1 foot below full level and no greater than 1-1/2 feet below the same.

F. Grease trap shall generally conform to detail provided in this section.

G. The exterior of the grease trap tank shall be asphalt coated.

PART 10 OIL AND GRIT TRAPS

10.01 SCOPE

A. All establishments with floor drains in vehicle storage and or service areas or any use which may generate any material classified as oil and grit shall install an adequate oil and grit trap.

B. Said oil and grit trap shall be located on establishment property. Oil and grit trap shall not be allowed on town property or close approximate to same.

10.02 MATERIALS GENERAL

A. Materials for oil and grease trap shall be of new and unused material.

B. Oil and grit traps shall be constructed of 4000 p.s.i. concrete designed for H-20 loading.

C. Oil and grit trap shall be accessible through a minimum 30 inch diameter standard manhole frame and cover.

D. Inlet piping shall be provided with adequate fume venting.

END OF SECTION

SANITARY MANHOLES

PART 1 GENERAL

1.01 SCOPE

A. The work covered by this section includes the furnishing of all parts, labor, equipment, appliances and materials, and performing all operations in connection with the satisfactory installation of sanitary manholes and all incidental work, complete, in strict accordance with the specifications and applicable drawings and standard details, and conditions of the contract.

B. The CONTRACTOR shall provide the ENGINEER AND/OR OWNER with shop drawings of all precast material and a description of all methods of jointing he proposes to use on this portion of the contract.

C. It is the intention of these specifications and the desire of the WATER & SEWER COMMISSION that the manholes, including all component parts, have adequate space, strength and leakproof qualities considered necessary and configurations shall be as shown on the drawing. Manholes and catch basins may be an assembly of precast sections with or without steel reinforcement, with approved jointing, or concrete cast monolithically in place with or without reinforcement. In any approved manhole, the complete structure shall be of such material and quality as to withstand loads of 8 tons (H20 loading) without failure and prevent leakage in excess of one gallon per day per vertical foot of manhole, continuously for the life of the structure. A period generally in excess of 25 years is to be understood in both cases. It is further intended that any pointing of joints shall be accomplished after leakage tests have been satisfactory completed except as noted in sub-part 3.04, "Leakage Tests".

1.02 DESCRIPTION

A. Manholes shall be constructed at the locations, to the elevations, and in accordance with notes and details shown on the drawings as well as the standard details.

B. Manholes shall be as shown on the standard details and of the types following:

1. Barrels and cone sections shall be precast reinforced or non-reinforced concrete, or poured-in-place reinforced or non-reinforced concrete.

2. Base sections shall be monolithic to a point 6 inches above the crown of the incoming pipe, and shall be precast reinforced concrete or precast non-reinforced concrete.

3. Horizontal joints between sections of precast concrete barrels shall be of a type approved by the WATER & SEWER COMMISSION, which type shall, in general, depend for watertightness upon an elastomeric or mastic-like sealant.

4. Pipe to manhole joints shall be only as approved by the WATER & SEWER COMMISSION and, in general, will depend for watertightness upon either an approved non-shrinking mortar or elastomeric sealant.

5. Cone sections shall be eccentric - see standard detail.

6. All precast sections and bases shall have the date of manufacture and the name or trademark of the manufacturer impressed or indelibly marked on the inside wall.

7. All precast sanitary sewer manhole must be asphalt coated on exterior surfaces.

8. All new sewer connections made to new or existing sewer manholes shall have a rubber boot connection.

C. The following diameter manholes shall be used with the appropriate size diameter pipe:

1. 4'-0" diameter for 24 inch diameter pipe or less.

2. 5'-0" diameter manhole for greater than 24 inch diameter pipe up to and including 36 inch diameter pipe.

3. 5'-0" diameter for 18 feet or deeper excavations.
4. Diameter of manhole for inside drop manholes as noted on inside drop manhole detail sheet.

D. Force main manholes shall be placed at intervals of no more than 300 feet.

E. Force main cleanout manholes shall conform to detail provided in this section

PART 2 MATERIALS

2.01 MANHOLES

A. Precast concrete barrel sections, cones, and bases shall conform to ASTM C478 except as may be otherwise shown on the Standard Details.

B. Manhole steps will be provided.

C. In lieu of a cone section, when manhole depth is less than 6 feet, a reinforced concrete slab cover may be used having an eccentric entrance opening and capable of supporting H-20 loads.

D. Drop inlets shall be provided as specified on the Standard Details Sheet.

E All end manholes are required to have a 3' stub of the same pipe diameter and completed shelf at terminated end of sewer main.

F. Sewer manholes with prefabricated fiberglass inverts are not acceptable.

2.02 MANHOLE FRAMES AND COVERS

A. Manhole frames and covers shall conform to the details on the Standard Sheets.

B. Manhole frame and cover shall provide 30 inch diameter clear opening. The cover shall have the letter "S" or the word "SEWER" in 3 inch letters cast into the top surface.

C. The castings shall be of good quality, strong, tough, evengrained cast iron, smooth, free from scale, lumps, blisters, sandholes, and defects of every nature which would render them unfit for the service for which they are intended. Contact surfaces of covers and frame seats shall be machined at the foundry, before shipment to prevent rocking of covers in any orientation.

D. All castings shall be thoroughly cleaned and subject to a careful hammer inspection.

E. Castings shall be at least Class 30 conforming to the ASTM Standard Specifications for Gray Iron Castings, Designation A48.

F. Before being shipped from the foundry, castings shall be sandblasted and given two coats of a coal tar pitch varnish, applied in a satisfactory manner so as to make a smooth coating, tough, tenacious and not brittle or with any tendency to scale off. Coatings damaged in transit or handling shall be repaired by the CONTRACTOR to the satisfactory of the ENGINEER AND/OR OWNER.

2.03 WATERTIGHT MANHOLE COVERS

A. Watertight manhole covers shall conform to the requirements of Paragraph 2.02 above, and shall have a round rubber gasket seal with a bolted lid. The lid shall be bolted with at least 4 bolts. Two (2) keys shall be supplied if bolt heads are pentagonal shaped. Watertight covers shall be used when indicated on the drawings or ordered by the ENGINEER AND/OR OWNER.

2.04 BEDDING MATERIALS

A. Bedding materials shall consist of crushed stone and/or natural stone graded to the following specifications in accordance with ASTMC136:

Sieve Designaton	Percentage by Weight Passing Square Mesh Sieve Total Sample
2 inch	100
1½ inch	95 - 100
1 inch	35 - 70
¾ inch	0 - 25

Where ordered by the ENGINEER AND/OR OWNER to stabilize the base, screened gravel or crushed stone 2 inch to 1 2 inches shall be used.

2.05 BRICK MASONRY

A. This section applies to brick masonry, for the shelf, invert, and grade adjustment.

B. The brick shall be sound, hard, and uniformly burned brick, regular and uniform in shape and size, of compact texture, and satisfactory to the ENGINEER AND/OR OWNER. Brick shall comply with the ASTM Standard Specifications for Sewer Brick (made from clay or shale), Designation C32, for Grade SS, hard brick.

C. Rejected brick shall be immediately removed from the job site by the CONTRACTOR at his own expense.

D. The mortar shall be composed of portland cement, hydrated lime and sand, in the proportions of one part cement to 2 part lime to 3 2 parts sand (by volume). The proportion of cement to lime may vary from 1:1/4 for hard brick to 1:3/4 for softer brick, but in no case shall the volume of sand exceed three times the sum of the volume of cement and lime.

E. Cement shall be Type II Portland Cement conforming to ASTM Standard Specifications for Portland Cement.

F. The hydrated lime shall be Type S conforming to the ASTM Standard Specifications for Hydrated Lime for Masonry Purposes, Designated C207.

G. The sand shall consist of inert natural sand conforming to the ASTM Standard Specifications for Concrete (Fine) Aggregates, Designation C33 as follows:

Sieve	Percent Passing by weight
3/8"	100%
#4	95 - 100%
#8	80 - 100%
#16	50 - 85%
#50	10 - 30%
#100	2 - 10%

Fineness Modulus 2.3 - 3.1

H. Only clean bricks shall be used in brickwork for manholes, The brick shall be moistened by suitable means, as directed, until they are neither so dry as to absorb water from the mortar nor so wet as to be slippery when laid.

I. Each brick shall be laid in full bed and joint of mortar without requiring subsequent grouting, flushing, or filling, and shall be thoroughly bonded as directed. A 3/8" mortar joint shall be used.

J. Brick masonry shall be protected from too rapid drying by the use of burlap kept moist, or by other approved means and shall be protected from the weather and frost, all as required.

2.06 CONCRETE STRUCTURE SEALER

A. All interior surfaces of manholes and the exterior of the brick cover adjustment shall be thoroughly coated with a penetrating water-based silane sealer. The sealer shall penetrate concrete surfaces, exceed water absorption resistance test requirements of ASTM C 642-84, exceed chloride ion penetration resistance requirements of AASHTO T259 and T260, and comply with VOC requirements of the Clean Air Act.

B. Concrete structure sealer shall be Enviroseal 20, manufactured by Harris Specialty Chemicals, Inc. (1-800-322-7825) or approved equal.

PART 3 EXECUTION

3.01 EXCAVATION AND BACKFILLING

A. Excavation, backfilling and compacting shall be performed in accordance with Section 02221.

3.02 INSTALLATION OF MANHOLE BASES AND SECTION

A. Precast bases shall be placed on a 6 inch layer of compacted bedding material as described in PART 2. The excavation shall be properly dewatered while placing bedding materials and setting the vase or pouring concrete. Waterstops shall be used at the horizontal joint of poured-in-place manholes.

B. Inlet and outlet stubs shall be connected and sealed in accordance with the manufacturer's recommended procedure, and as shown on the Standard Details, or cast integrally with the poured base.

C. Barrel section and cones of the appropriate combination of heights shall then be placed, using manufacturer's recommended procedure for sealing the horizontal joints, and as shown on the Standard Details or the remaining barrel of the manhole shall be cast above the base.

Horizontal joints and hydraulic lift holes shall be filled with mortar and coated with asphalt water-proofing.

D. A leakage test shall then be made as described in PART 3.04 of this section.

E. Following satisfactory completion of the leakage test, the frame and cover shall be placed on the top or some other means of preventing accidental entry by unauthorized persons, children, animals, etc., until the CONTRACTOR is ready to make final adjustment to grade.

3.03 SETTING FRAMES, COVERS, AND GRATES

A. Frames shall be set with the tops conforming accurately to the grade of the pavement or finished ground surface or as indicated on the drawings. Frames shall be set concentric with the top of the masonry and in a full bed of mortar so that the space between the top of manhole masonry and the bottom flange shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry shall be placed all around and on the top of the bottom flange. The mortar shall be smoothly finished and have a slight slope to shed water away from the frame.

The exterior of the brickwork raising the sewer manhole frame to grade must be parged with mortar and finished smooth.

Manhole covers shall be left in place in the frame on completion of other work at the manholes.

3.04 LEAKAGE TESTS FOR SEWER MANHOLES

A. Leakage tests shall be made and observed by the ENGINEER AND/OR OWNER on each manhole. The test shall be an exfiltration test made as described below, or a vacuum test according to New Hampshire Water Supply and Pollution Control Division Guidelines.

B. After the manhole has been assembled in place, all lifting holes and all joints shall be filled and pointed with an approved non-shrinking mortar. After mortar has set up at lift holes and joints, apply an asphalt coating which is compatible with the manhole factory coating. The test shall be made prior to placing the shelf and invert and before filling and pointing the horizontal joints. If the groundwater table has been allowed to rise above the bottom of the manhole, it shall be lowered for the duration of the test. All pipes and other openings into the manhole shall be suitably plugged and the plugs braced to prevent blowout.

C. The manhole shall then be filled with water to the top of the cone section. If the excavation has not been backfilled and observation indicated no visible leakage, that is, no water visibly moving down the surface of the manhole, the manhole may by considered to be satisfactorily watertight. If the test, as described above, is unsatisfactory as determined by the ENGINEER AND/OR OWNER, or if the manhole excavation has been backfilled, the test shall be continued. A period of time may be permitted if the CONTRACTOR so wished to allow for absorption. At the end of this period, the manhole shall be refilled to the top of the cone, if necessary, and the measuring time of at least 8 hours begun. At the end of the test period, the manhole shall be refilled to the top of the cone, measuring the volume of water added. This amount shall be extrapolated to a 24-hour rate and the leakage determined on the basis of depth. The leakage for each manhole shall not exceed one gallon per vertical foot for a 24-hour period.

If the test fails this requirement, but the leakage does not exceed 3 gallons per vertical foot per day, repairs by approved methods may be made as directed by the ENGINEER AND/OR OWNER to bring the leakage within the allowable rate of one gallon per vertical foot per day. Leakage due to a defective section of joint or exceeding the 3 gallon per vertical foot per day, shall be cause for the rejection of the manhole. It shall be the CONTRACTOR's responsibility to uncover the manhole as necessary and to disassemble, reconstruct or replace it as directed by the ENGINEER AND/OR OWNER. The manhole shall then be retested and, if satisfactory, interior joints shall be filled and pointed.

D. VACUUM TEST:

1. The vacuum test may be performed on manholes, completely constructed, with inlet and outlet pipes in place. Test shall be conducted before any backfilling begins. Any material around the base section shall be removed to expose the entire side of the manhole. Plug pinholes and horizontal seams with a non-shrinking concrete gout.

2. Brace the inlet and outlet pipes/plugs to prevent movement during the test. Use air inflated plugs in good condition.

3. The vacuum test shall be performed using equipment acceptable to the ENGINEER AND/OR OWNER. The equipment shall be in good operating condition. All gauges shall not have any broken glass or other visible abnormalities. The test shall be performed by trained personnel familiar with the equipment and the test.

4. The test shall have a minimum duration of two minutes. The vacuum shall be pumped down to 10 inches of mercury on an acceptable gauge, and held. At the time that the removal of air is stopped, the test time shall begin.

5. Any manhole that has a vacuum drop to nine inches of mercury or less, within the following time intervals, shall have failed the test.

   0 – 10 ft. deep: less than 2 minutes
   10 – 15 ft. deep: less than 2½ minutes
   15 – 20 ft. deep: less than 3 minutes
   over 20 ft. deep: less than T.

   Calculations for manholes deeper than 20 feet:
   $T = 0.085 [DK/Q]$

   T = Time of pressure drop in seconds.
   K = 0.000419 DL; but not less than 1.0.
   Q = 0.0015 ft^3 /min/ft^2 of area.
   D = Nominal manhole diameter in inches
   L = Depth of manhole in feet.

E. The test may be conducted either before or after backfilling around the manhole. However, if the CONTRACTOR elects to backfill prior to testing, for any reason, it shall be at his own risk and it shall be incumbent upon the CONTRACTOR to determine the reason for any failure of the test. No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorption, etc., i.e., it will be assumed that all loss of water during the test is a result of leaks through the concrete.

Furthermore, the CONTRACTOR shall take any steps necessary to assure the ENGINEER AND/OR OWNER that the water table is below the bottom of the manhole throughout the test.

PUMP STATION TECHNICAL REQUIREMENTS

PART 1 GENERAL

A. Pump Station Type:

1. Wetwell/Drywell Stations: Pump stations designed to accommodate 10,000 gpd or more average daily flow, or equipped with 10 hp or greater pumps shall be wetwell/drywell stations. Suction lift type pump stations will be acceptable.

2. Submersible Pump Stations: Pump stations designed to accommodate less than 10,000 gpd with less than 10 hp pumps may be submersible type pump stations.

3. Pneumatic Ejector Stations: Pneumatic ejector stations are unacceptable.

PART 2 PUMP STATION SUBMITTALS

A. The Developer must submit the Pump Station Plans to the Department of Public Works for review, the submittal package must include the following:

Plans stamped by a Professional Engineer
Design flow data
Plans and Specifications
Pump curves and system head curves with calculations
Plans and Profile Views for the force main
WetWell Detention calculations
Buoyancy calculations.

