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HALIFAX AREA WATER AND SEWER AUTHORITY

SEWER SERVICE APPLICATION

PROPERTY ADDRESS: _____
PROPERTY OWNER: _____
MAILING ADDRESS: _____

CONTACT PERSON: _____
TELEPHONE NUMBER: _____
ACCOUNT NUMBER: _____
TYPE OF ACCOUNT: _____ RESIDENTIAL _____ COMMERCIAL
_____ OTHER (SPECIFY): _____
LATERAL SIZE: _____
NUMBER OF EQUIVALENT DWELLING UNITS: _____
DATE SERVICE REQUIRED: _____
NEW CONSTRUCTION: _____ YES _____ NO
OWNERSHIP TRANSFER: _____ YES _____ NO
SPECIAL CIRCUMSTANCES: _____

By signing this Application, the applicant agrees to abide by the Rules and Regulations of the Halifax Area Water and Sewer Authority, in particular the provisions governing the terms, conditions, fees and charges relating to sewer service.

SIGNATURE OF APPLICANT

SIGNATURE OF APPLICANT

DATE

APPLICATION REQUEST FOR SEWER SERVICE MUST BE SUBMITTED AT LEAST SEVEN (7) DAYS BEFORE SERVICE IS REQUIRED.

AUTHORITY USE ONLY

INSPECTION DATE: _____ INSPECTOR: _____
FEES PAID: _____

Please complete and return to:

Halifax Area Water and Sewer Authority
Post Office Box 443
Halifax, PA 17032

HALIFAX AREA WATER AND SEWER AUTHORITY

RESOLUTION No. _____

OF THE BOARD OF HALIFAX AREA WATER AND SEWER AUTHORITY AMENDING THE RESOLUTION OF THE FORMER HALIFAX MUNICIPAL AUTHORITY DECEMBER 19, 1996 WITH RESPECT TO FUTURE ADDITIONS TO BE CONSTRUCTED, ACQUIRED, MAINTAINED AND OPERATED BY THIS AUTHORITY AND FOR SERVICES RENDERED BY THIS AUTHORITY IN CONNECTION THEREWITH, UPON OWNERS OF IMPROVED PROPERTY THAT ARE CONNECTED TO SUCH SEWER SYSTEM; INCLUDING, BUT NOT LIMITED TO DEFINING WORDS AND TERMS; REQUIRING CONNECTION TO THE SEWAGE SYSTEM; REGULATING THE ADMISSION OF INDUSTRIAL WASTE, HOLDING TANK WASTE, TRUCKED INDUSTRIAL WASTE AND SEPTAGE; EXCLUDING UNACCEPTABLE WASTES; PROVIDING FOR CERTAIN SERVICE CHARGES AND SURCHARGES; PROVIDING PROCEDURES FOR BILLING AND COLLECTION; PRESCRIBING PENALTIES FOR DELINQUENCIES AND VIOLATIONS; AND ADOPTING CERTAIN RULES AND REGULATIONS AND PROVIDING FOR ADOPTION OF ADDITIONAL RULES AND REGULATIONS.

WHEREAS, this Authority has constructed, has plans to further construct and/or acquire, to maintain and to operate a sanitary sewage collection, transportation and treatment system, including all related and necessary facilities, for rendering sewerage service in the Borough of Halifax and in parts of the Township of Halifax; and

WHEREAS, this Authority, in accordance with authority vested in it by law, desires to fix and charge rental rates and charges for use of the Sewer System and for services rendered by this Authority in connection therewith;

NOW, THEREFORE, BE IT RESOLVED by the Board of this Authority as follows:

SECTION ONE -DEFINITIONS

§ 1.1 -Definitions: Unless the context specifically and clearly shall indicate otherwise, the meanings of terms and phrases used in this Resolution shall be as follows:

(1) "**Apartment - Office Use**" shall mean and refer to a building which is intended to be used for continuous or periodic habitation by human beings and containing two (2) or more family dwellings units; or which contains business or professional offices and one or more family dwelling units; or which contains business, professional or any other similar type of office or offices.

(2) "**Authority**" shall mean Halifax Area Water and Sewer Authority, a Pennsylvania municipal authority.

(3) "**Borough**" shall mean the Borough of Halifax, Dauphin County, Pennsylvania, a Pennsylvania municipality.

(4) "**Baseline Monitoring Report**" shall refer to the report required in 40 CFR Part 403.12, to be submitted by all Industrial Users and Waste Generators subject to Categorical Pretreatment Standards.

(5) "**Biochemical Oxygen Demand (BOD₅)**" shall mean the quantity of dissolved oxygen consumed in the biochemical oxidation of the organic matter in sewage, Holding Tank Waste, Septage or Trucked Industrial Waste under standard laboratory procedures in five (5) days at twenty (20°) degrees Celsius, expressed in milligrams per liter (mg/L). It shall be determined by an acceptable method described in 40 CFR Part 136 and amendments hereto or any method approved by EPA.

(6) "**Categorical Pretreatment Standards**" shall mean pollutant discharge limits promulgated by EPA in accordance with Section 307 of the Clean Water Act that apply to regulated Process Waste. They are based on the capability of a specific waste water treatment technology or a series of technologies to reduce pollutant discharges equivalent to best available technology (BAT).

(7) "**Clean Water Act (CWA)**" shall refer to Public Law 92-500, October 18, 1972, 33 USC 1251 et seq.; as amended by PL 95-217, December 28, 1977; PL 97-117, December 29, 1981; PL 97-440, January 8, 1983, and PL 100-04, February 4, 1987.

(8) "**Combined Sewer**" shall mean a sewer designed to receive both sewage and storm water runoff which has been approved for such purpose.

(9) "**Commercial Use or Commercial Establishment**" shall refer to a property which is intended to be used for the purpose of carrying on a trade, business or profession, or for social, religious, educational, charitable or public uses.

(10) "**Commercial/Industrial Discharge Permit**" shall refer to a permit issued to those Industrial Users that the Authority does not classify as Significant Industrial Users, but are

considered to have a minor impact, either potential or realized, either singly or in combination with other contributing Commercial or Industrial Establishments, on the Sanitary Sewer System and/or the Wastewater Treatment Facility (either its operational efficiency, effluent quality or quality of the sludge produced by such facility).

(11) "**Composite Sample**" shall mean a sample consisting of a combination of individual samples regardless of flow, obtained at regular intervals over a period of time and shall reasonably reflect the actual discharge conditions for that period of time.

(12) "**Daily Composite Sample**" shall mean a sample consisting of a combination of individual samples, regardless of flow, collected at regular intervals over a period of time; the sampling duration shall be not less than twenty (20) hours, but shall not exceed twenty-eight (28) hours.

(13) "**Department of Environmental Protection (DEP)**" shall mean the Department of Environmental Protection of the Commonwealth of Pennsylvania, or any department or agency of the Commonwealth succeeding to the existing jurisdiction or responsibility of the Department of Environmental Protection.

(14) "**Domestic Use**" shall mean and refer to a property which is intended to be used for continuous or periodic habitation by human beings in a single-family unit.

(15) "**Domestic User**" shall mean any person discharging only Sanitary Sewage.

(16) "**Dwelling Unit**" shall mean any room, group of rooms, house trailer or other enclosure occupied or intended for occupancy as separate living quarters by a family or other group of persons living together or by persons living alone or the equivalent thereof as delineated herein.

(17) "**Equivalent Dwelling Unit (EDU)**" shall mean a dwelling consisting of a room, group of rooms, house trailer or other enclosure occupied or intended for occupancy as a separate living quarters by a family or persons living together or by persons living alone. The value of sewage generated by one (1) EDU, for purposes of this Resolution, shall be as specified in the current Tapping Fee Resolution.

(18) "**Environmental Protection Agency (EPA)**" shall mean the Environmental Protection Agency of the United States, or any agency or department of the United States succeeding to the existing jurisdiction or responsibility of the Environmental Protection Agency.

(19) "**Garbage**" shall mean solid wastes from the preparation, cooking and dispensing of food and from the handling, storage and sale of produce.

(20) "**Grab Sample**" shall mean a sample taken from a waste stream on a one time basis with no regard to the flow in the waste stream and collected over a period of time not exceeding 15 minutes but shall reasonably reflect actual discharge conditions for that instant.

(21) "**Holding Tank**" shall mean a watertight receptacle designed to receive and retain

sewage and is constructed to facilitate the ultimate disposal of the sewage at another site.

(22) "**Holding Tank Waste**" shall refer to Sanitary Sewage that is certified, by the generator and Waste Hauler licensed by the Authority, to originate from normal household functions, and that is stored in such a manner so as not to concentrate said waste to level of Nonfilterable Residue exceeding 1,000 mg/L nor a level of COD exceeding 2,000 mg/L, the measurement of such Total Suspended Solids being performed by Authority Staff, and shall include sanitary sewage removed from Holding Tanks such as, but not limited to chemical toilet wastes, retention tank wastes and vault privy wastes.

(23) "**Improved Property**" shall mean any property upon which there is erected a structure intended for continuous or periodic habitation, occupancy or use by human beings or animals, and from which structure sanitary sewage and/or industrial wastes shall be or may be discharged.

(24) "**Industrial Use or Establishment**" shall refer to a property which is intended to be used in whole or in part for the manufacture, conversion or assembly of any product, commodity or article.

(25) "**Industrial User**" shall mean any contributor discharging to the Wastewater Treatment Facility through direct connection (as opposed to discharging to the Wastewater Treatment Facility through a Waste Hauler) which is not a Domestic User.

(26) "**Industrial User Permit**" shall refer to the permit issued to a Significant Industrial User by the Authority pursuant to this Resolution.

(27) "**Industrial Wastes**" shall mean any liquid, gaseous or waterborne wastes from Industrial or Commercial Establishments, establishments, or wastes having those characteristics of Unacceptable Wastes enumerated in §7.2 of this Resolution, that are discharged into Public Sanitary Sewage System through direct connection (as opposed to discharge by a Waste Hauler), that is other than Sanitary Sewage.

(28) "**Interference**" shall mean a discharge which, alone or in conjunction with a discharge or discharges from other sources, inhibits or disrupts the Wastewater Treatment Facility, its treatment processes or operations, or its sludge processes, end-use, or disposal and results in a violation of any requirement of the Wastewater Treatment Facility's NPDES permit or prevents sludge use or disposal in compliance with applicable Federal statutes, permits or regulations, or that results in a violation of any requirement of the Air Pollution Control Act.

(29) "**Line A**" shall mean the lines and extensions comprising the original sewer system.

(30) "**Line B**" shall mean the extension constructed and added in 1994 leading from the sewage plant to a point on the line near the Halifax shopping plaza designated "manhole #317."

(31) "**Line C**" shall mean the extension constructed and added in 1996 that runs from a point on the line near the Halifax shopping plaza designated "manhole #317", to a point on the line near the current or former Sheetz Convenience Store designated "manhole #325. "

(32) "**National Pollutant Discharge Elimination System Permit (NPDES Permit)**" shall mean a permit issued under the National Pollutant Discharge Elimination System (NPDES) for discharge of wastewaters to the navigable waters of the United States pursuant to Section 402 of the CWA, as amended.

(33) "**New Source**" shall mean any building, structure, facility or installation from which there is or may be a discharge of Pollutants, the construction of which commenced after the publication of proposed Pretreatment standards under Sections 307 (c) of the Clean Water Act which shall be applicable to such source if such standards are thereafter promulgated in accordance with that Section, provided that: (a) the building, structure, facility or installation is constructed at a site at which no other source is located; or (b) the building, structure, facility or installation totally replaces the process or production equipment that causes the discharge of Pollutants at an existing source; or (c) the production or wastewater generating processes of the building structure, facility or installation are substantially independent of an existing source at the same site. In determining whether these are substantially independent, factors such as the extent to which the new facility is integrated with the existing plant, and the extent to which the new facility is engaged in the same general type of activity as the existing source should be considered. Determination of "New Source" status shall be consistent with the provisions of 40 CFR Part 403.3 (k) (1), (k) (2) and (k) (3).

(34) "**Ninety (90) Day Compliance Report**" shall refer to the report required by 40 CFR Part 403.12 (d) and which describes the User's compliance status with Categorical Pretreatment Standards, to be submitted by all Industrial Users or Waste Generators subject to Categorical Pretreatment Standards.

(35) "**Occupied Building**" shall mean any structure erected and intended for continuous or periodic habitation, occupancy or use by human beings or animals, and from which structure Sanitary Sewage and Industrial Wastes, or either thereof, is or may be discharged.

(36) "**Owner**" shall mean any person vested with ownership, legal or equitable, sole or partial, or any improved property, or his authorized representative.

(37) "**Passthrough**" shall mean a discharge which exits the Wastewater Treatment Facility into waters of the United States in quantities or concentrations which, alone or in conjunction with other discharges, is a violation of the Wastewater Treatment Facility's NPDES permit.

(38) "**Person**" shall include an individual, a partnership, an association, a corporation, a joint stock company, a trust, an unincorporated association, a governmental body, a political subdivision, a municipality, a municipality authority or any other group or legally recognized entity. The masculine gender shall include the feminine, singular shall include the plural where indicated by the context.

(39) "**pH**" shall mean the measure of the intensity of the acidic or alkaline character of a material, liquid or solid. pH is represented on a scale of 0 to 14 with 7 representing a neutral state, 0 representing the most acidic, and 14 the most alkaline. It shall be determined by one of the acceptable methods described in 40 CPR Part 136 and amendments thereto, or by any method

approved by EPA.

(40) "**Pollutants**" shall mean dredged soil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discharged equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water, or any material that, when added to water, shall render that water (either because of the nature or quantity of the material) unacceptable for its original intended use.

(41) "**Pollution**" shall mean the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.

(42) "**ppm**" shall mean parts per million by weight.

(43) "**Premises Accessible to the Public Sanitary Sewage System**" shall mean any real estate abutting on or adjoining or having access to any street, alley or right-of-way in which a sewer is located which ultimately connects to the public sanitary sewage system upon which the principal building is within one hundred fifty (150) feet of such sewer.

(44) "**Pretreatment Administrator**" shall mean the Person designated by the Authority to administer the monitoring and enforcement of Industrial Waste Pretreatment for industrial and commercial contributors of the Wastewater Treatment Facility. The Manager of the Authority shall serve as Pretreatment Administrator for the purpose of this Resolution absent a specific designation.

(45) "**Pretreatment or Treatment**" shall mean the reduction of the amount of Pollutants, the elimination of Pollutants, or the alteration of the nature of pollutant properties in wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such Pollutants into the Public Sanitary Sewage System. The reduction or alteration can be obtained by physical, chemical or biological processes or process changes by other means.

(46) "**Pretreatment Facility or Plant**" shall mean the processes or equipment used by a User to reduce the amount of pollutants, eliminate Pollutants, or alter the nature of pollutant properties in wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such Pollutants into the Public Sanitary Sewage System. Pretreatment Facilities or Plants shall include, but are not limited to, systems designed to remove metals, grease/oil, *BODs*, Total Suspended Solids and toxic organics.

(47) "**Process Wastewater**" shall mean any water which, during manufacturing or processing, comes into direct contact with or results from the production of or use of any raw material, intermediate product, finished product, by product or waste product, excluding sanitary noncontact cooling water and boiler blowdown.

(48) "**Properly Shredded Garbage**" shall mean the wastes from the preparation, cooking and dispensing of food and from the handling, storage and sale of produce that have been shredded to such degree that all particles shall be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one-half (1/2) inch in any

dimension.

(49) "**Public Sanitary Sewage System (sometimes called the "Sewer System")**" shall mean all sanitary or combined sewers, all pumping stations, all force mains, all sewage treatment works, and all other sewage facilities owned or leased and operated by the Authority for the collection, transportation and treatment of Sanitary Sewage and Industrial Wastes together with their appurtenances, and any additions, extensions or improvements thereto. It shall also include sewers within the Authority's service area which serve one or more Persons and discharges into the Public Sanitary Sewage System even though those sewers may not have been constructed by the Authority, or are not located within the Township or Borough boundaries or are not owned or maintained by the Township or Borough. It does not include separate storm sewers or culverts which have been constructed for the sole purpose of carrying storm and surface runoff, the discharge from which is not and does not become tributary to the Wastewater Treatment Facility.

(50) "**Rate Schedule**" shall mean the schedule of sewer rental, tapping and related fees, and other rates, as may be adopted from time to time by the Authority.

(51) "**Responsible Individuals**" shall be: (1) the chief executive officer or the chief operating officer of the user facility if the Industrial User or Waste Generator is a corporation; (2) a partner or the general manager of the user facility if the Industrial User or Waste Generator is a partnership; or (3) the owner or the general manager of the user facility if the Industrial User or Waste Hauler is a proprietorship; and (4) the Person duly designated as the Responsible Individual by a corporation, partnership or proprietorship, provided, such Person shall be actually responsible for overall operation of the user facilities.

(52) "**Sanitary Sewage**" shall mean wastewater originating from Domestic Users containing human and customary household wastes, or such wastes from Commercial or Industrial establishments, but excluding Industrial Wastes.

(53) "**Sanitary Sewer**" shall mean a sewer which carries sewage and to which storm, surface and ground water are not intentionally admitted.

(54) "**Scheduled Sampling**" shall mean a Daily Composite or Grab Sample collected from a Significant Industrial User based on a schedule formulated in accordance with §7.2 of this Resolution.

(55) "**Septage**" shall refer to Waste that is generated in a Septic Tank as defined by this Section, for this purpose including septic tank components of an effluent collection system, and is certified by the generator and waste Hauler licensed by the Authority to originate from normal household functions and is concentrated or treated in such a manner so as to result in a concentration of total Suspended Solids between 1,000 mg/L and 30,000 mg/L, the measurement of such Total Suspended Solids being performed by Authority staff, or third party DEP certified laboratory in manner acceptable to the Authority.

(56) "**Septic Tank**" shall mean an individual wastewater treatment system designed to treat sanitary sewage through sedimentation, sludge digestion and liquid discharge. Septic tanks specifically manufactured for an effluent gravity or pumping collection system and approved by

the Authority for such connections may not be included in this definition depending on context.

(57) "**Service Agreement**" shall mean an individual written agreement entered into by this Authority and an individual or entity desiring service from the Sewer System.

(58) "**Sewage**" shall mean Sanitary Sewage and/or Industrial Wastes, carried either separately or in combination.

(59) "**Sewer**" shall mean a pipe or conduit for carrying sewage.

(60) "**Sewer System**" shall mean all facilities, as of any particular time, for collecting, pumping, transporting, treating and/or disposing of sanitary sewage and/or industrial wastes, situate in or adjacent to the Township or Borough, to be constructed and/or to be acquired, to be owned, to be maintained and to be operated by this Authority for rendering sewerage service in and adjacent to the Township or Borough.

(61) "**Shall**" is mandatory; "**may**" is permissive.

(62) "**Significant Industrial User**" shall mean all Industrial Users that are regulated by Categorical Pretreatment Standards, or any Industrial User of the Wastewater Treatment Facility who has a discharge flow of 25,000 gallons or more of Process Wastewater per average work day, or contributes a process wastestream which makes up five percent (5 %) or more of the average dry weather flow or organic (BOD₅) capacity of the Wastewater Treatment Facility, or is found by the Authority, EPA or DEP to have significant impact, either potential realized, either singly or in combination with other Wastes, on the Sanitary Sewer System and/or the Wastewater Treatment Facility (either its operational efficiency, effluent quality or quality of the sludge produced by said facility).

(63) "**Significant Noncompliance (SNC)**" shall mean any violation of pretreatment requirements (limits, sampling, analysis, reporting and meeting compliance schedules, and regulatory deadlines) is an instance of noncompliance for which the Industrial User is Liable for enforcement, including penalties. The following is the criteria used to determine SNC;

1. Violations of Wastewater discharge limits.

- a. Chronic violations -sixty six percent (66%) or more of the measurements exceed the same daily maximum limit or the same average limit in a six (6) month period (any magnitude of exceedance).
- b. Technical Review Criteria (TRC) violations. Thirty-three percent (33%) or more of the measurements exceed the same daily maximum limit or the same average by more than the TRC in a six (6) month period.
- c. Any other violation(s) of an effluent limit average or daily maximum that the Authority believes has caused, alone or in combination with other discharges, Interference or Pass through, or endanger the health of Wastewater Treatment Facility personnel or the public.

- d. Any discharge of a pollutant that has caused imminent endangerment to human health/welfare or to the environment and has resulted in the Wastewater Treatment Facility's exercise of its emergency authority to halt or prevent such a discharge.
2. Violations of compliance schedule milestones for starting, and completing construction and attaining final compliance by ninety (90) days or more after the schedule date.
3. Failure to provide reports for compliance schedules, self monitoring reports, or categorical standards within thirty (30) days from the due date.
4. Failure to accurately report noncompliance.
5. Any other violation or group of violations that the Authority considers to be significant.

For an Industrial User that is in SNC, the Authority must report the information to the approval authority as part of the Pretreatment Performance Summary of Industrial User noncompliance, list the Industrial User in the largest daily newspaper as having significant violations, and address SNC through appropriate enforcement action or document in a timely manner the reasons for withholding enforcement.

(64) "**Significant Waste Generator**" shall mean all Waste Generators that are regulated by Categorical Pretreatment Standards, or any Waste Generator who has a discharge frequency, flow or character that is found by the Authority, EPA or DEP to have significant impact on the Wastewater Treatment Facility (either its operational efficiency, effluent quality or quality of the sludge produced by said facility), either potential or realized, either singly or in combination with other wastes entering the Wastewater Treatment Facility.

(65) "**Slug Load**" shall mean any Pollutant (including but not limited to BOD₅, Total Suspended Solids, other conventional pollutants and toxics) released in a discharge at a flow rate or concentration which will cause Interference or Passthrough at the Wastewater Treatment Facility.

(66) "**Standard Industrial Classification (SIC)**" shall mean a classification pursuant to the Standard Industrial Classification Manual issued by the Executive Office of the President, Office of Management and Budget.

(67) "**Storm Sewer**" shall mean a sewer which is intended to carry storm water runoff, surface water, ground water drainage, etc., but which is not intended to carry any Sanitary Sewage or Industrial Waste.

(68) "**Storm Water Runoff**" shall mean that portion of precipitation which reaches a channel, trench, sewer or sink.

(69) "**Suspended Solids**" shall mean suspended solids as determined pursuant to the procedure set forth in the latest edition of "Standard Methods for the Examination of Water and Wastewater," as published by the American Public Health Association.

(70) "**Tapping Fee Resolution**" shall mean a resolution of this Authority, establishing the flow per EDU and the tapping fee to be assessed to users, generally implementing PA Act 57 of 2003, as may be amended from time to time.

(71) "**Total Phosphate as P (PO₄ as P)**" shall refer to the concentration of Total Phosphate in Sewage or Trucked Industrial Wastes as determined by an acceptable method referenced in 40 CFR part 136 and amendments thereto, or by any other method approved by EPA, expressed in mg/L as P.

(72) "**Total Suspended Solids (TSS)**" shall mean solids that either float to the surface or are in suspension in water, sewage, Industrial Waste or other liquids, and which are removable by laboratory filtration. The quantity of total Suspended Solids shall be determined by one of the acceptable methods described in 40 CFR Part 136 and amendments thereto, or by any method approved by EPA.

(73) "**Township**" shall mean the Township of Halifax, Dauphin County, Pennsylvania, a Pennsylvania municipal subdivision.

(74) "**Trucked Industrial Waste**" shall mean any liquid, gaseous or waterborne wastes from Industrial or Commercial Establishments, or leachate from sanitary landfills, or wastes having those characteristics of Unacceptable Wastes enumerated in Section Seven, as distinct from Sanitary Sewage, Holding Tank Wastes and Septage, that are transported by vehicle and discharged to the Public Sanitary Sewage System.

(75) "**Unpolluted Water or Waste**" shall mean water that has not had its pollutant level raised by the User, or any water or waste containing none of the following: detectable levels of free or emulsified grease or oil; pH less than 6.0 or greater than 9.0; phenols or other substances imparting taste and odor to receiving waters; toxic or poisonous substances in suspension, colloidal state or solution in levels that exceed State or Federal water quality or potable water quality criteria; obnoxious or odorous gases. It shall contain less than 500 mg/L of dissolved solids, 250 mg/L of chloride and 10 mg/L each of total suspended solids and BOD. The color shall not exceed 50 color units. Analysis of the parameters referenced in this definition shall be made in accordance with the methods listed in 40 CFR Part 136 and amendments thereto; if the parameter is not listed in 40 CFR part 136, the analysis shall be made in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater", published jointly by the American Waterworks Association, the American Public Health Association and the Water Pollution Control Federation, or "Methods of Chemical Analysis of Water and Wastes", published by EPA, or by any other method approved by EPA.

(76) "**Unscheduled Compliance Sampling**" shall mean a Daily Composite Sample or Grab Sample collected from a Significant Industrial User based on the issuance of a Notice of Violation.

(77) "**User**" shall mean any Person who contributes, causes or permits the contribution of Sewage into the Public Sanitary Sewage System.

(78) "**Waste**" shall refer to any Sewage, Trucked Industrial Waste, Holding Tank Waste or Septage discharged to the Township Public Sanitary Sewage System.

(79) "**Waste Generator**" shall refer to any generator of Trucked Industrial Waste.

(80) "**Waste Hauler**" shall refer to a Person licensed by the Authority to transport and discharge approved Holding tank Waste, Septage or Trucked Industrial Waste at the Wastewater Treatment Facility.

(81) "**Waste Hauler License**" shall refer to a license issued to a Waste Hauler by the Authority.

(82) "**Waste Permit**" shall refer to the permit issued by the Authority to a Significant Waste Generator, for a particular Trucked Industrial Waste.

(83) "**Wastewater Treatment Facility**" shall mean the wastewater treatment plant, including all machinery, equipment, land, building and appurtenant facilities operated by the Authority.

SECTION TWO -FEES AND CHARGES

§ 2.1 -Fees: There are hereby imposed Connection and Tapping Fees (pursuant to Act 57 of 2003, as may be amended from time to time) for each connection made to the sewer system that may consist of any or all of the following components as applicable, as further enumerated in the Rate Schedule:

- A. A **Connection Fee** (Lateral Installation Fee) shall be imposed for all service laterals installed between street main and the curbing by or at the expense of the Authority. This fee shall be based upon the cost to the Authority of making such an installation.
1. If the Service Lateral installation is being made as part of a sewer main extension project made by or at the expense of the Authority, the fee shall be as shown in the Rate Schedule.
 2. If the Service Lateral installation is being made as the result of a request from a property owner to connect to a sewer main installed by or at the expense of the Authority, (or by or at the expense of a property owner and for which no previous connection fee has been paid), the fee shall be equal to the estimated cost of installing the lateral. However, in no event shall the fee exceed the actual cost. Any amount by which the estimate exceeds the actual cost shall be refunded to the property owner.
- B. A **Customer Facilities Fee** (Inspection Fee) shall be imposed for the inspection of any building Sewer installation. Said fee shall be imposed under the following terms:
1. For installation of any Building Sewer in excess of one hundred fifty feet in length, the actual costs to the Authority of inspecting the installation.
 2. For all other installations, the amount shown in the Rate Schedule, which is a careful approximation of the actual cost.
- C. A **Tapping Fee** shall be imposed which may consist of any or all of the following parts as applicable:
1. **Capacity Part** - For each connection made to the Authority's sewer system, a Capacity Part of the Tapping Fee (Capacity Fee) shall be imposed as shown on the Rate Schedule. The fee shall apply to connections made to the Authority's existing system, additions to the system, and capped sewers whether built by the Authority or built by or at the expense of developers. This fee shall be based upon the costs of the Authority's capacity related facilities. This fee shall also be imposed whenever:
 - (a) A new building or facility with an estimated wastewater flow of at least one EDU is connected to an existing Building Sewer or the internal drainage system of an existing building or facility;

- (b) An existing building or facility is expanded in such a way that the increased potential for the generation of wastewater equals or exceeds one EDU. Flow estimates shall be made by the Authority based on sound engineering practice.
2. Collection Part - For each connection made to a new street main constructed by or at the expense of the Authority, a Collection Part of the Tapping Fee (Main Line Construction Fee) shall be imposed as shown in the Rate Schedule. This part of the fee shall be based upon the cost of the Authority's collection line facilities.
 3. Special Purpose Part - From time to time, as required at the sole discretion of the Authority, a special purpose part may be factored in as an additional component creating the total tapping fee.
 4. Reimbursement Part - The Reimbursement Part of the Tapping Fee shall be imposed only in those cases where it is necessary to recover costs which will be refunded to property owners as provided by Act 57 of 2003.
- D. The applicable Connection and/or Tapping Fees outlined above shall be due in total and payable at the time an application for permit is filed, in amounts identified in the Authority's Rate Schedule.
- E. In the event that the Authority grants permission for two or more connection units to be grouped together on one Service Lateral, it shall be with the understanding that Tapping Fees shall be due as though individual units were being connected.

§ 2.2 -Sewer Rentals or Charges: Sewer rentals or charges are imposed upon and shall be collected from the Owner of each Improved Property which shall be connected with the Sewer System, for use of the Sewer System, whether such use shall be direct or indirect, and which shall be payable as provided under the currently adopted Schedule of Rates in accordance with the terms outlined herein.

A. Residential

1. Each private dwelling unit shall be charged in accordance with the current Rate Schedule.
2. Each dwelling unit in a double house, in a row of connecting houses, in an apartment building or in any other multiple dwelling shall be billed as a separate entity. If two or more families use separate cooking and/or toilet facilities in an improved property, the sewer rental and charge payable hereunder shall be computed as though each such family was a separate user with a separate connection to a sewer.

B. Nonresidential

1. Commercial, industrial, clubrooms, taverns, firehouses, professional offices, hotels, restaurants, churches, service stations, garages, barber shops, funeral homes, beauty shops, drycleaners, laundromats, schools, institutions, hospitals, public buildings, etc.
2. Each owner of a nonresidential improved property which shall be connected to the original sewer system shall pay sewer rentals and charges, except as hereinafter provided, in accordance with the current Rate Schedule in effect for the portion of line being used, with such rates being per equivalent dwelling unit, on the basis of equivalent dwelling units, as set forth in the following classification or schedule:

	<u>Category</u>	<u>Equivalent Dwelling Unit(s)</u>
(a)	Each retail store, business, industry or office having 10 or less employees, attached to or forming a part of owner's residence	1
(b)	Each retail store, business industry or office having 10 or less employees, not attached to or forming part of owner's residence	1
	Each additional 10 employees or fraction thereof	1
(c)	Each restaurant, tavern or club having 15 or less seats	1
	Each 15 seats or fraction thereof of over 15	1
(d)	Each hotel, motel or boarding house, per rental room	0.5
(e)	Each service station, garage or automobile repair shop without car wash facilities	
	(1) Two bays or less	2
	(2) Each additional bay over two	1
(f)	Each service station, garage or automobile repair shop with manual car wash facilities	
	(1) Two bays or less	3
	(2) Each additional bay over two	1
(g)	Each laundromat - per washer	0.5
(h)	Each barber shop or beauty shop per five chairs or fraction thereof, whether or not attached to or forming part of owner's residence	1
(i)	Each firehouse or hall	1
(j)	Each church	1
(k)	Each swimming pool	6
(l)	Each school, public or private, having:	
	(1) Toilet facilities only per 30 pupils or fraction thereof	1
	(2) Toilet facilities and cafeteria per 25 pupils or fraction thereof	1

	<u>Category</u>	Equivalent Dwelling Unit(s)
	(3) Toilet facilities and gymnasium per 25 pupils or fraction	1
	(4) Toilet facilities, cafeteria and gymnasium per 20 pupils or fraction thereof	1
(m)	Each improved property having a commercial (3/4 hp or greater) garbage grinder, per grinder	1
(n)	Each funeral home	1
(o)	Each hospital, per 1 bed	1

3. If two or more private dwelling units, store, offices, industrial units, etc. are connected to the Sewer System through a single lateral, or if two or more types of use are made of the same improved property, the sewer rentals and charges payable hereunder shall be computed as though each such dwelling unit, store, office, industrial unit, etc. and each such type of use were a separate improved property or user with a separate connection to a sewer;
 4. Sewer rentals and charges for schools payable hereunder shall be computed on the basis of the average number of pupils enrolled during the regular school term preceding the applicable quarterly billing period. Employees, which shall include teachers and administrative and supervisory personnel, shall be treated as "pupils" for purposes of such computation.
 5. Sewer rentals and charges for businesses or industrial units payable hereunder shall be computed on the basis of the average number of employees (including individual owners and employers) for the calendar quarter immediately preceding the applicable quarterly billing period.
 6. If the owner of any nonresidential improved property (including any school) shall fail to provide this Authority with complete information required to compute the sewer rental and charge to such nonresidential improved property, this Authority may estimate a reasonable applicable sewer rental and charge for such nonresidential improved property and such estimated sewer rental, and charge shall be the actual sewer rental and charge payable until the required information is filed; provided, however, that no rebates will be paid by this Authority if the information filed reveals a lower indicated sewer rental and charge than that estimated by this Authority;
- C. Additional classifications and sewer rentals and charges or modifications of the above schedule of sewer rentals and charges may be established by this Authority, from time to time, as deemed necessary;
- D. Nothing herein contained shall be deemed to prohibit this Authority from entering into separate agreements with any owner (including the owner of any school) with respect

to sewer rentals and charges to be imposed in those cases where, due to seasonal fluctuations or other unusual circumstances, the sewer rentals and charges set forth herein shall be deemed by this Authority to be unfair or inequitable.

- E. Surcharges for industrial wastes or excess grease discharged to the Sewer System are referred to in Section Ten.

§ 2.3 -Ready-To-Serve Charges:

- A. By specific resolution of the Authority, a Ready-to-Serve Charge may be imposed upon all properties which may be lawfully required to connect to the Sewer System of the Authority, but which have not been connected thereto, provided that such Ready to Serve Charge shall be effective upon the expiration of at least 60 days after notice to connect to the Sewer System has been received in accordance with the requirements of the appropriate Ordinances of the Borough and Township.
- B. The Ready-to-Serve Charge shall be in an amount equal to the minimum quarterly charge applicable to the type of property available for connection to the Sewer System, and such charges shall be billed and collected at the same time and in the same manner as the rental charges already imposed by the Authority for the users of the Sewer System.

§ 2.4 -Estimated Discharge: Whenever any person discharges or permits to be discharged any material into the sewer system by any means other than through a connection approved in accordance with these regulations, the Authority reserves the right to estimate the quantity and strength of the material and to make an appropriate charge based on such estimate.

§ 2.5 -Liens: Any charge for fees encompassed within this Subsection shall be due immediately upon notice of such fee imposed or at the time indicated upon such notice. Fees charged pursuant to this Section shall be a lien on the affected property upon the filing of the same with the Office of Prothonotary in Dauphin County, Pennsylvania.

§ 2.6 -Collection Costs:

- A. Pursuant to applicable state law, reasonable attorney's fees and other costs of collection shall be charged and become a lien on the affected property after notice from the Authority. A copy of the Authority's Rate Schedule and notice of nonpayment shall be sent to each customer before such fees are charged.
- B. Attorney fees shall be collected in all instances where the Authority's solicitor expends time or advances expenses exclusively for the purpose of enforcing the provisions herein or collecting any amounts currently due.

SECTION THREE -BILLING

§ 3.1 -Time and Method of Payment:

- A. Bills and notices relating to the sewage service fees and charges, and surcharges will be mailed or delivered to the property owner's last address or, when proper arrangements have been made with the Authority, to the user's last address, as shown on the billing books of the Authority. All such bills shall be due when rendered, and the owners and Users shall be jointly and severally liable for the payment of such charges and the penalties prescribed in this division for delinquent payment thereof. The bills shall be payable at the place or places designated on the bills.
- B. All bills for sewer rentals and charges, except those requiring the reading of meters, shall be rendered quarterly on the first day of each calendar quarter, or on such other date in each calendar quarter as this Authority, by resolution, shall specify, and shall cover a quarterly billing period consisting of the immediately preceding complete calendar quarter.
1. All bills for sewer rentals and charges which shall be based on estimates of this Authority shall be rendered for each quarterly billing period promptly after the estimates are made.
 2. Each owner of an improved property which shall be connected to the Sewer System during any calendar quarter shall pay a pro rata sewer rental and charge for service for the balance of the calendar quarter, and shall be billed in conjunction with the next regular quarterly billing or by a special billing as this Authority may determine.
 3. Upon advance application, in writing and duly delivered to the Chairman of this Authority, sewer rentals and charges may be abated pro rata during any period 30 or more consecutive days during which an improved property connected to the Sewer System shall be vacant. The Authority shall not abate any charge imposed herein unless prior application has been made and approved.
- C. Sewer rentals and charges shall be due and payable upon the applicable billing date as provided for in subsection B. of this Section and the appropriate amount computed in accordance with this Resolution shall constitute the net bill. If sewer rentals and charges are not paid within 30 calendar days after each billing date, an additional sum in accordance with the Rate Schedule shall be added to such net bill, which net bill plus such additional sum shall constitute the gross bill. Payment made or mailed and postmarked on or before the last day of such 30 calendar day period shall constitute payment within such period. If the end of such 30 calendar day period shall fall on a legal holiday or a Sunday, payment made on or mailed and postmarked on the next succeeding week day which is not a legal holiday shall constitute payment within

such period. Any bill not paid within said 30 calendar day period shall be deemed to be delinquent.

- D. Each owner of an improved property that is connected to the Sewer System initially shall provide this Authority with and thereafter shall keep this Authority advised of his correct address. Failure of any person to receive any bill for sewer rentals and charges shall not be considered an excuse for nonpayment, nor shall such failure result in an extension of the period of time during which the net bill shall be payable.

SECTION FOUR - COLLECTION

§ 4.1 -Liens for Sewer Rentals; Filing and Collection of Liens: Sewer rentals and charges imposed by this Resolution shall be a lien on the improved property connected to and served by the Sewer System; and any such sewer rentals and charges which are delinquent shall be filed as a lien against the improved property so connected to and served by the Sewer System, which lien shall be filed in the office of the Prothonotary of Dauphin County, Pennsylvania and shall be connected in the manner provided by law for the filing and collecting of municipal claims. Collection costs shall be assessed pursuant to §2.6 of this Resolution.

§ 4.2 - Penalties: A penalty in accordance with the current Rate Schedule shall be added to the amount due if it remains unpaid thirty (30) days after the date the same was billed. In the event payment is not received within ninety (90) days after said penalty is added, there is hereby imposed in addition to the penalty interest at the rate of in accordance with the current Rate Schedule for each month during which a bill remains unpaid.

§ 4.3 -Proof of Payment: Proof of the date of payment shall be limited to the date stamp affixed to the receipt portion or the return portion of the bill by the Authority or its authorized collection agents.

SECTION FIVE -SANITARY SEWAGE

§ 5.1 -Discharge of Sanitary Sewage to Public Sanitary Sewage System Required:

- A. All Persons owning any occupied building now erected and all Persons erecting any new building intended for occupancy within the Township or Borough accessible to the Public Sanitary Sewage System shall, at their own expense, make connection of such buildings with the Public Sanitary Sewage System.
- B. Where a building required to be connected to the Public Sanitary Sewage System by this Section is accessible to an existing sanitary sewer, such connections shall be made within sixty (60) days following receipt of written notice from the Authority to make such connection, or otherwise as provided in the Service Agreement.
- C. Where a building required to be connected to the Public Sanitary Sewage System by this Section becomes accessible to a newly constructed sanitary sewer, such connections shall be made within six (6) months following receipt of written notice from the Authority to make such connection, or otherwise as provided in the Service Agreement.
- D. All connections to the Public Sanitary Sewage System shall be made in accordance with all applicable laws and ordinances.
- E. No privy vault, cesspool, septic tank, mine hole or similar receptacle for human excrement, shall presently or at any time hereafter be connected with the Public Sanitary Sewage System.
- F. The installation, replacement, repair and maintenance of sewer laterals serving any structure between the street curb line and such structure shall in all events be the responsibility of the Owner of the property served. The installation, replacement, repair and maintenance of sewer laterals between the street curb line and the sewer main shall likewise be the responsibility of the Owners of the property served, except where replacement or repair is necessitated as a result of any of the following:
 - 1. A defective installation made by the Authority, or
 - 2. Damage to the sewer lateral from use of the street which the lateral is located,
or
 - 3. Any activity of the Authority, its agents, contractors or employees.
- G. The Authority shall in no event be responsible for damage or blockage of a sewer lateral caused by tree roots, whether or not the tree be located within the street right-of-way or upon private property.
- H. All property Owners served by a sewer lateral shall install a cleanout at the curb line.

In the absence of such curb cleanout, any cleaning or maintenance of the sewer lateral from the structure served to the sewer main shall be the responsibility of the property Owner.

**SECTION SIX INDUSTRIAL WASTES HOLDING TANK WASTES. ETC. -
GENERALLY**

§ 6.1 - Admission of Industrial Wastes, Holding Tank Wastes, Septage and Trucked Industrial Wastes to the Public Sanitary Sewage System:

- A. General. The economy and desirability of the combined treatment of Industrial Wastes, Holding Tank Wastes, Trucked Industrial Wastes and Sanitary Sewage is recognized. In general, any and all Industrial Wastes, Holding Tank Wastes, Trucked Industrial wastes and Septage may be discharged to the Public Sanitary Sewage System except those that are deemed harmful to the system or are specifically prohibited by this Section. However, it is recognized that the treatment of these wastes add to the cost of operating and maintaining the Public Sanitary Sewage System. Such additional costs must, therefore, be borne by the Person or Persons receiving the benefit of such treatment.
- B. No Interference. In addition, the acceptance of trucked Wastes, including those described as Holding Tank Wastes, Septage and Trucked Industrial Wastes, is based solely on the ability of the Wastewater Treatment Facility to assimilate those wastes without potential for Interference or Passthrough. If and when the Authority determines that the acceptance of any trucked waste has a potential to cause Interference or Passthrough, the Authority may deny the discharge of said waste without any prior notice to the licenses Waste Hauler or Waste Generator regardless of permits or licenses held by the Waste Hauler or Waste Generator.
- C. Harmful Wastes. The Authority reserves the right to refuse connection to the Public Sanitary Sewage System for the discharge of deleterious Industrial Wastes, to refuse the discharge of any Trucked Industrial waste, Holding Tank Waste or Septage, or to compel discontinuance of the same system for such wastes, or to require Pretreatment and/or equalization of flow thereof in order to prevent harmful or adverse effects upon the system. The design, construction and operation of such Pretreatment Facilities and/or flow equalization facilities shall be made at the sole expense of the Person discharging said wastes and shall be subject to the approval of the Authority Supervisors or their designated representative.

§ 6.2 -Harmful Characteristics: In general, Wastes shall be considered harmful to the Public Sanitary Sewage System if it may cause any of the following damaging effects:

1. Chemical reaction either directly or indirectly with the materials of construction of the Public Sanitary Sewage System in such a manner as to impair the strength or durability of any sewer system structures.
2. Mechanical action that will destroy any sewer system structures.

3. Restriction of the hydraulic capacity of any sewer system structures.
4. Restriction of the normal inspection or maintenance of any sewer system structures.
5. Danger to the public health and safety.
6. Obnoxious conditions inimical to the public interest.

§ 6.3 – Right to Deny Use: This Authority reserves the right to refuse permission to connect to the Sewer System, or upon notice, to compel discontinuance of use of the Sewer System or to compel pretreatment of prohibited wastes in order to prevent discharges deemed harmful or to have a deleterious effect upon any sewer or upon the Sewer System.

SECTION SEVEN - INDUSTRIAL WASTES HOLDING TANK WASTES. ETC. - REGULATIONS

§ 7.1 -Regulations Governing Admission of Industrial Wastes into the Sewer System and Rentals and Charges Imposed Therefore:

- A. No person shall discharge or cause to be discharged into the Sewer System any industrial wastes except upon application to this Authority and upon receipt of a written permit there for by this Authority.
- B. Any person desiring to make or use a connection to the Sewer system through which industrial wastes shall be discharged into the Sewer System shall file with this Authority an "industrial wastes questionnaire" to be furnished by this Authority which shall supply to this Authority pertinent data, including estimated quantity of flow, characteristics and constituents with respect to industrial wastes proposed to be discharged into the Sewer System.
- C. Any person who shall discharge industrial wastes into the Sewer System, when required by this Authority, shall construct and thereafter properly shall maintain, at his own expense, a suitable control manhole and other devices as may be approved by this Authority to facilitate observation, measurement and sampling by this Authority of industrial wastes discharged to the Sewer System.
 - 1. Any such control manhole, when required by this Authority, shall be constructed at an accessible, safe, suitable and satisfactory location, in accordance with plans approved by this Authority prior to commencement of construction.
- D. Any improved property discharging industrial wastes into the Sewer System and contemplating a change in the method of operation which will alter the characteristics and/or volumes of wastes at the time being discharged into the Sewer System shall notify this Authority, in writing, at least 10 days prior to consummation of such change.
- E. This Authority reserves the right to require the owner of any improved property having large variations in rates of waste discharge to install suitable regulating devices for equalizing waste flow to the Sewer System.
- F. Each owner of an improved property granted permission to discharge industrial wastes into the Sewer System shall provide all facilities, including a meter or meters approved by this Authority necessary to measure and record the volume of discharge of industrial wastes.
- G. This Authority specifically reserves the right from time to time to impose surcharges for industrial wastes discharged into the Sewer System, either by agreement with the

owner of the improved property or by amendment and/or supplement to this Resolution, which shall establish appropriate surcharge rates and charges.

- H. In the event sanitary sewage is combined with industrial wastes passing through the meter or meters provided for measuring the volume of industrial wastes, an estimate of the volume of sanitary sewage, as determined by this Authority, may be granted as an allowance against the total volume measured in applying appropriate surcharge rates and charges for industrial wastes as provided in a Service Agreement.
- I. All owners shall install suitable grease traps, interceptors or pretreatment facilities in order to comply with Section 6 and the provisions of this Section.
 - 1. Plans, specifications and any other pertinent information relating to proposed facilities for preliminary treatment and handling of wastes shall be submitted for approval of this Authority; and no construction of any such facility shall be commenced until approval thereof first shall have been obtained, in writing from this Authority and until approval thereof first shall have been obtained from any governmental body having jurisdiction.
 - 2. Whenever facilities for preliminary treatment and handling of wastes shall have been provided by any owner, such facilities continuously shall be maintained at the expense of such owner in satisfactory operating condition; and this Authority shall have access to such facilities at reasonable times for purposes of inspection and testing.
 - 3. Each owner who installs any pretreatment measures as contemplated herein shall provide evidence of proper maintenance, operation and disposal of residual solids to the Authority upon request, but in no event fewer than annually.
- J. Nothing contained in this Section shall be construed as prohibiting any special agreement or arrangement between this Authority and any person whereby industrial wastes of unusual strength or character may be admitted into the Sewer System by this Authority either before or after preliminary treatment.

§ 7.2 - Unacceptable wastes and Discharges:

- A. Unpermitted Discharge. No waste from any Significant Industrial User other than that for which an Industrial User Permit has been issued shall be discharged to the Public Sanitary Sewage System. No Holding Tank waste, Septage or Trucked Industrial waste from any Waste Hauler who does not possess a valid Waste Hauler License issued by the Authority in accordance with this Resolution shall be discharged into the Public Sanitary Sewage System. No Trucked Industrial Waste other than that for which a Waste Permit has been issued by the Authority in accordance with this Section shall be discharged to the Public Sanitary Sewage System.
- B. General Prohibitions. No Person shall discharge to the Public Sanitary Sewage System

any of the following:

1. Any Waste that could cause Interference, alone or in conjunction with a waste or wastes from other sources.
2. Excessive amounts of Unpolluted Water or Waste capable of being discharged or disposed of by any reasonable means other than discharge into the Sanitary Sewage System, including but not limited to non-contact cooling water and storm water. The Authority reserves the right to define the amount it deems excessive in each particular instance.
3. Unpolluted storm water, surface water, spring water, ground water, roof runoff, subdrainage, building foundation drainage, cellar or basement drainage, drainage from roof leader connections, exhaust steam or any oil, tar, grease, gas, benzene or other combustible gases or liquids or any garbage (unless treated in an approved manner), insoluble solids, inorganic wastes or any other dangerous or harmful substance in any amount which can adversely affect any part of the Sewer System.
4. The addition of cooling water or any other Unpolluted Water or Waste or an increase in the use of Process water for the purpose of reducing the concentration of substances that are prohibited or limited by this Resolution or as a partial or complete substitute for adequate Pretreatment.
5. Garbage, unless the same is first properly shredded by a device or equipment designed for that purpose.
6. Any liquids, solids or gases which by reason of their nature or quality either alone, or by interaction with other substances, will or could cause fire, explosions or be in any other way injurious to Persons, structures or the facilities of the Public Sanitary Sewer System.
7. Wastes containing any noxious or malodorous gas or substance which either singly or by interaction with sewage or other wastes may create a public nuisance or hazard to health or life, or prevent entry by Facility Employees or other authorized persons to sewer system structures for maintenance, repair or otherwise.
8. Wastes containing ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, hair, chemical or paint residues, greases, lime, slurry or viscose materials of such character or such quantity that, considering the size of the receiving sewers, may cause an obstruction to the flow or otherwise interfere with the proper and efficient operation of the Public Sanitary Sewer System.
9. Wastes containing gases, fumes, or vapors, either free or occluded, in concentrations toxic or hazardous to humans or animals.
10. Wastes containing Toxic radioactive isotopes.
11. Any waste containing any pollutant in quantities sufficient to cause Interference or Passthrough at the Wastewater Treatment Facility, in accordance with 40 CFR

403.5(a)(1).

12. Any sewage with objectionable color not removed by the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions.
13. Any biological hazards including, but not limited to, unsterilized pathological material from hospitals or private laboratories.
14. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts causing Interference or Passthrough at the Wastewater Treatment Facility.
15. Rags or non-dispersible wipes.

C. Specific Prohibitions. No person shall discharge to the Public Sanitary Sewer System any Sanitary Sewage, Industrial wastes or Trucked Industrial waste containing the following measured Pollutants:

1. Wastes containing insoluble, non-flocculent substances having a specific gravity in excess of 2.65.
2. Wastes containing soluble substances in such concentrations as to cause the specific gravity of the Waste to be greater than 1.1.
3. Wastes containing more than 30 mg/L of oil and grease, if the oil and grease is of unknown or petroleum origin. Wastes containing more than 30 mg/L of oil and grease, if the oil and grease is determined to be of an animal or vegetable origin. The differentiation between oil and grease of animal/vegetable origin and those of petroleum origin shall be made by the Authority.
4. Wastes containing more than 4 mg/L of free chlorine.
5. Any waste which shall cause the Wastewater Treatment Facility influent to exceed 104°F (40°C) or will inhibit the biological activity of the treatment system.
6. Wastes, or Wastes that shall react with water to form a solution having a pH lower than 6.0 or higher than 9.0, or having any corrosive properties capable of causing damage or hazards to structures, equipment or personnel of the Public Sanitary Sewage System.
7. Wastes that have a BOD₅ or Total Suspended Solids or Total Phosphate as P or other Pollutant concentration that constitutes a Slug Load.
8. Wastes having a Closed Cup Flash Point of less than 140°F as determined by a method listed under 40 CFR Part 261.21 and amendments thereto; or Wastes that cause the atmosphere above the wastewater discharge at the collection point to exceed ten percent (10%) of the lower explosive limit (LEL) as determined by a

catalytic, diffusion type combustible gas meter that measures combustible gases in a range of 0-99 % LEL.

9. Any Wastes which contain the following substances in solution or suspension in concentration exceeding those presented in the following table:

TABLE			
Maximum Permissible Concentrations			
Substance	Daily Composite	Monthly Average	Grab Sample
5-day Biochemical Oxygen Demand (BOD ₅)	300 mg/L	300 mg/L	840 mg/L
Total Suspended Solids	190 mg/L	190 mg/L	390 mg/L

10. Any Wastes which contain substances in solution or suspension in concentrations exceeding those listed in Categorical Pretreatment Standards, where applicable.

- D. Individual Control Limits. If the Authority determines that a Waste from any Significant Industrial User or Significant Waste Generator poses a unique potential for Passthrough or Interference due to the quantity or quality of the discharge, the Authority shall place special requirements or limits, in excess of those contained in this Section, in any Industrial User Permit or Waste Permit to prevent such Passthrough or Interference. Such Individual Control Limits may include, but are not limited to; solvent/toxic organic management plans (STOMPs), toxic reduction evaluation requirements (TREs), hazardous waste disposal plans, slug control discharge plans or specific numerical limitations on substances.
- E. Sampling. When required by the Pretreatment Administrator, any Person discharging to the Public Sanitary Sewage System any Industrial Wastes or combined Industrial Wastes and Sanitary Sewage, shall install a suitable manhole or manholes, flow metering chambers, flow monitoring equipment, pH monitoring equipment and other appurtances on his connecting sewer or sewers to facilitate observation, sampling and measurement of the combined flow of Wastes from his premises. Such manhole or manholes or metering chamber shall be accessible, safely located and secure, and shall be constructed in accordance with plans approved by the Pretreatment Administrator.

The manhole or manholes or metering chamber shall be installed by such Person at his expense and shall be maintained by him so as to be safe and accessible to the Pretreatment Administrator or his designated representatives at all times. The

construction and maintenance of such manhole or metering chamber shall be mandatory for Significant Industrial Users, and if deemed necessary by the Pretreatment Administrator, flows from such manhole or metering chamber shall be continuously monitored, transmitted and recorded by means of an approved receiving device.

All licensed Waste Haulers transporting and discharging wastes to the Wastewater Treatment Facility shall collect a Grab Sample of Waste from each load of Waste that is representative of the entire load. This sample shall be submitted to the Authority in accordance with procedures outlined in each Waste License.

The sampling procedure for determination of unacceptable Sanitary Sewage and Industrial Waste specified in this Section shall be as follows: Oil and Grease, free chlorine, temperature, closed cup flashpoint and pH shall be by Grab Sample only. The remaining substances referenced in Paragraph C. of this Section that may be determined on either a daily Composite Sample or on a Grab Sample (subject to the concentrations stated for each type of sample).

Monthly limitations shall be based on the arithmetic mean of at least two (2) Daily Composite Samples taken on separate days within one (1) calendar month for those substances referenced in Paragraph C. 9. of this Section that have daily composite limitations. Monthly limitations shall be based on the arithmetic mean of at least two (2) Grab Samples taken on separate days within one (1) calendar month for those substances referenced in Paragraph C. 9. of this Section that have/do not have Daily Composite limitations.

Waste Samples collected to determine compliance with the provisions of this Section 18-20 shall be taken at the manhole or metering chamber referred to in Paragraph E. of this Section, or in the absence of such manhole or metering chamber, at such place as the Authority shall determine will provide a representative sample of the discharge or at any other place mutually agreed upon by the Authority and the User.

Trucked Industrial Waste samples shall be collected by the Licensed Waste Hauler or by the Authority as a representative Grab Sample from each load discharged at the wastewater Treatment Facility. Limits applicable to Trucked Industrial Waste shall be the Grab Sample limits referenced in this Section.

F. Analytical Methods. All analyses of samples shall be performed in accordance with procedures contained in 40 CFR Part 136 and amendments hereto or any method approved by the EPA.

SECTION EIGHT -PERMITTING AND LICENSING

§ 8.1 - Industrial User Permits: All Industrial Users proposing to contribute to the Public Sanitary Sewage System shall make application for an Industrial User Permit. All existing Significant Industrial Users contributing to the Public Sanitary Sewage System at the time of the adoption of this Resolution shall obtain an Industrial User Permit within 90 days after the effective date of this Resolution. The Users required to apply for an Industrial User Permit shall complete and file with the Authority an Industrial User Permit application form approved by the Authority, accompanied by a nonrefundable processing fee to be set through a Resolution by the Authority.

Proposed new Industrial Users shall apply at least 90 days prior to connection to or contributing to the Public Sanitary Sewer System. In support of the application, the User shall submit, in units and terms appropriate for evaluation, the following information, including, but not limited to:

- (1) Name (full legal name, and any applicable fictitious name), address, location, phone number, fax number, e-mail address;
- (2) Standard Industrial Classification (SIC) number;
- (3) Name of Responsible Individuals;
- (4) Wastewater constituents and characteristics, before and after Pretreatment, as determined by a reliable analytical laboratory;
- (5) Time and duration of contribution;
- (6) Average daily wastewater flow rates, including daily, monthly and seasonal variations, if any;
- (7) Site plans, plumbing plans and details to show all sewers, sewer connections, and appurtenances by the size, location and elevation;
- (8) Description of activities and plant processes on the premises including all materials which are or could be discharged.
- (9) Where known, the nature and concentration of any Pollutants in the discharge which are limited by local, State, or Federal Pretreatment Standards, and a statement regarding whether or not the pretreatment standards are being met on a consistent basis and if not, whether additional Operation and Maintenance (O&M) and/or additional pretreatment is required for the User to meet applicable Pretreatment Standards.
- (10) If additional Pretreatment and/or O&M shall be required to meet the Pretreatment Standards, the shortest schedule by which the User shall provide such additional Pretreatment must be implemented. The completion date in this schedule shall not be later than the compliance date established for the applicable Pretreatment Standard;
- (11) Number and type of employees, and hours of operation of plant and proposed or actual hours of operation of Pretreatment system; and,

- (12) Any other information as may be deemed by the Authority to be necessary to evaluate the Permit application.

The completed application shall be signed by the User's Responsible Individuals whose signatures shall be acknowledged by a notary public. The Authority shall evaluate the data furnished by the Industrial User for completeness and may require additional information. After evaluation and acceptance of the data furnished as a complete application, the Authority may for cause shown either refuse to issue or may issue a Wastewater Contribution Permit subject to terms and condition provide herein, or may issue a Commercial/Industrial Discharge Permit in accordance with this Section.

§ 8.2 - Commercial/Industrial Discharge Permits: When required by the Authority, Industrial and Commercial Users shall obtain a Commercial/Industrial Discharge Permit. After reviewing the Industrial User Permit application form referenced in §8-1 of this Resolution, the Authority may decide to issue a Commercial/Industrial Discharge Permit in accordance with guidelines determined by the Authority.

§ 8.3 - Waste Hauler Licenses: All Persons desiring to transport and discharge Holding Tank Waste, Septage or Trucked Industrial Waste to the Wastewater Treatment Facility shall first make application with the Authority for a Waste Hauler License application form approved by the Authority. No Trucked Waste shall be discharged to any discharge point in the Public Sanitary Sewage System except to those specifically designated by the Authority,

The Persons required to apply for a Waste Hauler License shall complete and file with the Authority a Waste Hauler License application form approved by the Authority, accompanied by a nonrefundable processing fee to be set through a Resolution by the Authority, In support of the application, the Person shall submit, in units and terms appropriate for evaluation, the following information, including, but not limited to:

- (1) Name, address, location, phone number;
- (2) Vehicle information including make, year, model, license tag number, waste volume capacity and the total number of vehicles owned.
- (3) A description of the wastes that will be transported and discharged to the Wastewater Treatment Facility.
- (4) A list of permits held by the applicant for the generation, transportation or disposal of wastes.
- (5) An estimate of the total maximum volume of Waste to be transported and discharged daily at the Wastewater Treatment Facility.

The completed application shall be signed by the applicant's Responsible Individuals. The Authority shall evaluate the date for completeness, and may require additional information. After evaluation and acceptance of the data furnished as a complete application, the Authority may at its sole discretion either refuse to issue or may issue a Waste Hauler License subject to terms and conditions provided herein.

§ 8.4 - Waste Permits: All Waste Generators proposing to dispose of Trucked Industrial Wastes at the Wastewater Treatment Facility shall make application with the Authority for a Waste Permit for each proposed Trucked Industrial waste, accompanied by a nonrefundable processing fee to be set through a Resolution by the Authority. In support of the application, the waste Generator shall submit, in units and terms appropriate for evaluation, the following information, including but not limited to the following:

- (1) Name, address, location, phone number of the waste Generator and name of the waste Generator's Responsible Individuals;
- (2) Name, address, location, phone number and name of the Responsible Individuals of the Licensed Waste Hauler designated to transport and discharge the waste;
- (3) SIC number of the waste Generator, according to the Standard Industrial Classification Manual, Bureau of the Budget, 1987;
- (4) Wastewater constituents and characteristics, before and after Pretreatment, as determined by a reliable analytical laboratory;
- (5) Requested discharge rate;
- (6) Waste Generator site plans, plumbing plans and details to show all Process waste production areas by size and location;
- (7) Description of activities and plant processes on the premises including all materials which are or could be discharged;
- (8) Where known, the nature and concentration of any pollutants in the discharge which are limited by local, State, or Federal Pretreatment Standards, and a statement regarding whether or not the Pretreatment Standards are being met on a consistent basis;
- (9) Any other information as may be deemed by the Authority to be necessary to evaluate the Permit application.

The completed application shall be signed by the waste Generator's Responsible Individuals and the Waste Hauler's Responsible Individuals, whose signatures shall be acknowledged by a notary public. The Authority shall evaluate the data furnished for completeness, and may required additional information. After evaluation and acceptance of the data furnished as a complete application, the Authority may at its sole discretion either refuse to issue or may issue a Waste Permit to the Waste Generator subject to terms and conditions provided herein.

§ 8.5 – Terms and Conditions of Industrial User Permits: Industrial User Permits shall contain at least the following terms and conditions:

- (1) Maximum discharge flow rate
- (2) Term of permit
- (3) Statement of non-transferability
- (4) Definitions
- (5) General Limitations

- (6) Specific Limitations
- (7) Special Conditions
- (8) Self monitoring and reporting requirements (including sampling, reporting, notification and record keeping)
- (9) Notification requirements for slug discharges
- (10) Statement of applicable civil and criminal penalties
- (11) Reopener clause
- (12) Compliance schedules (if required)

Industrial User Permits shall be issued for a specified time period, not to exceed five (5) years. The User shall apply for permit reissuance a minimum of 90 days prior to the expiration of the User's existing permit. The application must be accompanied by a nonrefundable processing fee to be set through a Resolution by the Authority. The terms and conditions of the permit may be subject to modification by the Authority during the term of the permit to accommodate changing conditions and as local, state, and federal laws, rules and regulations are modified or amended, or other just cause exists. The User shall be informed of any proposed changes in his permit at least 45 days prior to the effective date of change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance, including a comment period which shall be the first 30 days of the 45 day period prior to the effective date of change.

§ 8.6 -Terms and Conditions of Commercial/Industrial Discharge Permits:

Commercial/Industrial Discharge Permits shall contain at least the following terms and conditions:

- (1) Maximum discharge flow rate
- (2) Term of permit
- (3) Definitions
- (4) General Limitations
- (5) Specific Limitations
- (6) Special conditions
- (7) Annual reporting requirement
- (8) Reopener clause

Commercial/Industrial Discharge Permits shall be issued for a specified time period, not to exceed five (5) years. The User shall apply for permit reissuance a minimum of 90 days prior to the expiration of the User's existing permit. The application must be accompanied by a nonrefundable processing fee to be set through a Resolution by the Authority. The terms and conditions of the permit may be subject to modification by the Authority during the term of the permit to accommodate changing conditions and as local, state and federal laws, rule and

regulations are modified or amended, or other just cause exists. The User shall be informed of any proposed changes in his permit at least 45 days prior to the effective date of change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance, including a comment period which shall be the first 30 days of the 45 day period prior to the effective date of change.

§ 8.7 – Terms and Conditions of Waste Hauler Licenses: Waste hauler Licenses shall contain at least the following terms and conditions:

- (1) Maximum discharge rate
- (2) Term of License
- (3) General Limitations and Requirements
- (4) Specific Limitations and Requirements

Waste Hauler Licenses shall be issued for a specific time period not to exceed one (1) year. The application for license reissuance must be accompanied by a nonrefundable processing fee to be set through a Resolution by the Authority.

§ 8.8 -Terms and Conditions of Waste Permits: Waste Permits shall contain at least the following terms and conditions:

- (1) Maximum discharge flow rate
- (2) Term of permit
- (3) General limitations and requirements
- (4) Specific limitations and requirements
- (5) Self Monitoring requirements

Waste Permits shall be issued for a specific time period not to exceed one (1) year. The application for permit reissuance must be accompanied by a nonrefundable processing fee to be set through a Resolution by the Authority.

