TWO RIVERS WATER RECLAMATION AUTHORITY
1 Highland Avenue
Monmouth Beach, New Jersey 07750

SEWER USE
RULES AND REGULATIONS [1]
MARCH 1987

CODIFIED JUNE 2002[2]
REVISED FEBRUARY 9, 2002 [3]
REVISED AUGUST 2002 [4]
REVISED APRIL 15, 2003 [5]
REVISED MARCH 16, 2004 [6]
REVISED FEBRUARY 15, 2005 [7]
REVISED FEBRUARY 21, 2006 [8]
REVISED FEBRUARY 20, 2007 [9]
REVISED MAY 15, 2007 [10]
REVISED FEBRUARY 19, 2008 [11 & 12]
REVISED NOVEMBER 18, 2008 [13]
REVISED FEBRUARY 17, 2009 [14]
REVISED FEBRUARY 16, 2010 [15]
REVISED JULY 20, 2010 [16]
REVISED FEBRUARY 15, 2011 [17]
REVISED FEBRUARY 21, 2012 [18]
REVISED FEBRUARY 19, 2013 [19]
REVISED FEBRUARY 18, 2014 [20]
REVISED FEBRUARY 17, 2015 [21]
REVISED MAY 17, 2016 [22]
REVISED MAY 15, 2018 [23]

---

[1] March 31, 1987 Adopted
[2] June 18, 2002 Codified – Resolution No. 2002-05-62
[3] February19, 2002 Revised Section 11 – Resolution No. 2002-02-09 Connection Fee
[4] August 13, 2002 Revised Sections 9 & 11 – Resolution No. 2002-08-77
[5] April 15, 2003 Revised Section 11 – Resolution No. 2003-04-43 Connection Fee
[6] March 16, 2004 Revised Section 11 – Resolution No. 2004-03-31 Connection Fee
[7] February 15, 2005 Revised Section 11 – Resolution No. 2005-02-11 Connection Fee
[8] February 21, 2006 Revised Sections 9, 10, 11 – Resolution No. 2006-02-08 Connection Fee
[9] February 20, 2007 Revised Sections 10 & 11 – Resolution No. 2007-02-14 Connection Fee
[10] May 15, 2007 Revised Section 2 – Resolution No. 2007-05-61 Procedures Regarding New Connections etc.
[11] February 19, 2008 Revised Sections 10 & 11 – Resolution No. 2008-02-09 Connection Fee
[12] February 19, 2008 Revised Sections 9 – Resolution No. 2008-02-31 Rates and Service Charges Schedule
[13] November 18, 2008 Revised Section 2 – Resolution No. 2008-11-111 Procedures Regarding New Connections to sewers.
[14] February 17, 2009 Revised Sections 10 & 11 – Resolution No. 2009-02-14 Connection Fee
[15] February 16, 2010 Revised Sections 10 & 11 – Resolution No. 2010-02-10 Connection Fee
[16] July 20, 2010 Revised Section 11 – Resolution No. 2010-07-66 Copy Fees
[17] February 15, 2011 Revised Sections 10 & 11 – Resolution No. 2011-02-09 Connection Fee
[18] February 21, 2012 Revised Sections 10 & 11 – Resolution No. 2012-02-09 Connection Fee
[19] February 19, 2013 Revised Sections 10 & 11 – Resolution No. 2013-02-09 Connection Fee
[20] February 18, 2014 Revised Sections 10 & 11- Resolution No. 2014-02-14 Connection Fee
[21] February 17, 2015 Revised Sections 10 & 11 – Resolution No. 2015-02-09 Connection Fee
[22] May 17, 2016 Revised Sections 10 & 11 – Resolution #2016-05- Connection Fee

Sewer Use Rules and Regulations

9.0 Rates and Service Charges Schedules

- 9.1 Rate Schedule for Sewer Service
- 9.2 Amount of Unit Charge for Sewer Service
- 9.3 Tapping Charges
- 9.4 Interest on Unpaid Service Charges
- 9.5 Review of User Charges
- 9.6 Compliance with Federal Rules and Regulations
- 9.7 Effective Date
- 9.8 Connection Fee

10.0 Connection Charges per Equivalent Dwelling Unit

- 10.1 Connection Charge Schedule for Sewer Service

11.0 Schedule of Charges

TWO RIVERS WATER RECLAMATION AUTHORITY

SEWER USE RULES AND REGULATIONS

1.0 INTRODUCTION AND DEFINITION OFTERMS

1.1 GENERAL

The purpose of these Rules and Regulations is to set forth uniform requirements for users of the wastewater collection and treatment system of the Two Rivers Water Reclamation Authority (TRWRA), New Jersey, to enable the Authority to comply with the provisions of the Clean Water Act of 1977 and other applicable Federal and State laws and regulations and to provide for the public health and welfare by regulating the quality of wastewater discharged into the Authority's wastewater collection and treatment system.

The objectives of these Rules and Regulations are:

(a) to prevent the introduction of pollutants into the Authority's wastewater system which will interfere with the operation of the system or contaminate the resulting sludge;

(b) to prevent the introduction of pollutants into the Authority's wastewater system which will pass through the system, inadequately treated, into receiving waters or the atmosphere or otherwise be incompatible with the system;

(c) to prevent the introduction of pollutants into the Authority's collection system which will damage that System;

(d) to improve the opportunity to recycle and reclaim wastewaters and sludges from the system; and

(e) to provide for equitable distribution of the cost of operating and maintaining the Authority's wastewater system.

These Rules and Regulations provide for the regulation of contributors to the Authority's wastewater system through the issuance of permits to certain non-domestic users and through enforcement of general requirements for all users, authorize monitoring and enforcement activities, require user reporting, assure that existing customer's capacity will not be preempted and provides for the setting of fees for the equitable distribution of costs resulting from the program established herein. These Rules and Regulations shall apply to member and customer communities of the TRWRA, and all those persons and

organizations in these communities who are users of the Authority's Publicly Owned Treatment Works.

Except as otherwise provided herein, the Executive Director of TRWRA or his designated representative shall administer, implement and enforce the provisions of these Rules and Regulations.

1.2 Definitions

Unless the context indicates otherwise, the meaning of terms used throughout these Rules and Regulations shall be as follows:

Act or "the Act" The Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251,et. seq.

As-built shall mean a record of the installation after construction and shall be submitted in a digital format, as well as prints to the Authority. The as-built drawing shall be at a scale no smaller then one (1) inch equals fifty (50) feet.

Authority shall mean the Two Rivers Water Reclamation Authority.

Authority Sewer shall mean a sewer installed by the Authority in public streets or easements, excluding the building sewer, to the curb or edge of easement.

Authorized Representative shall mean a person employed by the industrial user who holds such a position that they are knowledgeable of the wastewater produced, are responsible for the wastewater discharged, and therefore have the authority to control the wastewater discharged.

Board of Health (Board in the Board of Health Ordinance in Schedule II) shall mean the Board of Health of a municipality, as created under state statutes.

BOD (denoting Biochemical Oxygen Demand) shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in five (5) days at 20 degrees C, expressed in milligrams per liter.

Building shall mean any house, building or structure heretofore or hereafter constructed and designed or used for dwelling or other use or occupancy by persons, either temporary or permanent.

Building Drain shall mean that part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the Building and conveys it to the Building Sewer, beginning five (5) feet outside the inner face of the Building wall.