B. The Pump Station design submittal must include the following:

Two pumps
3" solids handling, 2 1/2" with screen, or grinder pump
High water alarm
Emergency power or surcharge storage
Lead - lag pump controls
Explosion proof wiring and pumps in wet well
Pumps protected by screen or rack
Self-priming pumps TDSL <28 - NPSHR
Vacuum prime pumps limited to 100 gpm
Submersible pumps limited to 25 hp, 500 gpm
Submersible - Valves in exterior valve pit
On/Off bubbler control, 2 compressors or
Float switches for submersible or suction lift
Division wall in wet well over 200 gpm
Wet well capacity less than 10 min. at ADF
Dehumidification in below ground chambers
Ventilation
  Gravity for submersible & suction lift
  Wet well 30/hr int. or 12/hr continuous
  Dry well 6/hr occupied or 3/hr not occupied
Access door warning
Flow meter when over 500 gpm
Manlifts - Approval by N.H. Dept. of Labor

C. Prior to the start of construction, the developer must submit Pump Station Equipment shop drawings for the following:

Pumps
Piping
Pump Station wet well and structure
Electrical
Controls
Level control/Indicator System
Emergency generator
Concrete and/or precast concrete
Doors and Hardware
Miscellaneous metals
Reinforcing steel
Paint

PART 3 WETWELL/DRYWELL PUMP STATIONS

A. Wetwell/Drywell type stations shall be constructed of two completely separate chambers including a drywell to house pumps, motors, piping and valving systems, electrical power and control systems and any appurtenant equipment. Wetwell shall store wastewater for cyclic or constant level (variable speed) pumping, and shall contain screening or comminution device for control of large solids.

B. Wetwell/drywell pump stations have a two level drywell with all controls, indicators, compressors and electrical equipment on the upper level. The upper level may be constructed as either a below ground structure or as an above-ground building. The pumps, valves, and associated hardware shall be placed in the lower level.

C. Pumps shall be vertical close coupled, non-clog type, capable of passing 3-1/2 inch solids, with 460 volt, 3 phase electric motor. Discharge elbow shall be cast iron, with clean-out fitting. Mechanical seals shall be double carbon ceramic seals.

D. Sewer inlet shall be equipped with comminutor.

E. Drywells shall be provided with lifting eyes in roof of station to enable removal of pumps. Lifting eyes shall be directly over each pump with a minimum of 36" clearance over the pump motor, to permit operating a lifting device.

F. Pump stations ladders shall be equipped with safety rails which extend through the hatch opening. Large or deep pump stations may be required to install "ship type" ladders for safety.

PART 4 SUBMERSIBLE PUMP STATIONS

A. Submersible pump stations shall have a separate wetwell, drywell valve pit, and above-ground generator building.

B. Pumps shall be of the submersible non-clog type capable of passing 3-1/2 inch solids complete with 460 volt, 3 phase electric motors, slip flange cast iron base place assembly, and rail system for pump removal.

C. Pump control panel, compressors, indicators and annunciators shall be housed within generator building.

D. Pump controls and power cables shall be connected at a junction box placed outside of the wetwell.

E. All electrical equipment inside pump station shall be explosion proof.

F. Removal of pumps shall not require personnel to enter the wetwell.

G. Pump stations shall be equipped with davits, winches or other approved device for removal of pumps from station.

PART 5 STAND-BY GENERATOR

A. All pump stations shall be equipped with a stand-by electrical generator, capable of powering all pumps, lights, blowers, sump pumps, compressors and other electrical devices associated with the pump station.

B. Stand-by generator shall be enclosed in a building, minimum dimension 8' x 10', with doorway opening adequate to permit complete replacement of unit. In wetwell/drywell stations with above ground building, the generator building may be constructed within the pump station building.

C. Alternate Enclosure: Drop over style, weatherproof enclosure will consist of a roof, two (2) side walls, and two (2) end walls, of prepainted maintenance free aluminum stressed-skin semi-monocoque construction as built by Pritchard & Brown, specification 9920.

1. Roof:

   a. One piece cambered roof panel .040" thick aluminum with .125" extruded aluminum side and end rails, 6063-T6 alloy.
   b. Corner casting: Aluminum.
   c. Roof bows: Extruded aluminum "I" beams 1-1/2" deep of 6063-T6 alloy. Roof reinforced to carry required muffler load.
   d. Engine exhaust hole(s) with rain collar(s) shipped loose unless otherwise specified.

2. Side and end walls:

   a. Posts: 1/8" x 1-1/2" extruded aluminum "Z" section - 6063-T6 alloy.
   b. Panels: .040" thick aluminum sheet, mill-prepainted (see color chart for color selection).
   c. Corner posts: Extruded aluminum, 6063-T6 alloy - .125" x .625" radius.

3. Access doors: Fabricated .040" prepainted aluminum reinforced for rigidity, and including locking hardware and aluminum hinges with stainless steel pins.

4. Door frames: Welded aluminum frame consisting of extruded "Z" sections of aluminum 6063-T6, riveted to side panels.

5. Louvers: Fixed or punched louvers as dictated by engine air flow. Fixed louver will be of all-aluminum construction and hinged to an aluminized steel frame incorporating an internal locking pin for security. Punched louvers will be punched in door and wall panels as required.

6. Radiator discharge: Radiator air exhaust is through an expanded aluminum screen, .080" thick x 5/8" open, size as required.

7. Lift eyes: Lift eyes for handling enclosures will be provided on each side wall.

8. Tie down frame: Aluminum perimeter mounting channel, 2" x 2" x .125" thick will be provided for mounting onto concrete pad.

9. Options:

   a. Muffler supports and brackets for external exhaust.

b. Gravity operable discharge damper.

c. 6" diameter radiator access fill cap.

d. Exhaust pipe rain collar and rain shield.

e. Perforated mill finished aluminum interior liner.

f. Stainless steel door hardware.

D. Generators shall be powered by propane or natural gas, if available.

E. Generator shall be equipped with exerciser to permit regular timed operation of the generator. The generator must have a residential muffler with a maximum noise level of 65 dBA. Exerciser must be adjustable for length between exercise cycles and length of exercise, and will cause lock out of power demand during exercise phase.

F. Generator shall be equipped with a control panel where all control switching and instrumentation shall be located. All generator functions shall be controlled and monitored from the panel and shall include override start-up or shut-down, test or other required operations. Start-up and shut-down switching (including manual override) shall include, respectively, automatic electrical load ramp-up and thermal cool-down phases to permit safe start-up and shut-down of generator.

Control panel shall be equipped with sensors, indicators and automatic shut-down or generator in the event of:

- motor overtemperature
- motor overspeed
- low oil pressure
- overcrank (failure to start)

G. For reasons of standardization, the standby generator set (motor and generator) shall be manufactured by Caterpillar Power Systems (No Substitutions).

PART 6 PUMP STATION CONTROLS

A. Coordinate New and Existing Control Systems: Proposed new pump station control systems and remote transmitting units (RTU) must be compatible with existing PLAINVILLE WATER & SEWER DEPARTMENT systems. Remote transmitting units shall be radio signal systems compatible with existing equipment. Controls and RTU equipment shall be manufactured by Allen Bradley. Alarm conditions requiring notification of maintenance or security personnel shall be capable of identifying the actual alarm condition at the receiving location. A study must be performed to verify that new RTU equipment will operate as required without signal path obstructions or radio interference.

B. Level Control: All wetwell/drywell pump stations shall be controlled by means of a bubbler level control system, with duplex compressor units and duplicate bubbler air feed lines. Bubble lines must be installed in sealed P.V.C. conduit. Submersible pump stations may be controlled by mercury-float type switches.

C. Alarm Conditions: All pump stations shall be equipped with all sensing, control and annunciation equipment to accommodate alarm conditions as defined.

1. Local Alarm: Local alarm condition shall be signaled by flashing exterior dome light, visible outside site fence, and shall be identified on annunciation panel at the site. Local alarm conditions are defined below.

2. RTU Alarm: RTU alarm conditions are those conditions which must be signaled via radio system (RTU) to security personnel, and are defined below.

3. Alarm Conditions: The following are alarm conditions and are defined as local alarm (LA) and RTU alarm (RTU):

   - pump failure (LA, RTU)
   - pump station low/high ambient temperature (LA)
   - high/low water in wetwell (LA, RTU)
   - loss of one or more phases of power supply (LA, RTU)
   - high water in pump room sump (wetwell/drywell pump stations only) (LA, RTU)
   - loss of RTU signal (LA, RTU)
   - H_2S or methane alarm (LA, RTU)
   - generator running (LA)
   - generator failure (LA, RTU)

D. All pump stations shall be equipped with main breaker and independent circuit breakers for each pump.

E. All pump station controls shall include hand-off-automatic switching, to permit compete override operation of all pumps. Automatic switching shall be run off wetwell level, and shall include lead/lag alternation with manual lead/lag override systems.

F. Each pump shall have an independent hour meter, to record total length of pump operation.

G. All pump stations shall be equipped with flow meter, 12" circular chart recorder and totalizer calibrated in gallons. Flow meter shall be magnetic type meter or similar approved device.

PART 7 MATERIALS OF CONSTRUCTION

7.01 General

A. All below grade pump station structures shall be constructed of concrete. Stations made of steel, fiberglass or other materials will not be accepted. All concrete work, materials shall be in accordance with A.C.I. 301 standards.

B. All fittings, clamps, anchors, hatches, ladders, grating, and appurtenant parts of wetwell shall be made of stainless steel or aluminum.

C. All piping shall be a minimum of CL 53 flanged ductile iron pipe with 150 lb. cast iron flanged fittings. Isolation valves shall be minimum 150 lb. flanged cast iron Dezurik plug valves or equal complete with NRS operators.

D. Pump station building may be constructed of split face block with insulation, precast concrete with insulation or block and brick, and should blend with local architectural style. Building must have doors large enough to permit removal of the largest equipment in the station.

E. Pump stations shall be equipped with Bilco "SS" type hatches, or equal, equipped with thru-hatch safety handrails.

7.02 PAINT SYSTEMS

A. Provide the following paint systems for the various substrate, as indicated. All dry film thicknesses (DFT) are called for as total mils per coat specified and are considered minimums. ENGINEER to select colors.

B. Exterior:

1. Miscellaneous ferrous metal items:

   1st Coat: 66 Hi-Build Epoxoline on unpainted metal or touch-up (4.0 mils DFT)

   2nd Coat: 66 Hi-Build Epoxoline (4.0 mils DFT)

   3rd Coat: 71 Endura-shield (1.5 mils DFT)

2. Ferrous metals, submerged:

   1st Coat: 66 Hi-Build Epoxoline (touch-up and primer) (4.5 mils DFT)

   2nd Coat: 104 H.S. Epoxy (10.0 mils DFT)

   3rd Coat: 104 H.S. Epoxy (10.0 mils DFT)

3. Galvanized metal:

   1st Coat: 66 Hi-Build Epoxoline (Primer) (4.0 mils DFT)

   2nd Coat: 71 Endura-shield (1.5 mils DFT)

C. Interior:

1. Interior concrete walls, brick wall, and concrete masonry:

   1st Coat: 83 Ceramlon II (Primer/Filler) (8.0 mils DFT)

   2nd Coat: 83 Ceramlon II (10.0 mils DFT)

   Note: Spray, then roll each coat.

2. All interior concrete floors, sludge holding tank walls, roof and floor:

   1st Coat: 66 Hi-Build Epoxoline (6.0 mils DFT)

   2nd Coat: 66 Hi-Build Epoxoline (3.0 mils DFT)

   3rd Coat: 66 Hi-Build Epoxoline (3.0 mils DFT)

3. All interior metals, including structural steel, piping, railings, equipment and stairs:

   1st Coat: 66-1211 Epoxoline primer on unpainted metal or touch-up (4.0 mils DFT)

   2nd Coat: 66 Hi-Build Epoxoline (3.0 mils DFT)

   3rd Coat: 66 Hi-Build Epoxoline (3.0 mils DFT)

4. All submerged ferrous metals:

   Lightly hand-sand all shop-primed surfaces prior to touch-up, painting or finish painting to provide proper bonding surface.

   1st Coat: 66 Hi-Build Epoxoline on unpainted metal or touch-up (4.5 mils DFT)

2nd Coat: 104 H.S. Epoxy Coating (10.0 mils DFT)

3rd Coat: 104 H.S. Epoxy Coating (10.0 mils DFT)

5. PVC piping:

   1st Coat: 66 Hi-Build Epoxoline (4.0 mils DFT)

6. Copper and bronze piping:

   1st Coat: 32-1210 Tneme-Grip (Primer) (0.5 mils DFT)

   2nd Coat: 66 Hi-Build Epoxoline (4.0 mils DFT)

   3rd Coat: 66 Hi-Build Epoxoline (4.0 mils DFT)

7. Galvanized metals and aluminum:

   1st Coat: 66 Hi-Build Epoxoline (4.0 mils DFT)

   2nd Coat: 66 Hi-Build Epoxoline (4.0 mils DFT)

8. Painted woodwork and gypsum board:

   1st Coat: 36-603 Undercoat (2.0 mils DFT)

   2nd Coat: 23 Enduratone (2.0 mils DFT)

   3rd Coat: 23 Enduratone (2.0 mils DFT)

PART 8 SITE REQUIREMENTS

A. All pump station sites shall include the following:

1. Site shall be enclosed by an 8 foot high galvanized chain-link fence with 12 foot wide double-leaf lockable gate, capable of opening either in or out.

2. Site shall be paved within entire fenced area. Access road shall be paved. All pavement shall be adequate to accommodate heavy vehicular traffic, and shall be a minimum 3 inches thick (2" base and 1" finish), with a 6" compacted crushed gravel base, and a 12" compacted gravel subbase.

3. Full size yard hydrant shall be included, hydrant type to be as specified in the water distribution section of this document with two 2-1/2" threaded nozzle and 4" pumper nozzle, open right.

4. Yard light, 150 watt high pressure sodium bulb, minimum 10 foot high.

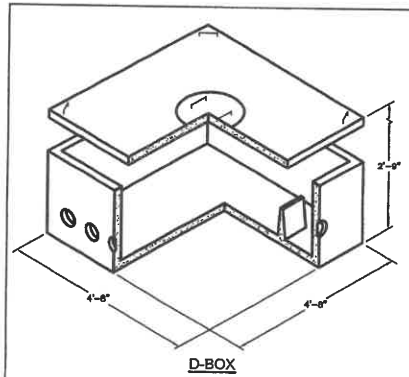
5. All yard fixtures shall be so designed as to accommodate winter maintenance (plowing).

6. Weather-proof dual 120V electric GFI outlet, outside of building.

PART 9 ODOR CONTROL

All pump stations shall be equipped with provisions to allow installation of odor control equipment. Station design submittals shall address odor control and indicate system type and design materials. Implementation of odor control shall be determined on a case-by-case basis.

