

WARREN COUNTY

(PEQUEST RIVER)

MUNICIPAL UTILITIES AUTHORITY

SERVICE RULES

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**WARREN COUNTY
(PEQUEST RIVER)
MUNICIPAL UTILITIES AUTHORITY**

SERVICE RULES

ARTICLE I

INTRODUCTION

The Warren County (Pequest River) Municipal Utilities Authority (the "Authority" or "WC(PR)MUA") was created by resolution of the Members of the Board of Chosen Freeholders of the County of Warren, adopted May 24, 1978. While the Authority has broad statutory powers to its essential utility services, it has certain obligations as well. Its responsibilities include compliance with the adopted bond resolutions, service contracts, and Federal and State laws governing water pollution control, public purchasing guidelines, and other applicable State and municipal laws and ordinances.

All correspondence and administrative business as well as scheduled board meetings of the Authority are carried out at the Authority's offices, as follows:

Warren County (Pequest River) Municipal Utilities Authority
199 Foul Rift Road
P.O. Box 159
Belvidere, NJ 07823

Business hours are: Monday through Friday
 8:30 a.m. to 4:30 p.m.

The Authority annually sets forth the meeting schedule, which is available at the Authority's offices during regular business hours, and when scheduled by the Chairman, special meetings are held in accordance with the provisions of the Open Public Meetings Act (N.J.S.A. 10:4-6 et seq.).

All business to be brought before the Authority for formal action requiring review by the Authority's consulting professionals must be submitted to the Authority not less than seven (7) days prior to the public meeting in order to be placed on the agenda for consideration.

The following Rules and Regulations, adopted in accordance with the provisions of the "Municipal and County Utilities Authority Law" (N.J.S.A. 40:14B-1 et seq.), are hereby declared to be the Service Rules of the Warren County (Pequest River) Municipal Utilities Authority regarding the use of the Regional Sewerage System and the nature of wastes to be discharged into the Regional System. The Service Rules are intended to insure and carry out the purposes and provisions of the existing Service Contracts between the WC(PR)MUA and its participants.

ARTICLE II

PURPOSE

Section 2.01. The purpose of these Service Rules are as follows:

1. To prohibit the discharge into the Regional Sewerage System and the Local Sewerage System of wastewaters that are not in compliance with Federal Standards promulgated pursuant to the Clean Water Act (33 U.S.C.A. 1251 et. seq. as the same may be further amended and supplemented).
2. To prohibit the discharge of wastewaters into the Regional Sewerage System and the Local Sewerage System that are not in compliance with specific requirements set forth in permits or other authorizations by authorities having jurisdiction, including but not limited to USEPA, NJDEP and DRBC.
3. To require the pretreatment of wastewaters discharged into the Regional Sewerage System and the Local Sewerage Systems for which pretreatment standards have been promulgated by the United States Environmental Protection Agency (EPA) pursuant to the Clean Water Act, by the New Jersey Department of Environmental Protection (NJDEP), and/or by the WC(PR)MUA.
4. To prohibit the discharge of wastewaters which creates a poisonous or hazardous environment for the general public and for the Authority's maintenance and operating personnel, or which threatens the environment, degrades the quality of the receiving waters or contaminates the solid by-product of the wastewater treatment process.
5. To prohibit the discharge of wastewaters into the Regional Sewerage System which may cause operational or maintenance difficulties in that System as it is now constructed or as it may be modified, expanded, or improved in the future.
6. To prevent the introduction of pollutants into the Regional Sewerage System which do not receive adequate treatment in that System, and/or which will pass through the System into receiving waters or the atmosphere or otherwise be incompatible with the System.
7. To regulate excessive volumes and/or inordinate rates of discharge of any wastewaters into the Regional Sewerage System.
8. To regulate the discharge of any wastewaters which require the levying of a surcharge for either their discharge into the Regional Sewerage System, or treatment by the Treatment Plant.

9. To impose a system of charges to the various municipalities or persons discharging sewage, sludge, or septage to the Regional Sewerage System.
10. To establish a schedule of rates and charges for applications, technical reviews and inspection fees.
11. To establish a policy for the allocation and recapture of sewage treatment capacity in the Authority's System.

ARTICLE III

DEFINITIONS

Section 3.01. Definitions Unless the context specifically and clearly indicates otherwise, the meaning of terms used in these Service Rules shall be as follows:

1. "Act" means the Municipal and County Utilities Authorities Law, constituting Chapter 183 of Pamphlet Laws of 1957, of the State of New Jersey, adopted August 22, 1957, and the acts amendatory thereof and supplemental thereto.
2. "Applicant" shall mean the property owner or property owners; or, if owned by a corporation, a corporate officer duly authorized to act on behalf of the corporation; or, if owned by a partnership, the partner(s) authorized to bind the partnership; or an authorized agent of the owner, certified to the Authority as such; making application for permission following review and approval of plans and specifications to directly or indirectly connect to the Authority's Regional Sewerage System.
3. "Authority" means the Warren County (Pequest River) Municipal Utilities Authority, a public body politic and corporate of the State of New Jersey (also referred to as WC(PR)MUA). "Authority" may also be used to indicate an authorized representative of the Warren County (Pequest River) Municipal Utilities Authority.
4. "Authorized Representative of the User" means an authorized representative of the user who may be: (1) A principal executive officer being at the least a vice president, if the user is a corporation; (2) A general partner or proprietor if the user is a partnership or proprietorship, respectively; (3) A duly authorized representative of the individual designated above if such representative is responsible for the overall operation of the facilities from which the indirect discharge originates.
5. "Biochemical Oxygen Demand" (BOD) means the quantity of oxygen, expressed in milligrams per liter, utilized in the biochemical oxidation of organic matter under standard laboratory procedure for five (5) days at twenty (20) degrees Centigrade. The standard laboratory procedure shall be as defined in the latest publication of 40 CFR Part 136 "Guidelines Establishing Test Procedures for the Analysis of Pollutants".
6. "Building Sewer" means the extension from the building to the local sewerage system.
7. "Categorical Pretreatment Standards" means a pretreatment standard promulgated

by EPA or DEP specifying quantities or concentrations of pollutants or pollutant properties which may be discharged or introduced into a POTW by existing or new industrial users in specific industrial subcategories.

8. "Chemical Oxygen Demand" or "COD" shall mean a measure of the oxygen consuming capacity of inorganic and organic matter present in water or wastewater expressed as the amount of oxygen consumed from a chemical oxidant in accordance with an approved test procedure.
9. "Chlorine Demand" means the quantity of chlorine that is reduced or converted to inert or less active forms of chlorine by substances in the wastewater. The standard laboratory procedure is that found in the latest approved edition of "Standard Methods for the Examination of Water and Wastewater".
10. "Commissioner" shall mean the Commissioner of the New Jersey Department of Environmental Protection (NJDEP) or his/her authorized representative.
11. "Company" means any private corporation formed under the laws of the State of New Jersey or any other state.
12. "Compatible Pollutant" means biochemical oxygen demand, suspended solids, ammonia-nitrogen, pH, fecal coliform bacteria, oil and grease, and any additional pollutants as are now or may be in the future specified and controlled in the Authority's NJPDES permit, where the POTW is designed to treat such pollutants and, in fact, does treat such pollutants to the degree required by the permit.
13. "Composite Sample" means a sample which is taken and consists of several portions of specific volumes collected during a specific time period and combined to make a representative sample.
14. "Connection" means any physical change or addition to the plumbing or piping of a building, facility, or other structure, either proposed or existing, for which a building permit or other municipal approval is required and which connects directly or indirectly to the Regional Sewerage System or the Local Sewerage System and which results in additional flow into the system.
15. "Cooling Water" means any water used for the purpose of carrying away excess heat, and which may contain biocides or similar substances that are used to control biological growth.
16. "Customer" means an individual, association, corporation, or governmental entity, including State, County, Municipality, Sewerage or other Authority, whose wastes are accepted into the Regional Sewerage System with the consent of and pursuant

to an agreement with the WC(PR)MUA.

17. "Department" means the New Jersey State Department of Environmental Protection".
18. "Discharger" means any person that discharges or causes a discharge to a public sewer.
19. "District" means the area within the territorial boundaries of the municipal corporations of the State of New Jersey, situated within Warren County, except (1) any municipality or that portion of any municipality which, prior to the creation of the Authority, had joined in the creation of a municipal authority or a sewerage authority as provided by N.J.S.A. 40:14B-10, or (2) all municipal corporations of Warren County, the Governing Bodies of which shall have adopted an ordinance in accordance with Subsection (g) of Section 4 of the Act.
20. "Domestic Septage" shall mean the combination of liquid and solid residues resulting from the treatment of water-borne domestic waste in on-site treatment systems. Domestic Septage does not include the liquid or solid residues generated in on-site treatment systems from industrial or commercial establishments, unless the wastes discharged to the on-site system are strictly domestic wastes.
21. "Domestic Sludge" shall mean the solid residue, and entrained liquid, resulting from the physical, chemical, and/or biological treatment of solely domestic sewage at a sewage treatment plant.
22. "Domestic Wastewater" means the liquid waste or liquid borne waste (1) from residential dwellings, commercial establishments, institutions and industries, including the wastes from kitchens, bathrooms, water closets, lavatories and laundries or other facilities normally associated with personal uses of residential dwellings, including the non-commercial preparation, cooking and handling of food and/or (2) consisting of human excrement and similar wastes from sanitary conveniences, excluding industrial wastewater.
23. "Easement" shall mean a right, as a right of way, afforded the Authority to make limited use of a customer's or owner's real property for the installation, repair and/or replacement of sanitary sewer facilities.
24. "Engineer" shall mean the consulting professional engineer appointed by the Authority.
25. "EPA" means the United States Environmental Protection Agency.

26. "Equivalent Dwelling Unit" or "EDU" shall mean a building or structure or any portion of a building or structure not being used as a dwelling unit, but having a demand on the sanitary sewer system equal to that of a single family dwelling unit as determined herein. For the purposes of this section the demand of a single family dwelling equals 225 gallons per day (gpd) of sanitary wastes/ sewage (domestic sewage) having the strength and quality of normal domestic sewage as defined by the Service Rules.
- a) Each commercial, industrial, professional or public user whose metered or estimated water consumption does not exceed 225 gpd;
 - b) Where a commercial, industrial, professional institutional or public user exceeds 225 gpd of water consumption, then each 225 gallons or portion thereof shall be considered one (1) Equivalent Dwelling Unit (EDU);
 - c) The Authority reserves the right to impose special conditions on all users or applicants whose actual or anticipated water consumption exceeds 225 gpd.
27. "Federal Act" means the Federal Water Pollution Control Act Amendments of 1972, the Clean Water Act of 1977, as amended, 33 U.S.C. 1251, et. seq.
28. "Garbage" means solid wastes, refuse, and other discarded or spent residual materials resulting from industrial, commercial and agricultural operations, and from domestic and community activities, including but not limited to solid wastes resulting from preparation, cooking, dispensing, handling, storage or sale of food and shall include containers of all types as well as paper goods.
29. "Government" means the United States of America or any department or agency thereof.
30. "Grab Sample" means a sample which is taken on a one-time basis with no regard to the flow and without consideration of time.
31. "Incompatible Pollutant" means any pollutant which is not a "compatible pollutant" as defined in this section.
32. "Indirect Discharge" means the discharge or the introduction of non-domestic pollutants from any source regulated under Section 307(b) or © of the Act, (33 U.S.C. 1317), into the Regional or Local Sewerage Systems.
33. "Industrial User" shall mean any person or entity which discharges or causes or permits the discharge of industrial waste into the Regional or Local Sewerage Systems.

34. "Industrial Wastewater" means the wastewater resulting from the processes employed by an industrial or commercial user with any groundwater, surface water, and storm water that may be present, whether treated or untreated, which is discharged into the Regional or Local Sewerage Systems, which is distinct from or incompatible with domestic wastewater.
35. "Infiltration" means the passage of subsurface water into the sewer system from the ground, through, but not limited to, defective pipes, pipe joints, connections or manhole walls.
36. "Inflow" shall mean the water entering the sewer system from such sources as, but not limited to, roof leaders, cellar, yard and area drains, foundation drains, cooling water discharges, surface drains, manhole covers, storm sewers or catch basins.
37. "Interceptor Sewer" means a sewer of the Authority whose primary purpose is to transport and meter wastewaters to the treatment facility.
38. "Interference" shall mean:
- 1) Inhibiting or disrupting a POTW system or its treatment processes or operation so as to contribute to, or cause a violation of any condition of a State or Federal permit under which the POTW operates; or
 - 2) Discharging industrial process wastewater which, in combination with existing domestic flows are of such volume and/or strength as to exceed the treatment process design capacity; or
 - 3) preventing the use or disposal of sludge produced by the POTW in accordance with Section 405 of the Federal Clean Water Act of 1977 (33 U.S.C. 1251 et seq.) and the New Jersey Guidelines for the Utilization and Disposal of Municipal and Industrial Sludges and Septage; or any regulations or criteria or guidelines developed pursuant to Federal Resource Conservation and Recovery Act of 1976 (42 U.S.C. 3251 et seq.), the Federal Clean Air Act (42 U.S.C. 7401 et seq.) and the Federal Toxic Substances Control Act (15 U.S.C. 2601 et seq.).
39. "Lateral" shall mean the sewer pipe servicing a property of an individual owner connected to the Authority's regional or local sewerage systems.
40. "Local Authority" means any public body corporate and politic of the State of New Jersey.
41. "Local Collection Sewerage System" or "Local Sewerage System" means sewerage systems of Participants or Customers which are or may be connected to the regional

sewerage system, including any extensions or enlargements of such system.

42. "mg/l" means a concentration expressed in milligrams per liter.
43. "Municipality" means any borough, city, town, township, or any other municipality other than a county or a school district, located within or without the district.
44. "NJDEP" means the New Jersey Department of Environmental Protection.
45. "*NJPDES*" shall mean the New Jersey Pollution Discharge Elimination System for the issuing, modifying, suspending, revoking and reissuing, terminating, monitoring, and enforcing of discharge permits pursuant to the State Act. The term also includes discharge permits (NJPDES) issued pursuant to Section 402 of the Clean Water Act of 1977 (33 U.S.C. 1251 et seq.).
46. "On-Site Sewage Disposal System" shall mean any septic tank or cesspool which discharges to the groundwater.
47. "Owner" shall mean the person, corporation, partnership or entity which is the owner of record of the subject property needing sanitary sewer service.
48. "Package Sewage Treatment Plant" shall mean small sewage treatment plants, serving small developments, schools, hospitals, hotels, resorts, etc.
49. "Participant" means any of the following who have executed a service agreement or contract with the Authority for sewage treatment services: government, state, municipality, local authority, or private sewer or utility company.
50. "Person" means any participant, customer, individual, firm, company, partnership, corporation, association, group or society, including the State of New Jersey, and agencies, districts, commissions and political subdivisions created by or pursuant to state law, and federal agencies, departments or instrumentalities thereof.
51. "pH" means the logarithm (base 10) of the reciprocal of the concentration of hydrogen ions in grams per liter of solution. Solutions with a pH greater than seven (7) are said to be basic; solutions with a pH less than seven (7) are said to be acidic; pH equal to seven (7) is considered neutral.
52. "PPM" means a concentration expressed in parts per million.
53. "Pollutant" means any dredged spoil, solid waste, incinerator residue, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, radioactive substance, thermal waste, wrecked or discarded equipment,

rock sand, cellar dirt, and industrial, municipal or agricultural waste or other residue discharged into the waters of the state.

54. "Pretreatment" means a sewage treatment process or processes that are required to produce a discharge to the Regional Sewerage System or Local Collection Sewerage System that conform to standards promulgated by the EPA, the NJDEP or the Authority.
55. "Pretreatment Standards" means any standard developed by either NJDEP or the WC(PR)MUA and adopted by the Authority specifying the quantities or concentration of pollutants or pollutant properties which may be discharged or introduced into the Regional Sewerage System by existing or new industrial users.
56. "Private Sewage Disposal System(s)", as herein referred to, shall mean any non-publicly owned on-site septic tank, cesspool, sewage disposal device or subsurface drainage system.
57. "Publicly Owned Treatment Works (POTW)" refers to Section 212 of the Act, (33 U.S.C. 1292) which is maintained in this instance by the Authority. For the purpose of these rules and regulations, "POTW" shall also include any sanitary sewer lines that convey wastewaters to the POTW from persons outside the Authority's sewer service area who are, by contract or agreement with the Authority, users of its POTW.
58. "Regional Sewerage System" means the facilities owned and/or constructed by the Authority consisting of sewers conduits, pipelines, force mains, metering stations, interceptor sewers, pumping stations, lift stations, wastewater treatment facilities, disposal systems, plants and works, connections and outfalls, and all other plants, structures, equipment, boats, conveyances and works and other real or tangible personal property acquired or constructed or to be acquired or constructed by the Authority for the purpose of the Authority under the Act, but does not include a Local Collection Sewerage System or the facilities of a Participant, or Customer.
59. "Sanitary Sewage" means the same as "Domestic Wastewater", as defined herein.
60. "Sanitary Sewer" shall mean the regional and/or locally owned and operated sewer pipe or conduit which carries "sewage" and in which storm, surface and ground waters are not permitted, and which shall be located in public rights-of-way or easements.
61. "Sanitary Sewer Extensions" means additions, improvements, enlargements and/or extensions to sanitary sewerage facilities within the Authority's service area.

62. "Septage" means the combination of liquid and solid residues resulting from the pumped contents of septic tanks or any other on-site subsurface disposal system.
63. "Service Area" shall mean the area designated in the Authority's current Wastewater Management Plan, on file in the Authority offices, Belvidere, New Jersey.
64. "Service Charges" means rents, rates, fees or other charges for direct or indirect connection with, or the use of services of, the System which the WC(PR)MUA is or may be authorized to charge and collect with regard to persons or real property, in accordance with the provisions of these Service Rules.
65. "Service Contract" means any agreement between the WC(PR)MUA and any person, municipality or authority outlining the terms for the provision of services by the WC(PR)MUA.
66. "Service Rules" means rules of the WC(PR)MUA regarding the use of the Regional Sewerage System and the nature of wastes to be discharged into the regional system, as the same may be amended and supplemented.
67. "Sewage" or Wastewater" means industrial wastes and sanitary sewage discharged from residences, buildings, institutions, industrial establishments, or other places together with such groundwater infiltration, stormwater, surface waters, admixtures or other wastes as may be inadvertently present.
68. "Sewer" shall mean a pipe or conduit for carrying wastewater.
69. "Significant Industrial User" means any user who discharges industrial wastewater into the sewerage system, which either (1) exceeds 25,000 gallons per day or (2) exceeds the mass equivalent of 25,000 gallons per day of waste based upon a BOD of 300 mg/l, or (3) the discharge contributes five percent (5%) or more of the daily mass loading of any of the pollutants listed in Table I and/or in Appendix B, Tables II through VI of the State NJPDES Regulations, N.J.A.C. 7:14A-1 et. seq.; or (4) the industrial user is subject to Federal Categorical Pretreatment Standards.
70. "Sludge" shall mean the solid residue, and entrained liquid, resulting from the physical, chemical and/or biological treatment of sewage at a sewage treatment plant.
71. "Slug" means the discharge of wastewater in which the concentration of a given constituent or the quantity of flow for any period would adversely affect either the Local Sewerage System or the Regional Sewerage System, and/or interfere with the treatment plant process.

72. "State" means the State of New Jersey.
73. "State Act" means the New Jersey "Water Pollution Control Act", N.J.S.A. 58:10A-1 et. seq.
74. "Standard Industrial Classification" (SIC) means a classification pursuant to the Standard Industrial Classification Manual issued by the Executive Office of the President, Office of Management and Budget, 1972 and any amendments thereto.
75. "Storm Water" means any flow occurring during or immediately following any form of natural precipitation and resulting therefrom.
76. "Surcharge" means the additional charge that will be levied against a participant or a person discharging wastewater whose BOD and/or suspended solids concentrations are in excess of 300 mg/l or which wastewater contains constituents in concentrations exceeding those limits set forth in Section 10.02 of these Rules, for which the Authority has determined an additional charge is required for their treatment.
77. "Suspended Solids" means that fraction of solids in a well-mixed sample which is filtered through a weighed standard glass-fiber filter, and the residue retained on the filter is dried to a constant weight at 103-105 degrees centigrade. The standard laboratory procedure shall be that found in the 14th or latest accepted edition of Standard methods from the Examination of Water and Wastewater.
78. "Toxic Pollutant" shall mean those pollutants or combination of pollutants, including disease-causing agents, which after discharge into the environment in sufficient quantities and upon exposure, ingestion, inhalation or assimilation into any organism either directly or indirectly by ingestion through food chains, will, on the basis of information available to the Commissioner, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction or physical deformation, in such organisms or their offspring. Toxic pollutants shall include but not be limited to those pollutants designated under Section 307 of the Federal Act or Section 4 of the State Act.
79. "Treatment Works" means any device or system, whether public or private, used in the storage, treatment, recycling or reclamation of municipal or industrial waste of a liquid nature, including: interceptor sewers, force mains, outfall sewers, local sewerage systems served by the Authority, cooling towers and ponds, pumping, power and other equipment and their appurtenances; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities;

and other works including sites for the treatment works or for ultimate disposal of residues resulting from such treatment. Additionally, "Treatment Works" means any other method or system for preventing, abating, reducing, storing, treating, separating or disposing of pollutants, including storm water runoff, or industrial waste in combined or separate storm water and sanitary sewer systems.