Building Outlet shall mean the discharge opening from a building drain to which a building sewer is connected.

Building Sewer shall mean the extension from the building drain to the public sewer or other place of disposal.

Connection Date shall mean the 9Q[1]h day following a sewer being available to serve a Structure except that in the case of a Structure completed subsequent to the availability of a sewer to the premises on which a Structure is located, or shall mean the date of the initial occupancy of said Structure or the date of the issuance of a Certificate of Occupancy therefore, whichever of said dates shall be the earlier.

Connection Fee shall be as defined in N.J.S.A. 40:14.A.8.

Contractor shall mean the party or parties performing the work, which may include the developer or the Owner.

Control Structure shall mean a manhole constructed in accordance with Section 2.0 on an industrial user's property for the purpose of inspecting and testing the user's wastewater.

Deleterious effect shall mean any decrease in treatment efficiency as indicated by an increase in pollutant concentration (s) of plant effluent; or any change in sludge characteristics such that normal methods of sludge handling, conveyance, and ultimate disposal cannot be used or are less effective. Pollutants which cause deleterious effects include, but are not limited to, those mentioned in Section 4.0 thru 5.2 inclusive.

Developer shall mean the person performing site improvements on behalf of the Owner.

Domestic Sewage shall mean waste and wastewater form humans or household operations that is discharged to or otherwise enters a treatment works.

Domestic User shall mean a person who discharges only domestic sewage to the Authority's sewage treatment plant.

Engineer shall mean the consulting engineer or Engineering Manager appointed by the Two Rivers Water Reclamation Authority and authorized to review and recommend approvals of submissions and construction.

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

Grab Sample shall mean a 250-ml. sample which is taken from a waste stream on a one-time basis with no regard to the flow in the waste stream and without consideration of time.

Health Officer shall mean the person duly licensed by the State of New Jersey and performing the duties of Health Officer appointed by a municipality.

House Connection shall mean the sewer between a main or Authority sewer and the curb or easement line.

Industrial User shall mean a facility which discharges industrial waste to the Authority's sewage treatment plant.

Industrial Wastes shall mean the liquid wastes from industrial and manufacturing processes, trade, or business as distinct from sanitary sewage.

Municipal Engineer shall mean the person duly designated by the municipality as municipal engineer.

Municipality shall mean a municipality which is a member of the Two Rivers Water Reclamation Authority.

National Categorical Pretreatment Standard or Pretreatment Standard shall mean any State or Federal regulation containing pollutant discharge limits promulgated by the EPA or DEP in accordance with Section 307(b) and (c) of the Act (33 U.S.C. 1347) which applies to a specific category of industrial users.

National Prohibitive Discharge Standard or Prohibitive Discharge Standard shall mean any State or Federal regulation developed under the authority of 307(b) of the Act and 40 CFR, Section 403.5.

Owner shall mean the property owner upon whose land is or will be a structure and upon whose behalf an application for a sewer connection is made to the Authority.

Pass Through shall mean no significant degradation to a pollutant which enters the treatment plant so that it exists in the effluent or sludge in concentrations which are detrimental to receiving bodies of waters or inhibit the use or disposal of sludge.

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

2..!:! shall mean the logarithm (base 10) of the reciprocal of the concentration of hydrogen ions expressed in moles per liter, and indicates the degree of acidity or alkalinity of a substance. A pH value of 7.0 is neutral, being neither acid nor alkaline. Values below 7.0 are acid and those above 7.0 are alkaline (basic).

Planning Board shall mean the planning board of a municipality, as created under State statute.

Plumbing Inspector shall mean the person duly designated by a Municipality as plumbing inspector.

Pretreatment shall mean the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater to a less harmful state prior to discharging or otherwise introducing such pollutants into a POTW. The reduction or alteration can be obtained by physical, chemical or biological processes or process changes or other means except as prohibited by 40 CFR Section 403.6 (d).

Pretreatment Requirements shall mean any substantive or procedural requirement related to pretreatment, other than a National Pretreatment Standard imposed on an industrial user.

Public Sewer shall mean any Sewer, House Connection, or appurtenances thereto, installed or acquired by the Authority in a public street or easement.

Publicly Owned Treatment Works (POTW) shall mean the Authority's sewage treatment plant, sewage collection system and appurtenances.

Sanitary Sewage shall mean the liquid and intermixed solid wastes from homes or other structures, exclusive of industrial wastes or storm and surface waters and drainage.

Sanitary Sewer shall mean a sewer which carries domestic sewage and industrial waste and to which storm, surface and ground waters are not intentionally admitted.

Sewage shall mean a combination of Domestic Sewage and Industrial Wastes, together with such ground, surface and storm waters as may be present.

Sewerage Treatment Plant shall mean any arrangement of devices and structures used for treating Sewage.

Sewerage Works shall mean all facilities for collecting, pumping, treating and disposing of Sewage.

Sewer shall mean any pipe or main designed or used for collection or disposal of sewage.

Shall is mandatory: May is permissive.

Slug shall mean any discharge of water, Sewage or Industrial Waste which in concentration of any given constituent or in quantity of flow exceeds for any period of duration longer than fifteen (15) minutes more than three (3) times the average twenty-four (24) hour concentration of flows during normal operation.

Standard Industrial Classification shall mean a classification pursuant to the Standard Industrial Classification Manual issued by the Executive Office of the President, Office of Management and Budget, 1972.

Storm Sewer (sometimes termed "Storm Drain") shall mean a sewer which carries storm and surface waters and drainage, but excludes sewage and industrial wastes, other than unpolluted cooling waters.

Street Sewer a sewer which is located within the right-of-way of a street.

Structure shall mean any house, building, or structure heretofore or hereafter constructed and designed or used for dwelling or other use or occupancy by persons, either temporary or permanent.

Suspended Solids shall mean solids that either float on the surface of, or are in suspension in, water, sewage or other liquids, and which are largely removable by laboratory filtering as determined by the appropriate procedure in "Standard Methods", and expressed in parts per million or milligrams per liter by dry weight.

Tapping Fee shall mean the actual cost of the physical installation of the House Connection.

Toxic Substances shall mean any substance whether gaseous, liquid or solid, which when discharged into the wastewater system in sufficient quantities may tend to interfere with any wastewater treatment process, or to constitute a hazard to human beings or animals, or to inhibit aquatic life or create a hazard to recreation in the receiving waters of the effluent from the wastewater plant. These substances include but are not limited to those listed as toxic in regulations promulgated by the EPA under the provision of the Act.

User shall mean any person who contributes, causes or permits the contribution of domestic and industrial wastewater into the Authority's POTW.

Watercourse shall mean a channel in which a flow of water occurs, either continuously or intermittently.

"Wetlands" are those area within the Authority's Service Area meeting the definition of wetlands in N.J.A.C. 7:7E, as amended and supplemented from time to time, regardless of whether they are regulated under the Wetlands Protection Act of 1970 (N.J.S.A. 13.9A-1, et seq.).

"Wetland Buffers" are those areas within the Authority's Service Area adjacent to wetlands regulated under the Wetlands Act of 1970 and are defined in N.J.A.C. 7:7E-3.28 as amended and supplemented from time to time.