END OF SECTION



D-BOX
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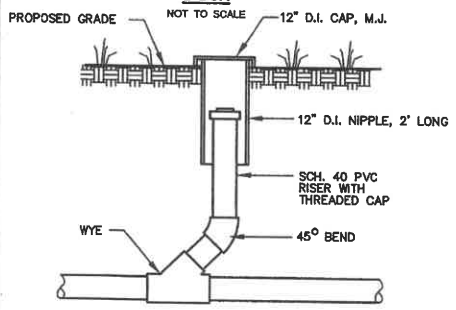

CLEANOUT DETAIL
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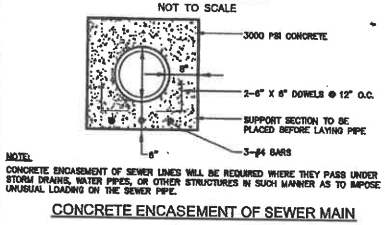

CONCRETE ENCASEMENT OF SEWER MAIN
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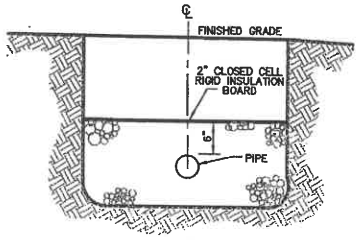

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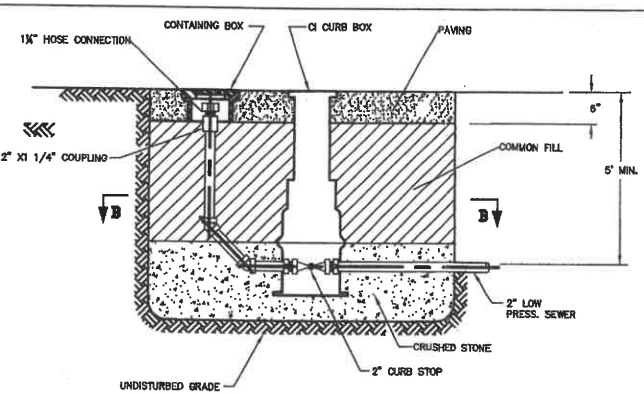
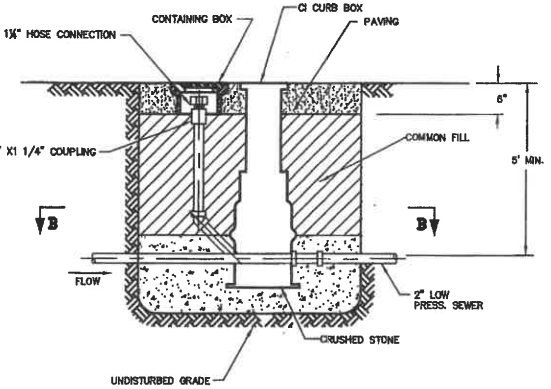
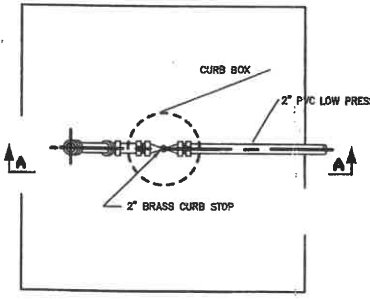


SECTION A-A



SECTION A-A



SECTION B-B

FLUSHING STATION
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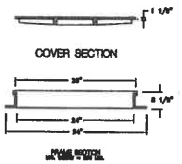

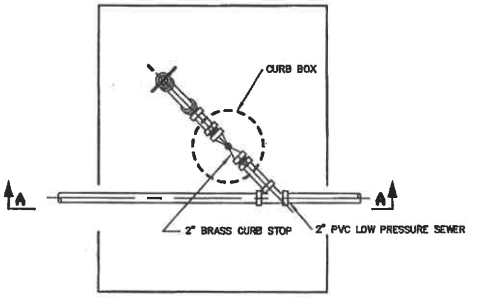

SECTION B-B

FORCE MAIN CLEANOUT
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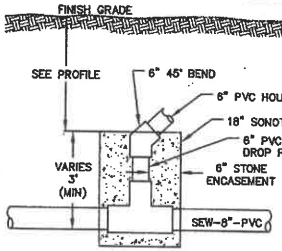

PIPE CHIMNEY
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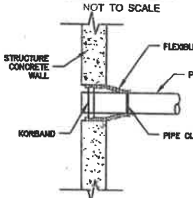

FLEXIBLE BOOT
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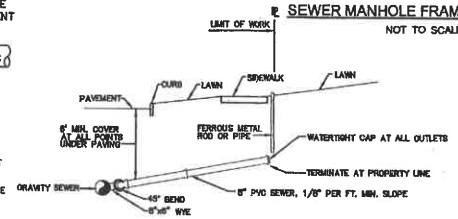

SEWER SERVICE TO HOUSE
NOT TO SCALE

SEWER MANHOLE FRAME AND COVER
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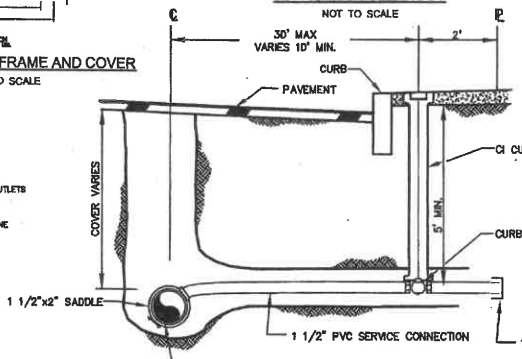

SERVICE CONNECTION-LOW PRESSURE
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Dufresne-Henry

SEWER DETAILS
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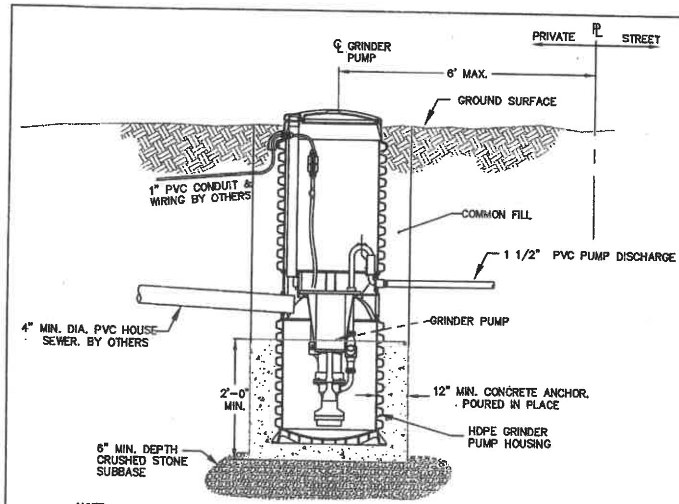


NOTE:

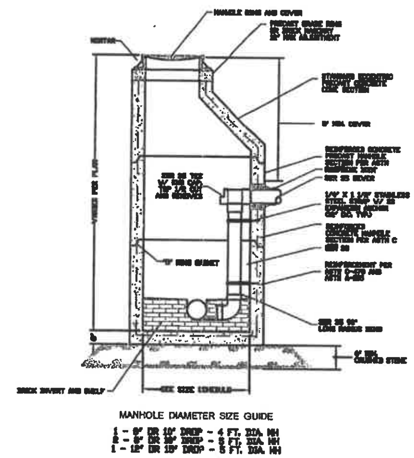
A CONCRETE ANCHOR OF 370 LBS. (2.5 CuFt) PER FOOT OF TOTAL STATION HEIGHT IS REQUIRED TO PREVENT TANK FROM FLOATING.

CONTRACTOR RESPONSIBLE FOR FURNISHING AND INSTALLING GRINDER PUMP UNIT AT PROPERTY LINE LOCATION AND PROVIDING CONTROL UNIT TO HOMEOWNER.

HOMEOWNER RESPONSIBLE FOR THE CONNECTION OF THE GRINDER PUMP AND CONTROLS.

GRINDER PUMP

NOT TO SCALE



MANHOLE-INTERNAL DROP 1

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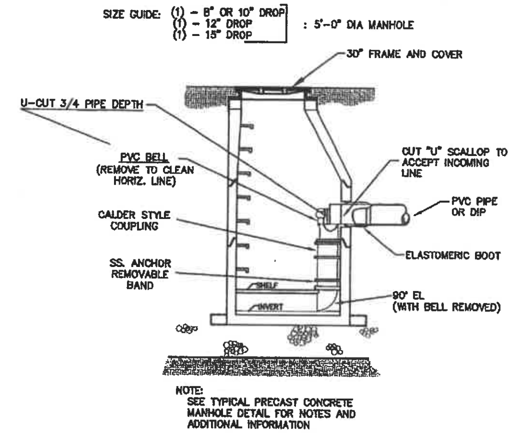

NOTE:
SEE TYPICAL PRECAST CONCRETE MANHOLE DETAIL FOR NOTES AND ADDITIONAL INFORMATION

MANHOLE-INTERNAL DROP 2

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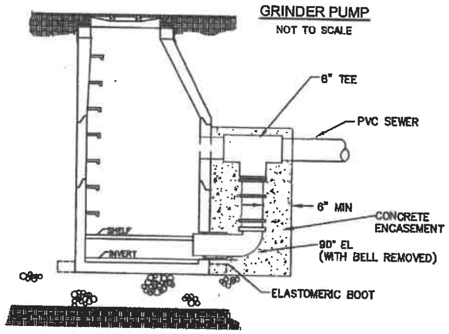

EXTERNAL DROP CONNECTION

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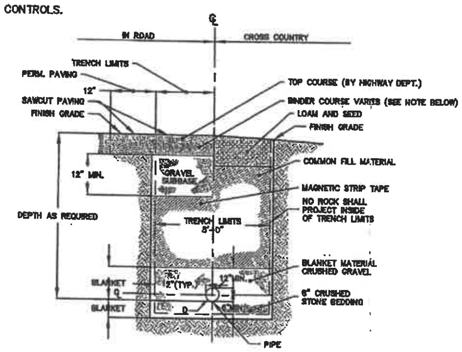

TRENCH - SEWER

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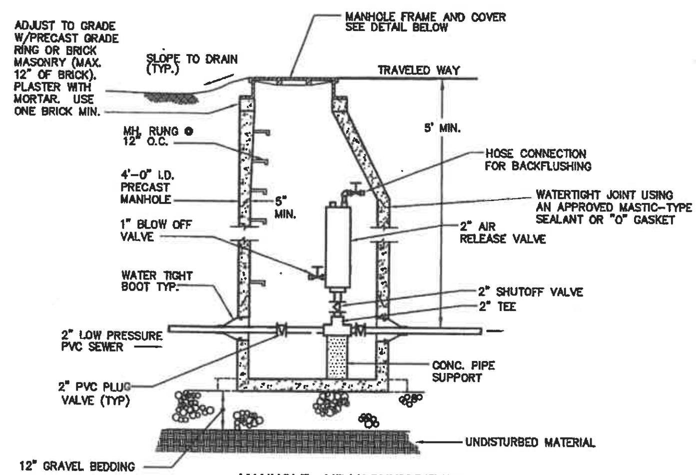

MANHOLE - AIR-VACUUM RELIEF

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Westford, Massachusetts

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SEWER DETAILS
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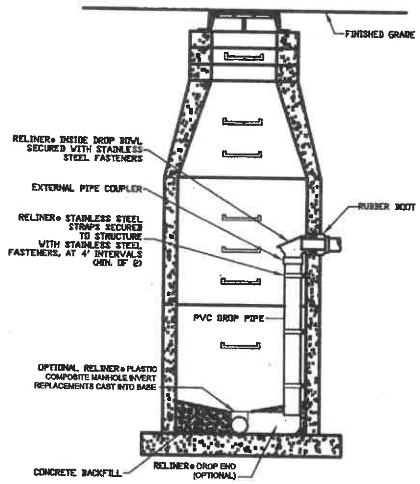

Drop Bowl U.S. Pat. # 6074130
RELINER U.S. Pat. # 5553973
Additional Patents Pending

MANHOLE - INTERNAL DROP INLET 3

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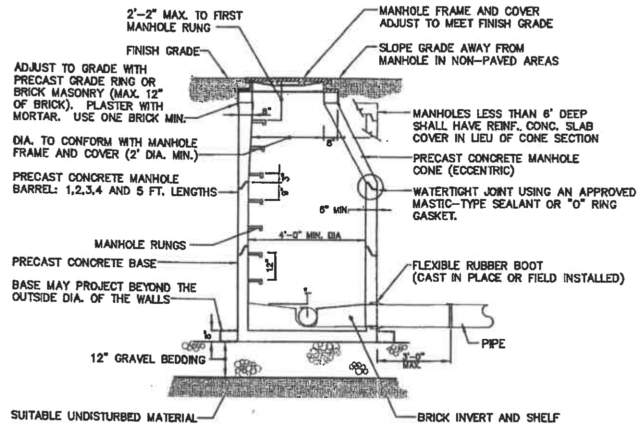

MANHOLE-SEWER

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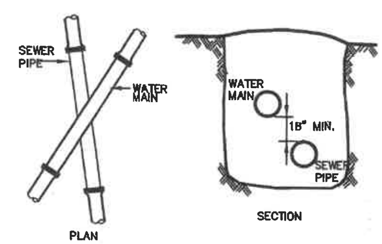

NOTE: AT WATER LINE CROSSINGS WHERE CLEARANCE BETWEEN WATER AND SEWER PIPES IS LESS THAN 18", SEWER PIPE SHALL BE SDR 26 PVC FOR A MIN. OF 20' EITHER SIDE OF THE CROSSING OR A TOTAL OF 3 PIPE LENGTHS, WHICHEVER IS GREATER. ONE FULL LENGTH OF SEWER PIPE SHALL BE CENTERED OVER WATER PIPE WITH SEWER JOINTS AS FAR AS POSSIBLE FROM WATER JOINTS. THE SEWER SECTION MUST BE PRESSURE TESTED TO MAINTAIN 50 PSI FOR 15 MINUTES WITHOUT LEAKAGE PRIOR TO BACKFILLING BEYOND ONE FOOT ABOVE THE PIPE TO ASSURE WATER TIGHTNESS.

SEWER-WATER CROSSING

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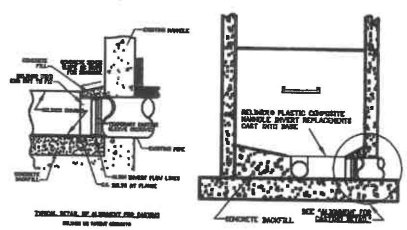
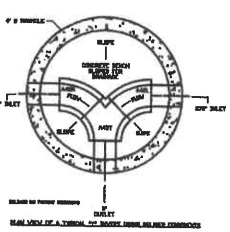


NOTES:
1) ALL MANHOLE STRUCTURES SHALL BE OUTFITTED WITH RELINER® PLASTIC COMPOSITE INVERT COMPONENTS PRODUCED BY:
2) ALL CHANNELS SHALL BE AT LEAST THE SAME DEPTH AS THE ABOVE PIPE AND SHALL BE FIELD TRIMMED AND ASSEMBLED AS PER MANUFACTURERS INSTRUCTIONS.
3) CONCRETE BACK FILL SHALL BE PROPERLY PLACED AND GRADED SO AS TO PROVIDE SMOOTH, WELL-DRAINED SLOPING BENCHES.
4) PIPE ALIGNMENT SHALL BE MAINTAINED DURING BACK FILL BY USE OF EXTERNAL ADAPTERS, INFLATABLE PLUGS OR TEMPORARY INTERNAL CASTING SLEEVES (SEE DETAIL).
5) CONTRACTOR SHALL INSPECT EACH MANHOLE AND VERIFY COMPONENTS REQUIRED TO OUTFIT EACH STRUCTURE.

RELINER US PATENT #5553973
ADDITIONAL PATENTS PENDING



Y INVERT IN MANHOLE

NOT TO SCALE

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Westford, Massachusetts
www.dufresne-henry.com

SEWER DETAILS
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SECTION 02731

SANITARY SEWERS AND FORCE MAIN

PART 1 GENERAL

1.01 WORK INCLUDED

A. Furnishing pipe for collecting and transporting sewage.

B. Furnishing miscellaneous appurtenances.

C. Installation.

D. Testing.

1.02 REFERENCE STANDARDS

A. ANSI A21.4/AWWA C104 - Cement-Mortar Lining for Ductile-Iron and Gray-Iron Pipe and Fittings for Water.

B. ANSI A21.10/AWWA C110 - Gray-Iron and Ductile-Iron Fittings, 3 Inch Through 48 Inch, for Water and Other Liquids.

C. ANSI A21.11/AWWA C111 - Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings.

D. ANSI A21.51/AWWA C151 - Ductile Iron Pipe Centrifugally Cast In Metal Molds and Sand Lined Molds for Water and Other Liquids.

E. ASTM D3034 - Type PSM Poly(Vinyl Chloride)(PVC) Sewer Pipe and Fittings.

F. ASTM D3212 - Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.

G. AWWA C600 - Installation of Ductile Iron Water Mains and Their Appurtenances.

H. UNI-B-6 - For Low Pressure Air Testing Of Installed Sewer Pipe.

1.03 SUBMITTALS

A. Submit shop drawings and product data in accordance with Section 01340.

B. Submit manufacturer's recommendations for pipe jointing and laying.

C. No later than two weeks prior to commencing operations, submit to the ENGINEER for approval a detailed plan of operations. Include equipment to be used, qualification of personnel, traffic control, **maintenance of flow** and methods of protecting existing utilities.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Pipe shall be unloaded and inspected in accordance with the manufacturer's instructions.

B. Pipe and fittings stored on the site shall be stored in the protective unit packages provided by the manufacturer. If packages need to be opened, the pipe shall be stored above ground and on a flat surface and not in direct contact with the ground. Do not stack higher than four feet.
Keep inside of pipe and fittings free from dirt and debris. Care shall be exercised to avoid compression damage or deformation to the pipe.