§ 8.9 -Industrial User Permit, Waste Hauler License and Waste Permit Transfer: Industrial User Permits are issued to a specific User for a specific operation. Waste Hauler Licenses are issued to a specific Person for one or several Waste types and sources. Waste Permits are issued to a specific Waste Generator for a specific Waste utilizing a specific operation. An Industrial User Permit, Waste Hauler License or waste Permit shall not be assigned or transferred or sold to a new owner, new User, different premises, or a new or changed operation without the approval of the Authority. Any succeeding owner or User shall also comply with the terms and conditions of the existing permit or license.

§ 8.10 - Permit and License Revocation: Industrial User Permits, Commercial/Industrial Discharge Permits, Waste Hauler Licenses and Waste Permits shall be subject to revocation according to the provision outlined in Section Nine of this Resolution.

§ 8.11 - Discharge Scheduling: Whenever the Authority deems it advantageous to the Authority to have an Industrial User discharge its Industrial Waste into the Sanitary Sewer System at a rate of flow and at a time of day which shall have a favorable effect upon the operation and maintenance of the sanitary sewer system, and the Industrial User shall agree to the same, the Authority is hereby authorized to enter into an agreement with such Industrial User specifying the rate of flow and time of day for the same under such terms and conditions as the Authority shall establish. In consideration of such agreement, the Industrial User shall be entitled to a discount not exceeding ten percent (10%) of the treatment and/or transportation rate otherwise payable pursuant to this Resolution.

§ 8.12 - Trade Secrets: Upon written request by the Industrial User or Waste Generator furnishing a report, Permit application or answering a questionnaire, those portions of any document which might disclose trade secrets or secret processes shall not be disclosed to any Person other than to duly authorized representatives of EPA or DEP. The physical/chemical characteristics of a discharge's wastewater shall not be recognized as confidential information or as a trade secret.

§ 8.13 - New or Increased Contributions: All Industrial Users, waste Haulers or Waste Generators shall promptly notify the Pretreatment Administrator prior to any changes in the volume or character of their wastewater discharge or in the operation of their Pretreatment processes that may result in Interference or pass through at the Wastewater Treatment Facility. The Authority reserves the right to deny the admission of, or to require the Pretreatment of all discharges to the Public Sanitary Sewer System.

§ 8.14 - Indemnification: While performing the necessary work on private properties, the wastewater Treatment Plant operators or duly authorized employees of the Authority shall observe all safety rules applicable to the premises established by the User. The User shall be held harmless for injury or death to Authority employees and the Authority shall indemnify the User against loss or damage to its property by Authority employees and against liabilities, claims and demands for personal injury or property damage asserted against the User and growing out of the Gauging and sampling operations, except such as may be caused by negligence or failure of the User to maintain safe conditions. "

SECTION NINE - ENFORCEMENT

§ 9.1 Violation Notice. Compliance Schedule:

A. Enforcement Response. Enforcement actions taken by the Authority shall be consistent with this Resolution.

B. Notice of Violation. Whenever the Pretreatment Administrator finds that any Industrial User or Waste Hauler or Waste Generator has violated any provisions of this Resolution or an Industrial User Permit, a Commercial/Industrial Discharge Permit, a Waste Hauler License, a Waste Permit, an Order or a Compliance Schedule, the Pretreatment Administrator or his duly authorized representative shall serve upon said Industrial User a written notice of violation.

If required by the Authority, a written response to this notice, including an explanation of the cause of the violation and a plan for the corrections and prevention thereof, must be submitted to the Pretreatment Administrator within ten (10) working days of receipt of the notice. Submission of this plan in no way relieves the Industrial User of liability for any violations occurring before or after receipt of the notice of violation.

C. Compliance Schedule. When required by the Pretreatment Administrator, compliance schedules must be developed by existing or new Industrial Users and approved by the Pretreatment Administrator. These schedules shall contain increments of progress in the form of dates for the commencement and completion of major events leading to the construction and operation of additional pretreatment equipment required to meet present or proposed applicable pretreatment standards. No increment of progress shall exceed nine months. The Pretreatment Administrator shall have the right to deny or to require the modification of proposed compliance schedules. Industrial Users under compliance schedules shall submit progress reports to the Pretreatment Administrator no later than fourteen (14) days following each milestone date in the schedule and fourteen (14) days following the final date of compliance. Failure to meet required milestone dates shall constitute a violation of this Resolution.

§ 9.2 -Fines and Penalties:

A. In the event an owner is determined to have violated any provision of this or subsequent resolutions, the following penalties shall be imposed.

- (1) **First violation:** Upon discovering the violation, the Authority shall cause a notice of violation to be sent to the property owner requiring corrective action within 30 days. Failure to correct the action will result in an additional violation.
- (2) **Second violation:** when an owner shall fail to correct the deficiency within 30 days of the initial notice of violation or shall cause additional violations within the twelve month period preceding the first violation, the Authority may impose the

following fines and administrative costs upon notice and hearing.

- (a) Fine: \$100.00 per violation, per day up to a maximum of \$2,500.00 per violation.
- (b) Costs: Administrative costs will be assessed.
- (c) Attorneys Fees: If the Authority Solicitor participates in enforcing this section, fees will be charged in accordance with §2.6 of this resolution.

- B.** Any fee or penalty imposed under this section shall immediately become a lien on the affected property and may be indexed as such in the appropriate Court House records.
- C.** Nothing contained herein shall prohibit the Authority from correcting any violation at its expense necessing such costs as a lien against the property owners.
- D.** Nothing contained herein shall prohibit with the Authority from requesting that the applicable water authority discontinue service to any property that is in violation of this resolution.
- E.** Failure to install any device required by this Resolution shall, upon the expiration of the thirty day period from the date of the Notice of Violation shall result in a discontinuance of service. Any cost for cleanup and/or repair of the line shall be borne by the owner and shall immediately become a lien on the affected property.
- F.** Failure to develop, implement or complete a Compliance Schedule, as described in §9.1, shall, at the Authority's discretion be deemed a separate violation hereunder. Thereafter, each day on which noncompliance shall occur or continue shall be deemed a separate and distinct violation. All fine money shall be made payable to the Authority, and shall be added to the user's next scheduled "fee for service charge". The Authority shall have such other collections remedies as it has to collect other service charges.

Industrial Users or Waste Haulers who desire to dispute such fines must file a written request with the Authority to reconsider the fine within 10 working days of being notified of the fine. Upon receipt of a request to reconsider, the Authority shall schedule a hearing on the matter within 15 working days of receiving the request from the Industrial User.

§ 9.3 -Other Remedies:

- A. Administrative Order (AO).** When the Authority finds that a User has violated or continues to violate any provisions of this Resolution, permit or order issued hereunder, or any other Pretreatment Standard or requirement, the Authority may issue an Administrative Order to the user responsible for the discharge directing that the User come into compliance within a time period set by the Authority. If the User

does not come into compliance within the specified time periods, sewer service shall be discontinued unless adequate treatment facilities, devices, or other related appurtenances are installed and properly operated. Administrative Orders may also contain other requirements to address the noncompliance, including additional self-monitoring, and management practices designed to minimize the amount of pollutants discharged to the sewer. An Administrative Order may not extend the deadline for compliance established for a Federal pretreatment standard or requirement, nor does an Administrative Order release the user of liability for any violation, including any continuing violation. Issuance of an Administrative Order shall not be a prerequisite to taking any other action against the User available to the Authority hereunder or at law.

B. Injunctive Relief. Whenever a User has violated or continues to violate the provisions of this Resolution, an Industrial User Permit or a Commercial/Industrial Discharge Permit or an Order issued hereunder, the Authority, through counsel, may petition the court for the issuance of a preliminary or permanent injunction (or both, as may be appropriate), which restrains or compels the activities on the part of the User. The Authority shall have such remedies to collect all fees incurred by the Authority as a result of this petition as it has to collect other sewer service charges, including a prayer for payment of costs and attorney's fees as may be authorized by law.

C. Industrial User Permit or Commercial/Industrial Discharge Permit Revocation.

Any Industrial User who violates any of the following conditions of this paragraph, of their Industrial User Permit, or of their Commercial/Industrial Discharge Permit or of any Order may be subject to the revocation of its permits:

1. failure of a user to factually report the wastewater constituents and characteristics of his discharge;
2. failure of user to report significant changes in wastewater constituents or characteristics;
3. refusal of reasonable access to the user's premises for the purposes of inspection or monitoring; and
4. Violation of the conditions of the permit.

The Authority shall not revoke an Industrial User Permit or Commercial/Industrial Discharge Permit without first allowing the noncompliant Industrial User the opportunity to show cause why the proposed action should not be taken. Before any further discharge of Industrial wastewater may be made by a user whose permit has been revoked, the User must apply for, and be granted, a reinstatement of the revoked permit, or a new permit, as the Authority may require, and pay all delinquent fees, charges and costs occasioned by the violation, in accordance with all conditions set forth in this Resolution and any applicable Service Agreement.

D. Waste Hauler License Revocation. Any Waste Hauler, who violates any provision of this Resolution or of their Waste Hauler License or of a Waste Permit held by the

Waste Hauler or of any additional requirements set by the Authority, may be subject to immediate License revocation. In addition, the Authority may immediately and without notice revoke any Waste Hauler License if the Authority determines that the acceptance of the waste is detrimental to the overall operation of the Wastewater Treatment Facility.

E. Waste Permit Revocation. Any Waste Generator who violates any provision of this Resolution or of their Waste Permit or of any additional requirements set by the Authority may be subject to immediate Permit revocation. In addition, the Authority may immediately and without notice revoke any Waste Permit if the Authority determines that the acceptance of the Waste is detrimental to the overall operation of the Wastewater Treatment Facility.

F. Show Cause Hearing. The Pretreatment Administrator may order any Industrial User which causes or contributes to a violation of this Resolution or Industrial User Permit or Commercial/Industrial Discharge Permit or Order issued hereunder, to show cause why a proposed enforcement action should not be taken. Notice shall be served on the Industrial User specifying the time and place for the meeting, the proposed enforcement action and the reasons for such action, and a request that the user show cause why this proposed enforcement action should not be taken. The notice of the meeting shall be served personally or by registered or certified mail to any principal executive, general partner, corporate officer or owner of the industrial user at least 10 days prior to the hearing. Whether or not a duly notified Industrial user appears as noticed, immediate enforcement action may be pursued.

G. Emergency Response. The Pretreatment Administrator may suspend the wastewater treatment service and/or Industrial Use Permit or Commercial/Industrial Discharge permit whenever such suspension is necessary in order to stop an actual or threatened discharge presenting or causing an imminent or substantial endangerment to the health or welfare of Persons, Wastewater Treatment Facility or the environment.

Any User notified of a suspension of the wastewater treatment service and/or Industrial User Permit or Commercial/Industrial Discharge Permit shall immediately stop or eliminate its contribution. In the event of an Industrial User's failure to immediately comply voluntarily with the suspension order, the Authority shall take such steps as deemed necessary, including the immediate severance of the sewer connection, to prevent or minimize damage to the Wastewater Treatment Facility, its receiving stream, or endangerment to any individuals. The Authority shall allow the Industrial User to recommence its discharge when the endangerment has passed, unless the permit revocation proceedings are initiated against the Industrial User.

Any Industrial User which is responsible, in whole or in part, for imminent endangerment shall submit a detailed written statement describing the causes of the harmful contribution and the measures taken to prevent any future occurrence, to the Authority prior to the date of the show cause hearing described in this Section.

H. Public Notification. The Authority may, at least annually, publish in the newspapers of general circulation in the area, a list of Industrial Users which in the last twelve months were significantly violating applicable pretreatment standards or other pretreatment requirements or that were determined to be in significant noncompliance. Significant noncompliance shall be determined according to guidelines set in 40 CFR Part 403.8 (f) (2) (vii) or amendments thereto.

SECTION TEN -REPORTING

§ 10.1 -Reporting Requirements:

A. Self Monitoring Report (SMR). The Authority shall require all Significant Industrial Users and all Significant Waste generators to submit to the Authority's Pretreatment Administrator during the months of June and December, unless required more frequently by the Pretreatment Administrator, a report on a form supplied by the Authority, indicating the concentration of pollutants in the effluent or generated Waste which are of particular concern to the Authority and which are limited by this Resolution. In addition, this report shall include a record of all daily flows which occurred during the reporting period. At the discretion of the Pretreatment Administrator and in consideration of such factors as local high or low flow rates, holidays, budget cycles, etc., the Pretreatment Administrator may agree to alter the months during which the above report is to be submitted.

B. Baseline Monitoring Report. Within either 180 days after the effective date of a Categorical Pretreatment Standard, or the final administrative decision on a category determination under 40 CFR 403.6 (a) (4), whichever is later, existing Significant Industrial Users subject to such Categorical Pretreatment Standards, and currently discharging to or scheduled to discharge to the Wastewater Treatment Facility, shall be required to submit to the Authority a report which contains the information listed under this Section.

At least ninety (90) days prior to commencement of their discharge, New Sources, and sources that become Industrial Users subsequent to the promulgation of an applicable Categorical Pretreatment Standard, shall be required to submit to the Authority a report which contains the information listed under this Section. A New Source shall also be required to report the method of Pretreatment it intends to use to meet applicable Pretreatment Standards. A New Source shall also give estimates of its anticipated flow and quantity of Pollutants discharged.

The Industrial User shall submit the information required by this Section including the following:

1. **Identifying Information.** The name and address of the facility including the name of the operator and Owners.

2. Wastewater discharge permits. A list of any environmental control wastewater discharge permits held by or for the facility.
3. Description of Operations. A brief description of the nature, average rate of production, and standard industrial classifications of the operation(s) carried out by such Industrial User. This description should include a schematic process diagram which indicates points of discharge to the Wastewater Treatment Facility from the regulated processes.
4. Flow Measurement. Information showing the measured average daily and maximum daily flow, in gallons per day, to the Wastewater Treatment Facility from regulated Process Wastewater and other streams, as necessary, to allow use of the combined wastestream formula set out in 40 CFR 403.6 (e).
5. Measurement of Pollutants. Identify the Categorical Pretreatment Standards applicable to each regulated process. Submit the results of sampling and analysis identifying the nature and concentration (and/or mass, where required by the standard or by the Authority of regulated Pollutants in the discharge from each regulated process. Instantaneous, daily maximum and long term average concentrations (or mass, where required) shall be reported. The sample shall be representative of daily operations and shall be analyzed in accordance with procedures set out in this Resolution.
6. Certification. A statement reviewed by the Industrial User's authorized Responsible Individuals and Certified by a qualified professional, indicating whether Pretreatment Standards are being met on a constant basis and, if not, whether additional operation and maintenance (O&M) and/or additional Pretreatment is required to meet the Pretreatment Standards and requirements.
7. Compliance Schedule. If additional Pretreatment and/or O&M will be required to meet the Pretreatment Standards; the schedule by which the Industrial User will provide such additional Pretreatment and/or O&M. The completion date in this schedule shall not be later than the compliance date established for the applicable Pretreatment Standard. A compliance schedule pursuant to this Section shall meet the requirements set out in Section Eight of this Resolution.
8. All Baseline Monitoring Reports must be signed and certified in accordance with this Section.

C. Compliance Schedule Progress Report. The following conditions shall apply to the schedule required under this Section. The schedule shall contain progress increments in the form of dates for the commencement and completion of major events leading to the construction and operation of additional Pretreatment required for the User to meet the applicable Pretreatment Standards (such as events including hiring an

engineer, completing preliminary and final plans, executing contracts for major components, commencing and completing construction, beginning and conducting routine operation). No increment referred to in this paragraph shall exceed nine (9) months.

The Industrial User shall submit a progress report to the Authority no later than fourteen (14) days following each date in the schedule and the final date of compliance including, as a minimum, whether or not the User complied with the increment of progress, the reason for any delay, (and, if appropriate) the steps being taken by the User to return to the established schedule. In no event shall more than nine (9) months elapse between such progress reports to the Authority.

D. Ninety (90) Day Compliance Report. All Industrial Users and Waste Generators subject to Categorical Pretreatment Standards shall submit, within 90 days following the date of final compliance with applicable Categorical Pretreatment Standards, a report containing the information listed in 40 CFR Part 403.12 (b) (4) -(6). Industrial Users or Waste Generators subject to equivalent mass or concentration limits established in accordance with 40 CFR Part 403.6 (c), must include in the report a reasonable measure of the user's long term production rate.

E. Signatory Requirement. All reports submitted pursuant to requirements outlined in this Resolution, including but not limited to the "Baseline Monitoring Report", the "Self Monitoring Report" and the "Ninety Day Compliance Report" shall be signed by the Responsible Individuals.

F. Certification Requirements. All reports referenced in this Section, as well as Industrial User Permit applications, Waste Permits applications and Waste Hauler License applications shall include the following statement:

"I certify, under the penalty of law, that this document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that quality personnel properly gather, and evaluate the information submitted. Based on my inquiry of the Person or Persons who manage the system, or those Persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G. Notification of Spills. All Industrial Users shall notify the Authority immediately by phone or in person upon any planned or unplanned discharge of Wastes of a strength or character unusual for the discharger or in violation of the discharger's Industrial User Permit or any other regulations set forth in this Resolution. All Licensed Waste

Haulers or Permitted Waste Generators shall notify the Authority in advance of the discharge of a Waste that is of a strength or character unusual for the Hauler or Generator or is in violation of the Hauler's License or Generator's Permit or any other violations set forth in this Resolution.

This report is to be followed within ten (10) working days of the day of the occurrence by a detailed written statement sent to the Pretreatment Administrator describing the cause and characteristics of the discharge and measures that are being taken to prevent further similar discharges. Such notification shall not relieve the User from any liability which may be incurred as a result of the discharge.

H. Hazardous Waste Discharges. Any Industrial User who commences the discharge of Hazardous Waste shall notify the Wastewater Treatment Facility, the EPA Regional Waste Management Division Director, and the State Hazardous Waste Authorities in writing of any discharge into the Wastewater Treatment Facility of a substance which, if otherwise disposed of, would be a Hazardous Waste under 40 CFR Part 261. Such notification must include the name of the Hazardous Waste as set forth in 40 CFR Part 261, the EPA Hazardous Waste number, and the type of discharge (continuous, batch, or other). If the Industrial User discharges more than 10 kilograms of such Wastes per calendar month to the Wastewater Treatment Facility, the notification shall also contain the following information to the extent such information is known and readily available to the Industrial User: An identification of the hazardous constituents contained in the Waste, an estimation of the mass and concentration of such constituents in the Wastestream discharged during the calendar month, and an estimation of the mass of constituents in the Wastestream expected to be discharged during the following twelve (12) months.

All notifications as required under this Section must take place not later than 180 days after the discharge commences. Any notification under this Section need be submitted only once for each Hazardous Waste discharged. However, notification of changed discharges must be submitted under this Section.

Dischargers are exempt from the hazardous Waste notification requirements during a calendar month for which they discharge no more than fifteen (15) kilograms of Hazardous Wastes, unless the Wastes are acute Hazardous Wastes as specified in 40 CFR 261.30 (d) and 261.33 (e). Discharge of more than fifteen (15) kg of non-acute Hazardous Wastes in a calendar month, or of any quantity of acute Hazardous Wastes as specified in 40 CFR 261.30 (d) and 261.33 (e), require a one time notification.

Subsequent months during which the Industrial User discharges more than such quantities of any Hazardous Wastes do not require additional notification.

In the case of any new regulations under Section 3001 of RCRA identifying additional characteristics of Hazardous Wastes or listing any additional substances as a Hazardous Waste, the Industrial User must notify the Wastewater Treatment Facility, the EPA Regional Waste Management Waste Division Director, and State Hazardous Waste Authorities of the discharge of such substance within 90 days of the effective date of such regulations.

In the case of any notification under this Section, the Industrial User shall certify that it has a program in place to reduce the volume and toxicity of Hazardous Wastes generated to the degree it has determined to be economically practical.

I. Notice to Employees. In order that employees of Industrial Users and Significant Waste Generators be informed of the requirements of this Section, Industrial Users and Significant Waste Generators shall make available to their employees copies of these regulations and any other wastewater information and notices which may be furnished by the Authority directed toward more effective water pollution control. A notice shall be furnished by the User and permanently posted in a prominent area on the User's bulletin board explaining proper procedures for spill prevention, containment, or neutralization and advising employees who to call in case of an accidental discharge in violation of these regulations.

J. Right-of Access. The Wastewater Treatment Plant Operators and other duly authorized employees of the Authority bearing proper credentials and identification shall be allowed to enter all properties and Waste transportation vehicles for the purpose of inspection, observation, measurement, sampling, and testing in accordance with the provisions of this Resolution. The Authority may inspect all Significant Industrial Users and all Significant Waste Generators at least once per year.

K. Record Keeping Requirements. Any Industrial User or Waste Generator subject to reporting requirements shall be required to retain for a minimum of three (3) years any records of monitoring activities and results. The Authority shall retain all reports that it receives from Industrial Users and Waste Generators for a minimum of three (3) years. Any records of monitoring activities and results shall be made available for inspection and copying by the Pretreatment Administrator or his duly authorized representatives."

L. Federal Requirements. Upon the promulgation of any Federal Standards or requirements (including, but not limited to, Federal Categorical Pretreatment Standards for any particular industrial subcategory), the Federal Standards or requirements shall immediately supersede the limitations imposed under this Resolution if the Federal Standards are more stringent than the limitations imposed under this Resolution. Any Industrial User or Waster Generator which is subject to Federal Categorical Standards is required to comply with all standards and

requirements in accordance with Section 307 of the Clean Water Act.

M. State Requirements. Upon the promulgation of any Pennsylvania State Standards or requirements, the State Standards or requirements shall immediately supersede the limitations imposed under this Resolution if the State Standards are more stringent than Federal limitations or requirements or the limitations and requirements imposed under this Resolution.

N. General Pretreatment Facility Management Requirements. All Users shall install and operate at his own expense any Pretreatment Facility that, in the opinion of the Authority, is necessary for the proper handling of Wastes. Such Facilities shall be of a type and capacity approved by the Authority and shall be located as to be readily and easily accessible for maintenance by the User and for inspection by the Authority. All plumbing appurtenances and grease trap installations shall conform to the most recent BOCA code requirements.

O. Pretreatment Facility Requirements. Pretreatment Facilities, including but not limited to Grease traps, shall be provided by a User when, in the opinion of the Authority, they are necessary for the proper handling of Wastes containing excessive amounts of Pollutants. All Pretreatment Facilities shall be of type and capacity approved by the Authority, and shall be located to be easily accessible for cleaning, inspection and maintenance.

Where installed, all Pretreatment Facilities shall be maintained by the User, at his own expense, and shall be kept in continuous and efficient operation at all times.

SECTION ELEVEN – FEES AND SURCHARGES FOR CERTAIN USERS AND INDUSTRIAL WASTES.

§ 11.1 -Surcharges: Although the sewage treatment works will be capable of treating certain industrial wastes, the actual treatment of such wastes may increase the cost of operating and maintaining the public sanitary sewage system. Therefore, there shall be imposed upon each Person discharging such Industrial Waste into the public sanitary sewage system a surcharge, or surcharges which are intended to cover such additional costs. Such surcharges shall be in addition to the regular sewage service charges set forth in Section Two, and shall be payable as herein provided.

§ 11.2 -Determination of Surcharges: The strength of any Industrial Waste, discharge of which is to be subject to surcharge as determined by this Section, shall be determined quarterly, or more frequently as the Authority shall determine, from samples taken either at the manhole or metering chamber referred to in hereof, or at any other sampling point mutually agreed upon by the Authority and the producer of such waste. The frequency and duration of the sampling period shall be as, in the opinion of the Authority, shall permit a reasonably reliable determination of the average composition of such waste, exclusive of storm water runoff. Samples shall be collected or their collection supervised by a representative of the Authority and shall be samples that reasonable reflect the characteristics of the waste over a 24 hour period. Except as hereinafter provided, the strength of the waste so found by analysis shall be used for establishing the surcharge or surcharges. The Authority may, if it so elects, accept the results of routine sampling and analysis by the producer of such wastes in lieu of making its own sampling and analysis.

§ 11.3 -Calculation of Surcharges: In the event that, after sampling and analysis as prescribed in this Section, any industrial waste is found by the Authority to have Pollutants of BOD concentration in excess of 300 mg/L and/or total suspended solids concentration in excess of 190 mg/L and/or total phosphate as P concentration in excess of 10 mg/L, the producer of said waste shall pay a strength of waste surcharge in addition to the flat rate of volume charge set forth in Section Two, which surcharge shall be computed by using the following formula:

$$Factor(\%) = 60 + \left[15 \left(\frac{BOD_5 \text{ mg/L}}{300} \right) + 15 \left(\frac{TSS \text{ mg/L}}{190} \right) + 10 \left(\frac{P \text{ mg/L}}{10} \right) \right] - 100$$

Where the concentration of the waste is less than 300 mg/L for BOD or 190 mg/L for Total Suspended Solids or 10 mg/L for phosphate as P, the values in parentheses for BOD and/or Total Suspended Solids and/or Total Phosphate as P shall be equal to one (1). The amount of the strength of waste surcharge shall be computed by multiplying the flat rate of volume charge for collection, transportation and treatment, by the surcharge factor delivered above.

The strength of waste surcharges provided for in this Section shall be added to the sewage service charge imposed by the Authority.

§ 11.4 -Sampling Fees and Schedules for Significant Industrial Users: All Significant Industrial Users requiring an Industrial User Permit shall be assessed a fee for service charge for each Scheduled Sampling and Unscheduled Compliance Sampling to be performed by the Authority. The charge to the Significant Industrial User for each Scheduled Sampling shall be set through a Resolution by the Authority. The charge to the Significant Industrial User for each Unscheduled Compliance Sampling shall be 120 percent of the cost of each Scheduled Sampling.

A sampling frequency table shall be on file at the Wastewater Treatment Facility for each Significant Industrial User and shall indicate the number of Scheduled Samplings that are to be routinely performed by the Authority for a certain time period, not including Unscheduled Compliance Samplings. The Authority shall sample all Significant Industrial Users at least once per year.

The Scheduled Sampling frequency shall be based on several criteria including, but not limited to: flow, SIC number and historical waste characteristics including past Ordinance violations. Periodic reviews of the date at least once per year but not more frequently than every six months may result in revisions of the table. An Unscheduled Compliance Sample may be collected from and Industrial User within 10 working days after the Authority identifies a violation of any provision of this Resolution resulting from any Scheduled or Unscheduled Sampling.

§ 11.5 -Other Sampling and Testing Fees: The Authority may collect Waste samples, make inspections and incur other expenses in order to determine User compliance with applicable rules and regulations, and may assess Users certain fees for those services in accordance with a Resolution set by the Authority.

SECTION TWELVE – VALIDITY.

§ 12.1 -Construction and Severability: Should any Section or provision of this Resolution be declared by a court of competent jurisdiction to be invalid, such decision shall not affect the validity of this Resolution as a whole, or of any other part thereof.

§ 12.2 -Repealer: All Resolutions or parts of Resolutions inconsistent herewith are hereby repealed.

§ 12.3 -Effective Date: This Resolution shall become effective immediately.

CERTIFICATE OF ADOPTION

We the undersigned, Chairman and Secretary respectively, of Halifax Area Water And Sewer Authority (the "Authority"), certify that: the foregoing is a true and correct copy of a Resolution which duly was adopted by majority vote of the entire Board of the Authority at a meeting of said Board duly convened according to law and held on _____,at which meeting a quorum was present; said Resolution duly has been recorded in the minutes of said meeting; and said Resolution remain in full force and effect, unaltered and unamended as of the date of this Certificate.

IN WITNESS WHEREOF, we affix our hands and the Secretary affixes the official seal of the Authority, this ____ day of _____, 2016.

HALIFAX AREA WATER AND SEWER AUTHORITY

By: _____

Attest:

(SEAL)

**HALIFAX AREA WATER AND SEWER AUTHORITY
SEWER SYSTEM RATE SCHEDULE
Effective March 2016**

The Halifax Area Water and Sewer Authority is comprised of 7 individuals. Generally terms of appointment are for 5 years. Currently, Authority meetings are held the 3rd Tuesday of each month beginning at 7:00 P.M. The meetings are open to the public and we invite your comments, recommendations and opinions concerning the various services provided by the Authority.

Sewer System User Fees (Quarterly per EDU):

Standard	\$ 90.00
Residential Senior Citizen <i>(65 and over, must attend public meeting with proof of age to have discount granted by board vote)</i>	\$ 75.00
Non-Residential	\$ 115.00

Tapping fee (per EDU) \$4,106.06
Sewer capacity considered at 221 gpd/EDU

Inspection fee (per inspection) \$ 100.00

Late charge - After 30 days from billing date, a penalty of 5% will be charged for each quarter or fraction thereof during which the bill remains unpaid. Service may be discontinued if bill is not paid within 3 months of the due date.

Attorneys' Fees and Costs for Collection of Delinquent Accounts:

Attorney Fees	\$200.00/hour
Paralegal/Assistant Fee	\$ 60.00/hour
Title Search Fee	\$100.00/hour
Filing Fees	As established by authority having jurisdiction
Sheriff's Deposit	\$1,500.00
Notary Fee	\$5.00 per seal

In addition to the charges listed above, account is required to pay all additional fees incurred by Authority or Authority's Solicitor in collection of the account. These fees may include, without limitation, postage fees, copying costs, Sheriff's fees for service of process, etc.

Water Disconnect/Reconnect for Failure to Pay Sewer Bills:

Disconnect Fee	\$ 50.00
Reconnect Fee	\$ 50.00

HALIFAX AREA WATER AND SEWER AUTHORITY

RESOLUTION NO. 2016-02

**A RESOLUTION OF THE AUTHORITY BOARD ESTABLISHING
SEWER SYSTEM TAPPING FEES IN ACCORDANCE WITH
ACT 57 OF 2003.**

WHEREAS, HALIFAX AREA WATER AND SEWER AUTHORITY (the "Authority") owns and operates a municipal sewer system serving the Borough of Halifax and portions of Halifax Township, in Dauphin County; and

WHEREAS, the Pennsylvania Municipality Authorities Act confers upon the Authority the power to charge property owners, who desire to connect to the Authority's sewer system, a tapping fee; and

WHEREAS, Act 57 of 2003 (P.L. 404) amended the Pennsylvania Municipality Authorities Act by revising, inter alia, the method of calculating and determining various tapping fees and tapping fee components chargeable to such property owners; and

WHEREAS, after undertaking appropriate and required study and consideration, the Board of the Authority has determined the need to establish tapping fees effective March 16, 2016, consistent with the requirements of Act 57 of 2003.

NOW, THEREFORE, the Board of the Authority, in public session duly assembled, hereby RESOLVES as follows:

1. Effective March 16, 2016, any property owner desiring to connect to the Authority's sewer system shall pay to the Authority prior to connecting thereto a tapping fee per Equivalent Dwelling Unit (EDU)*, consistent with the following components;

	Tapping Fee per EDU
Capacity Part	\$1,232.99
Collection Part	\$2,873.07
<i>Total Area Wide (per EDU)</i>	<i>\$4,106.06</i>

*Equivalent Dwelling Unit” or “EDU” means any room, group of rooms, house, trailer or other structure or enclosure occupied or intended for occupancy as separate living quarters by a family or by persons living together or by persons living alone. For a non-residential use, the number of EDUs for such non-residential use shall be calculated by dividing the projected maximum sewer flows by 221 gallons per day, rounded up to the next whole number. The projected maximum sewer flows shall be provided by the property owner and shall be based on the maximum anticipated use during a period of ninety (90) consecutive calendar days. Tapping fee adjustments may be assessed after the first full year of use and thereafter should the actual maximum sewer flows exceed the projected maximum sewer flows.

2. The Halifax Area Water And Sewer Authority Sewer Tapping Fee Calculations, completed in conformance with Act 57 of 2003, dated March, 2016, are hereby incorporated as Schedule A and Schedule B, made a part of this Resolution, and shall be made available for public inspection in accordance with applicable law.
3. The tapping fees set forth in this Resolution and adopted hereby shall remain in effect until changed or modified by the Board of the Authority as provided by law.
4. All rules, regulations and resolutions of the Authority and all parts or portions thereof to the extent not specifically modified hereby shall remain in full force and effect, it being the intention of this Resolution only to establish tapping fees as noted above and to effect no other changes to any prior rules, regulations or resolutions of this Authority.

RESOLUTION APPROVED this 15th day of March, 2016.

ATTEST:

HALIFAX AREA WATER AND SEWER
AUTHORITY

Secretary

By: _____
Chairman

**Halifax Area Water And Sewer Authority
Sewer Tapping Fee Calculations**

Dated: March, 2016

Historical Index Thru December 31, 2015

YEAR	Net Related Capacity Cost	Net Related Collection Cost	10039 ENR Index	Trend Factor	Trended Historical Capacity	Trended Historical Collection
1971	\$184,514.00	\$322,648.00	1581	6.35	\$1,171,623.00	\$2,048,743.00
1994	\$0.00	\$367,027.00	5408	1.86	\$0.00	\$681,321.00
2015	\$0.00	\$0.00	10039	1.00	\$0.00	\$0.00
Totals	\$184,514.00	\$689,675.00			\$1,171,623.00	\$2,730,064.00

	Capacity Part	Collection Part	Total
Total Trended Related Costs	\$1,171,623.00	\$2,730,064.00	\$3,901,687.00
Less Outstanding Debt	\$0.00	\$0.00	\$0.00
Net Related Costs	\$1,171,623.00	\$2,730,064.00	\$3,901,687.00

Design Capacity:	210,000	210,000	210,000
Cost per Gallon	\$5.58	\$13.00	\$18.58
Persons Per Household	2.45	2.45	2.45
Gal Per Person Per Day	90	90	90
Gal Per Day Per EDU	221	221	221

	Capacity Part	Collection Part	Total
Tapping Fee Area Wide	\$1,232.99	\$2,873.07	\$4,106.06

Halifax Area Water And Sewer Authority
Sewer Tapping Fee Calculations

Design Capacity:	210,000 Gal Per Day
Persons Per Household	2.45
Gal Per Person Per Day	90
Gal Per Day Per EDU	221

<u>Year</u>	<u>Description</u>	<u>Capacity</u>	<u>Collection</u>
1971	Original Project	\$293,618.00	\$513,734.00
	Minus Grants	-\$109,104.00	-\$191,086.00
	Total 1971	\$184,514.00	\$322,648.00
1994	Sheetz & Plaza		\$272,495.00
	Plaza		\$94,532.00
	Total 1994		\$367,027.00

POLICIES FOR SEWER MAIN EXTENSIONS

1. All mains shall be extended at the sole expense of the person or persons requesting such extension.
2. All mains shall be extended to the furthestmost property lines of the person or persons requesting such extension. The only exception shall be where lines cannot be further extended.
3. The size and location of the mains shall be determined by the Authority's Engineer so as to comply with the Authority's long-range facilities plan.
4. If planning is required, the Developer shall deposit with the Authority ample monies to cover all costs the Authority may incur in the furtherance of the proposed extension.
5. If a Subdivision or Land Development Plan is approved which will result in an extension to the sewer system, a copy of the Plan, as recorded at the Dauphin County Court House, shall be provided to the Authority on an acceptable format media.
6. Design:
 - A. Should the Developer elect to have the Authority design the extension, a Design Extension Agreement shall be signed and security placed in escrow for the design and legal costs the Authority may incur in the furtherance of the proposed extension.
 - B. Should the Developer elect to have his Engineer design the extension, a Construction Agreement shall be signed and security placed in escrow for the review and any legal costs the Authority may incur in the furtherance of the proposed extension, as more fully discussed herein.
7. All Extension Plans shall consist of the following:
 - A. Size of the plans and scale shall match the existing Authority Plans.
 - B. Title Sheet, Sheet 1.
 - C. Location Plan, Sheet 2.
 - D. General Plan, Sheet 3.
 - E. Construction Details, Sheet 4.
 - F. Design Details, Sheet 5 through ____.

All Plan Sheets shall be done on computer in a file format conforming to AutoCAD, using or saved-to the current version in use by the Authority's consulting engineer. The

layers, colors and line types shall conform to the format utilized by the Authority's consulting engineer.

The Authority's datum must be used for establishing elevations. Developer shall contact the Authority's Engineer to obtain a General Plan for the area encompassing the proposed extension. All Plan Sheets shall be oriented with the north arrow pointing the same direction as the General Plan. In accordance with Act 287 and any subsequent legislation, all existing utilities shall be indicated on the Plans.

8. In some cases, the Authority may have digitized mapping available for purchase through the Authority's consulting engineer.
9. After the proposed extension is designed and has been approved by the Authority's Engineer, the Authority's Engineer will apply for all applicable permits, as required. All permits shall be approved under the name of the Authority in accordance with applicable regulations.
10. A Construction Agreement shall be signed and security placed in escrow for applicable engineering fees, inspection services, as-constructed drawings and legal fees incurred or reasonable anticipated costs to be incurred in connection with the proposed construction. In addition, a "Letter of Credit", or bond executed by a surety named in the current list of "Companies Holding Certificates of Authority as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department shall be provided. Said security shall be in an amount acceptable to the Authority, to guarantee the satisfactory and timely completion of all sewer facilities as set forth in a cost estimate that has been reviewed and approved by Authority's engineer.
11. Construction:

The construction can be done under one of the following procedures:

- A. Developer can utilize his own construction forces to perform the work, providing, however, that the following is submitted and approved by the Authority:
 - (1) Name of Contractor performing the work.
 - (2) A minimum of three (3) copies of Shop Drawings and pipe certifications shall be submitted prior to the start of any construction.
 - (3) Estimated length of time for construction to be used for estimating the initial amount of security to be placed in escrow.
 - (4) Submit insurance certificates and Hold-harmless Agreements naming the Authority, Borough and/or Township (as applicable), and Engineer as co-insureds and certificate holders.
 - (5) The limits of liability shall be as determined by the Authority's insurance carrier.

- (6) Submit a one-and-one-half year (1½ year) Performance and Maintenance Bond to the Authority after construction is complete and final acceptance and certification is received from the Authority and/or Authority's Engineer.
- B. The Developer can elect to have the Authority advertise for competitive bids. Should the Developer select this alternate, an agreement with the Authority will be required and the following procedures shall be undertaken:
- (1) Since the Developer is providing all the funds for the project, prevailing wages would not apply.
 - (2) The Authority will advertise for competitive bids and establish a date for the bid opening.
 - (3) All bidders will be required to provide a Bid Bond in the amount of five percent of the base bid and a letter of commitment from an acceptable licensed surety company.
 - (4) After bids are received, the following procedures will apply:
 - (a) The fiscal report, outlining all costs of the project, including construction cost, contingencies, inspection, construction management, stakeout, and any other costs, will be submitted to the Developer for his approval.
 - (b) Should the developer elect to proceed with the project, the following will apply:
 - i. A letter accepting the fiscal report and authorization to the Authority to proceed with the project shall be submitted by the Developer to the Authority.
 - ii. The total project cost as outlined in the fiscal report shall be deposited with the Authority, either directly or made available through a local lending institution for monthly draws.
 - iii. As construction proceeds, monthly draws on the funds shall be made through the process of requisitions which shall include the following:
 - a. Designated payee.
 - b. Purpose.
 - c. Amount certified by the Authority's Engineer.
 - d. Authorization by the Authority.

e. Acceptance by representatives of the Developer.

After requisitions are executed by all parties, the Authority will issue the payments to the payee.

iv. After construction is complete, the Contractor shall submit the following:

a. One-and-one-half year (1 ½ year) Performance and Maintenance Bond.

b. Contractor's Affidavit stating to the Authority that all labor, material and outstanding claims and indebtedness of whatever nature arising out of the performance of the contract, have been paid in full.

c. Statement of Surety and Power of Attorney.

v. After finalization of the project, the Authority's Engineer will prepare the necessary as-constructed drawings and a complete itemized breakdown of the project and submit all pertinent data to the Authority and the Developer.

12. As work proceeds on the project and additional funds may be required by the Developer, the Authority will inform the Developer of any deficiencies, and additional monies must be deposited with the Authority or in the lending institution selected by the Developer. After completion of the project, if any monies remain in the construction account, all monies will be returned to the Developer.

13. After completion, testing, and preparation of as-built drawings, the utilities shall be dedicated to the Authority and a Bill of Sale shall be prepared by the Authority for execution by the Authority and the Developer. As a further condition of the Bill of Sale, any easements and/or rights-of-way through or on private property required for the sewer extension shall be provided by the Developer, or shall be prepared by the Authority at the Developer's expense.

INFORMATION AND SPECIAL CONDITIONS – SEWER

GENERAL

It shall be the intent of the Halifax Area Water and Sewer Authority to have the Developer provide a complete sewer system installation. All work and materials specified or intended shall be supplied by the developer.

DEFINITIONS

“Authority” shall mean the Halifax Area Water and Sewer Authority.

“Owner” shall mean the Halifax Area Water and Sewer Authority.

“Developer” shall mean the party or parties constructing improvement to a tract of land, or his agent.

“Contractor” shall mean the agent of the Developer.

“Engineer” shall mean the Engineer of the Halifax Area Water and Sewer Authority.

DESIGN CRITERIA

The sewerage system including all sewer mains, manholes, pumping stations, force mains, and appurtenances, shall be designed in accordance with the latest revision of the Department of Environmental Protection Guidelines and these specifications.

It shall further be the responsibility of the Developer to comply with all local, county, state and federal regulations.

SPECIAL CONDITIONS

1. These specifications are intended as a guide to the Developer, and the Authority reserves the right to make necessary corrections, additions or deductions to these specifications.
2. The Authority reserves the right to request additional work and materials where, in its opinion, conditions warrant such work and materials.
3. Prior to the start of construction the Developer shall submit a minimum of three (3) copies of shop drawings to the Authority for all materials to be utilized and receive approval of such materials.

AUTHORITY REQUIREMENTS

1. All work on this project shall be done in compliance with all applicable federal, state, county or local laws and regulations whether herein stated or not. In the event of conflict between the requirements herein stated and the rules and regulations of other federal, state, county or local agencies, the more stringent shall apply.
2. Developer and/or Contractor shall obtain insurance in an amount specified by the Authority. See Page ISC-3 for insurance requirements. This insurance should include, but not be limited to, coverage for bodily injury (BI) and property damage (PD) caused by blasting.
3. Proof of all necessary insurance coverages shall be submitted to the Authority in the form of a Certificate of Insurance prior to the inception of any construction activities conducted by the Developer and/or Contractor.
4. Furthermore, the Halifax Area Water and Sewer Authority, Halifax Borough and/or Halifax Township (as applicable), and the Authority's Engineer, shall be listed on the Developer's and/or Contractor's General Liability Policy as an additional insured, in respect to this project.

OSHA REQUIREMENTS

All work on this project must be done in compliance with state and federal Occupational Health and Safety Regulations. Applicable regulations shall include but not be limited to the following examples:

1. If rock drilling machinery is used, it must be equipped with integral water or exhaust ventilation dust suppression device.
2. Potential noise exposures shall be evaluated and control measures implemented as necessary. Where noise levels exceed standards, employees shall have audiometric tests.
3. Potential dust exposures shall be evaluated and control measures implemented as necessary. Where silica dust levels exceed standards, employees shall have chest X-ray (14" X 17") examinations.
4. Where confined spaces (manholes, etc.) must be entered, the atmosphere must be tested for combustible gases (as a minimum) and mechanical ventilation used prior to entry and during occupancy. A worker must also be stationed outside the confined space to offer assistance should a problem occur. Procedures for entry must be submitted to the Department where the employer is subject to Commonwealth regulations.
5. Lasers used for alignment work must be registered with the Department and any injuries resulting from the use of lasers must be reported.

INSURANCE

Insurance coverages are required to be written on an “occurrence basis.” Furthermore, coverage should be written through an insurance company rated as A- or better by AM Best. The limits of liability for insurance coverages shall be, at the minimum, as follows:

1. Workers’ Compensation:

- a. All state requirements for Workers’ Compensation coverage shall be met, including:

(1) Employer’s liability:

Bodily Injury by Accident: \$100,000 each accident
Bodily Injury by Disease: \$500,000 policy limit
Bodily Injury by Disease: \$100,000 each employee

2. Comprehensive General Liability:

(Includes Premises – Operations, Independent Contractors Protection, Contractual Liability, Products and Completed Operations, Broad Form Property Damage):

- a. Bodily Injury (including Completed Operations and Products Liability):

\$1,000,000 each occurrence
\$2,000,000 annual aggregate

- b. Property Damage:

\$1,000,000 each occurrence
\$2,000,000 annual aggregate

- c. Comprehensive General Liability Insurance will provide coverage at the limits indicated above for the exposures of:

Explosion
Collapse
Underground

- d. If operations involve or require the use of blasting, the Contractor will provide blasting coverage to protect bodily injury and property damage per the above minimum general liability limits.

3. Comprehensive Automobile Liability:

Bodily Injury and Property Damage:

\$1,000,000 each person/occurrence

4. Owner's Protective Liability:

Bodily Injury/Property Damage:

\$1,000,000 each occurrence

\$2,000,000 annual aggregate

5. Excess/Umbrella Liability:

Limit of Liability:

\$1,000,000 Products/Completed Operations Aggregate

\$1,000,000 General Aggregate

\$1,000,000 BI/PD Any One Occurrence

6. As stated under Authority requirements:

Prior to the initiation of any construction activities all Developers and/or Contractors shall have submitted an approved Certificate of Insurance outlining the required insurance coverages. Submit insurance certificates and Hold-harmless Agreements naming the Authority, Borough and/or Township (as applicable), and Engineer as co-insureds and certificate holders. The certificates shall contain a provision that coverages will not be cancelled or non-renewed unless at least thirty (30) days' written notice has been provided to the Authority.

END OF SECTION

SECTION 01010

SUMMARY OF WORK

PART 1 – GENERAL

1.01 SITE LOCATION

- A. The project site is located in Halifax _____, Dauphin County Pennsylvania; exact area as indicated on the drawings.

1.02 WORK INCLUDED

- A. Without intending to limit or restrict the volume of Work required, the project includes but is not limited to the following:
 - 1. Construction of sanitary sewer mains, laterals and valves.
 - 2. Pipeline testing, sewer main and manholes.
 - 3. Soil erosion control.
 - 4. Private right-of-way restoration.
 - 5. Street restoration.
 - 6. Preparation of record drawings for completed project area.

1.03 ENGINEERING STAKES

- A. The Contractor shall furnish, set and maintain suitable stakes, grade boards, temporary structures, templates and other materials for establishing and maintaining points, marks and lines, and is responsible for setting or checking such points, marks or lines, and in making or checking measurements necessary in the prosecution of the Work.
- B. The Contractor shall be responsible for the preservation of all stakes and marks.

1.05 PROJECT COORDINATION

- A. The Contractor shall inform the Authority as soon as delay in the Work is occasioned, or is likely to occur due to delays in the manufacture or delivery of the specified equipment.

1.06 SCHEDULING OF OPERATIONS

- A. In the phases of Work or schedules of operations that follow, it is not essential that one operation be completely finished before another is started.
- B. All Work required by the Contractor to maintain his schedule of operations will be considered incidental to the other items of Work of this contract.

C. Phases of Work

1. General

The Work shall be divided into the following phases:

- a. Installation of sanitary sewer main and appurtenances.
- b. Installation of sewer house laterals.
- c. Restoration and paving.

2. It should be noted that all phases of Work involve the installation of pipelines below grade and shall follow relatively the same schedule of operations.

D. Schedule of Operations

1. Locate all underground utilities and existing physical features that are not to be removed during the Work. Notify the Authority if any discrepancies exist between the actual conditions and contract drawings.
2. Perform excavation at required areas and elevations. Place appropriate piping embedment, install pipe in correct alignment and backfill trench as required.
3. Restore any unpaved surfaces, perform final grading and cleanup.

END OF SECTION

Section 01015

CONTRACTOR USE OF PREMISES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Section includes general use of the site including properties inside and outside of rights-of-way, work affecting road, ramps, streets and driveways and notification to adjacent occupants.

1.02 RIGHTS-OF-WAY

- A. Confine access and operations and storage areas to rights-of-way provided by the Owner; trespassing on abutting lands or other lands in the area is not allowed.
- B. Contractor may make arrangements, at Contractor's cost, for temporary use of private properties, in which case Contractor and Contractor's surety shall indemnify and hold harmless the Authority and the municipality against claims or demands arising from such use of properties outside of rights-of-way. Submit copy of agreement between private property owner and Contractor for materials storage prior to use of the area.
- C. Obtain appropriate permits for storage of materials within rights-of-way. Submit copies of permits prior to use of the area.
- D. Restrict total length which materials may be distributed along the route of the construction at any one time as approved in writing by the Authority.

1.03 PROPERTIES OUTSIDE OF RIGHTS-OF-WAY

- A. Altering the condition of properties adjacent to and along rights-of-way will not be permitted.
- B. Means, methods, techniques, sequences, or procedures which will result in damage to properties or improvements in the vicinity outside of rights-of-way will not be permitted.
- C. Any damage to properties outside of rights-of-ways shall be repaired or replaced to the satisfaction of the Authority.

1.04 USE OF SITE

- A. Obtain approvals of governing authorities (i.e. Municipality and/or PennDOT) prior to impeding or closing public roads or streets. Do not close more than two consecutive intersections at one time.
- B. Notify Owner 48 hours prior to closing a street or a street crossing. Permits for street closures are required in advance and are the responsibility of the Contractor.
- C. Maintain access for emergency vehicles including access to fire hydrants.
- D. Avoid obstructing drainage ditches or inlets; when obstruction is unavoidable due to requirements of the Work, provide grading and temporary drainage structures to maintain unimpeded flow.

- E. Locate and protect private lawn sprinkler systems which may exist on rights-of-ways within the site. Repair or replace damaged systems to condition equal to or better than that existing at start of Work.
- F. Perform daily clean-up of dirt outside the construction zone, and debris, scrap materials, and other disposable items. Keep streets, driveways, and sidewalks clean of dirt, debris and scrap materials. Do not leave building, roads, streets or other construction areas unclean overnight.

1.05 NOTIFICATION TO ADJACENT OCCUPANTS

- A. Notify individual occupants in areas to be affected by the Work of the proposed construction and time schedule. Notification shall be not less than 72 hours or more than 2 weeks prior to work being performed within 200 feet of the homes or businesses.
- B. Include in notification names and telephone numbers of two company representatives for resident contact, who will be available on 24-hour call. Include precautions which will be taken to protect private property and identify potential access or utility inconvenience or disruption.
- C. Submit proposed notification to the Authority for approval.

1.06 PUBLIC, TEMPORARY, AND CONSTRUCTION ROADS AND RAMPS

- A. Construct and maintain temporary detours, ramps, and roads to provide for normal public traffic flow when use of public roads or streets is closed by necessities of the Work.
- B. Provide mats or other means to prevent overloading or damage to existing roadways from tracked equipment or exceptionally large or heavy trucks or equipment.

1.07 EXCAVATION IN STREETS AND DRIVEWAYS

- A. Avoid hindering or needlessly inconveniencing public travel on a street or any intersecting alley or street for more than two blocks at any one time, except by permission of the Authority and Municipality.
- B. Obtain Authority and Municipality approval when the nature of the Work requires closing of an entire street. Permits required for street closure are the Contractor's responsibility. Avoid unnecessary inconvenience to abutting property owners.
- C. Remove surplus materials and debris and open each block for public use as work in that block is complete.
- D. Acceptance of any portion of the Work will not be based on return of street to public use.
- E. Avoid obstructing driveways or entrances to private property.
- F. Provide temporary crossing or complete the excavation and backfill in one continuous operation to minimize the duration of obstruction when excavation is required across drives or entrances.
- G. Provide barricades and signs in accordance with the Pennsylvania Department of Transportation.

1.08 TRAFFIC CONTROL

- A. Comply with traffic regulation as specified by the Authority, Municipality and/or PennDOT, as applicable.

1.09 SURFACE RESTORATION

- A. Restore site to condition existing before construction to satisfaction of the Authority and Municipality.
- B. Repair paved areas per the requirements of Section 02575 - Paving and Resurfacing and applicable road opening or highway occupancy permits.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01060

REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDE

- A. Comply with requirements of permits obtained by the Authority.
- B. Obtain and pay for all other permits required to perform the Work in compliance with applicable local, state and federal laws and regulations.
- C. Pay all inspection fees related to permits or requirements of governing agencies, utilities, railroads, etc.
- D. If, throughout the process of the Work within state highways, it is deemed necessary by the Pennsylvania Department of Transportation to post field inspectors on that portion of the project within their right of way, the Contractor/Developer shall reimburse the Pennsylvania Department of Transportation for the cost of the inspection so applied.

1.02 PERMITS TO BE ACQUIRED BY THE DEVELOPER IN THE NAME OF THE AUTHORITY

- A. PennDOT “Highway Occupancy Permit”
- B. Dauphin County Conservation District “Erosion and Sediment Pollution Control Plan” approval
- C. Department of Environmental Protection “Notice of Intent for Coverage under the General NPDES Permit” or Individual NPDES Permit or similar earth disturbance permit, as applicable.

NOTICE: The NPDES Permit will be co-permitted to the Contractor prior to the beginning of construction.

END OF SECTION

Section 01300

SUBMITTALS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Submittal procedures for:
1. Shop Drawings, Product Data, and Sampler
 2. Manufacturer's Certificates
 3. Design Mixes

1.02 SUBMITTAL PROCEDURES

A. Scheduling and Handling

1. Schedule submittals well in advance of the need for the material or equipment for construction. Allow time to make delivery of material or equipment after submittal is approved.
2. Develop a submittal schedule that allows sufficient time for initial review, correction, resubmission and final review of all submittals. The Authority's Engineer will review and return submittals to the Developer's Contractor as expeditiously as possible but the amount of time required for review will vary depending on the complexity and quantity of data submitted. In no case will a submittal schedule be acceptable which allows less than 10 days for initial review by the Engineer.
3. The Engineer's review of submittals covers only general conformity to the Drawings, specifications and dimensions which affect the layout. The Contractor is responsible for quantity determination. No quantities will be verified by the Engineer. The Contractor is responsible for any errors, omissions or deviations from the requirements; review of submittals in no way relieves the Contractor from his obligation to furnish required items according to the Drawings and Specifications.
4. Submit 3 copies of documents unless otherwise specified in the following paragraphs or in the Specifications.
5. Revise and resubmit submittals as required. Identify all changes made since previous submittal.
6. The Contractor shall assume the risk for material or equipment which is fabricated or delivered prior to approval. No material or equipment shall be incorporated into the Work until approval has been obtained in the specified manner.

B. Transmittal Form and Numbering

1. Transmit each submittal to the Engineer with a Transmittal Letter.
2. Sequentially number each submittal beginning with the number 1. Resubmittals shall use the original number with an alphabetic suffix (i.e., 2A for first resubmittal of Submittal 2 or 15C for third resubmittal of Submittal 15). Each submittal shall only contain one type of work, material, or equipment. Mixed submittals will not be accepted.

3. Identify variations from requirements of Specifications and identify product or system limitations.

C. Contractor's Stamp

1. Apply Contractor's stamp, certifying that the items have been reviewed in detail and are correct and in accordance with Specifications, except as noted by any requested variance.

2. As a minimum, Contractor's Stamp shall include:

- a. Contractor's name
- b. Job number
- c. Submittal number
- d. Certification statement that the Contractor has reviewed the submittal and it is in compliance with the Contract Documents
- e. Signature line for Contractor

1.03 MANUFACTURER'S CERTIFICATES

A. When specified in Specification sections, submit manufacturers' certificate of compliance for review by Engineer.

B. Contractor's Stamp, as described in paragraph 1.02C, shall be placed on front page of the certification.

C. Submit supporting reference data, affidavits, and certifications as appropriate.

D. Certificates may be recent or previous test results on material or product, but must be acceptable to Engineer.

1.04 DESIGN MIXES

A. When specified in Specifications, submit design mixes for review.

B. Contractor's Stamp, as described in paragraph 1.02C, shall be placed on front page of each design mix.

C. Mark each design mix to identify proportions, gradations, and additives for each class and type of design mix submitted. Include applicable test results on samples for each mix.

D. Maintain a copy of approved design mixes at mixing plant.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 01410

AUDIO-VIDEOTAPING OF PROJECT SITE

PART 1 - GENERAL

1.01 APPLICABILITY

- A. This section applies when any part of a main extension is proposed to be constructed within 200 feet of existing developed properties.

1.02 VIDEOTAPING

A. Pre-Videotaping

- 1. Audio-videotaping along the project line route shall be submitted prior to the start of any construction activities. The recording equipment used must be of professional grade as rated by the manufacturer, and meet the requirements listed below under equipment.

B. Post-Videotaping

- 1. Following the completion of the project and all restoration and paving, a second video shall be taken and submitted. The video shall be taken either immediately following a rain event or upon introduction of an external water source to indicate drainage characteristics.

1.03 QUALIFICATIONS

- A. Required taping shall be performed by an independent third party firm actively engaged, experienced and knowledgeable in video taping existing conditions on utility projects. The Authority reserves the right to request sample work and investigate the qualifications of any firm chosen to perform this work.
- B. The taping shall be scheduled in advance with the Authority, in the event the Authority may wish to be present.

PART 2 - PRODUCTS

2.01 RECORDING MEDIA

- A. Contractor shall determine appropriate form of permanent recording media (such as DVD, Blu-ray, thumb drive, U-matic, VHS tape, etc.) and shall submit details of the media in accordance with Section 01300.
- B. Media shall be manufactured by a recognized manufacturer (MAXELL, SONY, TDK, etc.). Deliver two copies to the engineer.
- C. Media shall be playable on desk top players and laptop computers.

PART 3 - EXECUTION

- 3.01 All taping to be done during periods of good visibility and not during periods of visible precipitation or while ground is covered by snow.
- 3.02 Control direction of travel, panning rates, and zoom in-out rates in a manner that produces clarity of subject during playback. When a conventional wheeled vehicle is used, approximately 9 foot lens to ground distance should be maintained. In areas not accessible by conventional wheeled vehicles taping shall be conducted on foot along R.O.W's and areas of influence plus 15 feet on either side at 100 feet intervals minimum.
- 3.03 Include in taped coverage driveways, sidewalks, curbs, ditches, (to show drainage patterns), streets (as full width as possible), landscaping, trees, shrubs, culverts, catch basins, retaining walls, headwalls, fences, visible utilities, and building exteriors within the zones of influence. Easements should be given consideration where deemed necessary by the Authority. Houses and buildings should be identified both audibly and visibly when possible.
- 3.04 Properly identify all media (discs/drives and cases) by tape number, date, locations, and project name. Begin each media file/tape with current date, project name and municipality.
- 3.05 Unless waived by the Authority all taping shall be done in their presence or person approved.
- 3.06 Supply an index run sheet with a record of each media contents and identify locations, station numbers, line numbers, etc., referenced to time and date encoded on media.
- 3.07 DELIVERY OF MEDIA
 - A. Media are to be delivered to the Authority prior to the start of any construction within the zones of influence unless waived by the Authority.
 - B. Produce two complete sets of media.

END OF SECTION

WASTE MATERIAL DISPOSAL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Disposal of waste material and salvageable material.

1.02 SUBMITTALS

- A. Obtain and submit disposal permits for proposed disposal sites if required by local ordinances.
- B. Submit a copy of written permission from property owner, along with description of property, prior to disposal of excess material adjacent to the Project. Submit a written and signed release from property owner upon completion of disposal work.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 SALVAGEABLE MATERIAL

- A. Excavated material: When indicated on Drawings, load, haul, and deposit excavated material at a location or locations shown on Drawings outside the limits of Project.

3.02 EXCESS MATERIAL

- A. Vegetation, rubble, broken concrete, debris, asphaltic concrete pavement, excess soil, and other materials not designated for salvage shall be removed from the job site and legally disposed of.
- B. Excess soil may be deposited on private property adjacent to the Project when written permission is obtained from property owner. See Paragraph 1.02 B. above.
- C. Verify the flood plain status of any proposed disposal site. Do not dispose of excavated materials in an area designated as within the 100-year Flood Hazard Area unless a Permit has been obtained.
- D. Waste materials shall be removed from the site on a daily basis, such that the site is maintained in a neat and orderly condition.

END OF SECTION

TRAFFIC CONTROL AND REGULATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Requirements for signs, signals, control devices, flares, lights and traffic signals, as well as construction parking control, designated haul routes and bridging of trenches and excavations.
- B. Requirement for and qualifications of flaggers.

1.02 SUBMITTALS

- A. The Contractor shall submit a traffic control plan for the project area.
- B. The Contractor shall provide such information and records regarding the use of qualified flaggers to verify that the Contractor's use of flaggers is in compliance with the Specifications and PennDOT Publication No. 213.

1.03 FLAGGERS

- A. Use flaggers, qualified as described below, to control, regulate and direct the even flow or movement of vehicular or pedestrian traffic when construction operations encroach on public traffic lanes.

PART 2 - PRODUCTS

2.01 SIGNS, SIGNALS, AND DEVICES

- A. Comply with PennDOT and local municipality guidelines.
- B. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.

PART 3 - EXECUTION

3.01 PUBLIC ROADS

- A. Comply with PennDOT Publication No. 213. Abide by laws and regulations of governing authorities when using public roads. If the Contractor's work requires that public roads be temporarily impeded or closed, approvals shall be obtained from governing authorities and permits paid for before starting any work. Coordinate activities with the Authority.
- B. Wherever possible, maintain a 10-foot-wide all-weather lane adjacent to work areas which shall be kept free of construction equipment and debris and shall be for the use of emergency vehicles, or as otherwise provided in the traffic control plan.
- C. Contractor shall not obstruct the normal flow of traffic from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. on designated major arterials, or as directed by the Authority, Municipality, or PENNDOT.

- D. Contractor shall maintain local driveway access to residential and commercial properties adjacent to work areas at all times.
- E. Cleanliness of Surrounding Streets:
 - 1. Keep streets used for entering or leaving the job area free of excavated material, debris, and any foreign material resulting from construction operations.

3.02 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and municipal operations.
- B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.
- C. Prevent parking on or adjacent to access roads or in non-designated areas.

3.03 FLARES AND LIGHTS

- A. Provide flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.04 HAUL ROUTES

- A. Utilize haul routes designated by authorities or shown on the Drawings for construction traffic.
- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

3.05 TRAFFIC SIGNS AND SIGNALS

- A. Install traffic control devices at approaches to the site and on site, at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
- B. Install and operate traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control and areas affected by Contractor's operations.
- C. Relocate traffic signs and signals as Work progresses to maintain effective traffic control.

3.06 BRIDGING TRENCHES AND EXCAVATIONS

- A. Whenever necessary, bridge trenches and excavation to permit an unobstructed flow of traffic.
- B. Secure bridging against displacement by using adjustable cleats, angles, bolts or other devices whenever bridge is installed:
 - 1. On an existing bus route;
 - 2. When more than five percent of daily traffic is comprised of commercial or truck traffic;
 - 3. When more than two separate plates are used for the bridge; or
 - 4. When bridge is to be used for more than five consecutive days.
- C. Install bridging to operate with minimum noise.

- D. Adequately shore the trench or excavation to support bridge and traffic.
- E. Extend steel plates used for bridging a minimum of one foot beyond edges of trench or excavation. Use temporary paving materials (premix) to feather edges of plates to minimize wheel impact on secured bridging.
- F. Use steel plates of sufficient thickness to support H-20 loading, truck or lane, that produces maximum stress.

3.07 REMOVAL

- A. Remove equipment and devices when no longer required.
- B. Repair damage caused by installation.
- C. Remove post settings to a depth of 2 feet.

END OF SECTION

SECTION 01721

RECORD DRAWINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Maintenance and submittal of record drawings for sanitary sewer projects.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Maintain one record copy of documents at the site.
- B. Label each document "RECORD DRAWING" in neat, large, printed letters.
- C. Maintain record documents in a clean, dry, and legible condition. Do not use record documents for construction purposes.
- D. Keep record documents available for inspection by the Authority.