"Wetlands transition areas" are those areas adjacent to wetlands under the jurisdiction of the Freshwater Wetlands Protection Act and are defined in N.J.A.C. 7:7E-3.28 and N.J.A.C. 7:7A.

1.2.1 Abbreviations

AASHO-	American Association of State Highway Officials.
ASTM -	American Society for Testing Materials.
PVC	Polyvinyl Chloride.

2.0 PROCEDURES REGARDING NEW CONNECTIONS TO SEWERS

2.1 General

2.1.1 Approval of sewerage works is required for all subdivision and site plans in the municipalities of Fair Haven, Little Silver, Monmouth Beach, Oceanport, Shrewsbury, and West Long Branch connecting to the Authority sewer, except for minor subdivisions not involving the creation of a new building lot.

2.1.2 The requirements contained hereinafter are the minimum requirements which are to be satisfied in order to obtain approval from the Authority, and are in no way meant to be standards for design.

2.1.3 All sewers and sewerage works shall be designed and constructed in accordance with all current Rules and Regulations of the Authority and the NJDEP. The plumbing fixtures used shall meet the requirements of the local and State codes, including those pertaining to water conservation devices.

2.1.3a Any applicant seeking connection to the Authority's system must submit with its application a certification from the local government unit or agency granting the applicant approval to build, construct or connect to the local sewer collection system or a licensed surveyor, stating the property and any portion of the property is or is not located in wetlands, wetland buffers or wetland transition areas.

The Authority will not consider as complete any application which does not have the certification submitted with it and will not consider the application without such certification.

No application will be granted approval for connection to the Authority's system where the property or development is located in wetlands, wetland buffers or wetland transition areas without prior approval from the New Jersey Department of Environmental Protection and Energy, Land Use Regulation Program, Division of Coastal Resources.

2.1.4 Final plans and specifications regarding sewer installation and connection to the existing system shall be submitted to the Authority to be reviewed for compliance with the Sewer Use Rules and Regulations. Final approval will be given for those plans which are in complete compliance with these Sewer Use Rules and Regulations. Plans which are deficient in one or more items no matter how in-significant they may seem will be denied approval.

2.1.4 (a)[2.1&2.7] The Authority shall not consider any application for tentative approval for connection to the Authority's system until the applicant shall have first obtained preliminary subdivision and/or preliminary site plan approval from the appropriate body of the municipality which has jurisdiction over said

subdivision and/or site plan approval process. The applicant shall furnish a copy of the Resolution of Approval and any applications submitted to said body for subdivision and/or site plan approval, including plot plans or any maps upon which the appropriate municipal body granted preliminary subdivision and/or site plan approval. Once Tentative Approval is given for a subdivision or site plan, the **NJDEP** Treatment Works Approval permit forms and endorsements may be signed.

2.1.4 (b)[2.2] Prior to final approval being granted by the Authority, the following is required:

(1) Entering into a "Developer's Agreement", if required, as per Section 2.1.9.
(2) Payment of the Authority Attorney review fee of $500.00 for review of performance guarantee and "Developer's Agreement".
(3) Posting of Performance Guarantee as per Section 2.1.7 (a).
(4) Payment of inspection fees as per Section 2.1.7 (b).

2.1.5 The construction of all sewage facilities shall be inspected by the Authority's Engineer.

2.1.6 Each subdivision plan must contain the following approval form:

Sanitary Sewerage Facilities Approved by the
Two Rivers Water Reclamation Authority

Tentative Approval	Final Approval
Resolution Dated _ _ _ _ _ _	Resolution Dated _____
Executive Director	
Signature_____	
Date_ _ _ _ _ _ _ _ _ _	
Engineering Manager	
Signature_____	
Date _ _ _ _ _ _ _ _ _ _	

2.1.7[2.4] The following items shall be submitted to the Authority by the Developer after final plans receive Authority approval:

(a) PERFORMANCE GUARANTEE:

120% of the estimated cost of sewerage facilities, 10% of which to be in cash, the remaining 110% to be either:

(i) In an irrevocable letter of credit of a bank authorized to do business in the State of New Jersey, which shall name the Authority as obligee, which shall comply with the requirements of N.J.S.A. 40:14A-45 and any amendments or supplements thereto, and which shall permit the Authority to draw upon the letter of credit if the obligor fails to furnish another letter of credit which complies with the provisions of this section 90 days or more in advance of the expiration of the letter of credit; or

(ii) A Performance Bond of a surety company authorized to do business in the State of New Jersey, which Bond shall name the Authority as obligee, shall extend until such time as a Certificate of Completion is issued by the Authority, and shall comply with the requirements of N.J.S.A. 2A:44-147 and any amendments or supplements thereto.

(b) ENGINEERING AND INSPECTION FEES:

(i) The Authority will be reimbursed for all reasonable inspection fees for the inspection of improvements.

(ii) The Authority will be paid a deposit for the inspection fees in an amount equal to the greater of $500 or 5% of the estimated cost of sewerage facilities in cash or certified check. The Authority will charge inspection fees against the deposit: (1) for outside professionals at a rate set forth in the individuals agreement with the Authority and approved by annual resolution; or (2) for in-house professionals at a rate of 200% of the sum of the products resulting from multiplying (a) the hourly base salary (established by annual resolution for each professional) by (b) the number of hours spent by the professional on the project.

(iii) In the event the Authority incurs, or will incur, additional inspection fees because of extraordinary circumstances, then the Developer shall pay to the Authority an additional deposit in the sum equal to the estimated or actual cost of the inspection fees for such an event.

(iv) If the facilities are to be constructed in phases, pursuant to an agreement providing for the phasing of utility construction, the full amount of reasonably anticipated inspection fees for the initial phase shall be deposited with the Authority and upon completion of same, the full amount of reasonably anticipated inspection fees for each

subsequent phase, shall be in turn deposited with the Authority.

(v) The developer shall be responsible for any additional costs incurred by the Authority or any of its agents.

2.1.8 The following items must be submitted to the Authority whenever land or an easement is conveyed to the Authority:

(a) Deed.

(b) A copy of filed subdivision map.

(c) Easements for all lines on property (private), together with subdivision maps showing easements thereon.

(d) Metes and bounds description.

(e) All warranties from manufacturers of equipment.

(f) Title insurance policies for fee titles and easements.

(g) All surveys for land and for easements being conveyed.

(h) Bill of Sale for all equipment and lines.

(i) Releases from the following: Material men; Suppliers; Contractors; Laborers; Lending Institutions.

G) Affidavits of Title for land, easements, and equipment, and a recitation therein that all land, equipment, and/or lines conveyed to the Authority have been paid for in full.

(k) Assignment to the Authority of all performance and maintenance bonds.

(I) Certification of granter listing all users connected to the system, including the following: Name and address of property owner, together with Lot and Block number; Date Connected, Cleanout location; attach copies of plumbing permits.

m) Record plans clearly showing the location of all sanitary sewer facilities constructed.

(n) Maintenance bond from developer to Authority.

(o) All of the above to be conveyed to the Authority free and clear of all liens, encumbrances and debts.

(p) Corporate Resolution authorizing conveyance.

2.1.9 DEVELOPER'S AGREEMENT[2]

A Developer's Agreement between developers and the Authority is required and shall be put in writing and approved in substance and form by the Attorney for the Authority. After execution, the "Developer's Agreement" should be recorded in the Monmouth County Clerk's Office and returned to the Authority.