C. All pipe and fittings that are stored shall be covered to provide protection from the sunlight.

D. Handle all material carefully at all times. Any pipe or fitting having a crack or which has received a severe blow shall be marked rejected and immediately be removed from the work.

PART 2 PRODUCTS

2.01 GENERAL

A. All products included in this section shall conform to the requirements of the standard specifications referenced herein.

B. Pipe size and material shall be as shown on the Drawings.

2.02 ACCEPTABLE MANUFACTURERS

A. Specifications: Products specified in this section are based on those manufactured by the following firms:

1. Polyvinyl chloride pipe and fittings - Johns-Manville, Certain Teed.

2. Ductile iron pipe and fittings - Clow Corporation, U.S. Pipe.

3. Flexible or transition couplings for nonpressure sewer pipe - Fernco, Inc.

4. Flexible or transition couplings for pressure pipe - Dresser.

B. Substitutions: Products of equal quality, detail, function and performance may be proposed for substitution by following the procedures in Section 01630.

2.03 SANITARY SEWER

A. Polyvinyl Chloride Pipe: Shall be SDR-35, push-on joint conforming with ASTM D3034. Fittings shall comply with ASTM D3034. Joints shall comply with ASTM D3212.

1. Each length of pipe shall have an integral bell and shall be supplied in 12.5 foot lengths.

2. Joint shall be push-on type using elastomeric gasket designed to prevent slipping during jointing. The gaskets shall be factory installed and secured in place prior to delivery to the job site.

3. Six inch diameter wye branch connections shall be supplied for service connections.

4. All pipe, fittings, gasket material and lubricant shall be supplied by the same manufacturer. Petroleum base lubricants shall not be used.

5. Physical and chemical properties of pipe couplings shall be equal to those properties of the

pipe.

B. Push-on Ductile Iron Pipe: Shall conform to ANSI A21.51/ AWWA C151 Class 52. Mechanical joint fittings shall be ductile iron conforming to ANSI A21.10/AWWA C110. Pipe and fitting joints shall meet ANSI A21.11/AWWA C111 standards and shall include plain rubber gaskets. Pipe and fittings shall be cement lined and seal coated inside and out in accordance with ANSI A21.4/AWWA C104.

C. Flexible Couplings and Transition Couplings: Couplings for nonpressure sewer pipe shall be resilient elastomeric plastic with recessed stainless steel bands at each end for fastening.

2.04 FORCE MAIN

A. Mechanical Joint Ductile Iron Pipe: Shall conform to ANSI A21.51/ AWWA C151 Class 53. Mechanical joint fittings shall be ductile iron conforming to ANSI A21.10/AWWA C110. Pipe and fitting joint shall meet ANSI A21.11/AWWA C111 standards and shall include plain rubber gaskets. Pipe and fittings shall be double cement lined and seal coated inside and outside in accordance with ANSI A21.4/AWWA C104. All pipe and fittings shall be furnished with ductile iron retainer glands.

B. Couplings to be used for joining plain ends of iron pipe to connect to an existing pipe or to provide flexibility shall be Dresser Style No. 38.

C. Couplings to be used for joining pipes of different diameters and/or materials - Dresser Style No. 162.

2.05 IDENTIFICATION

A. Each pipe length and fitting shall be clearly marked with:

1. Manufacturer's name and trademark.

2. Nominal pipe size.

3. Material designation.

PART 3 EXECUTION

3.01 GENERAL

A. Pipe and fittings shall be handled with care to insure that the pipe and fittings are in sound, undamaged condition. Particular care shall be taken to prevent damage to pipe coating and lining (if any).

B. The CONTRACTOR shall furnish slings, straps and/or other approved devices to support the pipe when it is lifted. Pipe and fittings shall not be dropped from trucks onto the ground or into the trench. Transporting pipe and fittings from storage areas shall be restricted to operations which will not cause damage to the pipe or lining (if any).

C. All pipe and fittings shall be examined before laying and no pipe or fittings shall be installed which are found to be defective. Damaged pipe coatings and/or lining (if any), shall be repaired as approved or directed by the ENGINEER.

D. Any pipe showing a distinct crack with no evidence of incipient fracture beyond the limits of the visible crack, if approved, may have the cracked portion cut off by, and at the expense of, the CONTRACTOR before the pipe is laid so that the pipe used is sound. The cut shall be made in the sound portion of the barrel at least 12 inches from the visible limit of the crack.

E. If any defective pipe is discovered after it has been laid, the CONTRACTOR shall remove the defective pipe and replace it with sound pipe at no additional cost to the OWNER.

F. In general, gravity pipe laying shall proceed upgrade with spigot ends pointing in the direction of flow.

G. Flow from existing service connections and main lines shall be maintained at all times by pumping or other methods approved by the ENGINEER. Under no circumstances will the dumping of raw sewage on private property, in municipal streets or into waterways, be allowed.

3.02 CONTROL OF ALIGNMENT AND GRADE

A. Easement and property and other control lines necessary for locating the Work as well as elevations and bench marks used in the design of the Work are shown on the Drawings. The CONTRACTOR shall use this information to set line and use a level or transit to set grade.

B. The CONTRACTOR may use laser equipment to assist in setting the pipe provided he can demonstrate satisfactory skill in its use.

C. The use of string levels, hand levels, carpenter's levels or other similar devices for transferring grade or setting pipe are not to be permitted.

D. During construction provide the ENGINEER, at his request, all reasonable and necessary materials, opportunities, and assistance for setting stakes and making measurements, including the furnishing of one or two rodmen as needed at intermittent times.

E. CONTRACTOR shall not proceed until he has made timely request of the ENGINEER for, and has received from him, such controls and instructions as may be necessary as Work progresses. The Work shall be done in strict conformity with such controls and instructions.

F. The CONTRACTOR shall carefully preserve bench marks, reference points and stakes, and in case of willful, careless, or accidental destruction by his own men, he will be responsible for the resulting expense to re-establish such destroyed control data and shall be responsible for any mistakes or delay that may be caused by the loss or disturbance of such control data.

G. Maintain good alignment in laying pipe. The deflection at joints shall not exceed the manufacturer's recommended limit. Provide fittings, if required, in addition to those shown on the Drawings when pipe crosses utilities encountered when excavating the trench. Use solid sleeves only where approved by ENGINEER.

3.03 INSTALLING PIPE AND FITTINGS

A. The CONTRACTOR shall have on the job site with each pipe laying crew, all the proper tools to handle and cut the pipe.

B. All pipe and fittings shall be thoroughly cleaned before laying and shall be kept clean until installed.

C. Pipe shall be laid in the dry trench conditions. At no time shall water in the trench be permitted to flow into the pipe. At any time that Work is not in progress, or the trench is unattended, the end of the pipe shall be suitably closed to prevent the entry of animals, earth, water etc. using watertight expandable plugs.

D. Lay pipe and fittings in accordance with the requirements of AWWA C600, except as provided herein. PVC pipe shall not be installed when temperatures are below 32□F unless approved by ENGINEER.

E. Excavation shall conform to Section 02224 - Trenching.

F. As soon as excavation has been completed to the proper depth the pipe bed shall be prepared as follows:

1. Pipe Laid or Undisturbed Subgrade (Force Main): Manually excavate for pipe bells and along the trench bottom as necessary to provide a uniform bearing surface along the entire length of the pipe barrels.

2. Pipe Laid on Bedding Material (Gravity Sewer): Place and compact bedding materials, as specified in Section 02224, to the elevation necessary to bring the pipe to grade. The compacted material shall be shaped so that the bottom quadrant of the pipe rests firmly on the bedding for the entire length of pipe barrels. Suitable holes shall be dug for bells or couplings to provide ample space for jointing pipe.

G. When ledge is encountered in the bottom of the trench, pipe shall be bedded on a layer of crushed gravel having a minimum thickness of 6 inches. Blocking is not permitted.

H. Each pipe section shall be placed into position on the pipe bed in such a manner and by such means required to avoid injury to persons, any property or the pipe.

I. Permanent blocking under the pipe is not permitted except where a concrete cradle is required, in which case precast concrete blocks shall be used.

J. Jointing shall conform to the manufacturer's instructions and appropriate ASTM Standards.

K. Any debris, tools etc. shall be removed from the pipe.

L. After placing the pipe on the bedding, the bedding material shall be placed and compacted to the spring line (horizontal centerline) of the pipe.

M. Following placement of the bedding material, the blanket material shall be placed and compacted from the spring line to 12 inches above the crown of the pipe.

N. After placement of the blanket material the pipe shall be checked for alignment and grade. If the pipe has been properly installed, the CONTRACTOR may refill or backfill the remainder of the trench in conformance with Section 02224 and details shown on the Drawings.

O. At the end of each day's work or at other intervals, the ENGINEER, with the CONTRACTOR will inspect the pipe installation. Unsatisfactory work shall be dug up and reinstalled to meet the requirements of the Contract Documents with no additional time allowed for completion of the Work and at no additional cost to the OWNER.

P. When cutting of pipe is required, the cutting shall be done by machine (power cutter) without

damage to the pipe or cement lining (if any). Cut ends shall be smooth and at right angles to the axis of the pipe. Pipe ends to be used with a rubber gasket joint shall be beveled and filed or ground smoothly to conform to a manufactured spigot end.

3.04 SERVICE CONNECTIONS

A. House service lines shall be laid from the wye connection on the main line sewer to the property line as directed by the ENGINEER.

B. All new service connections shall be 6 inch PVC or ductile iron pipe consistent with the main line sewer material.

C. New services shall terminate as shown on the Drawings, be capped with a watertight cap, and the end shall be marked with a ferrous metal rod or pipe terminating at finish grade.

3.05 TESTING

A. General

1. Leakage tests under the direction of the ENGINEER shall be conducted on all pipes installed under this section of the Work. Deflection tests shall be conducted on PVC pipe as ordered by ENGINEER. The ENGINEER shall witness all tests. The CONTRACTOR shall supply all plugs, pumps, weirs, gauges, water, water trucks, mandrels, etc., necessary to conduct the tests. Should the Work fail the leakage or deflection tests, corrective action shall be taken by the CONTRACTOR in a manner approved by the ENGINEER and, if directed by the ENGINEER, the CONTRACTOR shall dig up and relay the failed section with no additional time allowed for completion of the Work and at no additional cost to the OWNER.

2. The use of sealants, applied from the inside of the pipe, is not acceptable.

3. Flush all piping systems with water prior to testing.

4. Testing forms which indicate all testing information and results shall be submitted to ENGINEER.

B. Sanitary Sewer Pipe Testing With All Service Connections Capped Using the Following Infiltration or Exfiltration Test Methods:

1. Infiltration: When the groundwater is two feet or more above the crown of the pipe at the upper end of the section to be tested, an infiltration test shall be made. The upper end of the section to be tested shall be plugged and a V-notch weir of appropriate size shall be fitted into the lower end so as to prevent leakage around the weir plate. Commercially manufactured weir plates made and calibrated for the purpose may be used.

2. Exfiltration:

a. Water Test: When groundwater is not present as described above, an exfiltration test shall be made. The sewer shall be plugged at the lower manhole in the outlet pipe and at the upper manhole in the inlet pipe. Water shall be introduced at the lower manhole and the line filled to a point four to six feet above the crown of the pipe at the upper end. Before any measurements are made, a period of about 2 hours should be permitted to allow for absorption and escape of any trapped air. The loss of water from the system over a period of at least four hours shall then be measured and the leakage rate

calculated.

b. Air Test: Leakage testing by means of low pressure air will be permitted when the procedures described in UNI-B-6 are used. The maximum allowable pressure drop from the test pressure shall be 1.0 psig during the minimum holding time.

(1) Test pressure shall be calculated using the following equation:

$$P = 3.5 + \frac{H}{2.31} \text{ (psig)}$$

P = Test pressure, maximum of 9 psi.
H = Height of groundwater above invert.

(2) Minimum holding time required for a 1.0 psig maximum pressure drop shall be calculated using the following chart.

Pipe Dia. (in.)	Min. Time (min: sec)	Length For Min. Time (ft)	Time For Longer Length (sec)	Time (min:sec) for Length (L) Shown					
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft
4	3:46	597	.380 L	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854 L	5:40	5:40	5:40	5:40	5:40	5:40
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:36	8:52
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13.51
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00
24	22:40	99	13:674 L	22:47	34:11	45:34	56:58	68:22	79:46
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100.57
30	28:20	80	21.366 L	35:37	53:25	71.13	89:02	106.50	124:38
33	31:10	72	25.852 L	43:05	64:38	86:10	107:43	129:16	150:43
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29

c. Allowable Leakage: The infiltration or exfiltration leakage shall not exceed 100 gallons per inch of pipe diameter per mile of pipe per day.

d. Deflection Test: Optional devices for testing include calibrated television, photography, properly sized "GO-NO-GO" mandrel, sewer ball or deflectometer. Maximum allowable pipe deflection shall be 5%. The deflection test shall be performed no sooner than 30 days after installation.

C. Force Main Testing: Force mains shall be tested for pressure and leakage in accordance with AWWA C600, except as amended or added below:

1. Water to be furnished by CONTRACTOR.

2. Test Duration: 2 hours.

3. Test Pressure: 150% of maximum operating pressure as determined by the ENGINEER.

4. Allowable Pressure Loss: Pressure shall not vary more than ±5 psi for the duration of the pressure test.

5. Allowable Leakage: Allowable leakage shall be determined by the following formula:

$$L = \frac{SD\sqrt{P}}{133200}$$

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).

Avg Test Pressure psi	Nominal Pipe Diameter - Inches										
	3	4	6	8	10	12	14	16	18	20	24
450	0.48	0.64	0.95	1.27	1.59	1.91	2.23	2.55	2.87	3.18	3.82
400	0.45	0.60	0.90	1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.60
350	0.42	0.56	0.84	1.12	1.40	1.69	1.97	2.25	2.53	2.81	3.37
300	0.39	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60	3.12
275	0.37	0.50	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.49	2.99
250	0.36	0.47	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.37	2.85
225	0.34	0.45	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.25	2.70
200	0.32	0.43	0.64	0.85	1.06	1.28	1.48	1.70	1.91	2.12	2.55
175	0.30	0.40	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.98	2.38
150	0.28	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84	2.21
125	0.25	0.34	0.50	0.67	0.84	1.01	1.18	1.34	1.51	1.68	2.01
100	0.23	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50	1.80

6. Allowable leakage, in gallons per hour, per 1000 feet of pipe line can be determined from the following chart.

3.06 PROXIMITY TO WATER MAINS

A. Whenever possible, sewers shall be laid 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.

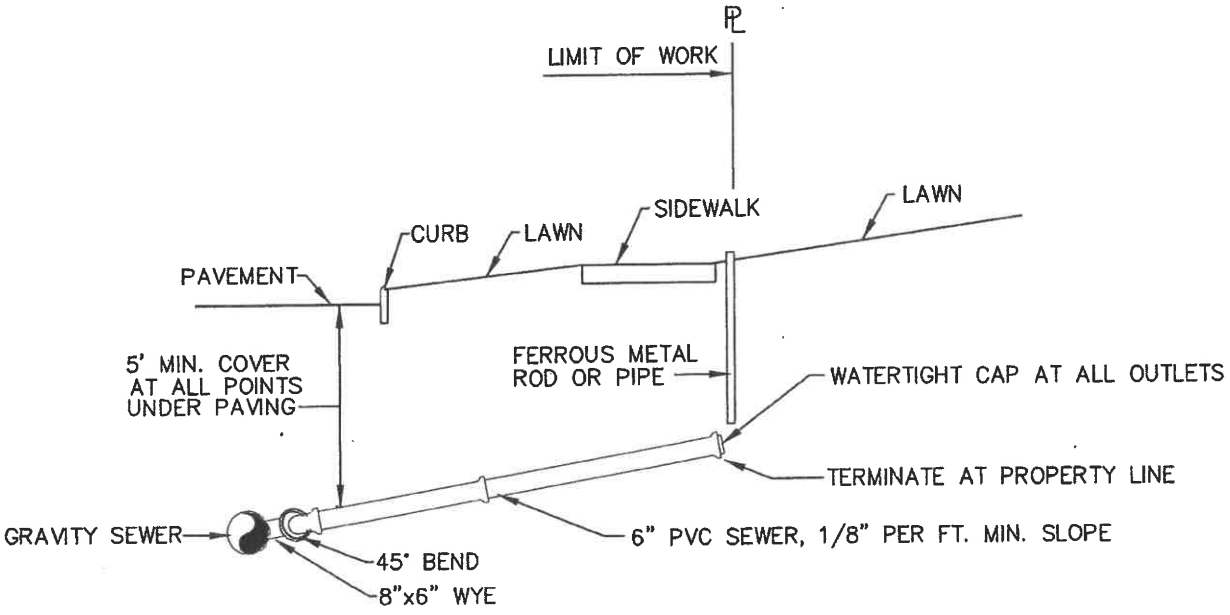
1. Lay sewer and water main in separate trench.