80. "Treatment Plant" means that portion of the treatment works designed to provide treatment to wastewater or sludge or septage excluding the collection or interceptor system.
81. "Upset" means an exceptional incident in which there is unintentional and temporary non-compliance with technology-based pretreatment standards due to factors beyond the reasonable control of the Industrial User.
82. "User" means any person who discharges, causes or permits the discharge of wastewater, sludge or septage into the treatment works.
83. "User Charge" shall mean the charge levied on each user of the Authority's Regional Sewerage System for costs of debt service, operation, and maintenance (including replacements) of such works, allocable to the treatment of sewage, sludge or septage generated by said users.
84. "Wastewater" means industrial wastes and sanitary sewage discharged from residences, buildings, institutions, industrial establishments, or other places together with such groundwater infiltration, inflow, or other wastes as may be present.
85. "Wastewater Treatment Facility" or "Sewage Treatment Plant" means arrangements of devices and structures used for treating sewage.
86. "WC(PR)MUA" means the Warren County (Pequest River) Municipal Utilities Authority, a public body politic and corporate of the State of New Jersey.
87. "USEPA" means the United States Environmental Protection Agency.

Section 3.02 ABBREVIATIONS

The following abbreviations shall have the designated meanings:

- BOD Biochemical Oxygen Demand
- CFR Code of Federal Regulations
- COD Chemical Oxygen Demand
- NJDEP N. J. Department of Environmental Protection
- EPA United States Environmental Protection Agency
- DRBC Delaware River Basin Commission
- l Liter
- mg Milligrams
- mg/l Milligrams per liter
- N.J.A.C. New Jersey Administrative Code
- N.J.S.A. New Jersey Statutes Annotated
- NJPDES New Jersey Pollutant Discharge Elimination System
- NPDES National Pollutant Discharge Elimination System
- POTW Publicly Owned Treatment Works
- ppm Parts per million
- SIC Standard Industrial Classification
- SS Suspended Solids
- WC(PR)MUA Warren County (Pequest River) Municipal Utilities Authority
- USC United States Code

ARTICLE IV

STANDARD TERMS AND CONDITIONS FOR SERVICE

Section 4.01 General Requirements

No Participant, Customer or Person shall uncover, connect with, make opening into, use or change an existing use of a sewer or facility of the Regional Sewerage System or the Local Sewerage System without first obtaining a WC(PR)MUA Sewer Extension Permit.

All Persons desiring to construct a connection or extension to their local collection sewerage system, shall file an application with the Authority (per Section 4.03 of these Rules) and with the appropriate local, State and Federal regulatory agencies having jurisdiction in these matters. The Authority, upon receipt of an application for sanitary sewer service, will identify for the applicant, on a case by case basis, terms and conditions of utility service delivery to the applicant's project(s) and/or property(s). For those existing and new customers whose service requirements necessitate capital improvements to the Authority's sewer system, a capacity allocation and developer's on-tract and off-tract agreement will typically be necessary. Other applicants will be provided service in accordance with the requirements of this chapter. After applications are approved, any connections to the Authority's Regional Sewerage System shall be made in accordance with Article V of these Service Rules.

Section 4.02 Obtaining New or Modifying Existing Sanitary Sewer Service

It is the policy and intent of the Authority to provide sanitary sewer service to applicants owning or occupying properties located within the sewer service areas of the Authority's Participants, and who have received approvals from the relevant municipal land use agencies, consistent with applicable laws, and sound utility management practices. In the event that an extension or improvement of the Authority's sewer mains or facilities is necessary to provide service to an applicant, it shall be the applicant's obligation to pay for such extension(s) or improvements. From time to time, the capacities of the Authority's sanitary sewer system may be limited due to physical limitations that prohibit additional connections until an increase in capacity has been approved and/or constructed, or due to regulatory requirements, promulgated by federal and/or State agencies. At such times, applications for service may be submitted to the Authority, however, approvals of such applications will be postponed until the limitations or restraints have been removed.

Determination of available capacity and the processing and approval of applications for connections shall be within the sole discretion of the Authority.

Section 4.03 Applications for Service

1. Applicants for sanitary sewer service are encouraged to submit as early in the land

use approval process as possible an application for service to the Authority describing their projected needs for a project or development, subject to review by applicable Planning Board or Zoning Board of Adjustment.

2. If a proposed project requires a Treatment Works Approval (TWA) per N.J.A.C. 7:14A – 22.3, the application to the Authority shall be made on the NJDEP TWA application form available on the NJDEP website, and shall be accompanied by the applicable fees.
3. If a proposed project does not require a TWA, the applicant shall submit a letter to the Authority describing the project. The description shall provide sufficient information for the Authority to determine the location of the project and volume and type of wastewater discharge.
4. The purpose of this application procedure is to provide guidance through an informal review, to applicants concerning:
 - a. the current status of sanitary sewer mains at or near the proposed project or development;
 - b. the status of any future plans to extend utility services to the particular area, where applicable;
 - c. the general construction requirements for extension(s) to the system(s);
 - d. an indication of whether water and/or sanitary sewer mains serving the area are sufficient to accommodate the proposed project or development;
 - e. whether an amendment to the Authority’s Wastewater Management Plan is necessary; and
 - f. how the applicable service agreement correlates with the application.

Section 4.04 Application Fees

The appropriate fee(s) for an application, as outlined in Appendix B, shall accompany each such application. This fee shall cover all costs of processing such application, and is not reimbursable.

Section 4.05 Informal Concept Review: Final Application Checklist

1. **Informal Concept Review.** At the request of a developer, the Authority shall grant an informal review of a concept plan for a development for which the developer intends to prepare and submit an application for final approval. The amount of any fees for such an informal review shall be calculated with reference to the fees set forth at Appendix B on a case by case basis, giving consideration to the complexity of the review, and the materials submitted. The developer shall not be bound by any concept plan for which review is requested, and the Authority shall

not be bound by any such review. While there is no checklist or formal requirement for submission, applicants are encouraged to consult with the Authority prior to scheduling the informal concept review in order to obtain meaningful feedback from the Authority at the review.

2. **Final application Checklist.** An application for final approval of the designs and specifications for sewer improvements shall consist of the following documents, which shall constitute the application checklist.
 - a. Two (2) copies of plans and specifications for sanitary sewer utilities, signed and sealed by a licensed professional engineer. Field verification of exact locations of MUA facilities including elevations are the responsibility of the applicant with the cooperation of the Authority.
 - b. Three (3) copies of a completed NJDEP TWA application, together with all necessary accompanying documents and endorsements as required;
 - c. A copy of the resolution of the municipal governing body, planning board or zoning board of adjustment applicable to the development.
 - d. An estimated time schedule for completion of the development project.
 - e. Copies of approvals from NJDEP, NJDOT; Warren County Engineering Department; and other applicable approvals from the Participant.
 - f. Engineer's report for sewer using NJDEP form WQM-006.
 - g. Engineer's cost estimate breakdown for sewer.
 - h. State of New Jersey Form WQM-003, "Endorsements".

Section 4.06 Application Fee: Escrow Deposit

The application shall be accompanied by an escrow deposit for professional review fees and other applicable fees, as set forth in Appendix B. All professional review fees, including any and all interest, shall be paid as a condition of final approval. Any unexpended balances on escrow deposits, if any, shall be returned to the applicant. Professional review fees in excess of the escrow deposit shall be paid by the applicant as a condition of final approval.

Section 4.07 Completeness of Application

An application for service shall be certified as complete for the purpose of commencing the time for review set forth in N.J.S.A. 40: 14B-61 once the Authority determines all the checklist requirements have been met.

Section 4.08 Time for Review

The Authority shall approve or disapprove the application within ninety (90) days of the date of certification of submission of a complete application, which may be extended by resolution for an additional period of time not to exceed thirty (30) days. The applicant may further agree, in writing, to an additional period of time in an amount agreed upon by the respective parties to

complete the review.

Section 4.09 Professional and Staff Review

Prior to rendering a determination with respect to final approval, there shall be a professional and staff review of each application which shall consist of (1) a technical review by the Authority Engineer; (2) a legal review by the Authority Attorney; and (3) a review by such other experts or consultants as may be necessitated by the particular project.

1. As part of the technical review, the following determinations will be made by the Authority:
 - a. The applicability of the Authority's Sewer Allocation Policy to the specific application;
 - b. Review of the plans and designs of on-tract improvements as to technical sufficiency; acceptability of the plans and designs of any facilities to be conveyed to the Authority as to technical sufficiency; and
 - c. Review for necessity of off-tract improvements and requirements, if any, for the applicant with regard to construction and/or contribution of funds towards the construction of off-tract improvements.

2. The legal review shall include the preparation of a developer's agreement setting forth all the terms, duties and obligations of the developer and the Authority, respectively. Said agreement shall include provisions setting forth without limitation:
 - a. An allocation agreement with respect to the gallonage obtained;
 - b. The requirements for on-tract improvements; and
 - c. The requirements for off-tract improvements including terms of payment of impact fees and/or contribution of in-kind construction, if any.

Section 4.10 Approval of Application

Upon completion of the review of the application, the Authority may approve the application pursuant to resolution. In its resolution of approval, the Authority, without limitation, shall:

1. Grant design approval for the applicable improvements whether on or off-tract;
2. Authorize the execution of a developer's agreement, setting forth the terms and conditions of approval;
3. Authorize the execution of other applicable agreements, including agreements for

the installation and cost of on-tract and off-tract improvements (if separate from the developer's agreement); and

4. Authorize the endorsement and submittal of the NJDEP TWA applications and all other applicable or necessary permits.

Section 4.11 Performance Guarantee

In appropriate instances, as a condition for final approval, the Authority may require the applicant to post a performance guarantee with the Authority with respect to the installation of on-tract and/or off-tract sanitary sewer improvements, as set forth in a developer's agreement for the project.

ARTICLE V

CONNECTIONS TO THE REGIONAL OR LOCAL SEWERAGE SYSTEMS

Section 5.01. General Rules and Requirements

1. These rules and requirements shall apply to new connections, introductions of new flow resulting from a change of use, or extensions to either the Regional or Local Sewerage Systems and shall apply to the required interconnections between the existing Systems, which shall be made in accordance with the provisions of the Service Contracts.
2. Unless the Authority should grant express approval, only a Participant will be allowed to make connections and discharge to the Regional Sewerage System.
3. No Person shall uncover, connect with, make any opening into or use, in any matter, the Regional Sewerage System without first receiving the written consent of the Authority.
4. All local collection sewerage system connections to the Regional Sewerage System will be made at manholes located on the interceptor sewer. Connections directly to the interceptor sewer will not be allowed unless express approval is granted by the Authority for good cause shown, and upon such terms and conditions as may be established by the Authority.
5. Individual industrial, commercial or residential service connections (six (6) inch diameter or smaller) shall not be connected directly to the Authority's interceptor sewer unless express approval is granted by the Authority for good cause shown, and upon such terms and conditions as may be established by the Authority.
6. Lateral sewer connections made to the Authority's manholes shall be made at invert elevations matching the 0.8 depth of both sewers, except as permitted within the discretion of the Authority and upon such terms and conditions as shall be established by the Authority.
7. Sewer extensions which are connected to either the Regional or Local Sewerage Systems, shall be plugged at the downstream end until all inspections and testing are completed and approvals of the work are issued by representatives of the Authority.
8. Sewer extensions shall not become the property of the Authority by reason of connection to the Regional Sewerage System, but rather ownership, and the obligation to maintain that portion of such extension which is located upstream of

the point of connection to the Regional Sewerage System, shall remain with the Person making the connection.

9. Extensions or connections to the Regional or Local Sewerage Systems shall be designed and constructed in accordance with State and local regulations.

Section 5.02. Procedures for Sewer Connections

1. If a connection to the Local or Regional Sewerage Systems (per Section 5.04) is to be made, the Authority shall be notified forty-eight (48) hours in advance of backfilling of the trench and pressure testing. The Authority will first verify that the application process (per Article IV) has been properly completed. The Authority's Inspector shall be granted access to the premises to be connected in order to determine compliance with these Service Rules.
2. Authority approval shall be conditioned upon compliance with the provisions of the Service Rules, and applicable regulations. The construction of sewer lines shall be performed in accordance with Appendix A and in a good and workmanlike manner.
3. Once the physical connection is made, but prior to any discharge into the system, a connection fee shall be paid to the Authority as required under Section 5.09.

Section 5.03. Procedure for Industrial Connections

The procedures established in Section 5.02 of these Service Rules shall also apply to Industrial connections. All regulations shall be complied with before the Authority endorses a sewer extension permit.

Section 5.04. Procedures for Direct Connections to the Regional Sewerage System

The applicable requirements of Article V, shall apply to direct connections to the Regional Sewerage System. In addition, plans and specifications shall include detailed information on proposed procedures for constructing the actual connection to the Regional Sewerage System. These procedures shall be reviewed by the Authority's Engineer and shall be modified as required, in order to guarantee the integrity and protection of the Regional Facility.

Section 5.05 Preconstruction Meeting

1. Applicants will be required to schedule and conduct a preconstruction meeting to outline and submit the following items:
 - a. Provide notice to affected parties, including governmental entities and other utilities;

- b. Provide notice to affected property owners of commencement of construction activities;
- c. Present performance guarantees for permitted improvements;
- d. Provide evidence of insurance coverage, including naming the Authority, the Authority's consulting engineer, and its attorney, as additional named insureds;
- e. Provide copies of related permits;
- f. Provide proposed construction schedule;
- g. Provide emergency contacts and phone numbers;
- h. Provide traffic management plan approved by appropriate State, County, and Township agencies.
- i. Payment of any outstanding fees due and owing;
- j. Provide shop drawings of all utility improvement materials and equipment for review and approval by the Authority;
- k. Identification of all prime contractors and subcontractors.

Section 5.06 Approval of Improvements

An applicant shall apply in writing to the Authority for the final inspection, and acceptance of permitted improvements, and release of any performance guarantees posted in conjunction with the construction of those improvements. Upon a determination by the Authority that the improvements constructed are satisfactory, as evidenced by the presentation of an engineer's certification for the project, and that there has been full compliance by the developer with the Rules and Regulations of the Authority and terms and conditions of the developer's and other applicable agreements, the Authority will grant approval to connect to the sewer systems, as applicable.

Approvals to connect to the system shall expire in twelve (12) months from the date of issuance, and shall be subject to compliance with federal and State statutes and regulations governing such approvals. The Authority may specify a period shorter than twelve (12) months upon terms and conditions as it deems appropriate or desirable and in accordance with sound utility management practices. The connection approvals shall not be binding on the Authority in the event that a responsible regulatory agency should impose restrictions upon capacity.

Section 5.07 Maintenance Guarantees

The applicant shall be required to post maintenance guarantees with the Authority in accordance with these Rules and Regulations.

Section 5.08 Payment of Outstanding Charges, Fees and/or Arrears

Certification for sanitary sewer service shall not be authorized by the Authority, nor shall it forward any permit applications to the NJDEP until all charges, fees, escrow deposits, liens or other arrears, due in connection with the project or development have been paid, and any maintenance guarantees have been paid or posted by the applicant.

Section 5.09 Payment of Connection Fees.

Prior to obtaining authorization from the Authority to connect to the Regional and/or Local sanitary sewer system all appropriate connection fee(s) must be submitted to the Authority, as outlined in the Authority's fee schedule. **A certificate of occupancy will not be issued by the local municipality unless and until all connection fees have been paid to the Authority.**

ARTICLE VI

PROHIBITION AND LIMITATIONS ON WASTEWATER DISCHARGES

Section 6.01. General

No Participant, Customer or Person shall discharge or permit to be discharged into the Regional Sewerage System or Local Sewerage System wastewater, the characteristics of which do not conform to the concentration limits prescribed herein, toxic substances, or other objectionable material or substances as specified under the Service Rules, except upon written approval by the Authority and upon such terms and conditions as may be established by the Authority for the acceptance of wastewater.

Section 6.02. Prohibitions on Wastewater Discharge

No Participant, Customer or Person shall discharge, deposit, cause or allow to be discharged or deposited into the Authority's treatment works any wastewater which significantly contributes to a violation of any of the parameters in the NJPDES permit of the Authority. No Participant, Customer or Person shall discharge or permit the discharge into the Regional Sewerage System or Local Sewerage System any of the following:

1. Storm waters, surface water, groundwater, roof runoff, swimming pool water, subsurface drainage, foundation or basement sump drainage, pond water, cooling water, or unpolluted industrial process water;
2. Liquid or vapor having a temperature higher than 150 degrees F. (65 degrees C.) or in excess of that permitted by pretreatment standards;
3. Liquid containing fats, wax, grease or oils, whether emulsified or not, in excess of 100 mg/l of solvent soluble materials or containing substances which solidify or become viscous at temperatures between thirty-two (32) and one hundred fifty (150) degrees F. (0 degrees and 65 degrees C.);
4. Residues from petroleum storage, refining or processing; waste fuels, lubricants, solvents, or paints;
5. Wastewater containing liquids, solids, or gases which by reason of their nature or quantity are, or may be, sufficient either alone or by interaction with other substances to create an explosive, flammable or combustible atmosphere in the Regional or Local Sewerage System;
6. Oils, tar, grease, combustible gases and liquids, insoluble solids of any kind, or other substances which would impair, impede, affect, interfere with or endanger the

- treatment works or any part thereof;
7. Substances of such a nature as to form noxious or malodorous gases or substances which either singularly or through interaction with other wastes or substances found in wastewater treatment processes create a public nuisance, hazard to life, or prevent entry into any portion of the treatment works for operational duties, maintenance or repair;
 8. Solid or viscous substance in quantities or of a size capable of causing obstruction to the flow in sewers or interference with the proper operation of the Sewerage System, including, but not limited to, mud, straw, metal, rags, glass, tar, plastics, wood, shavings, ashes, cinders, sand, feathers, whole blood, paunch manure, hair, fleshings, entrails, paper or plastic containers;
 9. Ground or unground garbage from garbage disposal units or other sources;
 10. Any wastewater containing phenolic compounds over 1.0 mg/l, expressed as phenol.
 11. Any wastewater having a pH less than 5.5 or greater than 9.0, or found to be corrosive.
 12. Any wastewater containing radioactive substances in excess of those permitted by NJSA 7:28-6.5;
 13. Any wastewater having a flash point lower than 235°F (113°C) as determined by the TAG or Pensky-Martins closed cup method, as applicable;
 14. Wastewater having a noticeable color which is not removable in the treatment plant;
 15. Any wastewater with a biochemical oxygen demand (BOD) in excess of 300 mg/l;
 16. Any wastewater with suspended solids content in excess of 300 mg/l, or containing suspended solids of such character or quantity that unusual attention or expense is required to handle or treat such materials;
 17. Any wastewater containing Ammonia Nitrogen concentrations exceeding thirty (30) mg/l;
 18. Any wastewater containing phosphorous (TP) of greater than 10 mg/l;
 19. Any wastewater containing total dissolved solids (TDS) of greater than 1,000 mg/l;
 20. Any wastewater containing corrosive, toxic or poisonous substances in sufficient quantity and/or concentration to cause injury, damage or hazard to personnel, structures or equipment, or interfere with the treatment works, or any portion of the liquid or

solids treatment or handling processes, or that will pass through the treatment plant in such condition that it will not achieve State, Federal, WC(PR)MUA or other requirements for the effluent or the receiving waters. The following chemicals are specifically prohibited: arsenic and arsenicals, cyanides, copper and copper salts, chromium, mercury and mercurials, nickel and nickel compounds, silver and silver compounds, zinc and zinc compounds, toxic dyes (organic or mineral), sulfanamides, cresols, alcohols, aldehydes, chlorinated hydrocarbons, chlorine in excess of 100 mg/l, iodine, fluorine, bromine, all strong oxidizing agents such as peroxides, chromates, dichromates, permanganates, etc., compounds producing hydrogen sulphide or any other toxic, inflammable or explosive gases, either upon acidifications, alkalization, reduction or oxidation, strong reducing agents such as nitrate, sulfites, sulphides, strong acids or strong alkalis;

21. Any unusual volume or concentration of wastewater constituting "Slugs" as defined herein;
22. Any wastewater containing substances which are not amenable to treatment or reduction by the treatment plant processes employed, or are amenable to treatment only to such degree that the treated effluent cannot meet the requirements of other agencies having jurisdiction over the discharge to the receiving waters;
23. Any wastewater containing substances interfering with sludge management; any substance which may cause the Authority's sludge to be unsuitable for reclamation and reuse or to interfere with the reclamation process. In no case shall a wastewater discharged to the Authority cause the Authority to be in noncompliance with sludge use or disposal criteria, guidelines or regulations developed under Section 405 of the Federal Act; any criteria, guidelines, or regulations affecting sludge use or disposal developed pursuant to the Solid Waste Disposal Act, the Federal Clean Air Act, the Toxic Substances Control Act, or the "New Jersey Guidelines for the Utilization and Disposal of Municipal and Industrial Sludges and Septage".