In the event a developer does not comply with the Developer's Agreement, the Authority shall withhold occupancy permit approvals until such time as the provisions of the Developer's Agreement are met.

2.2 SUBDIVISION AND SITE PLAN REVIEW AND APPROVAL PROCESS

2.2.1 The developer shall obtain all reference material including Sewer Use Rules and Regulations from the Authority. The Authority's representative and the developer shall informally discuss the proposed subdivision regarding the connection to the existing system. This meeting is mandatory. Copies of the current Rules and Regulations are available (paper or disk) for a fee of $10.00.

2.2.2 (a) Tentative Approval; The completed application for Tentative Approval shall be submitted to the Authority in triplicate, accompanied by the following:

1. A filing fee of ten dollars ($10.00) per lot, but not over two hundred fifty dollars ($250.00) nor less than one hundred fifty dollars ($150.00) for a major subdivision. Where a minor subdivision does not require an easement or a performance bond, the filing fee shall be twenty-five dollars ($25.00).

2. Three copies of the most recent drawings and specifications. The plans shall be stapled and folded.

Within two weeks after receiving the application, the Authority's Engineer shall make his recommendations to the Authority for its consideration as to Tentative Approval.

(b) Final Approval; Final plans and specifications shall be submitted to the Authority for review. Drawings shall include plan, profile, and details of sanitary sewers as prepared by a NJ Licensed Professional Engineer. No deviation from these documents will be permitted without prior approval of the Authority Engineer. Plans which do not comply with the Sewer Use Rules and Regulations

will be returned to the developer. Plans which are in complete compliance with the Sewer Use Rules and Regulations will be given Final Approval. The following items are also required for Final Approval:

1. Three copies of final drawings.
2. Completed Final Approval application form.

2.2.3 After plans are approved, the developer shall submit the required Performance Guarantee to the Authority. This Performance Guarantee may be returned to the developer upon the satisfactory completion of the construction of the project and fulfillment of all other requirements as described in these Sewer Use Rules and Regulations. If the Authority has reason to believe that the developer has falsified any information or has not followed the proper procedure regarding the construction of the sewers and sewage works, especially concerning construction inspection, then all or part of the Performance Guarantee will be retained by the Authority.

2.2.4 After plans are approved, the developer shall complete the required Engineer's Report and Endorsement forms (forms WQM-003 and WQM-006) and submit them to the Authority for the required signatures. Once the construction permit application and forms are complete and correct, the developer shall submit them to the NJDEP. The Contractor at his own expense, shall obtain all necessary permits for performing the work.

2.2.5 After a LURP permit is granted by the NJDEP, the developer shall be permitted to commence construction of sewage works. The developer shall attend a pre-construction meeting at the Authority's office, no less than two weeks prior to the start of construction, and at the meeting submit an accurate construction schedule. The construction schedule will be used by the Authority to schedule the necessary inspections. Any construction which is found to be incorrect or incomplete shall be either removed and replaced, or placed correctly, on the orders of the inspector. After completion of construction of the sewage works, the developer shall provide all necessary equipment to perform the required testing under Section 2.4. Testing shall be performed in the presence of a designated representative of the Authority.

2.2.62.5 After construction is completed, the developer shall make application to the Authority for a Certificate of Completion, accompanied by the following:

a. A statement from the Authority's Engineer or designee that construction has been satisfactorily completed, and that approved record plans have been submitted.

b. One reproducible copy and three prints of the record plans marked with the approval of the Authority's Engineer. The record drawings

shall also be submitted in a digital format directly compatible with AutoCAD. The record drawings shall contain the following:

i. The record drawing shall show both plan and profile.
ii. All inverts, rim elevations, pipe sizes and pipe slopes shall be shown. The pipe material shall be noted.
iii. The sanitary sewer shall be stationed from the downstream manhole.
iv. The wye location shall be stationed. The cleanout locations shall be shown by station and offset.
v. All manholes shall be numbered in accordance with the approved plans.
vi. The plans shall be drawn at a scale no smaller than one inch equals fifty feet.

c. Such legal documents as are necessary to convey the interests in the sewerage facilities to the Authority.
d. Maintenance guarantee in the amount of 15% of actual construction cost, by either:

(i) A bond of a surety company authorized to do business in the State of New Jersey, which bond shall name the Authority as obligee;

(ii) An irrevocable letter of credit of a bank authorized to do business in the State of New Jersey, which shall name the Authority as obligee, which shall comply with the requirements of N.J.S.A. 40:14A-45 and any amendments or supplements thereto, and which shall permit the Authority to draw upon the letter of credit if the obligor fails to furnish another letter of credit which complies with the provisions of this section 90 days or more in advance of the expiration of the letter of credit;

(iii) The maintenance guarantee will be returned within two years after the facilities are approved and placed in operation, upon written application by the developer, less any sums expended by the Authority for maintenance.

(iv) At the election of the Developer, said maintenance guarantee can be paid by cash

2.6 After issuance of the Certificate of Completion by the Authority, the developer's performance guarantee may be released.

2.3 Design Requirements

2.3.1 Each subdivision must have installed therein a sanitary sewerage collection system with a maximum of one house connection for each lot, and provision made for connections from adjacent lots or properties owned by others. In the event any portion of the Authority sewer is within an easement, said easement shall be exclusive to the sanitary sewer (i.e. no other utilities within the sanitary sewer easement), shall be a minimum of twenty (20) feet in width, and shall be dedicated to the Authority. A deed shall be recorded and a copy submitted to the Authority. The form of the deed shall be reviewed and approved by the Authority Attorney prior to its being recorded.

2.3.2 The following general notes are to be included on the drawings of sewerage facilities:

> "Sanitary Sewer mains to be (state pipe material and class). House Connections to be 4-inch diameter _____ (state pipe material and class)."
>
> "Four-inch wyes to be used for House connections."
>
> "Sanitary Sewers to be constructed in compliance with "Standard Details" and the Sewer Use Rules and Regulations, Two Rivers Water Reclamation Authority."
>
> "Elevations based on U.S.C. & G.S. datum of mean sea level. (Show federal benchmark used and bench mark established for this development)."

2.2(a) In some drainage areas where there may be the need to provide for future development upstream of a developer's project, the Authority may determine that it will be beneficial to have sewerage facilities constructed which not only meet the needs of the developer's project, but the total needs, present and future, of the drainage area, which will require the developer to have them constructed for the total capacity and/or facilities extended over and above those proposed by a developer.

> (b) The developer may be entitled to certain reimbursement for the oversizing of lines, additional excavation, increased capacity of pumping stations or the installation of additional lengths of sewer pipe (outside the project) and such additional expenses as may be required by the Authority. The Authority may directly reimburse the developer as described in the following section. Alternatively, the Authority and the developer may agree to enter a cost sharing agreement.
>
> (i) <u>Transmission Mains (Gravity Mains)</u>

If the size of any gravity main, as shown by the developer's Engineer, and reviewed by the Authority's Engineer is inadequate for the future requirements of the area, as determined by the Authority, the developer shall install the larger size pipe, if required to do so by the Authority.