2. Lay the sewer and water main in same trench with the water main at one side on a bench of undisturbed earth.

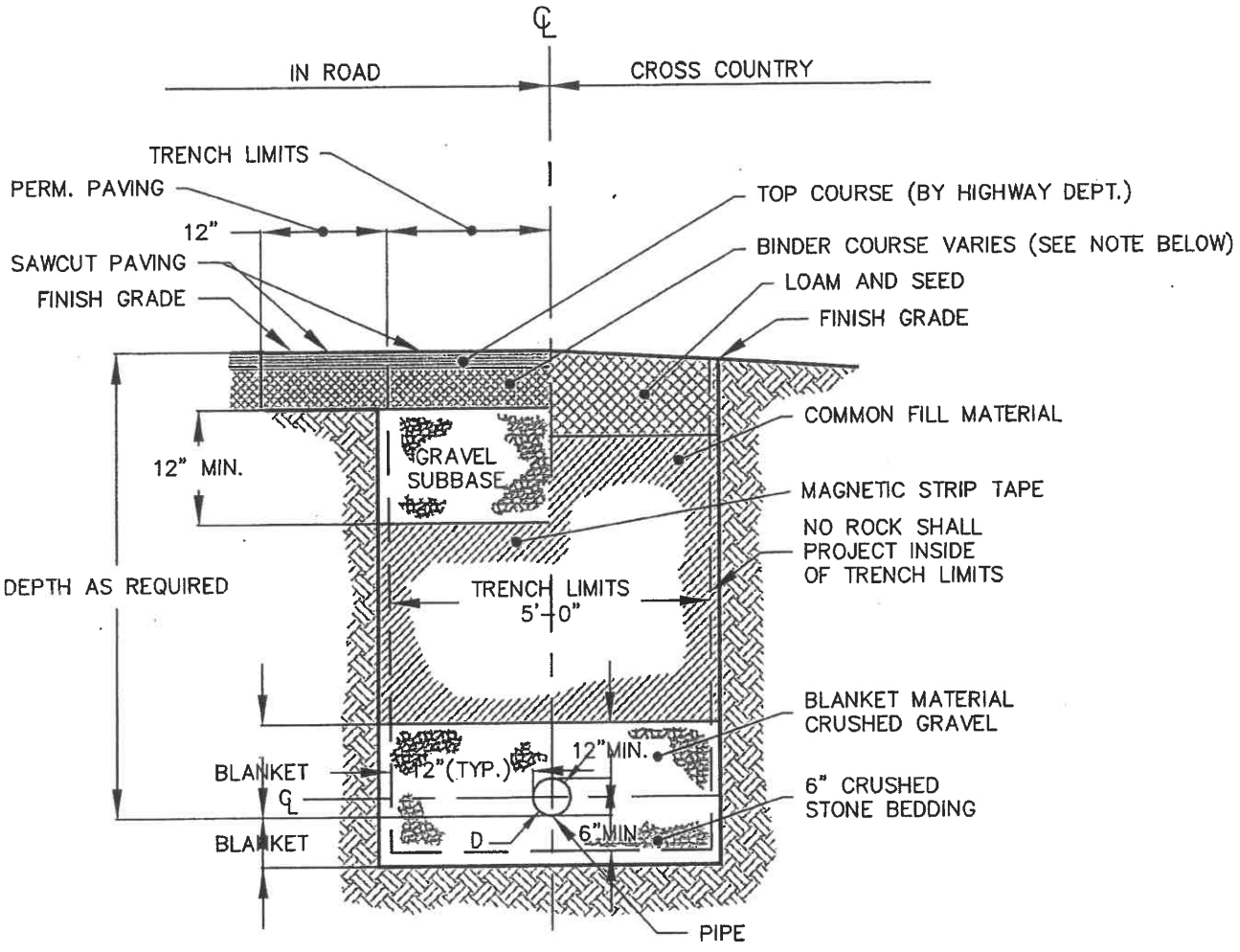
B. Whenever sewers must cross under water mains, the sewer shall be laid at such an elevation that the top of the sewer is at least 18 inches below the bottom of the water main. When the elevation of the sewer cannot be varied to meet the above requirements, the water main shall be relocated to provide 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. The sewer shall not be located above the water main.

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. The sewer shall not be located above the water main.

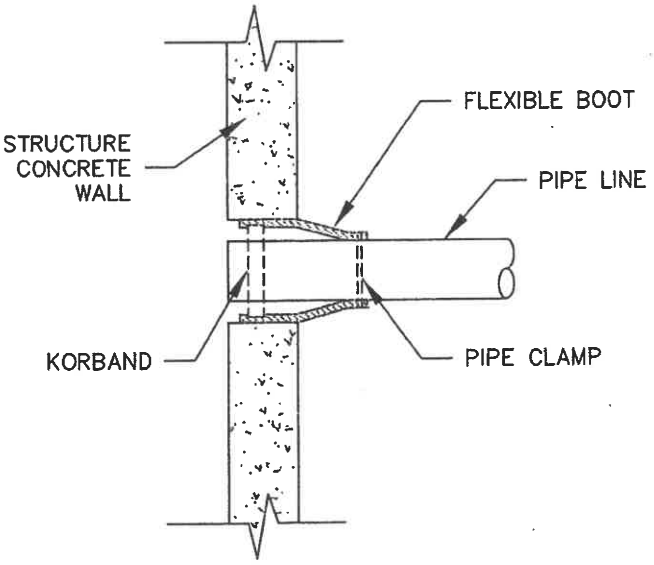
END OF SECTION



Dufresne-Henry Westford, Massachusetts Tel. (978) 692-1913 www.dufresne-henry.com	PLAINVILLE WATER AND SEWER DEPARTMENT **SEWER SERVICE TO HOUSE** PLAINVILLE MASSACHUSETTS	Project No. 9100018 Proj. Mgr. MLW Scale AS NOTED Date DECEMBER 2004 A SK1



Dufresne-Henry Westford, Massachusetts Tel. (978) 692-1913 www.dufresne-henry.com	PLAINVILLE WATER AND SEWER DEPARTMENT **SEWER TRENCH** PLAINVILLE MASSACHUSETTS	Project No. 9100018 Proj. Mgr. MLW Scale NOT TO SCALE Date JANUARY 2005 A



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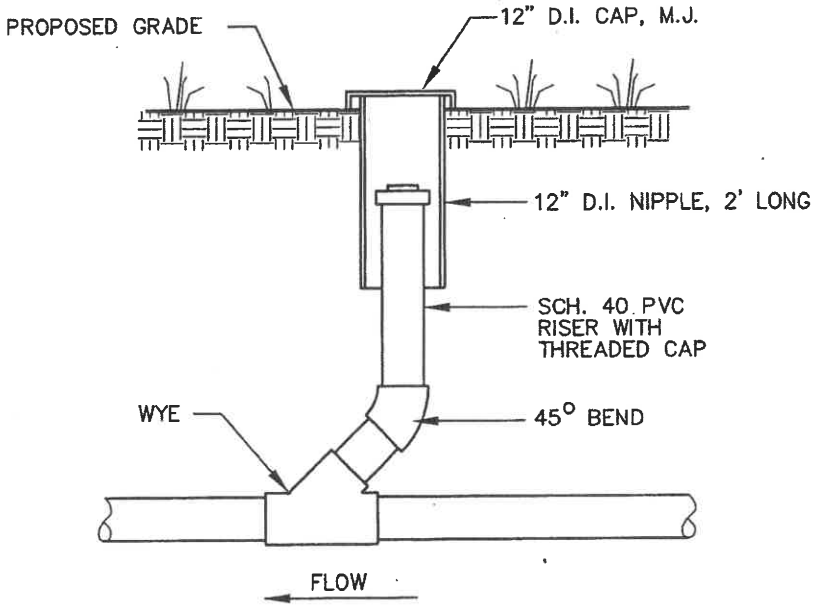
PLAINVILLE WATER AND SEWER DEPARTMENT

FLEXIBLE BOOT

PLAINVILLE MASSACHUSETTS

Project No.	9100018
Proj. Mgr.	MLW
Scale	AS NOTED
Date	JANUARY 2005
A	



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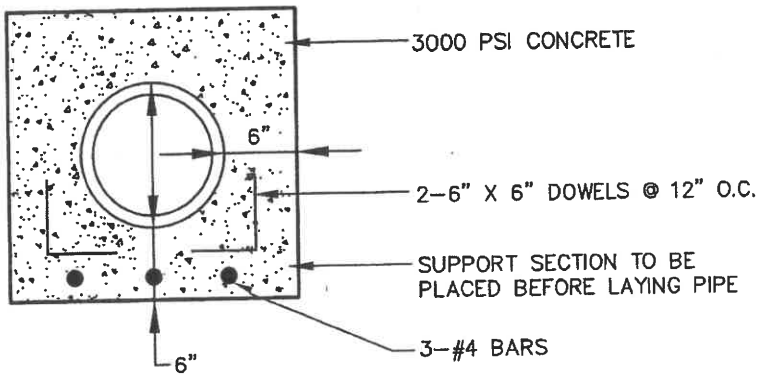
PLAINVILLE WATER AND SEWER DEPARTMENT

CLEANOUT DETAIL

PLAINVILLE MASSACHUSETTS

Project No.	9100018
Proj. Mgr.	MLW
Scale	NOT TO SCALE
Date	JANUARY 2005
A	



NOTE:

CONCRETE ENCASEMENT OF SEWER LINES WILL BE REQUIRED WHERE THEY PASS UNDER STORM DRAINS, WATER PIPES, OR OTHER STRUCTURES IN SUCH MANNER AS TO IMPOSE UNUSUAL LOADING ON THE SEWER PIPE.

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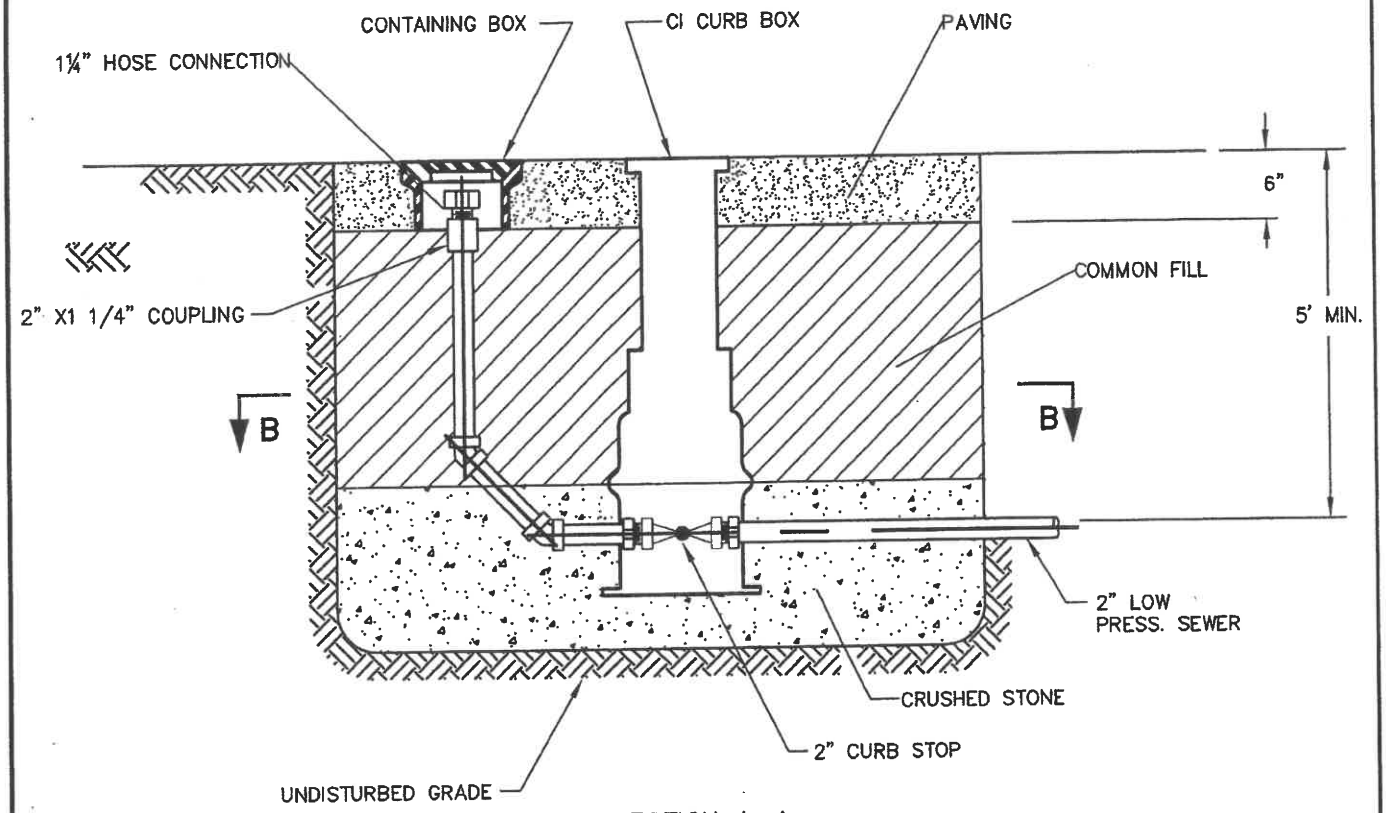
PLAINVILLE WATER AND SEWER DEPARTMENT

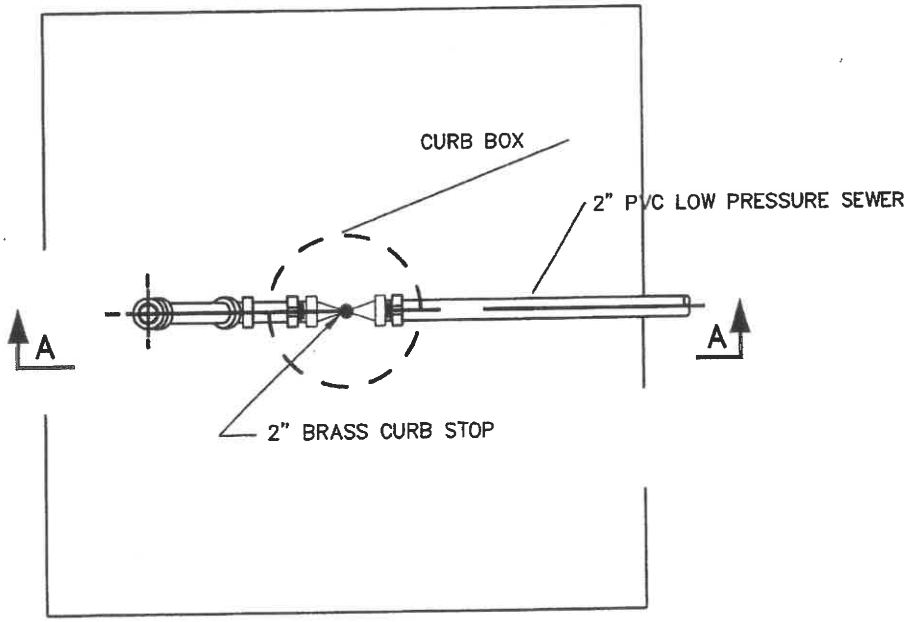
CONCRETE ENCASEMENT OF SEWER MAIN

PLAINVILLE MASSACHUSETTS

Project No.	9100018
Proj. Mgr.	MLW
Scale	NOT TO SCALE
Date	JANUARY 2005
A	



SECTION A–A



SECTION B–B

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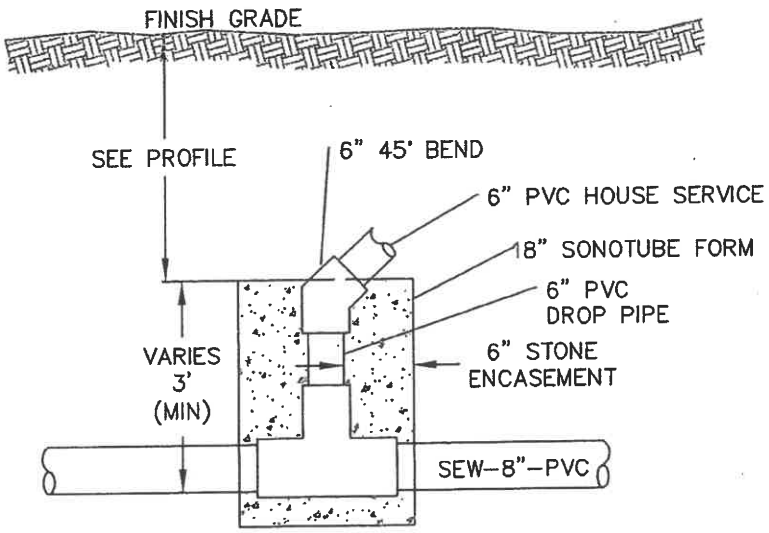
PLAINVILLE WATER AND SEWER DEPARTMENT