1.03 RECORDING

- A. The Contractor shall maintain a complete set of record drawings which shall be corrected daily with date notations. Notations shall show every change from the original Drawings. Changes shall include but not be limited to:
 - 1. Field changes of dimension and detail. This includes changes in sewer main lengths. Measure main length at the surface. Reference manholes to poles, house corners, or any other permanent feature.
 - 2. Show all services which are connected to the new sewer main. Give distance of the wye branch measured from the nearest downstream manhole. Record sewer lateral length from main to end of lateral and depth to top of pipe at end of lateral.
- B. All of this information shall be noted in red (hand drawn) on the Record Set of Drawings and shall be kept on the job site. Review the record documents with the Authority monthly. Provide the record set to the Authority for verification and approval.

1.04 SUBMITTALS

- A. The record set of documents shall be delivered to the Authority's Engineer. The delivery of the "record drawing" prints for the Engineer's use are a condition of Final Acceptance.

- B. Furnish drawings in AutoCAD in addition to paper copy, in current version used by Authority's Engineer.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 02100

CLEARING AND GRUBBING

PART 1 – GENERAL

1.01 DESCRIPTION

A. The Work of this section includes, but is not limited to:

1. Clearing
2. Grubbing
3. Stripping and stockpiling topsoil
4. Debris disposal

B. Related Work Specified Elsewhere:

1. Trenching, Backfilling and Compacting – Section 02221
2. Finish Grading and seeding – Section 02485

C. Definitions:

1. Clearing is defined as the removal of trees, brush, down timber, rotten wood, rubbish, any other vegetation and objectionable material at or above original ground elevation not designated to be saved. Clearing also includes removal of fences, walls, guard posts, guard rails, signs and other obstructions interfering with the proposed Work.
2. Grubbing is defined as the removal from below the surface of the natural ground of stumps, roots and stubs, brush, organic materials and debris.

1.02 JOB CONDITIONS

A. The Contractor may clear all obstructions within the permanent and construction rights-of-way except those specifically designated to be saved or restored in the Specifications.

1.03 SUBMITTALS

A. Burning Permits:

1. Submit one copy of each on-site burning permit to the Authority if such permits are required by local jurisdictional authorities.

B. Permits for Disposal of Debris:

1. Arrange for disposal of debris resulting from clearing and grubbing to locations outside the right-of-way and obtain written agreements with the owners of the property where the debris will be deposited.
2. Submit one copy of the agreement with each property owner releasing the Authority from responsibility in connection with the disposal of the debris.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Temporary Fencing:
 - 1. Undamaged picket snow fence, 4' high.
 - 2. Soil-set fence posts, studded "T" type, 6' high.
- B. Tree Wound Dressing:
 - 1. Antiseptic and waterproof, asphalt based.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Notify the Authority at least 48 hours prior to beginning any clearing work.
- B. Protect benchmarks, utilities, existing trees, shrubs and other landscape features designated for preservation with temporary fencing or barricades satisfactory to the Authority. No material shall be stored or construction operation carried on within 4 feet of any tree to be saved or within the tree protection fence.

3.02 UTILITY RELOCATIONS

- A. Inform all companies, individuals and others owning or controlling facilities or structures within the limits of the work which have to be relocated, adjusted or reconstructed in sufficient time for the utility to organize and perform such work in conjunction with or in advance of the Contractor's operations.
- B. Comply with the provisions of PA Act 287 of 1974 as amended by Act 187 of 1996.

3.03 CLEARING

- A. Confine clearing to within the limits of the Developer's property or the right-of-way or easement.
- B. Fell trees in a manner that will avoid damage to trees, shrubs and other installations which are to be retained.
- C. Where stumps are not required to be grubbed, flush-cut with ground elevation.

3.04 GRUBBING

- A. Grub areas within the construction limits to remove roots and other objectionable material to a minimum depth of 8".
- B. Remove all stumps within the cleared areas unless otherwise authorized by the Authority.

3.05 DEBRIS DISPOSAL

- A. Trees, logs, branches, brush, stumps and other debris resulting from clearing and grubbing operations shall be legally disposed of.
- B. Do not deposit or bury on the site debris resulting from the clearing and grubbing work.
- C. Debris may be burned on site if local ordinances allow open-air burning, if required permits are obtained, and if burning operations are conducted in compliance with local ordinances and regulations.

3.06 RESTORATION

- A. Repair all injuries to bark, trunk, limbs and roots of remaining plants by properly dressing, cutting, tracing and painting, using approved arboricultural practices and materials.
- B. Replace trees, shrubs and plants designated to be saved which are permanently injured or die as a result of construction operations.
- C. Remove protective fences, enclosures and guards upon the completion of the project.
- D. Restore guard posts, guard rails, signs and other interferences to the condition equal to that existing before construction operations.

END OF SECTION

SECTION 02110

EROSION CONTROL BLANKET

PART 1 – GENERAL

1.01 MATERIAL SPECIFICATION

- A. The erosion control blanket shall be a machine-produced mat of 100% agricultural straw with a functional longevity of approximately 12 months.
- B. The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with a lightweight photodegradable polypropylene netting having an approximate 0.50 X 0.50 inch (1.27 X 1.27 cm) mesh and be sewn together on 1.50 inch (3.81 cm) centers (50 stitches per roll width) with degradable thread.
- C. The blanket shall be manufactured with a colored line or thread stitched along both outer edges (approximately 2 – 5 inches [5 – 12.5 cm] from the edge) to ensure proper material overlapping.

PART 2 – PRODUCTS

1.01 MANUFACTURERS

- A. Straw erosion control blanket shall be S75 as manufactured by North American Green, or equivalent.
- B. Another acceptable manufacturer may be used upon approval.

1.02 MATERIALS AND SPECIFICATIONS

- A. The S75 erosion control blanket shall have the following properties:

MATERIAL CONTENT

Matrix	100% Straw Fiber (0.50 lbs/yd ²) (0.26 kg/m ²)
Netting	One side only, lightweight photodegradable (2.10 lbs/1,000 ft ² [1.02 kg/100m ²] approximate weight)
Thread	Degradable

PHYSICAL SPECIFICATIONS (PER ROLL)

	English	Metric
Width	6.67 ft	2.03 m
Length	108.00 ft	32.92 m
Weight	40.00 lbs ±10%	18.14 kg
Area	80.00 yd ²	66.89 m ²
Stitch Spacing	1.50 inches	3.81 cm

END OF SECTION

SECTION 02150

BORING AND CASING

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work of this Section includes, but is not limited to:

1. Approach trench excavation
2. Installation of casing pipe
3. Installation of carrier pipe

B. Related Work Specified Elsewhere:

1. Trenching, Backfilling & Compacting: Section 02221

C. Applicable Standard Details:

1. Boring Detail

1.02 QUALITY ASSURANCE

A. Contractor Qualifications:

1. Construction operations shall be undertaken only by a contractor well experienced in operations of similar magnitude and condition under transportation arteries and surface areas which cannot be disturbed.

B. Design Criteria:

1. Pipe and joints of leak-proof construction, designed for the earth and/or other pressures present, plus highway H20 loading or railway E80 loading with the associated recommended impact loading.
2. Design bracing, backstops, and use jacks of sufficient rating so that the jacking can proceed without stoppage, except for adding pipe sections and as conditions permit, to minimize the tendency of the ground material to 'freeze' around the casing pipe.

C. Allowable Tolerances:

1. Do not overcut excavation by more than 1" greater than the outside diameter of the casing pipe.
2. Install casing pipe with the determined vertical and horizontal alignment prior to installation of the carrier pipe.

D. Reference Codes and Specifications:

1. Comply with applicable federal, state and local ordinances, codes, statutes, rules and regulations, and affected jurisdictional bodies.
2. Pennsylvania Department of Transportation Publication 408 Specifications.

1.03 SUBMITTALS

- A. Submit history of previous work completed of equivalent nature and scope. Include qualification and experience of key personnel.
- B. Submit description of proposed construction methods, including methods to establish and maintain vertical and horizontal alignment.
- C. Submit manufacturer's data on casing pipe.
 1. Highway Crossings: Design casing pipe for earth and/or other pressure loads present, plus AASHTO H20 live loading.
 2. Railroad Crossings: Design casing pipe for earth and/or other pressure loads present, plus Cooper's Railroad E80 live loading with 50-percent added for impact.

1.04 JOB CONDITIONS

- A. Conduct operations so as not to interfere with, interrupt, damage, destroy, or endanger the integrity of surface or subsurface structures or utilities, and landscape in the immediate or adjacent areas.
- B. When boring under state highways and railroads, comply with applicable right-of-way occupancy permits.
- C. If boring is obstructed, relocate or jack crossing as approved by the Authority's Engineer.

PART 2 - PRODUCTS

2.01 STEEL CASING PIPE

- A. ASTM A139, Grade B; 35,000 psi min. yield strength.
- B. Full circumference welded joints.
- C. Diameter as shown on the Drawings.
- D. Minimum wall thickness as listed below:

Nominal Dia. (inches)	Coated or Cath. Protected	Uncoated and Unprotected
Under 14	0.188	0.251
14, 16	0.219	0.282
18	0.250	0.313
20	0.281	0.344
22	0.312	0.375
24	0.344	0.407
26	0.375	0.438
28, 30	0.406	0.469
32	0.438	0.501
34, 36	0.469	0.532
38, 40, 42	0.500	0.563
48	0.563	0.626
54	0.625	0.688

Smooth wall steel pipe with nominal diameter over 54" will not be permitted.

2.02 CASING SPACERS

- A. Casing spacers shall be RACI Casing Spacers as manufactured by Public Works Marketing, Inc., or approved equal. Installation shall be in accordance with the manufacturer.
- B. Other approved methods for cradling and anchoring pipe may be used. Spacing and end seals as required by manufacturer.

PART 3 - EXECUTION

3.01 APPROACH TRENCH

- A. Excavate approach trench using methods as site conditions require.
- B. Ensure pipe entrance face as near perpendicular to alignment as conditions permit.
- C. Establish a vertical entrance face at least 1 foot above top of casing or tunnel lining.
- D. Install adequate excavation supports as specified in Section 02221 - Trenching.

3.02 CASING PIPE DIAMETER

- A. Casing pipe diameter shall be as specifically indicated on the crossing plan or profile drawings for all bored crossings.
- B. Casing pipe diameter shall comply with the requirements of the Specifications and Drawings and as otherwise stated herein.

- C. Contractor has option to utilize larger casing pipe to facilitate anticipated rock/boulder removal; subject to the approval of the Authority's Engineer and any regulatory agency having jurisdiction.
- D. Contractor shall advise the Authority's Engineer of his proposed casing pipe diameter and provide suitable shop drawings prior to ordering materials and initiating work. This shall be done sufficiently ahead of time to obtain regulatory approvals as required.

3.03 CASING PIPE INSTALLATION METHODS

A. BORING:

1. Push the pipe into the ground with a boring auger rotating within the pipe to remove the spoil. Do not advance the cutting head ahead of the casing pipe except for that distance necessary to permit the cutting teeth to cut clearance for the pipe. The machine bore and cutting head arrangement shall be removable from within the pipe. Arrange the face of the cutting head to provide a barrier to the free flow of soft material.
2. If unstable soil is encountered during boring retract the cutting head into the casing to permit a balance between the pushing pressure and the ratio of pipe advancement to quantity of soil.
3. If voids should develop greater than the outside diameter of the pipe by approximately one inch, grout to fill voids.

B. JACKING:

1. Construct adequate thrust wall normal to the proposed line of thrust.
2. Impart thrust load to the pipe through a suitable thrust ring that is sufficiently rigid to ensure distribution of the thrust load on the pipe.

C. DRILLING AND JACKING:

1. Use an oil field type rock roller bit or plate bit made up of individual roller cutter units solidly welded to the pipe which is turned and pushed for its entire length by the drilling machine to give the bit the necessary cutting action.
2. Inject a high density slurry (oil field drilling mud) to the head as a cutter lubricant. Inject slurry at the rear of the cutter units to prevent jetting action ahead of the pipe.

D. MINING AND JACKING:

1. Utilize manual hand-mining excavation from within the casing pipe as it is advances with jacks, allowing minimum ground standup time ahead of the casing pipe.

3.04 DEWATERING:

- A. Intercept and divert surface drainage precipitation and groundwater away from excavation through the use of dikes, curb walls, ditches, pipes, sumps or other means.
- B. Develop a substantially dry subgrade for the performance of subsequent operations.
- C. Comply with Federal and State requirements for dewatering to any watercourse,

prevention of stream degradation, and erosion and sediment control.

3.05 PRESSURE GROUTING:

- A. Pressure grout the annular space between the casing pipe and surrounding earth.

3.06 CARRIER PIPE INSTALLATION:

- A. All provisions regarding cleaning, inspection and handling specified under pipe material sections apply to this work.
- B. Place the carrier as shown on the Drawings. Exercise care to prevent damage to pipe joints when carrier pipe is placed in casing.
- C. Support pipeline within casing so that no external loads are transmitted to carrier pipe. Attach casing spacers to barrel of carrier pipe; do not rest carrier pipe on bells.

3.07 CARRIER PIPE ANTIFLOTATION

- A. Upon completion of the carrier pipe installation, provide anti-flotation as follows:
 - 1. For encasement diameter up to 36 inches: provide sand or pea gravel fill for full crossing length to a point at least 1.5 times the full carrier pipe diameter above the top of the carrier pipe or to the crown of the encasement pipe; whichever is lesser.
 - 2. For encasement diameter of 36 inches or larger: provide anti-flotation as above or provide brick bulkheads or anchored tie roads at each bell of carrier pipe for full crossing length.

3.08 ENCASEMENT SEALS

- A. Seal encasement pipes at each end with brick and mortar, concrete bulkheads or end seals as required by manufacturer.

END OF SECTION

SECTION 02221

TRENCHING, BACKFILLING AND COMPACTING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work of this section includes, but is not limited to:
1. Cutting paved surfaces
 2. Blasting
 3. Trench excavation, backfill and compaction
 4. Support of excavation
 5. Pipe bedding requirements
 6. Control of excavated material
 7. Rough grading
 8. Restoration of unpaved surfaces
- B. Related Work specified elsewhere:
1. Clearing and Grubbing – Section 02100
 2. Boring – Section 02150
 3. Finish Grading and Seeding – Section 02485
 4. Paving and Resurfacing – Section 02575
- C. Applicable Standard Details:
1. Pipe embedment and trench backfilling
 2. Typical trench width at top of pipe
- D. Definitions:
1. Subgrade: Trench or excavation bottom prepared as specified herein to receive pipe bedding, concrete cradle or encasement, or structures.
 2. Unclassified Excavation: Excavation of all material encountered including soil, shale, rock, boulders, fill or other material on-site.
 3. Rock Excavation: Excavation of solid mineral rock greater than one-half cubic yard in volume requiring, with the Authority's Engineer's approval, drilling, blasting and wedging for its removal.
 4. Pipe Bedding: Placement of material as specified herein for full trench width from the subgrade a minimum of six (6) inches or one-fourth the internal diameter of the pipe, whichever is greater, below the pipe invert to half-way up the outside diameter of the pipe.
 5. Pipe Embedment: Placement of material as specified herein for full trench width from the top of the pipe bedding (halfway up pipe) to a point a minimum of six (6) inches above the pipe.
 6. Backfill: Placement of material as specified herein for full width of excavation from the top of the pipe embedment to the ground surface or, in the case of paved areas, to the bottom of replacement base course or paving.

1.02 QUALITY ASSURANCE

A. Testing Agency:

1. Compaction testing shall be performed by a Soils Testing Laboratory engaged and paid for by the Contractor and approved by the Engineer.

B. Reference Standards:

1. Pennsylvania Department of Transportation:

- a. Regulations Governing Occupancy of Highways by Utilities (67 PA Code, Chapter 459)
- b. Publication 408 Specifications
- c. Pennsylvania Test Method, PTM 106
- d. Pennsylvania Test Method, PTM 402
- e. Publication 203, Work Zone Traffic Control

2. American Society for Testing and Materials (ASTM):

- ASTM C33 Specifications for Concrete Aggregates
- ASTM D698 Tests for Moisture-Density Relations of Soils
- ASTM D2922 Test for Density of Soil and Soil Aggregate in Place by Nuclear Methods

C. Compaction Testing:

1. Conduct one test for each 1,000 linear feet of pipeline. Conduct compaction tests at locations as directed by the Authority's Engineer during backfilling operations.
2. Determine compaction in state highways and shoulders by the testing procedure contained in Pennsylvania Test Method PTM 106, Method B or PTM 402.
3. Determine compaction in areas other than state highways and shoulders by the testing procedure contained in ASTM D698 or ASTM D2922.

1.03 SUBMITTALS

A. Certificates:

1. Submit certification attesting that the composition analysis of pipe bedding and select backfill materials meet specification requirements.
2. Submit certified compaction testing results from the soils testing laboratory.

B. Compaction Equipment List:

1. Submit a list of all equipment to be utilized for compacting, including manufacturers' lift thickness limitations.

1.04 JOB CONDITIONS

A. Control of Traffic:

1. Employ traffic control measures in accordance with Pennsylvania Department of Transportation Publication 213. Refer to Section 01570 of the Specifications.
2. Comply with all local authorities. Obtain approval of traffic control plan from the Authority and Municipality prior to start of excavation.

B. Protection of Existing Utilities and Structures:

1. Take all precautions and utilize all facilities required to protect existing utilities and structures. Advise each Utility at least 3 working days in advance of intent to excavate, do demolition work or use explosives and give the location of the job site. Request cooperative steps of the Utility and suggestions for procedures to avoid damage to its lines.
2. Advise each person in physical control of powered equipment or explosives used in excavation or demolition work of the type and location of utility lines at the job site, the Utility assistance to expect, and procedures to follow to prevent damage.
3. Immediately report to the Authority any break, leak or other damage to the lines or protective coatings made or discovered during the work and immediately alert the occupants of premises of any emergency created or discovered.
4. Allow free access to Authority personnel at all times for purposes of maintenance, repair and inspection.
5. The Contractor shall be held liable for any damage done by reason of breaking of water, sewer, gas, telephone, electrical, or other utility service. In case, during the course of his work, he shall damage any of the aforementioned utilities, he shall immediately begin to repair the same and send notice to the proper authorities. Whenever the Contractor, during the progress of the excavation shall uncover service pipes or lines, which because of age or injury, are in poor condition, he shall immediately notify the proper Authority in order that steps may be taken for replacement or repair. To prevent dispute with property owners as to cause of damages, the Contractor shall notify his foreman to carefully note and properly report such damage.
6. Keep all fire hydrants, water valves, gas valves, fire alarm boxes, and letter boxes accessible for use.

PART 2 - PRODUCTS

2.01 PIPE BEDDING MATERIAL

A. Standard Pipe Bedding:

1. AASHTO No. 8 (formerly 1B) crushed stone or gravel aggregate, Table C, Section 703.2, Publication 408 Specifications. Do not use slag or cinders.

B. Alternate Pipe Bedding only where Approved by the Engineer:

1. AASHTO No. 57 (formerly 2B) crushed stone or gravel aggregate, Table C, Section 703.2, Publication 408 Specifications. Do not use slag or cinders.

2.02 PIPE EMBEDMENT MATERIAL

A. Standard Pipe Embedment:

1. AASHTO No. 8 crushed stone or gravel aggregate. Do not use slag or cinders.

B. Alternate Pipe Embedment (Only where approved by the Authority's Engineer):

1. AASHTO No. 57 crushed stone or gravel aggregate. Do not use slag or cinders.

2.03 BACKFILL MATERIAL

A. Native Backfill (Not permitted within existing paved road areas):

1. Material excavated from the site if free of stones larger than 6" in size and free of wet, frozen, and organic materials and refuse.

B. Clean Earth Backfill:

1. Material excavated from the trench if free of stones larger than 2" in size and free of wet, frozen, or organic materials and refuse.

C. Select Backfill:

1. Type 2A aggregate shall be limestone or shall demonstrate a weight in pounds per cubic foot equivalent to or greater than limestone.

PART 3 - EXECUTION

3.01 MAINTENANCE AND PROTECTION OF TRAFFIC

- A. Coordinate the work with the Authority and the Municipality to insure the least inconvenience to traffic and maintain traffic in one or more unobstructed lanes unless closing the roadway is authorized.
- B. Maintain access to all streets and private drives by hauling of excavated and backfill materials, if necessary, in suitably covered and leakproof trucks.
- C. Provide and maintain signs, flashing warning lights, barricades, markers, and other protective devices as required to conform with construction operations and to keep traffic flowing with minimum restrictions.
- D. Comply with state and local codes, permits and regulations.

3.02 STRIPPING

- A. The Contractor shall remove all paving, subpaving, curbing, gutters, brick, paving block, granite curbing or flagging, or grub and clear the surface over the area to be excavated and shall properly classify the materials removed, separating them as required. Where pipe trenches underlie permanent resurfacing, the surface material shall be machine cut before excavation is begun.

- B. He shall properly store, guard, and preserve material as may be required for future use in backfilling, surfacing, repaving, etc. All materials which may be removed and all rock, earth, and sand taken from the excavation shall be stored, if practical, in certain parts of the roadway or such other suitable place and in such manner as the Authority shall approve. The Contractor shall be responsible for any loss or damage to the said materials because of careless removal or neglectful or wasteful storage, disposal, or use of these materials.
- C. In case more materials are created from any trench that can be backfilled over the completed pipe or stored in the street, leaving space for traffic, the excess material shall be removed to some convenient place provided by the Contractor or as directed by the Authority. The Contractor shall bring back as much of the material so removed as may be required to properly refill the trench, if of the proper kind, or if so directed by the Authority, he shall furnish such other material as may be necessary.

3.03 TEST PITS

- A. The Contractor shall excavate test pits at such points and of such dimension and depths as indicated on the Drawings or as the Authority's Engineer may direct. It is understood that the purpose of these test pits is to verify, so far as practical, the location of various subsurface structures or utilities.

3.04 CUTTING PAVED SURFACES

- A. Where installation of pipelines, miscellaneous structures, and appurtenances necessitate breaking a paved surface, make saw cuts using a diamond wheel or similar instrument in a neat uniform fashion forming straight lines parallel with the centerline of the trench. Cut offsets at right angles to the centerline of the trench.
- B. Protect edges of cut pavement during excavation to prevent raveling or breaking; square edges prior to pavement replacement.

3.05 ROCK EXCAVATION BY BLASTING

- A. Blasting will be permitted except in areas where the proximity of structures, underground facilities, or public safety preclude the use of explosives. Nothing in this section shall relieve the Contractor of his responsibilities for damages, nor shall it result in any liability to the Authority or the Engineer.
- B. All blasting operations shall be conducted in a safe and satisfactory manner. Any rock excavation within five feet of underground utilities shall be done with a very light charge of explosives and the utmost care shall be used to avoid disturbing the mains. All exposed pipe lines and other structures shall be carefully protected from the effects of blasts and any damage done to them by blasting shall be properly repaired by the Contractor. Sufficient written notice shall be given to all persons in the vicinity of the work before blasting. The Contractor shall be required to place seismographs in nearby structures when blasting is to occur. The site of the blast shall be covered with heavy timbers, blasting mats, or other devices to prevent damage from flying rock. The time of blasting and the number and size of charges must be satisfactory to the Authority's Engineer.
- C. All rock excavation shall be conducted by a licensed blaster. Handling explosive materials and conducting blasting operations shall be in accordance with all of the safety regulations of the Commonwealth of Pennsylvania and OSHA. Obtain approval and/or permit from the Municipality prior to start of blasting.

- D. Written notice to residents shall include the applicable scheduling for blasting and shall inform the residents of their rights to submit a claim for damages resulting from the blasting operations for a minimum period of one year from the completion of the excavation portion of construction activities.

3.06 TRENCH EXCAVATION

A. Depth of Excavation:

1. Gravity Pipelines:

- a. Excavate trenches to the depth and grade required for the invert of the pipe plus a minimum excavation of six (6) inches or one-fourth the internal pipe diameter, whichever is greater, for placement of pipe bedding material.
- b. Excavation for laterals shall provide a straight uniform grade from the main pipeline or riser stack to the elevation at the right-of-way line, plus that excavation necessary for placement of pipe bedding material as above.

2. Pressure Pipelines:

- a. Excavate trenches to the minimum depth necessary to place required pipe bedding material as above and to provide 4' from the top of the pipe to the finished ground elevation, except where specific depths are otherwise shown on the drawings.

- 3. Care shall be taken not to excavate below the depths required. Any such excessive excavation shall be refilled with crushed stone and compacted to the satisfaction of the Authority's Engineer.

- 4. When the material encountered at subgrade is unsuitable and in the opinion of the Authority's Engineer does not afford a sufficiently firm foundation, the Contractor shall excavate to such increased depth as directed. The bottom of the trench shall be brought to the required elevation with crushed stone compacted to the satisfaction of the Engineer.

- 5. When the pipe is to be laid in fill, the embankment shall be brought to a height of at least nine inches above the proposed top of the pipe before the trench is excavated.

- 6. If rock below the specified grade is shattered due to excessive drilling or blasting or other negligence of the Contractor, and if in the opinion of the Engineer it is unfit for foundations, such shattered rock shall be removed and the area backfilled to the proper grade with crushed stone.

B. Width of Excavation:

- 1. Pipe trenches shall be sufficiently straight between designated angle points to permit the pipe to be laid true to line in the approximate center of the trench. The trench widths shall be such as to provide a free working space on each side of the pipe as laid, but shall not exceed the outside diameter of the barrel of the pipe plus sixteen inches at a point one foot above the top of the pipe.
- 2. Where sheeting and shoring are used, the maximum allowable width shall be measured between the closest interior faces of the sheeting or shoring as placed. Whenever, for any

reason, the maximum trench width is exceeded, the Contractor may be ordered by the Engineer to encase the pipe in a concrete cradle.

3. For pressure pipeline fittings, excavate trenches to a width that will permit placement of concrete thrust blocks. Provide earth surfaces for thrust blocks that are perpendicular to the direction of thrust and are free of loose or soft material.
4. If the Contractor is required to excavate the trench to a width greater than that specified above, because of slides, caves, obstructions or by reason of the condition and character of the material, he shall refill any cavities so caused with suitable and satisfactory material, including concrete or other masonry if so directed.

C. Length of Open Trench:

1. The Engineer reserves the right to limit the length of distance that a trench may be opened in advance of the pipe laid at all times.
2. Do not advance trenching operations more than 200 feet ahead of completed pipeline, except where approved by the Engineer or otherwise specified in the State Highway Occupancy Permit.
3. Where rock excavation is encountered, all trenches must be opened at least 30 feet in advance of any pipe being laid.
4. If the work is stopped on the whole or any part of the trench and the same is left open for an unreasonable length of time in advance of the construction of the pipe line, the Contractor shall, when directed, refill such trench and he shall not again open the trench or part thereof until he is ready to proceed with construction of the pipe line.

3.07 SUPPORT OF EXCAVATION

- A. Support excavations with sheeting, shoring, and bracing or a "trench box" as required to comply with Federal and State laws and codes.
- B. Install adequate excavation supports to prevent ground movement or settlement to adjacent structures, pipelines or utilities. Damage due to settlement because of failure to provide support or through negligence or fault of the Contractor in any other manner, shall be repaired by the Contractor.
- C. Withdraw shoring, bracing, and sheeting as backfilling proceeds unless otherwise directed by the Engineer.
- D. All voids caused by withdrawal shall be immediately filled with concrete, sand, current ASTM Designation C-33 or other satisfactory material and compacted by ramming or other methods satisfactory to the Engineer.

3.08 CONTROL OF EXCAVATED MATERIAL

- A. Keep the ground surface, within a minimum of 2' of both sides of the excavation free of excavated material.
- B. Provide temporary barricades to prevent excavated material from encroaching on private property, walks, gutters, and storm drains.

- C. Maintain accessibility to all fire hydrants, valve pit covers, valve boxes, curb boxes, fire and police call boxes, and other utility controls at all times. Keep gutters clear or provide other satisfactory facilities for street drainage. Do not obstruct natural water courses. Where necessary, provide temporary channels to allow the flow of water either along or across the site of the work.
- D. In areas where pipelines parallel or cross streams, ensure that no material slides, is washed, or dumped into the stream course. Remove cofferdams immediately upon completion of pipeline construction.
- E. Conform to all applicable soil erosion and sediment control regulations.

3.09 DEWATERING

- A. Keep excavations dry and free of water. Dispose of precipitation and subsurface water clear of the work.
- B. Maintain pipe trenches dry until pipe has been jointed, inspected, and backfilled, and concrete work has been completed. Prevent trench water from entering pipelines under construction.
- C. Intercept and divert surface drainage away from excavations. Design surface drainage systems so that they do not cause erosion on or off the site, or cause unwanted flow of water.
- D. Comply with Federal and State regulations for dewatering to any watercourse, prevention of stream degradation, and erosion and sediment control.

3.10 PIPE BEDDING AND EMBEDMENT

- A. Prepare trench bottom as shown on Standard Detail.
- B. Place and compact Standard Pipe Bedding of AASHTO No. 8 in accordance with Standard Details and specifications.
- C. Shape bedding recesses for joints and bells to assure pipe is supported on barrel for entire length.
- D. Lay pipe as specified in Section 02610 of these Specifications.

3.11 THRUST RESTRAINT

- A. Provide pressure pipe with concrete thrust blocking or use restrained joint fittings at all bends, tees, valves, and changes in direction, in accordance with the Specifications and Standard Details.
- B. Where available, use contrasting color pipe gaskets to ensure conformance with thrust restraint design.

3.12 BACKFILLING TRENCHES

- A. Unless otherwise directed by the Authority's Engineer, backfilling shall be started immediately after preliminary alignment inspection is made and shall continue without interruption to completion.

B. The satisfactory compaction of all backfills shall be the responsibility of the Contractor regardless of the methods used and he shall protect the Authority from any loss, damage, or claims occasioned by trench settlement.

C. Compaction:

1. From the height of 6" inches above the top of the pipe, the backfill material shall be placed in 6" inch vibrator layers mechanically tamped to obtain maximum compaction.
2. Tamping shall proceed from the center of the trench to the sides to prevent arcing.
3. Backfill shall be compacted to a dry density at least equal to 95 percent of the maximum dry density obtained in the modified reactor tests, ASTM D1557-70.
4. Backfill shall be placed and compacted to within 6 ½ inches of the existing road grad, unless otherwise directed by the Authority. Refer to Section 02575, Paving and Resurfacing.

D. Open Fields or Grassed Areas:

The initial backfill above the pipe embedment shall be a minimum of one foot in depth and shall be filled with clean earth placed in six-inch layers and carefully compacted with pneumatic hand tampers, except in rock where a suitable material approved by the Engineer shall replace the excavated rock. Above this point to a depth of 18 inches below the finished grade, the backfill material may contain small stones not larger than six inches in their greatest dimension in an amount not greater than 20 percent of the volume of backfill and well-distributed throughout the mass. The remaining 18 inches of backfill shall consist of clean earth. Clean earth shall be considered the original material taken from the ditch less any stones, rocks or foreign materials.

In open fields or grass areas, the trench shall be mounded as shown on the Standard Details.

E. Streets (State Highways and other than State Highways):

The entire depth of trench above the pipe embedment to a point six and one-half (6 ½") inches below the existing surface (two inches if temporary resurfacing is to be used), or as directed by the Authority's Engineer shall be filled with Select Granular Material in conformance with PENNDOT 408 Specifications, Section 703.3. Such backfill shall be placed for the entire width of the trench in six-inch (6") maximum layers and well compacted by approved vibratory compactor, in conformance with Section 601.3(e).

F. Unsuitable Backfill Material:

Where the Authority's Engineer deems backfill material to be unsuitable and rejects all or part thereof due to conditions prevailing at the time of construction, remove the unsuitable material and replace with suitable backfill material at Contractor's expense.

3.13 BACKFILLING AND GRADING AROUND STRUCTURES

A. The ground around structures shall be brought to the grades shown on the plans or as directed by the Authority's Engineer. Generally, backfilling shall be made in accordance with the specifications for trench backfilling to open fields or grass areas, except where practical, compacting may be performed by rolling. Grading shall be done by ploughing, harrowing, scraping, or by other methods to bring the ground to the required elevations in preparing the ground for the deposition of the topsoil. When the site has been properly graded to provide

drainage, the topsoil shall be placed to a depth of four inches and then harrowed to provide a reasonably smooth surface, ready for seeding. Where compaction is made by rollers, the rollers shall weigh not less than ten tons and shall not be permitted within eight feet of any wall or structure or where, in the opinion of the Engineer, damage may result to existing underground piping.

- B. The Contractor shall be responsible for the stability of the fill and shall replace any portion thereof damaged by natural causes, or by careless or negligent work.
- C. Sufficient grading shall be done during the progress of the work so that no water is allowed at any time to flow toward the wall or structures or to accumulate in large puddles on the project site.

3.14 DISPOSAL OF EXCAVATED MATERIAL

- A. Excavated material remaining after completion of backfilling shall remain the property of the Contractor, removed from the construction area, and disposed of in accordance with Section 01564.

3.15 ROUGH GRADING

- A. Rough grade areas disturbed by construction to a uniform finish. Form the bases for terraces, banks, lawns and paved areas.
- B. Grade areas to be paved to depths required for placing sub-base and paving materials.
- C. Rough grade areas to be top-soiled and seeded to 3" below indicated finish contours.

3.16 FINAL LEVELING AND CLEANUP

- A. Whenever the trenches have not been properly filled, or if settlement occurs, they shall be refilled, compacted, leveled, and finally graded to conform to the surface of the ground. Trenches in streets, sidewalks, alleys, etc., shall be refilled with crushed stone, graded as shown on the plans. Trenches in open fields or unpaved plant areas shall be mounded with clean earth to a minimum depth of three inches.
- B. As the work is completed, the Contractor shall remove and dispose of all surplus earth, stone, or other material on-site or distant from the work in such manner and at such point or points as he may select or provide, subject to the approval of the Authority's Engineer, and shall leave all roads, sidewalks, and other places free, clear, and in good order.
- C. The level of trench fill is to be maintained for a period of one year within dedicated and pre-existing legal roads and right-of-ways.

3.18 DUST CONTROL

- A. Where dust or wind erosion is a problem, the unstable surface shall be lightly sprinkled with water or a dust suppressor shall be applied as necessary or as directed by the Authority's Engineer. Care shall be taken so as not to cause any water erosion to the unstable surface.

END OF SECTION

SECTION 02485

FINISH GRADING AND SEEDING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The work of this section includes, but is not limited to:
 - 1. Placing topsoil
 - 2. Soil conditioning
 - 3. Finish grading
 - 4. Seeding
 - 5. Maintenance
- B. Restore unpaved surfaces to a condition similar to that prior to excavation as specified and indicated on the Drawings.
- C. The "Seeding Restoration Tables" at the end of this section list specific seeding restoration requirements. Refer to Drawings and Special Conditions for seeding restoration requirements at each specific location of Work.

1.02 QUALITY ASSURANCE

- A. Reference Standards:
 - 1. Pennsylvania Department of Transportation Publication 408 Specifications.
 - 2. Pennsylvania Seed Act of 1965, Act 187, as amended.
 - 3. Agricultural Liming Materials Act of 1978, P.L. 15, No. 9 (3P.S. 132-1), as amended.
 - 4. Pennsylvania Soil Conditioner and Plant Growth Substance Law, Act of December 1, 1977, P.L. 258, No. 86 (3P.S. 68.2), as amended.
 - 5. Rules for Testing Seeds of the Association of Official Seed Analysts.

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Seed:
 - 1. Deliver seed fully tagged and in separate packages according to species or seed mix. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be accepted.

PART 2 - PRODUCTS

2.01 TOPSOIL

- A. Having a pH of between 6.0 and 7.0; containing not less than 2% or more than 10% organic matter as determined by AASHTO T194.
- B. Fertile friable loam, sand loam, or clay loam which will hold a ball when squeezed with the hand, but which will crumble shortly after being released.
- C. Free of clods, grass, roots, or other debris harmful to plant growth.
- D. Free of pests, pest larvae, and matter toxic to plants.

2.02 FERTILIZER

- A. Basic Dry Formulation Fertilizer:
 - 1. Analysis 0-20-20 and as defined by the Pennsylvania Soil Conditioner and Plant Growth Substance Law.
- B. Starter Fertilizer:
 - 1. Analysis 10-5-5 or 12-6-6 and as defined by the Pennsylvania Soil Conditioner and Plant Growth Substance Law.

2.03 LIME

- A. Raw ground limestone conforming to Section 804.2(a), Publication 408 Specifications.

2.04 SEED

- A. Fresh, clean, dated material from the last available crop and within the date period specified, with a date of test not more than 9 months prior to the date of sowing. Percentage of pure seed present shall represent freedom from inert matter and from other seeds distinguishable by their appearance. All seeds will be subject to analysis and testing.

TABLE 1 - GRASS AND AGRICULTURAL SEEDS

<u>Species</u>	<u>Minimum Guaranteed Purity (Percent)</u>	<u>Maximum Weed Seed (Percent)</u>	<u>Minimum Guaranteed Germination (Percent)</u>
Kentucky Bluegrass (Poa pratensis) Domestic origin; min. 21 lb. per bushel	90	0.20	80
Perennial Ryegrass (Lolium perenne, var. Pennfine)	95	0.15	90
Kentucky 31 Fescue (Festuca elatior arundinacea)	98	0.25	85
Crownvetch (Coronilla varia, var. Penngift)	99	0.10	70
Pennlawn Red Fescue (Festuca rubra, var. Pennlawn)	98	0.25	90
Annual Ryegrass (Lolium multiflorum)	95	0.15	90
Timothy (Phleum pratense)	98	0.25	95

2.05 SEED MIXTURES

- A. See "Seeding Restoration Table" at end of this Section.

2.06 INOCULANT

- A. Inoculate leguminous seed before seeding with nitrogen fixing bacteria culture prepared specifically for the species.
- B. Do not use inoculant later than the date indicated by the manufacturer.
- C. Protect inoculated seed from prolonged exposure to sunlight prior to sowing.
- D. Re-inoculate seed not sown within 24 hours following initial inoculation.

2.07 MULCHING MATERIALS

A. Mulches for seeded area shall be one, or a combination of, the following:

1. Hay:

- a. Cured to less than 20% moisture content by weight.
- b. Contain no stems of tobacco, soybeans, or other coarse or woody material.
- c. Timothy hay or mixed clover and timothy hay.

2. Straw:

- a. Cured to less than 20% moisture content by weight.
- b. Contain no stems of tobacco, soybeans, or other coarse or woody material.
- c. Wheat or oat straw.

3. Wood Cellulose:

- a. No growth or germination inhibiting substances.
- b. Green, air dried. Packages not exceeding 100 pounds.
- c. Requirements:

Moisture Content:	12% \pm 3%
Organic Matter:	98.6% + 0.2% on the oven dry basis.
Ash content:	1.4% \pm 0.2%
Minimum Water-Holding Capacity:	1,000%

4. Mushroom Manure:

- a. Organic origin, free of foreign material larger than 2" and substances toxic to plant growth.
- b. Organic Matter: 20% minimum.
- c. Water-Holding Capacity: 120% minimum.
- d. pH: 6.0.

PART 3 - EXECUTION

3.01 TIME OF OPERATIONS

A. Spring Seeding:

1. Preliminary operations for seed bed preparation may commence as soon after February 15 as ground conditions permit.

B. Fall Seeding:

1. Preliminary operations for seed bed preparation may commence after July 15.

3.02 PREPARATION OF SUBGRADE

A. "Hard Pan" or heavy shale:

1. Plow to a minimum depth of 6".
2. Loosen and grade by harrowing, discing, or dragging.
3. Hand-rake subgrade. Remove stones over 2" in diameter and other debris.

B. Loose loam, sandy loam, or light clay:

1. Loosen and grade by harrowing, discing, or dragging.
2. Hand-rake subgrade. Remove rocks over 2" in diameter and other debris.

3.03 PLACING TOPSOIL

- A. Replace topsoil and spread over the prepared subgrade to obtain the required depth and grade elevation. Final compacted thickness of topsoil not less than 3- 1/2".
- B. Hand-rake topsoil and remove all materials unsuitable or harmful to plant growth.
- C. Do not place topsoil when the subgrade is frozen, excessively wet, or extremely dry.
- D. Do not handle topsoil when frozen or muddy.

3.04 TILLAGE

- A. After seed bed areas have been brought to proper compacted elevation, thoroughly loosen to a minimum depth of 5" by discing, harrowing, or other approved methods. Do not work topsoiled areas when frozen or excessively wet.
- B. Liming:
 1. Distribute limestone uniformly at a rate of 50 pounds per 1,000 square feet.
 2. Thoroughly incorporate into the topsoil to a minimum depth of 4".
 3. Incorporate as a part of the tillage operation.
- C. Basic Fertilizer:
 1. Distribute basic fertilizer uniformly at a rate of 50 pounds per 1,000 square feet.
 2. Incorporate into soil to depth of 4" by approved methods.
 3. Incorporate as part of tillage operation.
- D. Liming and Fertilizer rates may be decreased if lesser rates are indicated by soil tests provided by the Contractor.

3.05 FINISH GRADING

- A. Remove unsuitable material larger than 2" in any dimension.
- B. Uniformly grade surface to the required contours without the formation of water pockets.
- C. Rework areas which puddle by the addition of topsoil and fertilizer. Re-rake.
- D. Distribute starter fertilizer at the following rates:
 - 10-5-5: 50 pounds per 1,000 square feet.
 - 12-6-6: 33 pounds per 1,000 square feet.
- E. Incorporate starter fertilizer into the upper 1" of soil.

3.06 SEEDING

- A. Uniformly sow specified seed mix by use of approved hydraulic seeder, power-drawn drill, power operated seeder, or hand-operated seeder or by hand. Do not seed when winds are over 15 mph.
- B. Upon completion of sowing, cover seed to an average depth of 1/4" by hand re-raking or approved mechanical methods.

3.07 MULCHING

- A. Mulch within 48 hours of seeding.
- B. Place hay and straw mulch in a continuous blanket at a minimum rate of 1,200 pounds per 1,000 square yards.
 - 1. Anchor hay or straw mulch by use of twine, stakes, wire staples, paper, or plastic nets.
 - 2. Emulsified asphalt may be used for anchorage provided it is applied uniformly at a rate not less than 31 gallons per 1,000 square yards.
 - 3. Apply approved chemical mulch binders at the manufacturer's recommended rate.
- C. Chemical mulch binders or a light covering of topsoil may be used for anchorage when the size of the area precludes the use of mechanical equipment.
- D. Apply wood cellulose fiber hydraulically at a rate of 320 pounds per 1,000 square yards.
 - 1. Incorporate as an integral part of the slurry after seed and soil supplements have been thoroughly mixed.
- E. Spread mushroom manure uniformly to a minimum depth of 1/2" or to the depth indicated on drawings.
- F. When mulch is applied to grass areas by blowing equipment, the use of cutters in the equipment will be permitted to the extent that a minimum of 95% of the mulch is 6" or more in length. For cut mulches applied by the blowing methods, achieve a loose depth in place of not less than 2".
- G. When mulching by the asphalt mix method, apply the mulch by blowing. Spray the asphalt

binder material into the mulch as it leaves the blower. Apply the binder to the mulch in the proportion of 1.5 to 2.0 gallons per 45 pounds of mulch.

1. Protect structures, pavements, curbs, and walls to prevent asphalt staining.
2. Erect warning signs and barricades at intervals of 50 feet or less along the perimeter of the mulched area.
3. Do not spray asphalt and chemical mulch binders onto any area within 100 feet of a stream or other body of water.

3.08 MAINTENANCE

- A. Maintenance includes watering, weeding, cleanup, edging and repair of depressions, washouts or gullies.

SEEDING RESTORATION TABLE

RESTORATION CONDITION	TOPSOIL	LIME*	BASIC FERTILIZER	STARTER FERTILIZER	SEED MIX & SOWING RATE (% BY WEIGHT)
Temporary Cover (**)	N/A	N/A	N/A	N/A	100% Annual Ryegrass Sow 9# per 1,000 Sq Yds Mar thru May/Aug thru Sept
Roadside; Non-mowed	Yes	100# per 1,000 Sq. Ft.	No	10-5-5 @ 50# per 1,000 Sq. Ft. or 12-6-6 @ 33# per 1,000 Sq. Ft.	80% Kentucky 31, Fescue 20% Pennlawn Red Rescue Sow 21# per 1,000 Sq. Yds Mar thru May/Aug thru Sept
Roadside; Mowed	Yes	100# per 1,000 Sq. Ft.	No	10-5-5 @ 50# per 1,000 Sq. Ft. or 12-6-6 @ 33# per 1,000 Sq. Ft.	50% Kentucky BlueGrass 30% Pennlawn Red Fescue 20% Perennial Ryegrass Sow 21# per 1,000 Sq. Yds Mar thru May/Aug thru Sept
Bank Areas	Yes	100# per 1,000 Sq. Ft.	No	10-5-5 @ 50# per 1,000 Sq. Ft. or 12-6-6 @ 33# per Sq. Ft.	45% Crownvetch 55% Annual Ryegrass Sow 9# per 1,000 Sq. Yds Anytime except Sept & Oct
Lawns	Yes	100# per 1,000 Sq. Ft.	0-20-20 @ 50# per 1,000 Sq. Ft.	10-5-5 @ 50# per 1,000 Sq. Ft. or 12-6-6 @ 33# per Sq. Ft.	50% Kentucky Bluegrass 30% Pennlawn Red Fescue 20% Perennial Ryegrass Sow 21# per 1,000 Sq. Yds Mar thru May/Aug thru Sept
Open Fields; Non-cultivated, Pasture	No	No	No	10-5-5 @ 50# per 1,000 Sq. Ft. or 12-6-6 @ 33# per Sq. Ft.	100% Timothy Sow 9# per 1,000 Sq. Yds. Mar thru May/Aug thru Sept
Open Fields; Cultivated	No	No	No	10-5-5 @ 50# per 1,000 Sq. Ft. or 12-6-6 @ 33# per Sq. Ft.	100% Annual Ryegrass Sow 9# per 1,000 Sq. Yds Mar thru May/Aug thru Sept
Woods; Sparse	No	No	No	10-5-5 @ 50# per 1,000 Sq. Ft. or 12-6-6 @ 33# per Sq. Ft.	100% Red Fescue Sow 36# per 1,000 Sq. Yds. Mar thru May/Aug thru Sept

* Unless lesser rate indicated by soils tests.

** Unless otherwise specified in the Erosion and Sedimentation Control Plan

Note: Refer to Drawings and Special Conditions for seeding restoration requirements at each specific location of Work.

END OF SECTION

SECTION 02575

PAVING AND RESURFACING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work of this section includes, but is not limited to:
 - 1. Temporary Paving
 - 2. Permanent Paving
 - 3. Shoulder Restoration
- B. Paving and resurfacing requirements for project roads are as indicated on the resurfacing schedules and miscellaneous details provided on the Standard Details sheets. All paving shall comply with the local ordinances and PennDOT Specifications, where applicable.
- C. Related work specified elsewhere:
 - 1. Trenching, Backfilling and Compacting – Section 02221
 - 2. Concrete for Utility Construction – Section 03300

1.02 QUALITY ASSURANCE

- A. Referenced Standards:
 - 1. Pennsylvania Department of Transportation:
 - a. Publication 408 Specifications
 - b. Publication 27 - Specification for Bituminous Materials (Bulletin 27)
 - c. Publication 37 - Specification for Bituminous Materials (Bulletin 25)
 - d. Publication 213 – Temporary Traffic Control Guidelines (See Section 01570)
 - e. Chapter 459 - Occupation of Highways by Utilities

1.03 SUBMITTALS

- A. Certificates:
 - 1. Submit certification from bituminous and aggregate suppliers attesting that materials conform to the state specifications.

1.04 JOB CONDITIONS

- A. Control of Traffic:
 - 1. Take measures to control traffic during repaving operations. Do not allow traffic on repaved areas until authorized by the Authority and the Municipality.
 - 2. Employ traffic control measures in accordance with Publication 203 - “Work Zone Traffic Control.”
- B. Restore existing paving outside the limits of the work that is damaged by the Contractor’s operations to its original condition.

PART 2 - PRODUCTS

2.01 CONCRETE

- A. See Section 03300

2.02 BITUMINOUS PAVING MATERIALS AND AGGREGATES

- A. Refer to Publication 408 Specifications. All bituminous materials and aggregates used in paving and resurfacing are designated in these Specifications by and shall conform to the applicable portions of the Publication 408 Specifications.

PART 3 - EXECUTION

3.01 WORK WITHIN STATE HIGHWAY RIGHT-OF-WAY

- A. Inspection: If throughout the progress of the work within state highways, it is deemed necessary by the Pennsylvania Department of Transportation (PennDOT) to post field inspectors on that portion of the project within their right-of-way, the Developer shall reimburse PennDOT for the cost of the inspection so applied.
- B. Blasting if necessary: All blasting shall be conducted in accordance with applicable PennDOT, state and local regulations.
- C. Detour: If a state highway detour is required, application must be made to District Office Traffic Unit and approval received for rerouting traffic before detour is put into effect.

3.02 TEMPORARY PAVING

- A. Place 2" compacted thickness temporary paving immediately upon completion of trench backfilling.
- B. Shape and compact subgrade material, then place and compact crushed stone base course to the required thickness.
- C. Place temporary paving material. Compact to 2" minimum thickness with trench roller having minimum 300 pounds per inch-width of compaction roll.
- D. Continuously maintain temporary paving to the satisfaction of the Engineer and the state and local road departments. Temporary paving on state roads must remain in place for a minimum of ninety (90) days. On municipal roads, permanent restoration must be completed within thirty (30) days after substantial completion of piping work, unless otherwise approved by the Engineer.

3.03 PERMANENT PAVING

- A. The Authority and/or Municipality reserve the right to delete any and all permanent paving from the Contract.
- B. Saw cut back 12" from the limit of the trench using a diamond wheel or similar instrument. Cut straight joint lines and right angle offsets.
- C. Remove temporary paving material. Construct permanent base and surface courses to the required compacted thicknesses shown on the standard details and in accordance with Publication 408 Specifications.

- D. Maintain permanent paving to the satisfaction of the Authority and the local and state road departments throughout the contract maintenance period.

3.04 BITUMINOUS OVERLAY

- A. Where indicated on the Drawings, standard details, Surface Restoration Tables or directed by the Authority Engineer or Municipality, place a bituminous overlay.
- B. Construct in accordance with Section 401.3, Publication 408 Specifications.

3.05 PAVED SHOULDER RESTORATION

- A. At the expiration of the appropriate time period, unless otherwise directed by the Pennsylvania Department of Transportation or the Engineer, the temporary restoration and the compacted trench fill shall be removed to a minimum depth of six and one-half inches (6 ½") below the surface of the roadway. A Super Pave base course with a minimum depth of five inches (5") shall be constructed and shall be topped with one-and-one-half inch (1½") minimum of Super Pave wearing course ID-2.
- B. All Paved Shoulder Restoration shall be in accordance with the Pennsylvania Department of Transportation, Form 408.
- C. All edges of the existing roadway surface disturbed during construction shall be cut in a straight line. Cutting of edges shall be done prior to placing of the wearing surface and shall be as directed by the Pennsylvania Department of Transportation on state roads and as directed by the Municipality on Borough or Township streets and roads.

3.06 BITUMINOUS TACK COAT

- A. Bituminous Tack Coat shall conform to PennDOT Form 408 for materials and construction requirements, including all revisions.
- B. Bituminous Tack Coat shall be applied on the surface of the base course prior to the construction of a bituminous binder course and/or bituminous wearing course.

3.07 SCRATCH COAT

- A. Scratch Coat or leveling course placement shall consist of Super Pave wearing course and shall be placed on a roadway where it is necessary to remove any irregularities, at the locations and depth as determined by the Authority Engineer.

3.08 MILLING OF ROADWAY

- A. Paving shall be removed to a depth below the roadway surface to allow construction of the specified pavement course. Milling shall be performed to a depth as shown on the "Construction Details" and in accordance with requirements of PennDOT Form 408, Specifications, current edition.
- B. Prior to Milling, all edges of existing roadway surface that are to be disturbed shall be cut or sawed in a straight line with a diamond wheel or similar instrument, as directed by the Authority Engineer.

3.09 SEAMS

- A. When the road surface is disturbed all seams shall be sealed with PG 64-22 or equal, in accordance with PennDOT Form 408.

3.10 PAINT IDENTIFICATION

- A. Upon completion of temporary and permanent resurfacing, the resurfacing date shall be painted on the pavement immediately adjacent to the cut. The painted date shall indicate the month and year numerically. The numerals shall be at least six inches in height. The paint shall be of a durable wearing quality and shall be green in color.
- B. All new pavement shall be re-stripped by the Contractor where previously painted. All traffic lines and markers shall be in accordance with applicable requirements of PennDOT Publication 408, current edition.

3.11 DRIVEWAYS

- A. Trim concrete and bituminous driveway surfaces to removed damaged areas. Saw cut straight joint lines parallel to the centerline of the trench. Cut offsets at right angles to the trench centerline.
- B. Restore existing concrete driveways trenched through with a 6" layer of concrete reinforced with 6 X 6 10/10 wire mesh.
- C. Restore existing blacktop driveways trenched through in kind or with minimum 1 ½" layer wearing course over 6" layer of 2A aggregate.
- D. Restore earth driveways with a 6" layer of 2A stone backfill.
- E. Restore stone or gravel driveways in kind.

END OF SECTION

SECTION 02601

MANHOLES

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work of this section includes, but is not limited to:

1. Precast Concrete Manholes
2. Concrete Manhole Bases
3. Manhole Steps
4. Manhole Covers and Frames

B. Related Work Specified Elsewhere:

1. Trenching, Backfilling and Compaction: Section 02221
2. Structural Concrete: Section 03300

1.02 QUALITY ASSURANCE

A. Reference Standards:

1. Pennsylvania Department of Transportation Publication 408 Specifications.
2. American Society for Testing and Materials (ASTM):

- A48 Specification for Gray Iron Castings
- C32 Specification for Sewer and Manhole Brick
- C139 Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes
- C270 Specification for Mortar for Unit Masonry
- C443 Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
- C478 Specification for Precast Reinforced Concrete Manhole Sections
- C923 Specification for Resilient Connections Between Reinforced Concrete Manhole Structures and Pipes

1.03 SUBMITTALS

A. Certificates:

1. Submit certification from material suppliers attesting that materials meet or exceed specification requirements.

B. Shop Drawings:

1. Submit detail shop drawings of Precast Concrete Manhole Sections, and Precast Concrete Manhole Bases if used.
2. Submit detail shop drawings of Manhole Frames and Covers, including rubbings of inscription.
3. Submit detail shop drawings of Manhole Steps.
4. Submit manufacturer's descriptive literature for the pipe to Manhole Flexible Connections.

PART 2 - PRODUCTS

2.01 BASIC MATERIALS

A. Crushed Stone Subbase:

1. Size 57, Type C, Section 703.2, Publication 408 Specifications

B. Concrete Masonry Units: ASTM C139

C. Masonry Mortar: ASTM C270, Type S

D. Structural Concrete: Section 03300

E. Joint Sealant Compound: FS SS-S-00210, performed, flexible, self-adhering, cold-applied.

F. Rubber Gaskets: ASTM C443

G. Resilient Pipe-to-Manhole Connection: ASTM C923

2.02 FABRICATED PRODUCTS

A. Precast Concrete Manhole Sections: ASTM C478

1. 5.5% \pm 1% air entrained cement concrete.
2. Eccentric cone or flat slab top sections; minimum 24" access opening unless otherwise indicated.
3. Precast Concrete riser sections of length to suit.
4. Precast Concrete bases of a design similar to the precast riser sections.
5. Minimum internal diameter of 48" with tongue and groove joints between sections.

6. Precast Manhole Coating – Exterior:

- a. The exterior surfaces of all manhole sections, bases, risers and tops shall be coated with a coal tar epoxy compound manufactured by Kop-Coat, Inc., Pittsburgh, Pennsylvania, 15219, Type Bituminous No. 300-M or equal approved by the Engineer. The dry coat thickness shall be a minimum of twenty (20) mils. Application of the product shall be in accordance with the manufacturer's recommendations, but in all cases the final dry coating shall be without runs, sags, misses, pinholes, or other defects and shall adhere properly to the substrate.

B. Manhole Steps:

1. Polypropylene conforming to ASTM D-4101 injection molded around a ½" ASTM A-615 grade 60 steel reinforcing bar. Step to meet ASTM C-478, AASHTO M-199 and OSHA instruction STD 1-1.9. Step to resist pullout forces of over 1,500 pounds. Step to be 14" wide with end lugs to minimize risk of slipping sideways. Include self cleaning tread design. Step to be Part Number 108.14850 by Press-Seal Gasket Corporation.
2. Install Manhole steps in vertical alignment at 12" spacing.

C. Manhole Frames and Covers:

1. General:

- a. Domestic cast iron castings: ASTM A48, Class 35B or better; free of bubbles, sand and air holes, and other imperfections.
- b. Contact surfaces: Machined and matched.
- c. Cast Manhole cover inscriptions as follows:
 - (1) "SEWER" for sanitary sewer piping.
- d. Provide Manhole covers suitable for HS-25 highway loads.
- e. Provide gasketed Manhole covers.
- f. Paint at factory with water-based asphalt paint.

2. Frame and Cover:

- a. Minimum combined weight of 260 pounds with dimensions as indicated on Drawings, 22" minimum clear opening.
- b. Provide solid cover as standard.
- c. Provide one piece O-ring gasket factory installed in machined rectangular or dovetailed groove in cover bearing surface. Neoprene gasket of 40 durometer hardness, abrasion resistant, field replaceable. Gluing not permitted.
- d. Frame East Jordan Iron Works, Inc., 00111910 or equal
- e. Cover East Jordan Iron Works, Inc., 00112183 or equal.
- f. Watertight manhole frame and cover shall be as specified for manhole frame and

covers above. In addition, the casting shall be equipped with an internal watertight cover with a one-inch diameter bronze locking screw, forged steel lock bar, lock clamp and rubber gasket.

PART 3 - EXECUTION

3.01 GENERAL

- A. Construct Manholes or other structures at the points shown on the Drawings and at such points as directed by the Engineer.
- B. Make Manholes watertight. Keep ground water away from the newly poured concrete until it is properly set and a watertight condition is obtained. Repair structures which admit ground water after completion to the satisfaction of the Engineer.

3.02 EXCAVATION

- A. Perform excavation to the line and grade shown on the Drawings and as specified in Section 02221. Provide minimum 6" beyond footer for ease of construction.
- B. Location and depth of Manholes is as shown on the Drawings and as directed by the Engineer.

3.03 CONSTRUCTION

- A. Construct Manholes of precast concrete or glass fiber-reinforced polyester sections.
- B. Construct drop connections of the required type. Encase drop connection in concrete.
- C. Install a minimum of 6" of crushed stone subbase.
- D. Provide cast-in-place concrete or precast concrete bases.
 - 1. Construct cast-in-place bases as shown on the Drawings.
 - a. Construct cast-in-place bases with a special form for a joint to match the manhole cylinder sections.
 - b. Form base with pipe opening resilient seals at proper elevation, alignment and diameter.
 - 2. Install precast bases as shown on the Drawings.
 - a. Set the precast base on a crushed stone subbase.
 - b. Provide a watertight, flexible resilient connection between pipe and precast base section.
- E. Form semi-circular flow channels in Manhole Bases. Slope channels uniformly from influent invert to effluent invert. Construct bends of the largest possible radius. Form channel sides and invert smooth and uniform, free of cracks, holes or protrusions, channel depth shall be at least one-half diameter of pipe.

- F. Pipe openings in Precast Manholes with different influent and effluent sewer: Set pipes to match pipe crowns. At no time should crown of influent sewer be lower than that of effluent sewer. Invert elevations on Drawings indicate center of Manhole.
- G. Do not permit pipe to project more than 2" into the Manhole.
- H. Seal joints between precast concrete Manhole sections with performed rubber gaskets or joint sealant compound.
 - 1. Place joint sealant compound on lower section to be squeezed by the weight of the upper section. Remove excess sealer and refill any voids.
 - 2. Place rubber gasket in groove formed in spigot end. Equalize gasket tension. Install upper section slowly and evenly to form seal. Check gasket for proper seating.
- I. Install Manhole sections with steps in proper vertical alignment.
- J. Use masonry or precast Manhole rings set in a full bed of non-shrink grout to achieve elevation shown for frame and cover. Do not adjust elevation more than one foot with masonry or precast rings. Use one precast two-inch ring as minimum.
- K. Install Manhole Frames and Covers:
 - 1. Set top of frames at finished grade elevation or other elevation shown on the Drawings.
 - 2. Anchor Manhole Covers installed in unpaved areas.
 - 3. Seal joint between Manhole Frame and Manhole with joining sealant compound.
- L. Where new Manholes are constructed on existing pipelines, carefully excavate around existing pipelines for placement of the new Manhole Base. Take measures necessary to control flow through the existing pipeline and to prevent leakage into the new base. After completion of the Manhole, carefully remove the top portion of the existing pipeline.
- M. Core pipe openings in existing concrete Manholes. Provide a PVC waterstop and neatly patch with nonshrink grout. Form new channel with length of pipe through opening and 1:2 cement.
- N. When Manhole is completed, remove all loose mortar and debris.

3.04 BACKFILLING

- A. Backfill after examination of the Manhole by the Engineer.
- B. Perform backfilling as specified in Section 02221.
- C. Construct Manholes with the tops of Manholes at grade and not covered by overburden.

END OF SECTION

SECTION 02610

GRAVITY SEWER PIPE AND APPURTENANCES

PART 1- GENERAL

1.01 DESCRIPTION

A. The Work of this section includes, but is not limited to:

1. Sanitary sewer gravity pipelines
2. Laterals/service connections

B. Related Work Specified Elsewhere:

1. Trenching, Backfilling & Compaction: Section 02221
2. Boring and Casing: Section 02150
3. Manholes: Section 02601
4. Sewer Pipeline Testing: Section 02651

1.02 QUALITY ASSURANCE

A. Reference Standards:

1. American Society for Testing and Materials (ASTM):

- D3033 Specification for Type PSP Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
- D3034 Specification for Type PMS Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
- D3139 Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals
- D3212 Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
- F477 Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
- F679 Specification for Poly(Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings

B. Reject materials contaminated with gasoline, lubricating oil, liquid or gaseous fuel, aromatic compounds, paint solvent, paint thinner, or acid solder.

C. All pipe and appurtenances shall be inspected upon delivery at the site and before laying. Unsuitable materials shall be rejected and replaced.

1.03 SUBMITTALS

A. Certificates:

1. Submit six (3) copies of each manufacturer's certification attesting that the pipe, pipe fittings, joints, joint gaskets and lubricants meet or exceed specification requirements.
2. Submit six (3) copies of each manufacturer's recommended load table for determination of pipe class required for range of depth of cover, pipe diameter and pipe bedding specified throughout the project.
3. All submissions shall be reviewed and stamped "Approved" by the Contractor prior to forwarding to the Authority's Engineer.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery and Handling:

1. Do not place materials on private property without written permission of the property owner.
2. During loading, transporting and unloading, exercise care to prevent damage to materials.
3. Do not drop pipe or fittings. Avoid shock or damage at all times.
4. Take measures to prevent damage to the exterior surface or internal lining of the pipe.

B. Storage:

1. Pipe may be strung along alignment where approved by the Engineer.
2. Do not stack pipe higher than recommended by the pipe manufacturer.
3. Store gaskets for mechanical and push-on joints in a cool, dry location out of direct sunlight and not in contact with petroleum products.

PART 2 - PRODUCTS

2.01 GRAVITY SEWER PIPE, PIPE FITTINGS AND LATERALS

A. Polyvinylchloride (PVC) Sewer Pipe

1. Gravity Sewer Pipe and Fittings:
 - a. Pipe 15" diameter and smaller: ASTM D3033 or ASTM D3034, SDR-35
 - b. Flexible Elastomeric Seals: ASTM D3212
Seal Material: ASTM F477

2.02 IDENTIFICATION TAPE FOR PVC SEWERS

- A. Identification tape, as manufactured by Reef Industries, Inc., or equal, shall be placed over all PVC sewer mains and laterals. This tape shall be of the detectable type and be made of polyethylene with a one-mil metallic foil core, highly resistant to alkalis, acid, or other destructive chemical components likely to be encountered in soils. The tape shall be brightly colored to contrast with soil and shall bear an imprint reading on one side as follows: "Caution - Sewer Line Buried Below". The tape shall be two inches or greater in width with the identification lettering repeated continuously the entire length of the tape.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Perform trench excavation as specified in Section 02221.
- B. Unless otherwise indicated on the drawings, provide for a minimum cover of 4-feet above the top of piping laid in trenches.