Section 6.02(a) Grease Interceptors

All restaurants, cafeterias, institutional kitchens and other installations having facilities for the preparation and serving of food in quantity that discharge directly or indirectly to the Authority's system shall be required to install a grease interceptor. Any gas stations, auto maintenance garages and car washes where, in the opinion of the Authority, the potential for discharge of grease and oils into the sanitary sewer system exists, who are discharging directly or indirectly into the Authority's system shall be required to install a grease interceptor.

A) ***Special Requirements:*** The size, type of grease interceptor and location of same shall be subject to approval by the Authority. In general, all grease interceptors shall be constructed in accordance with the provisions of Appendix A of these Rules and Regulations.

Section 6.03. Limitations on Wastewater Discharges

Table 1 presents the maximum concentrations of certain pollutants allowable in wastewater discharges to the regional treatment plant by any user. Dilution of any wastewater discharge for the purpose of satisfying these requirements shall be considered a violation of these Sewer Use Rules and Regulations.

TABLE 1

Parameter	Limits (mg/l)	
	Daily Maximum	30 Day Average
Arsenic	3.0	1.0
Cadmium	0.69	0.26
Chromium, total	0.23	0.12
Chromium, hexavalent	0.11	0.06
Copper	1.10	0.36
Lead	0.60	0.40
Mercury	0.11	0.048
Nickel	0.36	0.17
Silver	0.43	0.24
Zinc	2.20	0.66
Cyanide	1.2	0.65
Phenols	-	3.5
Total Volatile	1.0	-
Petroleum Hydrocarbons	150	100
Oil and Grease	100	-
BOD ₅	350	300
TSS	350	300
COD	1000	750
NH ₃ -N	40	30
pH (standard units)	5.5(minimum)	9.0 (maximum)
Color	200 Co.-Pt. Units	-
Phosphorous	15	10
Total Dissolved Solids	1,000	800
Temperature	110 °F	-

The above listed concentrations and characteristics may be altered by the Authority as required by Regulatory Agencies, Treatment or Reuse Requirements or in the event of cumulative overload of the System.

Section 6.04. High Strength Wastes

No statement contained in this Article shall be construed as preventing any special agreement or arrangement between the Authority and any Participant or person whereby a wastewater with high BOD or suspended solids concentrations, a high chlorine demand or with unusual strength or characteristics may be accepted by the Authority for treatment at an additional charge, provided the Authority has determined, at the expense of the Participant or person, that the wastewater can be adequately treated by the treatment plant without any deleterious effects.

Section 6.05. Landfill Leachate

1. In the event that it appears to the Authority that the leachate being accepted from the PCFA's landfill is detrimentally impacting the wastewater treatment process and/or plant effluent or sludge quality, which in the opinion of the Authority could lead to violations of their NJPDES permit and/or sludge quality standards, the Authority shall immediately suspend acceptance of leachate from the PCFA.
2. In the event that the leachate being accepted by the Authority from the PCFA's Landfill contains levels of pollutants which exceed the limitations placed in the PCFA's Landfill NJPDES-SIU permit governing that leachate, the Authority shall suspend and discontinue acceptance of said leachate until such time as it is demonstrated that such leachate is in complete compliance with its permit limitations.
3. In the event that the Authority's effluent is in violation of its NJPDES permit limitations and conditions, or the Authority's sludge quality is in violation of USEPA or NJDEP sludge quality criteria, the Authority may suspend acceptance of leachate until compliance is again achieved, should the Authority believe said leachate may be contributing to said compliance problems.
4. The Authority may perform additional testing for any pollutant(s) or any other pollutant(s) beyond that required by any associated permits, as the Authority deems reasonably necessary for the protection of its facility, treatment process, effluent, and sludge quality. Such testing costs must be reimbursed by the leachate generator.

Section 6.06. Flow Meters

Any direct or indirect connection to the Authority's Regional Sewerage System, constructed after the effective date of the Resolution adopting these Service Rules, by any municipality, authority, sewer company, industry, school, developer/homeowners' association, etc., which conveys wastewater via gravity line or pumping station to the Authority's Regional Sewerage System, with a design flow for said connection of 25,000 GPD or greater of wastewater, shall provide a flow metering unit at a location approved by the Authority. The Authority may apply this requirement to facilities with a design flow of less than 25,000 GPD, should, in the Authority's judgement, a flow meter be necessary to protect the Authority's System.

Section 6.06(a). General Requirements.

1. All flow meters shall be installed at the sole cost of the customer and inspected and approved by the Authority prior to service being initiated for such premises.
2. It is the customer's responsibility to provide for an accessible location of the meter and the related equipment as directed by the Authority. The customer shall be responsible for any damage to the meter and/or related meter equipment. No meter shall be repaired, replaced, disconnected, adjusted or relocated except as may be authorized by the Authority.
3. The customer shall provide for the safekeeping of the meter, and shall not tamper with or remove such meter or other equipment, nor permit access thereto except by duly authorized employees or agents of the Authority, or by factory trained and authorized personnel approved by the manufacturer of the meter for performing the replacement and/or repair of the same. Any meter or related equipment furnished at the expense of the Authority shall remain its property and may be replaced whenever it is deemed necessary by the Authority. In case of any apparent defect to the meter, the customer shall not interfere or tamper with the equipment, but shall immediately notify the Authority to have the defect inspected. The customer shall be responsible for any repairs or replacements made by the Authority or, in the alternative, and if directed to do so by the Authority, shall be responsible for its repair and/or replacement by a factory trained and authorized representative of the manufacturer. Calibration of the meter, as may be necessary to maintain its accuracy, shall be the responsibility of the customer.

Section 6.06(b). Billing and Payment for Metered Service.

1. For those customers directly billed by the Authority for sewer service, billing will be based upon actual flow as determined by a meter reading. Depending upon the customer classification and/or on the section of the service district that the property is located in, the Authority shall determine a regular schedule for the reading of the meter. The frequency at which the meter shall be read shall be determined at the sole discretion of the Authority.
2. Customers billed directly by the Authority based upon their meters shall have meters calibrated a minimum of once per year. Meter calibration shall be by a factory certified technician.
3. The Authority will make every effort to read each meter at the time scheduled, but reserves the right to render estimated minimum bills when weather conditions, the availability of personnel or other circumstances beyond the control of the Authority prevent the timely and accurate reading of a functioning meter. In those cases, actual gallonage will be billed at the next billing period when a meter reading shall have been obtained.

4. In all instances where an accurate meter reading cannot be obtained due to the removal, mechanical failure, or due to the tampering with a meter, the customer shall be billed at the same rate of usage as during the corresponding billing period for the prior calendar year, together with a ten percent (10%) increase in gallonage. In the event that the customer's billing is based upon the number of dwelling units serviced by the meter, or in the event that billing is calculated on an Equivalent Dwelling Unit (EDU) basis, and there has been an increase in the number of dwelling units or EDU's serviced via the defective meter since the time of the last meter reading., then and in that event the estimated billing provided for herein shall be increased to account for the additional Units. The added dwelling units or EDU's shall be presumed to have been in service since the date of the last prior meter reading unless the Authority has had actual notice of the connection date for such units, in which case, the estimated billing, including the ten percent (10%) increase, shall be prorated from that date. Billing based upon estimated usage in accordance with this Section shall be due and owing, and shall be paid in full at the next regular billing.
5. Where estimated billing has been necessitated due to the removal or malfunctioning of a meter as in paragraph (3), there shall be no adjustment or proration of the billing based upon subsequent meter readings after the meter shall have been repaired and/or replaced. In no case will the estimated gallonage for any billing period be reduced below one-hundred ten percent (110%) of that rate of flow for the corresponding billing period in the prior calendar year.
6. If, after the Authority has served notice upon the customer that the meter must be repaired and/or replaced the customer does not perform such repair and/or replacement, the Authority reserves the right to perform such repairs and/or replacement by using the Authority's employees, or, where necessary, by hiring such other qualified personnel to perform that service. All costs connected with the repair and/or replacement shall be charged to the owner, together with an administrative fee in the amount of twenty percent (20%) of said costs of repair and/or replacement, which shall be paid by owner as a sewer service charge at the next subsequent billing period.

ARTICLE VII

INDUSTRIAL WASTES

Section 7.01. General

These regulations set forth uniform requirements for industrial users and enables the Authority to comply with all applicable State and Federal laws and regulations pertaining to industrial pretreatment. In the event that such applicable State and/or federal laws or regulations should be amended to require a standard more stringent than those set forth in these Rules and Regulations, these rules shall be deemed amended so as to reflect such stricter state and/or federal standard.

Section 7.02. Industrial Wastewater Analysis

All Participants and persons desiring to discharge industrial wastewater must first file with the Authority a complete physical and chemical analysis of the wastewater proposed to be discharged into the treatment works. This information shall be filed on forms prescribed by the Authority.

Section 7.03. Notification of Change

Any industrial user which is connected to the Regional Treatment System and is discharging industrial wastewater, thereto, which shall change its method of operation so as to alter the type of wastewater previously discharged, shall notify the Participant and the Authority at least fifteen (15) days prior to such change, in order that the Participant and the Authority's representatives can sample and determine whether or not the new wastewater discharge can be accepted in the treatment works.

Section 7.04. Admission to Property

Whenever it shall be necessary to implement these Rules and Regulations, duly authorized employees of the Authority upon the presentation of credentials and identification, shall at reasonable times be permitted to enter all properties to inspect, observe, measure, sample, test or monitor any discharge of wastewater to the treatment works on records thereof, in accordance with the provisions of the Rules and Regulations.

Section 7.05. Person Held Harmless

While performing the necessary work on the properties referred to in Section 7.04, duly authorized employees of the Authority shall observe all safety rules applicable

to the premises established by the person and the person shall be held harmless for injury or death to the Authority employees and the Authority shall indemnify the person against loss and demands for personal injury or property damage asserted against the person and growing out of the monitoring and sampling operation, except as such may be caused by willful or negligent or failure of the person to maintain safe conditions.

Section 7.06 Industrial Permits

Except as provided in Section 7.08, no Significant Industrial User shall discharge or cause to be discharged any wastes, either directly or indirectly, into the Authority's treatment plants without first obtaining a NJPDES/SIU, and TWA Permit issued by the NJDEP. In addition, all industries which discharge wastewaters regulated by Federal categorical pretreatment standards will be required to obtain both a NJPDES/SIU Permit and TWA. The Authority reserves the right to require an industrial discharger to obtain an Industrial Permit regardless of their categorical status or the volume of their discharge when it is determined that regulation of that industry via permit is in the best interest of the Authority.

Section 7.07 New Industrial Users

New Significant Industrial Users which desire to locate in the Authority's service area or existing industrial users which desire to commence operations at a new facility within the service area, shall apply for and receive an NJPDES/SIU prior to commencement of operations at the new facility.

Section 7.08 Existing Industrial Users

Except as otherwise provided herein, all industrial users discharging wastes directly or indirectly to the Authority's treatment plants prior to the effective date of these Rules and Regulations are hereby granted authority to discharge these wastes.

All industrial users currently discharging to the Authority's treatment system under an NJPDES/SIU permit shall continue to be subject to that permit until its expiration date. Six months prior to the expiration date, the industrial discharger shall file an application for renewal with the NJDEP.

Section 7.09 Renewal of Permits

If a permittee wishes to continue discharging to the Authority's treatment plant, he shall request a renewal of his NJPDES/SIU Permit no later than six (6) months prior to the expiration date of the permit then in force. Failure to make a timely application may result in the suspension or revocation of the permit. The request

shall be contained in a form prepared by the NJDEP. Renewal of the permit shall be contingent upon the permittee having complied with the terms and conditions of the expired permit, and such other conditions that may be imposed.

Section 7.10 Duration of Permits

Permits will expire as indicated on the permit. Renewal of all permits will be dependent upon compliance of the terms and conditions included in Section 7.09 and compliance with the terms and provisions of these regulations.

Section 7.11 Changes to Permits

Any industrial user which proposes to make any changes in its facility or processing that affects either the quality or quantity of its discharge to the Authority's treatment plants shall notify the Authority, and apply for an amended permit with the NJDEP.

Section 7.12 Transfer of Permits

Industrial Permits shall be issued to a specific industrial user for a specific operation and shall not be transferable. A permit shall not be reassigned or transferred or sold to a new owner, new industrial user, or a new or changed operation. The permittee shall notify the Authority at least fourteen (14) days prior to any change in ownership or corporate structure.

Section 7.13 Procedure for Obtaining an Industrial Sewer Connection Permit

1. Persons requiring approval to connect to the system shall complete an Authority application form and forward it to the Authority along with an application for a NJPDES/SIU Permit. Upon receipt of all required information, the application shall be processed and upon approval by the NJDEP, approval to connect shall be granted by the Authority subject to compliance with these Rules and Regulations.
2. The application shall be approved if the applicant has complied with all applicable requirements of these Rules and Regulations, NJDEP Rules and Regulations, and has furnished to the Authority all requested information, and if the Authority determines that there is adequate capacity in the Authority's treatment plant to convey, treat and dispose of the industrial wastes, and that the quality of the waste is consistent with the satisfactory operation of the treatment plant.
3. The application fee established and amended from time to time by the Authority in its fee schedule shall be paid to the Authority by an applicant upon the filing of an application for an Industrial Sewer Connection Permit. In addition to such fee, applicants shall also reimburse the Authority for all engineering, legal and other

extraordinary expenses actually incurred by it, which are required in order to review the application. Payment for such expenses shall be made from an escrow account which shall be established prior to the Authority incurring any costs.

Section 7.14. Regulatory Actions

If wastewaters containing any substance prohibited, exceeding prescribed limits, or violating restrictions imposed by these rules and regulations, are discharged into the treatment works of the Authority, the Authority shall take all actions necessary to:

1. Prohibit the discharge of such wastewater;
2. Require a user to demonstrate that appropriate modifications will reduce or eliminate the discharge of such substances so as to be in conformance with these rules and regulations;
3. Require pretreatment, including storage facilities, or flow equalization necessary to ensure complete compliance with these rules and regulations;
4. Require the user making, causing or allowing the discharge to pay all the additional cost of expense incurred by the Authority for any damages caused by excess loads imposed on the treatment works;
5. Take such other remedial action, including discontinuation of service, as may be deemed necessary or desirable to achieve the purpose of these rules and regulations; and
6. Notify NJDEP of the discharge problem to initiate enforcement and/or emergency response procedures.

Section 7.15. Suspension or Termination of Service

The Authority may suspend or terminate service to an Industrial user:

1. when suspension or termination is necessary, in the opinion of the Authority, in order to stop an actual or threatened discharge which presents or may present an imminent or substantial endangerment to the health or welfare of persons or to the environment; causes interference to the treatment process or operation or causes the Authority to violate any condition of its NJPDES Permits. Such suspension or termination may be imposed notwithstanding compliance by this Permittee with all of the terms and conditions of this Permit.
2. in the event of a violation of the NJPDES/SIU Permit, which shall include, but not

be limited to:

- a. failure to factually report the wastewater constituents and characteristics of this discharge.
 - b. refusal of access for inspection or monitoring.
 - c. failure to report changes in ownership or operations.
 - d. failure to comply with the effluent limitations of the Permit.
2. When suspension or termination of wastewater treatment service is required based on reasons listed in paragraph 7.15(1), and upon notification of said suspension or termination, the industrial user shall immediately stop or eliminate the discharge. In the event of a failure to comply voluntarily with the suspension or termination order, the Authority shall take such steps as deemed necessary, including immediate severance of the sewer connection, to prevent or minimize damage to the POTW system or endangerment to any individuals or the environment.
 3. When suspension or termination of wastewater treatment service is deemed appropriate for reasons listed in 7.15(2), the Authority will issue to the Industrial User a notice of violation which sets forth the basis for the notice and the Authority's intent to suspend or terminate the discharge. The Industrial User will be afforded an opportunity to respond to this notice within seven (7) days. If the User's response is satisfactory to the Authority, the notice of violation will be canceled and confirmed in writing. If the response is not adequate, the notice of violation will be sustained and confirmed in writing. The sustained notice of violation will contain the date upon which service will be suspended or terminated. Such date shall be no less than thirty (30) days following the date of the sustained notice of violation. The User, at his option may request a hearing before the Authority. The Authority will hold a hearing on the matter within 30 days of receipt of said request and shall either confirm or revoke the suspension or termination order. At this hearing, the suspended industrial user may appear personally or through counsel, cross-examine witnesses, and present evidence on his behalf. In the event of a failure to comply voluntarily with the suspension or termination order, the Authority shall take such steps as deemed necessary, including immediate severance of the sewer connection, to enforce compliance with the suspension or termination order.
 4. When suspension or termination of wastewater treatment service is required based on reasons listed in paragraph 7.14(2), but if the degree of endangerment or interference is minor, the Authority, at its discretion, may elect to follow the procedures set forth in paragraph 7.14(2).

5. When an Industrial User's service has been suspended, the service may be reinstated following the termination of the suspension period (if specified in the suspension order); and upon proof of compliance with all conditions of the SIU Permit and these regulations; and upon payment to the Authority of all costs incurred by the Authority in connection with the suspension order.
6. When an Industrial User's service has been terminated, the User must reapply for and receive approval before the discharge of wastewater can be resumed. The Authority will consider the User's performance under the terminated service in reviewing and processing a new application. In addition, the User must pay to the Authority all costs incurred by the Authority in connection with the termination order and the processing of a new application.

Section 7.16. Indemnification

The Industrial User shall indemnify and save harmless the Authority for any expense, loss or damage occasioned the Authority, by reason of the discharge of pre-treated process wastewater or any prohibited substance, including, but not limited to the following:

1. any cost incurred by the Authority in removing, correcting, preventing or terminating any adverse effects upon the treatment process or operations.
2. any increase in the cost of sludge processing or disposal;
3. any fines or penalties assessed against the Authority for such violations of its permits which primarily results from discharges from the user.
4. the reasonable costs of any investigative inspection or monitoring survey which leads to the establishment of a violation of the Industrial User's Permit and the reasonable costs of preparing and litigating any action successfully concluded against the User for such violation.
5. any other actual or compensatory damages to the Authority resulting from the discharge.

Section 7.17. Violations

Violations of the terms and conditions of the Industrial User's Permit or any provision of this regulation may subject the User to the following:

- a. the suspension or termination of discharge as provided herein.

- b. the payment of the cost and expenses as provided in Section 7.15, herein.
- c. the institution of a civil action for appropriate relief which may include, singly or in combination;
 - 1. a temporary or permanent injunction.
 - 2. the assessment of costs and expenses as provided in Section 7.14, herein.
 - 3. the collection of penalty in a summary proceeding under NJSA 2A:58-1, et seq.
 - 4. the remedies provided by the Municipal and County Utilities Authorities Law, (NJSA 40:14B-1 et seq.)- the New Jersey Water Pollution Control Act (NJSA 58:10A-1 et seq.) the New Jersey Pretreatment Standards for Sewerage (NJSA 58:11-49 et seq.) or the Clean Water Act (33 USCA § 1251 et seq.).

Section 7.18. More Stringent Standards to Control

- 1. If an effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition), is established under Section 307 (b) of the Federal Water Pollution Control Act (the Act), its amendments, or any other subsequent law or regulation, for a pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in the user's permit, the permit shall be revised or modified in accordance with the effluent standard or prohibition and the User so notified. State standards or prohibition on discharges shall apply in any case where they are more stringent than Federal standards or prohibitions or those in the NJPDES/SIU Permit.
- 2. The Authority reserves the right to impose standards or prohibitions more stringent than or in addition to, those imposed in the Permit or by Federal or State law, if necessary to protect the treatment system or process or to meet discharge limitations imposed upon the Authority by Federal or State law.

Section 7.19. Other Governmental Approvals Not Superseded

Nothing in these regulations or the Industrial User's Permit shall be construed to relieve the User from compliance with the rules and regulations of any governmental authority having jurisdiction, including, but not limited to, EPA, DEP, and the local municipality.

Section 7.20. Categorical Pretreatment Standards

1. No person shall discharge, deposit, cause or allow to be deposited or discharged into the treatment plants of the Authority, any waste which violates applicable categorical pretreatment standards. As pretreatment standards for toxic or other industrial wastes are promulgated by the USEPA for a given industrial category, all industrial users shall conform to the USEPA timetable for complying with discharge limitations. In addition, an industrial user shall comply with any more stringent standards which are established by the Authority or other regulatory agency. Changes and additions shall be made as necessary from time to time by resolution of the Authority.
2. Categorical pretreatment standards can be modified only through the Federal regulatory mechanisms available pursuant to 40 CFR s 403.7.

Section 7.21. Notification of Non-compliance or Accidental Discharge

1. If, for any reason, the industrial user does not comply with or will be unable to comply with, any effluent limitation or prohibition in the Industrial User Permit, he shall immediately telephone and notify the Authority of such non-compliance or accidental discharge. The notification shall include the location of the discharge, type of waste, concentration and volume.
2. The industrial user shall take immediate action to contain and minimize the non-complying or accidental discharge so as to prevent interference with the treatment process, damage to the treatment system, and pass through to the receiving stream or contamination of the sludge.
3. Within seven (7) days following a non-complying or accidental discharge, the industrial user shall submit to the Authority a detailed written report describing the date, time and cause of the discharge, the quantity and characteristics of the discharge and corrective action taken at the time of the discharge, and the measures to be taken by the user to prevent similar future occurrences. Such notification shall not relieve the user of any expense, loss, damage or other liability which may be incurred as a result of damage to treatment system, fish kills, or any other damage to person or property; nor shall such notification relieve the user of any fines, civil penalties, or other liability which may be imposed by the user's permit, these regulations or other applicable law.
4. Notice to Employees: A notice shall be permanently posted on the industrial users bulletin board or other prominent place advising employees of the responsible person to notify in the event of a non-complying discharge. The industrial user shall

insure that all employees who may cause or suffer such a discharge to occur are advised of the emergency notification procedure.