FLUSHING STATION

PLAINVILLE MASSACHUSETTS

Project No.	9100018
Proj. Mgr.	MLW
Scale	NOT TO SCALE
Date	JANUARY 2005
A	



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PLAINVILLE WATER AND SEWER DEPARTMENT

PIPE CHIMNEY

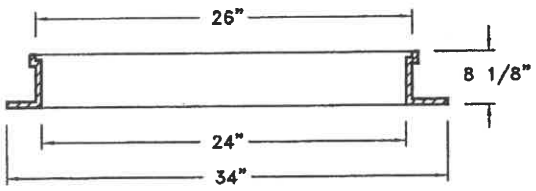
PLAINVILLE MASSACHUSETTS

Project No.	9100018
Proj. Mgr.	MLW
Scale	NOT TO SCALE
Date	JANUARY 2005
A	

COVER PLATE

MIN. WEIGHT = 150 LBS.

COVER SECTION



FRAME SECTION

MIN. WEIGHT = 250 LBS.

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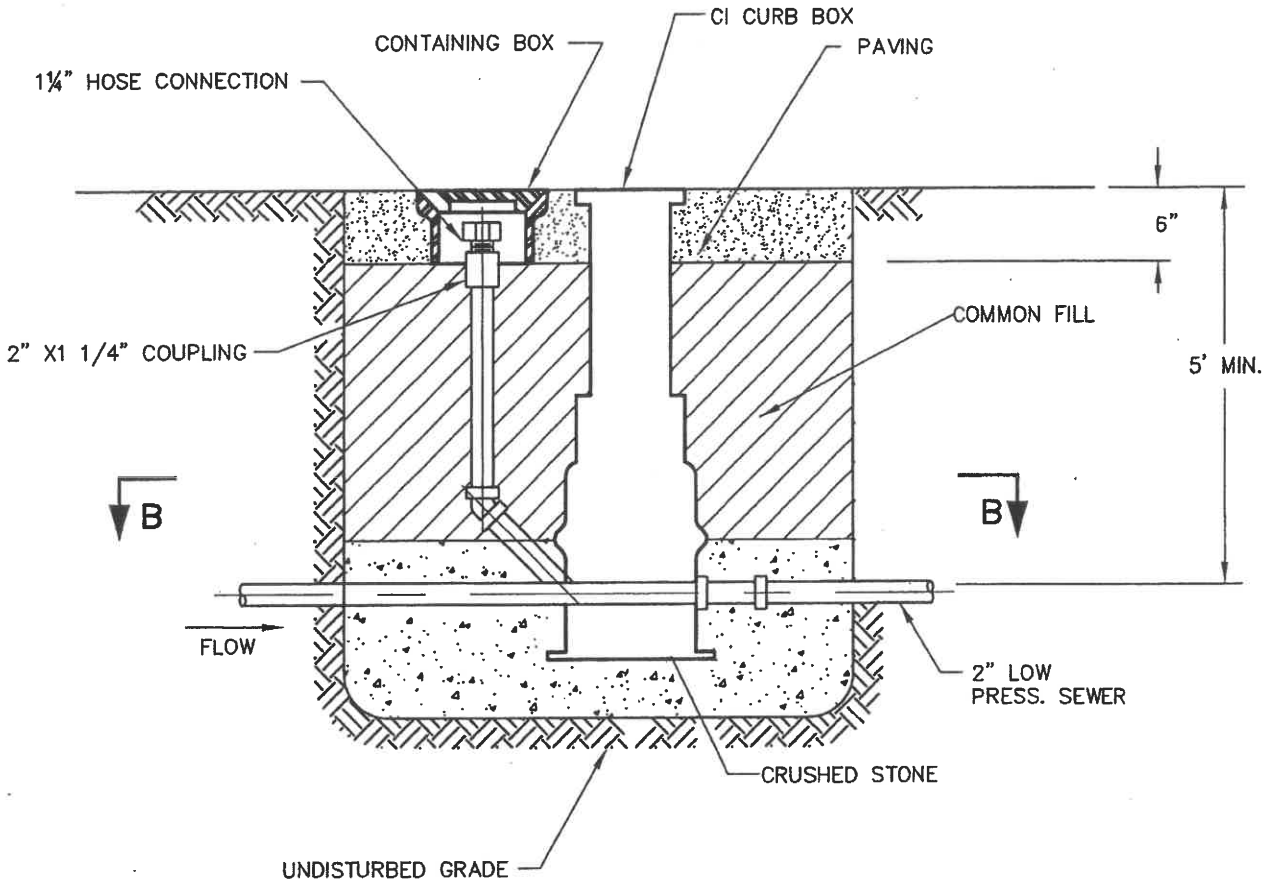
PLAINVILLE WATER AND SEWER DEPARTMENT

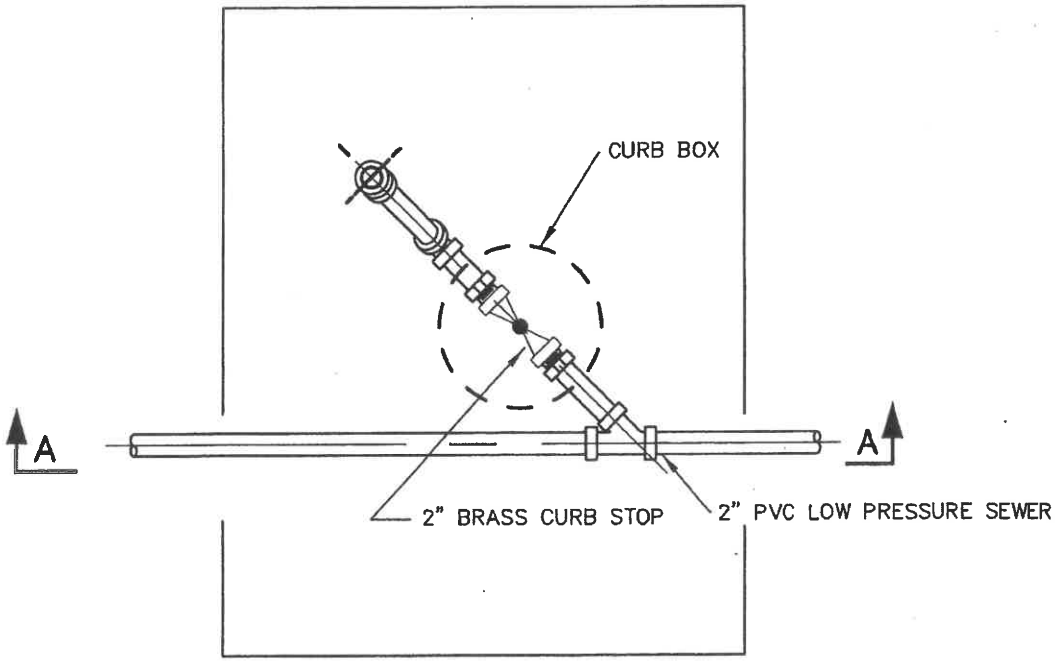
SEWER MANHOLE FRAME AND COVER

PLAINVILLE MASSACHUSETTS

Project No.	9100018
Proj. Mgr.	MLW
Scale	NOT TO SCALE
Date	JANUARY 2005
A	



SECTION A–A



SECTION B–B

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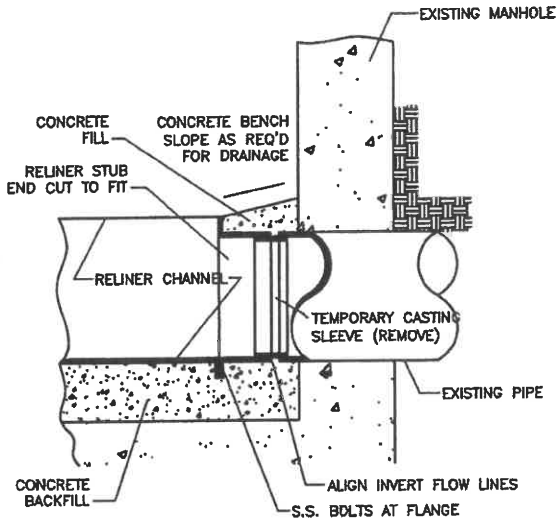
PLAINVILLE WATER AND SEWER DEPARTMENT

FORCE MAIN CLEANOUT

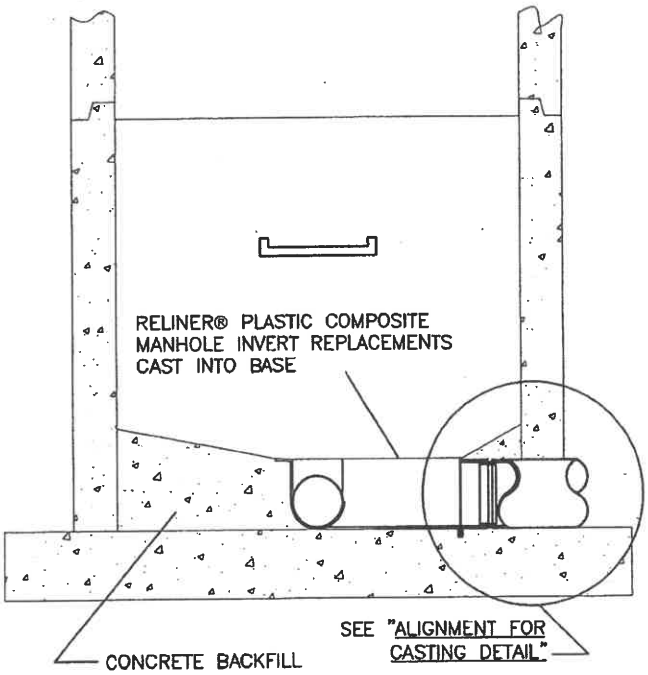
PLAINVILLE MASSACHUSETTS

Project No.	9100018
Proj. Mgr.	MLW
Scale	NOT TO SCALE
Date	JANUARY 2005
A	



TYPICAL DETAIL OF ALIGNMENT FOR CASTING

RELINER US PATENT #5553973



NOTES:

1) ALL MANHOLE STRUCTURES SHALL BE OUTFITTED WITH RELINER® PLASTIC COMPOSITE INVERT COMPONENTS PRODUCED BY:

RELINER/DURAN, INC.
53 MT. ARCHER ROAD
LYME, CT. 06371
www.reliner.com
(800) 508-6001 FAX: (860) 434-3195

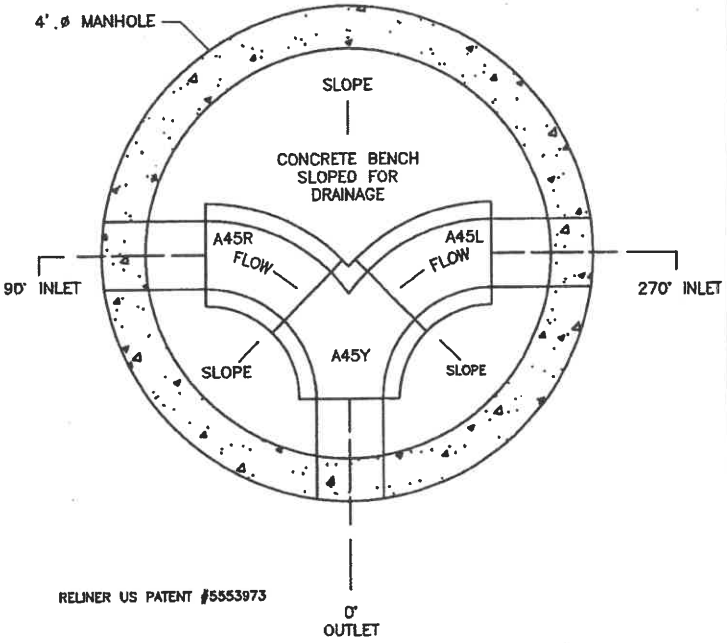
2) ALL CHANNELS SHALL BE AT LEAST THE SAME DEPTH AS THE ABOVE PIPE AND SHALL BE FIELD TRIMMED AND ASSEMBLED AS PER MANUFACTURERS INSTRUCTIONS.

3) CONCRETE BACK FILL SHALL BE PROPERLY PLACED AND GRADED SO AS TO PROVIDE SMOOTH, WELL-DRAINED SLOPING BENCHES.

4) PIPE ALIGNMENT SHALL BE MAINTAINED DURING BACK FILL BY USE OF EXTERNAL ADAPTERS , INFLATABLE PLUGS OR TEMPORARY INTERNAL CASTING SLEEVES (SEE DETAIL).

5) CONTRACTOR SHALL INSPECT EACH MANHOLE AND VERIFY COMPONENTS REQUIRED TO OUTFIT EACH STRUCTURE.