- C. Provide pipe bedding as specified in Section 02221, Part 3.10 for each type of pipe used. Place aggregate in a manner to avoid segregation, and compact to the maximum practical density so that the pipe can be laid to the required tolerances.

3.02 LAYING PIPE IN TRENCHES

- A. Give ample notice to the Authority in advance of pipe laying operations.
- B. Utilize laser alignment instruments to accurately position pipe in the trenches.
- C. Lower pipe into trench using handling equipment designed for the purpose to assure safety of personnel and to avoid damage to pipe. Do not drop pipe.
- D. Lay pipe proceeding up-grade with the bell or groove pointing upstream.
- E. Lay pipe to a true uniform line with the barrel of the pipe resting solidly in bedding material throughout its length. Excavate recesses in bedding material to accommodate joints, fittings and appurtenances. Do not subject pipe to a blow or shock to achieve solid bearing or grade.
- F. Lay each section of pipe in such a manner as to form a close concentric joint with the adjoining section and to avoid offsets in the flow line.
- G. Clean and inspect each section of pipe before joining. Assemble to provide tight, flexible joints that permit movement caused by expansion, contraction, and ground movement. Use lubricant recommended by the pipe or fitting manufacturer for making joints. If unusual joining resistance is encountered or if the pipe can not be fully inserted into the bell, disassemble joint, inspect for damage, re-clean joint components, and reassemble joint.
- H. Assemble joints in accordance with recommendations of the manufacturer.
 - 1. Push-on Joints:
 - a. Clean the inside of the bell and the outside of the spigot. Insert rubber gasket into the bell recess.
 - b. Apply a thin film of gasket lubricant to either the inside of the gasket or the spigot end of the pipe, or both.
 - c. Insert the spigot end of the pipe into the socket using care to keep the joint from contacting the ground. Complete the joint by forcing the plain end to the bottom of the socket. Mark pipe that is not furnished with a depth mark before assembly to assure that the spigot is fully inserted.
 - I. Disassemble and remake improperly assembled joints using a new gasket.
 - J. Check each pipe installed as to line and grade in place. Correct deviation from line and grade immediately. A deviation from the designed grade as shown on the contract drawings, or deflection of pipe joints, will be cause for rejection and replacement.
 - K. Place sufficient compacted backfill on each section of pipe, as it is laid, to hold firmly in place.
 - L. Clean interior of the pipe as work progresses. Where cleaning after laying is difficult because of small pipe size, use a suitable swab or drag in the pipe and pull forward past each joint immediately after the jointing has been completed.

- M. Keep trenches and excavations free of water during construction.
- N. When the work is not in progress, and at the end of each work day, securely plug open ends of pipe and fittings to prevent trench water, earth, or other substances from entering the pipes or fittings.
- O. Deflection:
 - 1. When it is necessary to deflect pressure sewer mains from a straight alignment horizontally or vertically, do not exceed the following limits:
 - PVC Pipe:
 - Per manufacturer's recommendations.

3.03 WYE BRANCHES AND TEES

- A. Install wye branches or pipe tees at locations designated by the Authority's Engineer concurrent with pipe laying operations. Use standard fittings of the same material and joint type as the pipeline into which they are installed.
- B. Wherever so directed, install an approved type saddle where no y-branch exists. In general, the saddle shall consist of a saddle, straps and shall be encased in 6" of concrete. All saddles shall have watertight and airtight joints as hereinbefore specified.
- C. For taps into an existing pipeline, use a saddle wye or tee with stainless steel clamps or core drill pipe and install watertight resilient boot. Mount saddles with solvent cement or gasket and secure with metal bands. Layout holes with a template and cut holes with a mechanical hole cutter.

3.04 HORIZONTAL HOUSE LATERALS

- A. Wherever so directed, the Contractor shall construct such house laterals as may be designated. In general, house laterals shall consist of four or six inch (4 or 6") pipe laid on as steep a grade as conditions will permit to drain the lowest level of the building, but not less than one percent. All house lateral pipes must have watertight joints as hereinbefore specified. All house laterals shall be reconnected as shown on the Drawings.
- B. Any lateral installed will have a new cleanout and test tee field-located near the curb or right-of-way.
- C. In connecting house laterals to the Y-branch in the main sewer, or to the line extending from the building, an approved fitting shall be used as shown on the Drawings.

3.05 LATERAL CLEANOUTS AND TEST TEES

- A. Where directed by the Engineer and in accordance with the details shown on the Standard Details, four-inch in diameter cleanouts and test tees shall be constructed behind the curb line or at the property line.
- B. All pipe shall conform to the specifications for main line pipe and laterals. The cleanout and test tee shall be constructed as shown on the Drawings.
- C. All cleanouts in traffic areas shall be provided with suitable cast iron valve box and covers as shown in the Drawings.

3.06 BACKFILLING TRENCHES

- A. Backfill pipeline trenches only after examination of pipe laying by the Authority's representative.
- B. Backfill trenches as specified in Section 02221.

3.07 INSTALLING IDENTIFICATION TAPE FOR PVC SEWERS

- A. The tape shall be placed over the center line of the pipe at a depth of twelve to eighteen inches below the finished grade or as directed by the Engineer. The tape shall be placed in the trench with the printed side up and shall be essentially parallel to the finished surface. Caution shall be taken during the completion of backfilling to prevent the tape from being pulled, distorted, or otherwise displaced in the trench.

END OF SECTION

SECTION 02611

FORCE MAIN PIPE AND APPURTENANCES

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Prior to any construction, the Contractor shall submit to the Authority's Engineer, for approval, names of manufacturers and suppliers he intends to use on the project. The Engineer may require complete catalog data and/or samples of materials for the purpose of determining if such materials meet the intent of these Specifications.
- B. The force main shall be ductile iron cement-lined pipe.

PART 2 – PRODUCTS

2.01 DUCTILE IRON CEMENT-LINED PIPE

- A. Ductile iron pipe shall be centrifugally cast, annealed, and manufactured in accordance with the latest revision of ANSI/AWWA C151/A21.51. The pipe shall be cement mortar lined inside and bituminous-coated outside. The bituminous coating shall be in accordance with the requirements of the latest revisions of ANSI A21.4 (AWWA C104). The pipe length shall be in nominal 16', 18' or 20' lengths. The minimum wall thickness shall be in accordance with the latest revision of ANSI A21.50 (AWWA C150), Class 50, with the exception of the 4" size which shall be Class 51.
- B. Ductile Iron Pipe Joints
 1. All pipe to be installed underground shall have mechanical or push-on joints conforming to the latest revision of ANSI A21.11 (AWWA C111/A21.11-90). Where concrete reaction backings cannot be installed due to other pipes in the area, restrained joints shall be used. Restraint shall be in accordance with Specifications and Drawings. Where restraint systems use restraining gaskets on push-on joint pipe, gaskets shall be indelibly colored throughout the entire cross section of the gasket in order to distinguish restraining gaskets from common gaskets.
 2. All exposed pipe (within structures, etc.) shall have flanged joints unless otherwise noted. The flange shall be faced and drilled to the 125# standard in accordance with the latest revision of ANSI B16.1 or A21.10.
- C. Compact Ductile Iron Fittings
 1. All Compact D.I. Pipe Fittings shall conform to the latest revision of ANSI A21.10, Class 350.
 2. All underground Pipe Fittings shall be of the mechanical type conforming to the latest

revision of ANSI A21.10 (AWWA C111/A21.11-90).

3. All exposed pipe (within structures, etc.) shall have flanged joints unless otherwise noted. The flange shall be faced and drilled to the 125# standard in accordance with the latest revision of ANSI B16.1 or A21.10.

D. Combination Air Release and Air/Vacuum Valve Manhole

1. See Construction Detail Drawing for make and model.
2. Chamber for valve shall be precast concrete manhole.

PART 3 – EXECUTION

3.01 LAYING FORCE MAIN

- A. All pipe shall be laid in strict accordance with the details shown on the Drawings, as directed by the Engineer. The laying of pipes in finished trenches shall be commenced at the lowest points so that the spigot end is pointing in the direction of flow. All pipes shall be laid with ends abutting and true to line and grade. They shall be fitted and matched so that when laid in the work, they will form a sewer with a smooth and uniform invert. Sockets shall be carefully cleaned before pipes are lowered into trenches.
- B. At all times when the work is not in progress, all open ends of the pipes and fittings shall be securely closed with tight stoppers so that no water, earth or other substances will enter the pipe or fittings. Any section of pipe already laid and found to be defective shall be taken up and replaced with a new pipe.

3.02 PIPE EMBEDMENT

A. Bedding

1. All pipe shall be laid on a granular bedding of AASHTO #8 (formerly 1B) crushed stone or gravel. The bedding shall be well compacted, as directed by the Engineer, and shall be a minimum depth of 6 inches or one-fourth the internal diameter, whichever is greater. The bedding shall provide uniform longitudinal support to the pipe and shall be laid to provide the pipe grade and line as shown on the Drawings or as directed by the Engineer.

B. Haunching

1. Haunching is the area from the bottom of the pipe to the springline of the pipe as shown on the construction details. Material shall conform to PennDOT No. 1B crushed stone or gravel. This area shall be compacted to a minimum of 90 percent Standard Proctor Density by hand or mechanical tamping as directed by the Engineer.

C. Final Embedment

1. Final Embedment shall extend from the springline of the pipe to a depth of 6 inches minimum above top of the pipe. It shall be PennDOT No. 1B stone or gravel and shall be well compacted as directed by the Engineer.

D. Cradles and Encasement

1. Provide concrete cradles and encasement for pipe line where indicated on the Drawings, or as directed by the Engineer, and in accordance with the Standard Details.

3.03 INSPECTION

- A. The Authority shall have the right to require tests to be made of each shipment of pipe. These physical tests shall include crushing test, hydrostatic test, and absorption test. The manner of making these tests shall be as set forth by the American Society for Testing Materials.
- B. The specimens to be tested shall be selected by the Engineer. The manufacturer or seller shall furnish specimens for test, without separate charge, up to one percent of the number of pipes to be delivered or furnished in each size of pipe, except that in no case shall the number of specimens furnished be less than five.
- C. Failure of twenty percent of the specimens to meet the requirements of any of the test imposed shall result in rejection of all pipe in the shipment of delivery corresponding to the sizes thus failing to comply, except that in the event of twenty percent of the specimens in any size failing to meet the requirements, the manufacturer or seller may, with the consent of the Engineer, furnish for test without charge, additional specimens from the same shipment to be selected and specified in the preceding paragraph. In case more than eighty percent of the specimens tested, including those first tested, shall show substantial compliance for each of the various tests performed, then the entire shipment of delivery for this size shall be accepted; otherwise it shall be rejected.
- D. In addition to the foregoing requirements, failure of individual specimens to develop seventy-five percent of the average crushing strength requirements will be cause for rejection of the shipment, but the seller may cull the pipe and submit the balance of the shipment for retest, and if the shipment then passes all of the requirements of these specifications, it shall be accepted.
- E. All pipe shall be inspected upon delivery at the trench and before laying. The purpose of the inspection shall be to cull and reject pipe which, independent of the physical tests herein specified, fail to comply with the requirements of these specifications.

- F. All pipe accepted may be plainly marked by the inspector. Rejected pipe shall not be marked so as to be defaced or to impair its value, but shall be replaced by the manufacturer or seller with pipe that meets the requirements of these specifications, without additional cost to the purchaser.
- G. Tests for Ductile Iron Pipe (D.I.P.) shall conform to current ANSI/AWWA Designation C600.

END OF SECTION

SECTION 02651

TESTING OF SEWER PIPE AND MANHOLES

PART 1 – GENERAL

1.01 DESCRIPTION

A. The Work of this section includes, but is not limited to:

1. Testing Gravity Sewer Pipelines:

- a. Low-pressure air test
- b. Infiltration test

2. Testing Pressure Pipelines:

- a. Hydrostatic leakage test

3. Deflection Testing of Plastic Pipe

4. Testing Manholes:

- a. Vacuum testing
- b. Exfiltration testing

B. Related Work specified elsewhere:

- 1. Gravity Sewer Pipe and Appurtenances: Section 02610
- 2. High Density Polyethylene Sanitary Sewer Force Main: Section 02620
- 3. Manholes: Section 02601

1.02 QUALITY ASSURANCE

A. Test acceptance:

- 1. No test will be accepted until the results are below the specified maximum limits.
- 2. The Contractor shall determine and correct the causes of test failure and retest until successful test results are achieved.

1.03 SUBMITTALS

- A. Testing procedures
- B. List of test equipment
- C. Testing sequence schedule
- D. Provisions for disposal of flushing and test water
- E. Certificate of test gauge calibration
- F. Deflection mandrel drawings and calculations

1.04 JOB CONDITIONS

- A. Do not allow personnel in manholes during pressure testing.
- B. Provide relief valves set at 10 psig to avoid accidentally over-pressurizing gravity sewer line during low-pressure air testing.

PART 2 – PRODUCTS

2.01 AIR TEST EQUIPMENT

- A. Air compressor
- B. Air supply line
- C. Shut-off valve
- D. Pressure regulator
- E. Pressure relief valve
- F. Stop watch
- G. Plugs
- H. Pressure gauge, calibrated to 0.1 lbs./sq. in.

2.02 INFILTRATION TEST EQUIPMENT

- A. Weirs

2.03 HYDROSTATIC TEST EQUIPMENT

- A. Hydro pump
- B. Pressure hose
- C. Water meter
- D. Test connections
- E. Pressure gauge, calibrated to 0.1 lbs./sq. in.
- F. Pressure relief valve

2.04 DEFLECTION TEST EQUIPMENT

- A. Go, No-Go mandrels
- B. Pull/retrieval ropes

PART 3 – EXECUTION

3.01 PREPARATION

- A. Backfill trenches in accordance with Section 02221.
- B. Provide pressure pipeline with concrete reaction support blocking.
- C. Flush pipeline to remove debris. Collect and dispose of flushing water and debris.
- D. Clean pipelines by propelling a snug-fitting rubber ball through the pipeline with water from the upstream manhole to the downstream manhole. Investigate and correct any stoppage of the cleaning ball. Collect and dispose of cleaning water and debris.

3.02 TESTING GRAVITY SEWER PIPELINES

A. Low-Pressure Air Test:

1. Test each newly installed section of gravity sewer line between manholes, including all laterals from the main to property line or behind curb.
2. Slowly introduce air pressure to approximately 4.0 psig.
 - a. If groundwater is present, determine its elevation above the springline of the pipe by means of a piezometric tube or other suitable means as directed by the Engineer. For every foot of groundwater above the springline of the pipe, increase the starting air test pressure reading by 0.43 psig. Do not increase pressure above 10 psig.
3. Allow pressure to stabilize for at least five minutes. Adjust pressure to 3.5 psig or the increased test pressure as determined above if groundwater is present. Start the test.
4. Test:
 - a. Determine the test duration for a sewer section with a single pipe size from the table below:

Nominal Pipe Size	T (Time) Min/100 Ft.
4	.3
6	.7
8	1.2
10	1.5
12	1.8
15	2.1
18	2.4
21	3.0
24	3.6
27	4.2
30	4.8
33	5.4
36	6.0

- b. Record the drop in pressure during the test period. If the air pressure has dropped more than 1.0 psig during the test period, the line is presumed to have failed. If the 1.0 psig air pressure drop has not occurred during the test period, the test shall be discontinued and the line will be accepted.
 - c. If the line fails, determine the source of the air leakage, make corrections and retest. The Contractor has the option to test the section in incremental stages until the leaks are isolated. After the leaks are repaired, retest the entire section between manholes.

B. Testing Pipe Over 36" Diameter:

1. Pipe over 36" diameter shall be subjected to a visual interior inspection.

C. Infiltration Test:

1. Use only when gravity pipeline is submerged in groundwater. Obtain prior approval of the Engineer.

2. Maximum Allowable Infiltration: 100 gallons per inch of pipe diameter per mile per day for any one section under test, including the allowances for leakage from manholes.

3.03 HYDROSTATIC LEAKAGE TEST FOR PRESSURE SEWER PIPELINES

A. Initial Expansion Phase:

1. Test each newly laid pressure pipeline, including any valved section thereof, hydrostatically at 1.5 times the working pressure of the pipeline based on the elevation of the lowest point in the pipeline corrected to the elevation of the test gauge. Obtain test pressure from the Engineer.
2. Slowly fill the section to be tested with water, expelling air from the pipeline at the high points. Install corporation stops at high points if necessary. After all air is expelled, close air vents and corporation stops and raise the pressure to the specified test pressure. Add sufficient make-up water at hourly intervals for three hours. After four hours, initial expansion should be complete.

B. Test Phase:

1. Commence testing at the same test pressure for an additional three hours to determine the leakage rate. Maintain pressure within ± 5.0 psi of test pressure. Leakage is defined as the quantity of water supplied to the pipeline necessary to maintain test pressure during the period of the test.
2. The allowable leakage, or make-up water, shall be 0.15 gallons per 100 feet of pipe for the duration of the test.
3. If the test of the pipe indicates leakage greater than that allowed, locate the source of the leakage, make corrections and retest until leakage is within allowable limits. Correct visible leaks regardless of the amount of leakage.

3.04 DEFLECTION TESTING OF PLASTIC SEWER PIPE

- A. After backfilling has been in place for at least 30 days but not longer than 12 months, perform vertical ring deflection testing on all sections of PVC and ABS pipe of 8" diameter and larger, in the presence of the Engineer.
- B. The maximum allowable deflection for installed plastic sewer pipe shall be limited to 5% of the original vertical internal diameter.
- C. Perform deflection testing with a deflectometer, calibrated television, or a properly sized "Go, No-Go" mandrel. The mandrel(s) shall be constructed at the Contractor's expense and subject to the approval of the Engineer.
- D. Pipe exceeding the allowable deflection shall be located, excavated, replaced and retested at the sole expense of the Contractor.

3.05 AIR VACUUM TESTING OF MANHOLES

Perform the testing as described in this section for every manhole installed.

- A. Plug all pipe connections and manhole openings; securely brace the plugs and pipe.
- B. Install the test equipment and seal the structure.

- C. Draw a vacuum of 10 inches of mercury (4.9 psi or 11.3 feet of water) and close the valve connection to the structure.
- D. The test shall pass if the vacuum remains between 9 and 10 inches of mercury for a time greater than one minute.
- E. If the manhole fails the initial test, locate the leak and make proper repairs with a settling material approved by the Engineer. Retest the manhole until it passes.

EXFILTRATION TESTING OF MANHOLES

Perform as an alternate to air vacuum testing, if approved by the Engineer

- A. Plug all pipes in the manhole. Remove any water that has accumulated in the manhole. Observe plugs over a period of not less than 2 hours to ensure that there is no leakage into the manhole.
- B. Determine ground water level outside the manhole.
- C. Fill the manhole with water to within 4" of the top of the cover frame. Prior to test allow the manhole to soak for a minimum of 4 hours to maximum of 72 hours. After the soak period, adjust the water level inside the manhole to within 4" of the top of the cover frame.
- D. Measure the water level from the top of the manhole frame. At the end of the 4-hour test period, again measure the water level from the top of the manhole frame. Compute the drop in the water level during the test period.
- E. The exfiltration test of a manhole shall be considered satisfactory if the drop in water level is less than the values listed in the table below:

Manhole Depth (Feet)	Allowable Drop In Water Level (Feet) In 24" Diameter Section	
	4' Dia. MH	5' Dia. MH
4	0.11	0.14
6	0.17	0.21
8	0.23	0.28
10	0.28	0.35
12	0.34	0.43
14	0.40	0.50
16	0.45	0.57
18	0.51	0.64
20	0.57	0.71
22	0.62	0.78
24	0.68	0.85
26	0.74	0.92
28	0.79	0.99
30	0.85	1.06

Based on an allowable exfiltration of 4 gallons per day per foot of depth of a 4-foot diameter manhole with a conical top and a 24" diameter opening. For purposes of the tests, the manhole depth shall be the depth from invert to the bottom of the cover frame, or the depth from the ground water surface to the bottom of the cover frame, whichever is less.

- F. In case of unsatisfactory test results, the Contractor shall repair the manhole and retest as often as necessary until satisfactory results are achieved. Repair visible leaks regardless of the amount of leakage.

END OF SECTION

SECTION 03300

CONCRETE FOR UTILITY CONSTRUCTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. The Work of this section includes, but is not limited to:

1. Cast-in-place cement concrete construction
2. Reaction and support blocking
3. Cradles and encasement

B. Related Work Specified Elsewhere:

1. Trenching, Backfilling & Compaction: Section 02221
2. Paving and Resurfacing: Section 02575

C. Applicable Standard Details:

1. Concrete Encasement
2. Concrete Cradle
3. Thrust Blocks
4. Concrete Pipe Anchor
5. Stream Crossing

1.02 QUALITY ASSURANCE

A. Reference Standards:

1. Pennsylvania Department of Transportation:

Publication 408 Specifications

2. American Society for Testing and Materials (ASTM):

C31 Making and Curing Concrete Test Specimens in the Field

C39 Test for Compressive Strength of Cylindrical Concrete Specimens

C42 Obtaining and Testing Drilled Cores and Sawed Beams of Concrete

C172 Sampling Fresh Concrete

1.03 SUBMITTALS

A. Certificates:

1. Submit certification from the concrete producer attesting that the cement concrete conforms to Section 704, Publication 408 Specifications for the class of concrete being used.

2. Submit certified results of compressive strength tests performed by an independent testing laboratory.

B. Shop Drawings:

1. Submit detailed shop drawings of reinforcing steel.

PART 2 – PRODUCTS

2.01 CEMENT CONCRETE

A. Ready-mixed, conforming to Section 704, Publication 408 Specifications.

1. Requirements for state approved batch plants, design computations and plant inspection shall not apply. The acceptability of concrete will be based on conformance with the cement concrete criteria specified below and the results of the specified tests.

B. Cement Concrete Criteria:

1. Class A

- a. 28-day compressive strength: 3300 psi
- b. Slump: 1 to 3 inches

2. Class C

- a. 28-day compressive strength: 2000 psi
- b. Slump: 2 to 6 inches

3. High Early Strength

- a. 3-day compressive strength: 3000 psi
- b. Slump: 1 to 3 inches

4. Cement factor and maximum water-cement ratio conforming to Table A. Section 704.1(b), Publication 408 Specifications.

2.02 REINFORCEMENT STEEL

A. Reinforcement Bars:

1. New billet-steel conforming to Section 709.1, Publication 408 Specifications.
2. Deformed, Grade 40.

B. Steel Wire Fabric:

1. Conforming to Section 709.3, Publication 408 Specifications.

PART 3 – EXECUTION

3.01 CONSTRUCTION

- A. Comply with Section 1001, Publication 408 Specifications for construction requirements including formwork, curing, protection and finishing of cement concrete.
- B. Excavate and shape trench bottoms and sides to accommodate thrust block forms, encasement, manhole bases, inlets and vaults.
- C. Support pipe, valves and fittings at the required elevation with brick or concrete block. Do not use earth, rock, wood or organic material as supports.
- D. Construct manhole bases, reaction and support blocking, cradles, encasements, and miscellaneous mass concrete of Class C concrete.
- E. Construct cast-in-place vaults, inlets, endwalls, curbs, sidewalks and miscellaneous reinforced structures of Class A concrete.
- F. Construct reinforced and plain cement concrete pavements and base courses of High Early Strength concrete as specified in Section 02575, Paving and Resurfacing.
- G. Provide spacers, chairs, bolsters, ties and other devices for properly placing, spacing, supporting and fastening reinforcement in place.
- H. Place concrete utilizing all possible care to prevent displacement of pipe or fittings. Return displaced pipe or fittings to line and grade immediately.
- I. Insure tie rods, nuts, bolts and flanges are free and clear of concrete.
- J. Do not backfill structures until concrete has achieved its initial set, forms are removed and concrete work is inspected by the Engineer.
- K. Perform backfilling and compaction as specified in Section 02221.

3.02 FIELD TESTS OF CONCRETE DURING CONSTRUCTION

- A. Test each 50 cubic yards or fraction thereof of each class of concrete for compressive strength. Retain an independent testing laboratory to test cylinders.
 1. Sample concrete in accordance with ASTM C172.

2. Prepare and cure two test cylinders in accordance with ASTM C31.
 3. Test cylinders in accordance with ASTM C39.
- B. If test cylinders fail to meet strength requirements, the Engineer may require additional core tests in accordance with ASTM C42.

END OF SECTION

HALIFAX AREA WATER AND SEWER AUTHORITY

WATER SERVICE APPLICATION

PROPERTY ADDRESS: _____
PROPERTY OWNER: _____
MAILING ADDRESS: _____
CONTACT PERSON: _____
TELEPHONE NUMBER: _____
ACCOUNT NUMBER: _____
TYPE OF ACCOUNT: _____ RESIDENTIAL _____ COMMERCIAL
OTHER (SPECIFY): _____
SERVICE LINE SIZE: _____
NUMBER OF EQUIVALENT DWELLING UNITS: _____
DATE SERVICE REQUIRED: _____
NEW CONSTRUCTION: _____ YES _____ NO
OWNERSHIP TRANSFER: _____ YES _____ NO
SPECIAL CIRCUMSTANCES: _____

By signing this Application, the applicant agrees to abide by the Rules and Regulations of the Halifax Area Water and Sewer Authority, in particular the provisions governing the terms, conditions, fees and charges relating to water service.

SIGNATURE OF APPLICANT

SIGNATURE OF APPLICANT

DATE

APPLICATION REQUEST FOR WATER SERVICE MUST BE SUBMITTED AT LEAST SEVEN (7) DAYS BEFORE SERVICE IS REQUIRED.

AUTHORITY USE ONLY

INSPECTION DATE: _____ INSPECTOR: _____
FEES PAID: _____

Please complete and return to:

Halifax Area Water and Sewer Authority
Post Office Box 443
Halifax, PA 17032

WATER SYSTEM
RULES, RATES AND REGULATIONS
OF
HALIFAX AREA WATER AND SEWER AUTHORITY

These Rules and Regulations are a part of the contract with every property owner who uses the water facilities and every such property owner, by utilizing the facilities, agrees to be bound thereby.

Section I – Definitions

- 1.01** “Authority” shall mean Halifax Area Water and Sewer Authority, a municipal authority organized and existing under provisions of the Pennsylvania Municipality Authorities Act of 1945, approved May 2, 1945, P.L. 382, as amended and supplemented.
- 1.02** “Board” shall mean the governing body of the Authority.
- 1.03** “Borough” shall mean the Borough of Halifax, Dauphin County, Pennsylvania.
- 1.04** “Township” shall mean the Township of Halifax, Dauphin County, Pennsylvania.
- 1.05** “Consumer” shall mean a Person who, prior to, upon or after the effective date hereof, has contracted or shall contract for water service and/or a Person who, upon or after the effective date hereof, is receiving or shall receive water service.
- 1.06** “Commercial Establishment” means any structure or any portion thereof intended to be used wholly or in part for the purpose of carrying on a trade, business or profession or for social, amusement, religious, educational, charitable or public uses, and which contains plumbing for kitchen, toilet, water fountain or washing facilities.
- 1.07** “Equivalent Dwelling Unit” – hereinafter referred to as “EDU” shall mean:
- A. A building (including a mobile home) under one roof and occupied by one family or business; or
 - B. A combination of buildings in one enclosure or group and occupied by one family or business; or

- C. One side of a double building or house having a solid vertical partition wall; or
- D. Each room or group of rooms in a building occupied or intended for occupancy as a separate business or as separate living quarters by a family or other group of Persons living together, or by a Person living alone; or
- E. Each apartment, office or suite of offices in a building or house having several such apartments, offices or suites of offices and using in common one or more hallways and one or more means of entrance.
- F. As described in the Tapping Fee Resolution, Attachment “B”, for residential and non-residential establishments.

1.08 “Person” shall mean an individual, firms, partnership, company, association, society, corporation, trust, governmental body or any agency, department or political subdivision thereof or any other group or entity.

1.09 “Industrial Establishment” means any structure intended to be used wholly or in part for the manufacturing, fabricating, process, cleaning, laundering or assembly of any product, commodity or article.

1.10 "Institutional Establishment" shall mean any room, group of rooms, building or other enclosure connected directly or indirectly to the Water System which does not constitute a Commercial Establishment, a Dwelling Unit or an Industrial Establishment.

1.11 “Water System” shall mean the waterworks, water supply works and water distribution facilities constructed and acquired and/or operated by this Authority, together with all appurtenant facilities and properties which this Authority has acquired or hereafter shall acquire, from time to time, in connection therewith, including all property, real, personal and mixed, rights, powers, licenses, easements, right of way, privileges, franchises and other property or interest in property of whatsoever nature used or useful in connection with such facilities, and together with all additions, extension, alterations, improvements and betterments thereof or thereto which may be made or acquired, from time to time, by this Authority.

1.12 “Property Owner” shall mean any Person vested with ownership, legal or equitable, sole or partial, of any Improved Property.

1.13 “Water Rental” means that quarterly charge for direct or indirect connection with the use of the Water System of the Authority.

1.14 “Service Lateral” shall mean that part of the water system that extends from the Authority’s main to the property owner’s curb.

1.15 “House Connection” shall mean that portion of the water line that extends from the curb stop (at curb of property) through owner’s premises.

1.16 “Water Line” means any pipe or main constituting part of the Water System used or usable for water supply purposes.

Section II – Applications for Services

2.01 Tapping Fees

No Property Owner shall connect any Improved Property with any part of the Water System without first making application for and securing a permit, in writing, from the Authority or its approved agents.

a. Connection Fees:

The Authority does charge a connection fee against the Owner of any Improved Property whenever such Owner hereafter shall connect any such Improved Property with the Water System. Such connection fee is charged for the physical connection, from the main to the curb, of each such Improved Property by the Owner of such Improved Property.

The amount of the connection fee shall be based on the direct cost realized by the Authority for materials, labor, fringe benefits, engineering and legal charges. Unless otherwise approved by the Authority in writing, all work pertaining to the construction from the main to the curb shall be completed by the Authority by subcontract of approved Contractors. All connection fees incurred by the Authority shall be payable to the Treasurer of the Authority or to such other officer or representative of the Authority as shall be authorized, from time to time to accept payment thereof.

Payment of connection fees charged by this Authority shall be enforced by the Authority in any manner appropriate under laws at the time in effect.

b. Tapping Fees:

Tapping Fees are assessed on the basis of an Equivalent Dwelling Unit (EDU) calculation

wherein each EDU shall be assessed one (1) Tapping Fee. See Attachment “B”.

2.02 Any property owner desiring the introduction of a service line or lines from the Authority’s main line into owner’s premises, or an extension or alteration to any of the existing service pipes or fixtures, must first make a written application, for a permit, on the form furnished by the Authority, signed by the owner of the premises, or a duly authorized agent, which application shall together with the Rules and Regulations of the Authority, regulate and control the service of water to such premises.

2.03 No water line shall be covered until it has been inspected and approved by the Authority, and if any part thereof is covered before so being inspected and approved, it shall be uncovered for inspection at the cost and expense of the Owner involved. The plumber shall, within forty-eight (48) hours, after proper installation, inspection, and testing of the house connection, return the permit to the office of the Authority with a detailed and full report in writing of all work done, material used in installing the service under permit, and the installation so made shall be subject to the inspection and approval of the Authority; until such approval is granted, the water line shall not be used.

2.04 The water shall not be turned on to any premises in which an initial service has been installed until the connection and tapping fees are paid in full.

Section III – Service Lines

3.01 Upon the approval of the application, issuance of a permit for water service, and payment of all fees, the Authority will tap the main and extend a line to the curb and install the curb stop, after receiving notice as hereinafter provided. The property owner requesting service to such property shall be responsible for the installation and material costs for the complete service lateral and all fittings from the curb stop to owners’ premises that he wishes to extend the house connection. It shall be the responsibility of the property owner to maintain the house connection from the curb stop to his premises. The Authority shall maintain the service line from the curb stop to the water main.

3.02 The Authority must be notified as least one (1) week before the water service is to be installed. Such notice must be delivered to the Authority Office and shall state the street and lot number or location, the name of the owner and/or tenant and the exact time when the trench will be ready for making the connection.

3.03 The complete house connection shall be kept in good condition by the Owner. Upon failure to do so, service shall be discontinued.

3.04 Only authorized personnel of the Authority shall turn the curb stop on or off.

3.05 All service lines shall have at least four (4') feet of cover and shall not be laid within ten (10') feet horizontally or eighteen (18") inches vertically of a sewer, sewer connection, any open excavation, or vault. The water line may not be installed below a sewer line. Any new construction of multiple dwelling units, including but not limited to townhouses, apartments, etc., shall have a separate meter installed for each individual unit.

3.06 In all new services or replacement of existing services, where two or more improved properties are supplied with water from the same service line, a separate curb stop and curb box will be provided for each property, and a separate line must be extended to each premises.

3.07 When two or more improved properties are supplied through a single service, any violation of the Rules and Regulations of the Authority by either or any of the said property owners shall be deemed a violation as to all, and the Authority may take such action as could be taken against a single property owner. The Authority may, however, give the property owner who is not in violation of the Authority Rules and Regulations, a reasonable time to provide a separately controlled service.

3.08 Only materials approved by the Authority shall be utilized in installing service lines. Current specifications for pipe and fittings approved by the Authority can be secured at the Authority's office.

Section IV – Supply of Water

4.01 Any Property Owner desiring a supply of water, must make a written application on the form furnished by the Authority, which must be properly approved by the Authority, or its duly authorized agent before the water will be turned on. The Owner of the property shall observe the Rules and Regulations of the Authority.

4.02 No Owner of any premises supplied with water by this Authority will be allowed to supply other persons or families or other premises, except by written permission from the Authority. Property Owners who violate this rule may have their water shut off after an appropriate notice, and it may remain so until the Water Authority is satisfied that the Rules and Regulations will be

observed; and a “resumption of service” fee, as set forth in the Authority’s Schedule of Fees, is paid by the Property Owner.

4.03 The Authority reserves the right at all times, after due notice, to shut off the water for non-payments of water bills, or for neglect or refusal to comply with the Rules and Regulations of the Authority, and to charge a resumption of service fee. See Section X, Subsection 10.07 and 10.09 of these Rules and Regulations.

4.04 Service may be discontinued for any of the following reasons:

- A. For misrepresentation in application as to property or materials used in installing the service line.
- B. For the use of water for any other property or purpose than that described in the application.
- C. For the waste of water through, including but no limited to, leaks in service line or fixtures.
- D. In order to prevent or alleviate an emergency.
- E. In case of vacancy of the premises. Also see Section 4.08 of these Rules and Regulations.

4.05 The Authority shall have the right to shut off the water without notice in case of breakdowns or for other unavoidable causes, or for the purpose of making necessary repairs, connections, etc. Reasonable notice will be given whenever possible.

4.06 The Authority shall not be liable for a deficiency or failure in the supply which may be occasioned by shutting off water to make repairs or connections or failure of supply from any cause beyond its control. The Authority reserves the right to restrict the supply of water in case of scarcity or whenever the public welfare may require it.

4.07 No pumps will be permitted to be connected with the water pipes so as to draw water directly from main or service pipes, except with the approval of the Authority.

4.08 A new application must be made upon any change in ownership of property as described in the application, and the Authority shall be at liberty to discontinue the water supply until such new application has been made and approved and the appropriate application fee paid.

4.09 Property Owners desiring an abatement of water bills shall report the same in writing to the office of the Authority giving reasons for such request.

Section V – Meters

5.01 The service line, to which the Authority will attach a meter, must be either a separately controlled service line supplying a single property or where more than one property is connected to a single metered service line, the Owner of the property on which the meter is situate shall be responsible for the total payment based on the number of EDU's and the total gallonage registered on that meter during the usual billing period.

5.02 Property owners shall utilize the public water system independently of any other water source; no alternate water supply shall be inter-connected to the Authority's system.

- A. Each property shall have a water metering and backflow prevention arrangement, as provided in the specifications which can be secured from the Authority's office.
- B. The property owner shall purchase the first meter, which may be paid for over four (4) consecutive quarters. Thereafter, the Authority shall replace ¾" meters as required at the Authority's expense, except as noted in Section 5.07. For meters larger than ¾", the property owner shall pay the replacement amount over the current cost of a ¾" meter.
- C. When any new construction is undertaken, the Authority will install a water meter and remote read out, at a location designated by the Authority.
- D. The property owner shall purchase the proper fittings from the Authority and install them in accordance with Authority specifications.

5.03 Meters shall be placed within the property lines, and in convenient location within a building or in a meter pit as specified by the Authority. In no case shall any person other than an authorized agent of the Authority change or alter or interfere with the meter in any way. The meter must be installed in such a manner so as to register all of the water entering the property. The Authority may allow the use of materials equal to those listed above for the construction of a meter pit box; provided, however, such materials must be first approved in writing by the Authority.

5.04 A shut off valve must be properly placed at the expense of the Property Owner, before the meter so as to drain the meter and pipes when the water is shut off. No waste valve shall be permitted before the meter.

5.05 The Property Owner must, at all times, properly protect the meter from damage or any other cause and will be held responsible for repairs to meter made necessary due to the negligence of the Property Owner.

5.06 In case a meter stops registering, it will be promptly changed or repaired, and the bill will be estimated on the basis of the average amount for previous corresponding periods, if possible, for as many quarters as the same Property Owner used said premises, if less than four quarters.

5.07 Should any Property Owner question the accuracy of a meter measuring the water delivered to such premises, the Property Owner may, upon application to the Authority and making a deposit at the cost of a new meter, have said meter tested. Should the test show the meter in question to be correct within four percent (4%), the Property Owner shall forfeit the deposit made. Should the test show the meter to be defective, the deposit shall be refunded.

Section VI – Leaks, Defective Plumbing

6.01 The Authority shall not be liable for any damage resulting from leaks, broken pipes, or from any other cause occurring to or within any house or building, and it is expressly stipulated by and between the Authority and the Owner that no claims shall be made against the said Authority on account of the bursting or breaking of any main or service pipe or any attachment of said Water Works.

Section VII – Inspection and Access to Properties

7.01 The Authority, by its duly authorized agents, shall at all reasonable hours, have access to the water pipes, fixtures and meters upon the premises, or within the hours, for the purpose of turning the water on or off, examining the water pipes and fixtures, and for repairing, reading or replacing the meters. Authority has no responsibility to check or inspect a Property Owner's water line.

Section VIII – Opening and Closing Valves and Curb Stops

8.01 No person or persons, except the Authority's duly authorized agent, shall open or close the curb stops or valves in any public or private line.

Section IX – Use of Fire Hydrants

9.01 No fire hydrants may be opened or any water used there from for sprinkling streets, for building or any purpose, without permission from the Authority. Hydrants may only be opened and closed by Authority employees, with the exception of the Fire Company during firefighting emergencies.

Section X – Water Bills: Calculations, Charges, Collection

10.01 Water bills shall be calculated on a quarterly basis unless otherwise specified. For billing purposes, the water customers may be divided into two or more Districts. The rate applicable to each District shall be established by the Authority after taking into consideration the costs with charges applicable to each District. The Authority will establish a separate rate schedule for each District.

10.02 Water rentals and charges are imposed upon and shall be collected from the Owner of each improved property which shall benefit from the existence of the water system, for use of the water system, whether such use shall be direct or indirect, and for services rendered by the Authority in connection therewith. The Authority shall mail the bill to the property Owner at least fifteen (15) days before the due date. Failure to bill within said time period shall not extend the due date or discount period of any bill.

10.03 Bills and notices relating to the Authority or its business shall be mailed or delivered to the Owner's last known address as shown by the books of the Authority, and the Authority shall not be otherwise responsible for delivery.

10.04 If bills are paid by mail, the date on which such mail is received will be considered the date of payment.

10.05 Failure to receive a bill shall not exempt any Owner from payment of such bill and penalties therein. The presentation of a bill to the Owner is only a matter of accommodation and not a waiver of this rule.

10.06 All bills are due and payable within thirty (30) days of billing date; thereafter, a five percent (5%) late charge per quarter on the unpaid balance shall be added.

10.07 Should the second quarter become past due, a letter shall be sent indicating that after thirty (30) days from receipt of the letter, the unpaid bills will be forwarded to the Authority Solicitor for filing of a lien or other collection method. Service may be discontinued if the bill is not paid within three (3) months of the due date. Refer to Attachment “A”, Rate Schedule.

10.08 Only property owners shall be billed for and be responsible for the payment of the water bill.

10.09 Any service discontinued on account of non-payment of water rent will not be turned on again until all arrearages and a resumption service fee is paid. See Authority’s Fee Schedule, Attachment A.

10.10 Any property owner, upon connection to the water system of the Authority, shall be liable for water rental from the date of hookup, and shall be billed in accordance with normal billing procedures of the Authority.

10.11 Notwithstanding that service has been temporarily discontinued to a property, the property owner, during the period of service is discontinued, shall be liable for the payment of the minimum rate as established by the Authority, in accordance with its then current rate schedule.

Section XI – Service Fees

11.01 Prior to installation of a water service line between curb stop and building, the Owner shall obtain a connection permit and pay the applicable service fee.

Section XII – Changing Rules, Rates and Regulations

12.01 The Authority reserves the right to change or amend, from time to time, these Rules, Rates and Regulations for the use of water.

Section XIII – Construction of Water Distribution System

13.01 When a person develops and/or subdivides any land within the Township or Borough, by any ordinance of the Township or Borough, to provide for the installation of public water distribution facilities, at his own expense with his own forces or under separate contract, he must first apply for and obtain authorization from the Authority to proceed with such construction in conformity with approved Developer’s Specifications as established by the Authority. A developer

or property Owner who extends a water line, along or through, other property or properties, improved or unimproved, may recoup a proportionate share of the cost of such extension for each hook up made to such extension.

13.02 The developer may request the Authority to recoup, within ten (10) years from the date of installation, and pay over to the Developer, a portion of the above costs expended by the Developer, when each tapping fee is collected by the Authority. Provided however, that this agreement must be made prior to the installation of the line, and the amount to be collected for each hook up must be specifically designated. All aspects of reimbursement shall be in accordance with the most recent Tapping Fee legislation.

Section XIV – Enforcement

14.01 In the event an owner is determined to have violated any provision of these Regulations, the following fines and penalties shall be imposed.

1. First violation: Upon discovering the violation, the Authority shall cause a notice of violation to be sent to the property owner requiring corrective action within 30 days. Failure to correct the action will result in an additional violation.
2. Second violation: When an owner shall fail to correct the violation within 30 days of the initial notice of violation, the Authority may impose the following fines and administrative costs:
 - a. Fine: \$100.00 per violation, per day, up to a maximum of \$2,500.00 per violation;
 - b. Costs: Administrative costs will be assessed; and
 - c. Attorney's Fees: If the Authority Solicitor participates in enforcing the regulations, the fees that he or she charges to the Authority will be charged to the owner.

14.02 Any fine, cost, or fee imposed under this section shall immediately become a municipal lien on the affected property and may be indexed as such in the appropriate courthouse records.

14.03 Nothing contained herein shall prohibit the Authority from correcting any violation at its expense and assessing such costs as a municipal lien against the property owner.

14.04 Failure to install any device required by these regulations shall, upon the expiration of the

30-day period from the date of the Notice of Violation, result in a discontinuance of service. Any cost for cleanup and/or repair of the line shall be borne by the owner and shall immediately become a municipal lien on the affected property.

14.05 Any property owner who desires to dispute the Notice of Violation must file a written request with the Authority to reconsider such within ten (10) days of being notified of the violation. Upon receipt of such a request, the Authority shall schedule a hearing within thirty (30) days of receiving the request from the property owner.

DULY ADOPTED by the HALIFAX AREA WATER AND SEWER AUTHORITY, this _____ day of _____, 2016, in lawful session duly assembled.

HALIFAX AREA WATER AND SEWER AUTHORITY

BY _____

Chairman

ATTEST

Secretary

**HALIFAX AREA WATER AND SEWER AUTHORITY
WATER SYSTEM RATE SCHEDULE
Effective March 2016**

The Halifax Area Water and Sewer Authority is comprised of 7 individuals. Generally terms of appointment are for 5 years. Currently, Authority meetings are held the 3rd Tuesday of each month beginning at 7:00 P.M. The meetings are open to the public and we invite your comments, recommendations and opinions concerning the various services provided by the Authority.

Water System User Fees:

First 5,000 gallons/quarter	\$ 37.10
Additional charge over 5,000 gallons	\$ 7.42

<u>Fire Hydrants (each)</u>	\$ 25.00
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<u>Tapping fee (per EDU)</u>	\$3,545.70
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Water capacity considered at 159 gpd/EDU

<u>Inspection fee (per inspection)</u>	\$ 100.00
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Late charge - After 30 days from billing date, a penalty of 5% will be charged for each quarter or fraction thereof during which the bill remains unpaid. Service may be discontinued if bill is not paid within 3 months of the due date.

Attorneys' Fees and Costs for Collection of Delinquent Accounts:

Attorney Fees	\$200.00/hour
Paralegal/Assistant Fee	\$ 60.00/hour
Title Search Fee	\$100.00/hour
Filing Fees	As established by authority having jurisdiction
Sheriff's Deposit	\$1,500.00
Notary Fee	\$5.00 per seal

In addition to the charges listed above, account is required to pay all additional fees incurred by Authority or Authority's Solicitor in collection of the account. These fees may include, without limitation, postage fees, copying costs, Sheriff's fees for service of process, etc.

<u>Disconnect Fee</u>	\$ 50.00
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<u>Reconnect Fee</u>	\$ 50.00
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Meter Testing Charges:

< 1¼ inch meter:	\$ 75.00
1¼ inch to 2 inch meter:	\$ 100.00
> 2 inch meter:	\$ 200.00

HALIFAX AREA WATER AND SEWER AUTHORITY

RESOLUTION NO. 2016-01

A RESOLUTION OF THE AUTHORITY BOARD ESTABLISHING
WATER SYSTEM TAPPING FEES IN ACCORDANCE WITH
ACT 57 OF 2003.

WHEREAS, HALIFAX AREA WATER AND SEWER AUTHORITY (the "Authority") owns and operates a municipal water system serving the Borough of Halifax and portions of Halifax Township, in Dauphin County; and

WHEREAS, the Pennsylvania Municipality Authorities Act confers upon the Authority the power to charge property owners, who desire to connect to the Authority's water system, a tapping fee; and

WHEREAS, Act 57 of 2003 (P.L. 404) amended the Pennsylvania Municipality Authorities Act by revising, inter alia, the method of calculating and determining various tapping fees and tapping fee components chargeable to such property owners; and

WHEREAS, after undertaking appropriate and required study and consideration, the Board of the Authority has determined the need to establish tapping fees effective March 16, 2016, consistent with the requirements of Act 57 of 2003.

NOW, THEREFORE, the Board of the Authority, in public session duly assembled, hereby RESOLVES as follows:

1. Effective March 16, 2016, any property owner desiring to connect to the Authority's water system shall pay to the Authority prior to connecting thereto a tapping fee per Equivalent Dwelling Unit (EDU)*, consistent with the following components;

	Tapping Fee per EDU
Capacity Part	\$1,386.48
Distribution Part	\$2,159.22
<i>Total Area Wide (per EDU)</i>	<i>\$3,545.70</i>

*Equivalent Dwelling Unit” or “EDU” means any room, group of rooms, house, trailer or other structure or enclosure occupied or intended for occupancy as separate living quarters by a family or by persons living together or by persons living alone. For a non-residential use, the number of EDUs for such non-residential use shall be calculated by dividing the projected maximum water flows by 159 gallons per day, rounded up to the next whole number. The projected maximum water flows shall be provided by the property owner and shall be based on the maximum anticipated use during a period of ninety (90) consecutive calendar days. Tapping fee adjustments may be assessed after the first full year of use and thereafter should the actual maximum water flows exceed the projected maximum water flows.

2. The Halifax Area Water And Sewer Authority Water Tapping Fee Calculations, completed in conformance with Act 57 of 2003, dated March 2016, are hereby incorporated as Exhibit A, made a part of this Resolution, and shall be made available for public inspection in accordance with applicable law.
3. The tapping fees set forth in this Resolution and adopted hereby shall remain in effect until changed or modified by the Board of the Authority as provided by law.
4. All rules, regulations and resolutions of the Authority and all parts or portions thereof to the extent not specifically modified hereby shall remain in full force and effect, it being the intention of this Resolution only to establish tapping fees as noted above and to effect no other changes to any prior rules, regulations or resolutions of this Authority.

RESOLUTION APPROVED this 15th day of March, 2016.

ATTEST:

HALIFAX AREA WATER AND SEWER
AUTHORITY

Secretary

By: _____
Chairman

Halifax Area Water and Sewer Authority
Water Tapping Fee Calculations

Dated: March 2016

Capacity Part

Historical Index Thru December 31, 2015

Original System

Item	Description	Replacement Method Related Cost	Trend Year	Trend Factor	Replacement Capacity Part
1	Springs	\$10,000.00	2005	1.35	\$ 13,500.00
2	Well #1	\$70,000.00	2005	1.35	\$ 94,500.00
3	Well #2	\$85,000.00	2005	1.35	\$ 114,750.00
4	Well #3	\$105,000.00	2005	1.35	\$ 141,750.00
5	Well #4	\$85,000.00	2005	1.35	\$ 114,750.00
6	Chlorination Housing	\$8,000.00	2005	1.35	\$ 10,800.00
7	500,000 gallon Reservoir	\$432,250.00	2005	1.35	\$ 583,537.50
8	10,000 gallon Reservoir	\$45,000.00	2005	1.35	\$ 60,750.00
9	480,000 gallon Reservoir	\$396,500.00	2005	1.35	\$ 535,275.00
10	Pressure Regulating Station	\$8,000.00	2005	1.35	\$ 10,800.00
11	Pumping Station @ Matamoras	\$12,000.00	2005	1.35	\$ 16,200.00
12	Pumping Station @ Area C	\$170,000.00	2005	1.35	\$ 229,500.00
13	Project Related Costs	\$285,350.00	2005	1.35	\$ 385,222.50
Total Capacity Part - 2016 Cost					\$ 2,311,335.00

Emergency Generators at Wells 3 & 4

Item	Description	Replacement Capacity Part	Trend Year	Trend Factor	Replacement Capacity Part
1	Emergency Generators	\$87,757.00	2008	1.21	\$106,185.97
Total Capacity Part - 2016 Cost					\$106,185.97

Groundwater Rule Project

Item	Description	Replacement Capacity Part	Trend Year	Trend Factor	Replacement Capacity Part
1	Chlorine Contact Facilities	\$8,712.52	2010	1.14	\$9,932.27
2	Chlorine Contact Facilities	\$194,673.99	2011	1.10	\$214,141.39
Total Capacity Part - 2016 Cost					\$224,073.66

Chemical Feed Building

Item	Description	Replacement Capacity Part	Trend Year	Trend Factor	Replacement Capacity Part
1	Chemical Feed Building	\$253,464.75	2011	1.10	\$278,811.23
2	Chemical Feed Building	\$77,127.00	2012	1.08	\$83,297.16
Total Capacity Part - 2016 Cost					\$278,811.23

Total Capacity Part

\$ 2,920,405.86

Halifax Area Water and Sewer Authority
Water Tapping Fee Calculations

Dated: March 2016

Distribution Part

Item	Description	Related Cost	Trend Year	Trend Factor	Capacity Part
1	6" DI Mains 57,387 LF @ \$48.00/ft	\$2,754,576.00	2005	1.35	\$ 3,718,677.60
2	Valves & Fittings	\$51,050.00	2005	1.35	\$ 68,917.50
3	Project Related Costs	\$561,125.00	2005	1.35	\$ 757,518.75
Total Distribution Part - 2016 Cost					\$ 4,545,113.85

	Capacity Related Cost	Distribution Related Cost	Total Related Cost
Percentage	39%	61%	100%
Total Related Cost	\$2,920,405.86	\$4,545,113.85	\$7,465,519.71
Less Outstanding Debt	\$0.00	\$0.00	\$0.00
Less Grants	\$0.00	\$0.00	\$0.00
Net Related Cost	\$2,920,406.25	\$4,545,114.46	\$7,465,520.71

System Capacity (gpd)	334,800	334,800	334,800
Cost per Gallon	\$8.72	\$13.58	\$22.30
Persons per Household	2.45	2.45	2.45
Gal/day/edu	159	159	159
Tapping Fee (per edu)	\$1,386.48	\$2,159.22	\$3,545.70

TAPPING FEE SUMMARY

TOTAL CAPACITY PART	\$1,386.48
TOTAL DISTRIBUTION PART	\$2,159.22
TOTAL TAPPING FEES PER EDU	\$3,545.70

HALIFAX AREA WATER & SEWER AUTHORITY
PUBLIC WATER SUPPLY SYSTEM

Capacity Evaluation (Safe Yield)

	gpm	gph	@12 hrs/day
Well 1	110	6,600	79,200
Well 2	50	3,000	36,000
Well 3	80	4,800	57,600
Well 4	225	13,500	162,000
Spring 5	N/A *	N/A *	N/A *
Spring 6	N/A *	N/A *	N/A *
Safe Yield - gallons per day			334,800

Footnotes:

* The springs are not a dependable source of water during prolonged drought conditions

POLICIES FOR WATER MAIN EXTENSIONS

1. All mains shall be extended at the sole expense of the person or persons requesting such extension.
2. All mains shall be extended to the furthestmost property lines of the person or persons requesting such extension. The only exception shall be where lines cannot be further extended.
3. The size and location of the mains shall be determined by the Authority's Engineer so as to comply with the Authority's long-range facilities plan.
4. If planning is required, the Developer shall deposit with the Authority ample monies to cover all costs the Authority may incur in the furtherance of the proposed extension.
5. If a Subdivision or Land Development Plan is approved which will result in an extension to the water system, a copy of the Plan, as recorded at the Dauphin County Court House, shall be provided to the Authority on an acceptable format media.
6. Design:
 - A. Should the Developer elect to have the Authority design the extension, a Design Extension Agreement shall be signed and security placed in escrow for the design and legal costs the Authority may incur in the furtherance of the proposed extension.
 - B. Should the Developer elect to have his Engineer design the extension, a Construction Agreement shall be signed and security placed in escrow for the review and any legal costs the Authority may incur in the furtherance of the proposed extension, as more fully discussed herein.
7. All Extension Plans shall consist of the following:
 - A. Size of the plans and scale shall match the existing Authority Plans.
 - B. Title Sheet, Sheet 1.
 - C. Location Plan, Sheet 2.
 - D. General Plan, Sheet 3.
 - E. Construction Details, Sheet 4.
 - F. Design Details, Sheet 5 through ____.

All Plan Sheets shall be done on computer in a file format conforming to AutoCAD, using or saved-to the current version in use by the Authority's consulting engineer. The

layers, colors and line types shall conform to the format utilized by the Authority's consulting engineer.

The Authority's datum must be used for establishing elevations. Developer shall contact the Authority's Engineer to obtain a General Plan for the area encompassing the proposed extension. All Plan Sheets shall be oriented with the north arrow pointing the same direction as the General Plan. In accordance with Act 287 and any subsequent legislation, all existing utilities shall be indicated on the Plans.

8. In some cases, the Authority may have digitized mapping available for purchase through the Authority's consulting engineer.
9. After the proposed extension is designed and has been approved by the Authority's Engineer, the Authority's Engineer will apply for all applicable permits, as required. All permits shall be approved under the name of the Authority in accordance with applicable regulations.
10. A Construction Agreement shall be signed and security placed in escrow for applicable engineering fees, inspection services, as-constructed drawings and legal fees incurred or reasonable anticipated costs to be incurred in connection with the proposed construction. In addition, a "Letter of Credit", or bond executed by a surety named in the current list of "Companies Holding Certificates of Authority as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department shall be provided. Said security shall be in an amount acceptable to the Authority, to guarantee the satisfactory and timely completion of all water facilities as set forth in a cost estimate that has been reviewed and approved by Authority's engineer.
11. Construction:

The construction can be done under one of the following procedures:

- A. Developer can utilize his own construction forces to perform the work, providing, however, that the following is submitted and approved by the Authority:
 - (1) Name of Contractor performing the work.
 - (2) A minimum of four copies of Shop Drawings and pipe certifications shall be submitted prior to the start of any construction.
 - (3) Estimated length of time for construction to be used for estimating the initial amount of security to be placed in escrow.
 - (4) Submit insurance certificates and Hold-harmless Agreements naming the Authority, Borough and/or Township (as applicable), and Engineer as co-insureds and certificate holders.
 - (5) The limits of liability shall be as determined by the Authority's insurance carrier.

- (6) Submit a one-and-one-half-year (1½ year) Performance and Maintenance Bond to the Authority after construction is complete and final acceptance and certification is received from the Authority and/or Authority's Engineer.
- B. The Developer can elect to have the Authority advertise for competitive bids. Should the Developer select this alternate, an agreement with the Authority will be required and the following procedures shall be undertaken:
- (1) Since the Developer is providing all the funds for the project, prevailing wages would not apply.
 - (2) The Authority will advertise for competitive bids and establish a date for the bid opening.
 - (3) All bidders will be required to provide a Bid Bond in the amount of five percent of the base bid and a letter of commitment from an acceptable licensed surety company.
 - (4) After bids are received, the following procedures will apply:
 - (a) The fiscal report, outlining all costs of the project, including construction cost, contingencies, inspection, construction management, stakeout, and any other costs, will be submitted to the Developer for his approval.
 - (b) Should the developer elect to proceed with the project, the following will apply:
 - i. A letter accepting the fiscal report and authorization to the Authority to proceed with the project shall be submitted by the Developer to the Authority.
 - ii. The total project cost as outlined in the fiscal report shall be deposited with the Authority, either directly or made available through a local lending institution for monthly draws.
 - iii. As construction proceeds, monthly draws on the funds shall be made through the process of requisitions which shall include the following:
 - a. Designated payee.
 - b. Purpose.
 - c. Amount certified by the Authority's Engineer.
 - d. Authorization by the Authority.

e. Acceptance by representatives of the Developer.

After requisitions are executed by all parties, the Authority will issue the payments to the payee.

iv. After construction is complete, the Contractor shall submit the following:

a. One-and-one-half-year (1½ year) Performance and Maintenance Bond.

b. Contractor's Affidavit stating to the Authority that all labor, material and outstanding claims and indebtedness of whatever nature arising out of the performance of the contract, have been paid in full.

c. Statement of Surety and Power of Attorney.

v. After finalization of the project, the Authority's Engineer will prepare the necessary as-constructed drawings and a complete itemized breakdown of the project and submit all pertinent data to the Authority and the Developer.

12. As work proceeds on the project and additional funds may be required by the Developer, the Authority will inform the Developer of any deficiencies, and additional monies must be deposited with the Authority or in the lending institution selected by the Developer. After completion of the project, if any monies remain in the construction account, all monies will be returned to the Developer.

13. After completion, testing, and preparation of as-built drawings, the utilities shall be dedicated to the Authority and a Bill of Sale shall be prepared by the Authority for execution by the Authority and the Developer. As a further condition of the Bill of Sale, any easements and/or rights-of-way through or on private property required for the water extension shall be provided by the Developer, or shall be prepared by the Authority at the Developer's expense.

INFORMATION AND SPECIAL CONDITIONS – WATER

GENERAL

It shall be the intent of the Halifax Area Water and Sewer Authority to have the Developer provide a complete water distribution system installation. All work and materials specified or intended shall be supplied by the developer.

DEFINITIONS

“Authority” shall mean the Halifax Area Water and Sewer Authority.

“Owner” shall mean the Halifax Area Water and Sewer Authority.

“Developer” shall mean the party or parties constructing improvement to a tract of land, or his agent.

“Contractor” shall mean the agent of the Developer.

“Engineer” shall mean the Engineer of the Halifax Area Water and Sewer Authority.

DESIGN CRITERIA

The water system including all water mains and appurtenances, shall be designed in accordance with the latest revision of the Department of Environmental Protection Guidelines and these specifications.

It shall further be the responsibility of the Developer to comply with all local, county, state and federal regulations.

SPECIAL CONDITIONS

1. These specifications are intended as a guide to the Developer, and the Authority reserves the right to make necessary corrections, additions or deductions to these specifications.
2. The Authority reserves the right to request additional work and materials where, in its opinion, conditions warrant such work and materials.
3. Prior to the start of construction the Developer shall submit a minimum of three (3) copies of shop drawings to the Authority for all materials to be utilized and receive approval of such materials.

AUTHORITY REQUIREMENTS

1. All work on this project shall be done in compliance with all applicable federal, state, county or local laws and regulations whether herein stated or not. In the event of conflict between the requirements herein stated and the rules and regulations of other federal, state, county or local agencies, the more stringent shall apply.
2. Developer and/or Contractor shall obtain insurance in an amount specified by the Authority. See Page ISC-3 for insurance requirements. This insurance should include, but not be limited to, coverage for bodily injury (BI) and property damage (PD) caused by blasting.
3. Proof of all necessary insurance coverages shall be submitted to the Authority in the form of a Certificate of Insurance prior to the inception of any construction activities conducted by the Developer and/or Contractor.
4. Furthermore, the Halifax Area Water and Sewer Authority, Halifax Borough and/or Halifax Township (as applicable), and the Authority's Engineer shall be listed on the Developer's and/or Contractor's General Liability Policy as an additional insured, in respect to this project.

OSHA REQUIREMENTS

All work on this project must be done in compliance with state and federal Occupational Health and Safety Regulations. Applicable regulations shall include but not be limited to the following examples:

1. If rock drilling machinery is used, it must be equipped with integral water or exhaust ventilation dust suppression device.
2. Potential noise exposures shall be evaluated and control measures implemented as necessary. Where noise levels exceed standards, employees shall have audiometric tests.
3. Potential dust exposures shall be evaluated and control measures implemented as necessary. Where silica dust levels exceed standards, employees shall have chest X-ray (14" X 17") examinations.
4. Where confined spaces (manholes, etc.) must be entered, the atmosphere must be tested for combustible gases (as a minimum) and mechanical ventilation used prior to entry and during occupancy. A worker must also be stationed outside the confined space to offer assistance should a problem occur. Procedures for entry must be submitted to the Department where the employer is subject to Commonwealth regulations.
5. Lasers used for alignment work must be registered with the Department and any injuries resulting from the use of lasers must be reported.

INSURANCE

Insurance coverages are required to be written on an “occurrence basis.” Furthermore, coverage should be written through an insurance company rated as A- or better by AM Best. The limits of liability for insurance coverages shall be, at the minimum, as follows:

1. Workers’ Compensation:

- a. All state requirements for Workers’ Compensation coverage shall be met, including:

(1) Employer’s liability:

Bodily Injury by Accident: \$100,000 each accident
Bodily Injury by Disease: \$500,000 policy limit
Bodily Injury by Disease: \$100,000 each employee

2. Comprehensive General Liability:

(Includes Premises – Operations, Independent Contractors Protection, Contractual Liability, Products and Completed Operations, Broad Form Property Damage):

- a. Bodily Injury (including Completed Operations and Products Liability):

\$1,000,000 each occurrence
\$2,000,000 annual aggregate

- b. Property Damage:

\$1,000,000 each occurrence
\$2,000,000 annual aggregate

- c. Comprehensive General Liability Insurance will provide coverage at the limits indicated above for the exposures of:

Explosion
Collapse
Underground

- d. If operations involve or require the use of blasting, the Contractor will provide blasting coverage to protect bodily injury and property damage per the above minimum general liability limits.