5. If such a non-compliance or accidental discharge results from the violation of any of the process wastewater discharge limitations specified in the Industrial User's Permit, the sampling frequency for the violated parameter shall be accelerated to a daily basis, until the Authority authorizes, in writing, the resumption of the schedule specified in the permit.
6. Protection from Accidental Discharge - The industrial user shall provide protection from accidental discharge of prohibited materials or other regulated wastes. Facilities to prevent accidental discharge of prohibited materials shall be provided and maintained at the industrial user's own cost and expense.

Section 7.22. Pretreatment Facilities

1. A pretreatment facility or device may be required by the Authority to treat or monitor industrial wastes prior to discharge to the public sewer or the Authority's treatment plant. Where pretreatment or construction necessary to control or monitor industrial wastes is required, the industrial user shall develop a compliance schedule for the installation of technology required to meet applicable pretreatment standards and requirements prior to the compliance date established in the regulations. Prior to the issuance of, or as prescribed in the permit, schematics, detailed plans and specifications, process descriptions and other pertinent data or information relating to the pretreatment facility or device shall be filed with the Authority. Such filing shall exempt neither the user nor the facility from compliance with any applicable code, ordinance, rule, regulation or order of any governmental authority or from these Rules and Regulations. Any subsequent alterations or additions to such pretreatment or flow-control facilities shall not be made without due notice and submission of detailed plans and specifications.
2. If inspection of pretreatment facilities by authorized personnel of the Authority reveals such systems are not installed or operating in conformance with the plans and procedures submitted to the Authority or are not operating in compliance with effluent limitations required by the SIU Permit, the industrial user shall make those modifications necessary to meet those requirements. All pretreatment systems judged by the Authority to require engineering design shall have plans prepared and signed by a licensed professional engineer. If pretreatment or control of waste flows is required, such facilities shall be maintained in good working order and operated as efficiently as possible by the owner or operator at his own expense, subject to the requirements of these Rules and Regulations and all other applicable codes, ordinances and laws.

3. The pretreatment facilities shall at all times be under the direct supervision and control of an authorized representative of the industrial user as defined herein. The name of such representative shall be forwarded to the Authority within seven (7) days of his employment in such capacity. The pretreatment facilities shall be under control of a licensed treatment plant operator pursuant to NJDEP licensing procedures for operations of pretreatment facilities. Within thirty (30) days of notice from the Authority the industrial user shall comply with such requirements.
4. Solids sludges, filter backwash, rejected screening material or other pollutants or hazardous waste removed in the course of pretreatment or control of wastewater and/or the treatment of intake waters and/or other waste generated at the site, shall be disposed of in accordance with applicable Federal, State and local laws and regulations. Records documenting such disposal shall be made available to the Authority for review upon request.
5. Process wastewater discharge limitations pertaining to the effluent from the process wastewater pretreatment system will be set forth in the Industrial User's SIU Permit. The increase of process water or any other attempt to dilute a discharge as a partial or complete substitution for adequate treatment to achieve compliance with any limitations is prohibited.

Section 7.23. Industrial Waste Reporting

1. Every industrial user to whom a SIU permit is issued shall file a periodic discharge monitoring report at such intervals as are contained in the Industrial User's Permit. The discharge report may include but, at the discretion of the Authority, shall not be limited to, nature of processes, water consumption, volume and rates of discharge, mass discharge emission rate, production quantities, hours of operation, concentrations of controlled pollutants or other information which relates to the generation of industrial waste.
2. All users subject to Federal Categorical Pretreatment Standards shall, at a minimum, comply with the reporting requirements published in 40 CFR 403.12.
3. All reports required by the Industrial User's Permit shall be signed by an authorized representative who shall be responsible for the overall operation and control of the pretreatment facility. The name of such representative shall be forwarded to the Authority within seven (7) days of his employment in such capacity.
4. In addition to the reports required under other sections of these rules and regulations, the industrial user shall submit to the Authority an inventory of all chemical constituents and quantity of liquid and solid materials stored on site even though they are not normally discharged. The frequency of this submittal shall be

such that they are generally representative of the quantity of the materials listed. New lists should be submitted upon the addition of new constituents as well as significant changes in the quantity of materials already listed.

Section 7.24. Industrial Waste Monitoring

1. All industrial users who discharge or propose to discharge wastewater to the Authority's treatment plants shall maintain records as are necessary to demonstrate compliance with the requirements of these Rules and Regulations, the Industrial User's Permit and any applicable State or Federal pretreatment standards or requirements.
2. Records shall be made available upon request by the Authority. All records relating to compliance with pretreatment standards shall be made available to officials of NJDEP and officials of the USEPA upon request. A summary of the data indicating the industrial user's compliance with these Rules and Regulations shall be prepared and submitted to the Authority as designated in the Industrial User's Permit.
3. Each designated industrial user shall install, at his own expense, suitable monitoring equipment to facilitate the accurate observation and sampling of industrial wastes. Such equipment shall be kept safe, secure from unauthorized entry or tampering and accessible to Authority personnel at all times. All measurements, tests, and analyses of the characteristics of the wastewater to which reference is made in these Rules and Regulations shall be determined at the control manhole provided. In the event that no special control manhole has been required, the control manhole shall be considered to be the nearest downstream manhole in the local collection sewerage system to the point at which the building sewer is connected.
4. When more than one industrial user can discharge into a common sewer, the Authority may require installation of separate monitoring equipment for each industrial user. When there is a significant difference in wastewater constituents and characteristics produced by different operations of a single industrial user, the Authority may require that separate facilities be installed for each discharge.
5. Whether constructed on private or public property, the monitoring facilities shall be constructed in accordance with all applicable construction standards and specifications.

Section 7.25. Compliance Determination

1. Compliance determinations with respect to any permit conditions or imitations may be made on the basis of instantaneous grab samples, sequential samples, or

composite samples. Sequential or composite samples may be taken over a twenty-four (24) hour period, or any other time span, as deemed necessary by the Authority, to meet the requirements of a specific situation.

2. The Authority may inspect the monitoring facilities of any industrial user to determine compliance with the requirements of these Rules and Regulations.
3. Whenever it shall be necessary for the purpose of these Regulations, authorized representatives of the Authority, New Jersey Department of Environmental Protection (NJDEP), Delaware River Basin Commission (DRBC), United States Environmental Protection Agency (EPA) or other governmental authorities having jurisdiction, may, upon presentation of credentials, enter upon the premises of any user as follows:
 - a. During business hours, on notice to authorized personnel of the user, but without the necessity of a warrant, for the purposes of inspecting, copying or photographing any records required to be kept.
 - b. At any time without a warrant or prior notice provided, however, that the user's security personnel shall be entitled to accompany the entering representatives, for the purpose of inspecting any monitoring equipment or method, inspecting the process wastewater pre-treatment facility, and/or measuring sampling and/or testing any discharge of wastewater either from process wastewater pre-treatment facilities or the point of discharge to the sewerage system. The user shall instruct security personnel to immediately admit such representatives upon presentation of valid credentials at any hour and under any and all circumstances.

Section 7.26. Analysis of Wastewater

1. Laboratory analyses of wastewater samples shall be performed in accordance with EPA "Guidelines Establishing Test Procedures for the Analysis of Pollutants" (40 CFR, Part 136), published in the Federal Register, Vol. 41, No. 232, 12/1/76 and subsequent revisions. Analysis of those pollutants not covered by the publications referred to therein shall be performed in accordance with procedures approved by the Authority.
2. Measurements, tests and analyses of the characteristics of wastewater which are required by a NJPDES/SIU permit shall be performed by a New Jersey certified laboratory approved by the Authority, and the cost of the required work shall be borne by the permittee. However, for quality control purposes, the industrial user shall be required to periodically utilize a laboratory certified by the State of New

Jersey to analyze for all pollutants contained in the Industrial User's Permit. A "certified" laboratory shall be utilized at specified minimum intervals. The Authority reserves the right to require the permittee to utilize a certified laboratory on a more frequent basis, if State or Federal regulations shall so require or if the Authority deems it necessary, to insure the proper and consistent operation of the pretreatment facility. If a contract laboratory is utilized for any of the analytical work required by the Industrial User's Permit, the user shall report in writing the name and address of the laboratory to the Authority. In addition, the user shall notify the Authority in writing prior to any change in the contract laboratory.

3. For each measurement of a sample taken pursuant to the requirements of the SIU Permit, the Permittee shall maintain a record of the following information:
 - a. The date, exact place and time of sampling;
 - b. The date the analyses were performed;
 - c. The person(s) who performed the analysis;
 - d. The analytical techniques or methods used;
 - e. The results of all required analyses.
4. Samples and measurements taken as required by the Industrial User's Permit shall be representative of the volume and nature of the monitored discharge.

Section 7.27. Frequency of Sampling and Analysis

1. Industrial wastes shall be analyzed by the industrial user for the purpose of determining industrial surcharges, pretreatment requirements, and compliance with the requirements of the user's Industrial User's Permit. The frequency of the sampling and analysis shall be specified in the Industrial User's Permit, and will vary based on the volume and quality of wastes discharged, as well as other factors which the Authority deems appropriate.
2. If the industrial user analyzes his wastes for parameters not included in the Industrial User's Permit, but which could be significant to the operation of the Authority treatment plant, these results shall be reported to the Authority on request of the Authority.
3. Charges for waste of excessive strength will be calculated by the Authority on a case by case basis, and will be billed directly to affected industries. These charges will be billed at intervals which are appropriate in any given case, but will be no

more frequent than quarterly, nor less frequent than annually.

4. User charges which are attributable to any industrial user's discharge will be determined and assessed by the local municipality in which the industrial user is located.
5. In addition to the charges provided for herein, the Permittee shall reimburse the Authority for the actual costs incurred by the Authority for such monitoring, sampling, investigation, engineering evaluation, legal or other services which are necessary or appropriate, in addition to those services which are minimally required and which are properly allocable to Permittee's operation. Payment for such expenses shall be made by the Permittee within ten (10) days after the submission of a statement by the Authority.

Section 7.28. Industrial Discharge Limitations

The Authority reserves the right to require any industrial facility to pretreat its wastes if it is determined by the Authority that any discharge containing pollutants which will either alone or in combination with others, adversely impact the quality of the treated effluent which will cause a violation of the permit limitations of the Authority's NJPDES permits or of Water Quality Standards, now in effect or which may be promulgated in the future by Federal or State agencies, or adversely impact the quality of sludge which will cause a violation of the SQAR requirements of the NJDEP.

Discharge limitations may be expressed as mass loading or concentration, or as mass and concentration, whichever the Authority deems appropriate.

Section 7.29. Payment of Surcharge

Where in the opinion of the Authority, sewage and other wastes may have a deleterious character or adversely affect the treatment processes, the Authority reserves the right to surcharge the person and/or commercial or industrial group causing, allowing or otherwise permitting the discharge thereof into the sewer system, the added operating and treatment costs occasioned thereby and may terminate service to said person and/or require such sewage and wastes be treated by said person to remove or neutralize the objectionable substances or unduly high concentrations of substances before discharge into the system.

Section 7.30. Legal action.

Any discharge in violation of these rules and regulations or an Order of the Authority shall be considered grounds for legal action. If any person discharges sewage, industrial wastes or other wastes to the treatment works contrary to the provisions of these rules and regulations or any

Order of the Authority, the Authority may commence an action for injunctive relief and appropriate legal damages in a Court of appropriate jurisdiction.

ARTICLE VIII

VIOLATIONS AND ENFORCEMENT PROCEDURES

Section 8.01. Notice of Violation

1. If the Authority determines that a Participant, Person or Customer is in violation of the provisions of Article VI of the Service Rules, the Authority shall give written notice to the Participant, Person or Customer, stating the nature of the violation and requiring the discharge to be discontinued immediately. Depending upon the nature of the violation and where there are only minor effects on the System, the Authority may elect to provide a time limit for the satisfactory correction of the violation by the responsible Participant, Person or Customer.
2. Whenever the Authority finds that any person or user has violated or is violating these Rules and Regulations, or any prohibition, limitation or requirement contained herein, the Authority may serve upon such person or user a written notice stating the nature of the violation and providing a reasonable time limit for the satisfactory correction thereof.
3. Copies of any "Notice of Violation" shall be sent to the Participant.
4. Fines imposed under Section 8.03 shall accrue from the date of the violation to the date of the satisfactory correction or discontinuance thereof, in fact and effect.

Section 8.02. Damages

Any person or user violating any of the provisions of these Rules and Regulations shall become liable to the Authority for any expense, loss, or other damage suffered by the Authority by reason of such violation. In order to address such loss, an administrative fine, penalty or assessment may be imposed upon such violator by the Authority, under the procedure set forth in Section 8.03. below.

Section 8.03. Fines

In addition to the liability for any expense, loss or damage imposed by Section 8.02. and all other remedies available to the Authority under Article VIII, the Authority may, in its discretion impose upon the person or user in violation of any provision of these Rules and Regulations, a fine in an amount up to and including \$50,000.00 for each violation each day during which such violation occurred or continues to occur, or each day during which the effect of such violation occurred or continues to occur. Failure to pay any fine assessed hereunder may subject the person

or user to further action by the Authority including, but not limited to, termination of its service.

No fine shall be due pursuant to this section or pursuant to Section 8.02. until after the alleged violator has been notified of the imposition of said fine by certified mail or personal service. The notice shall include a reference to the section of the statute, regulation, order or permit condition violated; a concise statement of the facts alleged to constitute a violation; a statement of the amount of the civil penalties to be imposed; and statement of the party's right to a hearing. The ordered party shall have twenty (20) days from receipt of the notice within which to deliver to the Authority a written request for a hearing. After the hearing and upon finding that a violation has occurred, the Authority may issue a final order assessing the amount of the fine specified in the notice. If no hearing is requested, then the notice shall become a final order after the expiration of the twenty (20) day period. Payment of the fine assessed is due when a final order is issued or the notice becomes a final order. The payment of any fine shall not be deemed to affect the availability of any other enforcement provisions in connection with the violation for which the fine is levied.

Section 8.04. Suspension of Service

1. The Authority may suspend the wastewater treatment service to a user where:
 - A. In the opinion of the Authority it is necessary to stop an actual or threatened discharge which:
 - i. presents, or may present, an imminent or substantial endangerment to the health, safety or welfare of any person, including Authority personnel, any property or to the environment;
 - ii. causes any interference to the POTW; or
 - iii. causes, or would cause, the Authority to violate any condition of its NJPDES permit.
 - B. The user fails to factually report the wastewater constituents and characteristics of its discharge;
 - C. The user fails to report significant changes in its operations, or wastewater constituents and characteristics;
 - D. The user fails to provide reasonable access to its premises for the purpose of inspection or monitoring; or
 - E. There is a violation of provisions of these Rules and Regulations or applicable Federal or State regulations pertaining to the reporting,

discharging, treatment or pretreating of wastewater.

2. Any user notified of a suspension of its wastewater treatment service shall immediately stop or eliminate the endangering discharge or otherwise correct the violation which prompted the suspension. In the event of failure of a person to comply voluntarily to correct the violation, the Authority shall take such steps as deemed necessary, including immediate severance of the sewer connection, to prevent or minimize damage to the treatment works or endangerment to the health, safety or welfare of any individuals. The Authority shall reinstate the wastewater treatment service upon proof of the elimination of the noncomplying discharge and payment of all costs, fines, and penalties which may be imposed by the Authority. A detailed written statement submitted by the user describing the causes of the harmful discharge and the measures taken to prevent any future occurrence shall be submitted to the Authority for approval within fifteen (15) days of the date of occurrence.

Section 8.05. Termination of Services

Any notice of violation will state the nature of its violation and the corrective measures required. Failure to correct the violation within the time specified in the notice from the Authority to the person or user, or within a reasonable time if no time limit is specified, may subject a person or user to the termination of its wastewater treatment service. The Participant shall receive copies of any correspondence relating to the termination of service to a user within its jurisdiction.

Section 8.06. Actions and Penalties

In addition to the suspension or termination of its wastewater treatment service, any person or user violating any of the provisions of these Rules and Regulations or falsifying any information required by the Authority of the person or user pursuant to these Rules and Regulations shall be subject to the following actions or penalties which are authorized by law to be taken by the Authority alone or jointly with any appropriate Federal or State regulatory agency:

1. A civil suit may be instituted in the Superior Court of the State of New Jersey for injunctive relief to prohibit and prevent the violation and the Court may proceed in a summary manner; and
2. A penalty may be collected in a civil action by summary proceeding under N.J.S.A. 2A:58-1; and
3. The Authority may take steps necessary to seal or close off the discharge of industrial and/or harmful wastes until adequate measures have been taken to prevent the recurrence of the violation.

4. The Authority may proceed in accordance with the provisions set forth in N.J.S.A. 40:14A-28, the amendments and supplements thereto.
5. The Authority may proceed in accordance with the provisions set forth in 33 U.S.C.A. Section 1365.

The remedies are cumulative and one (1) or more may be exercised by the Authority alone or in conjunction with an appropriate Federal and/or State Agency, as the circumstances require.

ARTICLE IX

PROTECTION FROM DAMAGE

Section 9.01. Damage

No person shall maliciously, willfully, or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenance, or equipment which is a part of the Authority's sewerage system. The Authority will take appropriate action against any person violating this provision.

Section 9.02. Emergency Termination of Service

If a violation consists of the discharge of an explosive or flammable material or any other material which is highly toxic or creates a toxic gas so that there is imminent danger to the personnel, property or treatment process of the Authority, then the Authority shall take whatever action is necessary to halt service and to protect life and property.

ARTICLE X

AUTHORITY CHARGES AND PAYMENT THEREOF

Section 10.01. Charges for Sewage Treatment Services

1. Annual Charge - The annual charge for each fiscal year payable hereunder by a Participant (municipality or person) shall be computed as outlined in the service contract between the Authority and the Participant.
2. Notification - Each Participant will be notified by the Authority at least annually, of the rate per gallon treated, and that portion of the charge which is attributable to debt service and operation & maintenance costs.

Section 10.02. Surcharges

Any Participant or user discharging wastewater into the treatment works whose BOD and/or suspended solids concentrations exceed three hundred (300) mg/l when measured at the Participant's metering station(s) or at the user's control manhole, shall be subject to a surcharge for the treatment of such wastewater. For those discharges which cannot be measured directly, estimates of their waste characteristics will be made using historical records, data from similar users, or other sources. The surcharge for the treatment of these wastewaters shall be in addition to any other billings charged to the Participant or user for the treatment of their wastewaters, and shall be calculated in accordance with the formula set forth herein.

SURCHARGE FORMULAS

1. The Quarterly Surcharge for BOD is to be calculated by the following formula:

$$\text{BOD Surcharge} = \frac{(\text{BOD Ind.} - 300) (\text{QInd.}) (0.3) (\text{QOB})}{(300 \text{ mg/l}) (\text{QMUA})}$$

Where:

BOD Ind.: The average quarterly BOD of the industrial waste discharge into the Authority's system in mg/l.

QInd: The average daily industrial flow for the quarter, in mgd.

QMUA: The average daily wastewater flow of the MUA, in mgd.

QOB: The quarterly operating budget for the MUA in \$/Quarter.

The basis for the BOD surcharge allows industry a credit of 3050 mg/l for its BOD without surcharge. The 0.3 factor recognizes that three tenths of the quarterly operating budget is devoted to BOD removal.

2. The Quarterly Surcharge for TSS is to be calculated by the following formula:

$$\text{TSS Surcharge} = \frac{(\text{TSS Ind.} + 0.3 \text{ BOD Ind.} - 300) (\text{Q Ind.}) (\text{QSRC})}{(300 \text{ mg/l}) (\text{QMUA})}$$

Where:

TSS Ind; The average quarterly TSS (total suspended solids) in the industrial waste discharged into the Authority's system in mg/l.

QSRC: Average quarterly cost for sludge removal at the MUA.

With "BOD Ind.", "Q Ind", and "QMUA" as have been defined above.

The basis for the TSS surcharge allows industry a credit of 300 mg/l for its TSS without surcharge. This formula recognizes that the biological treatment system will convert three tenths of the incoming BOD into additional biological solids to be disposed of as sludge.

Section 10.03. Administration Charges

There shall be imposed an Administration charge upon any property owner person or company who has made a connection to the Authority's system for the Authority's cost to collect any outstanding and overdue bills. Said Administration charge shall include the costs of registered or certified mailings, and reimbursement of costs to the Authority for time spent for the collection of said bills by the Authority's legal counsel, engineer or other of the Authority's agents servants or employees Said charge shall be imposed either by separate bill by the Authority to the appropriate person or, at the Authority's discretion may be included in the next regular billing. This administration charge shall apply in all instances where the Authority must pursue the collection of overdue fees and charges otherwise due to it, and the costs to recoup such unpaid charges are not recoverable pursuant to N.J.S.A. 40:14B—46.