RELINER US PATENT #5553973
ADDITIONAL PATENTS PENDING



PLAN VIEW OF A TYPICAL "Y" INVERT USING RELINER COMPONENTS

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PLAINVILLE WATER AND SEWER DEPARTMENT

Y INVERT IN MANHOLE

PLAINVILLE MASSACHUSETTS

Project No.	9100018
Proj. Mgr.	MLW
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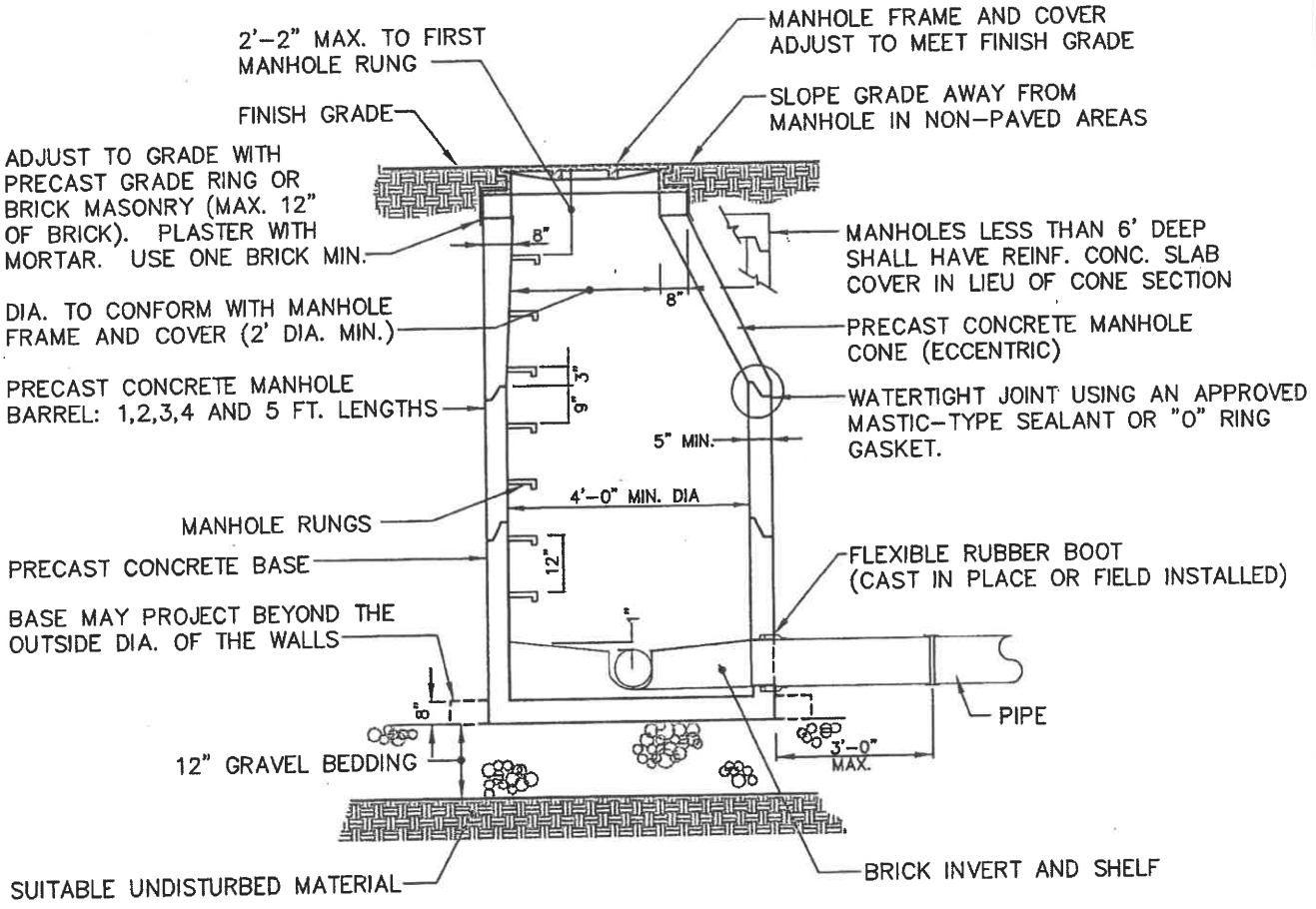
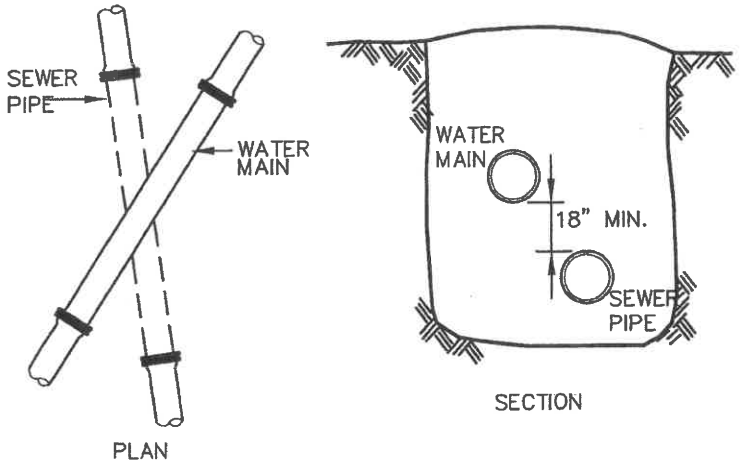


Dufresne-Henry Westford, Massachusetts Tel. (978) 692-1913 www.dufresne-henry.com	PLAINVILLE WATER AND SEWER DEPARTMENT **SEWER MANHOLE** PLAINVILLE MASSACHUSETTS	Project No. 9100018 Proj. Mgr. MLW Scale NOT TO SCALE Date JANUARY 2005 A



NOTE: AT WATER LINE CROSSINGS WHERE CLEARANCE BETWEEN WATER AND SEWER PIPES IS LESS THAN 18", SEWER PIPE SHALL BE SDR 26 PVC FOR A MIN. OF 20' EITHER SIDE OF THE CROSSING OR A TOTAL OF 3 PIPE LENGTHS, WHICHEVER IS GREATER. ONE FULL LENGTH OF SEWER PIPE SHALL BE CENTERED OVER WATER PIPE WITH SEWER JOINTS AS FAR AS POSSIBLE FROM WATER JOINTS. THE SEWER SECTION MUST BE PRESSURE TESTED TO MAINTAIN 50 PSI FOR 15 MINUTES WITHOUT LEAKAGE PRIOR TO BACKFILLING BEYOND ONE FOOT ABOVE THE PIPE TO ASSURE WATER TIGHTNESS.

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PLAINVILLE WATER AND SEWER DEPARTMENT

SEWER - WATER CROSSING

PLAINVILLE MASSACHUSETTS

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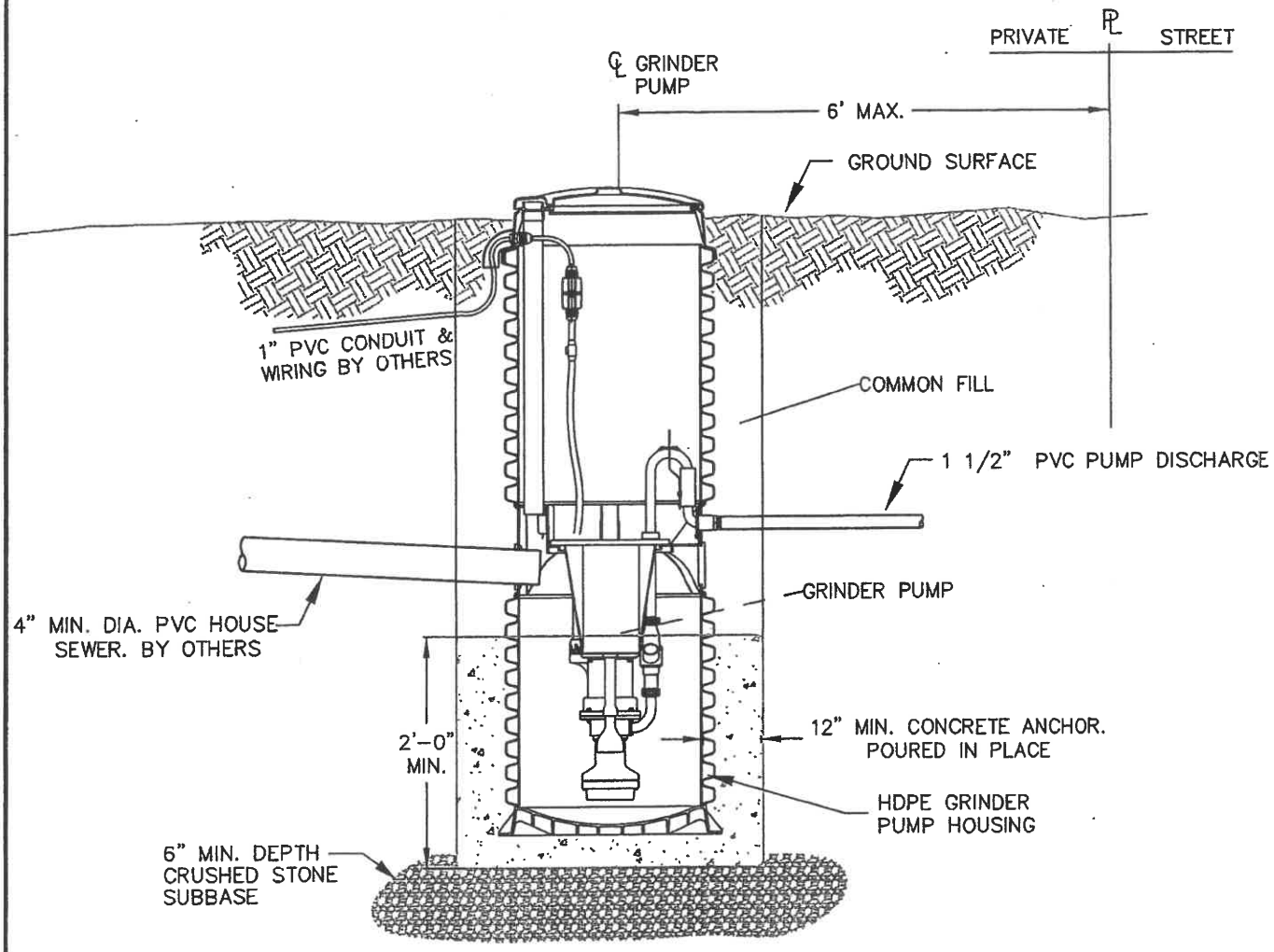

NOTE:

A CONCRETE ANCHOR OF 370 LBS. (2.5 CuFt) PER FOOT OF TOTAL STATION HEIGHT IS REQUIRED TO PREVENT TANK FROM FLOATING.

CONTRACTOR RESPONSIBLE FOR FURNISHING AND INSTALLING GRINDER PUMP UNIT AT PROPERTY LINE LOCATION AND PROVIDING CONTROL UNIT TO HOMEOWNER.

HOMEOWNER RESPONSIBLE FOR THE CONNECTION OF THE GRINDER PUMP AND CONTROLS.

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GRINDER PUMP

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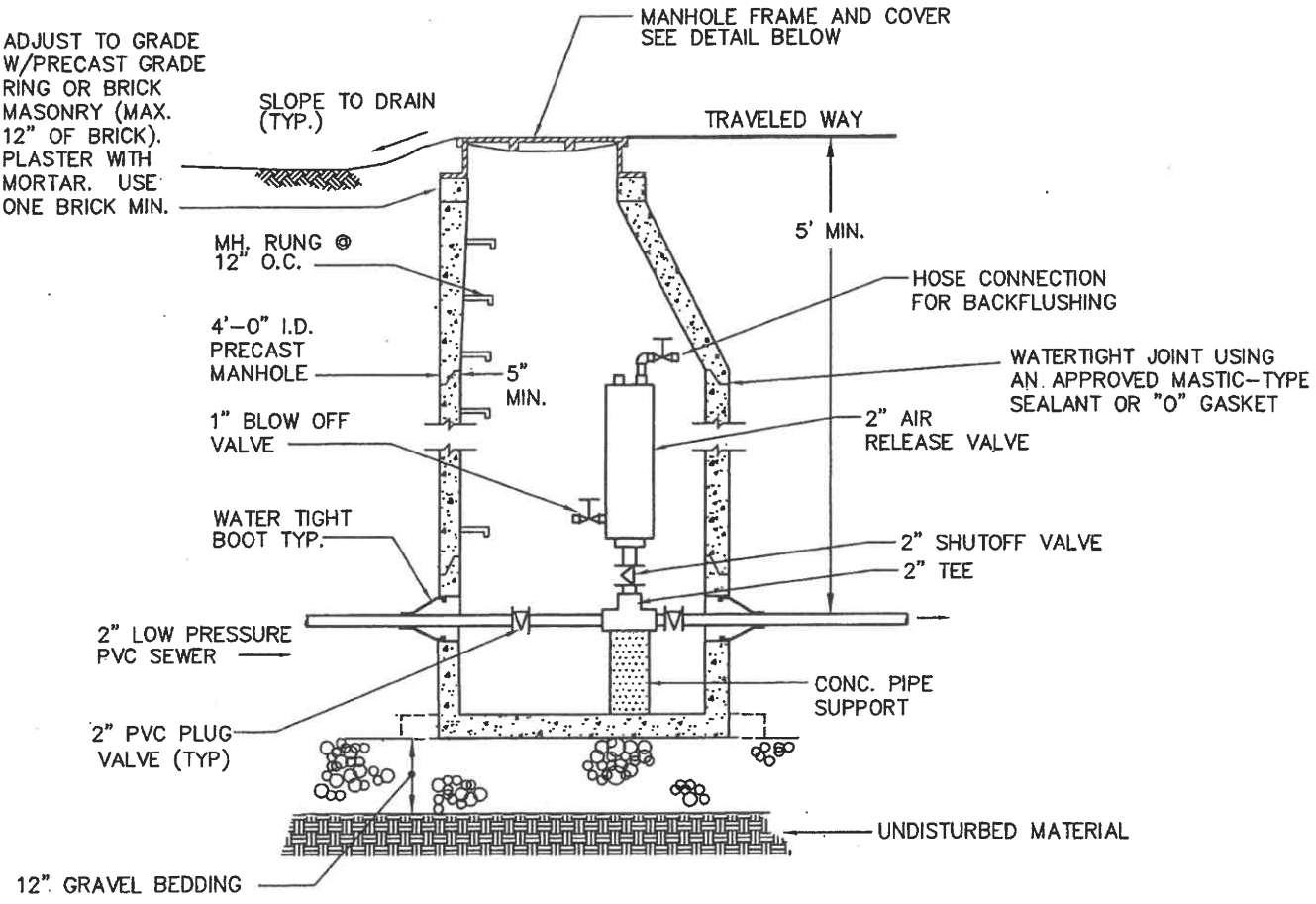

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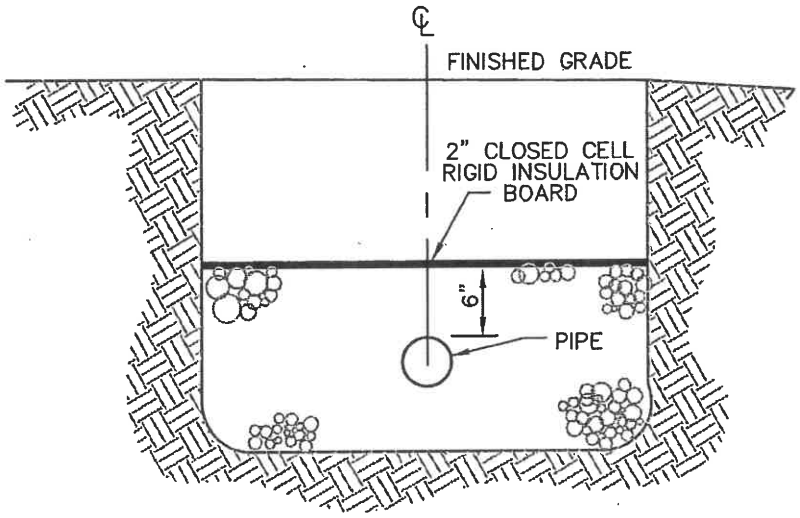

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PLAINVILLE WATER AND SEWER DEPARTMENT

RIGID INSULATION

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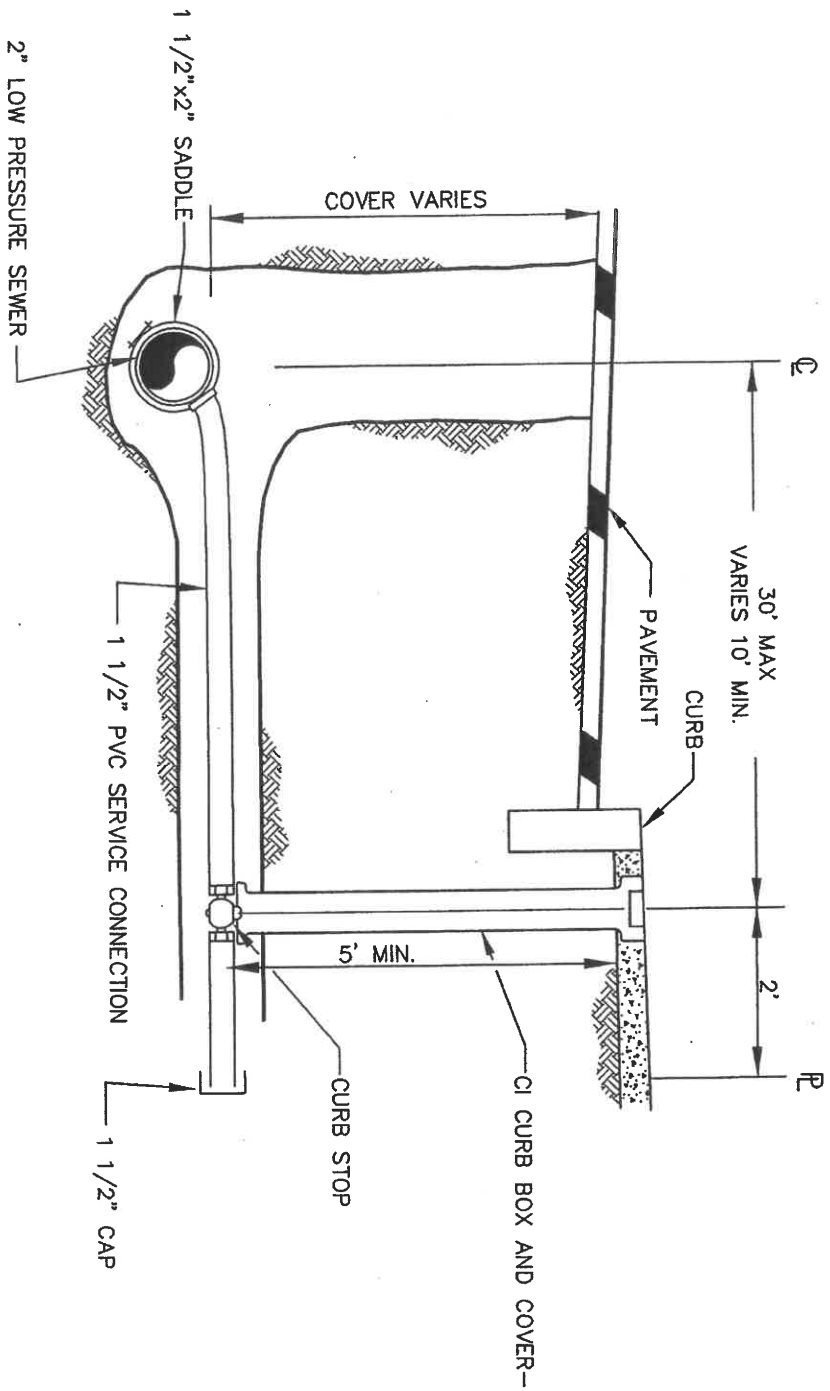