Up to and including pipe sixteen inches (16") in diameter, the Authority agrees to pay the developer the differences in material cost of the pipe only as reflected in the actual invoice for same, as reviewed and approved by the Authority Engineer. Over sixteen inches (16") in diameter, the Authority agrees to pay the developer the difference in the material cost of the pipe plus the cost of the additional excavation as reflected by the construction details contained herein and an actual invoice for same, as reviewed and approved by the Authority Engineer. As the minimum size gravity main under the Authority and NJDEP Regulations is eight inches (8"), no reimbursement shall be provided where the size of the pipe which is required is eight inches (8") or less.

(ii) Treatment Facilities

If the project requires, as determined by the Authority Engineer, the installation or modification of wastewater treatment facilities, the developer shall perform all studies and shall pay all costs associated therewith, including review fees and the cost of amending the Wastewater Management Plan. If the Authority requires a treatment facilities installation or modification of greater capacity than that required by the developer the Authority agrees to pay said developer the difference between the cost of the treatment facilities required by the developer and the treatment facilities as required by the Authority.

(c) Cost Sharing Agreements

As an alternative to the reimbursement provisions which are set forth in the preceding paragraphs, a developer which is required by the Authority to make certain regional or sub regional improvements may enter into a cost sharing agreement with the Authority. Such an agreement shall indicate that the Authority shall collect from each and every future upstream developer a share of the total cost of the improvements, which amounts will then be transferred to the original developer. These cost sharing agreements may provide for any costs associated with force mains, pumping stations, treatment facilities, and gravity mains above 8

inches in diameter. Any such agreements shall be subject to the following:

(i) The decision to enter a cost sharing agreement shall be within the full discretion of the Commissioners of the Two Rivers Water Reclamation Authority, and cost sharing agreements shall only be entered when the proposed sewer improvements are in the best interests of the Authority as determined by the Authority Engineer, such as when a regional approach is required or desirable.

(ii) Additionally, cost sharing agreements will only be entered into in those situations where the developer is required to install improvements which are designed to serve a capacity which is greater than that required by the proposed development.

(iii) The amount which the Authority shall be required to collect from each and every upstream developer who is tributary to the constructed regional improvement shall be based upon the anticipated percentage of capacity that said developer shall require in accordance with the following formula:

$$\frac{D}{T} \times C = C2$$

D= Amount of capacity in EDU's that upstream developer shall require as determined by the Authority Engineer

T= Total capacity of sewer improvements in EDU's as determined by the Authority Engineer.

C= Total cost of installation of sewer improvements based upon paid invoices approved by the Authority Engineer.

C2 = Cost Authority shall collect from the upstream developer.

(iv) The amounts to be collected from each upstream developer shall be collected prior to the time of the posting of the performance bond and inspection fees with respect to the upstream development.

(v) In no event shall a developer be entitled to recoup more than 100% of the cost of installation minus the cost of its pro-rata share.

(vi) The costs which future upstream developers shall incur as a result of any cost sharing agreement shall be in addition to any connection fees which the Authority may charge pursuant to N.J.S.A. 40:14A-8 as well as the Authority Rules and Regulations.

(vii) The Authority may include indemnification provisions in the cost sharing agreements which require the developer who enters said agreement to indemnify and defend the Authority in the event that the cost sharing agreement is subject to legal challenge. Said agreements may also provide that any legal defense that the developer may provide to the Authority shall be under the direct supervision and control of the Authority Attorney and that any settlement decisions with respect to any such litigation shall be within the full discretion of the Authority.

(viii) Any developer wishing to enter a cost sharing agreement may be required by the Authority to provide an appropriate Bond or Letter of Credit in the form and amounts required by the Authority Attorney in order to protect the Authority in the event that the cost sharing agreement is subject to legal challenge. Additionally, the developer shall be required to insure against such legal challenge by providing insurance or other surety in a form required by the Authority Attorney.

2.3.4 Sewer flow shall be one-directional with no loops. Sewers shall be sloped in accordance with the minimum requirements of NJDEP, and shall coordinate with the Authority.

2.3.5 In the event the Authority's sanitary sewers are not available to the applicant then one of the following methods of sewage disposal, to be determined by the Authority, will be required:

1. Dry sewer for future use and, in lieu of sewage disposal system, individual sewage disposal on each lot.

2. Individual sewage disposal systems.

2.4 Construction Requirements

The contractor and developer must attend a mandatory pre-construction meeting with the Authority Engineer and Operations Manager prior to the start up of any construction on the sanitary sewer. The pre-construction conference shall be scheduled no less than fourteen (14) days prior to the start of construction.

2.4.1 Excavation and Earthwork -

LIMITS OF EXCAVATION. Excavation shall be made to approved lines, which shall be of sufficient width for forming the pipe joints. Trench widths shall be selected so that the backfill will not exceed the safe load on the pipe. In all cases, the trench sides shall be vertical from the bottom to 12 inches above the top outside diameter of the pipe. In general, the widths of pipe trenches shall not be wider than the outside diameter of the pipe barrel plus 2 feet at the level of the top of the pipe, unless otherwise approved. Trench bottoms shall be trimmed by hand to provide firm bedding. The last 3 inches of depth for all pipe trenches shall be removed with pick and shovel to the proper lines and grades before placing foundation material and pipe.

Blasting for rock excavation will be permitted only on approval of methods, and in compliance with applicable State and local regulations.

SHEETING AND BRACING. Where excavations are made with sides at greater than natural slope, sheeting and bracing shall be used to maintain such excavation support as necessary to support the sides of the excavation and to prevent any movement of earth other than that intended to be accomplished by the excavation which may otherwise injure or delay the work or endanger adjacent structures. Excavation support shall be constructed as necessary for the protection of the work and for the safety of personnel and shall comply with the safety precautions outlined in the Federal Register as required by the Federal Occupational and Safety Health Act of 1970 (OSHA). The Contractor shall be responsible for the adequacy of all trench support used on the work.

The Contractor is to provide support for all excavations in excess of 5' in depth, or as required, all in accordance with OSHA requirements.

DEWATERING

All pipe will be laid on a solid, dry foundation. To ensure proper conditions at all times during construction, the Contractor shall provide and maintain ample means and devices for promptly intercepting and removing all water entering trenches from above or below ground. Any pipe laid in water or wet trenches will be removed and reinstalled at the Contractor's expense.

Water shall be completely removed from all excavations promptly, and continuously throughout the progress of the work. The Contractor shall keep the excavation absolutely dry until work is at a point that it will not be damaged by the rising water level. The Contractor shall provide, maintain and operate such drains, wells, well point systems, and other related approved means and equipment as may be necessary to keep the excavations free from water during all stages of the construction operations and course of work. The Contractor shall provide such dikes, sumps, and pumping that may also be required to prevent the flow of surface waters into excavated areas and into any and all areas where construction or installations are in progress.

The Contractor shall provide adequate noise inhibitors on all dewatering equipment, which must be approved by the Authority. This shall include mufflers, enclosures, or other items needed to keep the noise level at tolerable levels. If, in the opinion of the Authority, the appropriate noise level has been exceeded, the Contractor shall be required to use electrically powered dewatering equipment at no additional cost to the Authority. The contractor shall comply with all local noise ordinance requirements.