The imposition of this charge shall in no way constitute a waiver of any of the other rights which the Authority might have under the circumstances.

CHAPTER XI

RULES AND REGULATIONS GOVERNING THE ALLOCATION OF GALLONAGE

Section 11.00 Introduction and Purpose

The Authority is the duly authorized agency responsible for the provision of sanitary sewer services to the Participant municipalities within its service area. In response to local approvals of development projects requiring this service, the Authority undertakes substantial efforts to plan the construction of capital improvement projects essential to the provision of sewer services to accommodate existing and new demand for these services.

The Authority recognizes that there is a substantial need to allocate capacity in Authority facilities in order to provide the community with orderly and safe growth and to ensure the public health, safety and welfare. Furthermore, the Authority recognizes that the coordinated phase-in of new and expanded sewer service requests will promote the efficient allocation of sewer service and ensure that development is ultimately supported by adequate off-tract infrastructure prior to allocation of limited sewer capacity resources. Therefore, the Authority continues to pursue governing the allocation of treatment capacity within its treatment facilities. The Authority hereby promulgates rules and regulations for the implementation and application of the allocation policy to all development projects and others within the Authority's service area..

It is the purpose of the Authority in promulgating these Rules and Regulations to:

1. Accomplish the allocation of capacity within its wastewater treatment facilities with full recognition given to the sanitary sewer requirements as found in Planning and Zoning Ordinances of its Participant municipalities, and based upon the requirements of the Authority's Wastewater Management Plan, and the Wastewater Management Plans of the Participants.
2. Recognize that whenever any Applicant's requirements for sewer service exceed the ability of the Authority to deliver service due to sewer system deficiencies of any kind, it shall be the responsibility of the Applicant to pay its proportionate share of costs related to the upgrade and expansion of facilities, including planning, design, and construction of all facilities necessary to meet its requirements;
3. Eliminate the potential for the retaining allocations of capacity in Authority facilities without actual connection as not being in the best economic and financial interest of the Authority and the community. This is accomplished by restricting the amount of gallonage to be allocated to development projects receiving preliminary approval from the local planning board or zoning board of adjustment

to the maximum gallonage limits as specified herein; and by specifying certain construction performance standards as well as reservation fees; and

4. Promote health, safety and welfare of the public as well as ensuring the construction of necessary infrastructure by coordinating the allocation of capacity within Authority facilities with the regional needs within the Authority's Service Area.

Section 11.01 General Guidelines and Requirements for Allocation of Capacity For All Capacity Allocation Agreements

Applicants shall enter into Capacity Allocation Agreements with the Authority. These Agreements shall specify, among other things, the following:

1. Name of Applicant and Applicant's project (where applicable);
2. The date of local approvals;
3. The financial obligations of the applicant;
4. The time(s) and method of payment and guarantees of performance; and
5. Required common use off-tract improvements to be constructed by the Applicant.

Section 11.02 Payment required. Applicants are required to pay for all services rendered in connection with a Capacity Allocation Agreement. Generally, expenditures will consist of, but shall not be limited to the following:

1. Expenditures associated with plan review and approval;
1. Expenditures associated with construction inspection and Engineer certification of Applicant-built facilities; and
2. Expenditures associated with the provision of "as built" plans and drawings to the Authority.

Section 11.03 Transfer of Capacity Allocation

Capacity allocation within the facilities of the Authority cannot be traded, sold, or otherwise re-allocated by an applicant, unless the property identified by the Capacity Allocation Agreement is sold to a new owner, such that the allocation shall run with the land. Unused capacity will revert to the Authority.

Section 11.04 Ownership of Facilities

The Authority will own, operate and maintain all facilities related to sewer systems, excluding certain common use facilities serving multi-family units and commercial or industrial construction as determined by the Authority.

Section 11.05 Allocation and Utilization of Gallonage

Capacity within the Authority’s sewer treatment system shall be allocated on a “first-come, first-served” basis, subject to the availability of capacity within any given municipality in the Authority’s Service Area as set forth below.

1. Categories of Gallonage: Applicants for allocation of capacity within the Authority sewer treatment facilities shall be assigned to one of the following categories of gallonage based upon a qualitative analysis by the Authority of the requirements of the Applicant for service, and subject to the availability of capacity to the applicable Participant in accordance with the Authority’s WMP, or pursuant to agreement with the Applicant, as appropriate.
 - A. Health Hazard Gallonage: Gallonage from this category shall be allocated without limitation to relieve health hazards related to sanitary waste disposal within the Participant municipalities, and/or within the Authority’s Service Area.
 - B. Public Building Gallonage: Gallonage from this category shall be allocated without limitation to public buildings which are to be used for the health, safety and welfare of the public
 - C. Residential Infill Lot Development: Gallonage from this category shall be allocated without limitation to existing lots within the residential zones which either (a) are not part of a major subdivision of land for development purposes, or (b) are part of a minor subdivision as defined under the applicable zoning ordinance, one time only, and are within 200 feet of an existing sewer.
 - D. Non-Residential Infill Gallonage: Gallonage represented by this category shall be allocated to existing and new customers for development or redevelopment of non-residentially zoned properties. Allocations of capacity from this category of gallonage shall be granted based upon the assumption that the Authority shall not be subject to a sewage treatment capacity connection moratorium as

defined by the NJDEP and/or other applicable law or regulation, and (ii) applicants for allocations of capacity under this category of gallonage shall comply with the Treatment Works Approval regulations of the NJDEP.

E. Committed Flow Gallonage: Gallonage represented by this category shall consist of gallonage which has been allocated to Applicants pursuant to:

1. The issuance by NJDEP of a valid sewer extension permit which has not expired, or
2. The terms of these Rules and Regulations and an executed capacity allocation agreement between Authority and such Applicants, less that amount of gallonage represented by actual connections to the collection system from the development of such Applicants.

F. New Growth Gallonage: Gallonage represented by this category shall be allocated to Applicants for new development projects which have been duly approved by all governmental bodies having jurisdiction

2. Level of Importance of Categories: The Authority reserves the right to distinguish each category of gallonage by level of importance, rather than as a level of priority. The determination of level of importance pertains to the need to protect the health, safety and welfare of the public as a whole. Accordingly, the Authority has emphasized the importance of maintaining a category of gallonage for failing septic systems (Health Hazard Gallonage Category). It is the Authority's position that this quantity of gallonage will provide protection from septic system deficiencies that exist within the developed areas of the Authority's Service Area.
3. Reserved Amounts of Gallonage within Categories: The Authority reserves the right to reserve uncommitted amounts of gallonage within each specific category of gallonage for any purpose that it deems appropriate related to that category. Furthermore, based upon changing circumstances, utilization of available capacity by Applicants, and the passage of time, Authority may re-allocate amounts of gallonage among categories. Unused capacity in any category will revert to the Authority
4. Capacity Allocation and Adequacy of Conveyance Systems: Allocation of capacity within Authority treatment facilities will be granted upon the premise that

existing conveyance systems are adequate to provide the needed service to and from the Applicant's site. If existing conveyance facilities are found to be inadequate to fulfill the Applicant's requirements for service, projects will not be permitted to utilize allocated capacities within treatment facilities until necessary off-tract improvements are constructed by the Applicant, Authority or others. Even if existing conveyance systems are presently adequate to fulfill the Applicant's service requirements, the Applicant may still be subject to requirements to contribute to the future improvement or expansion of conveyance systems based upon the Applicant's impact thereon.

Section 11.06 Mandatory sewer connection

The Authority shall, in accordance with Service Agreements with Participants, encourage and endorse the adoption of provisions within local ordinances whereby properties that lie within a specific distance of an existing sanitary sewer line, as such distance may be determined by each municipality, shall be required to connect the sanitary sewer system.

Section 11.07 Revocation and Recapture of Allocated Gallonage

Allocations Subject to Revocation: Allocation of capacity in Authority facilities is subject to revocation under the following conditions:

1. If the responsible party fails to initiate construction of permitted on-tract and off-tract facilities prior to the expiration of any NJDEP construction permit. Expired permits are subject to renewal/ reapproval by the Authority prior to renewal/reapproval of the permit by NJDEP. After commencement of construction of permitted on-tract and off-tract facilities but prior to completion/final certification of said facilities, the allocation of capacity in Authority facilities is not subject to revocation if the responsible party maintains a valid construction permit in accordance with NJDEP regulations. The responsible party is expected to make reasonable continuous progress toward completion of construction of off-tract and on-tract facilities
2. If after completion/final certification of NJDEP permitted on-tract and off-tract facilities by the Authority or its designated agent, a two year time period elapses without the applicant having been issued sewer connection permits annually for no less than 20% of approved residential structures (50% of approved structures for non-residential applicants) associated with the Applicant's project
3. If the responsible party declares bankruptcy and is unable to fulfill his financial commitments agreed to in the capacity allocation agreement.

Section 11.08 Reservation of Gallonage within Authority Facilities and Payment of

Reservation Fees

The Authority discourages the banking of gallonage and encourages Applicants to make reasonable progress toward completion of their projects. Reasonable progress shall be defined for residential developments as the annual issuance of no less than 20% of the total sewer connection permits required for the approved project, and for non-residential developments, the issuance of sewer permits for no less than 50% of the structures (based upon total square footage) during the initial two year period following approvals and the remaining 50% during the subsequent third year. Progress shall be achieved either through actual construction or through the reservation of gallonage and the payment of a reservation fee. The reservation fee consists of two components, the first being a lump sum payment equal to the sewer connection fees in effect at the time the reservation of gallonage is sought, and the second being a recurring quarterly payment equal to the applicable sewer use quarterly minimum service fees which shall accrue thereafter on the number of dwelling unit equivalents being reserved at the beginning of the respective quarter.

Section 11.09 On-Site and Off-Tract Improvements

The absence of adequate distribution and conveyance capacity in existing Authority facilities may, at any time, preclude Applicants from utilizing capacity in the system until distribution and conveyance facilities are upgraded or expanded to accommodate new flows. Therefore, Applicants for sewer services from the Authority shall be required to contribute their proportionate share of all costs related to planning, design, and construction of off-tract sewer treatment and conveyance facilities necessary to service their projects. More specifically, proportionate share represents that portion of the cost to expand and/or upgrade common use facilities such as (without limitation), wastewater treatment facilities, sanitary sewers and pumping which serve their projects or are impacted by their projects. It is also the policy of the Authority that all on-site utility improvements related to the Applicant's individual project or off-site extensions to common use facilities of the Authority will be the responsibility of the Applicant.

Plans for all on tract and/or off tract improvements shall be reviewed and approved by the Authority, and shall be designed to meet the Authority's regional service needs. To the extent that the Authority may require an Applicant to design and install improvements that exceed the needs of that Applicant, the authority and Applicant shall provide, within a Developer's Agreement, for pro rata reimbursement to Applicant of excess expenditures by subsequent users of those facilities. The Authority may impose reasonable restrictions upon the time and manner in which such reimbursement shall be calculated and recouped.

ARTICLE XII

MISCELLANEOUS

Section 12.01. Amendments

The Authority reserves the right to amend these Rules and Regulations or to adopt additional rules and regulations from time to time as it shall deem necessary for the operation, maintenance and protection of the Regional Sewerage System, for meeting revised standards of influent or effluent quality of any regulatory agencies having jurisdiction in this regard, or for any other reason the Authority deems is desirable or necessary for performing its functions. Any such amendments or additions shall become effective within fifteen (15) days of their adoption by the Authority or as may specifically be required by any Federal and/or State regulatory agency having jurisdiction, or any service agreement with a Participant.

Section 12.02. Invalid Provision; Severability and Waiver

Severability: If any provision, section, subsection, paragraph, clause or word of these Rules and Regulations is invalidated by a court of competent jurisdiction, such order or judgement shall not affect or invalidate the remainder of any provision, section, subsection, paragraph or clause, and to this end the provisions of these Rules and Regulations are declared to be severable.

Exception or Waiver: The Authority shall have the power to grant such exceptions and waivers from the requirements of these Rules and regulations as may be reasonable and within the general purpose and intent of their provisions if the literal enforcement of one or more provisions is impracticable or will exact undue hardship because of peculiar conditions pertaining to the application in question. The Authority may grant such relief as may be reasonable and in the best interests of the public and in accordance with the general purposes and intent of these requirements. In making its findings, the Authority shall take into account the nature of the proposed use, the existing use, the existing use of the land in the vicinity, the number of persons who will reside or work in the facilities being proposed, and the probable effect of the proposed application on sanitary sewer facilities in the vicinity. The granting of relief under this section shall not be detrimental to the public welfare, injurious to the surrounding property nor detrimental to the development of sanitary sewer facilities within the service area of the Authority.

APPENDIX A

**SPECIFICATIONS FOR THE CONSTRUCTION
OF
SANITARY SEWERS**

101. MATERIALS - SEWER PIPE

- A. PVC Sewer Pipe (referred to as PVC) shall conform to ASTM Designation D-3034-(SDR-35). Factory attachment of couplings and saddle fittings and field jointing of pipe sections and fittings shall be accomplished by O-ring rubber gaskets (ASTM Designation F-744).

Polyvinyl chloride sanitary sewer pipe shall be polyvinyl chloride pipe with integral wall bell and spigot joints for conveyance of domestic sewage. Pipe material shall conform to ASTM D-1784, cell classification 12454-B, 1254-C, or 13364-B, with minimum tensile modules of 500,000 psi. Joints shall conform to ASTM D-3212, each with integral bell joint consisting of a formed bell complete with single rubber gasket. Pipe stiffness shall conform to ASTM D-4214 at five percent (5%) deflection for 46 psi, and conform to drop impact test per ASTM D-2444.

All branches, bends, and accessories shall be as manufactured by the approved pipe supplier and have bell and spigot configuration compatible with that of the sanitary sewer pipe. All necessary lubricants for pipe and fitting installation shall be furnished and applied in accordance with the manufacturer's recommendation.

- B. Ductile Iron Sewer Pipe and Fittings shall be coal tar enamel coated. All fittings for CI and DI pipe shall have mechanical joints or push on joints, unless otherwise approved.

Push-on joint pipe and fittings of ductile iron pipe shall conform to "Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds or Sand-Lined Molds, for Water or Other Liquids," ANSI/AWWA C151/A21.51. Iron fittings will conform to the requirements of "Gray Iron and Ductile Iron Fittings, 3 Inches Through 48 inches, for Water and Other Liquids," ANSI/AWWA C110/A21.10.

Ductile iron pipe shall have with push-on joints. Gaskets and lubricant will be as recommended by the pipe manufacturer. Push-on joints will conform to the requirements of "Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings," ANSI/AWWA C111/A21.11.

All flanges and all flanged iron fittings will conform to the requirements of "Cast-Iron

Flanges and Flanged Fittings, 25, 125, 250 and 800 lb." ANSI B16.1, and "Gray Iron and Ductile Iron Fittings, 2 Inches Through 48 Inches, for Water and Other Liquids," ANSI A21.10 as applicable. All pipe provided with flanges will conform to the requirements of "Flanged Ductile-Iron Pipe with Threaded Flanges," ANSI/AWWA C115/A21.15. All flanges on short pieces of flanged pipe may be cast solid or made by threading the end of a piece of ductile iron pipe and screwing companion flanges on the threaded ends in such manner as to provide the correct face to face dimensions. The threaded ends of the pipe will be run through the flange and be machined off flush with the face of the flange.

Bolts used for flanged joints will conform to the requirements of "Square and Hex Bolts and Screws, Including Hex Cap Screws and Lag Screws," ANSI B18.2.1. Nuts used for flanged joints will conform to the requirements of "Square and Hex Nuts," ANSI B18.2.2. All bolts and nuts will be best quality hot-dipped galvanized steel. Bolt head and nuts will be hexagonal and the diameter and length of bolts will conform to the requirements of "Cast Iron Flanges and Flanged Fittings, 25, 125, 250, and 800 lb.," ANSI B16.1.

All mechanical joint ductile iron pipe will conform to "Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids," ANSI/AWWA C151/A21.51. Iron fittings will conform to the requirements of "Gray Iron and Ductile Iron Fittings, 3 inches Through 48 inches, for Water and Other Liquids," ANSI/AWWA C110/A21.10. All mechanical joints will conform to the requirements of "Rubber Gasket Joints for Cast Iron and Ductile Iron Pressure Pipe and Fittings," ANSI/AWWA C111/A21.11.

Restrained joint pipe will be ductile iron manufactured in accordance with the requirements of ANSI/AWWA C151/A21.51. Push-on joints for such pipe will be in accordance with ANSI/AWWA C111/A21.11 "Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings."

Restrained joint fittings and the restraining components will be ductile iron in accordance with applicable requirements of ANSI/AWWA C110/A21.10 and/or C153/A21.53.

The outside surface of all buried exterior pipe and fittings will be coated with coal-tar pitch varnish.

102. MATERIALS - CASING PIPE

- A. Casing pipe and joints shall be of metal and of leak-proof construction. Casing pipe shall be so installed as to prevent formation of a waterway, with an even bearing throughout its length, and shall slope to one end.
 - 1. Steel Casing Pipe Under Railroad - Steel Casing pipe as specified for railroad crossings shall conform to the requirements for ASTM-A 139, Grade B.

2. Steel Casing Pipe Under Highway - Steel casing pipe as specified for Highway crossings shall conform to the requirements of ASTM A-139, Grade B or ASTM A-53, Grade B.

103. INSPECTION AND REJECTION OF PIPE AND MATERIALS

- A. The quality of all materials, the process of manufacture, and the finished pipe shall be subject to inspection and approval by the Authority. Such inspection may be made at the place of manufacture or on the work site after delivery or at both places, and the pipe shall be subject to rejection at any time on account of failure to meet any of the Specification requirements even though sample pipes may have been accepted as satisfactory at the place of manufacture.
- B. Previous to being lowered into the trench, each pipe shall be carefully inspected and those not meeting the Specification shall be rejected and at once removed from the Work. Pipes having any defects not sufficient, in the judgment of the Authority, to warrant their rejection, shall be so laid as to bring these defects to the upper half of the sewer.
- C. The Authority shall also have the right to take samples of concrete after it has been mixed, or as it be being placed in the forms or molds, and to make such inspection and tests thereof as he may wish, to be paid for by the Contractor.
- D. Any pipe which has been damaged after delivery will be rejected and, if such pipe is already laid in the sewer line, it shall be acceptably removed and replaced at the sole expense of the Contractor.

104. HANDLING PIPE

Each pipe section shall be handled into its position in the trench only in such manner and by such means as the Owner approves as satisfactory. The Contractor shall furnish slings, straps, and other approved devices to permit satisfactory support of all parts of the pipe when it is lifted.

105. NOTICE TO AUTHORITY

The Authority shall be notified when the pipes are to be laid in the trench, and none shall be covered until they have been inspected and approved by the Authority. At least twenty-five (25) feet of pipe shall, under ordinary circumstances, be laid before covering begins.

106. LAYING PIPE

- A. All pipe shall be reinspected for soundness and damage due to handling immediately before being lowered into the trench. Any pipe found to be unsound or damaged will be rejected, and shall be removed immediately from the site of the Work.
- B. All pipe shall be laid accurately to the required line and grade, and in such manner as to

form a close, concentric joint with the adjoining pipe and to bring the invert of each section to the required grade. All pipe shall be laid in a straight line between manholes. No curved sewers will be permitted. Bell holes shall be dug in advance of the pipe laying. The supporting of pipe on blocks will not be permitted.

- C. Pipe laying shall proceed upgrade, beginning at the lower end of the sewer.
- D. Branches, fittings and specials shall be provided and laid as indicated on the Drawings, or as directed by the Authority. All open ends of pipes and branches shall be sealed with stoppers or bulkhead finely held in place in a manner acceptable to the Authority. No special payments will be made for stoppers or bulkheads. At the end of each days work the open ends of all pipes shall be satisfactory protected against the entrance of animals, earth or other materials.
- E. Contractor shall comply with all OSHA Rules regarding confined space entry.

107. MINIMUM GRADES (Special Note)

The slope of most gravity sewer lines is the minimum allowable and must be maintained. The Contractor, upon completion of pipe line laying from manhole to manhole, shall check the grade of pipe for proper slope before proceeding to next manhole. Failure of the Contractor to verify and correct deviations from established grade, may require removal and replacement of several strings of pipe to correct less than minimum grade conditions detected at time of final inspection.

108. JOINTING

- A. Practically water-tight work is required, and the Contractor shall construct the sewers with a "premium joint" so that the sewer installation will meet the requirements of paragraph 413 "Sewer Tests."
- B. The ends of the pipe shall be satisfactorily cleaned just before laying, and the joint shall be made in a satisfactory manner in accordance with the recommendations of the manufacturer of the particular type of joint. All joint work shall be done by experienced workmen.
- C. Before any joints are actually made in the trench, the Contractor shall demonstrate to the Authority, by making a sample joint, that the methods employed will secure a joint that will meet the requirements of the specifications for "Sewer Test."

109. PIPE EMBEDMENT

Embedment Bedding for use with various pipe types, sizes and depths shall be as required by paragraph 125 of these Specifications.