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PLAINVILLE WATER AND SEWER DEPARTMENT

SERVICE CONNECTION - LOW PRESSURE

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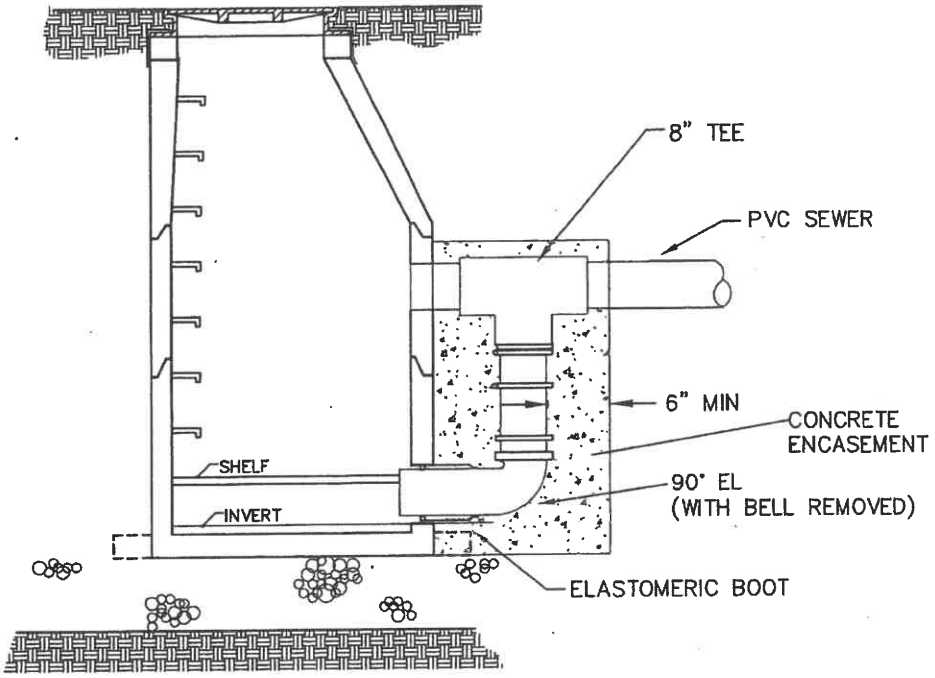

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PLAINVILLE WATER AND SEWER DEPARTMENT

EXTERNAL DROP CONNECTION

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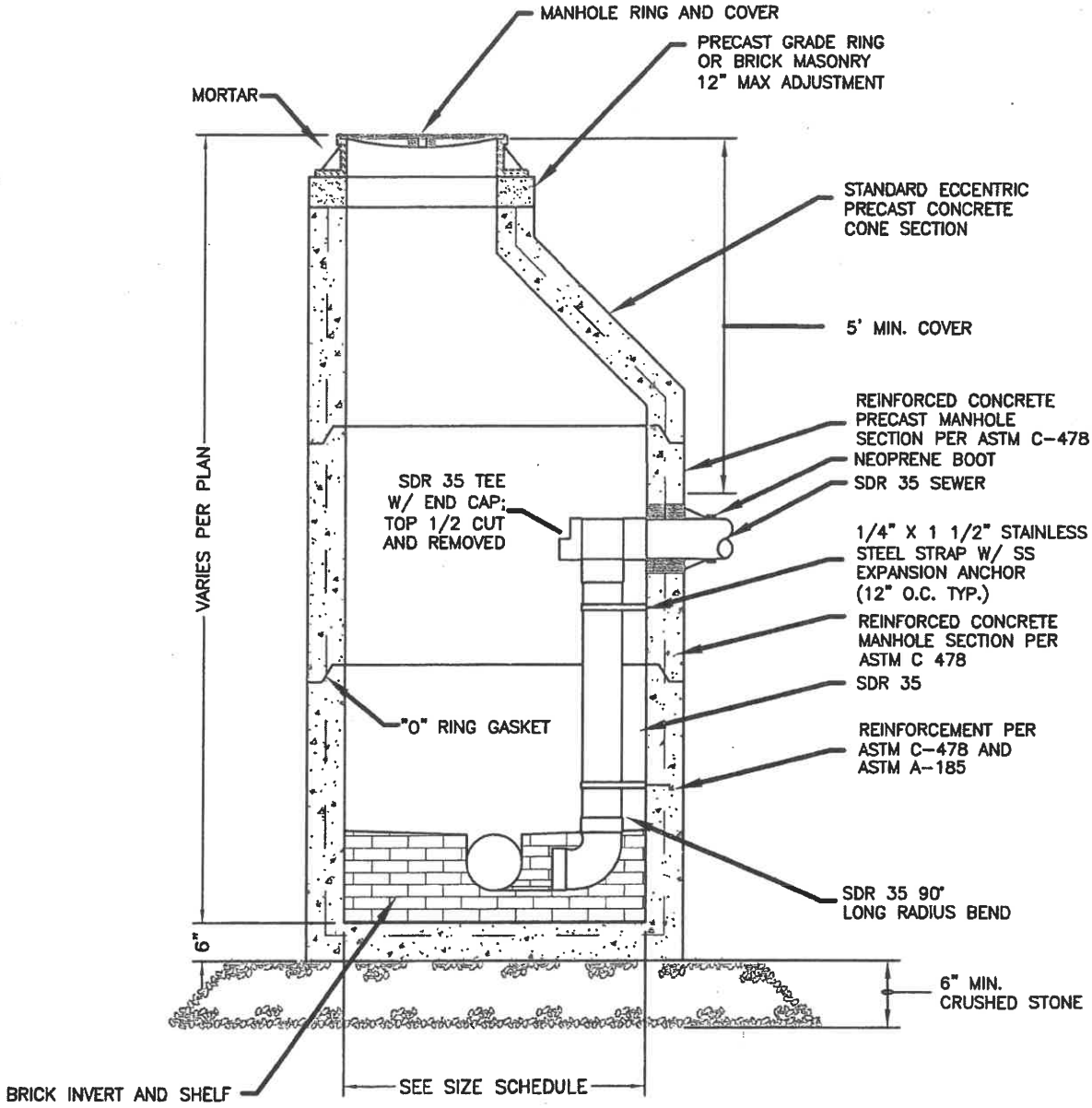

MANHOLE DIAMETER SIZE GUIDE

1 – 8" OR 10" DROP – 4 FT. DIA. MH
2 – 8" OR 10" DROP – 5 FT. DIA. MH
1 – 12" OR 15" DROP – 5 FT. DIA. MH

NOTE:

1. MANHOLE STRUCTURE TO BE CAPABLE OF SUPPORTING AASHTO H-20 LOADING
2. SEE ALSO, SEWER MANHOLE STANDARD DETAIL.

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INTERNAL DROP MANHOLE 1

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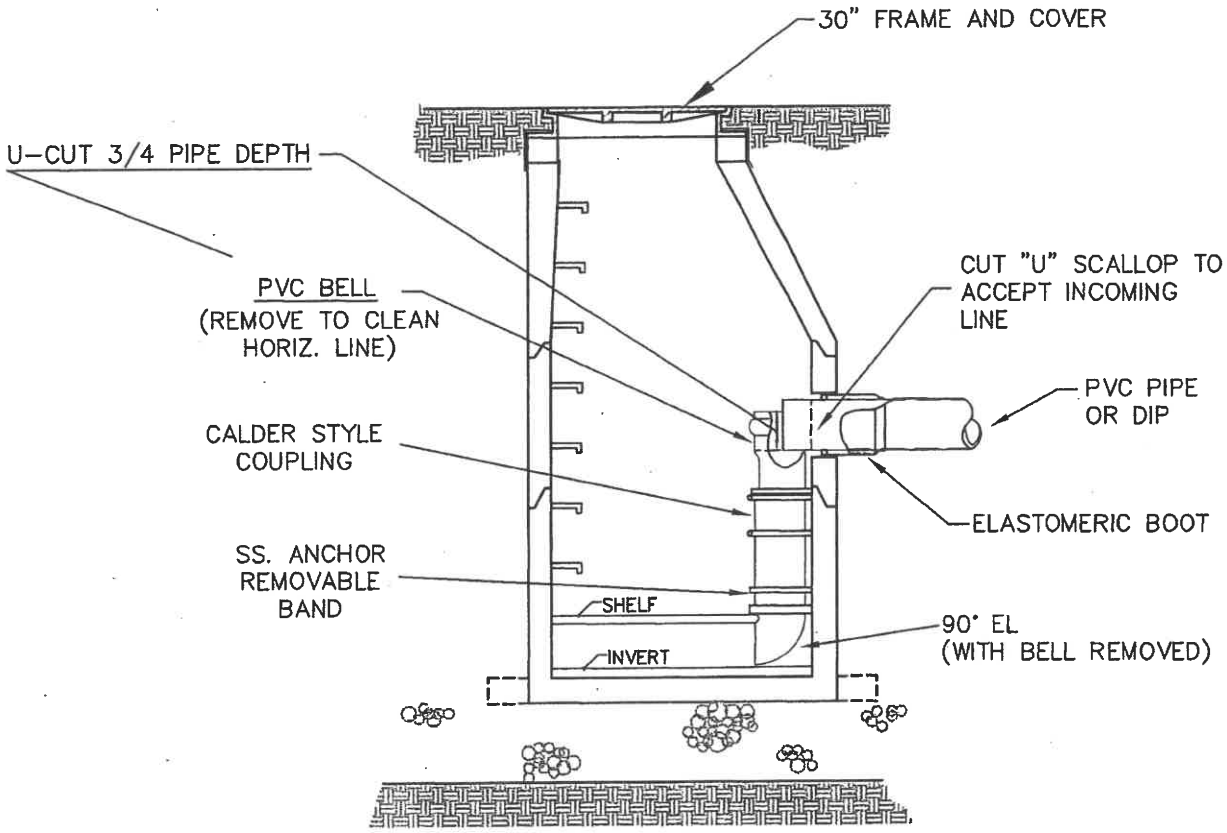
SIZE GUIDE: (1) – 8" OR 10" DROP
(1) – 12" DROP
(1) – 15" DROP
: 5'–0" DIA MANHOLE



NOTE:
SEE TYPICAL PRECAST CONCRETE MANHOLE DETAIL FOR NOTES AND ADDITIONAL INFORMATION

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PLAINVILLE WATER AND SEWER DEPARTMENT

INTERNAL DROP MANHOLE 2

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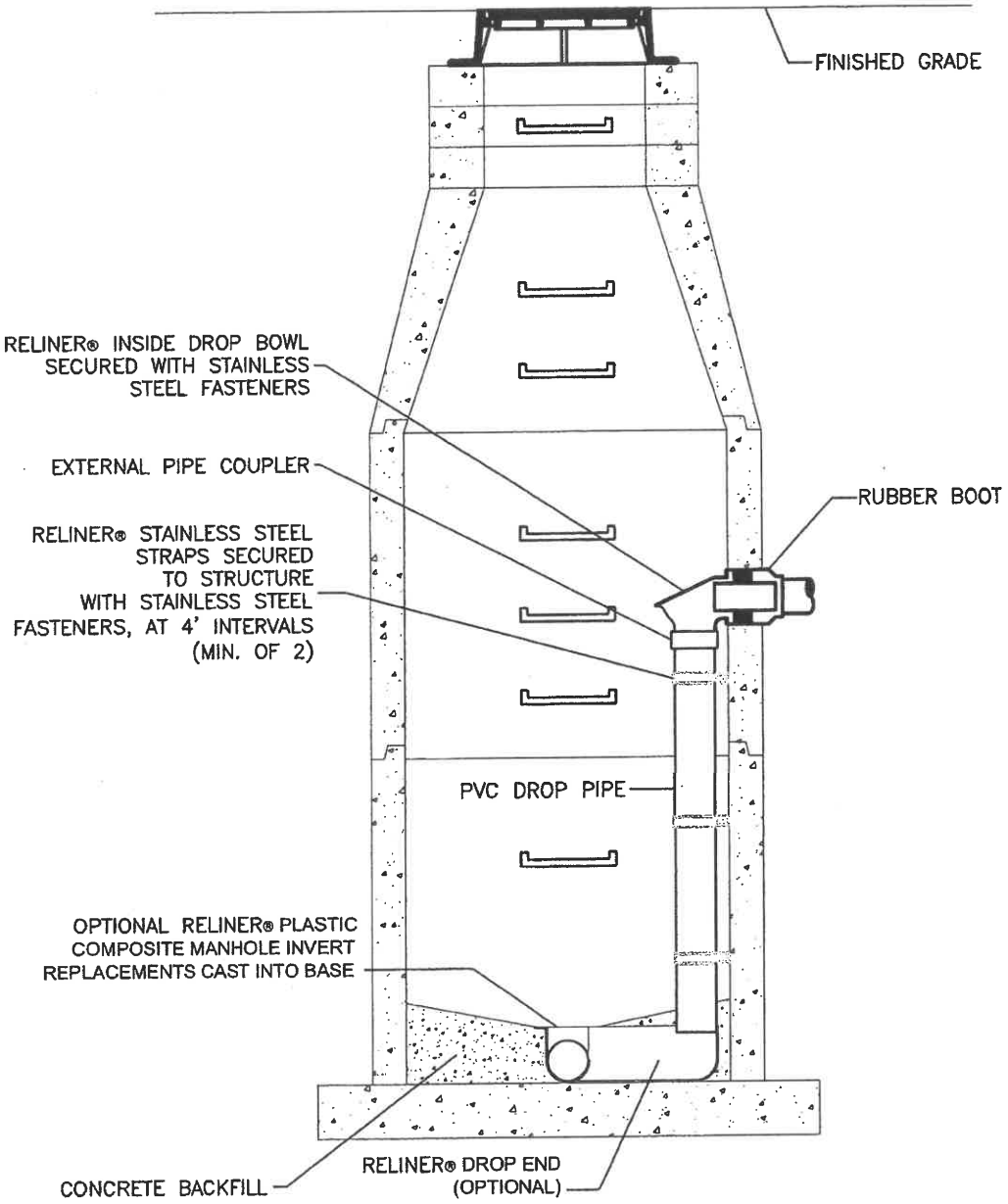

Drop Bowl U.S. Pat. # 6074130
RELINER U.S. Pat. # 5553973
Additional Patents Pending

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PLAINVILLE WATER AND SEWER DEPARTMENT

INTERNAL DROP MANHOLE 3

PLAINVILLE MASSACHUSETTS

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