3. Comprehensive Automobile Liability:

Bodily Injury and Property Damage:

\$1,000,000 each person/occurrence

4. Owner's Protective Liability:

Bodily Injury/Property Damage:

\$1,000,000 each occurrence

\$2,000,000 annual aggregate

5. Excess/Umbrella Liability:

Limit of Liability:

\$1,000,000 Products/Completed Operations Aggregate

\$1,000,000 General Aggregate

\$1,000,000 BI/PD Any One Occurrence

6. As stated under Authority requirements:

Prior to the initiation of any construction activities all Developers and/or Contractors shall have submitted an approved Certificate of Insurance outlining the required insurance coverages. Submit insurance certificates and Hold-harmless Agreements naming the Authority, Borough and/or Township (as applicable), and Engineer as co-insureds and certificate holders. The certificates shall contain a provision that coverages will not be cancelled or non-renewed unless at least thirty (30) days' written notice has been provided to the Authority.

END OF SECTION

SECTION 01010

SUMMARY OF WORK

PART 1 – GENERAL

1.01 SITE LOCATION

- A. The project site is located in Halifax _____, Dauphin County Pennsylvania; exact area as indicated on the drawings.

1.02 WORK INCLUDED

- A. Without intending to limit or restrict the volume of Work required, the project includes but is not limited to the following:
 - 1. Construction of water mains, laterals and valves.
 - 2. Water main testing and disinfecting.
 - 3. Soil erosion control.
 - 4. Private right-of-way restoration.
 - 5. Street restoration.
 - 6. Preparation of record drawings for completed project area.

1.03 ENGINEERING STAKES

- A. The Contractor shall furnish, set and maintain suitable stakes, grade boards, temporary structures, templates and other materials for establishing and maintaining points, marks and lines, and is responsible for setting or checking such points, marks or lines, and in making or checking measurements necessary in the prosecution of the Work.
- B. The Contractor shall be responsible for the preservation of all stakes and marks.

1.05 PROJECT COORDINATION

- A. The Contractor shall inform the Authority as soon as delay in the Work is occasioned, or is likely to occur due to delays in the manufacture or delivery of the specified equipment.

1.06 SCHEDULING OF OPERATIONS

- A. In the phases of Work or schedules of operations that follow, it is not essential that one operation be completely finished before another is started.
- B. All Work required by the Contractor to maintain his schedule of operations will be considered incidental to the other items of Work of this contract.

C. Phases of Work

1. General

The Work shall be divided into the following phases:

- a. Installation of water main and appurtenances.
- b. Installation of water house laterals.
- c. Restoration and paving.

2. It should be noted that all phases of Work involve the installation of pipelines below grade and shall follow relatively the same schedule of operations.

D. Schedule of Operations

1. Locate all underground utilities and existing physical features that are not to be removed during the Work. Notify the Authority if any discrepancies exist between the actual conditions and contract drawings.
2. Perform excavation at required areas and elevations. Place appropriate piping embedment, install pipe in correct alignment and backfill trench as required.
3. Restore any unpaved surfaces, perform final grading and cleanup.

END OF SECTION

CONTRACTOR USE OF PREMISES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Section includes general use of the site including properties inside and outside of rights-of-way, work affecting road, ramps, streets and driveways and notification to adjacent occupants.

1.02 RIGHTS-OF-WAY

- A. Confine access and operations and storage areas to rights-of-way provided by the Owner; trespassing on abutting lands or other lands in the area is not allowed.
- B. Contractor may make arrangements, at Contractor's cost, for temporary use of private properties, in which case Contractor and Contractor's surety shall indemnify and hold harmless the Authority and the municipality against claims or demands arising from such use of properties outside of rights-of-way. Submit copy of agreement between private property owner and Contractor for materials storage prior to use of the area.
- C. Obtain appropriate permits for storage of materials within rights-of-way. Submit copies of permits prior to use of the area.
- D. Restrict total length which materials may be distributed along the route of the construction at any one time as approved in writing by the Authority.

1.03 PROPERTIES OUTSIDE OF RIGHTS-OF-WAY

- A. Altering the condition of properties adjacent to and along rights-of-way will not be permitted.
- B. Means, methods, techniques, sequences, or procedures which will result in damage to properties or improvements in the vicinity outside of rights-of-way will not be permitted.
- C. Any damage to properties outside of rights-of-ways shall be repaired or replaced to the satisfaction of the Authority.

1.04 USE OF SITE

- A. Obtain approvals of governing authorities (i.e. municipality and/or PennDOT) prior to impeding or closing public roads or streets. Do not close more than two consecutive intersections at one time.
- B. Notify Owner 48 hours prior to closing a street or a street crossing. Permits for street closures are required in advance and are the responsibility of the Contractor.
- C. Maintain access for emergency vehicles including access to fire hydrants.
- D. Avoid obstructing drainage ditches or inlets; when obstruction is unavoidable due to requirements of the Work, provide grading and temporary drainage structures to maintain unimpeded flow.

- E. Locate and protect private lawn sprinkler systems which may exist on rights-of-ways within the site. Repair or replace damaged systems to condition equal to or better than that existing at start of Work.
- F. Perform daily clean-up of dirt outside the construction zone, and debris, scrap materials, and other disposable items. Keep streets, driveways, and sidewalks clean of dirt, debris and scrap materials. Do not leave building, roads, streets or other construction areas unclean overnight.

1.05 NOTIFICATION TO ADJACENT OCCUPANTS

- A. Notify individual occupants in areas to be affected by the Work of the proposed construction and time schedule. Notification shall be not less than 72 hours or more than 2 weeks prior to work being performed within 200 feet of the homes or businesses.
- B. Include in notification names and telephone numbers of two company representatives for resident contact, who will be available on 24-hour call. Include precautions which will be taken to protect private property and identify potential access or utility inconvenience or disruption.
- C. Submit proposed notification to the Authority for approval.

1.06 PUBLIC, TEMPORARY, AND CONSTRUCTION ROADS AND RAMPS

- A. Construct and maintain temporary detours, ramps, and roads to provide for normal public traffic flow when use of public roads or streets is closed by necessities of the Work.
- B. Provide mats or other means to prevent overloading or damage to existing roadways from tracked equipment or exceptionally large or heavy trucks or equipment.

1.07 EXCAVATION IN STREETS AND DRIVEWAYS

- A. Avoid hindering or needlessly inconveniencing public travel on a street or any intersecting alley or street for more than two blocks at any one time, except by permission of the Authority and municipality.
- B. Obtain Authority and municipality approval when the nature of the Work requires closing of an entire street. Permits required for street closure are the Contractor's responsibility. Avoid unnecessary inconvenience to abutting property owners.
- C. Remove surplus materials and debris and open each block for public use as work in that block is complete.
- D. Acceptance of any portion of the Work will not be based on return of street to public use.
- E. Avoid obstructing driveways or entrances to private property.
- F. Provide temporary crossing or complete the excavation and backfill in one continuous operation to minimize the duration of obstruction when excavation is required across drives or entrances.
- G. Provide barricades and signs in accordance with the Pennsylvania Department of Transportation.

1.08 TRAFFIC CONTROL

- A. Comply with traffic regulation as specified by the Authority, municipality and/or PennDOT, as applicable.

1.09 SURFACE RESTORATION

- A. Restore site to condition existing before construction to satisfaction of the Authority and municipality.
- B. Repair paved areas per the requirements of Section 02575 - Paving and Resurfacing and applicable road opening or highway occupancy permits.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION

SECTION 01060

REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDE

- A. Comply with requirements of permits obtained by the Authority or on behalf of the Authority.
- B. Obtain and pay for all other permits required to perform the Work in compliance with applicable local, state and federal laws and regulations.
- C. Pay all inspection fees related to permits or requirements of governing agencies, utilities, railroads, etc.
- D. If, throughout the process of the Work within state highways, it is deemed necessary by the Pennsylvania Department of Transportation to post field inspectors on that portion of the project within their right of way, the Contractor/Developer shall reimburse the Pennsylvania Department of Transportation for the cost of the inspection so applied.

1.02 PERMITS TO BE ACQUIRED BY THE DEVELOPER IN THE NAME OF THE AUTHORITY

- A. PennDOT “Highway Occupancy Permit”
- B. Dauphin County Conservation District “Erosion and Sediment Pollution Control Plan” approval
- C. Department of Environmental Protection “Notice of Intent for Coverage under the General NPDES Permit” or Individual NPDES Permit or similar earth disturbance permit, as applicable.

NOTICE: The NPDES Permit will be co-permitted to the Contractor prior to the beginning of construction.

END OF SECTION

Section 01300

SUBMITTALS

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Submittal procedures for:
 1. Shop Drawings, Product Data, and Sampler
 2. Manufacturer's Certificates
 3. Design Mixes

1.02 SUBMITTAL PROCEDURES

A. Scheduling and Handling

1. Schedule submittals well in advance of the need for the material or equipment for construction. Allow time to make delivery of material or equipment after submittal is approved.
2. Develop a submittal schedule that allows sufficient time for initial review, correction, resubmission and final review of all submittals. The Authority's Engineer will review and return submittals to the Developer's Contractor as expeditiously as possible but the amount of time required for review will vary depending on the complexity and quantity of data submitted. In no case will a submittal schedule be acceptable which allows less than 10 days for initial review by the Engineer.
3. The Engineer's review of submittals covers only general conformity to the Drawings, specifications and dimensions which affect the layout. The Contractor is responsible for quantity determination. No quantities will be verified by the Engineer. The Contractor is responsible for any errors, omissions or deviations from the requirements; review of submittals in no way relieves the Contractor from his obligation to furnish required items according to the Drawings and Specifications.
4. Submit 3copies of documents unless otherwise specified in the following paragraphs or in the Specifications.
5. Revise and resubmit submittals as required. Identify all changes made since previous submittal.
6. The Contractor shall assume the risk for material or equipment which is fabricated or delivered prior to approval. No material or equipment shall be incorporated into the Work until approval has been obtained in the specified manner.

B. Transmittal Form and Numbering

1. Transmit each submittal to the Engineer with a Transmittal Letter.
2. Sequentially number each submittal beginning with the number 1. Re-submittals shall use the original number with an alphabetic suffix (i.e., 2A for first re-submittal of Submittal 2 or 15C for third re-submittal of Submittal 15). Each submittal shall only contain one type of work, material, or equipment. Mixed submittals will not be accepted.

3. Identify variations from requirements of Specifications and identify product or system limitations.

C. Contractor's Stamp

1. Apply Contractor's stamp, certifying that the items have been reviewed in detail and are correct and in accordance with Specifications, except as noted by any requested variance.
2. As a minimum, Contractor's Stamp shall include:
 - a. Contractor's name
 - b. Job number
 - c. Submittal number
 - d. Certification statement that the Contractor has reviewed the submittal and it is in compliance with the Contract Documents
 - e. Signature line for Contractor

1.03 MANUFACTURER'S CERTIFICATES

- A. When specified in Specification sections, submit manufacturer's certificate of compliance for review by Engineer.
- B. Contractor's Stamp, as described in paragraph 1.02C, shall be placed on front page of the certification.
- C. Submit supporting reference data, affidavits, and certifications as appropriate.
- D. Certificates may be recent or previous test results on material or product, but must be acceptable to Engineer.

1.04 DESIGN MIXES

- A. When specified in Specifications, submit design mixes for review.
- B. Contractor's Stamp, as described in paragraph 1.02C, shall be placed on front page of each design mix.
- C. Mark each design mix to identify proportions, gradations, and additives for each class and type of design mix submitted. Include applicable test results on samples for each mix.
- D. Maintain a copy of approved design mixes at mixing plant.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 01410

AUDIO-VIDEOTAPING OF PROJECT SITE

PART 1 - GENERAL

1.01 APPLICABILITY

- A. This section applies when any part of a main extension is proposed to be constructed within 200 feet of existing developed properties.

1.02 VIDEOTAPING

A. Pre-Videotaping

- 1. Audio-videotaping along the project line route shall be submitted prior to the start of any construction activities. The recording equipment used must be of professional grade as rated by the manufacturer, and meet the requirements listed below under equipment.

B. Post-Videotaping

- 1. Following the completion of the project and all restoration and paving, a second video shall be taken and submitted. The video shall be taken either immediately following a rain event or upon introduction of an external water source to indicate drainage characteristics.

1.03 QUALIFICATIONS

- A. Required taping shall be performed by an independent third party firm actively engaged, experienced and knowledgeable in digital video taping existing conditions on utility projects. The Authority reserves the right to request sample work and investigate the qualifications of any firm chosen to perform this work.
- B. The taping shall be scheduled in advance with the Authority, in the event the Authority may wish to be present.

PART 2 - PRODUCTS

2.01 RECORDING MEDIA

- A. Contractor shall determine appropriate form of permanent recording media (such as DVD, Blu-ray, thumb drive, U-matic, VHS tape, etc.) and shall submit details of the media in accordance with Section 01300.
- B. Media shall be manufactured by a recognized manufacturer (MAXELL, SONY, TDK, etc.). Deliver two copies to the engineer.
- C. Media shall be playable on desk top players and laptop computers.

PART 3 - EXECUTION

- 3.01 All taping to be done during periods of good visibility and not during periods of visible precipitation or while ground is covered by snow.
- 3.02 Control direction of travel, panning rates, and zoom in-out rates in a manner that produces clarity of subject during playback. When a conventional wheeled vehicle is used, approximately 9 foot lens to ground distance should be maintained. In areas not accessible by conventional wheeled vehicles taping shall be conducted on foot along R.O.W's and areas of influence plus 15 feet on either side at 100 feet intervals minimum.
- 3.03 Include in taped coverage driveways, sidewalks, curbs, ditches, (to show drainage patterns), streets (as full width as possible), landscaping, trees, shrubs, culverts, catch basins, retaining walls, headwalls, fences, visible utilities, and building exteriors within the zones of influence. Easements should be given consideration where deemed necessary by the Authority. Houses and buildings should be identified both audibly and visibly when possible.
- 3.04 Properly identify all media (discs/drives and cases) by tape number, date, locations, and project name. Begin each media file/tape with current date, project name and municipality.
- 3.05 Unless waived by the Authority all taping shall be done in their presence or person approved.
- 3.06 Supply an index run sheet with a record of each media contents and identify locations, station numbers, line numbers, etc., referenced to time and date encoded on media.
- 3.07 DELIVERY OF MEDIA
 - A. Media are to be delivered to the Authority prior to the start of any construction within the zones of influence unless waived by the Authority.
 - B. Produce two complete sets of media.

END OF SECTION

Section 01564

WASTE MATERIAL DISPOSAL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Disposal of waste material and salvageable material.

1.02 SUBMITTALS

- A. Obtain and submit disposal permits for proposed disposal sites if required by local ordinances.
- B. Submit a copy of written permission from property owner, along with description of property, prior to disposal of excess material adjacent to the Project. Submit a written and signed release from property owner upon completion of disposal work.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.01 SALVAGEABLE MATERIAL

- A. Excavated material: When indicated on Drawings, load, haul, and deposit excavated material at a location or locations shown on Drawings outside the limits of Project.

3.02 EXCESS MATERIAL

- A. Vegetation, rubble, broken concrete, debris, asphaltic concrete pavement, excess soil, and other materials not designated for salvage shall be removed from the job site and legally disposed of.
- B. Excess soil may be deposited on private property adjacent to the Project when written permission is obtained from property owner. See Paragraph 1.02 B. above.
- C. Verify the flood plain status of any proposed disposal site. Do not dispose of excavated materials in an area designated as within the 100-year Flood Hazard Area unless a Permit has been obtained.
- D. Waste materials shall be removed from the site on a daily basis, such that the site is maintained in a neat and orderly condition.

END OF SECTION

Section 01570

TRAFFIC CONTROL AND REGULATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Requirements for signs, signals, control devices, flares, lights and traffic signals, as well as construction parking control, designated haul routes and bridging of trenches and excavations.
- B. Requirement for and qualifications of flaggers.

1.02 SUBMITTALS

- A. The Contractor shall submit a traffic control plan for the project area.
- B. The Contractor shall provide such information and records regarding the use of qualified flaggers to verify that the Contractor's use of flaggers is in compliance with the Specifications and PennDOT Publication No. 213.

1.03 FLAGGERS

- A. Use flaggers, qualified as described below, to control, regulate and direct the even flow or movement of vehicular or pedestrian traffic when construction operations encroach on public traffic lanes.

PART 2 - PRODUCTS

2.01 SIGNS, SIGNALS, AND DEVICES

- A. Comply with PennDOT and local municipality guidelines.
- B. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.

PART 3 - EXECUTION

3.01 PUBLIC ROADS

- A. Comply with PennDOT Publication No. 213. Abide by laws and regulations of governing authorities when using public roads. If the Contractor's work requires that public roads be temporarily impeded or closed, approvals shall be obtained from governing authorities and permits paid for before starting any work. Coordinate activities with the Authority.
- B. Wherever possible, maintain a 10-foot-wide all-weather lane adjacent to work areas which shall be kept free of construction equipment and debris and shall be for the use of emergency vehicles, or as otherwise provided in the traffic control plan.
- C. Contractor shall not obstruct the normal flow of traffic from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. on designated major arterials, or as directed by the Authority, Municipality, or PENNDOT.

- D. Contractor shall maintain local driveway access to residential and commercial properties adjacent to work areas at all times.
- E. Cleanliness of Surrounding Streets:
 - 1. Keep streets used for entering or leaving the job area free of excavated material, debris, and any foreign material resulting from construction operations.

3.02 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and municipal operations.
- B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.
- C. Prevent parking on or adjacent to access roads or in non-designated areas.

3.03 FLARES AND LIGHTS

- A. Provide flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.04 HAUL ROUTES

- A. Utilize haul routes designated by authorities or shown on the Drawings for construction traffic.
- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

3.05 TRAFFIC SIGNS AND SIGNALS

- A. Install traffic control devices at approaches to the site and on site, at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
- B. Install and operate traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control and areas affected by Contractor's operations.
- C. Relocate traffic signs and signals as Work progresses to maintain effective traffic control.

3.06 BRIDGING TRENCHES AND EXCAVATIONS

- A. Whenever necessary, bridge trenches and excavation to permit an unobstructed flow of traffic.
- B. Secure bridging against displacement by using adjustable cleats, angles, bolts or other devices whenever bridge is installed:
 - 1. On an existing bus route;
 - 2. When more than five percent of daily traffic is comprised of commercial or truck traffic;
 - 3. When more than two separate plates are used for the bridge; or
 - 4. When bridge is to be used for more than five consecutive days.
- C. Install bridging to operate with minimum noise.

- D. Adequately shore the trench or excavation to support bridge and traffic.
 - E. Extend steel plates used for bridging a minimum of one foot beyond edges of trench or excavation. Use temporary paving materials (premix) to feather edges of plates to minimize wheel impact on secured bridging.
 - F. Use steel plates of sufficient thickness to support H-20 loading, truck or lane, which produces maximum stress.
- 3.07 REMOVAL
- A. Remove equipment and devices when no longer required.
 - B. Repair damage caused by installation.
 - C. Remove post settings to a depth of 2 feet.

END OF SECTION

SECTION 01721

RECORD DRAWINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Maintenance and submittal of record drawings for water distribution projects.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Maintain one record copy of documents at the site.
- B. Label each document "RECORD DRAWING" in neat, large, printed letters.
- C. Maintain record documents in a clean, dry, and legible condition. Do not use record documents for construction purposes.
- D. Keep record documents available for inspection by the Authority.

1.03 RECORDING

- A. The Contractor shall maintain a complete set of record drawings which shall be corrected daily with date notations. Notations shall show every change from the original Drawings. Changes shall include but not be limited to:
 - 1. Field changes of dimension and detail. This includes changes in water main lengths. Measure main length at the surface. Reference main line valves to poles, house corners, or any other permanent feature.
 - 2. Show all services which are connected to the new water main. At water main, record distance of water services, fittings, fire hydrants and gate valves using station 0+00 at each tee as starting point. Use design drawings as sample.
- B. All of this information shall be noted in red (hand drawn) on the Record Set of Drawings and shall be kept on the job site. Review the record documents with the Authority monthly. Provide the record set to the Authority for verification and approval.

1.04 SUBMITTALS

- A. The record set of documents shall be delivered to the Authority's Engineer. The delivery of the "record drawing" prints for the Engineer's use are a condition of Final Acceptance.

- B. Furnish drawings in AutoCAD in addition to paper copy, in current version used by Authority's Engineer.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION

SECTION 02100

CLEARING AND GRUBBING

PART 1 – GENERAL

1.01 DESCRIPTION

A. The Work of this section includes, but is not limited to:

1. Clearing
2. Grubbing
3. Stripping and stockpiling topsoil
4. Debris disposal

B. Related Work Specified Elsewhere:

1. Trenching, Backfilling and Compacting – Section 02221
2. Finish Grading and seeding – Section 02485

C. Definitions:

1. Clearing is defined as the removal of trees, brush, down timber, rotten wood, rubbish, any other vegetation and objectionable material at or above original ground elevation not designated to be saved. Clearing also includes removal of fences, walls, guard posts, guard rails, signs and other obstructions interfering with the proposed Work.
2. Grubbing is defined as the removal from below the surface of the natural ground of stumps, roots and stubs, brush, organic materials and debris.

1.02 JOB CONDITIONS

A. The Contractor may clear all obstructions within the permanent and construction rights-of-way except those specifically designated to be saved or restored in the Specifications.

1.03 SUBMITTALS

A. Burning Permits:

1. Submit one copy of each on-site burning permit to the Authority if such permits are required by local jurisdictional authorities.

B. Permits for Disposal of Debris:

1. Arrange for disposal of debris resulting from clearing and grubbing to locations outside the right-of-way and obtain written agreements with the owners of the property where the debris will be deposited.
2. Submit one copy of the agreement with each property owner releasing the Authority from responsibility in connection with the disposal of the debris.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Temporary Fencing:
 - 1. Undamaged picket snow fence, 4' high.
 - 2. Soil-set fence posts, studded “T” type, 6' high.
- B. Tree Wound Dressing:
 - 1. Antiseptic and waterproof, asphalt based.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Notify the Authority at least 48 hours prior to beginning any clearing work.
- B. Protect benchmarks, utilities, existing trees, shrubs and other landscape features designated for preservation with temporary fencing or barricades satisfactory to the Authority. No material shall be stored or construction operation carried on within 4 feet of any tree to be saved or within the tree protection fence.

3.02 UTILITY RELOCATIONS

- A. Inform all companies, individuals and others owning or controlling facilities or structures within the limits of the work which have to be relocated, adjusted or reconstructed in sufficient time for the utility to organize and perform such work in conjunction with or in advance of the Contractor's operations.
- B. Comply with the provisions of PA Act 287 of 1974 as amended by Act 187 of 1996.

3.03 CLEARING

- A. Confine clearing to within the limits of the Developer's property or the right-of-way or easement.
- B. Fell trees in a manner that will avoid damage to trees, shrubs and other installations which are to be retained.
- C. Where stumps are not required to be grubbed, flush-cut with ground elevation.

3.04 GRUBBING

- A. Grub areas within the construction limits to remove roots and other objectionable material to a minimum depth of 8”.
- B. Remove all stumps within the cleared areas unless otherwise authorized by the Authority.

3.05 DEBRIS DISPOSAL

- A. Trees, logs, branches, brush, stumps and other debris resulting from clearing and grubbing operations shall be legally disposed of.
- B. Do not deposit or bury on the site debris resulting from the clearing and grubbing work.
- C. Debris may be burned on site if local ordinances allow open-air burning, if required permits are obtained, and if burning operations are conducted in compliance with local ordinances and regulations.

3.06 RESTORATION

- A. Repair all injuries to bark, trunk, limbs and roots of remaining plants by properly dressing, cutting, tracing and painting, using approved arboricultural practices and materials.
- B. Replace trees, shrubs and plants designated to be saved which are permanently injured or die as a result of construction operations.
- C. Remove protective fences, enclosures and guards upon the completion of the project.
- D. Restore guard posts, guard rails, signs and other interferences to the condition equal to that existing before construction operations.

END OF SECTION

SECTION 02110

EROSION CONTROL BLANKET

PART 1 – GENERAL

1.01 MATERIAL SPECIFICATION

- A. The erosion control blanket shall be a machine-produced mat of 100% agricultural straw with a functional longevity of approximately 12 months.
- B. The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with a lightweight photodegradable polypropylene netting having an approximate 0.50 X 0.50 inch (1.27 X 1.27 cm) mesh and be sewn together on 1.50 inch (3.81 cm) centers (50 stitches per roll width) with degradable thread.
- C. The blanket shall be manufactured with a colored line or thread stitched along both outer edges (approximately 2 – 5 inches [5 – 12.5 cm] from the edge) to ensure proper material overlapping.

PART 2 – PRODUCTS

1.01 MANUFACTURERS

- A. Straw erosion control blanket shall be S75 as manufactured by North American Green, or equivalent.
- B. Another acceptable manufacturer may be used upon approval.

1.02 MATERIALS AND SPECIFICATIONS

- A. The S75 erosion control blanket shall have the following properties:

MATERIAL CONTENT

Matrix	100% Straw Fiber (0.50 lbs/yd ²) (0.26 kg/m ²)
Netting	One side only, lightweight photodegradable (2.10 lbs/1,000 ft ² [1.02 kg/100m ²] approximate weight)
Thread	Degradable

PHYSICAL SPECIFICATIONS (PER ROLL)

	English	Metric
Width	6.67 ft	2.03 m
Length	108.00 ft	32.92 m
Weight	40.00 lbs ±10%	18.14 kg
Area	80.00 yd ²	66.89 m ²
Stitch Spacing	1.50 inches	3.81 cm

END OF SECTION

SECTION 02150

BORING AND CASING

PART 1 - GENERAL

1.01 DESCRIPTION

A. The Work of this Section includes, but is not limited to:

1. Approach trench excavation
2. Installation of casing pipe
3. Installation of carrier pipe

B. Related Work Specified Elsewhere:

1. Trenching, Backfilling & Compacting: Section 02221

C. Applicable Standard Details:

1. Boring Detail

1.02 QUALITY ASSURANCE

A. Contractor Qualifications:

1. Construction operations shall be undertaken only by a contractor well experienced in operations of similar magnitude and condition under transportation arteries and surface areas which cannot be disturbed.

B. Design Criteria:

1. Pipe and joints of leak-proof construction, designed for the earth and/or other pressures present, plus highway H20 loading or railway E80 loading with the associated recommended impact loading.
2. Design bracing, backstops, and use jacks of sufficient rating so that the jacking can proceed without stoppage, except for adding pipe sections and as conditions permit, to minimize the tendency of the ground material to 'freeze' around the casing pipe.

C. Allowable Tolerances:

1. Do not overcut excavation by more than 1" greater than the outside diameter of the casing pipe.
2. Install casing pipe with the determined vertical and horizontal alignment prior to installation of the carrier pipe.

D. Reference Codes and Specifications:

1. Comply with applicable federal, state and local ordinances, codes, statutes, rules and regulations, and affected jurisdictional bodies.
2. Pennsylvania Department of Transportation Publication 408 Specifications.

1.03 SUBMITTALS

- A. Submit history of previous work completed of equivalent nature and scope. Include qualification and experience of key personnel.
- B. Submit description of proposed construction methods, including methods to establish and maintain vertical and horizontal alignment.
- C. Submit manufacturer's data on casing pipe.
 1. Highway Crossings: Design casing pipe for earth and/or other pressure loads present, plus AASHTO H20 live loading.
 2. Railroad Crossings: Design casing pipe for earth and/or other pressure loads present, plus Cooper's Railroad E80 live loading with 50-percent added for impact.

1.04 JOB CONDITIONS

- A. Conduct operations so as not to interfere with, interrupt, damage, destroy, or endanger the integrity of surface or subsurface structures or utilities, and landscape in the immediate or adjacent areas.
- B. When boring under state highways and railroads, comply with applicable right-of-way occupancy permits.
- C. If boring is obstructed, relocate or jack crossing as approved by the Authority's Engineer.

PART 2 - PRODUCTS

2.01 STEEL CASING PIPE

- A. ASTM A139, Grade B; 35,000 psi min. yield strength.
- B. Full circumference welded joints.
- C. Diameter as shown on the Drawings.
- D. Minimum wall thickness as listed below:

Nominal Dia. (inches)	Coated or Cath. Protected	Uncoated and Unprotected
Under 14	0.188	0.251
14, 16	0.219	0.282
18	0.250	0.313
20	0.281	0.344
22	0.312	0.375
24	0.344	0.407
26	0.375	0.438
28, 30	0.406	0.469
32	0.438	0.501
34, 36	0.469	0.532
38, 40, 42	0.500	0.563
48	0.563	0.626
54	0.625	0.688

Smooth wall steel pipe with nominal diameter over 54" will not be permitted.

2.02 CASING SPACERS

- A. Casing spacers shall be RACI Casing Spacers as manufactured by Public Works Marketing, Inc., or approved equal. Installation shall be in accordance with the manufacturer.
- B. Other approved methods for cradling and anchoring pipe may be used. Spacing and end seals as required by manufacturer.

PART 3 - EXECUTION

3.01 APPROACH TRENCH

- A. Excavate approach trench using methods as site conditions require.
- B. Ensure pipe entrance face as near perpendicular to alignment as conditions permit.
- C. Establish a vertical entrance face at least 1 foot above top of casing or tunnel lining.
- D. Install adequate excavation supports as specified in Section 02221 - Trenching.

3.02 CASING PIPE DIAMETER

- A. Casing pipe diameter shall be as specifically indicated on the crossing plan or profile drawings for all bored crossings.
- B. Casing pipe diameter shall comply with the requirements of the Specifications and Drawings and as otherwise stated herein.

- C. Contractor has option to utilize larger casing pipe to facilitate anticipated rock/boulder removal; subject to the approval of the Authority's Engineer and any regulatory agency having jurisdiction.
- D. Contractor shall advise the Authority's Engineer of his proposed casing pipe diameter and provide suitable shop drawings prior to ordering materials and initiating work. This shall be done sufficiently ahead of time to obtain regulatory approvals as required.

3.03 CASING PIPE INSTALLATION METHODS

A. BORING:

1. Push the pipe into the ground with a boring auger rotating within the pipe to remove the spoil. Do not advance the cutting head ahead of the casing pipe except for that distance necessary to permit the cutting teeth to cut clearance for the pipe. The machine bore and cutting head arrangement shall be removable from within the pipe. Arrange the face of the cutting head to provide a barrier to the free flow of soft material.
2. If unstable soil is encountered during boring retract the cutting head into the casing to permit a balance between the pushing pressure and the ratio of pipe advancement to quantity of soil.
3. If voids should develop greater than the outside diameter of the pipe by approximately one inch, grout to fill voids.

B. JACKING:

1. Construct adequate thrust wall normal to the proposed line of thrust.
2. Impart thrust load to the pipe through a suitable thrust ring that is sufficiently rigid to ensure distribution of the thrust load on the pipe.

C. DRILLING AND JACKING:

1. Use an oil field type rock roller bit or plate bit made up of individual roller cutter units solidly welded to the pipe which is turned and pushed for its entire length by the drilling machine to give the bit the necessary cutting action.
2. Inject a high density slurry (oil field drilling mud) to the head as a cutter lubricant. Inject slurry at the rear of the cutter units to prevent jetting action ahead of the pipe.

D. MINING AND JACKING:

1. Utilize manual hand-mining excavation from within the casing pipe as it advances with jacks, allowing minimum ground standup time ahead of the casing pipe.

3.04 DEWATERING:

- A. Intercept and divert surface drainage precipitation and groundwater away from excavation through the use of dikes, curb walls, ditches, pipes, sumps or other means.
- B. Develop a substantially dry subgrade for the performance of subsequent operations.

- C. Comply with Federal and State requirements for dewatering to any watercourse, prevention of stream degradation, and erosion and sediment control.

3.05 PRESSURE GROUTING:

- A. Pressure grout the annular space between the casing pipe and surrounding earth.

3.06 CARRIER PIPE INSTALLATION:

- A. All provisions regarding cleaning, inspection and handling specified under pipe material sections apply to this work.
- B. Place the carrier as shown on the Drawings. Exercise care to prevent damage to pipe joints when carrier pipe is placed in casing.
- C. Support pipeline within casing so that no external loads are transmitted to carrier pipe. Attach casing spacers to barrel of carrier pipe; do not rest carrier pipe on bells.

3.07 CARRIER PIPE ANTIFLOTATION

- A. Upon completion of the carrier pipe installation, provide antiflotation as follows:
 - 1. For encasement diameter up to 36 inches: provide sand or pea gravel fill for full crossing length to a point at least 1.5 times the full carrier pipe diameter above the top of the carrier pipe or to the crown of the encasement pipe; whichever is lesser.
 - 2. For encasement diameter of 36 inches or larger: provide antiflotation as above or provide brick bulkheads or anchored tie roads at each bell of carrier pipe for full crossing length.

3.08 ENCASEMENT SEALS

- A. Seal encasement pipes at each end with brick and mortar, concrete bulkheads or end seals as required by manufacturer.

END OF SECTION

SECTION 02221

TRENCHING, BACKFILLING AND COMPACTING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work of this section includes, but is not limited to:
1. Cutting paved surfaces
 2. Blasting
 3. Trench excavation, backfill and compaction
 4. Support of excavation
 5. Pipe bedding requirements
 6. Control of excavated material
 7. Rough grading
 8. Restoration of unpaved surfaces
- B. Related Work specified elsewhere:
1. Clearing and Grubbing – Section 02100
 2. Boring – Section 02150
 3. Finish Grading and Seeding – Section 02485
 4. Paving and Resurfacing – Section 02575
- C. Applicable Standard Details:
1. Pipe embedment and trench backfilling
 2. Typical trench width at top of pipe
- D. Definitions:
1. Subgrade: Trench or excavation bottom prepared as specified herein to receive pipe bedding, concrete cradle or encasement, or structures.
 2. Unclassified Excavation: Excavation of all material encountered including soil, shale, rock, boulders, fill or other material on-site.
 3. Rock Excavation: Excavation of solid mineral rock greater than one-half cubic yard in volume requiring, with the Authority's Engineer's approval, drilling, blasting and wedging for its removal.
 4. Pipe Bedding: Placement of material as specified herein for full trench width from the subgrade a minimum of six (6) inches or one-fourth the internal diameter of the pipe, whichever is greater, below the pipe invert to half-way up the outside diameter of the pipe.
 5. Pipe Embedment: Placement of material as specified herein for full trench width from the top of the pipe bedding (halfway up pipe) to a point a minimum of six (6) inches above the pipe.
 6. Backfill: Placement of material as specified herein for full width of excavation from the top of the pipe embedment to the ground surface or, in the case of paved areas, to the bottom of replacement base course or paving.

1.02 QUALITY ASSURANCE

A. Testing Agency:

1. Compaction testing shall be performed by a Soils Testing Laboratory engaged and paid for by the Contractor and approved by the Engineer.

B. Reference Standards:

1. Pennsylvania Department of Transportation:

- a. Regulations Governing Occupancy of Highways by Utilities (67 PA Code, Chapter 459)
- b. Publication 408 Specifications
- c. Pennsylvania Test Method, PTM 106
- d. Pennsylvania Test Method, PTM 402
- e. Publication 203, Work Zone Traffic Control

2. American Society for Testing and Materials (ASTM):

- ASTM C33 Specifications for Concrete Aggregates
- ASTM D698 Tests for Moisture-Density Relations of Soils
- ASTM D2922 Test for Density of Soil and Soil Aggregate in Place by Nuclear Methods

C. Compaction Testing:

1. Conduct one test for each 1,000 linear feet of pipeline. Conduct compaction tests at locations as directed by the Authority's Engineer during backfilling operations.
2. Determine compaction in state highways and shoulders by the testing procedure contained in Pennsylvania Test Method PTM 106, Method B or PTM 402.
3. Determine compaction in areas other than state highways and shoulders by the testing procedure contained in ASTM D698 or ASTM D2922.

1.03 SUBMITTALS

A. Certificates:

1. Submit certification attesting that the composition analysis of pipe bedding and select backfill materials meet specification requirements.
2. Submit certified compaction testing results from the soils testing laboratory.

B. Compaction Equipment List:

1. Submit a list of all equipment to be utilized for compacting, including manufacturers' lift thickness limitations.

1.04 JOB CONDITIONS

A. Control of Traffic:

1. Employ traffic control measures in accordance with Pennsylvania Department of Transportation Publication 213. Refer to Section 01570 of the Specifications.
2. Comply with all local authorities. Obtain approval of traffic control plan from the Authority and municipality prior to start of excavation.

B. Protection of Existing Utilities and Structures:

1. Take all precautions and utilize all facilities required to protect existing utilities and structures. Advise each Utility at least 3 working days in advance of intent to excavate, do demolition work or use explosives and give the location of the job site. Request cooperative steps of the Utility and suggestions for procedures to avoid damage to its lines.
2. Advise each person in physical control of powered equipment or explosives used in excavation or demolition work of the type and location of utility lines at the job site, the Utility assistance to expect, and procedures to follow to prevent damage.
3. Immediately report to the Authority any break, leak or other damage to the lines or protective coatings made or discovered during the work and immediately alert the occupants of premises of any emergency created or discovered.
4. Allow free access to Utility personnel at all times for purposes of maintenance, repair and inspection.
5. The Contractor shall be held liable for any damage done by reason of breaking of water, sewer, gas, telephone, electrical, or other utility service. In case, during the course of his work, he shall damage any of the aforementioned utilities, he shall immediately begin to repair the same and send notice to the proper authorities. Whenever the Contractor, during the progress of the excavation shall uncover service pipes or lines, which because of age or injury, are in poor condition, he shall immediately notify the proper Authority in order that steps may be taken for replacement or repair. To prevent dispute with property owners as to cause of damages, the Contractor shall notify his foreman to carefully note and properly report such damage.
6. Keep all fire hydrants, water valves, gas valves, fire alarm boxes, and letter boxes accessible for use.

PART 2 - PRODUCTS

2.01 PIPE BEDDING MATERIAL

A. Standard Pipe Bedding:

1. AASHTO No. 8 (formerly 1B) crushed stone or gravel aggregate, Table C, Section 703.2, Publication 408 Specifications. Do not use slag or cinders.

B. Alternate Pipe Bedding only where Approved by the Engineer:

1. AASHTO No. 57 (formerly 2B) crushed stone or gravel aggregate, Table C, Section 703.2, Publication 408 Specifications. Do not use slag or cinders.

2.02 PIPE EMBEDMENT MATERIAL

- A. Standard Pipe Embedment:
 1. AASHTO No. 8 crushed stone or gravel aggregate. Do not use slag or cinders.
- B. Alternate Pipe Embedment (Only where approved by the Authority's Engineer):
 1. AASHTO No. 57 crushed stone or gravel aggregate. Do not use slag or cinders.

2.03 BACKFILL MATERIAL

- A. Native Backfill (Not permitted within existing paved road areas):
 1. Material excavated from the site if free of stones larger than 6" in size and free of wet, frozen, and organic materials and refuse.
- B. Clean Earth Backfill:
 1. Material excavated from the trench if free of stones larger than 2" in size and free of wet, frozen, or organic materials and refuse.
- C. Select Backfill:
 1. Type 2A aggregate shall be limestone or shall demonstrate a weight in pounds per cubic foot equivalent to or greater than limestone.

PART 3 - EXECUTION

3.01 MAINTENANCE AND PROTECTION OF TRAFFIC

- A. Coordinate the work with the Authority and the municipality to insure the least inconvenience to traffic and maintain traffic in one or more unobstructed lanes unless closing the roadway is authorized.
- B. Maintain access to all streets and private drives by hauling of excavated and backfill materials, if necessary, in suitably covered and leakproof trucks.
- C. Provide and maintain signs, flashing warning lights, barricades, markers, and other protective devices as required to conform with construction operations and to keep traffic flowing with minimum restrictions.
- D. Comply with state and local codes, permits and regulations.

3.02 STRIPPING

- A. The Contractor shall remove all paving, subpaving, curbing, gutters, brick, paving block, granite curbing or flagging, or grub and clear the surface over the area to be excavated and shall properly classify the materials removed, separating them as required. Where pipe trenches underlie permanent resurfacing, the surface material shall be machine cut before excavation is begun.
- B. The Contractor shall properly store, guard, and preserve material as may be required for future use in backfilling, surfacing, repaving, etc. All materials which may be removed and all rock, earth, and sand taken from the excavation shall be stored, if practical, in certain parts of the roadway or such other suitable place and in such manner as the Authority shall approve. The Contractor shall be responsible for any loss or damage to the said materials because of careless removal or neglectful or wasteful storage, disposal, or use of these materials.
- C. In case more materials are created from any trench that can be backfilled over the completed pipe or stored in the street, leaving space for traffic, the excess material shall be removed to some convenient place provided by the Contractor or as directed by the Authority. The Contractor shall bring back as much of the material so removed as may be required to properly refill the trench, if of the proper kind, or if so directed by the Authority, he shall furnish such other material as may be necessary.

3.03 TEST PITS

- A. The Contractor shall excavate test pits at such points and of such dimension and depths as indicated on the Drawings or as the Authority's Engineer may direct. It is understood that the purpose of these test pits is to verify, so far as practical, the location of various subsurface structures or utilities.

3.04 CUTTING PAVED SURFACES

- A. Where installation of pipelines, miscellaneous structures, and appurtenances necessitate breaking a paved surface, make saw cuts using a diamond wheel or similar instrument in a neat uniform fashion forming straight lines parallel with the centerline of the trench. Cut offsets at right angles to the centerline of the trench.
- B. Protect edges of cut pavement during excavation to prevent raveling or breaking; square edges prior to pavement replacement.

3.05 ROCK EXCAVATION BY BLASTING

- A. Blasting will be permitted except in areas where the proximity of structures, underground facilities, or public safety preclude the use of explosives. Nothing in this section shall relieve the Contractor of his responsibilities for damages, nor shall it result in any liability to the Authority or the Engineer.
- B. All blasting operations shall be conducted in a safe and satisfactory manner. Any rock excavation within five feet of underground utilities shall be done with a very light charge of explosives and the utmost care shall be used to avoid disturbing the mains. All exposed pipe lines and other structures shall be carefully protected from the effects of blasts and any damage done to them by blasting shall be properly repaired by the Contractor. Sufficient written notice shall be given to all persons in the vicinity of the work before blasting. The Contractor shall be required to place seismographs in nearby structures when blasting is to

occur. The site of the blast shall be covered with heavy timbers, blasting mats, or other devices to prevent damage from flying rock. The time of blasting and the number and size of charges must be satisfactory to the Authority's Engineer.

- C. All rock excavation shall be conducted by a licensed blaster. Handling explosive materials and conducting blasting operations shall be in accordance with all of the safety regulations of the Commonwealth of Pennsylvania and OSHA. Obtain approval and/or permit from the municipality prior to start of blasting.
- D. Written notice to residents shall include the applicable scheduling for blasting and shall inform the residents of their rights to submit a claim for damages resulting from the blasting operations for a minimum period of one year from the completion of the excavation portion of construction activities.

3.06 TRENCH EXCAVATION

A. Depth of Excavation:

1. Gravity Pipelines:

- a. Excavate trenches to the depth and grade required for the invert of the pipe plus a minimum excavation of six (6) inches or one-fourth the internal pipe diameter, whichever is greater, for placement of pipe bedding material.
- b. Excavation for laterals shall provide a straight uniform grade from the main pipeline or riser stack to the elevation at the right-of-way line, plus that excavation necessary for placement of pipe bedding material as above.

2. Pressure Pipelines:

- a. Excavate trenches to the minimum depth necessary to place required pipe bedding material as above and to provide 4' from the top of the pipe to the finished ground elevation, except where specific depths are otherwise shown on the drawings.
- 3. Care shall be taken not to excavate below the depths required. Any such excessive excavation shall be refilled with crushed stone and compacted to the satisfaction of the Authority's Engineer.
 - 4. When the material encountered at subgrade is unsuitable and in the opinion of the Authority's Engineer does not afford a sufficiently firm foundation, the Contractor shall excavate to such increased depth as directed. The bottom of the trench shall be brought to the required elevation with crushed stone compacted to the satisfaction of the Engineer.
 - 5. When the pipe is to be laid in fill, the embankment shall be brought to a height of at least nine inches above the proposed top of the pipe before the trench is excavated.
 - 6. If rock below the specified grade is shattered due to excessive drilling or blasting or other negligence of the Contractor, and if in the opinion of the Engineer it is unfit for foundations, such shattered rock shall be removed and the area backfilled to the proper grade with crushed stone.

B. Width of Excavation:

1. Pipe trenches shall be sufficiently straight between designated angle points to permit the pipe to be laid true to line in the approximate center of the trench. The trench widths shall be such as to provide a free working space on each side of the pipe as laid, but shall not exceed the outside diameter of the barrel of the pipe plus sixteen inches at a point one foot above the top of the pipe.
2. Where sheeting and shoring are used, the maximum allowable width shall be measured between the closest interior faces of the sheeting or shoring as placed. Whenever, for any reason, the maximum trench width is exceeded, the Contractor may be ordered by the Engineer to encase the pipe in a concrete cradle.
3. For pressure pipeline fittings, excavate trenches to a width that will permit placement of concrete thrust blocks. Provide earth surfaces for thrust blocks that are perpendicular to the direction of thrust and are free of loose or soft material.
4. If the Contractor is required to excavate the trench to a width greater than that specified above, because of slides, caves, obstructions or by reason of the condition and character of the material, he shall refill any cavities so caused with suitable and satisfactory material, including concrete or other masonry if so directed.

C. Length of Open Trench:

1. The Engineer reserves the right to limit the length of distance that a trench may be opened in advance of the pipe laid at all times.
2. Do not advance trenching operations more than 200 feet ahead of completed pipeline, except where approved by the Engineer or otherwise specified in the State Highway Occupancy Permit.
3. Where rock excavation is encountered, all trenches must be opened at least 30 feet in advance of any pipe being laid.
4. If the work is stopped on the whole or any part of the trench and the same is left open for an unreasonable length of time in advance of the construction of the pipe line, the Contractor shall, when directed, refill such trench and he shall not again open the trench or part thereof until he is ready to proceed with construction of the pipe line.

3.07 SUPPORT OF EXCAVATION

- A. Support excavations with sheeting, shoring, and bracing or a "trench box" as required to comply with Federal and State laws and codes.
- B. Install adequate excavation supports to prevent ground movement or settlement to adjacent structures, pipelines or utilities. Damage due to settlement because of failure to provide support or through negligence or fault of the Contractor in any other manner, shall be repaired by the Contractor.
- C. Withdraw shoring, bracing, and sheeting as backfilling proceeds unless otherwise directed by the Engineer.
- D. All voids caused by withdrawal shall be immediately filled with concrete, sand, current ASTM Designation C-33 or other satisfactory material and compacted by ramming or other methods satisfactory to the Engineer.

3.08 CONTROL OF EXCAVATED MATERIAL

- A. Keep the ground surface, within a minimum of 2' of both sides of the excavation free of excavated material.
- B. Provide temporary barricades to prevent excavated material from encroaching on private property, walks, gutters, and storm drains.
- C. Maintain accessibility to all fire hydrants, valve pit covers, valve boxes, curb boxes, fire and police call boxes, and other utility controls at all times. Keep gutters clear or provide other satisfactory facilities for street drainage. Do not obstruct natural water courses. Where necessary, provide temporary channels to allow the flow of water either along or across the site of the work.
- D. In areas where pipelines parallel or cross streams, ensure that no material slides, is washed, or dumped into the stream course. Remove cofferdams immediately upon completion of pipeline construction.
- E. Conform to all applicable soil erosion and sediment control regulations.

3.09 DEWATERING

- A. Keep excavations dry and free of water. Dispose of precipitation and subsurface water clear of the work.
- B. Maintain pipe trenches dry until pipe has been jointed, inspected, and backfilled, and concrete work has been completed. Prevent trench water from entering pipelines under construction.
- C. Intercept and divert surface drainage away from excavations. Design surface drainage systems so that they do not cause erosion on or off the site, or cause unwanted flow of water.
- D. Comply with Federal and State regulations for dewatering to any watercourse, prevention of stream degradation, and erosion and sediment control.

3.10 PIPE BEDDING AND EMBEDMENT

- A. Prepare trench bottom as shown on Standard Detail.
- B. Place and compact Standard Pipe Bedding of AASHTO No. 8 in accordance with Standard Detail and specifications.
- C. Shape bedding recesses for joints and bells to assure pipe is supported on barrel for entire length.
- D. Lay pipe as specified in Section 02610 of these Specifications.

3.11 THRUST RESTRAINT

- A. Provide pressure pipe with concrete thrust blocking or use restrained joint fittings at all bends, tees, valves, and changes in direction, in accordance with the Specifications and Standard Details.
- B. Where available, use contrasting color pipe gaskets to ensure conformance with thrust restraint design.

3.12 BACKFILLING TRENCHES

- A. Unless otherwise directed by the Authority's Engineer, backfilling shall be started immediately after preliminary alignment inspection is made and shall continue without interruption to completion.
- B. The satisfactory compaction of all backfills shall be the responsibility of the Contractor regardless of the methods used and he shall protect the Authority from any loss, damage, or claims occasioned by trench settlement.
- C. Compaction:
 - 1. From the height of 6" inches above the top of the pipe, the backfill material shall be placed in 6" inch vibrator layers mechanically tamped to obtain maximum compaction.
 - 2. Tamping shall proceed from the center of the trench to the sides to prevent arcing.
 - 3. Backfill shall be compacted to a dry density at least equal to 95 percent of the maximum dry density obtained in the modified reactor tests, ASTM D1557-70.
 - 4. Backfill shall be placed and compacted to within 6 ½ inches of the existing road grad, unless otherwise directed by the Authority. Refer to Section 02575, Paving and Resurfacing.
- D. Open Fields or Grassed Areas:

The initial backfill above the pipe embedment shall be a minimum of one foot in depth and shall be filled with clean earth placed in six-inch layers and carefully compacted with pneumatic hand tampers, except in rock where a suitable material approved by the Engineer shall replace the excavated rock. Above this point to a depth of 18 inches below the finished grade, the backfill material may contain small stones not larger than six inches in their greatest dimension in an amount not greater than 20 percent of the volume of backfill and well-distributed throughout the mass. The remaining 18 inches of backfill shall consist of clean earth. Clean earth shall be considered the original material taken from the ditch less any stones, rocks or foreign materials.

In open fields or grass areas, the trench shall be mounded as shown on the Standard Details.

- E. Streets (State Highways and other than State Highways):

The entire depth of trench above the pipe embedment to a point six and one-half (6 ½") inches below the existing surface (two inches if temporary resurfacing is to be used), or as directed by the Authority's Engineer shall be filled with Select Granular Material in conformance with PENNDOT 408 Specifications, Section 703.3. Such backfill shall be

placed for the entire width of the trench in six-inch (6") maximum layers and well compacted by approved vibratory compactor, in conformance with Section 601.3(e).

F. Unsuitable Backfill Material:

Where the Authority's Engineer deems backfill material to be unsuitable and rejects all or part thereof due to conditions prevailing at the time of construction, remove the unsuitable material and replace with suitable backfill material at Contractor's expense.

3.13 BACKFILLING AND GRADING AROUND STRUCTURES

- A. The ground around structures shall be brought to the grades shown on the plans or as directed by the Authority's Engineer. Generally, backfilling shall be made in accordance with the specifications for trench backfilling to open fields or grass areas, except where practical, compacting may be performed by rolling. Grading shall be done by ploughing, harrowing, scraping, or by other methods to bring the ground to the required elevations in preparing the ground for the deposition of the topsoil. When the site has been properly graded to provide drainage, the topsoil shall be placed to a depth of four inches and then harrowed to provide a reasonably smooth surface, ready for seeding. Where compaction is made by rollers, the rollers shall weigh not less than ten tons and shall not be permitted within eight feet of any wall or structure or where, in the opinion of the Engineer, damage may result to existing underground piping.
- B. The Contractor shall be responsible for the stability of the fill and shall replace any portion thereof damaged by natural causes, or by careless or negligent work.
- C. Sufficient grading shall be done during the progress of the work so that no water is allowed at any time to flow toward the wall or structures or to accumulate in large puddles on the project site.

3.14 DISPOSAL OF EXCAVATED MATERIAL

- A. Excavated material remaining after completion of backfilling shall remain the property of the Contractor, removed from the construction area, and disposed of in accordance with Section 01564.

3.15 ROUGH GRADING

- A. Rough grade areas disturbed by construction to a uniform finish. Form the bases for terraces, banks, lawns and paved areas.
- B. Grade areas to be paved to depths required for placing sub-base and paving materials.
- C. Rough grade areas to be top-soiled and seeded to 3" below indicated finish contours.

3.16 FINAL LEVELING AND CLEANUP

- A. Whenever the trenches have not been properly filled, or if settlement occurs, they shall be refilled, compacted, leveled, and finally graded to conform to the surface of the ground. Trenches in streets, sidewalks, alleys, etc., shall be refilled with crushed stone, graded as shown on the plans. Trenches in open fields or unpaved plant areas shall be mounded with clean earth to a minimum depth of three inches.
- B. As the work is completed, the Contractor shall remove and dispose of all surplus earth, stone, or other material on-site or distant from the work in such manner and at such point or points as he may select or provide, subject to the approval of the Authority's Engineer, and shall leave all roads, sidewalks, and other places free, clear, and in good order.

- C. The level of trench fill is to be maintained for a period of one year within dedicated and pre-existing legal roads and right-of-ways.

3.18 DUST CONTROL

- A. Where dust or wind erosion is a problem, the unstable surface shall be lightly sprinkled with water or a dust suppressor shall be applied as necessary or as directed by the Authority's Engineer. Care shall be taken so as not to cause any water erosion to the unstable surface.

END OF SECTION

SECTION 02485

FINISH GRADING AND SEEDING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The work of this section includes, but is not limited to:
 - 1. Placing topsoil
 - 2. Soil conditioning
 - 3. Finish grading
 - 4. Seeding
 - 5. Maintenance
- B. Restore unpaved surfaces to a condition similar to that prior to excavation as specified and indicated on the Drawings.
- C. The "Seeding Restoration Tables" at the end of this section list specific seeding restoration requirements. Refer to Drawings and Special Conditions for seeding restoration requirements at each specific location of Work.

1.02 QUALITY ASSURANCE

- A. Reference Standards:
 - 1. Pennsylvania Department of Transportation Publication 408 Specifications.
 - 2. Pennsylvania Seed Act of 1965, Act 187, as amended.
 - 3. Agricultural Liming Materials Act of 1978, P.L. 15, No. 9 (3P.S. 132-1), as amended.
 - 4. Pennsylvania Soil Conditioner and Plant Growth Substance Law, Act of December 1, 1977, P.L. 258, No. 86 (3P.S. 68.2), as amended.
 - 5. Rules for Testing Seeds of the Association of Official Seed Analysts.

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Seed:
 - 1. Deliver seed fully tagged and in separate packages according to species or seed mix. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be accepted.

PART 2 - PRODUCTS

2.01 TOPSOIL

- A. Having a pH of between 6.0 and 7.0; containing not less than 2% or more than 10% organic matter as determined by AASHTO T194.
- B. Fertile friable loam, sand loam, or clay loam which will hold a ball when squeezed with the hand, but which will crumble shortly after being released.
- C. Free of clods, grass, roots, or other debris harmful to plant growth.
- D. Free of pests, pest larvae, and matter toxic to plants.

2.02 FERTILIZER

- A. Basic Dry Formulation Fertilizer:
 - 1. Analysis 0-20-20 and as defined by the Pennsylvania Soil Conditioner and Plant Growth Substance Law.
- B. Starter Fertilizer:
 - 1. Analysis 10-5-5 or 12-6-6 and as defined by the Pennsylvania Soil Conditioner and Plant Growth Substance Law.

2.03 LIME

- A. Raw ground limestone conforming to Section 804.2(a), Publication 408 Specifications.

2.04 SEED

- A. Fresh, clean, dated material from the last available crop and within the date period specified, with a date of test not more than 9 months prior to the date of sowing. Percentage of pure seed present shall represent freedom from inert matter and from other seeds distinguishable by their appearance. All seeds will be subject to analysis and testing.

TABLE 1 - GRASS AND AGRICULTURAL SEEDS

<u>Species</u>	<u>Minimum Guaranteed Purity (Percent)</u>	<u>Maximum Weed Seed (Percent)</u>	<u>Minimum Guaranteed Germination (Percent)</u>
Kentucky Bluegrass (Poa pratensis) Domestic origin; min. 21 lb. per bushel	90	0.20	80
Perennial Ryegrass (Lolium perenne, var. Pennfine)	95	0.15	90
Kentucky 31 Fescue (Festuca elatior arundinacea)	98	0.25	85
Crownvetch (Coronilla varia, var. Penngift)	99	0.10	70
Pennlawn Red Fescue (Festuca rubra, var. Pennlawn)	98	0.25	90
Annual Ryegrass (Lolium multiflorum)	95	0.15	90
Timothy (Phleum pratense)	98	0.25	95

2.05 SEED MIXTURES

- A. See "Seeding Restoration Table" at end of this Section.

2.06 INOCULANT

- A. Inoculate leguminous seed before seeding with nitrogen fixing bacteria culture prepared specifically for the species.
- B. Do not use inoculant later than the date indicated by the manufacturer.
- C. Protect inoculated seed from prolonged exposure to sunlight prior to sowing.
- D. Reinoculate seed not sown within 24 hours following initial inoculation.

2.07 MULCHING MATERIALS

A. Mulches for seeded area shall be one, or a combination of, the following:

1. Hay:

- a. Cured to less than 20% moisture content by weight.
- b. Contain no stems of tobacco, soybeans, or other coarse or woody material.
- c. Timothy hay or mixed clover and timothy hay.

2. Straw:

- a. Cured to less than 20% moisture content by weight.
- b. Contain no stems of tobacco, soybeans, or other coarse or woody material.
- c. Wheat or oat straw.

3. Wood Cellulose:

- a. No growth or germination inhibiting substances.
- b. Green, air dried. Packages not exceeding 100 pounds.
- c. Requirements:

Moisture Content:	12% \pm 3%
Organic Matter:	98.6% + 0.2% on the oven dry basis.
Ash content:	1.4% \pm 0.2%
Minimum Water-Holding Capacity:	1,000%

4. Mushroom Manure:

- a. Organic origin, free of foreign material larger than 2" and substances toxic to plant growth.
- b. Organic Matter: 20% minimum.
- c. Water-Holding Capacity: 120% minimum.
- d. pH: 6.0.

PART 3 - EXECUTION

3.01 TIME OF OPERATIONS

A. Spring Seeding:

- 1. Preliminary operations for seed bed preparation may commence as soon after February 15 as ground conditions permit.

B. Fall Seeding:

1. Preliminary operations for seed bed preparation may commence after July 15.

3.02 PREPARATION OF SUBGRADE

A. "Hard Pan" or heavy shale:

1. Plow to a minimum depth of 6".
2. Loosen and grade by harrowing, discing, or dragging.
3. Hand-rake subgrade. Remove stones over 2" in diameter and other debris.

B. Loose loam, sandy loam, or light clay:

1. Loosen and grade by harrowing, discing, or dragging.
2. Hand-rake subgrade. Remove rocks over 2" in diameter and other debris.

3.03 PLACING TOPSOIL

- A. Replace topsoil and spread over the prepared subgrade to obtain the required depth and grade elevation. Final compacted thickness of topsoil not less than 3- 1/2".
- B. Hand-rake topsoil and remove all materials unsuitable or harmful to plant growth.
- C. Do not place topsoil when the subgrade is frozen, excessively wet, or extremely dry.
- D. Do not handle topsoil when frozen or muddy.

3.04 TILLAGE

- A. After seed bed areas have been brought to proper compacted elevation, thoroughly loosen to a minimum depth of 5" by discing, harrowing, or other approved methods. Do not work topsoiled areas when frozen or excessively wet.
- B. Liming:
 1. Distribute limestone uniformly at a rate of 50 pounds per 1,000 square feet.
 2. Thoroughly incorporate into the topsoil to a minimum depth of 4".
 3. Incorporate as a part of the tillage operation.
- C. Basic Fertilizer:
 1. Distribute basic fertilizer uniformly at a rate of 50 pounds per 1,000 square feet.
 2. Incorporate into soil to depth of 4" by approved methods.
 3. Incorporate as part of tillage operation.
- D. Liming and Fertilizer rates may be decreased if lesser rates are indicated by soil tests provided by the Contractor.

3.05 FINISH GRADING

- A. Remove unsuitable material larger than 2" in any dimension.
- B. Uniformly grade surface to the required contours without the formation of water pockets.
- C. Rework areas which puddle by the addition of topsoil and fertilizer. Re-rake.
- D. Distribute starter fertilizer at the following rates:
 - 10-5-5: 50 pounds per 1,000 square feet.
 - 12-6-6: 33 pounds per 1,000 square feet.
- E. Incorporate starter fertilizer into the upper 1" of soil.

3.06 SEEDING

- A. Uniformly sow specified seed mix by use of approved hydraulic seeder, power-drawn drill, power operated seeder, or hand-operated seeder or by hand. Do not seed when winds are over 15 mph.
- B. Upon completion of sowing, cover seed to an average depth of 1/4" by hand re-raking or approved mechanical methods.

3.07 MULCHING

- A. Mulch within 48 hours of seeding.
- B. Place hay and straw mulch in a continuous blanket at a minimum rate of 1,200 pounds per 1,000 square yards.
 - 1. Anchor hay or straw mulch by use of twine, stakes, wire staples, paper, or plastic nets.
 - 2. Emulsified asphalt may be used for anchorage provided it is applied uniformly at a rate not less than 31 gallons per 1,000 square yards.
 - 3. Apply approved chemical mulch binders at the manufacturer's recommended rate.
- C. Chemical mulch binders or a light covering of topsoil may be used for anchorage when the size of the area precludes the use of mechanical equipment.
- D. Apply wood cellulose fiber hydraulically at a rate of 320 pounds per 1,000 square yards.
 - 1. Incorporate as an integral part of the slurry after seed and soil supplements have been thoroughly mixed.
- E. Spread mushroom manure uniformly to a minimum depth of 1/2" or to the depth indicated on drawings.
- F. When mulch is applied to grass areas by blowing equipment, the use of cutters in the equipment will be permitted to the extent that a minimum of 95% of the mulch is 6" or more in length. For cut mulches applied by the blowing methods, achieve a loose depth in place of not less than 2".
- G. When mulching by the asphalt mix method, apply the mulch by blowing. Spray the asphalt

binder material into the mulch as it leaves the blower. Apply the binder to the mulch in the proportion of 1.5 to 2.0 gallons per 45 pounds of mulch.

1. Protect structures, pavements, curbs, and walls to prevent asphalt staining.
2. Erect warning signs and barricades at intervals of 50 feet or less along the perimeter of the mulched area.
3. Do not spray asphalt and chemical mulch binders onto any area within 100 feet of a stream or other body of water.

3.08 MAINTENANCE

- A. Maintenance includes watering, weeding, cleanup, edging and repair of depressions, washouts or gullies.

SEEDING RESTORATION TABLE

RESTORATION CONDITION	TOPSOIL	LIME*	BASIC FERTILIZER	STARTER FERTILIZER	SEED MIX & SOWING RATE (% BY WEIGHT)
Temporary Cover (**)	N/A	N/A	N/A	N/A	100% Annual Ryegrass Sow 9# per 1,000 Sq Yds Mar thru May/Aug thru Sept
Roadside; Non-mowed	Yes	100# per 1,000 Sq. Ft.	No	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per 1,000 Sq. Ft.	80% Kentucky 31, Fescue 20% Pennlawn Red Rescue Sow 21# per 1,000 Sq. Yds Mar thru May/Aug thru Sept
Roadside; Mowed	Yes	100# per 1,000 Sq. Ft.	No	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per 1,000 Sq. Ft.	50% Kentucky BlueGrass 30% Pennlawn Red Fescue 20% Perennial Ryegrass Sow 21# per 1,000 Sq. Yds Mar thru May/Aug thru Sept
Bank Areas	Yes	100# per 1,000 Sq. Ft.	No	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per Sq. Ft.	45% Crownvetch 55% Annual Ryegrass Sow 9# per 1,000 Sq. Yds Anytime except Sept & Oct
Lawns	Yes	100# per 1,000 Sq. Ft.	0-20-20 @ 50# per 1,000 Sq. Ft.	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per Sq. Ft.	50% Kentucky Bluegrass 30% Pennlawn Red Fescue 20% Perennial Ryegrass Sow 21# per 1,000 Sq. Yds Mar thru May/Aug thru Sept
Open Fields; Non-cultivated, Pasture	No	No	No	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per Sq. Ft.	100% Timothy Sow 9# per 1,000 Sq. Yds. Mar thru May/Aug thru Sept
Open Fields; Cultivated	No	No	No	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per Sq. Ft.	100% Annual Ryegrass Sow 9# per 1,000 Sq. Yds Mar thru May/Aug thru Sept
Woods; Sparse	No	No	No	10-5-5 @ 50# per 1,000 Sq. Ft. <u>or</u> 12-6-6 @ 33# per Sq. Ft.	100% Red Fescue Sow 36# per 1,000 Sq. Yds. Mar thru May/Aug thru Sept

* Unless lesser rate indicated by soils tests.