110. HOUSE SERVICES

- A. Furnish and install 4" house service sewers and/or "Y" branches. Plug open end with stopper and seal. The seal shall be water tight and sufficient to withstand test pressures. Provide the Owner with measurement from manhole to each "Y" branch and end of house service. Place a 2 x 2 marker at end of each house service.
- B. For direct connections to the Authority's sewer system, the Authority reserves the right to determine the size and kind of the service lateral from the main to the curblineline or right-of-way limit and the building sewer. New building sewers of all sizes (minimum four-inch pipe) shall be constructed of heavy duty cast-iron soil pipe or PVC, Schedule 40, and all installations shall be in accordance with the standards and requirements of the New Jersey State Plumbing Code. In the event of conflict between the Code and these "Service Rules," the provisions of these "Service Rules" shall control. The building sewer from the curb to the building shall be furnished and installed by the owner of the property in accordance with the local municipal sewer use ordinance. The building sewer and connection to the Authority's service lateral shall be installed by the property owner or a licensed plumber and maintained by the property owner and shall be inspected and approved by the local municipal agent prior to backfilling the trench. Any construction not approved shall be immediately removed and reconstructed in an approved manner.
- C. All building sewers shall be properly constructed in order to avoid the creation of infiltration and/or inflow sources within the Authority's system.

111. TEMPORARY SEWER CONNECTIONS

Where special junction chambers are to be constructed or where existing sewers carrying sanitary sewage are encountered; the Contractor shall provide and maintain temporary connections to prevent a nuisance.

112. CONNECTIONS TO EXISTING SEWERS

- A. The Contractor shall connect the new sewer to existing facilities, existing sewers to new facilities and house service connections into interceptor or collector lines between manholes. Unless otherwise directed by the Authority, all house service lines shall be 4" sewer pipe.
- B. The Contractor will be required to make provisions for handling sewage flow while connections are being made. The Contractor shall submit in writing an operational schedule showing the exact procedure to be followed for major connections. The Contractor shall receive approval of the procedures from the Authority prior to the commencement of the Work.
- C. A masonry plug shall be installed in the sewer line until all lines have been tested and accepted by the Authority. Authority personnel shall be present when removing the plug. Contractor shall take all the necessary precautions to prevent any debris from entering the system.

113. SEWER TESTS

- A. The Contractor shall furnish all equipment and labor necessary to conduct testing as specified herein.

Tests for water-tightness of sewers shall be made in the presence of and in the manner approved by the Authority.

Tests shall be made of short sections of the sewer as soon as the manholes have been constructed and backfill has been completed.

Where the section tested indicates a loss in excess of the allowable amount, the Contractor shall correct the Work so that the retest is within the allowable limit.

- B. Gravity Sewer Testing:

Testing shall conform to the requirements set forth below under Alternate (1), "Water Test for Leakage," or Alternate (2), "Air Test for Leakage."

1. Water Test for Leakage - Infiltration into the completed sewer, including connections, manholes and structures, shall not exceed fifty (50) gallons per inch of diameter per mile of sewer per twenty-four (24) hour period when field tested by actual infiltration conditions. If exfiltration testing is required or deemed necessary, the sewer shall test equally well, except that an allowance of an additional 10 percent of gallonage shall be permitted for each additional two (2) foot head over a basic two (2) foot minimum internal head. The pipe under test shall be filled with water to a level two (2) feet above the top of the upper pipe. The test water shall remain in the manhole a sufficient time for absorption before starting the test. Duration of the test shall be four (4) hours.
2. Air Test for Leakage - The sewer line shall be sealed at each end. The seal at one end shall have an orifice through which to pass air into the pipe. An air supply shall be connected to the orifice at one end of the line. The air supply line will contain an on-off valve and a pressure gauge having a range of from 0 to 5 psi. The gauge shall have minimum divisions of 10 psi and shall have an accuracy of +/- .04 psi. The seals at each manhole shall be properly blocked to prevent displacement while the line is under pressure.

The pipe line under test shall be pressurized to 4 psig. The line shall be allowed to stabilize between 4 psig and 3.5 psig for a period of no less than five (5) minutes. If necessary, air should be added to the line to maintain the pressure above 3.5 psig. After the stabilization period, the valve shall be closed. When the line pressure drops to 3.5 psig, timing

with a stop watch shall commence. The stop watch shall run until such time as the line pressure drops to 2.5 psig, at which time the watch shall be stopped and the time lapse compared with the allowable time lapse specified herein. If the time lapse is greater than that specified, the section undergoing test shall have passed and the test may be discontinued at that time. If the time is less than that specified the line has not passed the test and the Contractor shall prepare the line for retest.

3. Gravity Sewer Deflection Testing - The Contractor shall also furnish all equipment and personnel to conduct deflection testing on a minimum of ten percent (10%) of PVC sewer pipe installed as directed by the Engineer. The total vertical wall deflection of the PVC sewer pipe shall not exceed seven and one-half percent (7½%) of the inside pipe diameter. Deflection testing shall not be conducted earlier than seven (7) days after placement and compaction of the backfill. In addition, the groundwater level shall be kept below the invert of the pipe during the deflection testing.

The vertical deflection shall be checked by manually pulling a go, no-go deflection testing mandrel through the pipe. The mandrel shall be specifically designed for this purpose, and the Contractor shall submit to the Engineer details of the type of mandrel to be used. The mandrel shall be as manufactured by Armco Inc. or approved equal, and shall have the specified accuracy in all positions of rotation.

The Contractor shall conduct all deflection testing in the presence of the Engineer. Should any pipe section exceed the maximum deflection specified, the Contractor shall undertake any remedial action as required to reduce the deflection to within that limit.

**MINIMUM HOLDING TIME REQUIRED FOR
PRESSURE TO DROP FROM 3-½ TO 2-½ PSIG**

1 Pipe Dia. (in.)	2 Minimum time (Min: Sec.)	3 Length for Minimum Time (ft.)	4 Time for Longer Length (sec.)	100 ft. (Min:Sec.)	200 ft. (Min:Sec.)	300 ft. (Min:Sec.)	400 ft. (Min:Sec.)
4	3:46	597	.380 L	3:46	3:46	3:46	3:46
6	5:40	398	.854 L	5:40	5:40	5:40	5:42
8	7:34	298	1.520 L	7:34	7:34	7:36	10:08
10	9:26	239	2.374 L	9:26	9:26	11:52	15:49
12	11:20	199	3.418 L	11:20	11:24	17:05	22:47
15	14:10	159	5.342 L	14:10	17:48	26:42	35:36
18	17:00	133	7.692 L	17:00	25:38	38:27	51:16
21	19:50	114	10.470 L	19:50	34:54	52:21	69:48
24	22:40	99	13.674 L	22:47	45:34	68:22	91:10
27	25:30	88	17.306 L	28:51	57:41	86:32	115:22
30	28:20	80	21.366 L	35:37	71:13	106:50	142:26
33	31:10	72	25.852 L	43:05	86:10	129:16	172:21
36	34:00	66	30.768 L	51:17	102:34	153:50	205:07

REF: UNI-BELL PLASTIC PIPE ASSOCIATION, PUB, UNI-B-6-79

"RECOMMENDED PRACTICE FOR LOW-PRESSURE AIR TESTING OF INSTALLED SEWER PIPE"

114. NON-METALLIC PIPE LOCATOR

The Contractor shall furnish and install a detectable identifying tape in all trenches where non-metallic pipe is used. The identifying tape shall be made of polyethylene tape, bonded to a metalized foil and shall be highly resistant to alkaloids, acids or other destructive chemical components likely to be encountered in soils. The tape shall be 3" wide, shall be brightly colored to contrast with soil and bear in an imprint identifying the type of line buried below. The tape shall be placed approximately eighteen inches below the finished grade and turned up at the capped end of house service laterals with twelve inches of the tape extending above the surface to act as flagging for visually locating the lateral.

115. MANHOLES AND WET WELL STRUCTURES

A. GENERAL

1. Standard manholes, special manholes, and wet wells shall be constructed complete with covers, in accordance with these precast concrete manhole specifications. Standard manholes above the foundations, unless otherwise required by the Drawings shall be constructed of monolithically poured reinforced concrete sections specially cast for use in manholes. Pump station wet well structures shall conform to these precast concrete manhole specifications.
2. Manhole inverts shall be carefully constructed to maintain the proper velocities through the manhole, and in no case shall the invert sections through the manhole be greater than that of the outgoing pipe. The shape of the invert shall conform exactly to the lower half of the pipe to which it connects. Side branches shall be connected with as large radius of curve as practicable. All inverts shall be troweled to a smooth clean surface.

B. MATERIALS

1. Manholes shall be constructed of materials which shall conform to the following:
 - a. Circular Precast Section per ASTM C478, with a minimum wall thickness of 5 inches.
 - b. Mortar: One part portland cement, ½ part hydrated lime, 3 parts sand, mixed dry, with only enough water added to provide a workable consistency.
 - c. Castings:
 - (1) Cast Iron ASTM A48
 - (2) Coating Hot Asphaltum applied at foundry

C. PRECAST CONCRETE MANHOLES

1. General

- a. Manholes shall be made of precast concrete sections of which the top section shall be eccentric or flat slab top. Bottom section shall be a precast concrete manhole base.
- b. Poured in place bases will not be acceptable.
- c. All precast manhole sections shall be manufactured in accordance with and meet the requirements of specification A.S.T.M. C-478, latest revision.
- d. All precast manhole sections shall be manufactured by the wet cast method.
- e. The minimum compressive strength of the concrete for all sections shall be 4000 psi. The maximum allowable absorption of the concrete shall not exceed 9 percent of the dry weight. Tests, when required shall be in accordance with A.S.T.M. C-497, "Determining Physical Properties of Concrete Pipe and Tile," latest revision. The circumferential steel reinforcement for risers, cone sections and base walls shall be a minimum of 0.12 sq. inches per vertical foot for 48" diameter manholes and .0025 times the inside diameter in inches per vertical foot for larger diameter manholes.

2. Products

- a. Standard Manhole
 - (1) The manholes shall be constructed of precast reinforced concrete manhole sections. The sections shall be a minimum of four feet in diameter for pipe sizes up to and including 20 inches internal diameter.
 - (2) The sections shall conform to the requirements of the "Specification for Precast Reinforced Concrete Manhole Section." (A.S.T.M. C-478, latest revision). Joints shall be sealed with a Preformed Plastic Gasket that meets or exceeded all requirements of Federal Specification SS-S-00210, Sealing Compound Preformed Plastic for Pipe Joints:, Type 1, Rope Form, as manufactured by Hamilton Kent Manufacturing Co., Kent, Ohio or BUTYL-LOK as manufactured by A-LOK Products, Tullytown, PA; D-LOK Rubber Gasket as specified to meet the requirements of Specification A.S.T.M. C-443, as supplied by Atlantic Concrete Products Co., Tullytown, PA., or equal.
 - (3) Manholes 4 feet in diameter shall have a bottom at least 6 inches thick and a wall at least 5 inches thick.
 - (4) Manholes 5 feet in diameter shall have a bottom at least 8 inches

- thick and a wall at least 5 inches thick.
- (5) Manholes 6 feet in diameter shall have a bottom at least 8 inches thick and a wall 7 inches thick.
 - (6) Manholes 8 feet in diameter shall have a bottom at least 12 inches thick and a wall 9 inches thick.

b. Manhole Bases

- (1) Manhole bases shall be precast reinforced concrete. Poured in place bases will not be acceptable.
- (2) The bases shall be monolithically cast and shall consist of a manhole bottom and a wall which shall extend a minimum of 6 inches above the top of the highest inflowing sewer. The top of the base section shall be carefully formed to receive the tongue of the barrel section. There shall be a minimum distance of 4 inches between the invert of the lowest outflowing sewer and floor of the precast base to provide for the construction of a formed invert and bench wall within the manhole. No more than two lift inserts or holes shall be cast in the bases.
- (3) All precast manhole bases shall have pipe to manhole flexible seals as manufactured by A-LOK Products Corporation, Tullytown, PA., "A-LOK full compression seals"; or equal.
 - (a) Pipe seals up to and including 20 inches in size shall be cast into 48" diameter manhole bases.
 - (b) 21 inch through 30 inch pipe seals shall be cast into 60 inch diameter manhole bases.
 - (c) 33 inch through 48 inch pipe seals shall be cast into 72 inch diameter manhole bases.
 - (d) Flexible pipe to manhole seals shall meet "Rubber Gasket Specifications A.S.T.M. C-443" and "Test Performance Requirements A.S.T.M. C-425" for Compression Joints.
 - (e) Installation of pipe to manhole flexible seal shall be made in accordance with the manufacturers suggested specifications.

c. Risers and Top Section

- (1) The top of base walls, the ends of reinforced concrete risers and the bottom ends of precast tops shall be so formed that when risers and tops are assembled with the base, they will make a

continuous manhole.

- (2) Manhole barrels shall consist of riser and top section with a minimum wall thickness of 5 inches. The top section shall be eccentric conical section with thickened upper walls with the smallest inside diameter equal to 30 inches, to receive the manhole frame and cover. No more than 2 lift inserts or holes shall be cast in each barrel or top section.

d. Manhole Steps

- (1) Manhole steps shall be of extruded 6061-T6 aluminum and shall be the equal of ALCOA Stock No. 12653A or Polypropylene step #PS4B as manufactured by M.A. Industries, Peachtree City, Georgia or equal.
- (2) Manhole steps shall be cast into the walls of base, risers and conical top sections, and shall be aligned vertically and spaced so as to be on equal centers in the assembled manhole at a maximum distance apart of 12 inches. Steps shall be located a minimum of 6 inches from the ends of base, riser, and top sections, and shall be securely embedded in manhole sections by mortar or cast in place polypropylene inserts.
- (3) Manhole step dimensions shall meet the requirements of OSHA Standard 1910.27 for fixed ladders.

e. Manhole Frames and Covers

- (1) Casting shall be tough gray iron, free from cracks, holes swells, and cold shuts. All manhole casting shall be made accurately to the pattern and to the dimensions shown on Plans, and shall be planned where marked, or where otherwise necessary to secure perfectly flat and true surfaces. All lids which "rock" and do not lie solid after construction is finished will be condemned and must be replaced by perfect lids.
- (2) Anchor Bolts
 - (a) Anchor Bolts for bolting manhole frame to precast or brick manholes shall be 3/4" diameter galvanized all thread steel rods with 5 inch hook for embedment in the manhole top and a minimum 2 inch projection through the bars of the frame.
 - (b) Two Bolt Slots or inserts shall be cast into the manhole top, positioned at 180 degrees at the time of manufacture.

- (3) All standard manhole frames and covers shall have a nominal weight of 400 pounds and shall be Campbell Foundry Pattern No. 1203B, or equal. All frames shall have brick rinks. All covers shall be solid with no vents, unless specified otherwise.
- (4) All watertight manholes shall have waterproof manhole frames with bolted lids and shall be Campbell Foundry Pattern No. 6544 or equal 440 lbs. with anchor bolts and bolt holes.

D. INSTALLATION

1. Precast Concrete Bases

- a. All precast concrete bases shall be installed on a layer of crushed stone which shall have a minimum depth of 8 inches. The crushed stone shall conform to the quality and grading requirements specified in Paragraph 420.D., Sewer Construction.
- b. All pipe openings shall have pipe to manhole flexible seals as previously mentioned.
- c. In constructing "Drop Manholes," the Contractor shall use one of the following methods:
 - (1) Encase and support the riser and incoming pipe with concrete down to undisturbed earth as shown on the Detail Sheet. The cost of this concrete shall be included in the price of the drop manhole. Encasing the riser with brick will not be acceptable. Care shall be taken to have all pipes laid to correct lines and grades before concreting is undertaken.
 - (2) Purchase precast base with a 90 degree bend precast into the base section and protect the vertical pipe with precast Drop Collars.

2. Masonry Work

- a. The top of all precast manholes may be brought to proper grade for receiving manhole frames by using not more than three courses of brick or precast concrete grade rings. Masonry construction shall be performed by experienced and qualified workmen only. All work shall be laid plum, straight, level, square and true. Brick shall be laid in full beds of mortar and shoved into place. All joints shall be full and not more than one-half inch in thickness. The Contractor shall set in place and bond in the masonry all necessary steps and miscellaneous items specified elsewhere. The masonry wall shall be parted on the inside and outside with a one-half inch coat of Portland Cement mortar.
- b. Mortar to be used in brickwork, setting manhole frames, and parging, shall be prepared by thoroughly mixing; one (1) volume of Type II Portland Cement with three (3) volumes of sand and sufficient clean water to produce a rich mass of approved consistency. Mixing mortar on the ground or any paved surface shall

not be permitted. Sand to be used in making mortar shall be clean, well-graded, and shall pass a standard No. 4 sieve.

- c. All mortar to be used in joining manhole section, filling lift holes in risers shall be an approved mixture of sand, cement and Embeco aggregate.
- d. Masonry shall not be constructed during cold weather (air temperature below 40 degrees F.) unless necessary precautions are observed.

3. Flow Channels and Bench Walls

- a. In precast bases the flow channels and bench walls in each manhole shall be carefully formed of mortar and brick, or concrete, to $\frac{3}{4}$ pipe section.
- b. The minimum depth of flow channel shall be equal to $\frac{3}{4}$ the diameter of the pipe to which it connects. The channel shall be graded to give a smooth, uninterrupted flow through the manhole.
- c. Bench walls shall be pitched a minimum of 1 inch per foot from the inside periphery of the manhole to the edge of the flow channel.
- d. The Contractor has the option to pour the flow channels or to have them precast by the manhole manufacturer.

4. Manhole frames and covers

Manhole frames and covers shall be brought to proper grade as previously noted, set in 1/4" bed of mastic, and anchored in place with the top two (2) 3/4" diameter anchor bolts which shall be securely embedded in the top of the manhole.

5. Waterproofing

- a. The entire outer surface of all precast concrete manholes shall be coated with two (2) coats of an approved bitumastic coating. Coating shall be Carboline/ Kop-Coat 300-M Epoxy or Pennsbury 32-B-4 Epoxy.
- b. A rubber boot shall be cast integrally into each manhole cone or flat slab top section to prevent surface infiltration. The boot shall be Water-LOK Manhole Entry Sleeve as manufactured by A-LOK Products, Tullytown, PA., or equal.

E. TESTING MANHOLES

All manholes will be tested for exfiltration by plugging any pipes entering the manhole and then filling the manhole with water to a point 2 feet above the top of the upper riser. The test water shall remain in the manhole a sufficient time for absorption before starting the test. The loss of test water shall not exceed 1" per hour for 2 hours.

When the sewer line is tested by the "Water Test Method," the manhole may be tested in conjunction with the line test. The Authority may require the Contractor to retest individual

manholes separately on a 20% random basis as a part of the contract. The owner may request additional testing and if so ordered, the work must be retested by the Contractor. If such work is found to be in accordance with the Contract Documents, the Authority will pay the cost of retesting. If such work be found not in accordance with the Contract Documents, the Contractor shall pay such cost.

Manhole Testing by the Negative Air Pressure (Vacuum) Method

The Contractor may test concrete manholes by the Vacuum Method in accordance with ASTM C 1244-93. The Contractor shall provide all testing equipment and appurtenances, and conduct such tests or retests in the presence of the Authority Inspector, or his representative, and to his satisfaction. The Contractor shall provide three (3) copies of the manhole test results to the Engineer.

All lift holes, any pipes, or other penetrations entering the manhole are to be plugged, taking care to securely brace the pipes and plugs to prevent them from being drawn into the manhole. The test head shall be placed at the top of the manhole in accordance with the manufacturer's recommendations. A vacuum of ten (10) inches of mercury shall be drawn on the manhole, with the valve on the vacuum line of the test head closed, and the vacuum pump shut off. The time shall be measured for the vacuum to drop to nine (9) inches of mercury. The manhole shall pass if the time for the vacuum reading to drop from ten (10) inches to nine (9) inches of mercury meets or exceeds the values indicated below.

Minimum Test Times for Various Manholes/ Depths

<u>Depth (ft.)</u>	<u>Diameter (in.)</u>		
	<u>48</u>	<u>60</u>	<u>72</u>
		(Time in Seconds)	
8	20	26	29
10	25	33	36
12	30	39	43
14	35	46	51
16	40	52	58
18	45	59	65
20	50	65	72
22	55	72	79
24	59	76	87

If the manhole fails the initial test, the Contractor shall make necessary repairs, and the manhole shall then be retested until a satisfactory test is obtained. Use or failure of vacuum testing shall not preclude acceptance by appropriate water infiltration or exfiltration testing.

116. FORCE MAIN CONSTRUCTION

A. GENERAL

1. The Contractor shall furnish all materials, perform all excavation and backfill,

make all necessary joints and connections, install all valves, construct all appurtenances, install all temporary lines and dispose of all surplus excavation and discarded material and perform all work as may be necessary to complete the force main installation as set forth in these Specifications.

2. The Contractor shall notify all corporations, companies, individuals or authorities owning conduit, wires, or pipes located within proximity of the proposed force mains or encountered during excavating operations. The Contractor shall protect, support and maintain all conduits, drains, sewers, pipes and wires that are to remain in place.

B. WORK IN EASEMENTS

All force mains installed under this Section shall be installed in public rights-of-way or within easement provided by the Owner.