All water pumped or drained from the work shall be disposed of in a suitable manner without interference or injury to other work pavements, other surfaces, properties, or which may create health hazards or impede traffic. In no case shall water be permitted to rise into or flow through a completed sanitary sewer. Sediment laden water that is being pumped from the trenches shall not be pumped directly into a watercourse. Sedimentation basins, hay bales, check dams, or other means acceptable to the Authority shall be utilized to remove the sediment prior to discharge. If the trench water to be pumped out is more acidic than ambient stream levels, as determined by the Authority, the Contractor shall take appropriate measures to adjust the pH of the dewatering effluent to that of the surrounding stream. All sediment laden water shall be discharged in accordance with the State Standards for Soil Erosion and Sediment Control an/or the local Soil Erosion District Permit.

Water shall be discharged through pipe or gutters, or any other suitable artificial means to catch basins, watercourses, or ditches in such a manner as to avoid interference with business, pedestrian and vehicular traffic and so as to prevent damage to property.

BACKFILL. All backfill shall consist of a suitable selected and approved earth generally from storage of approved excavated soil, free from rejected organic matter, boggy, peaty, humus or other unsuitable material such as silt, rubbish, waste, ashes, or cinders. If sufficient suitable material for backfill is not available from the excavated material, as determined by the Authority Engineer, the Contractor shall procure elsewhere a sufficient quantity of suitable material and shall furnish and place such material. No frozen earth shall be used for backfill, and all stones more than 6 inches in the largest dimension shall be removed from acceptable earth and backfill. Unsuitable or excess backfill material shall be promptly removed from the site.

The Contractor shall backfill all trenches at the end of each working day with suitable material from the trench excavation or temporary stockpile. Backfill shall be brought to elevations which allow construction of temporary paving specified elsewhere in these specifications.

The Contractor shall repair all trenches, within paved streets, with bituminous stabilized base (NJDOT Mix 1-2) within 24 hours, in accordance with the local road-

opening permit. Final restoration of the road shall be in accordance with the municipal standards. It shall be the responsibility of the developer to coordinate all municipal inspections for the final backfill and final paving of any municipal roadway. The developer shall obtain a release from the municipality that the trench is ready for final restoration which is under the jurisdiction of the town.

Completion of the backfill and compaction effort described in these specifications is an absolute requirement of these Rules and Regulations. In the event the Contractor fails to achieve the soil density requirements of the specification, the Authority shall not release the Performance Guarantee. The contractor shall also comply with all municipal requirements for road openings, traffic control, and pavement restoration.

PLACING AND COMPACTING BACKFILL. Backfill shall be made to the slopes, grades and elevations required. Backfill shall be compacted, in an approved manner to a density at least equal to that of the adjacent undisturbed soil, so as to avoid future unequal settlement.

No backfill shall be placed until the structure has been inspected in place and approved. Backfilling shall be carried out as soon as possible after such approval.

Trenches shall be backfilled from the top of the foundation material to a depth of not less than 12 inches over the pipes using only bank run sand and gravel. Such material shall be uniformly placed on each side of the pipe in 6-inch layers, wetted as required, and firmly compacted by approved tamping equipment. Care shall be taken not to damage to the pipe. After a compacted coverage of 12 inches has been made, the remainder of the trench shall be back filled and compacted in an approved manner.

For plastic pipe, the bank run sand or gravel must be specially compacted with mechanical tampers, after sprinkling with water to obtain optimum moisture content. Final in-place density must be at least 95 percent of the maximum density obtainable with the material used, as determined by AASHO Designation T 99 compaction and density tests, using Method "C".

FOUNDATION MATERIAL. Foundation material used for pipe bedding, from a distance six (6) inches below the pipe invert to the lower quarter point of the pipe, shall be bank run sand and gravel or crushed stone. Pipe embedment material from the lower quarter point to 12 inches above the top of the pipe shall be bank run sand and gravel.

Bank run sand and gravel shall conform to the requirements of the New Jersey Department of Transportation, Standard Specifications for Road and Bridge Construction, latest revision. All foundation material shall be placed and compacted as directed and approved by the Engineer.

2.4.2 Pipe and Pipe-laying

DUCTILE **IRON** PIPE.

All ductile iron pipe shall be centrifugally cast pipe conforming to the American National Standard for Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand Lined Molds for Water or Other Liquids, ANSI/AWWA Designation A21.51/C-151, latest revision. The pipe sizes shall be as shown on the approved drawings with a thickness class of 52 unless otherwise noted. Flanged piping shall have a thickness class of 53. All pipe fittings shall have joints with body thickness and radii of curvature conforming to latest ANSI/AWWA Designation A.21.10/C-110.

Joints shall employ a single, elongated gasket of such size and shape as to provide an adequate compressive force against the spigot and socket after assembly to affect a positive seal under all combinations of joint and gasket tolerances. Gaskets shall be vulcanized natural or vulcanized synthetic rubber, resistant to common ingredients of sewage, industrial wastes, including oils and groundwater. Gaskets shall be free of porous areas, foreign materials, and visible defects.

The lubricant shall be suitable for lubricating the parts of the joint assembly. The lubricant shall be non-toxic and shall not support the growth of bacteria and shall have no deteriorating effects on the gasket material. Joints shall be U.S. Pipe and Foundry Company's "Tyton" joint, Griffin Pipe Products Company's "Super Bell-Tite" joint, or equal conforming to the latest edition of American National Standard for Rubber Gasket Joints for Cast Iron and Ductile Iron Pressure Pipe and Fittings, ANSI/AWWA Designation A21.11/C-111.

Outside Coating

The outside coating shall be a minimum of 1 mil bituminous paint according to ANSI/AWWA C151/a21.51 Section 51-8.1. Prior to lining, the exterior and interior of the spigot end, including the spigot face shall be coated with a minimum of 8 mils of epoxy.

Inside Coating

Before lining, the inside of the socket, including a portion of the gasket cavity and a portion of the pipe barrel, shall be coated with a minimum of 8 mils of epoxy.

Lining

The lining shall be Sewper Coat as manufactured by Lafarge Calcium aluminates or approved equal. Sewper Coat is a calcium aluminate mortar made of fused calcium aluminate cement and fused calcium aluminate aggregates.

A seal coat shall be applied to the lining.

Thickness - the thickness of the lining shall be a minimum of

0.125" for 6" through 12"
0.1875" for 14" through 24"

The lining thickness may taper to less that specified minimum at the ends of the pipe.

Quality - Cracks, other than closed hairline cracks and/or fine crazing, shall not be acceptable. Loose areas of cement lining are not allowable.

PLASTIC PIPE. Plastic pipe and fittings shall be polyvinyl chloride bell and plain end sewer pipe equal to that manufactured by Certain-Teed Products Corp. The pipe shall be a minimum of SOR 35.

The pipe shall be manufactured and tested to conform to the latest ASTM Specification D-3034 for PVC Sewer Pipe and Fittings.

Pipe joints shall be bell and spigot type with rubber "O" ring elastomeric gaskets of the composition and texture that is resistant to sewage and industrial wastes. The lubricant used for assembly shall have no detrimental effect on the gasket or on the pipe.

PIPE LAYING AND INSTALLATION. All pipe and fittings shall be installed to the lines and elevations shown or ordered, and in accordance with the manufacturer's recommendations.

Suitable tools and equipment shall be used for proper handling, storing, and laying pipe and fittings. In order to avoid damage to the interior coatings of pipe, lifting hooks or bars shall not be inserted therein. Each pipe and fitting shall be checked for defects and injuries as laying proceeds. Imperfect pipe materials shall be rejected and removed from the work. Pipe found to be defective after laying shall be removed and replaced by undamaged material.