** Unless otherwise specified in the Erosion and Sedimentation Control Plan

Note: Refer to Drawings and Special Conditions for seeding restoration requirements at each specific location of Work.

END OF SECTION

SECTION 02575

PAVING AND RESURFACING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work of this section includes, but is not limited to:
 - 1. Temporary Paving
 - 2. Permanent Paving
 - 3. Shoulder Restoration
- B. Paving and resurfacing requirements for project roads are as indicated on the resurfacing schedules and miscellaneous details provided on the Standard Details sheets. All paving shall comply with the local ordinances and PennDOT Specifications, where applicable.
- C. Related work specified elsewhere:
 - 1. Trenching, Backfilling and Compacting – Section 02221
 - 2. Concrete for Utility Construction – Section 03300

1.02 QUALITY ASSURANCE

- A. Referenced Standards:
 - 1. Pennsylvania Department of Transportation:
 - a. Publication 408 Specifications
 - b. Publication 27 - Specification for Bituminous Materials (Bulletin 27)
 - c. Publication 37 - Specification for Bituminous Materials (Bulletin 25)
 - d. Publication 203 - Work Zone Traffic Control (See Special Conditions - Section 01570)
 - e. Chapter 459 - Occupation of Highways by Utilities

1.03 SUBMITTALS

- A. Certificates:
 - 1. Submit certification from bituminous and aggregate suppliers attesting that materials conform to the state specifications.

1.04 JOB CONDITIONS

- A. Control of Traffic:
 - 1. Take measures to control traffic during repaving operations. Do not allow traffic on repaved areas until authorized by the Authority and the municipality.
 - 2. Employ traffic control measures in accordance with Publication 203 - "Work Zone Traffic Control."
- B. Restore existing paving outside the limits of the work that is damaged by the Contractor's operations to its original condition.

PART 2 - PRODUCTS

2.01 CONCRETE

- A. See Section 03300

2.02 BITUMINOUS PAVING MATERIALS AND AGGREGATES

- A. Refer to Publication 408 Specifications. All bituminous materials and aggregates used in paving and resurfacing are designated in these Specifications by and shall conform to the applicable portions of the Publication 408 Specifications.

PART 3 - EXECUTION

3.01 WORK WITHIN STATE HIGHWAY RIGHT-OF-WAY

- A. Inspection: If throughout the progress of the work within state highways, it is deemed necessary by the Pennsylvania Department of Transportation (PennDOT) to post field inspectors on that portion of the project within their right-of-way, the Developer shall reimburse PennDOT for the cost of the inspection so applied.
- B. Blasting if necessary: All blasting shall be conducted in accordance with applicable PennDOT, state and local regulations.
- C. Detour: If a state highway detour is required, application must be made to District Office Traffic Unit and approval received for rerouting traffic before detour is put into effect.

3.02 TEMPORARY PAVING

- A. Place 2" compacted thickness temporary paving immediately upon completion of trench backfilling.
- B. Shape and compact subgrade material, then place and compact crushed stone base course to the required thickness.
- C. Place temporary paving material. Compact to 2" minimum thickness with trench roller having minimum 300 pounds per inch-width of compaction roll.
- D. Continuously maintain temporary paving to the satisfaction of the Engineer and the state and local road departments. Temporary paving on state roads must remain in place for a minimum of ninety (90) days. On municipal roads, permanent restoration must be completed within thirty (30) days after substantial completion of piping work, unless otherwise approved by the Engineer.

3.03 PERMANENT PAVING

- A. The Authority and/or municipality reserve the right to delete any and all permanent paving from the Contract.
- B. Saw cut back 12" from the limit of the trench using a diamond wheel or similar instrument. Cut straight joint lines and right angle offsets.
- C. Remove temporary paving material. Construct permanent base and surface courses to the required compacted thicknesses shown on the standard details and in accordance with Publication 408 Specifications.

- D. Maintain permanent paving to the satisfaction of the Authority and the local and state road departments throughout the contract maintenance period.

3.04 BITUMINOUS OVERLAY

- A. Where indicated on the Drawings, standard details, Surface Restoration Tables or directed by the Authority Engineer, place a bituminous overlay.
- B. Construct in accordance with Section 401.3, Publication 408 Specifications.

3.05 PAVED SHOULDER RESTORATION

- A. At the expiration of the appropriate time period, unless otherwise directed by the Pennsylvania Department of Transportation or the Engineer, the temporary restoration and the compacted trench fill shall be removed to a minimum depth of six and one-half inches (6 ½") below the surface of the roadway. A Super Pave base course with a minimum depth of five inches (5") shall be constructed and shall be topped with one-and-one-half inch (1½") minimum of Super Pave wearing course ID-2.
- B. All Paved Shoulder Restoration shall be in accordance with the Pennsylvania Department of Transportation, Form 408.
- C. All edges of the existing roadway surface disturbed during construction shall be cut in a straight line. Cutting of edges shall be done prior to placing of the wearing surface and shall be as directed by the Pennsylvania Department of Transportation on state roads and the municipality on Borough or Township roads.

3.06 BITUMINOUS TACK COAT

- A. Bituminous Tack Coat shall conform to PennDOT Form 408 for materials and construction requirements, including all revisions.
- B. Bituminous Tack Coat shall be applied on the surface of the base course prior to the construction of a bituminous binder course and/or bituminous wearing course.

3.07 SCRATCH COAT

- A. Scratch Coat or leveling course placement shall consist of Super Pave wearing course and shall be placed on a roadway where it is necessary to remove any irregularities, at the locations and depth as determined by the Authority Engineer.

3.08 MILLING OF ROADWAY

- A. Paving shall be removed to a depth below the roadway surface to allow construction of the specified pavement course. Milling shall be performed to a depth as shown on the "Construction Details" and in accordance with requirements of PennDOT Form 408, Specifications, current edition.
- B. Prior to Milling, all edges of existing roadway surface that are to be disturbed shall be cut or sawed in a straight line with a diamond wheel or similar instrument, as directed by the Authority Engineer.

3.09 SEAMS

- A. When the road surface is disturbed all seams shall be sealed with PG 64-22 or equal, in

accordance with PennDOT Form 408.

3.10 PAINT IDENTIFICATION

- A. Upon completion of temporary and permanent resurfacing, the resurfacing date shall be painted on the pavement immediately adjacent to the cut. The painted date shall indicate the month and year numerically. The numerals shall be at least six inches in height. The paint shall be of a durable wearing quality and shall be blue in color.
- B. All new pavement shall be re-stripped by the Contractor where previously painted. All traffic lines and markers shall be in accordance with applicable requirements of PennDOT Publication 408, current edition.

3.11 DRIVEWAYS

- A. Trim concrete and bituminous driveway surfaces to removed damaged areas. Saw cut straight joint lines parallel to the centerline of the trench. Cut offsets at right angles to the trench centerline.
- B. Restore existing concrete driveways trenched through with a 6" layer of concrete reinforced with 6 X 6 10/10 wire mesh.
- C. Restore existing blacktop driveways trenched through in kind or with minimum 1 ½" layer wearing course over 6" layer of 2A aggregate.
- D. Restore earth driveways with a 6" layer of 2A stone backfill.
- E. Restore stone or gravel driveways in kind.

END OF SECTION

SECTION 02601

MANHOLES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Work of this section includes, but is not limited to:
 - 1. Precast Concrete Manholes
 - 2. Concrete Manhole Bases
 - 3. Manhole Steps
 - 4. Manhole Covers and Frames
- B. Related Work Specified Elsewhere:
 - 1. Trenching, Backfilling and Compaction: Section 02221
 - 2. Structural Concrete: Section 03300

1.02 QUALITY ASSURANCE

- A. Reference Standards:
 - 1. Pennsylvania Department of Transportation Publication 408 Specifications.
 - 2. American Society for Testing and Materials (ASTM):
 - A48 Specification for Gray Iron Castings
 - C32 Specification for Sewer and Manhole Brick
 - C139 Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes
 - C270 Specification for Mortar for Unit Masonry
 - C443 Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
 - C478 Specification for Precast Reinforced Concrete Manhole Sections
 - C923 Specification for Resilient Connections Between Reinforced Concrete Manhole Structures and Pipes

1.03 SUBMITTALS

- A. Certificates:
 - 1. Submit certification from material suppliers attesting that materials meet or exceed specification requirements.

B. Shop Drawings:

1. Submit detail shop drawings of Precast Concrete Manhole Sections, and Precast Concrete Manhole Bases if used.
2. Submit detail shop drawings of Manhole Frames and Covers, including rubbings of inscription.
3. Submit detail shop drawings of Manhole Steps.
4. Submit manufacturer's descriptive literature for the pipe to Manhole Flexible Connections.

PART 2 - PRODUCTS

2.01 BASIC MATERIALS

A. Crushed Stone Subbase:

1. Size 57, Type C, Section 703.2, Publication 408 Specifications

B. Concrete Masonry Units: ASTM C139

C. Masonry Mortar: ASTM C270, Type S

D. Structural Concrete: Section 03300

E. Joint Sealant Compound: FS SS-S-00210, performed, flexible, self-adhering, cold-applied.

F. Rubber Gaskets: ASTM C443

G. Resilient Pipe-to-Manhole Connection: ASTM C923

2.02 FABRICATED PRODUCTS

A. Precast Concrete Manhole Sections: ASTM C478

1. 5.5% \pm 1% air entrained cement concrete.
2. Eccentric cone or flat slab top sections; minimum 24" access opening unless otherwise indicated.
3. Precast Concrete riser sections of length to suit.
4. Precast Concrete bases of a design similar to the precast riser sections.
5. Minimum internal diameter of 48" with tongue and groove joints between sections.

6. Precast Manhole Coating – Exterior:

- a. The exterior surfaces of all manhole sections, bases, risers and tops shall be coated with a coal tar epoxy compound manufactured by Kop-Coat, Inc., Pittsburgh, Pennsylvania, 15219, Type Bituminous No. 300-M or equal approved by the Engineer. The dry coat thickness shall be a minimum of twenty (20) mils. Application of the product shall be in accordance with the manufacturer's recommendations, but in all cases the final dry coating shall be without runs, sags, misses, pinholes, or other defects and shall adhere properly to the substrate.

B. Manhole Steps:

1. Polypropylene conforming to ASTM D-4101 injection molded around a ½" ASTM A-615 grade 60 steel reinforcing bar. Step to meet ASTM C-478, AASHTO M-199 and OSHA instruction STD 1-1.9. Step to resist pullout forces of over 1,500 pounds. Step to be 14" wide with end lugs to minimize risk of slipping sideways. Include self cleaning tread design. Step to be Part Number 108.14850 by Press-Seal Gasket Corporation.
2. Install Manhole steps in vertical alignment at 12" spacing.

C. Manhole Frames and Covers:

1. General:

- a. Domestic cast iron castings: ASTM A48, Class 35B or better; free of bubbles, sand and air holes, and other imperfections.
- b. Contact surfaces: Machined and matched.
- c. Cast Manhole cover inscriptions as follows:
 - (1) "WATER" for use as air/vacuum release chamber, or other use in the water system.
- d. Provide Manhole covers suitable for HS-25 highway loads.
- e. Provide gasketed Manhole covers.
- f. Paint at factory with water-based asphalt paint.

2. Frame and Cover:

- a. Minimum combined weight of 260 pounds with dimensions as indicated on Drawings, 22" minimum clear opening.
- b. Provide solid cover as standard.
- c. Provide one piece O-ring gasket factory installed in machined rectangular or dovetailed groove in cover bearing surface. Neoprene gasket of 40 durometer hardness, abrasion resistant, field replaceable. Gluing not permitted.
- d. Frame East Jordan Iron Works, Inc., 00111910 or equal
- e. Cover East Jordan Iron Works, Inc., 00112183 or equal.
- f. Watertight manhole frame and cover shall be as specified for manhole frame and

covers above. In addition, the casting shall be equipped with an internal watertight cover with a one-inch diameter bronze locking screw, forged steel lock bar, lock clamp and rubber gasket.

PART 3 - EXECUTION

3.01 GENERAL

- A. Construct Manholes or other structures at the points shown on the Drawings and at such points as directed by the Authority Engineer.
- B. Make Manholes watertight. Keep ground water away from the newly poured concrete until it is properly set and a watertight condition is obtained. Repair structures which admit ground water after completion to the satisfaction of the Engineer.

3.02 EXCAVATION

- A. Perform excavation to the line and grade shown on the Drawings and as specified in Section 02221. Provide minimum 6" beyond footer for ease of construction.
- B. Location and depth of Manholes is as shown on the Drawings and as directed by the Engineer.

3.03 CONSTRUCTION

- A. Construct Manholes of precast concrete or glass fiber-reinforced polyester sections.
- B. Install a minimum of 6" of crushed stone subbase.
- C. Provide cast-in-place concrete or precast concrete bases.
 - 1. Construct cast-in-place bases as shown on the Drawings.
 - a. Construct cast-in-place bases with a special form for a joint to match the manhole cylinder sections.
 - b. Form base with pipe opening resilient seals at proper elevation, alignment and diameter.
 - 2. Install precast bases as shown on the Drawings.
 - a. Set the precast base on a crushed stone subbase.
 - b. Provide a watertight, flexible resilient connection between pipe and precast base section.
- D. Seal joints between precast concrete Manhole sections with performed rubber gaskets or joint sealant compound.
 - 1. Place joint sealant compound on lower section to be squeezed by the weight of the upper section. Remove excess sealer and refill any voids.
 - 2. Place rubber gasket in groove formed in spigot end. Equalize gasket tension. Install upper section slowly and evenly to form seal. Check gasket for proper seating.
- E. Install Manhole sections with steps in proper vertical alignment.
- F. Use masonry or precast Manhole rings set in a full bed of non-shrink grout to achieve

elevation shown for frame and cover. Do not adjust elevation more than one foot with masonry or precast rings. Use one precast two-inch ring as minimum.

G. Install Manhole Frames and Covers:

1. Set top of frames at finished grade elevation or other elevation shown on the Drawings.
2. Anchor Manhole Covers installed in unpaved areas.
3. Seal joint between Manhole Frame and Manhole with joining sealant compound.

H. Where new Manholes are constructed on existing pipelines, carefully excavate around existing pipelines for placement of the new Manhole Base. Take measures necessary to control flow through the existing pipeline and to prevent leakage into the new base.

I. When Manhole is completed, remove all loose mortar and debris.

3.04 BACKFILLING

- A. Backfill after examination of the Manhole by the Engineer.
- B. Perform backfilling as specified in Section 02221.
- C. Construct Manholes with the tops of Manholes at grade and not covered by overburden.

END OF SECTION

SECTION 02630

**WATER PIPE, VALVES, HYDRANTS, APPURTENANCES
AND INSTALLATION METHOD**

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. Prior to any construction, the Contractor shall submit to the Engineer, for approval, names of manufacturers and suppliers he intends to use on the project. The Engineer may require complete catalog data and/or samples of materials for the purpose of determining if such materials meet the intent of these Specifications.
- B. All water mains shall be Ductile Iron Cement Lined Pipe.
- C. All pipes, valves and other equipment shall be certified for potable water contact in conformance with ANSI/NSF Standard No. 61 as prescribed in Section 109.606(C) of Chapter 109 of the Pennsylvania Safe Drinking Water Regulations.
- D. All fittings to be compact unless otherwise noted.

PART 2 - PRODUCTS

2.01 DUCTILE IRON PIPE

- A. Ductile Iron Pipe shall be centrifugally cast, annealed and manufactured in accordance with the latest revisions of American National Standard Institute (ANSI) and American Water Works Association (AWWA).
- B. For location and details of water lines, valves, and fire hydrants see construction drawings.

2.02 REFERENCE STANDARDS

A. WATER PIPE

Ductile Iron-Centrifugally Cast	ANSI A21.51 AWWA C-151
Flanged Ductile with Threaded Flange	ANSI A21.15 AWWA C-115
Nominal Pipe Lengths - 18' and 20'	

B. THICKNESS DESIGN

3" - 4" Thickness Class 52	ANSI A21.50 AWWA C-150
6" - 54" Thickness Class 52	ANSI A21.50 AWWA C-150

C. DUCTILE IRON JOINTS & ACCESSORIES

Mechanical Joint	ANSI A21.11 AWWA C-111
Push-On Joint	ANSI A21.11 AWWA C-111
Flange Joint	ANSI A21.15 AWWA C-115
Snap-Lok (or equal) Restrained Joint (Highway, Creek Crossings as indicated on Drawings)	ANSI A21.11 AWWA C-111

D. DUCTILE IRON FITTINGS

CLASS 350

Compact Fittings 3" Through 24"	ANSI A21.53 AWWA C-153
Conventional Fittings 3" Through 48"	ANSI A21.10 AWWA C-110
Flange Fittings	ANSI A21.15 AWWA C-115
All Fittings shall have Megalug Restrained Joint Glands	ANSI A21.15 AWWA C-153
Use Field Lok Gaskets according to "Joint Restraint Lengths" detail and engineer's recommendations	ANSI A21.11 AWWA C-111

E. DUCTILE IRON PIPE GASKETS

Rubber Gasket Joints - Pressure Pipe & Fittings	ANSI A21.11
Nonmetallic Gaskets Pipe Flanges	ANSI B16.21

F. BOLTS AND NUTS

Bolts shall conform to latest revision of ANSI B18.21
Nuts shall conform to latest revision of ANSI B18.22

G. COATING D.I. PIPE AND FITTINGS

1. Ductile Iron Pipe factory seal coated inside and outside with a bituminous coat 1 mil thick and inside with a cement lining as per ANSI A21.4 AWWA C-104.

H. MAIN LINE GATE VALVES

1. Main Line Gate Valves shall conform to the latest revisions of AWWA Specifications C-509 and in addition, shall have the following features of construction:
 - a. Type - Resilient Seat. Generally, underground valves shall be of the non-rising stem and exposed valves in pits or structures shall be of the open rising stem and yoke type.
 - b. Seals - "O-ring" unless stuffing box and gland are required by the Engineer. Gland, bushing, and bolts, where required, shall be of bronze.
 - c. End Connections - Bell, mechanical joint, flanged (American Standard), or "Ring-Tite" to suite the type of pipe in which the valve is installed.
 - d. Disc And Seat Ring - Grey Iron - internally reinforced molded natural rubber with stainless steel retaining screws.
 - e. Pressure Rating - 200 psi for valves 3 inches to 16 inches, 150 psi for valves over 16 inches. All valves shall be tested for 300 psi.
 - f. Coating - Interior of gate valve to be coated with a protective epoxy as per AWWA 550 Specifications, latest edition.

g. Acceptable Manufacturers

- (1) American Darling Company, American Flow Control ARC-2500 D.I. Resilient Wedge Valve.
- (2) Mueller Company, Super Seal Resilient Seat Gate Valve, Catalog No. A-2370.
- (3) No other will be accepted.

I. MAIN LINE VALVE BOXES

1. Main Line Valve Boxes to be cast iron, complete with covers. The boxes shall be centered over the operating nut of the valve and shall be set absolutely plumb and flush with the finished surface. Boxes shall rest on bedding of stone, not directly on valve.
2. Each Main Line Valve Box shall be furnished with a suitable cover of cast iron material. This cover shall have the word WATER cast in it. Operating wrench to be furnished.
3. Acceptable Manufacturers
 - a. Tyler Company
 - b. No other will be accepted.

J. FIRE HYDRANT - TRAFFIC TYPE

1. Fire Hydrant shall be the dry-barrel break-away type conforming to AWWA Specification C-502, latest revision.
 - a. Bury Depth - Minimum 5' Longer bury depth may be required as field conditions warrant. It is the Contractor's responsibility to familiarize himself with field conditions and provide proper depth hydrants.
 - b. Hub Inlet - 6"
 - c. Hydrant Valve Opening - 5-1/4"
 - d. Mechanical Joints.
 - e. One 4-1/2" Pumper Nozzle, Two 2-1/2" Hose Nozzles.
 - (1) Nozzle threads to be National Standard Threads.
 - (2) Attach nozzle caps by separate chains. Interior of Fire Hydrant to be coated with a protective epoxy as specified in AWWA 550 Specifications, latest revision.
 - (3) Provide "Storz" nozzle adapter.
 - f. Fire Hydrant shall be coated with an approved finish paint. Color of Fire Hydrant shall be as specified by the Authority.

g. Acceptable Manufacturers:

- (1) American Darling, American Flow Control B-62-B Type.
- (2) Mueller Company, Super Centurion 200, Catalog No. A-4-23.
- (3) No other will be accepted.

K. 3/4" AND 1" COPPER WATER

1. Copper Water Tubing shall conform to latest revision of ASTM Designation B88, Type K-Seamless (soft in 60 or 100 foot coils). Match fittings to be compression type.

L. MAIN LINE

1. Corporation Stop Assembly:

- a. Brass or red brass alloy body conforming to ASTM B62.
- b. Inlet end threaded for tapping according to AWWA C-800.
- c. Outlet end suitable for service pipe specified.
- d. Acceptable Manufacturers:
 - (1) Ford Meter Company, Catalog No. F1000 3-G - For 3/4"
Ford Meter Company, Catalog No. F1000 4-G - For 1"
Ford Meter Company, Catalog No. FB1000 6-G - For 1-1/2"
Ford Meter Company, Catalog No. FB1000 7-G - For 2" Only
 - (2) Mueller Company, Catalog No. H15008, 3/4" – 1"
Mueller Company, Catalog No. H15013, 1 1/2" – 2".
 - (3) No other will be accepted.

M. CURB LINE SERVICE

1. Curb Stop Assembly:

- a. Brass or red brass alloy body conforming to ASTM B-62.
- b. Plug Type Valve
- c. Position Pressure Sealing
- d. Acceptable Manufacturers:
 - (1) Ford Meter Company, B44-333-G, 3/4"
Ford Meter Company, B44-444-G, 1"
Ford Meter Company, B44-666-G, 1-1/2"
Ford Meter Company, B44-777-G, 2"
 - (2) Mueller Company, Catalog No. H15042, 3/4" – 1"
Mueller Company, Catalog No. H15209, 1" – 1 1/2".

(3) No other will be accepted.

2. Curb Box and Cover Assembly:

- a. Cast Iron Body Extension Buffalo Type
- b. Minneapolis or Arch Pattern Base
- c. Lid With Inscription "WATER" with Pentagon Plug
- d. Size 93-D, 3'-4" Length, 2-1/2" in diameter
- e. Acceptable Manufacturers:

(1) Tyler Pipe Company, Subsidiary of Tyler Corporation.

(2) No other will be accepted.

N. WATER SERVICE METER PITS

1. Where required by the Authority, residential water services shall be equipped with meter pit setters.

a. Acceptable Manufacturers:

(1) The Ford Meter Box Co., Inc., Wabash, Indiana

(2) No other will be accepted

2. All non-residential installations will be reviewed in accordance with the attached details on a case-by-case basis.

O. AIR VACUUM AND PRESSURE RELEASE VALVE - WATER

1. The Air Vacuum and Pressure Release Valve shall conform to the latest AWWA C-512 Specifications.

a. Acceptable Manufacturers:

(1) Multiplex Manufacturing Co. - Crispin Model No. UL-10 for 1"
Multiplex Manufacturing Co. - Crispin Model No. UL-20 for 2"

(2) APCO Valve & Primer Company - Model No. 143-C for 1"
APCO Valve & Primer Company - Model No. 145-C for 2"

(3) Valmatic Valve & Manu. Corp - Model No. 101 for 1"
Valmatic Valve & Manu. Corp - Model No. 102 for 2"

(4) Or Approved Equal.

P. AIR VACUUM AND PRESSURE RELEASE VALVE MANHOLE

1. Air Vacuum and Pressure Release Valve Manhole to be furnished and installed by the Contractor as shown on the Construction Detail.

Q. CUT-IN SLEEVE AND VALVE

1. Cut-In Sleeve shall meet all applicable parts of ANSI A21-10, AWWA C-110, latest revision.

2. Gate Valve shall meet all applicable parts of AWWA C-509, latest revision.

3. Acceptable Manufacturers

- a. American Darling, American Flow Control.
- b. Mueller Company.
- c. No other will be accepted.

R. REPAIR SLEEVE

1. The Repair Sleeve shall be mechanical joint solid sleeve and shall conform to latest ANSI A21.10/AWWA C-110.

2. Acceptable Manufacturers

- a. Tyler Pipe Company.
- b. Mueller Company.
- c. No other will be accepted.

S. TAPPING SLEEVE AND TAPPING VALVE

1. Tapping Sleeve shall be ductile iron and shall conform to latest ANSI A21.10/AWWA C-110.

2. Tapping Valve shall be resilient seat type and meet all applicable parts of AWWA C-509.

3. Acceptable Manufacturers:

- a. American Darling, American Flow Control.
- b. Mueller Company.
- c. No other will be accepted.

T. MECHANICAL JOINT COUPLINGS (SOLID SLEEVES)

1. Cast iron mechanical couplings of the gasketed, sleeve type shall be furnished and installed where shown on the Drawings. The couplings shall be of the proper diameter to fit the cast iron, and make a tight joint. The couplings shall not have stops. All couplings shall be of Class 350.

2. Each-coupling shall consist of one middle ring of a thickness and length suitable for the proposed application and test pressures; two MJ Glands; two MJ rubber compounded wedge section gaskets and sufficient trackhead bolts to properly compress the gaskets. The couplings shall be of the mechanical type conforming to the latest revisions of A.N.S.I. A21.11 (A.W.W.A. C111).

U. REPAIR CLAMPS

1. Repair Clamps shall be stainless steel with 360° gasket and clamping pressure. It shall provide a 360° seal while accommodating pipe O.D. variations. Clamps shall be minimum length of 12". They shall be Mueller 500 Series Single Section Full-Seal Pipe Repair Clamps, Dresser 360 "All-Around" Repair Clamps, Ford Stainless Steel FSI, or approved equal.

PART 3 - EXECUTION

3.01 INSTALLING CORPORATION AND SERVICE CONNECTIONS

- A. Corporation and Service Connections shall be installed after the water pipe has been installed, tested and disinfected in accordance with Section 02640 (Testing & Disinfecting Water Mains).

3.02 BLOWOFF

- A. Blowoffs shall be constructed as shown on the Construction Details. The pipe material shall be as shown on the Construction Details. The Blowoff shall be placed on the end of the main line as shown on the Construction Details.

3.03 LAYING WATER PIPE

- A. Water Pipe shall be laid at such places as shown on the plans, as called for in these Specifications or as may be directed by the Authority Engineer.
- B. The interior of all pipe shall be thoroughly cleaned of all foreign matter before being lowered into the trench, shall be kept clean during laying operations by means of plugs or other approved methods. No trench water shall be allowed to enter the pipe fittings. Before lowering and while suspended, the pipe shall be inspected for defects.
- C. Except where necessary in making connections with other lines and as authorized by the Engineer, pipe shall be laid with the bells facing in the direction of laying and for lines on an appreciable slope, the bell shall, at the discretion of the Engineer, face upgrade. Not less than two lengths of pipe shall be in position with packing installed and earthfill tamped alongside the pipe, ahead of each joint before it is completed, except at closures. Pipelines or runs intended to be straight shall be so laid. Deflections from a straight line or grade made necessary by vertical curves or horizontal curves or offsets shall not exceed 1/2-inch per linear foot of pipe between the centerlines extended of any two connected pipes.
- D. All gasketed joints shall be made in strict accordance with the recommendations of the joint manufacturer.

3.04 PIPE EMBEDMENT

- A. Bedding
 - 1. All main line pipe shall be laid on a granular bedding of crushed stone or gravel aggregate, in accordance with AASHTO No. 8 (formerly PennDOT No. 1B). The bedding shall be well compacted, as directed by the Engineer, and shall be a minimum depth of 6 inches or one-fourth the internal diameter, whichever is greater. All copper service laterals shall be laid in dry screened sand. The bedding shall provide uniform longitudinal support to the pipe and shall be laid to provide the pipe grade and line as shown on the Drawings or as directed by the Authority Engineer.
- B. Final Embedment
 - 1. Final Embedment shall extend from the springline of the pipe to a depth of 6 inches minimum above the top of the pipe. It shall be AASHTO No. 8 (formerly PennDOT No. 1B) stone or gravel and shall be well compacted as directed by the Authority Engineer.

C. Service Connection

1. All Service Connections installed on State Highways shall be either punched or bored under roadway.

3.05 IDENTIFICATION TAPE - WATER

- A. Identification Tape, as manufactured by Reef Industries, Inc., or equal, shall be placed over all Water Mains. This tape shall be of the detectable type and be made of polyethylene with a one-mil metallic foil core, highly resistant to alkalis, acid, other destructive chemical components likely to be encountered in soils. The tape shall be colored blue and shall bear an imprint reading on one side as follows: "**Caution - Water Line Buried Below**". The tape shall be two inches (2") or greater in width with the identification lettering repeated continuously the entire length of the tape.
- B. The tape shall be placed 12" to 18" deep above the D.I. (cement lined) or other type of water pipe and, or as directed by the Engineer. The tape shall be placed in the trench with the printed side up, and shall be essentially parallel to the finished surface. Caution shall be taken during the completion of backfilling to prevent the tape from being pulled, distorted or otherwise displaced in the trench.

END OF SECTION

SECTION 02640

TESTING AND DISINFECTING WATER MAINS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The Contractor shall make tests as may be directed by the Authority. The Contractor shall furnish all apparatus that may be necessary in testing and disinfecting the water mains. The Authority Engineer shall review the test.

PART 2 – PRODUCTS

Not applicable

PART 3 - EXECUTION

3.01 PREPARATION

- A. Provide the water line under test with reaction thrust blocking. Hydrostatic testing shall not begin until the concrete under thrust blocking has set. Allow 2,000 psi 28-day strength concrete to set (cure) for a minimum of 7 days prior to testing. If (H.E.S.) 3,000 spi 3-day strength concrete is used, hydrostatic testing may not begin until the concrete has set a minimum of 2 days.
- B. Provide pumps, piping, tanks, connections, polyurethane plugs, and appurtenances. The Authority will provide access to the necessary water.

3.02 TESTING OF WATER LINES

A. Hydrostatic Testing

1. Test each newly installed section of water line by hydrostatic test procedure in accordance with the recommended practice established by AWWA, Standard C600.
2. Conduct pressure tests for a period of not less than 2 hours at a pressure of not less than 150 psi or 50 psi greater than the stated pressure, whichever is greater, based upon the elevation of the lowest point in line under test corrected to the elevation of the test gauge. Obtain test pressure from the Authority Engineer.
3. Slowly fill the section to be tested with water, expelling air from the pipeline at the high points. Install corporation stops at high points if necessary. After all air is expelled, close air vents and corporation stops and raise the pressure to the specified test pressure.

B. Leakage Tests

1. After completion of successful pressure testing, conduct the leakage test for a 2-hour period at the test pressure indicated in the Specifications.

2. Expel air from the line under test, close the air vents and/or corporation stops and raise pressure to the specified test pressure. The leakage in the section under test is defined as the quantity of water supplied to maintain pressure within 5 psig of the specified test pressure during the entire testing period. Water pipe installation is deemed to have failed the leakage test if the leakage obtained is greater than that determined by the following formula:

$$L = (ND/7400)(P)^{0.5}$$

Where: L - is allowable leakage in gallons/hour
N - is number of joints in the section tested
D - is nominal diameter of pipe in inches
P - is average test pressure in pounds per square inch gauge

If the line under test contains sections of various diameters, the allowable leakage shall be the sum of the computed leakage for each size.

3. If test results indicate that the pipe laid has leakage greater than specified, locate and repair the defective joints, fittings, pipe or valves and retest until leakage is within allowable limits. Repair visible leaks regardless of amount of leakage.
4. Bacteriological testing shall be performed by a testing laboratory engaged and paid for by the Contractor and approved by the Authority Engineer. No test will be accepted until the results are below the specified maximum limits.

C. Test Procedures

1. Submit a testing sequence schedule including a list of testing equipment to be used.
2. Submit, prior to starting testing, certification attesting that the pressure gauges to be used have been calibrated and are accurate to the degree specified in Part 2, Products.
3. Submit certification attesting that the chlorine form composition is as specified.

D. Test Reports

1. Submit two copies of laboratory test reports of each bacteriological test.

3.03 DISINFECTION

- A. After completion of satisfactory pressure and leakage testing, disinfect the water pipelines in accordance with the recommended practice established in AWWA Standard C501. Conduct water line disinfection in the following steps:

1. Preliminary flushing
2. Chlorine application
3. Final flushing
4. Bacteriological tests

- B. During construction, place calcium hypochlorite granules at the upstream end of the first section of pipe, at the upstream end of each branch main, and at 500-foot intervals. Refer to AWWA 601 for quantity of granules to be used.

- 1. **WARNING:** This procedure must not be used on solvent welded plastic pipe or in screwed joint steel pipe because of the danger of fire or explosion from the reaction of the joint compounds with the calcium hypochlorite.

3.04 PRELIMINARY FLUSHING

- A. Prior to disinfection, except when the tablet method is used, fill the line to eliminate air pockets and flush the line at a rate of flow of 2.5 feet per second to remove particulate. Refer to AWWA 601 for rate of flow to produce 2.5 fps in pipe of various sizes.

3.05 CHLORINE FORM

- A. The chlorine form to be applied to the system shall be either chlorine gas solution, calcium hypochlorite or sodium hypochlorite. The Authority's written approval of the chlorine form to be used is required.

3.06 CHLORINE APPLICATION

- A. Continuous Feed Method:

- 1. The continuous feed method consists of placing calcium hypochlorite granules in the main during construction, completely filling the main to remove air pockets, flushing to remove particulate, and filling the main with potable water chlorinated so that after a 24-hour period in the main there will be a free chlorine residual of not less than 10 mg/l.
 - 2. Feed water and chlorine to the line at a constant rate such that the water will have not less than 25 mg/l free chlorine. Chlorine application shall not cease until the entire line is filled with heavily chlorinated water.
 - 3. During chlorine application, take precautionary measures to prevent the concentrated treatment solution from flowing back into the existing distribution system and/or supply source.

- B. Tablet Method:

- 1. The tablet method consists of placing calcium hypochlorite granules and tablets in the water main as it is being installed and then filling the main with potable water when installation is completed.
 - a. **NOTE:** Since the preliminary flushing step must be eliminated, this method may be used only when scrupulous cleanliness has been exercised and only with approval of the Engineer. It shall not be used if trench water or foreign material has entered the main, or if the water temperature is below 41°F.
 - 2. During construction, place sufficient number of 5 g. calcium hypochlorite tablets in each section of pipe, in hydrants, hydrant branches, and other appurtenances to obtain a minimum of 25 mg/l available chlorine. Attach tablets to the crown of pipe sections with adhesive. Apply adhesive only to the broad side of the tablet next to the pipe surface. Refer to AWWA C601 for the proper number of 5 g. calcium hypochlorite tablets required.

3. When pipeline installation is completed, fill the main with water at a minimum velocity of one foot per second. This water shall remain in the pipe for at least 24-hours. Manipulate valves so that the chlorine solution does not flow back into the line supplying the water.

- C. During the 24-hour treatment, operate all valves, curb stops, and hydrants in the section treated.
- D. At the completion of the 24-hour treatment, the treated water in all portions of the main shall have a residual of not less than 10 mg/l free chlorine.
- E. Repeat the disinfection process until the minimum available chlorine is present at the end of the treatment sequence. The tablet method cannot be used in these subsequent disinfections.

3.07 FINAL FLUSHING

- A. The heavily chlorinated water must be de-chlorinated in a manner acceptable to the Engineer prior to discharging from the system. Flushing from the system under treatment must continue until the chlorine concentration in the water leaving the system is no higher than that generally prevailing in the system or is acceptable for domestic use.
- B. Comply with federal, state and local laws when discharging the de-chlorinated water. The water must be discharged to a location approved by the Engineer and the municipality.

3.08 BACTERIOLOGICAL TESTING

- A. After final flushing is completed and before the water main is placed in service, test the line for bacteriologic quality. Perform two tests one day apart.
- B. Collect a minimum of one sample at the end of each line for each test, and one sample of the incoming water from the existing water system for comparison.
- C. Collect samples in sterile bottles treated with sodium thiosulphate.
- D. Sampling tap shall consist of corporation stop installed in the main with copper tube gooseneck assembly. No hose or fire hydrant shall be used to collect samples.
- E. Provide bacteriological test reports to the Authority and the Engineer. The laboratory must be certified for testing in Pennsylvania. Failure to meet state health requirements will be cause for the Contractor to rechlorinate and retest the system.

END OF SECTION

SECTION 03300

CONCRETE FOR UTILITY CONSTRUCTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. The Work of this section includes, but is not limited to:

1. Cast-in-place cement concrete construction
2. Reaction and support blocking
3. Cradles and encasement

B. Related Work Specified Elsewhere:

1. Trenching, Backfilling & Compaction: Section 02221
2. Paving and Resurfacing: Section 02575

C. Applicable Standard Details:

1. Concrete Encasement
2. Concrete Cradle
3. Thrust Blocks
4. Concrete Pipe Anchor
5. Stream Crossing

1.02 QUALITY ASSURANCE

A. Reference Standards:

1. Pennsylvania Department of Transportation:

Publication 408 Specifications

2. American Society for Testing and Materials (ASTM):

C31 Making and Curing Concrete Test Specimens in the Field

C39 Test for Compressive Strength of Cylindrical Concrete Specimens

C42 Obtaining and Testing Drilled Cores and Sawed Beams of Concrete

C172 Sampling Fresh Concrete

1.03 SUBMITTALS

A. Certificates:

1. Submit certification from the concrete producer attesting that the cement concrete conforms to Section 704, Publication 408 Specifications for the class of concrete being used.

2. Submit certified results of compressive strength tests performed by an independent testing laboratory.

B. Shop Drawings:

1. Submit detailed shop drawings of reinforcing steel.

PART 2 – PRODUCTS

2.01 CEMENT CONCRETE

A. Ready-mixed, conforming to Section 704, Publication 408 Specifications.

1. Requirements for state approved batch plants, design computations and plant inspection shall not apply. The acceptability of concrete will be based on conformance with the cement concrete criteria specified below and the results of the specified tests.

B. Cement Concrete Criteria:

1. Class A

- a. 28-day compressive strength: 3300 psi
- b. Slump: 1 to 3 inches

2. Class C

- a. 28-day compressive strength: 2000 psi
- b. Slump: 2 to 6 inches

3. High Early Strength

- a. 3-day compressive strength: 3000 psi
- b. Slump: 1 to 3 inches

4. Cement factor and maximum water-cement ratio conforming to Table A. Section 704.1(b), Publication 408 Specifications.

2.02 REINFORCEMENT STEEL

A. Reinforcement Bars:

1. New billet-steel conforming to Section 709.1, Publication 408 Specifications.
2. Deformed, Grade 40.

B. Steel Wire Fabric:

1. Conforming to Section 709.3, Publication 408 Specifications.

PART 3 – EXECUTION

3.01 CONSTRUCTION

- A. Comply with Section 1001, Publication 408 Specifications for construction requirements including formwork, curing, protection and finishing of cement concrete.
- B. Excavate and shape trench bottoms and sides to accommodate thrust block forms, encasement, manhole bases, inlets and vaults.
- C. Support pipe, valves and fittings at the required elevation with brick or concrete block. Do not use earth, rock, wood or organic material as supports.
- D. Construct manhole bases, reaction and support blocking, cradles, encasements, and miscellaneous mass concrete of Class C concrete.
- E. Construct cast-in-place vaults, inlets, endwalls, curbs, sidewalks and miscellaneous reinforced structures of Class A concrete.
- F. Construct reinforced and plain cement concrete pavements and base courses of High Early Strength concrete as specified in Section 02575, Paving and Resurfacing.
- G. Provide spacers, chairs, bolsters, ties and other devices for properly placing, spacing, supporting and fastening reinforcement in place.
- H. Place concrete utilizing all possible care to prevent displacement of pipe or fittings. Return displaced pipe or fittings to line and grade immediately.
- I. Insure tie rods, nuts, bolts and flanges are free and clear of concrete.
- J. Do not backfill structures until concrete has achieved its initial set, forms are removed and concrete work is inspected by the Engineer.
- K. Perform backfilling and compaction as specified in Section 02221.

3.02 FIELD TESTS OF CONCRETE DURING CONSTRUCTION

- A. Test each 50 cubic yards or fraction thereof of each class of concrete for compressive strength. Retain an independent testing laboratory to test cylinders.
 1. Sample concrete in accordance with ASTM C172.

2. Prepare and cure two test cylinders in accordance with ASTM C31.
 3. Test cylinders in accordance with ASTM C39.
- B. If test cylinders fail to meet strength requirements, the Engineer may require additional core tests in accordance with ASTM C42.

END OF SECTION

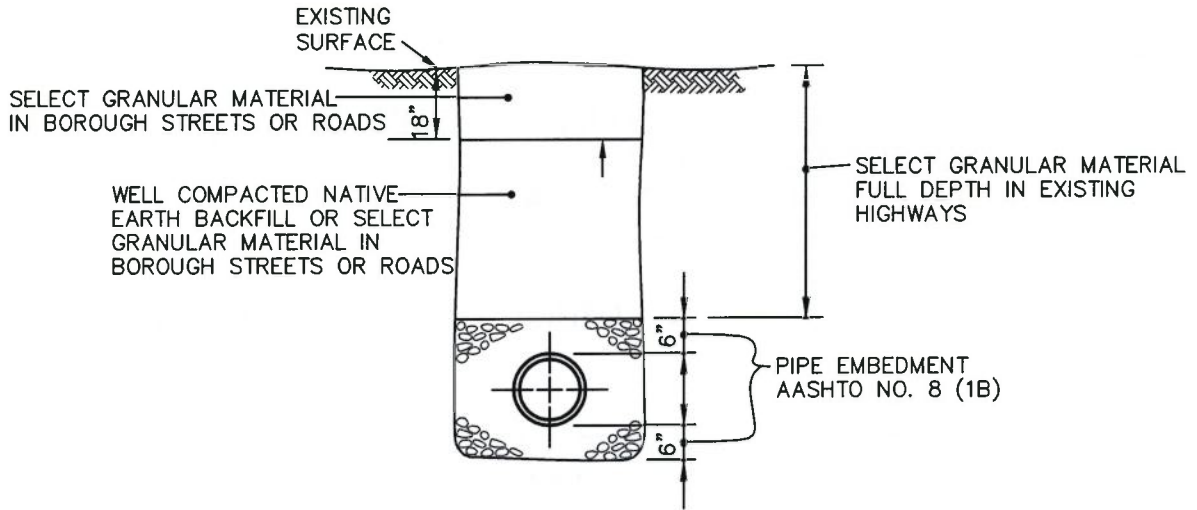
**HALIFAX AREA
WATER AND SEWER AUTHORITY
(HAWASA)**

***DEVELOPER'S STANDARD
CONSTRUCTION DETAILS
FOR CONSTRUCTION OF
SANITARY SEWER SYSTEM
AND
WATER DISTRIBUTION SYSTEM***

GLACE ASSOCIATES, INC.
CONSULTING ENGINEERS
3705 TRINDLE ROAD
CAMP HILL, PENNSYLVANIA 17011
(717)731-1579

HALIFAX AREA WATER AND SEWER AUTHORITY (HAWASA) DEVELOPER'S STANDARD CONSTRUCTION DETAILS

<u>PLAN NO.</u>	<u>DESCRIPTION</u>
<u>GENERAL DETAILS</u>	
G1.	TYPICAL TRENCH BACKFILL – SEWER OR WATER MAIN LINE AND SERVICE LATERALS
G2.	INSTALLATION OF IDENTIFICATION TAPE
G3.	WATER – SEWER SEPARATION DETAILS
G4.	BORING DETAIL
G5.	STREET RESURFACING OTHER THAN STATE HIGHWAYS
<u>WATER SYSTEM DETAILS</u>	
W1.	CONNECTION TO EXISTING LINE W/TAPPING SLEEVE AND VALVE
W2.	WATER SERVICE CONNECTION
W3.	1 1/2" OR 2" WATER CONNECTION
W4.	FIRE HYDRANT ASSEMBLY
W5.	TEMPORARY BLOWOFF INSTALLATION
W6.	PERMANENT BLOWOFF INSTALLATION
W7.	JOINT RESTRAINT DETAIL
W8.	WATER SYSTEM AIR RELEASE/VACUUM RELIEF VALVE AND MANHOLE
<u>SEWER SYSTEM DETAILS</u>	
S1.	PRECAST REINFORCED CONCRETE MANHOLE
S2.	PRECAST REINFORCED CONCRETE DROP MANHOLE
S3.	STANDARD MANHOLE FRAME AND COVER
S4.	PIPE TO MANHOLE GASKET DETAIL
S5.	CONNECTION TO EXISTING MANHOLE
S6.	CAST IRON BOX FOR 4" LATERAL CLEAN OUT RISER
S7.	SEWER AIR RELEASE/VACUUM RELIEF VALVE AND MANHOLE
S8.	SERVICE LATERAL AND CLEANOUT AT SHALLOW SEWER MAIN
S9.	SERVICE LATERAL AND CLEANOUT AT DEEP SEWER MAIN
S10.	SEWER MONITORING MANHOLE
S11.	1,000 GALLON GREASE INTERCEPTOR



GENERAL DETAIL G1.
TYPICAL TRENCH BACKFILL SEWER OR
WATER MAIN LINE AND SERVICE LATERALS

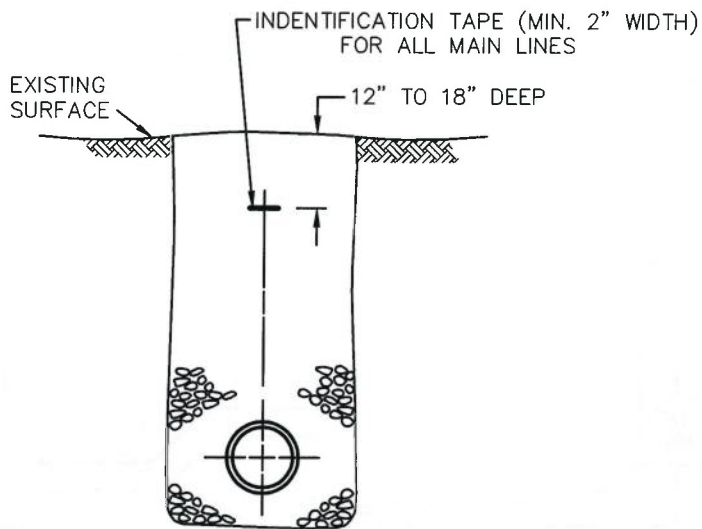
NATIVE BACKFILL: MATERIAL EXCAVATED FROM THE SITE IF FREE OF STONES LARGER THAN 6" IN SIZE AND FREE OF WET, FROZEN, AND ORGANIC MATERIALS AND REFUSE.

SELECT GRANULAR MATERIAL: TYPE 2A AGGREGATE, AS SPECIFIED IN PENNDOT PUBLICATION 408, SECTION 703 (2)(C)-TABLE C. BACKFILL SHALL BE LIMESTONE OR SHALL DEMONSTRATE A DRY WEIGHT IN POUNDS PER CUBIC FEET EQUIVALENT TO OR GREATER THAN LIMESTONE.

HALIFAX AREA WATER AND SEWER
 AUTHORITY (HAWASA)

DEVELOPER'S STANDARD
 CONSTRUCTION DETAIL

GLACE ASSOCIATES, INC., CAMP HILL, PA.



GENERAL DETAIL G2.
INSTALLATION OF IDENTIFICATION TAPE
 TYPICAL SEWER OR WATER

HALIFAX AREA WATER AND SEWER
 AUTHORITY (HAWASA)

DEVELOPER'S STANDARD
 CONSTRUCTION DETAIL

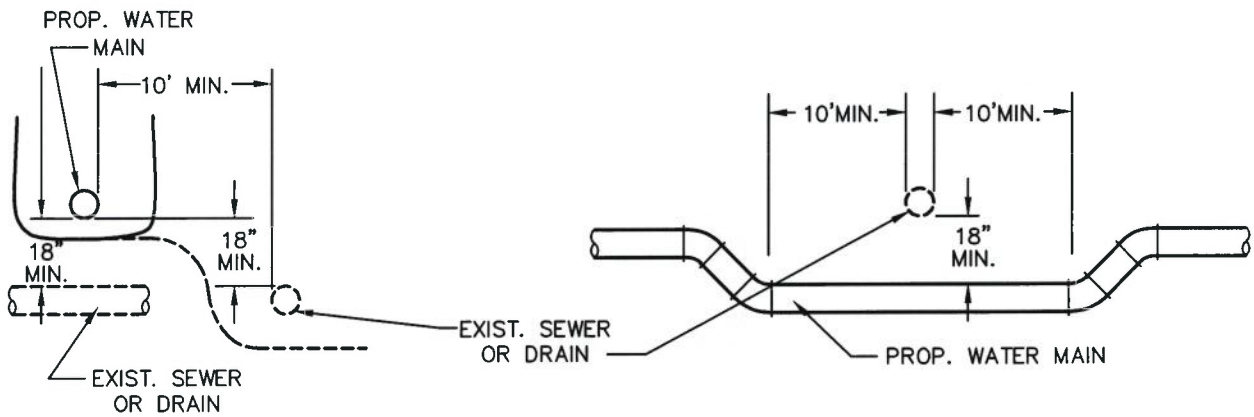
GLACE ASSOCIATES, INC., CAMP HILL, PA.

NOTE:

WHERE CONDITIONS PREVENT A SEPARATION OF 10' THE WATER MAIN SHALL BE LAID ON AN UNDISTURBED SHELF THAT IS AT LEAST 18" ABOVE THE TOP OF THE SEWER.

NOTE:

WATER PIPE TO BE CENTERED SO THAT THE JOINTS ARE AN EQUAL DISTANCE FROM THE SEWER



GENERAL DETAIL G3.
WATER - SEWER SEPARATION DETAILS

HALIFAX AREA WATER AND SEWER
AUTHORITY (HAWASA)

DEVELOPER'S STANDARD
CONSTRUCTION DETAIL

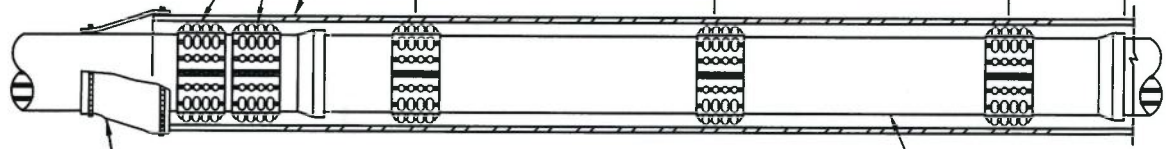
GLACE ASSOCIATES, INC., CAMP HILL, PA.

TWO SPACERS PLACED AT EACH END OF CASING (TYP)

CASING PIPE

6 FT - 10 FT TYPICAL BETWEEN SPACERS

2' FROM BELL END



RUBBER END SEAL WITH STAINLESS STEEL BANDS

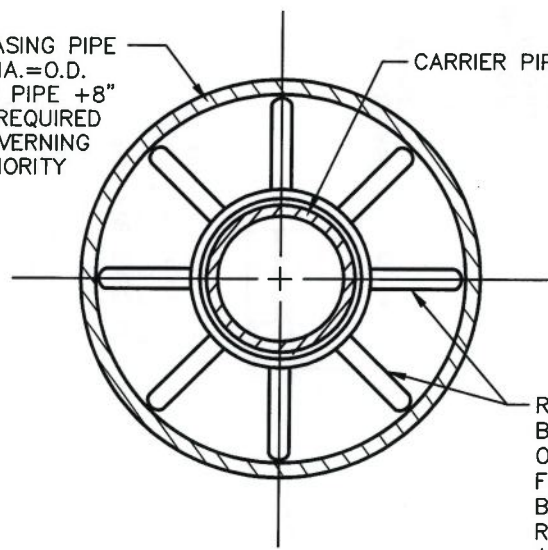
CARRIER PIPE

INSULATOR SPACING DETAIL

SPACERS SHALL BE RACI HIGH DENSITY POLYETHYLENE OR ENGINEER PRE-APPROVED EQUAL.

STEEL CASING PIPE MIN. DIA.=O.D. CARRIER PIPE +8" OR AS REQUIRED BY GOVERNING AUTHORITY

CARRIER PIPE

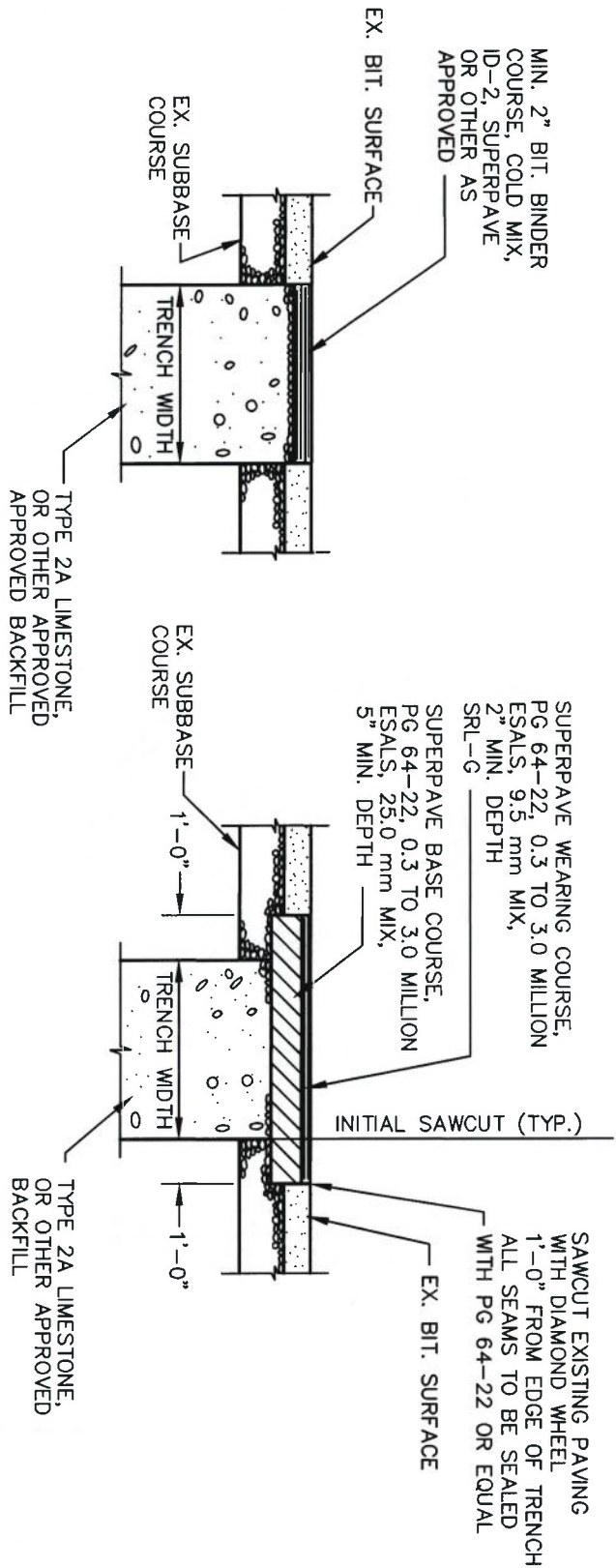


RACI CASING SPACERS MANUFACTURED BY PUBLIC WORKS MARKETING, INC. OR EQUAL. OTHER APPROVED METHODS FOR CRADLING & ANCHORING PIPE MAY BE USED. SPACING & END SEALS AS RECOMMENDED BY MANUFACTURER AND APPROVED BY ENGINEER.

GENERAL DETAIL G4.
BORING DETAIL
TYPICAL SEWER OR WATER

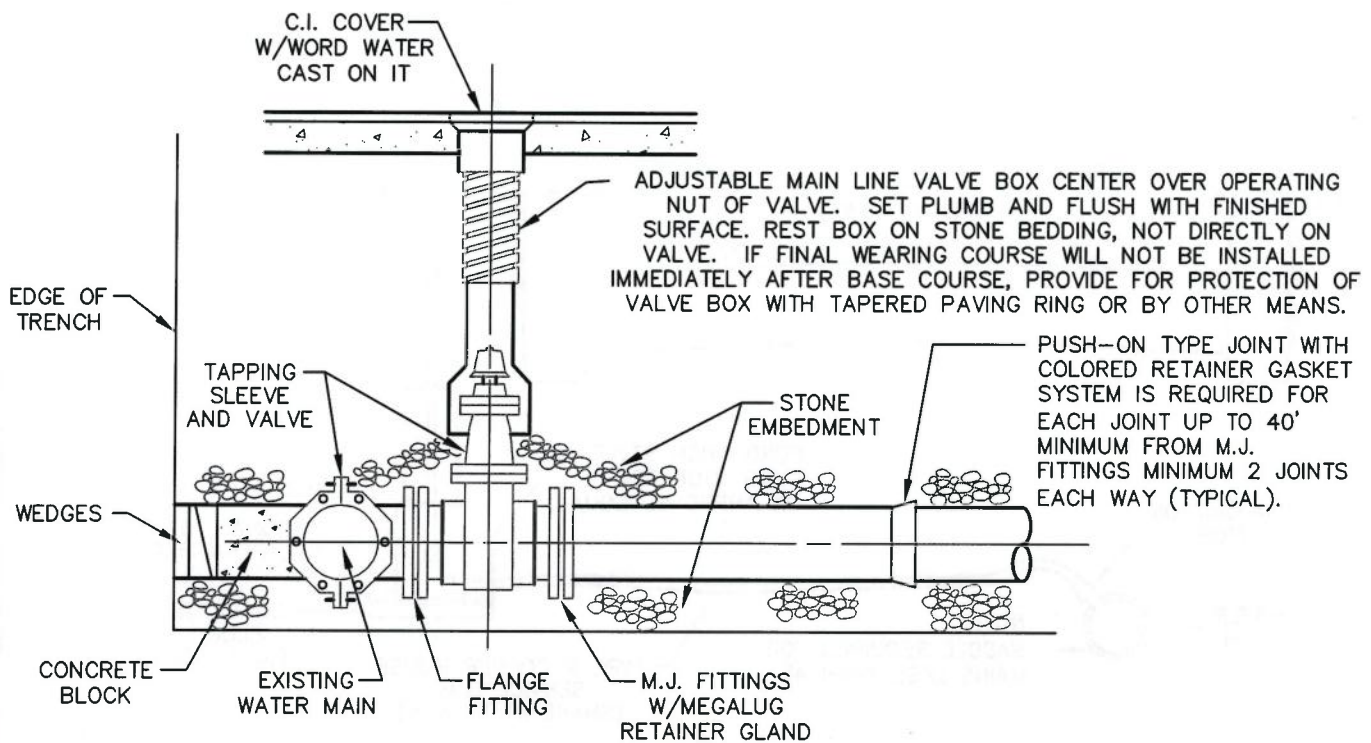
<p>HALIFAX AREA WATER AND SEWER AUTHORITY (HAWASA)</p>
<p>DEVELOPER'S STANDARD CONSTRUCTION DETAIL</p>
<p>GLACE ASSOCIATES, INC., CAMP HILL, PA.</p>

O:\CAD DRAWINGS\607\STANDARD DETAILS\607-G4 BORING DETAIL.DWG, 6/29/2016 10:01 AM



**GENERAL DETAIL G5.
STREET RESURFACING OTHER THAN STATE HIGHWAYS**

HALIFAX AREA WATER AND SEWER AUTHORITY (HAWASA)
DEVELOPER'S STANDARD CONSTRUCTION DETAIL
GLACE ASSOCIATES, INC., CAMP HILL, PA.



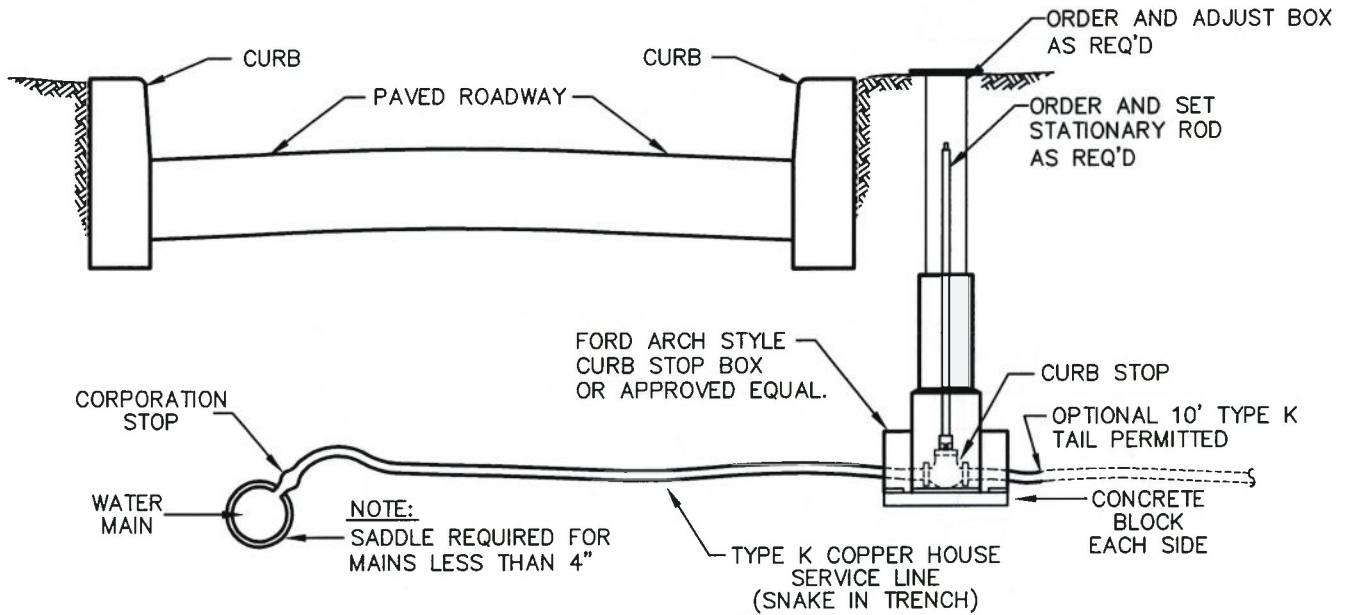
**WATER SYSTEM DETAIL W1.
CONNECTION TO EXISTING LINE WITH
TAPPING SLEEVE AND VALVE**

HALIFAX AREA WATER AND SEWER
AUTHORITY (HAWASA)

DEVELOPER'S STANDARD
CONSTRUCTION DETAIL

GLACE ASSOCIATES, INC., CAMP HILL, PA.

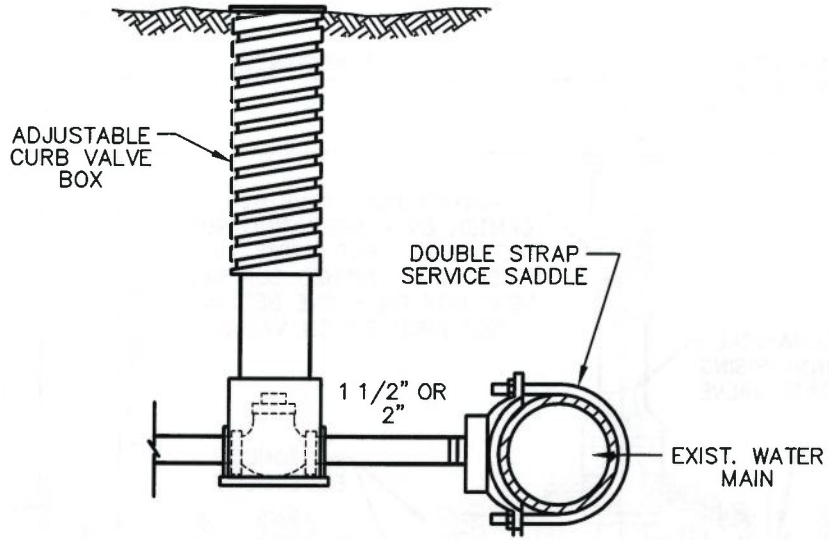
CENTER ADJUSTABLE ARCH STYLE CURB BOX OVER OPERATING NUT OF VALVE. SET PLUMB AND FLASH WITH FINISHED SURFACE. REST CURB BOX BASE ON CONCRETE BLOCK.