C. COOPERATION BY CONTRACTOR

The Contractor shall arrange and perform his Work so as to cause the least amount of interference to adjacent properties.

D. MATERIALS

1. Force Mains - Shall at a minimum meet all requirements of this Section for a working pressure of 150 psi. All force main piping greater than 2" in diameter shall be Cast Iron or Ductile Iron pipe.
2. All pump station piping greater than 2" in diameter - Shall be Cast Iron or Ductile Iron pipe.
3. Should the developer propose pipe materials other than specified herein the Authority shall review such proposal and approve or deny its use based on the project specific conditions.
4. Pipe - All pipe materials and fittings to be used under this Section shall meet a minimum of 150 psi and the specifications listed below:

a. Cast Iron Pipe

- | | |
|--------------------------|------------------------|
| a. 2" to 2-1/4" pipe | AWWA 112, ANSI A21.12 |
| b. 3" to 24" pipe | AWWA C-106, ANSI A21.6 |
| c. Mechanical Joint Pipe | AWWA G-11, ANSI A21.11 |

b. Ductile Iron Pipe

ANSI A21.51,
AWWA-151, CI52

c. Plastic Pipe

AWWA C-900 C-1150-DR18, Min.
Sch.80

d. CI or DI Fittings AWWA C-110 - Mechanical Joint

5. Valves

- a. Gate Valves - (AWWA) Clow, Mueller or equal.
- b. Air Release Valves - Golden Anderson Fig. 925, Val-Matic No. 48 or equal.
- c. Check Valves - with Neoprene Sleeves, Red Valve Series 33, or equal.

6. Air Release Vaults - Vaults shall consist of 48 inch concrete pipe with a Neenah R-1758 Series, or equal, frost proof lid.

E. TEST OF PIPE AND FITTINGS

The Manufacturer shall inspect all pipe and fittings and shall furnish three (3) certified copies of tests and inspection reports covering description, hydrostatic test, physical properties, chemical analysis, and coating analysis.

F. INSPECTION BY AUTHORITY

- 1. All pipe furnished under this Specification may, after delivery and before use be subject to inspection by the Owner. Material which does not meet all requirements of this Specification will be rejected.
- 2. The Authority shall be notified when the pipes are to be laid in the trench, and none shall be covered until they have been inspected by the Authority. At least twenty-five (25) feet of pipe shall, under ordinary circumstances, be laid before covering begins.

G. FORCE MAIN INSTALLATION

- 1. Proper implements, tools and facilities shall be provided and used for the safe and convenient prosecution of the Work. All pipe, fittings, valves and specials shall be carefully lowered into the trench in such a manner as to prevent damage to the protective coating and linings. As a minimum, a Class C trench bedding with granular fill material embedment, shall be used for force main installation.
- 2. Pipe and fittings shall be carefully examined for defects and no pieces shall be laid which are known to be defective. Before lowering and while suspended, cast iron pipe may be gently tapped with a hammer to check for cracks. Defective, damaged or unsound pipe shall be rejected. If any defective piece shall be discovered after having been laid, it shall be removed and replaced with a sound one, at the Contractor's expense. All pipes and fittings shall be thoroughly cleaned before they are laid and shall be kept clean until accepted in the completed work. Pipe which has been contaminated with mud or soil shall be cleansed with a swab.
- 3. The pipe shall be supported its full length by the uniform grade of the trench, and

a bell hole shall be dug at each joint, said hole being of sufficient size to insure proper "making up" of each joint. Pipe ends shall not be left open such as at the end of a workday or during temporary suspension of construction, but shall be securely covered to prevent the entry of foreign matter or small animals. Kinks or sharp bends giving excessive deflection or which put pipe joints in strain will not be permitted. The maximum permissible deflection per joint shall be in accordance with manufacturer's recommendations.

4. When cutting short lengths of pipe, a pipe cutter shall be used and care shall be taken to make the cut at right angles to the center line of the pipe. In the case of "push on" pipe, the cut ends shall be tapered with a portable grinder or Cement Pipe shall be cut by means of pipe cutters of the "blade type" or with abrasive wheels. The pipe shall then be filed, beveled or machined, as required.
5. Thrust Blocking: Thrust blocks shall be Class "C" concrete which shall have a minimum compressive strength of 2,500 psi, twenty-eight (28) days after placing. Thrust blocking, pads, clamps, and rod assemblies shall be provided at fittings, valves or special equipment. Clamps, rods, straps, nuts and bolts shall be coated with coal tar enamel after assembly and installation.
6. Pipe Joints:
 - a. "Push On" Type Joints: "Push On" type joints such as "Bell Tight," "Tyton" or equal joints shall be prepared by removing all dirt or foreign material from the bell end of pipe and inserting the gasket. The spigot end of the pipe shall be prepared by cleaning and applying a thin coat of approved lubricant after which the spigot end is centered in the bell and jacked on by using a special jack and choker sling. The procedure in making up this joint shall be performed in accordance with the recommendations of the manufacturer.
 - b. Mechanical Joints: When "making up" mechanical joints, the spigot end of each pipe shall be entered into the adjoining bell to within one-eighth ($\frac{1}{8}$) of the total depth of the bell. The pipe shall be properly centered and have uniform space around for reception of the packing material. The packing material, bolts, nuts, and other accessories used in making mechanical or sleeve type joints shall be obtained from the manufacturer of the pipe and joints. The surface of the spigot and bell shall be brushed thoroughly with a wire brush just prior to slipping the gasket on and entering into the bell.
 - c. Coupled Joints: Coupled joints such as used in joining Asbestos Cement Pipe, shall be constructed in accordance with the recommendations of the manufacturer.
 - d. Plastic Pipe Joints: Joints in plastic pipe formed of polyvinyl chloride shall be "push on" type or such other type joint approved by the Engineer.

- e. Restrained Joint: A "restrained joint" shall be any type of locked joint manufactured by Clow Corporation, American Cast Iron Pipe Company, Griffen Pipe Company, or equal. The "restrained joint" shall mechanically prevent the pipe from pulling apart under tensile stresses.

7. Nuts, Bolts, Washers, Rods, Straps and Clamps

Where the use of nuts, bolts, washers, rods, straps and clamps are required due to the peculiarities of the installation, these items shall be installed and be of the proper size and dimension. After installation and before backfilling, all the above items shall be painted with bituminous paint or coal tar enamel.

H. AIR RELEASE VALVES

Air Release Valves shall be 2" NPT float operated type complete with "Flushing Attachment," Golden Anderson Fig. 925, or accepted equal.

I. GATE VALVES

Gate Valves shall be AWWA, iron body, bronze mounted, double disc, parallel seal type designed to take full pressure on either face. All gate valves shall be by the same manufacturer with non-rising stems with operation nut and shall be Clow, Mueller, M&H, or accepted equal.

J. TESTING

- 1. Whenever any section of force main has been completed and is ready to be tested, the Contractor shall flush the force main to remove all sand, dirt, debris, etc. Flushing shall be done under the observation of the Authority Inspector and at a time approved by same.
- 2. After installation, all force mains shall be tested in sections where and as directed by the Authority Inspector. The sections shall be plugged at both ends and connected to a calibrated water supply. The Contractor shall slowly fill the force main with water in preparation for the hydrostatic pressure test, ensuring that all air is expelled from the pipe. The Contractor shall make the necessary taps at points of highest elevation in order that the air may be expelled. The main shall be subjected to a hydrostatic test pressure of 150 psi for a period of not less than thirty (30) minutes. Pressure shall be applied to the main by means of a hand pump for small lines or by use of a gasoline pump for larger lines. During the duration of the test the lines shall be thoroughly examined for leakage and elimination of leakage effected where necessary. "Make Up" water shall be measured with a displacement meter.

Leakage shall not exceed twenty-five (25) gallons per day per inch of diameter per mile. Any cracked or defective pipes, fittings, or valves discovered in consequence of the pressure test, shall be removed and replaced by the Contractor at this own expense. After replacing or correcting cracked or defective

pipe fittings or valves discovered in the test or correcting any leakage the Contractor shall retest the pipe. In the event the pipe line is tested in sections and temporary thrust blocking is required, a temporary plug or cap shall be installed and blocked with a screw jack firmly braced against the end of the trench or against a heavy timber embedded into the side of the trench.

K. CLEAN-OUTS

Clean-outs shall be installed on all force mains at intervals not to exceed 1,000 feet. The location of each clean-out will be accurately recorded and indicated on the record drawing. The location shall be referenced to at least two permanent markers. The tees will be buried and covered with the normal backfill.

L. NON-METALLIC PIPE LOCATOR

The Contractor shall furnish and install a detectable identifying tape in all trenches where non-metallic pipe is used. The identifying tape shall be made of polyethylene tape bonded to a metalized foil and shall be highly resistant to alkaloids, acids or other destructive chemical components likely to be encountered in soils. The tape shall be 3" wide shall be brightly colored to contrast with soil and bear an imprint identifying the type of line buried below. The tape shall be placed approximately eighteen inches below the finished grade.

117. TRENCH EXCAVATION

A. General - The Contractor shall not open more trench in advance of pipe laying than is necessary to expedite the work. One hundred (100) feet shall be maximum length of open trench permitted on any line under construction. Except where tunneling, jacking or boring is permitted by the Authority or called for on the Drawings, all trench excavation shall be open cut from the surface.

B. Alignment, Grade and Minimum Cover - The alignment and grade or elevation of each pipe line shall be fixed and determined by means of offset stakes or other approved methods. Vertical and horizontal alignment of pipes and the maximum joint deflection used in connection therewith shall be in conformity with the requirements of the Specifications covering the installation of the pipe laid in each case.

Trenches for force mains shall be carefully excavated so that the minimum cover over top of pipe will be forty-eight (48) inches to existing street surface, or the future street surface when indicated, and so that the force main will slope continuously upward to point of discharge, to air release valves, if any, or to pump station. Greater cover at some locations along the line may be required due to street or ground profile and clearance of culverts, structures, utility lines, etc. Where force mains parallel gravity sewers, a separate trench may be dug, or a common trench may be dug providing a shelf of solid earth for the force main to rest on. When passing a manhole the force main shall be bowed away from the manhole in a gentle arc not exceeding allowable deflection limits in accordance with manufactures recommendations or industry standards, whichever is more stringent.

- C. Minimum Trench Widths and Pipe - Trenches shall be excavated to a width which will provide adequate working space and pipe clearance for proper installation, jointing and embedment. The minimum permissible trench widths and clearances between the installed pipe and either trench wall shall be as follows:

Pipe Size Inches	Minimum Trench Width - Inches	Minimum Side Wall Clearance - Inches
6 or less	20	6
8	22	6
10	24	6
12	26	6
14	29	6
16	32	6
18	35	6

The stipulated minimum clearances are not minimum average clearances, but are minimum clear distances which will be permitted between any part of the pipe as laid and any part, projection, or point of rock, shale, stone, or boulder.

- D. Maximum Trench Width - The maximum permissible trench widths below an elevation 6 inches above the top of the installed pipe shall not exceed the safe limit for the strength of pipe and class of bedding used. If so directed, the Contractor shall provide evidence to the satisfaction of the Authority Inspector that pipe strength is not exceeded relative to height of fill above the pipe, trench width and bedding class.

The maximum trench width for cast iron pipe and ductile iron pipe shall not exceed the outside diameter of the pipe plus 24 inches. Where necessary to reduce the earth load on trench banks to prevent sliding and caving, the banks may be cut back on slopes which shall not extend lower than one foot above the top of the pipe, subject to the limitations above.

- E. Unauthorized Trench Widths - Where, for any reason, the width of the lower portion of the trench as excavated at any point exceeds the maximum permitted in the foregoing tables, either pipe of adequate strength, special pipe embedment, or Class A concrete arch encasement, as required by loading conditions and as determined by the Owner shall be furnished and installed by, and at the expense of the Contractor.

- F. Mechanical Excavation - The use of mechanical equipment will not be permitted in locations where its operation would cause damage to buildings, culverts, or other existing property, utilities, or structures above or below ground; in all such locations, hand excavating tools and methods shall be used.

Mechanical equipment used for trench excavation shall be of a type, design, and construction, and shall be so operated, that the rough trench excavation bottom elevation can be controlled, that uniform trench widths and vertical side walls are obtained at least from an elevation one foot above the top of the installed pipe to the bottom of the trench, and that the trench alignment is such that the pipe when accurately laid to specified alignment will be centered in the trench with adequate clearance between the pipe and side walls of the trench. Undercutting of the trench side wall to obtain clearance will not

be permitted.

- G. Cutting Pavement and Walks - Cuts in concrete pavement and concrete base pavement shall be no larger than necessary to provide adequate working space for proper installation of pipe, pipe line appurtenances and paving replacement. Cutting shall be started with a groove at least 1-1/2 inches deep along each side of the trench and along the perimeter of cuts for structures.

Concrete pavement and concrete base pavement over trenches excavated for pipe lines shall be removed so that a shoulder no less than 12 inches in width at any point is maintained between the cut edge of the pavement and the top edge of the trench. Pavement cuts shall be made to and between straight or accurately marked curved lines which, unless otherwise required, shall be parallel to the center line of the trench.

Bituminous pavement over trenches shall be removed so that a shoulder not less than 18 inches in width at any point is left between cut edge of the pavement surface and the top edge of the trench. A minimum of 12 inches in width of base material shall be removed from the edge of trench to subgrade.

Pavement restoration or temporary restoration shall comply with the standard details of the contract drawings.

- H. Excavation Below Pipe Subgrade - Except where otherwise required, pipe trenches shall be excavated below pipe subgrade elevations to provide for the installation of granular fill pipe foundation material.

1. Bell Holes - Bell holes shall provide adequate clearance for the tools and methods used in installing the pipe. No part of any bell or coupling shall be in contact with the trench bottom, trench walls, or the granular fill when the pipe is jointed.

118. DEWATERING AND DRAINAGE

- A. The Contractor shall keep all excavations free from water at all times. Drainage systems and pumping equipment shall be provided, maintained and operated as necessary. Drainage shall be controlled by a properly pumped system of well points, wells, sumps or other suitable means to protect excavations from an inflow or upflow of ground water and to control ground water to a sufficient depth below footing excavations and utilities to prevent any ground water head from acting against the soil on which foundations and utilities are placed. Soil under foundations which has been disturbed by pressure or flow of ground water shall be removed and foundations shall be lowered accordingly. Dewatering procedures will continue until the structures to be built are completed to the extent that no damage from hydrostatic pressure, flotation or other causes will result.
- B. Flows from dewatering of trench or other excavation shall be discharged in an acceptable manner so as not to cause soil erosion or transport of silt. The Contractor shall be responsible to provide a suitable temporary measure or siltation basin of such size and material as may be directed by the Engineer or Soil Conservation District representative consistent with practices set forth in the New Jersey Standards for Soil Erosion and

Sediment Control.

- C. Surface water shall be diverted or otherwise prevented from entering excavated areas or trenches to the greatest extent practicable without causing damage to lands adjacent to the project.
- D. No pipe or reinforcing steel shall be installed in water nor shall water be allowed to come in contact with concrete for 12 hours after placing.

119. STABILIZATION

- A. Subgrades for concrete structures shall be firm, dense and thoroughly compacted and consolidated; shall be free from mud and muck; and shall be sufficiently stable to remain firm and intact under the feet of the workmen.
- B. Subgrades for concrete structures which are otherwise solid, but which become mucky on top due to construction operations, shall be reinforced with one or more layers of granular fill material or other crushed stone or gravel embedded therein. Not more than ½ inch depth of mud or muck shall be allowed to remain on stabilized subgrade when the bedding material is placed thereon. The finished elevation of stabilized subgrades for concrete structures shall not be above the subgrade elevations shown on the Plans.

120. STABILIZATION MATERIALS

- A. Granular fill for stabilization, pipe bedding, and pipe embedment shall be clean, river gravel, crushed stone, or creek gravel, free of cementitious, shaly, or flat and flaky particles in an amount which would cause the material to cake or pack or otherwise form an unyielding support.
- B. Place granular fill on a suitably prepared subgrade in lifts not exceeding 6 inches. Compact, vibrate, or slice with a shovel, in such manner that granular fill will take its final compaction and provide uniform and solid bearing under the structure.

121. FILL MATERIALS

- A. Use no frozen material, material subject to decomposition or cave-in or cinders for backfill. Use following fill except as may be specified under backfilling.
- B. General Fill for filling roadways and all areas outside of the building lines or other structures, excluding backfilling, may be crushed stone, sand, bank run gravel, earth or approved material from excavation. All such fill shall be free from wood, large stones, or boulders, roots, cinders, trash or other objectionable material. Fill on the outside of building walls, where paved areas about the building, shall be backfilled with select fill as per paragraph C. Fill used to bring roadways and parking areas up to subgrade shall be select fill.

- C. Select Fill material for filling and backfilling all areas "inside" the building up to 6 inches below the underside of all concrete floor slabs, and for backfilling structures and outside of buildings, shall consist of a full uniform range of granular material (from coarse to fine) free of loam, ash, wood or other foreign materials. Material for subgrade 6 inches or less in thickness shall pass a one inch screen. For heavier gravel fill, provide sufficient larger materials to form compact fill. Material containing aggregate 4 inches or larger shall not be used.
- D. Granular Drainage Fill for use as a base course under all concrete slabs on grade or fill, interior floor slabs and exterior walks, steps, etc., shall be as shown, or 6 inches minimum thick bed of compacted granular free-draining fill material consisting of aggregate of top size of 3/4 inch. Of that portion, by weight, of fill passing the No. 4 mesh sieve, not more than 5% shall pass the No. 200 mesh sieve.
- E. Approved gravel and sand previously stockpiled from the excavation may be used for any of the above fills.

122. FILLING

- A. Do all filling and backfilling and grading of roadways and area outside of building to required subgrade. Allow (4) inches for topsoil. Provide extra material for backfill if required.
- B. Remove debris from excavations before backfilling. Backfill as soon as this work can be safely accomplished. Rough grade to divert stormwater away from structure.
- C. Select fill and sand soils shall be placed in four (4) inch to six (6) layers and compacted with tamping roller of at least 4000 lbs. or smooth wheel roller of 8 to 10 tons. Areas inaccessible to rollers shall be placed in 6 inch layers, compacted with vibrator.
- D. Deposit fill on each side of piers, walls and free standing structure simultaneously to approximately the same elevation. Make proper provisions to prevent wedging action against structure.

123. FILL BELOW CONCRETE SLABS

- A. After completion of the subgrade preparation work and all required filling, compacting, and rough grading work to bring the subgrade to proper alignment and cross section at proper elevation, provide a layer of Granular Drainage Fill, 6 inches thick, minimum, after compaction as a base course for all concrete slabs on grade or fill. Fill under walks and paved areas shall be a minimum of 6 inches. This shall include entire area inside building and all concrete paved areas outside building such as walks, approaches, etc. Compaction of material shall be to 95% of maximum density at optimum moisture content.
- B. Compact bottom of all footing excavations in granular soils with vibratory compactor with minimum of 3 passes over each area just prior to placing of reinforcing steel.

124. STANDARD COMPACTION AND FIELD DENSITY TESTS

- A. Wherever the terms "Percent of Maximum Density" or "Optimum Moisture," are used, Maximum Density and Optimum Moisture shall be determined by the Standard Compaction Test described below.
- B. Standard Compaction Test - The Standard Compaction Test shall be in accordance with AASHTO design T99, except as modified below:
 - 1. For samples containing no material retained on the No.4 sieve, use Method A or B. When the plasticity index of the soil is greater than 25 (heavy clays), the soil shall be placed in the mold in 4 layers, each compacted as outlined in the test method used.
 - 2. For samples containing material retained on the No. 4 sieve, use Method D, preferably, or Method C. The amount retained on the 3/4 inch sieve shall be weighed and discarded. To prepare the sample for the compaction test, the same amount of 3/4 inch to No. 4 sieve material shall be substituted for the portion discarded.
- C. Field Density Test - Field Density shall be obtained using the sand cone method ASSHTO Design T191, by the balloon method, nuclear densimeter or by use of any satisfactory materials or equipment suitable to the conditions prevailing in the material being tested. Maximum Density as determined by the Standard Compaction Test to determine the percent compaction obtained.

125. PIPE EMBEDMENT AND ENCASEMENT

- A. Embedment materials both below and above the bottom of the pipe, the classes of embedment to be used, and the placement and compaction of embedment materials shall at a minimum conform to the following requirements:
 - 1. Crushed Stone Pipe Embedment Material:

Crushed stone pipe embedment material to be used for pipe bedding and haunching shall be a crushed stone, coarse aggregate, meeting the allowable gradational envelope of N.J.D.O.T. No. 57 stone as follows:

<u>U.S. Standard Sieve Size</u>	<u>Percent Finer by Weight</u>
1½"	100
1"	95-100
½"	25-60
No. 4	0-10
No. 8	0-5

This material shall completely encapsulate the pipe zone, with particular attention made to haunching of material.