The interior of all pipe shall be cleaned of dirt, and other deleterious materials, and kept clean, as the next section of pipe is laid. During the progress of the work, the exposed ends of the pipe shall be provided with approved temporary covers fitted to the pipe, in order to prevent material from entering the pipe.

Where pipe must be cut to fit as closing pieces, such cuts shall be evenly and squarely made in a workmanlike manner with approved equipment. Injury to linings or coatings shall be satisfactorily repaired.

Where ductile iron mechanical joint, Tyton or Ring-tite fittings are used, the Contractor shall furnish and install concrete thrust blocks, tie rods, or other

approved means for preventing movements at joints, bends, tees, and other fittings as shown or directed. Joints must be thoroughly brushed with a wire brush to remove all loose rust or foreign material. Soapy water must be brushed over the joint surfaces and over the gasket. Bolts shall be tightened uniformly, using only torque-limiting wrenches to avoid overstressing the bolts. Bolt heads, nuts and other unpainted surfaces shall be coated with two (2) heavy applications of black asphaltum varnish.

All pipe shall be laid in accordance with approved details. All pipe shall be laid on top of a layer of foundation material and the same material shall be carried up to the spring line of the pipe. Where concrete cradles are used to support the pipe, foundation material will not be required. No solid blocking will be permitted under pipe. Joints shall be made in accordance with the recommendations of the manufacturer.

TESTING.

The contractor shall provide a minimum of forty-eight (48) hours notice of the proposed testing date and time. Failure to provide the minimum notice may result in personnel being unavailable to witness the test. All testing must be witnessed by the Authority in order for the sewer to be accepted.

Sanitary sewer testing shall include television inspection and deflection testing of all new gravity sewers to determine the acceptability of the pipe.

The Contractor shall furnish all labor, power, electronic equipment, and technicians to perform the closed circuit television inspection of the sewers. Operation of the equipment shall be controlled from above the ground with a skilled technician at the control panel in the television studio controlling the movement of the television camera. The technician shall have the capability to adjust the brilliance of the built-in lighting system and to change the focus of the television camera by remote control.

The built-in lighting system shall be capable of producing at least 100 foot-candles of light. Picture quality shall be such as to produce a continuous 600 line resolution picture showing the entire inside periphery of the pipe. Manhole numbers and pipe footage shall be displayed on television monitor at all times.

The view seen by the television camera shall be transmitted to a monitor of not less than 14" measured diagonally. The monitor shall be located either inside a mobile TV studio or in a trailer type unit. The Authority Engineer shall have access to view the television screen at all times. A videotape shall be made of the pipe inspection.

The television inspection shall be performed in one section of sewer at a time between adjacent manholes. The inspection shall be performed by pulling the television camera through the section of the sewer along the axis of the pipe at a speed of approximately 1-1/2 fps, or as directed by the Authority Engineer. The inspection shall be performed in a forward and/or backward direction as dictated by the line conditions at the time of the inspection. During the inspection of the sewer line, every possible means shall be taken to ensure total viewing of the inside periphery of the pipe. The inspection shall be conducted in such a manner so as to determine that the line is clean and to locate all leaking joints and breaks or faults in the line. The Contractor shall clean all lines prior to television inspection and, if necessary, shall plug or by-pass pump the upstream sanitary sewers to reduce the amount of flow in the sewer to be inspected and, therefore, allow full viewing of the inside periphery of the pipe.

Upon completion of television inspection, the sanitary sewer shall be considered acceptable if the line does not contain any visible leaks or defects and there are no dips in the line exceeding 1". If these defects are found, the Contractor shall repair

or replace the portion of the line that contains these defects and re-televise the line at no additional cost to the Authority.

The Contractor shall furnish videotapes of all televised sanitary sewers to the Authority Engineer. The videotapes shall be clearly labeled with the date and time of the inspection and the section of sewer inspected. The Authority Engineer shall have access to view the television screen at all times. Videotapes shall be VHS format at standard play (SP). In addition to the videotapes, television inspection log reports (three copies) shall be submitted by the Authority Engineer. The log reports shall describe and locate all defects and service connections in sufficient detail to determine the condition of the pipe without having to review the videotape. The log reports shall be cross-referenced with videotapes with tape number, manhole number, and tape footage with respect to manhole section, actual distance from manholes to defects, service connection, and repairs.

The Contractor shall also furnish all equipment and personnel to conduct deflection testing on portions of PVC pipe installed. The deflection of the PVC sewer pipe shall not exceed five percent (5%) of the inside pipe diameter. Deflection testing shall not be conducted earlier than seven (7) days after placement and compaction of the backfill.

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 shop drawings to the Authority Engineer detailing the type of mandrel to be used. The mandrel shall be as manufactured by Armco, Inc., or equal, and shall have the specified accuracy in all positions or rotations.

The Contractor shall conduct all deflection testing in the presence of the Authority 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.

The pipe shall also pass a low pressure air test. The contractor shall comply with the following:

1. The Authority shall be notified a minimum of 48 hours in advance of the air test.
2. All equipment to be used for the air test shall be tested and assembled by the contractor prior to its arrival on the job site. If the contractor fails to have the equipment tested and properly assembled by the time the test is scheduled to begin, it will result in the test having to be re-scheduled at the convenience of the Authority.
3. The pipe shall be air tested in accordance with the manufacturer's requirements.

4. The contractor shall provide an air gauge that shall read no more than 15 pounds per square inch, at full scale. Failure to have the proper gage shall result in the test being cancelled.

   The Contractor shall bear the costs of all pipe testing.

PIPE STRENGTHS. Except where special requirements are specified by the Authority, the choice of pipe shall be either PVC or Ductile Iron. Class of the pipe selected shall be in accordance with the manufacturer's requirements and shall be selected by a New Jersey Licensed Professional Engineer.

2.4.3 MANHOLES AND APPURTENANCES

PART I: GENERAL

A. Precast Concrete Manholes

1) Manholes shall be made of precast concrete sections of which the top section shall be eccentric or flat slab top. The bottom section shall be a precast concrete manhole base.

2) Poured in place bases will not be acceptable.

3) All precast manhole sections shall be manufactured in accordance with and meet the requirements of specification ASTM C-478, latest revision.

4) All precast manhole sections shall be manufactured by the wet cast method.

5) 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 ASTM C-497, "Determining Physical Properties of Concrete Pipe or Tile", latest revision. The circumferential steel reinforcement for risers, cone sections and base walls shall be a minimum of 0.12 square inches per vertical foot for 48" diameter manholes and .0025 times the inside diameter in inches per vertical foot for larger diameter manholes.

PART II: PRODUCTS

A. Precast Concrete Manholes

1) Standard Manhole

a) All manholes shall be PVC lined in accordance with Part IV Special Conditions. 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.

b) The sections shall conform to the requirements of "Specification for Precast Reinforced Concrete Manhole Sections" (ASTM C-478, latest revision). Joints shall be sealed with a preformed plastic gasket that meets all the requirements of ASTM C-990, "Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections", Butyl-Lok as manufactured by A-Lok Products Corporation, Trenton, New Jersey or 0-Lok rubber gasket as specified to meet the requirements of ASTM specification C-443, as supplied by Atlantic Concrete Products Company, Tullytown, PA or an approved equal.

c) 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 10 inches above the top of the highest influent 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 3 inches between the invert of the lowest effluent 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.

a) 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 an approved equal.