**WATER SYSTEM DETAIL W2.
WATER SERVICE CONNECTION**

<p>HALIFAX AREA WATER AND SEWER AUTHORITY (HAWASA)</p>
<p>DEVELOPER'S STANDARD CONSTRUCTION DETAIL</p>
<p>GLACE ASSOCIATES, INC., CAMP HILL, PA.</p>

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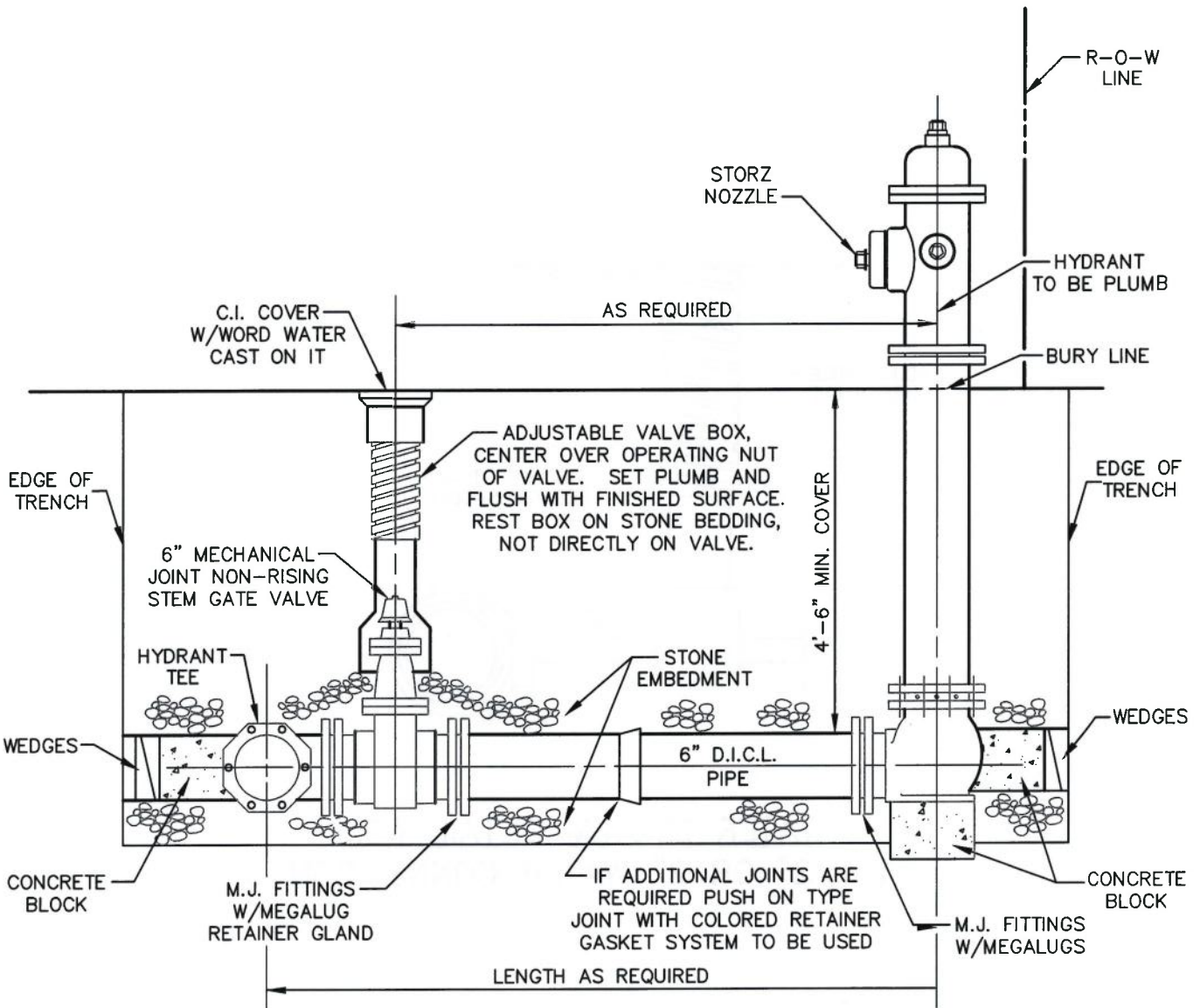


WATER SYSTEM DETAIL W3.
1 1/2" OR 2" WATER CONNECTION

HALIFAX AREA WATER AND SEWER
AUTHORITY (HAWASA)

DEVELOPER'S STANDARD
CONSTRUCTION DETAIL

GLACE ASSOCIATES, INC., CAMP HILL, PA.



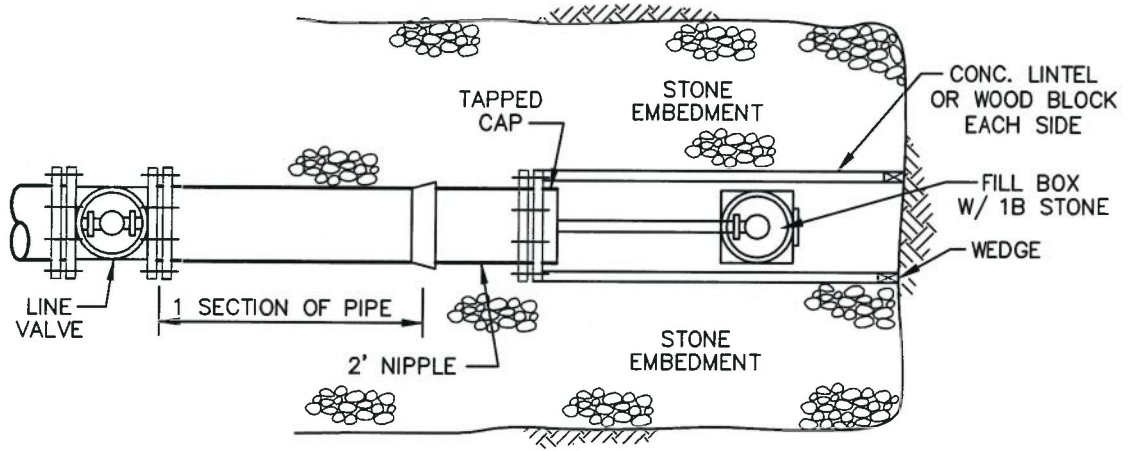
**WATER SYSTEM DETAIL W4.
FIRE HYDRANT ASSEMBLY**

HALIFAX AREA WATER AND SEWER
AUTHORITY (HAWASA)

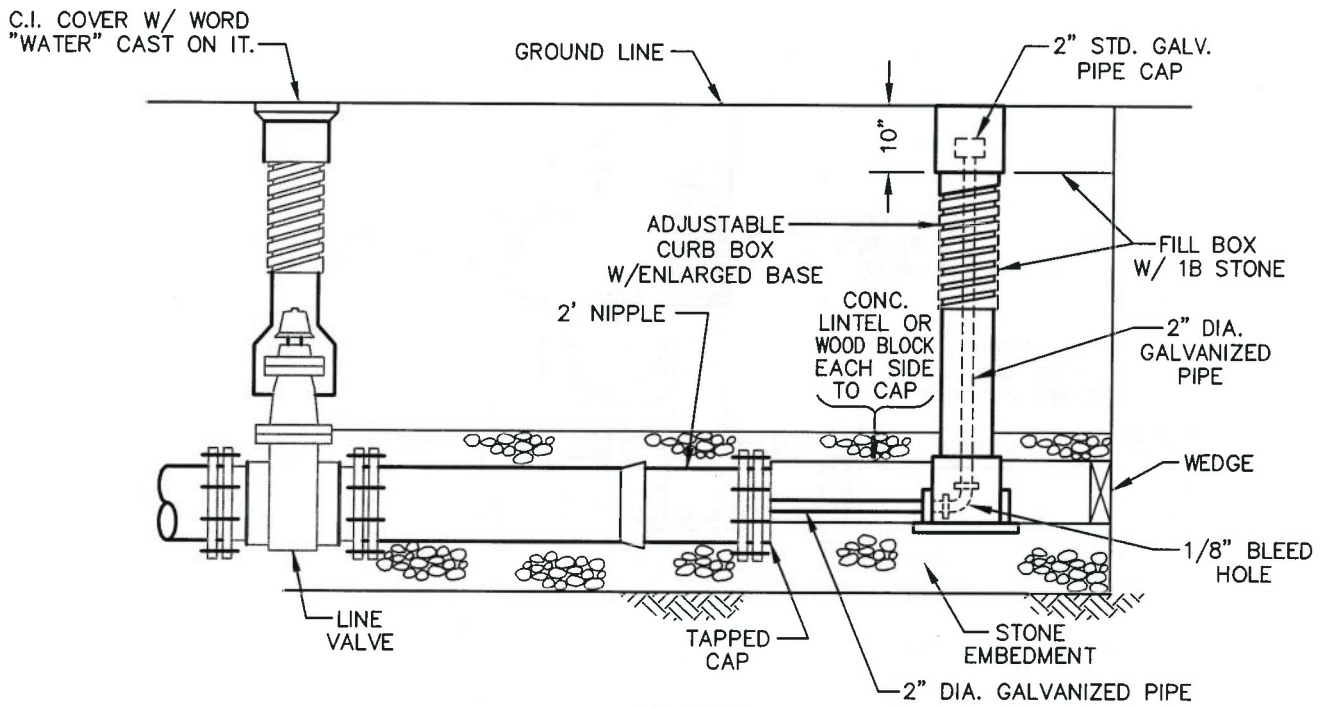
DEVELOPER'S STANDARD
CONSTRUCTION DETAIL

GLACE ASSOCIATES, INC., CAMP HILL, PA.

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PLAN



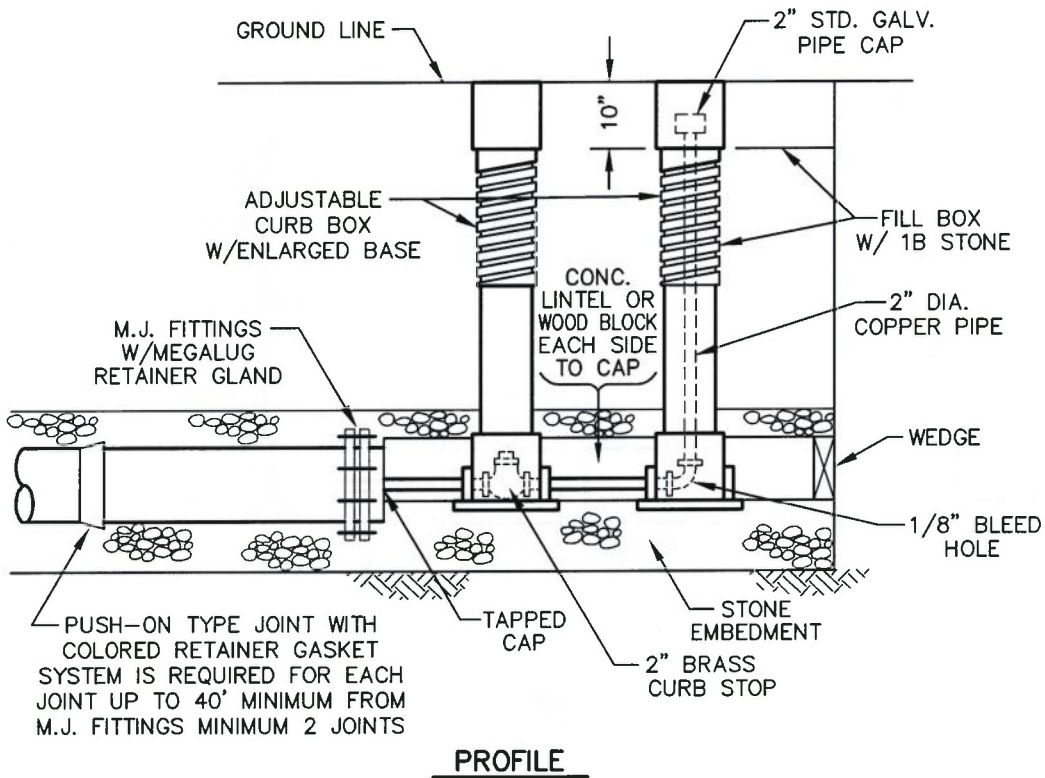
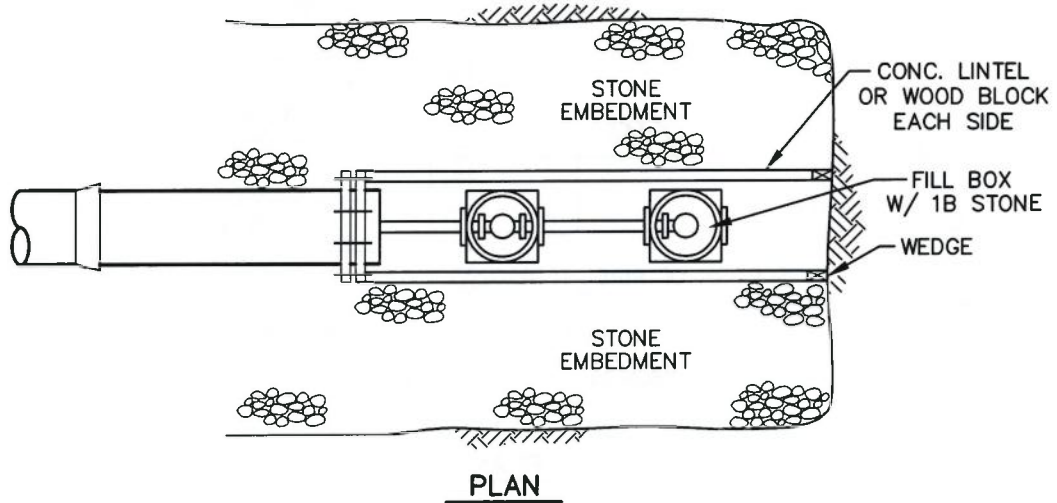
PROFILE

**WATER SYSTEM DETAIL W5.
TEMPORARY BLOWOFF INSTALLATION**

HALIFAX AREA WATER AND SEWER
AUTHORITY (HAWASA)

**DEVELOPER'S STANDARD
CONSTRUCTION DETAIL**

GLACE ASSOCIATES, INC., CAMP HILL, PA.

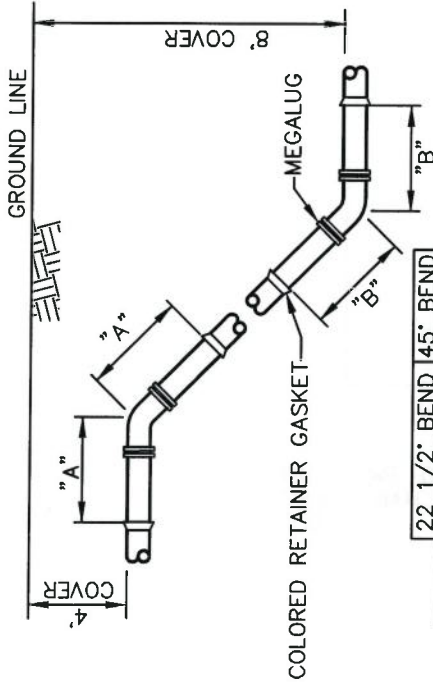


**WATER SYSTEM DETAIL W6.
PERMANENT BLOWOFF INSTALLATION**

HALIFAX AREA WATER AND SEWER
AUTHORITY (HAWASA)

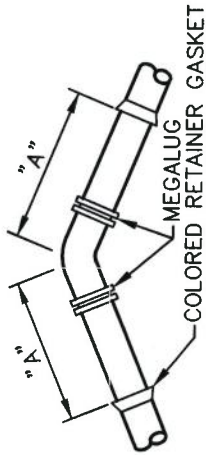
**DEVELOPER'S STANDARD
CONSTRUCTION DETAIL**

GLACE ASSOCIATES, INC., CAMP HILL, PA.



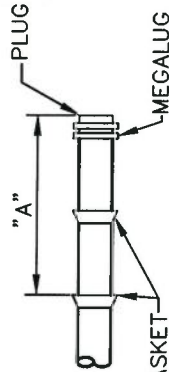
D.I.C.L.	22 1/2° BEND		45° BEND	
	"A"	"B"	"A"	"B"
4"	4'	1'	9'	3'
6"	6'	2'	12'	3'
8"	8'	2'	16'	4'
10"	9'	3'	19'	5'
12"	11'	3'	22'	6'
16"	14'	4'	28'	7'

VERTICAL BENDS



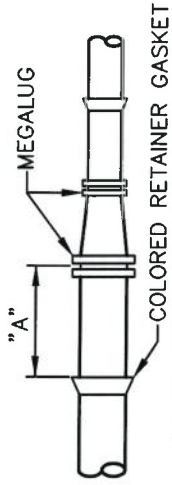
D.I.C.L.	"A" DIMENSION				
	11°	1/4°	22 1/2°	45°	90°
4"	1'	2'	4'	10'	10'
6"	2'	3'	6'	14'	18'
8"	3'	4'	8'	18'	21'
10"	3'	5'	11'	25'	32'
12"	4'	7'	14'	32'	

HORIZONTAL BENDS



D.I.C.L.	"A"
4"	20'
6"	29'
8"	38'
10"	45'
12"	53'
16"	68'

DEAD ENDS



D.I.C.L.	"A"	D.I.C.L.	"A"
6"X4"	15'	12"X6"	39'
8"X4"	27'	12"X8"	28'
8"X6"	16'	12"X10"	16'
10"X4"	37'	16"X4"	63'
10"X6"	28'	16"X6"	57'
10"X8"	15'	16"X8"	50'
12"X4"	46'	16"X10"	41'
		16"X12"	29'

REDUCERS

NOTE:

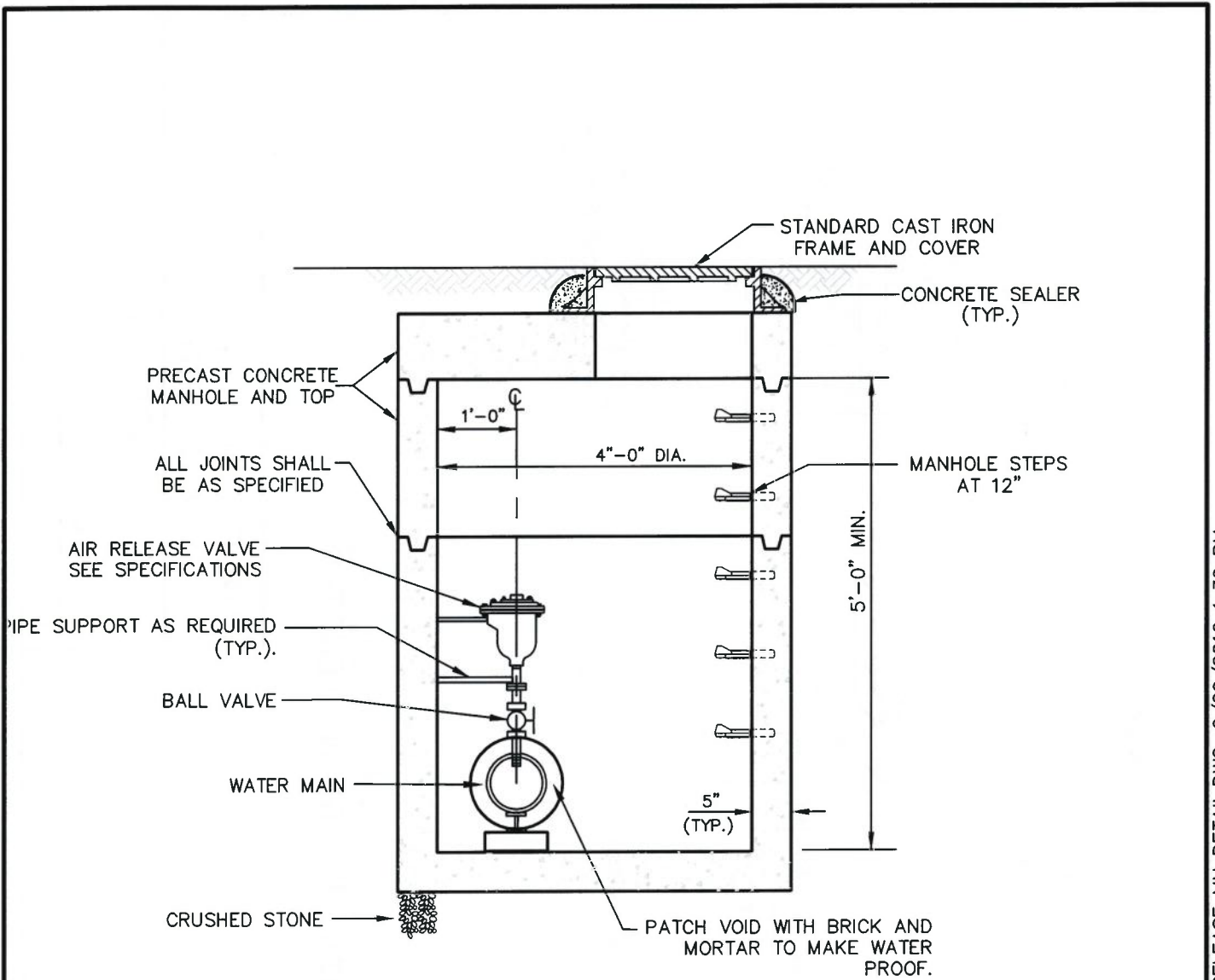
- SCHEDULES INDICATE THE DISTANCE OF PIPE LENGTHS TO BE RESTRAINED ON EACH SIDE OF FITTING.
- FOR CONDITIONS OTHER THAN THOSE PRESENTED ON THESE TABLES, CONSULT ENGINEER.

**WATER SYSTEM DETAIL W7.
JOINT RESTRAINT LENGTHS**

HALIFAX AREA WATER AND SEWER
AUTHORITY (HAWASA)

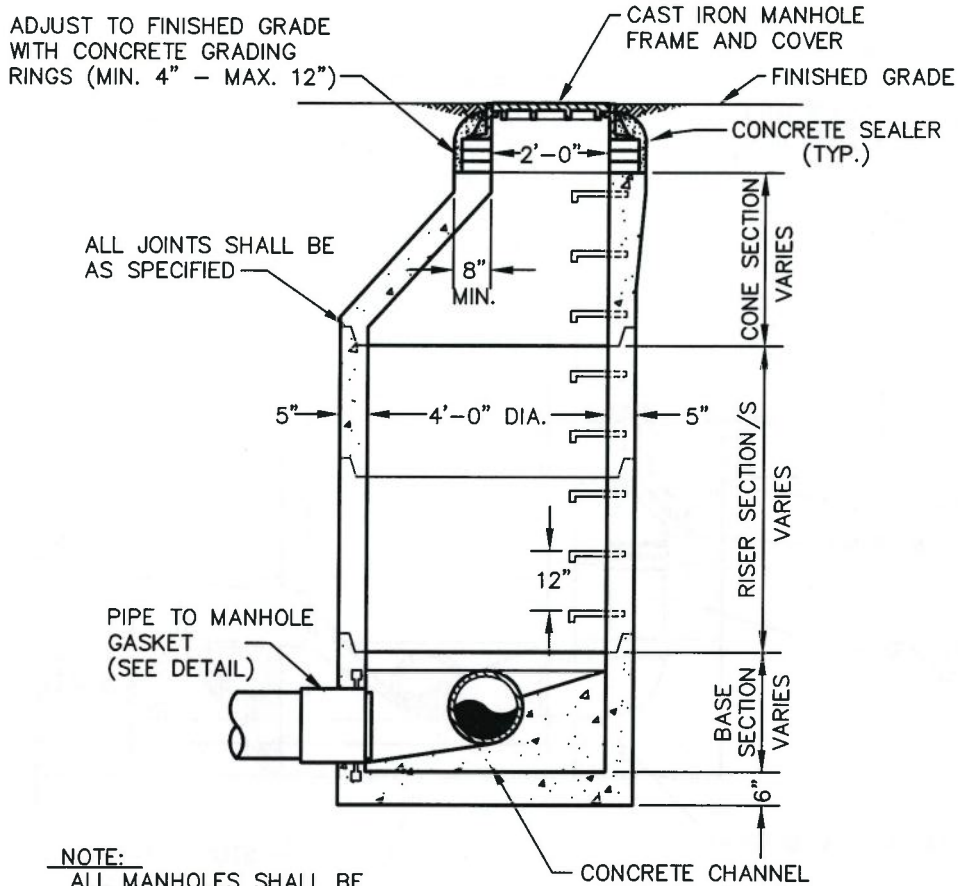
DEVELOPER'S STANDARD
CONSTRUCTION DETAIL

GLACE ASSOCIATES, INC., CAMP HILL, PA.



WATER SYSTEM DETAIL W8.
WATER SYSTEM AIR RELEASE/VACUUM RELIEF VALVE AND MANHOLE

HALIFAX AREA WATER AND SEWER AUTHORITY (HAWASA)
DEVELOPER'S STANDARD CONSTRUCTION DETAIL
GLACE ASSOCIATES, INC., CAMP HILL, PA.

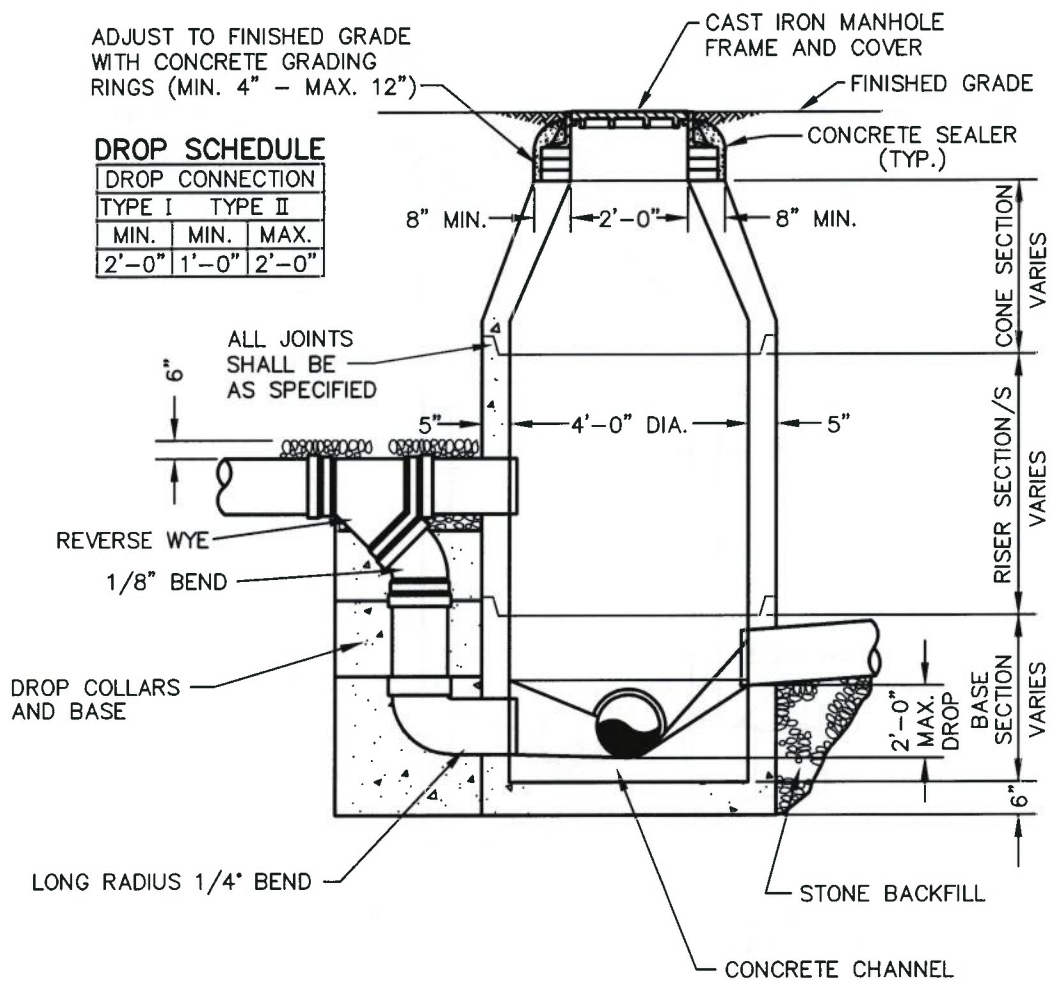


NOTE:
 ALL MANHOLES SHALL BE REINFORCED MECHANICALLY VIBRATED PRECAST CONCRETE AND CONFORM TO ASTM SPEC. C478.

**SEWER SYSTEM DETAIL S1.
 PRECAST REINFORCED
 CONCRETE MANHOLE**

<p>HALIFAX AREA WATER AND SEWER AUTHORITY (HAWASA)</p>
<p>DEVELOPER'S STANDARD CONSTRUCTION DETAIL</p>
<p>GLACE ASSOCIATES, INC., CAMP HILL, PA.</p>

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DROP SCHEDULE

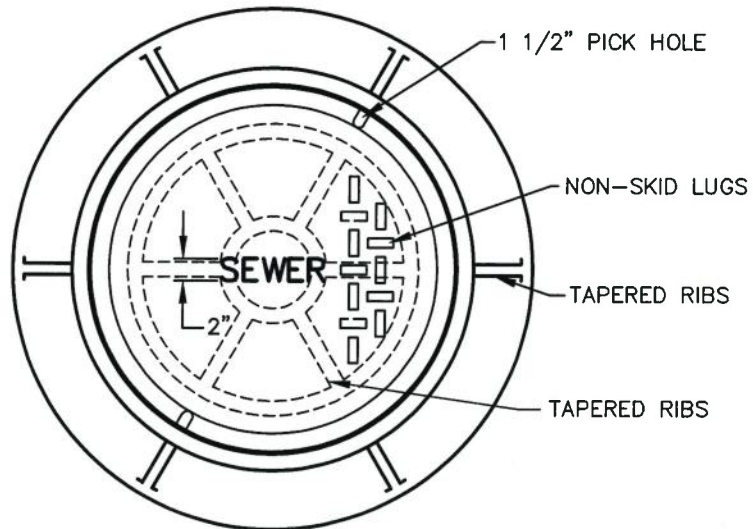
DROP CONNECTION		
TYPE I	TYPE II	
MIN.	MIN.	MAX.
2'-0"	1'-0"	2'-0"

TYPE I TYPE II

**SEWER SYSTEM DETAIL S2.
 PRECAST REINFORCED
 CONCRETE DROP MANHOLE**

<p>HALIFAX AREA WATER AND SEWER AUTHORITY (HAWASA)</p>
<p>DEVELOPER'S STANDARD CONSTRUCTION DETAIL</p>
<p>GLACE ASSOCIATES, INC., CAMP HILL, PA.</p>

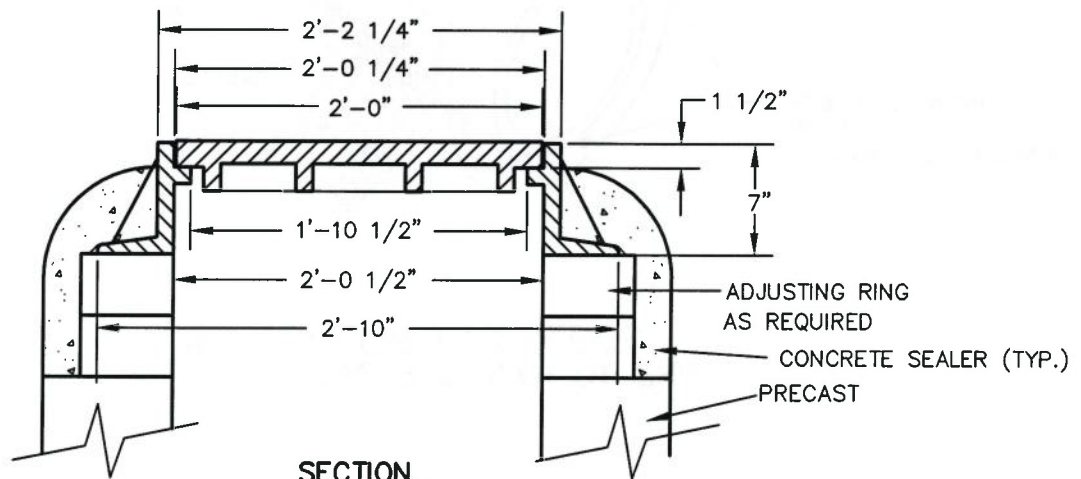
C:\CAD DRAWINGS\607\STANDARD DETAILS\607-S2 PRECAST REINFORCED CONCRETE DROP MH.DWG, 6/29/2016 8:06 AM



PLAN

NOTE:

ALL BEARING SURFACES OF FRAME AND COVER TO BE MILLED. MIN. WT. 260 LBS., COVER SUITABLE FOR HS-25 HIGHWAY LOADS. TOP TO BE SLOPED TO MEET FINISHED GRADE.



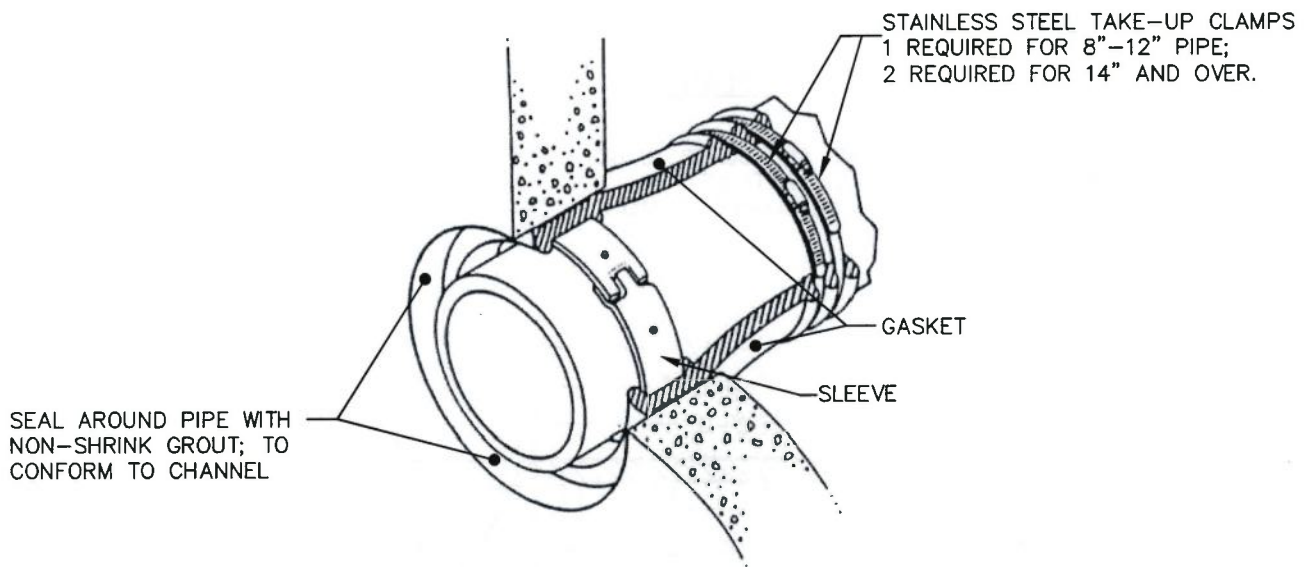
SECTION

SEWER SYSTEM DETAIL S3.
MANHOLE FRAME AND COVER

HALIFAX AREA WATER AND SEWER
AUTHORITY (HAWASA)

DEVELOPER'S STANDARD
CONSTRUCTION DETAIL

GLACE ASSOCIATES, INC., CAMP HILL, PA.

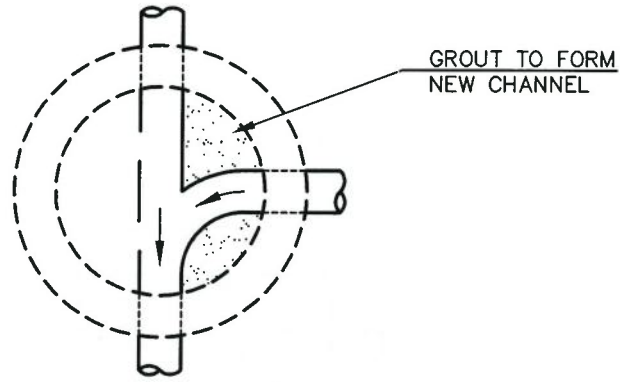


SEWER SYSTEM DETAIL S4.
PIPE TO MANHOLE GASKET DETAIL

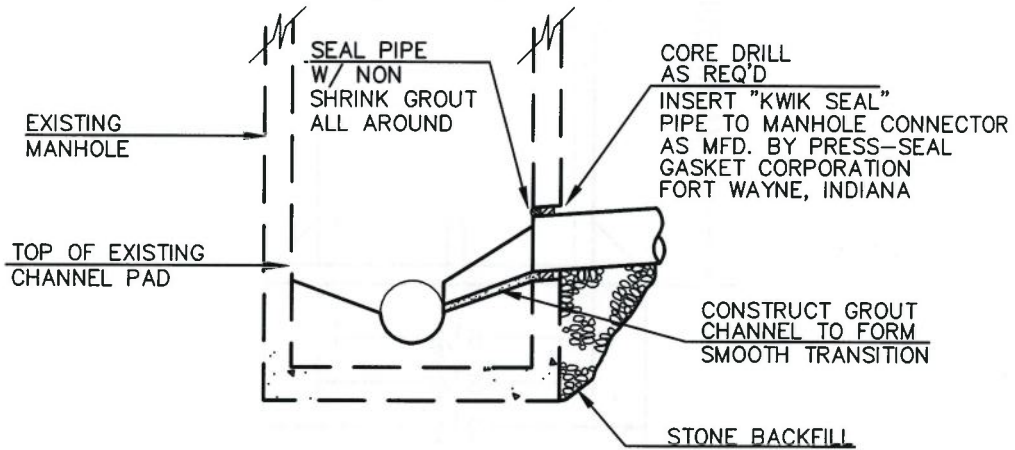
HALIFAX AREA WATER AND SEWER
 AUTHORITY (HAWASA)

DEVELOPER'S STANDARD
 CONSTRUCTION DETAIL

GLACE ASSOCIATES, INC., CAMP HILL, PA.



PLAN



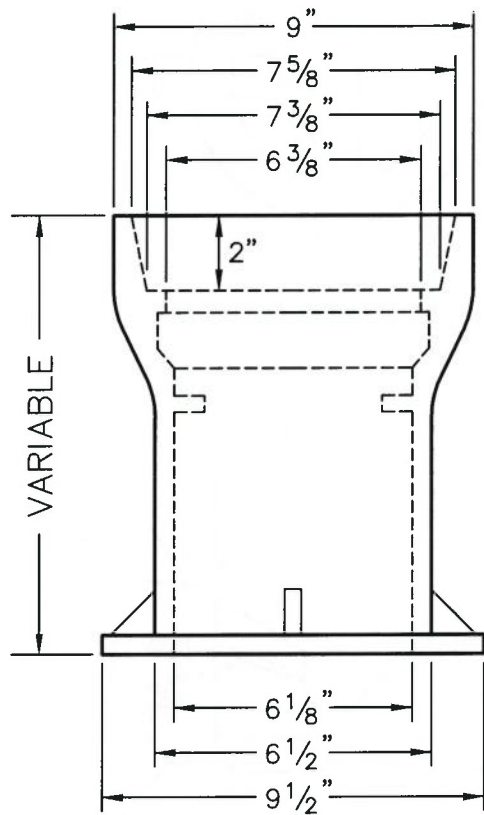
SECTION

**SEWER SYSTEM DETAIL S5.
CONNECTION TO EXISTING MANHOLE**

HALIFAX AREA WATER AND SEWER
AUTHORITY (HAWASA)

DEVELOPER'S STANDARD
CONSTRUCTION DETAIL

GLACE ASSOCIATES, INC., CAMP HILL, PA.

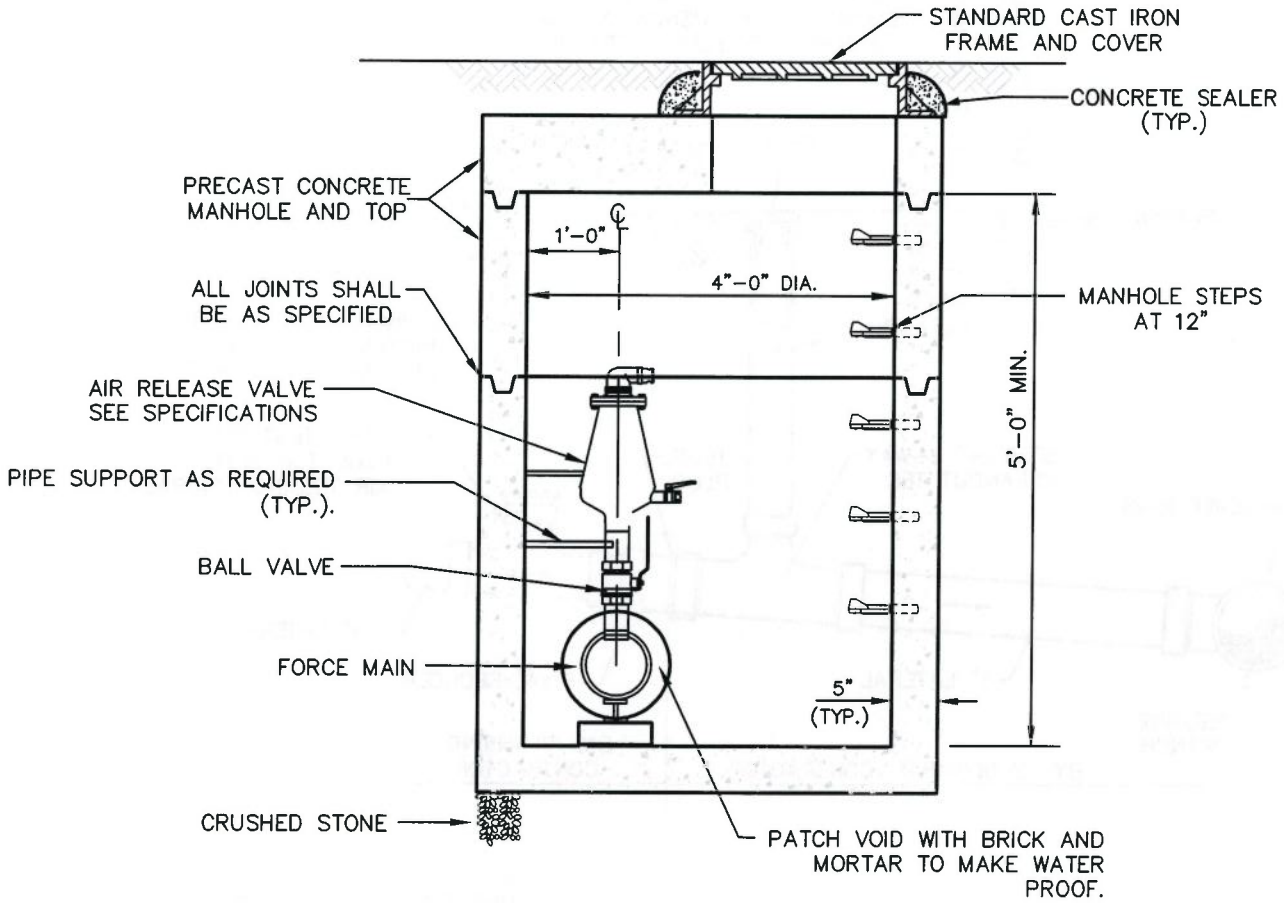


SEWER SYSTEM DETAIL S6.
CAST IRON BOX FOR 4"
LATERAL CLEAN OUT RISER

HALIFAX AREA WATER AND SEWER
 AUTHORITY (HAWASA)

DEVELOPER'S STANDARD
 CONSTRUCTION DETAIL

GLACE ASSOCIATES, INC., CAMP HILL, PA.

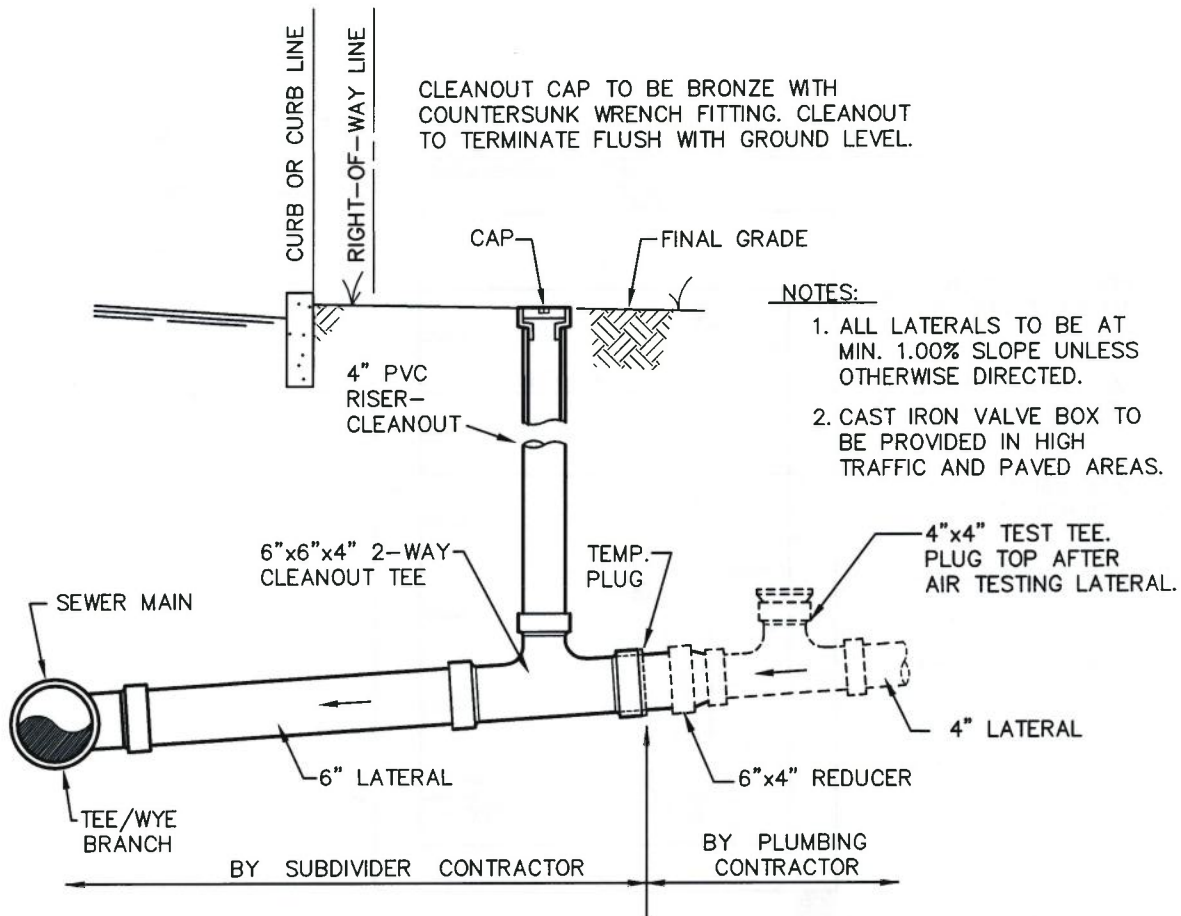


**SEWER SYSTEM DETAIL S7.
SEWER AIR RELEASE/VACUUM RELIEF
VALVE AND MANHOLE**

HALIFAX AREA WATER AND SEWER
AUTHORITY (HAWASA)

**DEVELOPER'S STANDARD
CONSTRUCTION DETAIL**

GLACE ASSOCIATES, INC., CAMP HILL, PA.

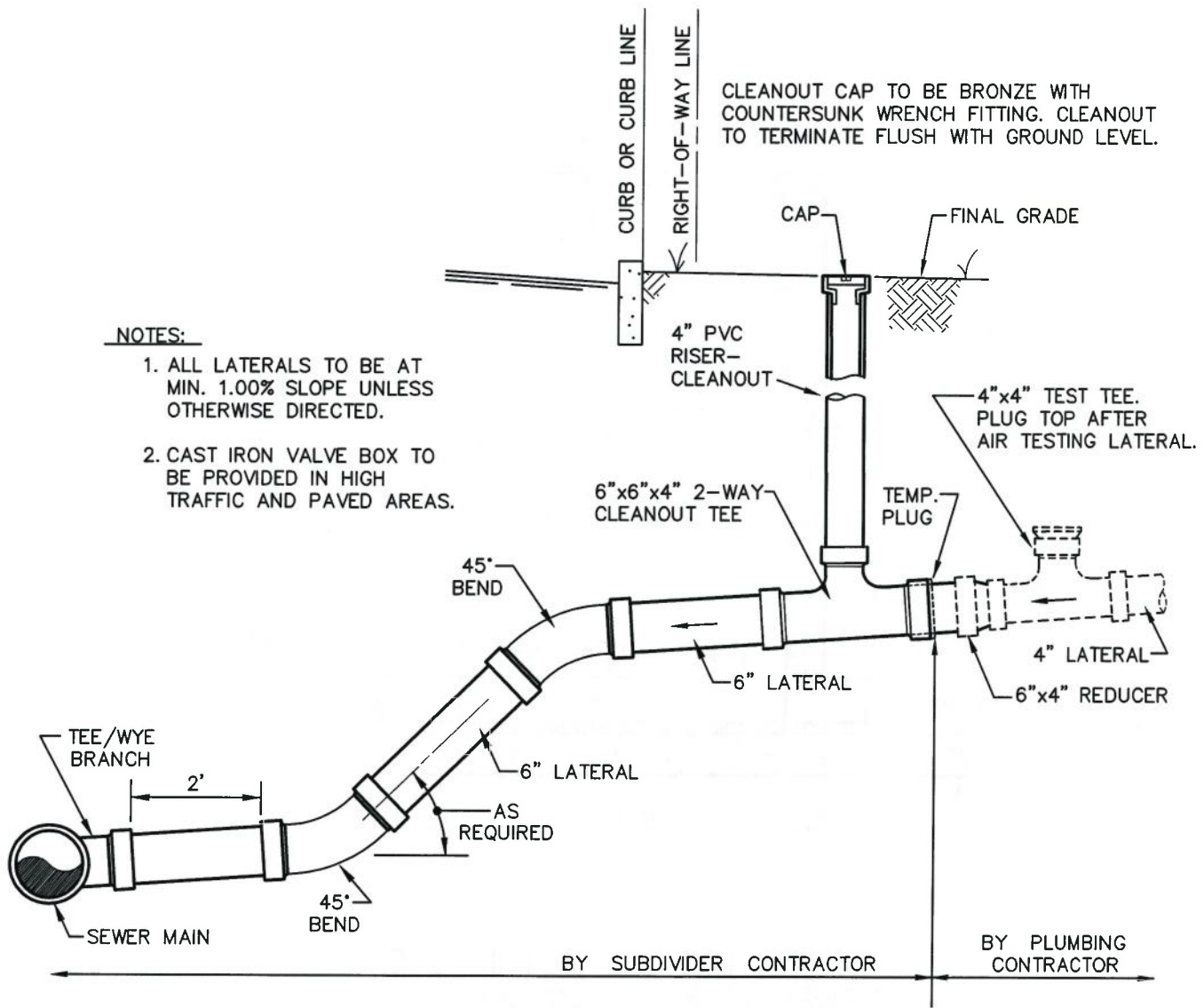


NOTE:
 COMMERCIAL/INDUSTRIAL INSTALLATION TO BE ALL 6" FITTINGS AND PIPE, EXCEPT CLEAN OUT RISERS.

**SEWER SYSTEM DETAIL S8.
 SERVICE LATERAL AND CLEANOUT
 AT SHALLOW SEWER MAIN**

<p>HALIFAX AREA WATER AND SEWER AUTHORITY (HAWASA)</p>
<p>DEVELOPER'S STANDARD CONSTRUCTION DETAIL</p>
<p>GLACE ASSOCIATES, INC., CAMP HILL, PA.</p>

O:\CAD DRAWINGS\607\STANDARD DETAILS\607-S8 SEWER LATERAL AT SHALLOW MAIN.DWG, 6/29/2016 8:43 AM



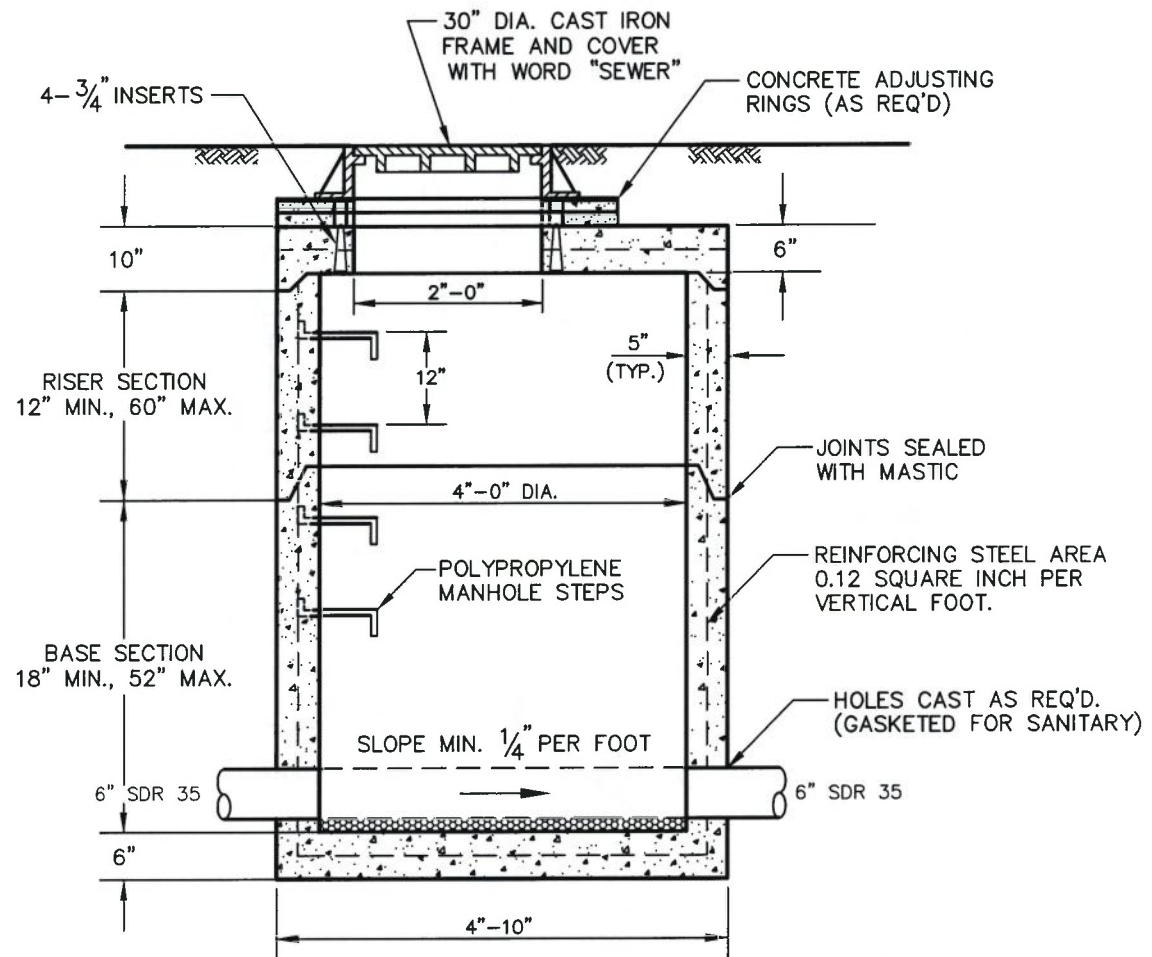
- NOTES:**
1. ALL LATERALS TO BE AT MIN. 1.00% SLOPE UNLESS OTHERWISE DIRECTED.
 2. CAST IRON VALVE BOX TO BE PROVIDED IN HIGH TRAFFIC AND PAVED AREAS.

NOTE:
 COMMERCIAL/INDUSTRIAL INSTALLATION TO BE ALL 6" FITTINGS AND PIPE, EXCEPT CLEAN OUT RISERS.

**SEWER SYSTEM DETAIL S9.
 SERVICE LATERAL AND CLEANOUT
 AT DEEP SEWER MAIN**

HALIFAX AREA WATER AND SEWER AUTHORITY (HAWASA)
DEVELOPER'S STANDARD CONSTRUCTION DETAIL
GLACE ASSOCIATES, INC., CAMP HILL, PA.

O:\CAD DRAWINGS\607-STANDARD DETAILS\607-S9 SEWER LATERAL AT DEEP MAIN.DWG, 6/29/2016 10:05 AM



SEWER SYSTEM DETAIL S10.
SEWER MONITORING MANHOLE

NOTES:

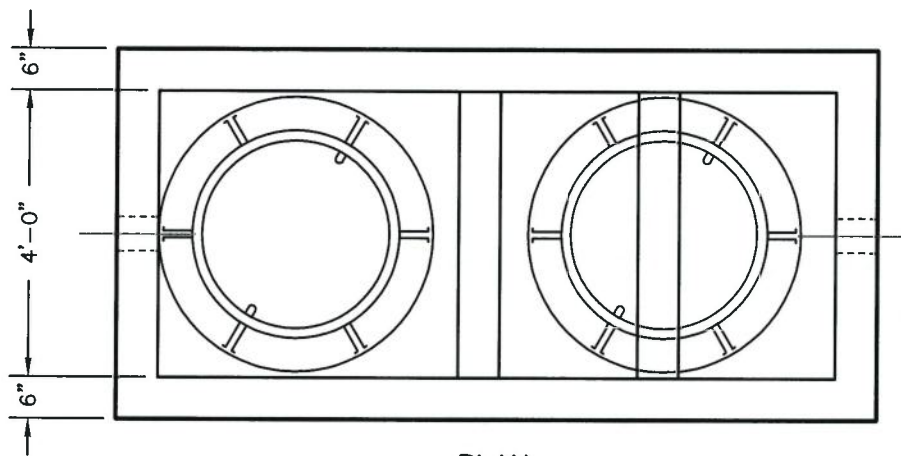
1. THE LAND DEVELOPMENT OR SUBDIVISION PLAN SHALL INCLUDE THE FOLLOWING LANGUAGE:

"THE OWNER OR OWNERS OF THE PREMISES DESCRIBED ON THE PLAN, HEREBY GRANT TO THE HALIFAX AREA WATER AND SEWER AUTHORITY, THEIR SUCCESSORS AND ASSIGNS, A PERMANENT, PERPETUAL, FREE AND UNINTERRUPTED EASEMENT FOR PASSAGE AND RIGHT-OF-WAY FOR INGRESS, EGRESS AND REGRESS TO AND FROM THE MONITORING MANHOLE SHOWN ON THE PLAN FOR THE PURPOSES OF PERFORMING OFFICIAL DUTIES, SAMPLING AND METERING OF WASTEWATER ORIGINATING ON THE PREMISES DESCRIBED ON THE PLAN."

HALIFAX AREA WATER AND SEWER
 AUTHORITY (HAWASA)

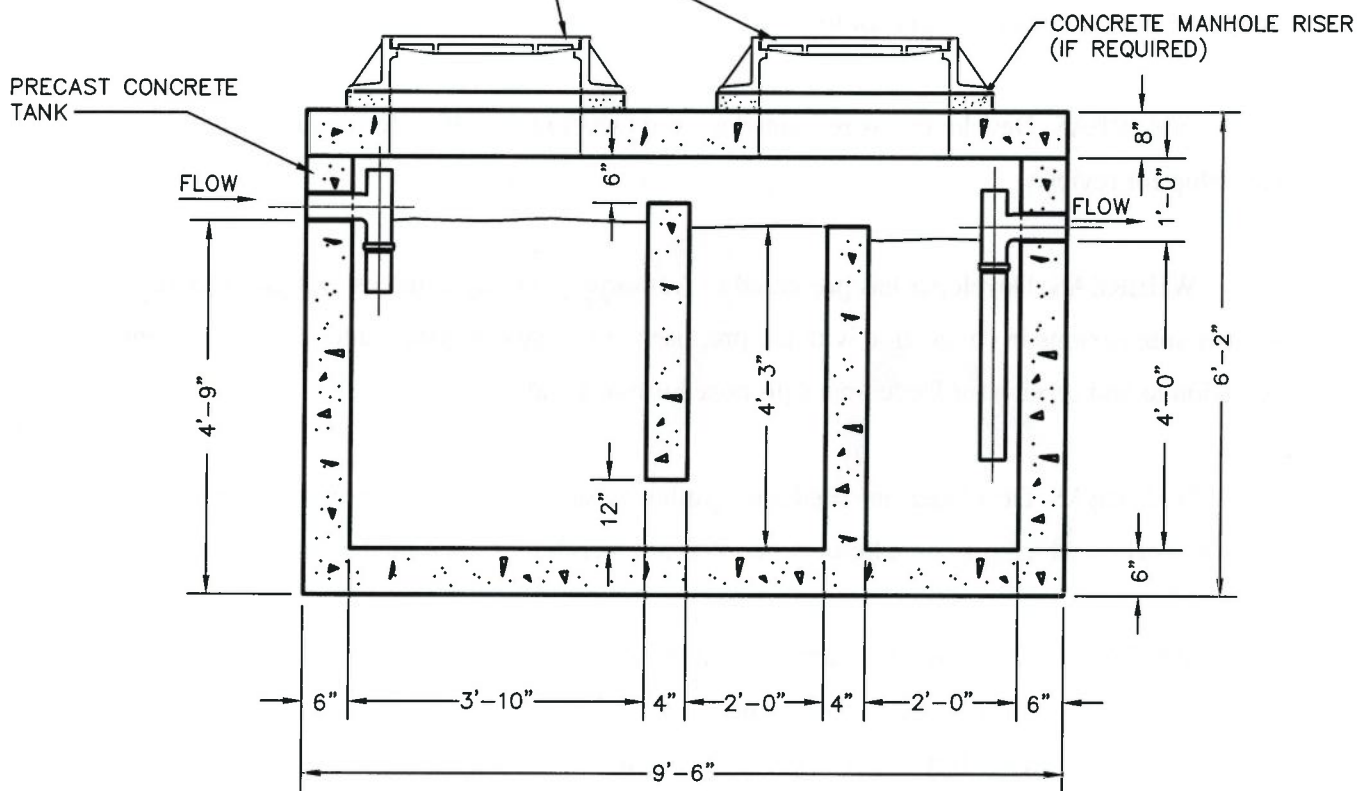
DEVELOPER'S STANDARD
 CONSTRUCTION DETAIL

GLACE ASSOCIATES, INC., CAMP HILL, PA.



PLAN

24" DIA. CAST IRON FRAMES AND COVERS



SECTION

**SEWER SYSTEM DETAIL S11.
1,000 GALLON GREASE INTERCEPTOR***

HALIFAX AREA WATER AND SEWER
AUTHORITY (HAWASA)

**DEVELOPER'S STANDARD
CONSTRUCTION DETAIL**

GLACE ASSOCIATES, INC., CAMP HILL, PA.

* SIZE ACCORDING TO ACTUAL USAGE
(1,000 GALLON MINIMUM).

AGREEMENT

THIS AGREEMENT made this ____ day of _____, 20____, by and between the Halifax Area Water and Sewer Authority, P.O. Box 443, Halifax, Pennsylvania ("Authority") and _____, ("Developer").