2. Placement and Compaction:
 - a. Embedment fill material beneath the pipe shall be spread and the surface graded to provide a uniform and continuous support beneath the pipe at all points between bell holes or pipe joints. It will be permissible to slightly disturb the finished sub grade surface by the withdrawal of pipe slings or other lifting tackle.
 - b. After each pipe has been graded, aligned, and placed in final position on the bedding material, and shoved home, sufficient pipe embedment material shall be deposited and compacted around each side of the pipe and back of the bell or end thereof to firmly hold and maintain the pipe in proper position and alignment during subsequent pipe jointing, embedment and backfilling operations.
 - c. Embedment material shall be deposited and compacted uniformly and simultaneously on each side of the pipe to prevent lateral displacement of the pipe and brought to the height above top of pipe as shown on the details.
 - d. Tamped pipe embedment material (that portion of the embedment above the granular fill) shall be selected earth or granular fill, free from sod, sticks, roots, or rocks over 3/4" size, and to be of proper moisture content for compaction.
 - e. Tamped pipe embedment material shall be compacted to 90% of Maximum Density, except where trench backfill is specified as 95% Compacted Backfill. In this case, the embedment material shall be compacted to 95% Maximum Density.

126. TRENCH BACKFILL

- A. General - All trench backfill above pipe embedment shall conform to one of the following specifications:
 1. New Jersey Dept. of Transportation Right-of Ways - The work in, on, or along right-of-ways belonging to the State of New Jersey shall be governed by the rules and regulation of New Jersey Department of Transportation relating to the laying of pipe or construction of other structures on their right-of-way. The Contractor shall be responsible for complying with said regulation and shall be fully responsible to the N.J.D.O.T. for any work performed upon these rights-of-way. All backfill within right-of-ways ditch lines shall be made with an approved granular material.
 2. Street and Road Right-of-Ways - All backfill for pipe trenches between the ditch lines in street and road right-of-ways shall be made with an approved granular material. If the Contractor elects to use excavated material for backfill he shall mechanically tamp the backfill in layers not exceeding the depth that can be

properly compacted by the equipment in use. The Contractor shall demonstrate the compaction technique and provide compaction tests at his expense to determine the depth of layers to be placed.

3. Lawns and Unimproved Areas - All backfill for pipe trenches in lawns and unimproved areas may be placed by any method or combination of methods which will not impose excessive concentrated or unbalanced loads, shock, impact on or displacement of the installed pipe. Backfilling shall be completed in a manner to prevent trench settlement. In fields and unimproved areas, the trench shall receive reasonable compaction and may be mounded. The mounded area shall not impound water or otherwise damage the property through which the pipeline is constructed. The Contractor shall maintain and cleanup all work through private property and he shall be responsible for any damage. The trenches shall be maintained for a period of one year after acceptance of the entire contract.
4. Special Compacted Backfill - When directed in writing by the Authority, for the following specifications shall prevail. Payment shall be made by the unit price bid for special compacted backfill as included in the Bid Schedule.
 - (a). 90% Compacted Backfill - Backfill material shall be selected earth or granular fill material, free from sod, sticks and roots over ½" in diameter, and free from hard lumps, clods or rocks in such quantity or concentration as to interfere with the specified compaction. Material shall be of proper moisture content for specified compaction.
 - (1) If specified density cannot be obtained with available earth, the Contractor shall furnish and haul granular fill material or suitable earth at his expense. Unsuitable earth shall be disposed of and transported in conformance with local, County and State regulations.
 - (2) Backfill shall be compacted to 90% of Maximum Density. The Owner will call for density tests to be made whenever deemed necessary. The specified density will be the minimum allowed and the obtainment there of will be entirely the Contractor's responsibility.
 - (3) Thickness of backfill layers will be determined by the coordination of test results with field performance and equipment used. The Contractor shall maintain established procedures except where unusual conditions arise. If greater than 12 inches thick compacted layers are used, the Contractor shall hand excavate to the test level as directed by the Authority Inspector and then refill the test excavation with compacted backfill to the specified density.
 - (b). 95% Compacted Backfill - Specification is same as in paragraph 4a except that 95% of Maximum Density is required.

- B. Uncompacted Backfill - Uncompacted backfill material above pipes may be placed by any method or combination of methods, which will not impose excessive concentrated or unbalanced loads, shock, or impact on, and which will not result in displacement of, the installed pipe. Compact masses of mucky clay, or gumbo, or other consolidated material more than one cubic foot in volume shall not be permitted to fall more than 5 feet into the trench unless cushioned by at least 2 feet of loose backfill.

127. BACKFILL AROUND STRUCTURES

Backfill around structures shall meet the same requirements as for the pipe line connected thereto. Methods used shall be such as not to damage the structure or cause the structure to float due to hydrostatic uplift.

128. FILL MATERIALS

- A. Use no frozen material, material subject to decomposition or cave-in or cinders for backfill. Use following fill except as may be specified under backfilling.
- B. General fill for filling roadways and all areas outside of the building lines or other structures may be approved material from excavation. All such fill shall be free from wood, large stones, or boulders, roots, cinders, trash or other objectionable material.
- C. Where suitable fill material cannot be obtained from site excavation, an imported select fill, bank run sand and gravel, conforming to Type "G" granular fill per the following gradation envelope shall be used as directed by the Engineer.

<u>U.S. Standard Sieve Size</u>	<u>Percent Finer by Weight</u>
2"	100
1"	80-100
¾"	70-100
No. 10	50-100
No. 30	30-85
No. 60	15-65
No. 200	5-15

- D. Place granular fill on a suitable prepared subgrade in lifts not exceeding 6 inches and bring up evenly on both sides of pipe. Do not dump over side of trench in any manner that will bring earth into the granular fill area or displace the pipe. Compact, vibrate, or slice with a shovel, in such manner that granular fill will take its final compaction and provide uniform and solid bearing under the pipe and its final compaction and provide uniform and solid bearing under the pipe and its haunches.

- E. Around structures and above the pipe embedment, granular fill shall be brought up evenly on all sides in lifts not exceeding 12 inches.
- F. Minimum compaction requirement for granular fill is 95% of Maximum Density.
- G. Where granular fills are to be covered with concrete after the fills have been installed, the top surface thereof shall be graded to the required subgrade and covered with 6 mil polyethylene film.

129. SURPLUS EXCAVATION

Excavated material in excess of that required for backfill, fill or other purposes, including any stored surplus, shall be disposed of by the Contractor, at locations off the site. Conformance with local, County and State regulations relative to disposal and transport of materials shall be observed.

130. ROUGH GRADING

- A. Rough grading shall be accomplished over all areas within the grading limit lines and over all areas which are disturbed by any work for the project. Rough grading shall consist of bringing grade to elevations as specified, and thoroughly compacting by machine or by hand as necessary. Do grading to approved stakes.
- B. Do no grading until sewers, water mains and other utilities are installed.
- C. Later, if fill and/or backfill has settled, fill shallow places to bring them up to grade. Include areas where trenches were backfilled.
- D. Rough grading of all areas within the project, including excavated and filled sections and adjacent transition areas shall be reasonably smooth, compacted and free from irregular surface changes. The degree of finish shall be that ordinarily obtainable from either blade-grader or scraper operations, except as otherwise specified.

131. FINAL GRADING

- A. General - Pavement and pavement base materials, excavated rock, junk and debris encountered in excavation work, and other similar waste material, shall be disposed of away from the site of the Work.
- B. Uncompacted Backfill - Where uncompacted backfill is permitted or specified excess earth from excavation, shall be mounded directly over the pipe trench, in such a manner that the earth will settle into the trench as natural consolidation occurs. Openings for natural drainage shall be provided. The mounded earth shall be graded to a smooth, uniform surface. That portion of the earth displaced by the pipe shall be uniformly and smoothly graded adjacent to the trench.

- C. Other Type of Backfill - For all types of backfill other than uncompacted, the Contractor shall dispose of excess excavated material above the surface of the ground or subgrade of pavement, walks, etc.
- D. Improved Yards and Lawns - Fine grade, suitable for seeding or sodding. Hand rake earth off grass in established lawn areas, unless directed to leave excess earth as outlined above.
- E. Final Grading - Just prior to completion and acceptance of the project, the Contractor shall final grade over all pipe trenches and around structures, filling any places that may have settled during the period between construction and the completion of the entire contract.

132. RESPONSIBILITY OF CONTRACTOR FOR BACKFILL SETTLEMENT'

- A. The Contractor shall be responsible financially and otherwise for all settlement of trench and other backfill which may occur from the time of original backfilling until the expiration of one year after the date of acceptance of the entire contract under which the backfilling work was performed, and for the refilling and repair of all backfill settlement and the repair or replacement of the original walks, surface structures, utilities, drainage facilities and sod which have been damaged as a result of backfill settlement or which have been removed or destroyed in connection with backfill replacement operations, and for all damage claims or court actions against the Authority for any damage directly or indirectly caused by backfill settlement.
- B. The Contractor shall make all necessary backfill replacements and repairs, or replacements appurtenant thereto, within 30 days after notification by the Authority. Upon the Contractor's failure to do so, the Authority may do, or have done, the necessary work and charge the cost to the Contractor.

133. PRESERVATION OF TREES, SHRUBS, FLOWERS, ETC.

- A. In undeveloped areas the Contractor shall be responsible for protection of trees that are greater than 10 feet distance from the centerline of trench, and of any trees within the 10 foot limit that are to be protected. It shall be the responsibility of the Contractor to take necessary precautions to preserve the trees to be protected. No trees shall be removed without permission of the Authority. Trees and root systems too large to be replaced shall be tunneled under.
- B. In developed areas of lawns, fences, etc., the Contractor shall be responsible for protecting all shrubs and trees or replacing them to the satisfaction of the Authority. Trees too large to be replaced shall be tunneled under.
- C. Any shrubs or trees the Contractor is required to replace shall be obtained from a nursery satisfactory to the Authority; and all plantings shall be performed by a nursery man. All replacement trees and shrubbery shall have a one year full value replacement guarantee to the property owner.

134. DUST AND MUD CONTROL

The Contractor shall maintain all excavation, embankments, stockpiles, rail roads, permanent access roads, plant sites, waste areas, borrow areas, and all other work areas within or without the project boundaries free from dust or mud which could cause a hazard or nuisance to others. Approved temporary methods of stabilization consisting of sprinkling treatment or similar methods will be permitted to control dust. Sprinkling, to be approved, must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times and the Contractor shall have sufficient equipment on the job for this purpose. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

135. CONCRETE ENCASEMENT

Concrete encasement shall be installed where field conditions indicate the necessity. Such field conditions shall include but not be limited to stream crossings, trench depths with less than 3 feet of cover, proximity to other structures 3 feet or less above or below the sewer lines and at such other locations where required by the Authority.

136. UNPAVED STREETS AND ALLEYS

Where construction is within unpaved streets and alleys, the trenches shall be backfilled with granular material to prevent trench settlement. Unpaved streets and alleys shall be restored to the same line and grade which existed prior to construction, insofar as such restoration is possible. Excavated material may be used for backfill as permitted in Section 126.

137. MAINTENANCE OF TRENCHES

The Contractor shall maintain all trenches in first class condition until the final surfacing is applied. The Contractor shall use a temporary asphalt patch or other method approved by the Authority. The application of stone to maintain the trench shall not be construed as "placing of sub-base" as may be required by other sections of these specifications.

138. ACCEPTANCE BY AUTHORITY

Prior to the Authority's final acceptance of the work, all sewer lines, manholes and any other structure or improvement to be taken over by the Authority, shall be cleaned and free of debris. All manhole lids shall be tightly sealed.

APPENDIX B

WARREN COUNTY (PEQUEST RIVER) MUNICIPAL UTILITIES AUTHORITY

- RATE SCHEDULE -

I. General

The Authority hereby establishes a system of rates and charges for Application Fees, Technical Review Fees, Inspection Fees, Rates and Charges required to defray costs incurred or to be incurred in conjunction with various applications made to the Authority for construction of sewerage facilities and other services described below.

II. Application for Construction of Sewerage Facilities

A. Endorsement of Treatment Works Approval Application

1. Application Fee

The Application Fee for the administrative and technical review of Sanitary Sewer Extensions shall be based upon the number of equivalent dwelling units (EDU) for residential and non residential sewer extensions.

<u>UNITS</u>	<u>FEE</u>
4 EDU's or less	\$400
5 - 10 EDU's	\$400 plus \$25 per EDU above 4 EDU's
11 - 50 EDU's	\$550 plus \$20 per EDU above 10 EDU's
51 EDU's or greater	\$1,350 plus \$10 per EDU above 50 EDU's

2. Technical Review Fee

The technical review fee for TWA Applications shall be established as follows:

\$	<u>Sewer Extension Description</u>	<u>Fee</u>
-	up to 400 feet of sewer line	\$300 (minimum)
-	lines in excess of 400 feet	\$300 plus \$0.10 per foot
-	Pump Stations	\$1,000 (minimum)
-	Treatment Facility	\$3,000 (minimum)

3. Inspection Fees

Inspection fees to cover the costs of the Authority's representative for sewer improvements, including gravity sewers, force mains, pumping stations and/or treatment facilities, shall be the greater of \$500.00 or 5% of the cost of improvements, which cost shall be pursuant to the engineer=s estimate in accordance with application statutes, and which shall be paid in advance into escrow as provided in the Authority=s rules and regulations.

The above fees may be adjusted by the Authority as necessary to cover unanticipated costs incurred by the Authority. The maximum fee at any one time to be deposited in escrow is \$25,000.00

B. New Developments

All proposed projects that do not fall under the category of a simple sewer extension shall be required to furnish an escrow fund, sufficient to cover all professional costs incurred by the Authority, including inspection fees by Authority representatives.

The minimum amount of the escrow fund to be deposited with the Authority shall be \$3,000; however, the Authority reserves the right to increase this amount on a case-by-case basis, taking into consideration the degree of complexity of the proposed project.

C. Other Submittals

A minimum non refundable fee of \$200 shall be paid upon the submission of an application for reviews, endorsements or other work not covered by the Authority's Rate Schedule. Depending upon the nature of the application, escrow deposits shall be determined by the Authority's Executive Director prior to technical review of the application.

III. Administration of Escrow Deposits and Application Fees

A. Applications to WC(PR)MUA shall be submitted in triplicate on forms provided and accompanied by the Application Fee required by the Authority's Rate Schedules.

B. Application Fees are non-refundable.

- C. Escrow deposits for Technical Review Fees, Inspection Fees, or other purposes shall continue to be the property of the applicant and shall be held by WC(PR)MUA in trust on behalf of the applicant in a separate, interest bearing account for that purpose.
- D. Costs incurred by the WC(PR)MUA shall be charged against the applicant's escrow account(s) for the specific services rendered for each escrow account established.
- E. In the event that the balance of an applicant's escrow fund shall be depleted such that it falls below 50% of the original deposit or, in the opinion of the Authority's Executive Director, will be depleted prior to the completion of the work, the Authority shall notify the applicant in writing of the deficiency or estimated deficiency amount. The applicant shall provide the additional escrow deposit to WC(PR)MUA within fifteen (15) days of said notice.
- F. Escrow deposits, including interest earned thereon remaining upon completion of the work, shall be refunded to the applicant within thirty (30) days of completion as certified by action of WC(PR)MUA or by notice from the Authority's Executive Director and/or consulting engineer.

IV. Waiver Provisions

If by reason of undue hardship or exceptional unforeseen circumstances or where the imposition of charges is impracticable, the Authority may by Resolution in special cases and for special reasons set forth therein, modify these rates at its discretion.

V. Contract Fees and Charges

The rates, fees, and charges set forth herein shall not alter or modify any rates, fees, or charges provided by or to be provided by contract between the WC(PR)MUA and others.

VI. Jet Vac Rental

Charge within the Service Area	\$125.00/hour
Charge outside of the Service Area	\$175.00/hour

APPENDIX C

WARREN COUNTY (PEQUEST RIVER) MUNICIPAL UTILITIES AUTHORITY
SCHEDULE OF SEWAGE TREATMENT SERVICE CHARGES AND CONNECTION
FEES:

1. General:

The Authority hereby sets forth the current applicable sewage treatment charges and connection fees as adopted by the Authority in accordance with the requirements of N.J.S.A. 40:14B-22 and 23.

A) An additional 11% Inflow & Infiltration (I&I) factor shall be assessed on all users billed on a metered flow basis (either water use or sewer discharge), with the exception of Belvidere and Oxford whose metered flow includes system-wide I&I, in order to establish equitable allocation of system-wide I&I.

B) Sewage Treatment Services FY2019

Class of User	Rates
-Residential	\$11.31 per billing unit
-Industrial	\$22.62 per 1,000 gallons

C) Connection Fees FY 2019*

The FY 2019 connection fee shall remain unchanged from 2018. The current amount of \$6,642.00 per EDU (equivalent dwelling unit) is less than the calculated amount of \$10,050.00.

* Affordable housing projects built by Public Housing Authorities and non- profit organizations will receive a reduction of 50% in connection fees, pursuant to C40:14B-22.

APPENDIX D

NUMBER OF EDUs FOR THE PURPOSE OF CALCULATING CONNECTION FEES

Use	Unit of Measurement	Gallons Per Day	No. of EDUs
<u>RESIDENTIAL</u>			
Single Family Private Dwelling	Per Dwelling	200	1.0
Multiple Dwellings (Condo's, Townhouses, etc.)	Per Dwelling	200	1.0
<u>TRANSIT DWELLING UNIT</u>			
Hotels	Per Bedroom	37.5	0.2
Lodging Houses & Tourist Homes	Per Bedroom	30	0.15
Motel & Tourist Cabins	Per Bedroom	30	0.15
Boarding Houses (Resident)	Per Border	25	0.13
<u>CAMPS</u>			
Campground/mobile vehicle/tent/cabin (Private Bath)	Per Site	100	0.50
Campground/mobile vehicle/tent/cabin (Central Bath, etc.)	Per Site	50	0.25
Children's Camps (Central Bath, etc.)	Per Person	25	0.13
Labor Camps	Per Person	20	0.10
Day Camps (No Meals)	Per Person	7.5	0.04
<u>RESTAURANTS (incl. Washrooms)</u>			
Average Type	Per Seat	17.5	0.09
Bar/Cocktail Lounges	Per Seat	10	0.05
Fast Food Restaurant (no table service)	Per Seat	7.5	0.04
24-Hr Service Restaurant	Per Seat	25	0.13
Curb Service/ Drive-in Restaurant	Per Car Space	25	0.13
<u>CLUBHOUSES</u>			
Residential Type	Per Member	37.5	0.19
Non-Residential	Per Member	17.5	0.09
Golf Course (incl. Related Facilities)	Per Person	17.5	0.09
Racquet Club	Per Court/Hour	40	0.20
Pool/Beach Bathhouse w/ shower	Per Person	12.5	0.06
Pool/Beach Bathhouse w/o shower	Per Person	5	0.03
<u>INSTITUTIONAL</u>			
Hospitals	Each Bed	87.5	0.44
Other	Each Bed	62.5	0.31
<u>SCHOOLS</u>			
Elementary (No Showers/Cafeteria)	Per Person	5	0.03
w/ Cafeteria	Per Person	7.5	0.04
w/ Cafeteria and Showers	Per Person	10	0.05
w/ Cafeteria, Showers & Laboratories	Per Person	12.5	0.06
Boarding	Per Person	37.5	0.19
<u>AUTOMOBILE SERVICE STATIONS</u>			
(Additive)	Per Filling Position	62.5	0.31
Service Bays	Per Bay	25	0.13
Minimarket	Per Square Foot	0.05	*

APPENDIX D

NUMBER OF EDUs FOR THE PURPOSE OF CALCULATING CONNECTION FEES

MISCELLANEOUS			
Stores, Shopping Centers & Office Buildings (Gross Area)	Per Square Foot	0.05	*
Factories (Sanitary, Per 8 Hr. Shift)	Per Person	12.5	0.06
Factories (Sanitary, Per 8 Hr. Shift) w/ showers	Per Person	20 0	0.10 0.00
Car Washing (Without Recycling)	Standard	750	3.75
Car Washing (With Recycling)	Standard	375	1.88
Laundries	Per Washer	290	1.45
Bowling Alley	Per Alley	100	0.50
Picnic Parks (Restrooms only)	Per Person	5	0.03
Picnic Parks (w>Showers)	Per Person	7.5	0.04
Fairgrounds (Based on Avg. Attendance)	Per Person	2.5	0.01
Assembly Halls	Per Seat	1.5	0.01
Airports	Per Passenger	1.5	0.01
Churches	Per Seat	1.5	0.01
Theatre	Per Seat	1.5	0.01
Dinner Theatre	Per Seat	10	0.05
Catering/Banquet Hall	Per Person	10	0.05
Sports Stadium	Per Seat	1.5	0.01
Visitor Center	Per Visitor	2.5	0.01

* 200 Gallons Per Day = 1 EDU; the number of EDUs shall be determined by multiplying the area of the building (in square feet) by 0.05 gpd/sq/ft., and dividing the resultant product by 200 gpd/EDU

Notes:

1. The minimum connection fee charged shall be 1 EDU. The connection fee shall be based on this Appendix D and rounded up to the next 0.25 EDU - Examples: calculated = 1.37 shall be rounded up to 1.50 EDU for calculating the connection fee; 2.90 shall be rounded up to 3.0 EDUs.

2. The Authority reserves the right to modify the number of gallons and EDU's per unit of measurement assigned to any user based upon the projected design flow for each application, or best engineering judgement when allowing for multiple uses.