W I T N E S S E T H:

WHEREAS, Developer is the applicant and/or legal or equitable owner of a tract of land, located at _____ in Halifax _____ ("_____"), Dauphin County, Pennsylvania ("**Land**");

WHEREAS, Developer has presented a Land Development Plan for the use of Land to Township for review;

WHEREAS, Developer has presented to Authority plans, schematics, designs, modules or other submissions in connection with the proposed public sewer system and/or water system extension to and service for Developer's proposed use of Land;

WHEREAS, Developer has filed with Authority such plans for the proposed sewer and/or water extension, which plans are hereby incorporated by reference and made a part hereof;

WHEREAS, Developer has requested Authority to review said plans and other requests which review will require Authority's Engineer and Solicitor to review, the costs and expenses of which shall be paid by Developer as provided for herein.

NOW THEREFORE, the parties agree as follows:

1. Developer hereby authorizes and directs Authority to review the application and plans and to make such recommendations and determine such specifications as may be necessary with respect to such plans, as required by Authority pursuant to its Regulations and Specifications For Use of the Public Water Supply System

and Sanitary Sewer System.

2. Within ten (10) days of the signing of this Agreement, and prior to starting work, Developer hereby agrees to provide Authority with financial security acceptable to Authority in the form of a Letter of Credit or bond executed by a surety named in the current list of "Companies Holding Certificates of Authority as Acceptable Reinsuring Companies" as published in the latest version of Circular 570 (amended). Said security shall be in the amount shown in the cost estimate designated as **Exhibit A**, which has been reviewed and approved by Authority's engineer, to guarantee the satisfactory and timely completion of all sewage facilities.
3. Within ten (10) days of the signing of this Agreement, and prior to starting work, Developer hereby agrees to deposit with the Authority the sum of _____ Dollars (\$ _____ .00) as escrow deposit ("**Deposit**") for the payment of all costs and expenses, charges and fees, including the Engineer's charges and fees for review of Developer's plans and modules, reasonable legal fees for review by the Authority Solicitor, or other legal consultants, relating to the application for approval of plans, modules or such other permits and reviews as are necessary, administrative costs and expenses, inspection fees, and as-built drawing preparation, which Authority may incur by reason of this agreement. In the event the balance of the escrow account at anytime shall be below fifteen percent (15%) of the original escrow deposit and it appears that costs will be in excess of the remaining balance, Authority shall require an additional escrow deposit sufficient to restore the account balance to the original escrow amount. This additional escrow amount shall be paid by Developer when requested by the Authority.
4. In the event that Authority shall expend or become liable for engineering, legal or administrative costs and expenses in an amount in excess of Deposit, as set forth in Paragraph 3, Developer agrees to promptly deposit such additional sum with Authority as necessary and shall be provided with a detailed statement of account from Authority upon request.
5. Deposit established under Paragraph 3 shall be used by Authority to pay any and

all legal fees charged by the Solicitor for the preparation of legal documents, review of any legal documents, plans, modules or any other legal work authorized by Authority relating to the performance of any of the construction as applied for by Developer.

6. Deposit established under Paragraph 3 shall be used by Authority to pay any and all engineering and legal costs incurred by Authority for the reviews and inspections which may be required for the purpose of ensuring compliance with the plans as filed or the application for permits and to ensure that the work to be performed complies in all respects with the Regulations and Specifications For Use of the Public Water Supply System and Sanitary Sewer System and any other laws and regulations of the Commonwealth of Pennsylvania, of the United States, or any other regulations or laws required for the work to be performed at Developer's property.
7. Developer shall obtain appropriate insurance acceptable to Authority, which shall include, but not be limited to, worker's compensation, comprehensive general liability, comprehensive automobile liability, owner's protective liability, excess/umbrella liability, bodily injury (BI) and property damage (PD), in respect to this project. Proof of all necessary insurance coverage shall be submitted to Authority in the form of a Certificate of Insurance prior to the inception of any construction activities conducted by Developer and/or Contractor. Authority and Authority's engineer shall be listed on Certificate as additional insured, in respect to this project.
8. At the completion of the project, Developer will finalize the sewer and/or water drawings to record the project as actually constructed ("record drawings"), and Authority's engineer will update Authority's drawings to incorporate Developer's record drawings, make a final inspection of the entire project, and, if the work is satisfactory, recommend that the sewer extension be accepted by Authority. Prior to and as a condition precedent to Authority's final acceptance of the extension, Developer agrees to provide record drawings to Authority in both hard copy and electronic form, with the electronic version being in the then current version of AutoCAD (or any successor software application) utilized by Authority's

engineer. Developer herewith acknowledges and represents that they have confirmed with Developer's engineer that such drawings, in both hard copy and electronic form, will be provided.

9. Upon completion of the construction and prior to Authority's acceptance of the sewer and/or water extension, Developer shall furnish to Authority a maintenance bond and obligation in the amount of fifteen (15%) percent of the actual cost of said sewer and/or water extension and with surety acceptable to Authority for the faithful maintenance of the said sewer and/or water extension for a period of one and one-half (1- $\frac{1}{2}$) years from the date of Authority's acceptance of said extension, as more fully detailed under Paragraph 11.
10. Prior to and as a condition precedent to Authority's final acceptance of the completed sewer and/or water extension, Developer shall, in a manner acceptable to Authority's Solicitor, tender the full and absolute ownership to Authority, free and clear of all liens and encumbrances, all mains, pipes, fittings, valves, manholes, and appurtenances as required to be constructed in the construction plans and specifications, and title to all easements and rights-of-way through, in or on private property for ingress, egress, maintenance and replacement of the constructed facilities, or for any other purpose whatsoever required by said plans and specifications, all of which shall be subject to the approval of Authority's solicitor. Consideration for the dedication of the sewer facilities shall be based on the sum of One and 00/100 (\$1.00) Dollar in hand paid by Authority to Developer.
11. Authority shall have the right to suspend work for failure to adhere to the project plans and the Regulations and Specifications For Use of the Public Water Supply System and Sanitary Sewer System, and Developer covenants and agrees to indemnify and hold Authority harmless for any damage, cost or loss which may be assessed, billed, incurred or owed by Authority as a result of Developer's delay or failure to adhere to the project plans and the Regulations and Specifications For Use of the Public Water Supply System and Sanitary Sewer System.
12. Developer and Authority acknowledge that this Agreement represents their full understanding and that they each intend to be legally bound hereby.

IN WITNESS WHEREOF, and intending to be legally bound hereby, the parties have caused their respective signatures to be affixed and have their hands and seals hereto the day and year first above written.

DEVELOPER:

Attest:

AUTHORITY:

Attest:

Chairman
Halifax Area Water and Sewer Authority

DRAFT

BY-LAWS OF THE HALIFAX AREA WATER AND SEWER AUTHORITY

ARTICLE I - THE AUTHORITY

Section 1 - Name of Authority. The name of the Authority shall be as specified in its Articles of Incorporation, to wit, the Halifax Area Water and Sewer Authority.

Section 2 - Seal of Authority. The seal of the Authority shall contain the name of the Authority and the year of its incorporation, and shall be in the form of the seal impressed in the margin hereof, opposite this section.

Section 3 - Office of Authority. The Office of the Authority shall be at the Halifax Borough Office Building in Halifax, Pennsylvania, but the Board of the Authority, by proper resolution, may designate any other place as the Office of the Authority.

Section 4 - Purpose of Authority. The purposes of the Authority are as set forth in its Articles of Incorporation filed March 30, 2007, under and pursuant to Act 22 of 2001, known as the Municipality Authorities Act, and pursuant to ordinances duly enacted by the municipal authorities of the Borough of Halifax and the Township of Halifax, both situate in Dauphin County, Pennsylvania, expressing the intention and desire of the municipal authorities of said municipalities to organize an Authority, jointly for the provision of public water and public sewer services to the residents of said municipalities, under the provisions of said Act.

ARTICLE II - OFFICERS

Section 1 - Officers. The officers of the Authority shall be a Chairman, a Vice Chairman, a Secretary and a Treasurer, to be elected from the members of the Board of the Authority; provided, however, that the Secretary and Treasurer need not be a member of the Board. The Board shall have the right, if it desires, to designate an Assistant Secretary and an Assistant Treasurer.

Section 2 - Chairman. The Chairman shall preside at all meetings of the Board of the Authority. Except as otherwise authorized by resolution of the Board of the Authority, the Chairman shall sign all contracts, deeds and other instruments made by the Authority. At each meeting the Chairman shall submit such recommendations and information as he or she may consider proper concerning the business, affairs and policies of the Authority.

Section 3 - Vice Chairman. The Vice Chairman shall perform the duties of the Chairman in the absence or incapacity of the Chairman, and in case of the resignation or death of the Chairman, the Vice Chairman shall perform such duties as are imposed on the Chairman until such time as the Board of the Authority shall appoint a new Chairman.

Section 4 - Secretary. The Secretary shall keep the records of the Authority, shall act as Secretary of the meetings of the Board of the Authority and record all votes and shall keep a record of the proceedings of the Board of the Authority in a journal of proceedings to be kept for such purpose, and shall perform all duties incident to his or her office. The Secretary shall keep in safe custody the seal of the Authority, and shall have power to affix

such seal to all proceedings and resolutions of the Board of the Authority and to all contracts and instruments authorized to be executed by the Authority.

Section 5 - Treasurer. The Treasurer shall have the care and custody of all funds of the Authority, and shall deposit the same in the name of the Authority in such bank or banks as the Board of the Authority may select. The Treasurer shall sign all orders and checks for the payment of money, and shall pay out and disburse such moneys under the direction of the Board of the Authority. Except as otherwise authorized by resolution of the Board of the Authority, all such orders and checks shall be countersigned by the Chairman or by the Vice Chairman, in the event the chairman is absent or unavailable. The Treasurer shall keep regular books of accounts showing receipts and expenditures, and shall render to the Board of the Authority at each regular meeting (or more often when requested) an account of the Authority's transactions and also of the financial condition of the Authority. The Treasurer shall give such bond for the faithful performance of his or her duties as the Board of the Authority may determine.

Section 6 - Additional Duties. The Officers of the Authority shall perform such other duties and functions as may from time to time be required by the Board of the Authority or the By-Laws or Rules and Regulations of the Authority.

Section 7 - Election or Appointment. The Chairman and Vice Chairman shall be elected at the Annual Organizational meeting of the Board of the Authority from among the members of the Board of the Authority and shall hold office for one year or until their

successors are elected and qualified. The Secretary and Treasurer shall also be elected at the said Annual Organizational meeting, provided, however, that the Secretary and Treasurer need not be members of said Board. The Office of Secretary and Treasurer may be held simultaneously by the same individual.

Section 8 - Vacancies. Should the office of Chairman, Vice-Chairman, become vacant, the Board of the Authority shall elect a successor from its membership at the next regular meeting, and such election shall be for the unexpired term of said Office. Should the Office of the Secretary or Treasurer become vacant, the Board of the Authority shall elect a successor at the next regular meeting and such election shall be for the unexpired term of said Office.

Section 9 - Additional Personnel. The Authority may from time to time employ such personnel as it deems necessary to exercise its powers, duties and functions, as prescribed by Act 22 of 2001, known as the Municipality Authorities Act, as from time to time amended, and all other laws of the Commonwealth of Pennsylvania applicable thereto. The selection and compensation of such personnel shall be determined by the Board of the Authority subject to the laws of the Commonwealth of Pennsylvania.

Section 10 - Bond. The Treasurer of the Authority shall provide a bond for the faithful performance of his or her duties in the amount of \$ _____ which bond shall be approved by the Board of the Authority and the premium for which shall be paid by the Authority.

ARTICLE III - MEETINGS

Section 1 - Annual Organizational Meeting. The Annual Organizational meeting of the Authority shall be held on the 3rd Tuesday of January at 7:00 p.m. at the regular meeting place of said Board of the Authority. In the event such date shall fall on a legal holiday, the annual meeting shall be held on the next succeeding business day.

Section 2 - Parliamentary Authority. To the extent deemed necessary by the Chairman, Robert's Rules of Order, Newly Revised, including small group rules, shall govern the Board of the Authority in its deliberations in all cases in which it is not inconsistent with statute or Board procedures. Said Rules are generally intended to be used as a guide for the purpose of running meetings of the Board of Authority and may be liberally construed, as necessary, to facilitate the orderly holding of meetings by the Board of the Authority.

Section 3 - Quorum. A quorum shall be four (4) Authority members present at a meeting. No business shall be transacted at a meeting without a quorum, but the members at such a meeting may adjourn to another time.

Section 4 - Presiding Officer. The Chairman shall preside at all meetings of the Authority Board. In the absence, disability or disqualification of the Chairman, the vice-Chairman shall act instead. If neither person is present, an Authority member shall be elected Chairman pro tempore by a plurality of those present to preside at that meeting only.

The act of any person so designated shall be legal and binding.

Section 5 - Notice. Notice of all open public meetings of the Board of the Authority shall be given by publication of the date, place and time of such meetings in the newspaper(s) of general circulation designated by the Authority and the posting of such notice at the Authority Offices.

- a. Notice of all open meetings shall be given by the publication and posting of a schedule showing the date, place and time of the fiscal year at least three (3) days prior to the time of the Annual Organizational meeting.
- b. Notice of all special meetings shall be given by publication and posting of notice at the Authority Office at least twenty-four (24) hours prior to the time of the meeting, except that such notice shall be waived when a special meeting is called to deal with an actual emergency.
- c. Notice of all rescheduled meetings shall be given by publication and posting of notice at the Authority Office at least twenty-four (24) hours prior to the time of the meeting.
- d. Notice of all recessed or reconvened meetings shall be given by posting a notice at the Authority Office of the place, date and time of meeting and sending copies of such notice to interested parties.
- e. Notice of all public meetings shall be given to any newspaper(s) circulating in Dauphin County or to a radio or television station which so requests.

Notice of all public meetings shall be given to any individual who so requests and provides a stamped, addressed envelope for such notification.

- f. Notice of all regular and special meetings of the Board of the Authority shall be given to Authority members by mail or telephone not later than three (3) days prior to the time of the meeting.

Section 6 - Regular Meetings. Regular meetings of the Board of the Authority shall be public and shall be held at 7:00 p.m. on the third Tuesday of each month, unless otherwise noted.

- a. It shall be the responsibility of the Secretary in conjunction with the Chairman to prepare an agenda of the items of business to come before the Board of the Authority at each regular meeting. The agenda, together with necessary reports, shall be provided to each member at least three (3) days before the meeting.
- b. Order of Business - At the regular meetings of the Board of the Authority, the following shall be the order of business:
 - I. Call to Order
 - II. Pledge of Allegiance
 - III. Role Call
 - IV. Public Comment/Business from the Floor
 - V. Secretary's Report

a. Approve Minutes of previous meeting

VI. Treasurer's Report

VII. Engineer's Report

VIII. Solicitor's Report

IX. Operator's Report

X. Old Business

XI. New Business

XII. Review and Authorize Payment of Bills

XIII. Public Comment

XIV. Adjournment

All resolutions shall be in writing, and shall be copied in the journal of the proceedings of the Board of the Authority.

Section 7 - Special Meetings. Special meetings shall be public and may be called for special or general purposes.

a. The Chairman can call a special meeting at any time and can call a Special Meeting upon the presentation of written requests of two (2) of the Board of the Authority members. If the Chairman's fails or refuses to call a Special Meeting after being requested to do so, a Special Meeting may be called by a majority of the members of the Board of the Authority members.

b. The order of business at a Special Meeting shall be as follows unless altered

by the Chairman or a majority of those present and voting:

- I. Call to Order
- II. Role Call
- III. Announcement
- IV. Reading of Notice of Meeting
- V. Transaction of Business for which Meeting was Called
- VI. Adjournment

Section 8 - Hearing of Citizens. A member of the public present at an open a meeting of the Authority may address the Board of the Authority in accordance with the Board's Rules regarding public comment. If the Board does not adopt rules regarding public comment, each member of the public desiring to make a comment or comments during an open meeting of the Board of the Authority shall be given a reasonable opportunity to do so.

Section 9 - Voting. All motions shall require for adoption a majority vote of those Authority Board members present and voting. The voting on all questions coming before the Board of the Authority shall be by role call, and the ayes and nays shall be entered upon the Minutes of such meeting unless the vote is unanimous of all members present, and in that case, the Minutes shall so indicate.

Section 10 - Minutes. The Secretary of the Authority shall cause to be made and retain as a permanent record of the Authority Minutes of all open meetings of the Board of the Authority. Said Minutes shall be comprehensible and complete and shall show:

- a. the date, place and time of the meeting;
- b. the names of members present;
- c. the presiding officer;
- d. the substance of all official actions;
- e. the actions taken;
- f. the recorded votes and a record by individual members of all roll call votes taken; and
- g. the names of all citizens who appeared officially and the subject of their testimony.

The Secretary shall provide each member with a copy of the Minutes of the last meeting no later than three (3) days before the next regular meeting.

The Minutes of meetings of the Board of the Authority shall be approved at the next succeeding meeting and shall be signed by the Secretary of the Board.

Section 11 - Adjournment. The Board of the Authority may at any time adjourn, recess or adjourn to an adjourned meeting at a specified date and place, upon the majority vote of those present. The adjourned meeting shall take up its business at the point in the agenda where the motion to adjourn was acted upon.

Section 12 - Executive Session. The Board of the Authority may hold an executive session, which is not an open meeting, before, during, at the conclusion of an open meeting or at some other time. The presiding officer shall first announce the reason for holding the

executive session.

The Board of the Authority may recess for an executive session during the course of a public meeting.

The Board of the Authority may discuss the following matters in executive session:

- a. employment issues
- b. labor relations
- c. purchase or lease of real estate
- d. consultation with an attorney or other professional advisor regarding potential litigation or identifiable complaints which may lead to litigation.
- e. matters which must be conducted in private to protect a lawful privilege or confidentiality.

Official actions based on discussions held in executive session shall be taken at a public meeting.

ARTICLE IV - AMENDMENTS

Section 1 - Amendments to By-Laws. The By-Laws of the Authority shall be amended only with the approval of a majority of the members of the Board of the Authority at a Regular or Special Meeting.

COMMONWEALTH OF PENNSYLVANIA

Department of State

TO ALL WHOM THESE PRESENTS SHALL COME, GREETING:

BE IT KNOWN THAT,

CERTIFICATE OF INCORPORATION

has been granted to the Borough of Halifax and the Township of Halifax evidencing the incorporation of

HALIFAX AREA WATER AND SEWER AUTHORITY

under the authority of Act 22 of 2001, known as the Municipal Authority Act

Filed this 30th day
of March, 2007



Richard A. Cantis

Secretary of the Commonwealth

Entity #: 3721880
Date Filed: 03/30/2007
Pedro A. Cortés
Secretary of the Commonwealth

ARTICLES OF INCORPORATION

TO: THE SECRETARY OF THE COMMONWEALTH OF PENNSYLVANIA

In compliance with requirements of the Act of Assembly approved June 19, 2001, P.L. 287, No. 22 §1, et seq, known as the Municipality Authorities Act, and pursuant to ordinances, duly enacted by the municipal authorities of the Borough of Halifax and the Township of Halifax, both situate in Dauphin County, Pennsylvania, expressing the intention and desire of the municipal authorities of said municipalities to organize an Authority, jointly, under provisions of said Act, said incorporating municipalities certify:

1. The name of the Authority is "HALIFAX AREA WATER AND SEWER AUTHORITY".

2. The Authority is formed under the provisions of the Act of Assembly approved June 19, 2001, P.L. 287, No. 22 §1, et seq, known as the "Municipality Authorities Act".

3. No other Authority has been organized under the Act of Assembly approved May 2, 1945, P L 382, as amended and supplemented, known as the "Municipality Authorities Act of 1945, or under the Act of Assembly approved June 28, 1935, P.L. 463 as amended and supplemented, or the Act of Assembly approved June 19, 2001, P.L. 287, No. 22 §1, et seq, known as the Municipality Authorities Act and is in existence in or for an incorporating municipality, except for the Halifax Municipal Authority and the Halifax Area Water Authority which are merging into the Halifax Area Authority.

4. The names of the incorporating municipalities are:

- a. Borough of Halifax, Dauphin County, Pennsylvania
- b. Township of Halifax, Dauphin County, Pennsylvania.

5. The names and addresses of all of the municipal authorities of said incorporating municipalities are:

BOROUGH OF HALIFAX

DAUPHIN COUNTY, PENNSYLVANIA

<u>Office</u>	<u>Name</u>	<u>Address</u>
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Commonwealth of Pennsylvania
ARTICLES OF INCORPORATION-MS06LAINR005 15 Page(s)

Mayor	Jeffrey Enders	P.O. Box 547, Halifax, PA 17032
Councilwoman and President of Council	Irene Bahner	P.O. Box 356, Halifax, PA 17032
Councilman and Vice-President of Council	Larry Rank	P.O. Box 538, Halifax, PA 17032
Council Secretary	David Hoover	3311 Peters Mountain Rd. Halifax, PA 17032
Councilman	James Brown	43 North 6 th Street, Halifax, PA 17032
Councilwoman	Bonnie Lidle	P.O. Box 248, Halifax, PA 17032
Councilman	William Hoy	101 South 2 nd Street, Halifax, PA 17032
Councilman	Michael Erdman	635 Market Street, Halifax, PA 17032
Councilwoman	Deanna E. Hoffman	South 4 th Street, Halifax, PA 17032

TOWNSHIP OF HALIFAX

DAUPHIN COUNTY, PENNSYLVANIA

Office	Name	Address
Supervisor and Chairman of Board	Norma Shearer	27 Maple Avenue, Halifax, PA
Secretary of Board	Carolyn L. Nye	730 Rutter Rd., Halifax, PA
Supervisor	Linda Ruff	P.O. Box 302, Halifax, PA
Supervisor	Patricia Kauffman	68 Fuhrman Drive, Halifax, PA
Supervisor	Carol Eppley	63 Lehman Road, Halifax, PA
Supervisor	Michael Decker	370 Tourist Park Rd, Halifax, PA

6. The members of the board of the Authority shall be seven (7) in number, with four (4) members being appointed by the Borough of Halifax and three (3) members being appointed by the Township of Halifax. In the event the number of Township users exceeds the number of Borough users, the issue of representation will be reopened.

7. The names, addresses and terms of office of the first members of the Board of Authority, each of whom is a citizen of the Incorporating municipality by which he is appointed are as follows:

<u>Appointee Name</u>	<u>Address</u>	<u>Municipality</u>	<u>Term of Office</u>
Allen J. Kinsinger	Highland Lane, Halifax, PA	Halifax Borough	1 year
Carl Bahner	P.O. Box 356, Halifax, PA	Halifax Borough	5 years
Larry Rank	P.O. Box 583, Halifax, PA	Halifax Borough	3 years
Jeffrey Enders	P.O. Box 547, Halifax, PA	Halifax Borough	2 years
Jon Miller	3700 Peters Mountain Road	Halifax Township	1 year
Frederick L. Ford, Jr.	221 Hershey Road	Halifax Township	4 years
Kanneth E. Hoover	736 South River Rd, Halifax, PA	Halifax Township	2 years

IN WITNESS WHEREOF, the Borough of Halifax and the Township of Halifax, both situate in Dauphin County, Pennsylvania, each have caused these Articles of Incorporation to be duly executed in its name and in its behalf by its duly authorized officers and its corporate seal to be affixed hereunto and attested by its Secretary, all as of the 9th day of January, 2007

Attest: [Signature]

Borough of Halifax

BY: [Signature]

Attest: [Signature]

Township of Halifax

BY: [Signature]

HALIFAX AREA WATER AND SEWER AUTHORITY

RESOLUTION NO. _____

RESOLUTION OF THE BOARD OF DIRECTORS OF THE HALIFAX AREA WATER AND SEWER AUTHORITY ACKNOWLEDGING THE TERMINATION OF THE HALIFAX AREA WATER AUTHORITY AND THE HALIFAX MUNICIPAL AUTHORITY AND ACKNOWLEDGING AND ACCEPTING THE TRANSFER AND ASSIGNMENT OF ALL RESOLUTIONS, POLICIES, RULES AND REGULATIONS, RATES, CONTRACTS AND AGREEMENTS OF THE HALIFAX AREA WATER AUTHORITY AND THE HALIFAX MUNICIPAL AUTHORITY.

WHEREAS, on _____, 2007, by Resolution No. _____, the Halifax Area Water Authority authorized and approved the termination of the Halifax Area Water Authority and transferred and assigned all of the Resolutions, Policies, Rules and Regulations, rates, contracts and agreements of the Halifax Area Water Authority to the Halifax Area Water and Sewer Authority; and

WHEREAS, on _____, 2007, by Resolution No. _____, the Halifax Municipal Authority approved the termination of the Halifax Municipal Authority and transferred and assigned all of the Resolutions, Policies, Rules and Regulations, rates, contracts and agreements of the Halifax Municipal Authority to the Halifax Area Water and Sewer Authority; and

WHEREAS, all assets and liabilities of the Halifax Area Water Authority and the Halifax Municipal Authority, including all easements and rights-of-way, have been transferred and assigned to the Halifax Area Water and Sewer Authority; and

WHEREAS, the Halifax Area Water and Sewer Authority shall provide public water service and public sanitary sewer service to residents of the Borough of Halifax and residents of the Township of Halifax.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Directors of the Halifax Area Water and Sewer Authority as follows:

1. The Halifax Area Water and Sewer Authority approves and accepts the transfer and assignment of all Resolutions, Policies, Rules and Regulations, rates, contracts and agreements from the Halifax Area Water Authority and the Halifax Municipal Authority.
2. The Halifax Area Water and Sewer Authority shall provide public water service and public sanitary sewer service to residents of the Borough of Halifax and residents of the Township of Halifax.

DULY ADOPTED THIS _____ DAY OF _____, 2007, by the Board of Directors of the Halifax Area Water and Sewer Authority in lawful session duly assembled.

HALIFAX AREA WATER AND SEWER AUTHORITY

BY: _____
Fred Ford - Chairman

ATTEST:

David Hoover, Secretary

(SEAL)

**TOWNSHIP OF HALIFAX
DAUPHIN COUNTY, PENNSYLVANIA**

ORDINANCE NO. 16-4-2016

**AN ORDINANCE OF HALIFAX TOWNSHIP TO IMPLEMENT PUBLIC
SEWER REQUIREMENTS, RULES AND REGULATIONS**

WHEREAS, the Second Class Township Code, 53 P.S. § 67502, authorizes the Township to regulate sewer within the Township;

AND WHEREAS, the Board of Supervisors finds it necessary and in the best interests of the Township to implement public sewer requirements, rules and regulations for the protection, benefit and preservation of the inhabitants of the Township;

BE IT ENACTED AND ORDAINED by the Board of Supervisors of Halifax Township, Dauphin County, Pennsylvania as follows:

SECTION 1 - Definitions

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

AUTHORITY – Halifax Area Water and Sewer Authority, a Pennsylvania Municipal Authority.

BUILDING SEWER – The extension from the sewage drainage system of any structure to the Lateral of any Sewer.

IMPROVED PROPERTY - Any property located within the Township upon which there is erected a structure intended for continuance or periodic habitation, occupancy or use by human beings and from which structure Sanitary Sewage and/or Industrial Waste, shall be discharged.

INDUSTRIAL ESTABLISHMENT - Any room, group of rooms, buildings or other enclosure used or intended for use, in whole, or in part, in the operation of one business enterprise for manufacturing, fabricating, processing, cleaning, laundering or assembling any product, commodity or article or from which Industrial Waste, as distinct from Sanitary Sewage, shall be discharged.

INDUSTRIAL WASTES - Any solid, liquid or gaseous substance or waterborne wastes or form of energy rejected or escaping in the course of any industrial, manufacturing, trade or business process or in the course of the development, recovery or processing of natural resources, as distinct from Sanitary Sewage.

LATERAL - That portion of or place in the Sewer System extending from a Sewer to the curb line, or, if there is no curb line, to the property line of any Improved Property, or if no such Lateral is provided, then "Lateral" shall mean that the point, portion of, or place in, a Sewer which is provided for a connection of any Building Sewer.

OWNER - Any person vested with ownership, legal or equitable, sole or partial, of any Improved Property.

PERSON - Any individual, partnership, company, association, society, trust, corporation or other group or entity.

SANITARY SEWAGE - Normal water-carried household and toilet waste from any Improved Property.

SEWER - Any pipe or conduit constituting a part of the Sewer System used or usable for sewage collection purposes.

SEWER SYSTEM - All facilities, as of any particular time, for collecting, pumping, transporting, treating or disposing of Sanitary Sewage and Industrial Wastes to be owned by the Authority.

TOWNSHIP - Halifax Township, Dauphin County, Pennsylvania, a Township of Second Class and a municipality, acting by and through its Board of Supervisors or authorized representatives.

SECTION 2 - Notice to Connect; Time Limit

Every Improved Property in the Township located within 150 feet from the nearest portion or part of the structure to the Lateral of the Sewer measured in a horizontal straight line shall be connected with such Sewer in such manner as the Authority or Township may order within 180 days after notice to the Owner from the Authority to make the connection for the purpose of discharge of all Sanitary Sewage or Industrial Waste from such Improved Property ("Notice to Connect"). When construction of a new Sewer is initiated and undertaken by the Authority, improved properties have 60 days to connect to the Sewer System after the delivery of the Notice to Connect. Such connection shall be required regardless of whether sewer service is available by gravity or by a pressure connection. All such sewage, after connection, shall be conducted into such Sewer System, subject to such limitations and restrictions as shall be established by the Authority or Township from time to time. Every Improved Property shall be connected separately and independently with the Sewer System through the Lateral connection directly opposite the structure or nearest to it in a downstream direction. Grouping of connections of buildings or town homes shall not be permitted except under special circumstances and for good sanitary reasons, and with permission granted by the Authority, or the Township if authorized by the Authority to do so.

SECTION 3 - Notice of Intent; Right to Defer

A Notice to Connect may be served on Owners of an Improved Property by the Authority after not less than 30 days notice to the Township and the Owners of the Authority's intent to serve the Notice to Connect ("Notice of Intent"). A form of the Notice of Intent is appended hereto and incorporated herein by reference. Subject to the following conditions (A through E), upon receipt of said Notice of Intent, if the Owner can demonstrate to the satisfaction of the Township that the Notice to Connect will cause a significant hardship, then the Township shall have a right to notify the Authority, within 30 days, that the Notice to Connect must be deferred for a period chosen by the Township, not to exceed five years, after receipt of the Notice of Intent. If the Township does not notify the Authority of a deferral of a Notice to Connect within the thirty (30) day period described herein, the Township shall be deemed to have waived its right to defer.

- A. The decision of the Township whether or not to defer service of a Notice to Connect to an Owner is at the sole discretion of the Township.
- B. The Township shall notify every Owner that is subject to a deferral of the period that has been deferred, the necessity of connection to the Sewer when the period expires, and the requirement that the Owner notify any potential purchaser of the property of the deferral.
- C. The right to defer shall apply to all properties in the township.
- D. The Township's right to defer shall apply only with respect to Notices to Connect to Laterals whose construction was initiated and undertaken by parties other than the Authority. The right to defer shall not apply with respect to notices to connect to Laterals whose construction was initiated and undertaken by the Authority.
- E. The right to defer shall not apply where the Township Sewage Enforcement Officer determines that the property in question is not adequately served by a properly functioning on-lot sewage system.

SECTION 4 - Connection Fees

The Authority may directly assess against those Owners who are required to connect to the Sewer System the application fees, connection fees, tapping fees, special facility fees and any other fees pertaining to the connection of Building Sewers with the Sewer System ("Applicable Fees"). Owners subject to deferral shall have the right to pre-pay all Applicable Fees at the prevailing rate at the time notice of deferral is made. If Owners subject to a deferral do not prepay all Applicable Fees in effect at the time of deferral, the amount of all Applicable Fees are those in effect at the time of connection.

SECTION 5 - Authority may make connection and collect fees

If the Owner of any property, after notice from the Authority to make connection of such property with a Sewer System, fails to make such a connection within the time limits established in this ordinance, the Authority may make the connection and may collect the cost thereof, together with any applicable engineering and legal fees, including the costs of collection, in the manner provided by law for the collection of municipal claims.

SECTION 6 - Required acts prior to making connection

No Person shall make or cause to be made any connection of his property with any Sewer until after a Notice to Connect has been issued and until he has fulfilled all of the following conditions:

- A. The Person shall notify the Authority of his or her desire and intention to make such connection.
- B. The Person shall pay any Applicable Fees, which shall be payable to the Authority.
- C. The Person shall apply for and obtain a permit to make such connection and, if required, a building permit.
- D. The Person shall give the Authority at least 24 hours prior written notice of the time when such connection shall be made, in order that the Authority, by its authorized agent, can supervise the work of connection. Unless the Authority and Owner agree otherwise, connections shall be made during the normal schedule of the Authority. The schedule of the Authority is Monday through Friday, 7:00 a.m. to 3:00 p.m.

SECTION 7 - Connection method and location; responsibility

All Sewer System connections shall be made at the place where the Lateral or service connection in the Sewer System is provided. All joints shall be sealed and made airtight and shall be made smooth and clean inside so as to provide free flow of sewage matter without obstructions. All sewage related facilities constructed by Owners for connection to the Sewer System shall be constructed according to standards established by the Authority. All work pertaining to the connection with the Sewer System shall be financially and otherwise the responsibility of the Owner of the property with which connection is made, subject to the right of supervision hereby reserved by the Authority, The Owner of every property connecting to the Sewer System shall be responsible for the maintenance and repair of the Building Sewer serving the property from the footer wall to the Lateral. If any affirmative act of the Owner or circumstances originating on the Owner's property damages the Lateral, the Owner shall be responsible for the repair but not for the normal maintenance of the Lateral.

SECTION 8 - Prohibited connections

No person shall connect or cause to be connected with the Sewer System, directly or indirectly, any roof, ground water or surface water, steam exhaust, floor drains, boiler blowoff, sediment drip or any pipe carrying or constructed to carry hot water or acid, germicide, grease, brewery mash, gasoline, naphtha, benzene, oil or any other substance detrimental to the Sewer System or to the operation of the Sewer System.

SECTION 9 - Privy connection prohibited

No privy vault, cesspool, sinkhole, septic tank or similar receptacle for human excrement shall at any time be connected with any of the Sewers.

SECTION 10 - Fees

- A. All Owners of Improved Property who may hereafter connect with a Sewer and have the use of the Sewer System shall pay such fees as shall be established by resolution of the Authority from time to time.
- B. Fees and regulations for connecting, repairing or disconnecting a Sewer shall be decided upon and fixed by the Authority at the time of application.

SECTION 11 - Discontinuance or pretreatment

To prevent discharge to the Sewer System deemed harmful in any respect, the Authority may refuse any request for permission to connect to the Sewer System. The Authority likewise may compel discontinuance of the use of any Sewer or may compel the pretreatment of Industrial Wastes by any establishment where required to prevent discharge to the Sewer System that is deemed harmful in any respect. Such discontinuance or pretreatment shall at all times be subject to such resolution enacted by the Authority relating thereto or to such rules and regulations relating thereto as shall be adopted by resolution or order of the Authority, and failure to observe and comply with such rules and regulations shall be a violation of this Ordinance.

SECTION 12 - Use of sewer system

Notwithstanding any of the terms of this Ordinance, connection to and use of the Sewer System shall at all times be subject to such resolution or ordinance enacted by the Authority or Township relating thereto or to such rules and regulations relating thereto as shall be adopted by resolution or Ordinance of the Authority or Township. Failure to observe such rules and regulations shall be a violation of this Ordinance.

SECTION 13 - Enforcement procedure

Any person who violates the provisions of this Ordinance or any rule, regulation, order or permit issued hereinafter or included herein shall commit a summary offense, subject, upon conviction thereof, to a fine not less than One Hundred Dollars (\$100.00) nor more than Five Hundred Dollars (\$500.00), and not less than Ten Dollars (\$10.00) nor more than Fifty Dollars (\$50.00) per day that connection does not occur in the discretion of the Court plus reasonable attorney's fees and any other fees and costs of enforcement. The violation of any of the provisions of this Ordinance may also be enforced by injunction, including a mandatory injunction and such suit or action may be instituted and maintained in the name of Halifax Township or the Authority, as the case may be. All professional fees and related costs including attorney's fees and engineering fees are collectible in any civil action for injunctive relief.

SECTION 14 - Severability

The provisions of this Ordinance are severable. If any sentence, clause or section of this Ordinance is for any reason found to be unconstitutional, illegal or invalid, such unconstitutionality, illegality or invalidity shall not affect or impair any of the remaining provisions, sentences, clauses or sections of this Ordinance. It is hereby declared to be the intent of the Board of Supervisors of Halifax Township that this Ordinance would have been adopted had such unconstitutional, illegal or invalid sentence, clause or section not been included herein.

SECTION 15 - Repealer

All ordinances or parts of ordinances inconsistent with this Ordinance are hereby repealed insofar as they may be inconsistent herewith.

SECTION 16 - Effective Date

This Ordinance shall be effective immediately.

[Remainder of Page Blank – Signature Follows]

DULY ENACTED AND ORDAINED this 8th day of February, 2016, by the Board of Township Supervisors of Halifax Township in public session duly assembled after public hearing held thereon.

ATTEST:

HALIFAX TOWNSHIP BOARD OF
SUPERVISORS, DAUPHIN COUNTY,
PENNSYLVANIA

Wendy M. Wentzel
Wendy Wentzel, Township Secretary

By: *Kenneth E. Bechtel, II*, Chairman
Kenneth E. Bechtel, II, Chairman

(Township Seal)

SEWER SERVICE AGREEMENT

This AGREEMENT made this 13th day of April, 2015, by and between the TOWNSHIP OF HALIFAX, Dauphin County, Pennsylvania, a Township of the Second Class organized and operating under the laws of the Commonwealth of Pennsylvania, with its offices at 102 Fisher Street, Halifax, Pennsylvania 17032, hereinafter referred to as the "Township," and the HALIFAX AREA WATER AND SEWER MUNICIPAL AUTHORITY a municipality authority incorporated under the laws of the Commonwealth of Pennsylvania with offices located at 203 Armstrong Street, Halifax, Pennsylvania 17032, hereinafter referred to as the "Authority."

RECITATIONS

The Authority owns and operates a wastewater collection system and a wastewater treatment plant, collectively referred to as the "Sewer System," operating under permits issued by the Pennsylvania Department of Environmental Protection (hereinafter "DEP"); and

The Township has determined that certain areas of the Township are not acceptable for on-site sewage disposal and require sewage service; and

The Authority's Sewer System has capacity to provide sewer service to additional customers and can be expanded to provide to Township residents by the Authority; and

The Township desires that the Authority be permitted to administer the operation and use of the Sewer System in a businesslike manner, including the collection of such fees and charges as the Authority has established for connection to and use of the Sewer System, and for the Authority to establish the standards for the construction and maintenance of the parts of the Sewer System so as to make it effective and useful:

NOW THEREFORE, for and in consideration of the mutual promises contained herein, and each party intending to be legally bound hereby, the parties agree and covenant as follows:

Incorporation of Recitations

1. The foregoing Recitations are incorporated into and made a part of this Agreement.

Provision Of Sewer Service Within The Township

2. Subject to the terms and conditions of this Agreement, the Township agrees to allow the Authority to: (1) provide sewer service within the Township; (2) require all sewer construction within the Township for sewers intended to be, or with the potential to become, dedicated to the Authority to meet the Authority's construction standards; and (3) assess and collect fees, charges, and costs from Township residents served or to be served by the Sewer System.

Sewer Service Planning

3. The Township will designate those areas of the Township in which the Authority may provide sewer service by means of delineation of the areas in the Comprehensive Plan adopted under the provisions of the Municipal Planning Code, or in the Sewage Facilities Plan adopted under the provisions of the Sewage Facilities Act. The designated areas may be revised from time to time by revision of the Comprehensive Plan or by adoption of a Sewage Plan Revision or a DEP Module effecting and amendment of the Sewage Facilities Plan.
4. Except as specially provided in this Agreement or as otherwise agreed by the parties in a subsequent agreement, designation by the Township of an area to receive sewer service shall not obligate the Authority to construct and Sewer System facilities or to provide sewer service to such area.
5. The Authority will cooperate with the Township during the planning process by providing necessary information so that the Comprehensive Plan or the Sewage Facilities Plan update or amendment may be completed or revised in a timely and accurate fashion. When a Sewage Facilities Plan is involved, the Township shall include the Authority in its planning activities in an advisory role.
6. The cost of preparing Comprehensive Plan revisions and Sewage Facilities Plan amendments and updates shall be paid as follows:
 - a. All costs associated with making revisions to the Township Comprehensive Plan shall be borne by the Township.
 - b. All costs associated with routine Sewage Facilities Plan Revisions initiated by a DEP Module shall be borne by the Township.
 - c. Costs associated with Sewage Facilities Plan update Revisions undertaken by a formal Plan Update process shall be shared by the Township and the Authority as follows:
 - i. All costs shall be itemized on a Task Activity Report ("TAR") submitted to and approved by the DEP, which may be revised from time to time with DEP approval;
 - ii. During development of the TAR, the Township will cooperate with the Authority to provide a TAR that is acceptable to both parties; should the parties be unable to agree, however, the Township, as the entity regulated by the Sewage Facilities Act, shall have the final word on the contents of the TAR;
 - iii. The engineer that prepares the TAR shall, to the extent practicable,

provide an itemization of those costs associated with Plan elements that are expected to be associated with area on which sewer service by the Authority is planned;

- iv. Upon completion of the Sewage Facilities Plan Update process, and following DEP approval of the revised Sewage Facilities Plan, the engineer will provide a cost breakdown based on actual costs of planning activities associated with areas on which sewer service by the Authority is planned; it is recognized by both parties that the final costs may differ from the cost estimates discussed in item iii above;
 - v. The net DEP-approved planning costs associated with areas in which sewer service by the Authority is planned (after adjustment for any grants received) shall be shared equally by the Township and Authority. Upon presentation of an itemization of these costs to the Authority by the Township, the Authority shall pay its half-share to the Township.
7. This agreement is not exclusive. Should the planning activities identify an entity that can provide sewer service to some portion of the Township that is not being served by, or is not designated to be served by the Authority and is not located within a reasonable distance of the Sewer System, and which the Township determines to be competent and capable of providing such service, the Township may enter into a service agreement with that entity. Provided, however, that those portions of the Township already served by or designated to be served by the Authority shall not be served by another entity unless the Authority agrees otherwise in writing.
- a. For purposes of the above paragraph, the term "those portions of the Township already served by, or designated to be served by the Authority" is hereby defined as areas identified in the Township's Sewage Facilities plan as areas to be served by the Authority, or areas within a reasonable distance of such and identified area such that extension of sewers into the area by the Authority can be done practicably and economically.

Township To Enact A Sewer Service Ordinance As A Condition Precedent

8. The Township will enact an Ordinance (hereinafter, the "Sewer Service Ordinance") that requires all properties on which any portion of the principal residence or building is within one hundred fifty (150') feet of a sewer to connect to the sewer within sixty days of receipt of a notice to connect served on the property owner by the Authority. The Ordinance shall provide that such connections shall be required regardless of whether sewer service is available

by gravity or by a pressure connection.

9. The Sewer Service Ordinance shall provide that all sewage-related facilities constructed by property owners for connection to the Sewer System, or intended to be dedicated to the Township or the Authority, shall be constructed according to the standards established by the Authority.
10. The Sewer Service Ordinance shall provide that a notice to connect ("NTC") may be served on property owners by the Authority after not less than thirty days notice to the Township of the Authority's intent to serve the NTC. Upon receipt of said NTC, the Township shall have the right to notify the Authority that the NTC must be deferred for a period chosen by the Township, not to exceed five years after the receipt of the notice of intent to issue the NTC.
 - a. The right to defer shall apply only to residential properties existing at the time this agreement is executed.
 - b. No right to defer shall apply where the Authority initiates any construction of sanitary sewer lines.
 - c. Should the Township's Sewage Enforcement Officer determine that the property in question is not adequately served by a properly functioning on-lot sewer system, then the Township's right to require deferral of the NTC shall not apply.
 - d. The Authority agrees that the decision of the Township whether or not to defer service of a NTC to a property owner under the terms of the Sewer Service Ordinance and this Agreement shall be at the sole discretion of the Township.
 - e. The Township shall notify every property owner that is subject to a deferral of the period that has been deferred, the necessity of connection to the sewer system when the period expires, and the need to notify a buyer of the property of the deferral.
11. The Sewer Service Ordinance shall provide that upon construction of Sewer Sewer System facilities in the Township, all new construction subject to connection to the Sewer System as set forth above (*i.e.*, where the principal building is within one hundred fifty feet of a sewer) shall be required to obtain a sewer connection permit as required by the Authority before a building permit will be issued by the Township.
12. The Sewer Service Ordinance shall provide that the Authority may directly assess those Township residents who are required to connect to the sewer system the application fees, connection fees, tapping fees, special facility fees, and other fees

(hereinafter collectively referred to as "all applicable fees") as are authorized by law. Property owners subject to a deferral pursuant to Paragraph 10 above shall have the right to pre-pay all applicable fees at the then prevailing rates at the time of such deferral, the amount of all applicable fees paid by such property owners will be the amount in effect at the time of connection.

13. The Sewer Service Ordinance shall provide that the Authority may directly assess Township residents that are served by the Sewer System such service fees and costs as are authorized by law and in accordance with the rates established by the Authority as provided by law.
14. The Sewer Service Ordinance shall provide that the failure of a Township resident to pay such fees or charges as may be due to the Authority shall constitute a summary offense, subject, upon conviction thereof, to such penalties as are authorized by law to be imposed for such offenses.
15. The enactment of a Sewer Service Ordinance substantially as provided above is a condition precedent and failure to enact such an Ordinance within one hundred eighty (180) days of the execution of this Agreement shall render this Agreement void and discharge all of the obligations of the parties hereto; provided, however, that the time limit for enactment may be extended once in writing by the Authority for a period not to exceed an additional one hundred (100) days.
16. The Sewer Service Ordinance, once enacted, shall be kept in full force and effect and shall be enforced as allowed by law so as to effectuate the purposes of this Agreement. Should a violation of the Sewer Service Ordinance be brought to the attention of the Township, the Township will take such action as it determines is necessary to cause the violation to cease.
17. Neither the Sewer Service Ordinance nor by other act of the Township shall affect the right of the Authority to require compliance with its rules and regulations for the construction and use of its sewer system, nor shall it impair the Authority's right to collect fees and charges associated with connection to and use of the Sewer System.

Authority's Obligations

18. The Authority shall construct (or oversee the construction), maintain, and operate the Sewer System in accordance with accepted practices so as to keep it, and all of its components, in good repair and working order and to provide sufficient and reliable sewer service and comply with all applicable laws and regulations, current or future, and all permits, orders and requirements lawfully made by the Environmental Protection Agency, the Pennsylvania Department of Environmental Protection, or other authorized governmental agency.

19. Upon the request of the Township, the Authority shall make available for inspection and copying any and all records related to the construction of the Sewer System or any component thereof within the Township; all records related to the calculation of fees, rates and charges imposed on any Township resident; and all records related to the assessment and collection of rates and charges from any Township resident.

Special Rate Districts In The Township Limited

20. The Authority hereby agrees and covenants that it will not establish special sewer rates for Township residents or "rate districts" within the Township that are different from rates charges to resident of Halifax Borough, unless it first presents information at a regular or special public meeting of the Township Supervisors in support of the establishment of such rates or such a rate district. Such information shall include calculations showing that the provisions of sewer service to the proposed area entails costs that exceed the average cost of service for all other area on a per-EDU basis.

Authority Reserves The Right To Plan Sewage Facilities Expansions/Improvements

21. This Agreement does not obligate the Authority to expand, improve, or augment and Sewage Facilities.
22. The Authority shall, as allowed by available resources, provide sewer service to those area of the Township as provided for by the appropriate planning documents. When an expansion, improvement, or addition to its facilities, including the wastewater treatment plant, is necessary to increase the service, the Authority will conduct such studies and inquiries as are necessary to determine how such an expansion, improvement, or addition can be effectuated in the shortest reasonable time and shall endeavor to construct such expansions, improvements, or additions within such time. Provided, however, that this Agreement does not obligate the Authority to expend resources or incur debt beyond its ability to pay.
23. This Agreement does not constitute a reservation of sewage treatment capacity to any Township residents. Capacity availability and reservation shall be accomplished through the Sewage Facilities Planning process or by other agreements between the Authority and person desiring to obtain such capacity.

Relations Between the Parties

24. The parties hereto covenant and agree that neither shall be liable to the other in damages for a failure to strictly comply with the terms of this Agreement by reason of or resulting from an act of God, riot, sabotage, public calamity, flood, fire, strike, or other event beyond its reasonable control. In the event of damage to the Sewer System from such a cause, the Authority shall proceed promptly to

remedy the consequences of the event at its own cost and expense.

25. Each party hereto agrees to indemnify, defend, and save harmless the other party against all costs, losses, damage, causes of action, or penalties incurred on account of any injury to any person or property occurring in the performance of this Agreement and due to the negligence or wrong doing of the party, including its agents, assigns, contractors, or employees.

This Agreement

26. This Agreement represents the entire agreement between the parties and no prior or contemporaneous agreement, understanding, or communication shall be admissible to prove the terms hereof.
27. This Agreement may only be amended in writing by agreement of the parties.
28. Should any provision of this Agreement for any reason be held to be illegal, unenforceable, void or invalid, no other provision of this Agreement shall be effected and this Agreement shall then be construed and enforced as if such illegal unenforceable, void or invalid provision had not been contained herein.
29. Failure of a party to insist on the strict performance of this Agreement or any of its terms shall not serve as a waiver or a course of dealing in any future dealings with regard to that term or of any other.

Assignment by the Authority

30. This Agreement concerns matters of public health and safety and shall be kept in effect so as to protect health, safety and welfare.
31. The Authority may assign this Agreement to another entity serving the same function of providing sewer service, including another municipality authority, a private enterprise, or a municipality, provided that the assignee shall sign an agreement to abide by the terms of this Agreement and any amendments hereto, and provided that prior to the assignment to the Authority notifies the Township of its intention of doing so.
32. Should the Authority be dissolved as provided by law, this Agreement shall be assigned by the Authority prior to such dissolution to the entity that acquires the Sewer System or that portion of the Sewer System situate in the Township. Such as assignment, if not explicitly made, shall be deemed to have been made by the operation of this Agreement prior to the dissolution of the Authority.

Term

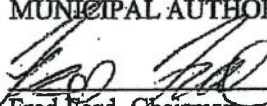
33. This Agreement, including any amendments thereto, shall remain in effect for a period of twenty years from the date of execution. Thereafter, this Agreement shall automatically renew for consecutive periods of ten years unless one party provides written notice to the other at least one year in advance of the termination date of its intent to terminate the Agreement.

The parties hereto have caused this Agreement to be executed by their respective duty authorized officers, attested, and their corporate seals affixed as authorized by resolutions adopted by their respective Boards at public meetings, as appears in the minutes.

ATTEST

Secretary

HALIFAX AREA WATER AND
MUNICIPAL AUTHORITY


Fred Ford, Chairman

HALIFAX TOWNSHIP


Wendy Wentzel, Secretary

 chairman
Kenneth E. Bechtel, II, Chairman

**HALIFAX MUNICIPAL AUTHORITY
RESOLUTION NO. 99-0001**

**RESOLUTION OF THE BOARD OF THE HALIFAX MUNICIPAL
AUTHORITY** setting forth the requirement that grease traps owned, operated and maintained by users of the Authority's public sanitary sewage system be pumped out and cleaned regularly.

WHEREAS, the Authority requires that certain Users of the Authority's public sanitary sewage system such as restaurants and food service-related establishments provide pretreatment facilities including, but not necessarily limited to, grease traps, when such facilities are necessary for the proper handling of waste containing excessive amounts of pollutant; and

WHEREAS, the Authority requires that pretreatment facilities, including grease traps, be maintained by the User at the User's expense, and be kept in continuous and efficient operation at all times; and

WHEREAS, in order to enforce the User's compliance with the applicable permits, rules and regulations, and resolutions pertaining the Authority's public sanitary sewer system, it is necessary to require that grease traps be pumped out and cleaned monthly by the User.

NOW THEREFORE, be it resolved by the Board of the Authority as follows:

1. At least once every thirty (30) days, all restaurants and food providers or

food service-related establishments which are Users of the Authority's public sanitary sewer system are required to pump out and clean all grease traps owned, operated and maintained by the User and connected to the Authority's public sanitary sewer system.

2. Proof of the User's compliance with the requirement set forth in paragraph 1 of this Resolution shall be submitted to the Authority every thirty (30) days.

3. If the User fails to pump out and clean its grease trap or grease traps as required by this Resolution and/or fails to submit to the Authority the proof of pumping and cleaning required herein, the Authority shall be authorized to enter the User's property and pump out and clean the User's grease trap or grease traps. The User shall be responsible for all costs and expenses incurred by the Authority in connection with the activity described in this paragraph, together with a service charge assessed by the Authority in the amount of One Hundred Dollars (\$100.00) per occurrence. The charges described in this paragraph are in addition to any other costs, fees, expenses or penalties charged to the User under any applicable resolutions, rules or regulations previously expressed and adopted by the Authority.

4. The requirements established in this Resolution may be modified by the Authority as appropriate upon written request by the User. In addition, Users requesting modification of the requirements set forth in this Resolution may be required to appear personally before the Authority to present such a request. In order for the Authority to approve a request for modification, the User must demonstrate to the satisfaction of the

Authority that the User does not need to pump out or clean its grease trap or grease traps on a monthly basis. In consideration of such a request or after granting a modification request, the Authority and its agents may inspect the User's grease trap or grease traps. The Authority also reserves the right to inspect the User's sewage facilities at any time to determine the User's compliance with all permits, rules and regulations and resolutions pertaining to the Authority's public sanitary sewer system, and the Authority reserves the right to impose additional requirements on the User as necessary for violations or noncompliance.

5. Should any provision of this Resolution be declared by a Court of competent jurisdiction to be invalid, such decision shall not affect the validity of this Resolution as a whole or any other part thereof.

6. The effective date of this Resolution shall be Feb 16, 1999.

We, the undersigned, Chairman and Secretary respectively, of the Halifax Municipal Authority, certify that the foregoing is a true and correct copy of the Resolution which was duly adopted by a majority vote of the entire Board of the Halifax Municipal Authority at a meeting of said Board duly convened according to law and held on Feb. 16, at which meeting a quorum was present, said Resolution has been recorded in the Minutes of said meeting, and said Resolution remains in full force and effect unaltered and unamended as of the date of this Certificate.

IN WITNESS WHEREOF, we affix our hands and the Secretary affixes the official seal of the Halifax Municipal Authority this 16th day of FEBRUARY, 1999.

HALIFAX MUNICIPAL AUTHORITY

By Z. A. Wood
Chairman of the Board of the
Halifax Municipal Authority

Witness:

[Signature]
Secretary of the
Halifax Municipal Authority

(SEAL)

HALIFAX MUNICIPAL AUTHORITY

RESOLUTION NO. 2004-01

OF THE BOARD OF THE HALIFAX MUNICIPAL AUTHORITY RELATING TO THE INSTALLATION, OPERATION AND MAINTENANCE OF GRINDER PUMPS ON IMPROVED PROPERTY CONNECTED TO THE SANITARY SEWAGE SYSTEM.

WHEREAS, the Authority intends to impose upon the owner of any improved property the requirement, upon the direction of the Authority to install, operate and maintain a grinder pump for the overall enhanced performance of the Authority's sanitary sewage system; and

WHEREAS, the Authority desires this Resolution to be effective as of _____, 2004.

NOW, THEREFORE, BE IT RESOLVED, by the Board of the Halifax Municipal Authority as follows:

1. The owner of any improved property, upon the direction of the Authority, shall acquire, install, operate and maintain, at such owner's costs and expense, a grinder pump or similar apparatus satisfactory to the Authority as part of the building sewer in the manner and at the location directed by the Authority.

2. Such grinder pump shall be installed at the time such improve property is connected to the sewer system and shall be subject to continuous inspection and approval together with remaining of the building sewer.

3. In the event that any of the provisions, sections, clauses or parts of this Resolution or other application thereof, shall be held to be invalid for any reason, such invalidity shall not affect or impair any of the remaining provisions of this Resolution, it being the intent hereby that the remaining provisions of this Resolution shall be severable and remain in full force and effect.

4. Resolutions or parts of resolutions inconsistent herewith are hereby repealed to the extent of such inconsistency.

DULY ADOPTED THIS _____ DAY OF _____, 2004, by the Board
of the Halifax Municipal Authority in lawful session duly assembled.

HALIFAX MUNICIPAL AUTHORITY

CHAIRMAN

ATTEST:

SECRETARY

HALIFAX MUNICIPAL AUTHORITY

RESOLUTION NO. 2006-0001

Resolution of the Board of the Halifax Municipal Authority
amending
§ 7.2 (C) (3) of Resolution No. 96-0001 pertaining to unacceptable wastes and discharges.

WHEREAS, Resolution 96-0001, § 7.2 (C) (3) prohibits the discharge of wastes into the sewage system containing more than 30 mg/L of oil and grease if the oil and grease is determined to be of an animal or vegetable origin.

WHEREAS, the Authority, having consulting with its engineer, has determined that the discharge of waste into the sewage system containing oil and grease determined to be of an animal or vegetable origin in the amount of up to 60 mg/L is acceptable.

(1) NOW THEREFORE, be it resolved by the Board of this Authority as follows: Resolution No. 96-0001, § 7.2 (C) (3) shall be amended as follows:

Waste containing more than 30 mg/L of oil and grease, if the oil and grease is of unknown or petroleum origin.
Waste containing more than 60 mg/L of oil and grease, if the oil and grease is determined to be of an animal or a vegetable origin. The differentiation between oil and grease of animal/vegetable origin and those of petroleum origin shall be made by the Authority.

(2) Should any of this provision of the Resolution be declared by a Court of competent jurisdiction to be invalid, such decision shall not affect the validity of this Resolution as a whole or any other part thereof.

(3) The effective date of this Resolution shall be _____.

We the undersigned, Chairman and Secretary, respectively, of the Halifax Municipal Authority, certify that the foregoing is a true and correct copy of the Resolution which was duly adopted by a majority vote of the entire Board of the Halifax Municipal Authority at a meeting at said Board duly convened according to law and held on _____, at which meeting a quorum was present. This Resolution has been duly recorded in the minutes of said meeting and said

Resolution remains in full force and effect unaltered and unamended as of the date of this Certification.

IN WITNESS WHEREOF, we affix our hands and the Secretary affixes the official seal of the Halifax Municipal Authority this ____ day of _____, 2006.

HALIFAX MUNICIPAL AUTHORITY

BY:

Chairman of the Board of Directors

ATTEST:

Secretary
(SEAL)

HALIFAX AREA WATER AND SEWER AUTHORITY
RESOLUTION NO. _____

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE HALIFAX AREA WATER AND SEWER AUTHORITY ESTABLISHING THE CONDITIONS AND PROCEDURE FOR THE DISCONTINUANCE OF WATER SERVICE TO CONSUMERS OF THE WATER AND SEWER SYSTEM OF THE HALIFAX AREA WATER AND SEWER AUTHORITY.

WHEREAS, the Halifax Area Water and Sewer Authority desires to recognize and to establish certain conditions and circumstances which would allow the discontinuance of water service to consumers of the water and sewer system; and

WHEREAS, the Halifax Area Water and Sewer Authority desires to recognize, establish and adopt a uniform procedure for the discontinuance of water service to consumers of the water and sewer system upon the occurrence of certain conditions and/or circumstances; and

WHEREAS, pursuant to the Water Services Act, 2006, April 14, P.L. 85, No. 28, §502; 53 P.S. §3102.502, the Halifax Area Water and Sewer Authority can terminate water service to consumers of the water and sewer service for non-payment of a rental, rate or charge for sewer, sewerage or sewer treatment service.

NOW THEREFORE BE IT RESOLVED, by the Board of Directors of the Halifax Area Water and Sewer Authority as follows:

A. CONDITIONS FOR DISCONTINUANCE OF WATER SERVICE

1. Service under any application may be discontinued by the Halifax Area Water and Sewer Authority, (hereinafter referred to as the "Authority"), for any of the following reasons:

- a. For non-payment of a billing for water service or sewer service.
- b. For misrepresentation in application as to property or fixtures to be supplied or use to be made of the water supply.

- c. For the use of water for any other property or purpose other than that described in the application.
- d. For willful waste of water through improper or imperfect pipes, fixtures, meters or otherwise.
- e. For failure to protect and maintain in good order the meter connection, lines or fixtures.
- f. For willfully damaging any service pipe, meter, seal, curb stop (outside shut-off valve) or any other appliance of the Authority controlling or regulating the water supply.
- g. In case of vacancy of premises.
- h. In case the Authority is unable to secure a meter reading as provided by the Authority's resolutions.
- i. For violation of any lawful Rule of the Authority.
- j. For use of any unauthorized cross connection or interconnection.
- k. To prevent or alleviate an emergency or in the case of imminent danger to life or property.

2. Any customer may terminate his, her or its service contact with the Authority and have water service discontinued upon giving notice thereof to the Authority.

- a. A consumer requesting a shut-off or turn-on who is not in violation of the terms of his application or Rules of the Authority will be obligated to pay, in advance, a shut-off charge and a turn-on charge. The amount of said shut-off charge and turn-on charge in such case shall be determined solely by the Authority.

3. Where two or more consumers are supplied through one service line, should either of the parties violate any rule of the Authority, the water may be turned off from such premises. No such action involving the shutting off of the supply of any innocent building, family or establishment, however, will be taken without first affording the owner or tenants of the premises opportunity of five (5) day notice to pay the bill. At the option of the Authority Board a new Application for Service, payment of appropriate fees, installation of a separate meter to separate the dual use service into two separate services may be

required.

4. The customer shall not turn the water off at any corporation stop or curb stop, or disconnect or remove the meter or any related equipment, or permit such disconnection or removal without the consent of the Authority.

B. DISCONTINUANCE OF WATER SERVICE PROCEDURE

1. Except when required to prevent or alleviate an emergency or except in the case of danger to life or property, before any discontinuance of service for non-payment for water and/or sewer services or for any violation of any of the Rules and Regulations of the Authority, the following procedure shall be utilized:

- a. Upon failure to make payment within fifteen (15) days following the due date for said payment, or to correct any violation of the Rules and Regulations of the Authority within fifteen (15) days of initial notice thereof, notice of delinquency and or notice of compliance shall be served by regular mail to the person responsible as indicated on the application for water services, together with the owner of any rental property if applicable, that payment of the amount due must be made and/or compliance with the Rules and Regulations must be accomplished within twenty (20) days of the date of said notice of delinquency and/or notice of compliance.
- b. Upon failure to make payment and/or to comply with the Rules and Regulations within twenty (20) days as set forth above, a second notice, of delinquency and/or compliance shall be served by certified mail to the person responsible as indicated on the application for water service, together with the owner of the rental property, if applicable, that payment must be made and/or compliance must be accomplished within ten (10) days of the date of second notice, and failure to make said payment and/or accomplish said compliance will result in a water shutoff notice being posted on the premises advising that water service will be discontinued within seven (7) days of the expiration of the ten (10) day period to make payment and/or to comply with the Rules and Regulations. The Water Authority will impose additional fees for said second notice and the posting of the water shut-off notice as determined by the Board of Directors of the Authority from time to time.
- c. Upon the failure to make payment or comply with the Rules and Regulations at the expiration of the ten (10) days as set forth above, a water shut-off notice shall be posted on the premises indicating that water service

shall be discontinued within seven (7) days of the date of the posting of said water shut-off notice. The Water Authority will impose a shut-off charge as determined by the Board of Directors of the Authority from time to time.

- d. Upon the failure to make payment and/or to comply with the Rules and Regulations of the Authority following expiration of the seven (7) days as set forth above, water service shall be discontinued and a water termination fee shall be imposed as determined.
- e. Water service will not be commenced until all amounts due to the Authority are paid in full and/or compliance with all requirements of the Rules and Regulations of the Authority have been met, and an additional turn-on charge, as determined by the Board of Directors of the Authority from time to time, is paid.

DULY ADOPTED THIS ____ DAY OF _____, 2008, by the Board of Directors of the Halifax Area Water and Sewer Authority in lawful session duly assembled.

ATTEST:

HALIFAX AREA WATER AND SEWER AUTHORITY

By _____
Fred Ford - Chairman (SEAL)

By _____
Secretary (SEAL)