1) Pipe seals up to and including 20 inches in size shall be cast into 48" diameter manhole bases.

2) 21 inch through 30-inch pipe seals shall be cast into 60-inch diameter manhole bases.

3) 33 inch through 42-inch pipe seals shall be cast into 72-inch diameter manhole bases.

4) 48 inch through 54-inch pipe seals shall be cast into 84-inch diameter manhole bases.

5) 60 inch pipe seals shall be cast into 120-inch diameter manhole bases.

6) Flexible pipe to manhole seals shall meet all the test and performance requirements of ASTM specification C-923, "Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals".

7) Installation of pipe to manhole flexible seals shall be made in accordance with the manufacturers suggested specifications.

b) Manholes 4 feet in diameter shall have a bottom at least 6 inches thick and a wall at least 5 inches thick.

c) Manholes 5 feet in diameter shall have a bottom at least 8 inches thick and a wall at least 6 inches thick.

d) Manholes 6 feet in diameter shall have a bottom at least 8 inches thick and a wall ?-inches thick.

e) Manholes 7 feet in diameter shall have a bottom at least 12 inches thick and a wall at least 8 inches thick.

f) Manholes 8 feet in diameter shall have a bottom at least 12 inches thick and a wall at

least 9 inches thick.

g) Manholes 10 feet in diameter shall have a bottom at least 12 inches thick and a wall 10 inches thick.

h) Manholes 12 feet in diameter shall have a bottom at least 12 inches thick and a wall 12 inches thick.

d) 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. Joints shall be of such design as will permit effective joining and placement without irregularities in the interior wall surface of the manhole.

2) Manhole barrels shall consist of riser and top section with a minimum wall thickness of 5 inches. The top section shall be an eccentric conical section with thickened upper walls with the smallest inside diameter equal to 24 inches, to receive the manhole frame and cover. No more than 2 lift inserts shall be cast in each barrel or top section.

B. Manhole Steps

1) Manhole steps shall be Polypropylene steps #PS4B as manufactured by M.A. Industries, Peachtree City, Georgia or approved 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.

C. 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 the attached Detail Sheet, and shall be planed 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 shall be rejected and shall be replaced by perfect lids.

2) Anchor Bolts

a) Anchor Bolts for bolting manhole frame to precast or brick manholes shall be %" 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) Contractor shall install a GNR Rubber Maximizer Adjustment ring, or approved equal, between the top grade ring and the frame and cover. The GNR Rubber Maximizer supplied by Atlantic Concrete Products Company, Tullytown, PA. Or approved equal.

PART Ill: EXECUTION

A. Precast Concrete Bases

1) All precast concrete bases shall be installed on a layer of crushed stone, which shall have a minimum depth of 6 inches. The crushed stone shall conform to the quality and grading requirements specified in Section 301 of the New Jersey Department of Transportation Specifications, latest edition, - crushed stone coarse aggregate.

2) All pipe openings shall have pipe to manhole flexible seals as previously mentioned.

3) In constructing "Drop Manholes", the Contractor shall use one of the following methods:

a) Encase and support the riser and incoming pipe with concrete down to undisturbed earth. 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.

b) Purchase precast base with a 90 degree bend precasted into the base section and protect the vertical pipe with precast Drop Collars.

c) Purchase a minimum 5'-0" diameter manhole and run the drop inside the manhole. Internal piping to be secured by expansion bolts and stainless steel bands.

B. Masonry Work

1) The top of all precast manholes may be brought to proper grade for receiving manhole frames by using not more than four courses of brick or precast concrete grade rings. Masonry construction shall be performed by experienced and qualified workmen only. All work shall be laid plumb, 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 walls shall be parged on the inside and outside with a one-half inch coat of Portland Cement mortar.

2) 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.

3) 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.

4) Masonry shall not be constructed during cold weather (air

temperature below 40 degrees F.) unless necessary precautions are observed as directed by the Authority Engineer.

C. Flow Channels and Bench Walls

1) In precast bases the flow channels and bench walls in each manhole shall be carefully formed of mortar and brick, or concrete, to 1/2 pipe section and to the dimensions indicated on the drawings.

2) The minimum depth of flow channel shall be equal to 1/2 the diameter of the pipe to which it connects. The channel shall be graded to give a smooth, uninterrupted flow through the manhole.

3) 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.

4) The Contractor has the option to pour the flow channels or to have them precast by the manhole manufacturer.

D. Manhole Frames and Covers

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

2) Each casting shall be free from faults, sponginess, cracks, blowholes and other defects affecting the strength. The castings shall be properly cleaned prior to acceptance.

3) Contractor is to install a GNR Rubber Maximizer Adjustment Ring, or approved equal, between the top grade ring and frame and cover.

4) Manhole frames and covers shall be of the best quality close-grained gray iron casting conforming to the requirements of ASTM Designation A48, Class No. 30A, and shall be equal to Campbell Foundry Co. Pattern number 12038 with non penetrating pick holes and shall conform to the design and pattern shown of the Authority's detail sheet.

5) Locking manhole type covers shall be equal to the Campbell

Foundry Co. Pattern number 1487 and shall be provided on all easements or where required. Locking manhole type covers shall also be provided with single drop lift handle as supplied by Campbell Foundry Co.

E. Waterproofing

1) The entire outer surface of all precast concrete manholes shall be coated with two (2) coats of an approved bitumastic coating. Coating shall be Koppers 300 M Epoxy or Pennsbury 32-B-4 Epoxy, or approved equal.

2) A PVC entry sleeve shall be installed on each manhole cone or flat slab top section to prevent surface infiltration. The sleeve shall be Water-LOK Manhole Entry Sleeve as manufactured by A-LOK Products, Tullytown, PA., or equal.

PART IV: SPECIAL CONDITIONS

A. Manhole liner for Sanitary Systems

1) All manholes that the Authority or a developer, contractor or homeowner installs shall be internally lined with a corrosion resistant PVC Liner.

2) This liner shall have dovetail ribs so it can be integrally and securely cast into the concrete structure.

3) The compound will result in a semi-rigid material suitable for thermoforming to the contour of the structure.

4) The liner may be fabricated in panels with the panels jointed together by a slotted strip of EPDM rubber according to the manufacturer's specification.

5) All plastic PVC liners shall be free of cracks, pinholes or other defects adversely affecting the protective characteristics of the material and shall have a minimum thickness of 65 mills.

6) The Liner shall be white in color in order to reflect light.

7) Liner shall be Dura-Plate 100 as manufactured by A-LOK Products, Tullytown, PA, or equal.

2.4.4 House Connections

MATERIALS. From the street sewer to the curb or where the Authority designates the curb to be, the Contractor shall install a PVC lateral. The lateral pipe and fittings shall be SOR 35. A clean-out and stack, cut off at grade, shall be installed with a brass cap

Wye connections shall be used at the junction of the house connection and street sewer.

For single-family homes, the Contractor shall use 4-inch pipe as specified above. For other than single-family homes, the pipe size shall be as approved by the Authority.

Watertight plugs or caps shall be furnished at all dead ends. Plastic plugs will not be allowed unless mechanically fastened so as to permit exfiltration tests.

Flexible, watertight joints shall be used throughout, with round rubber plugs or rubber gaskets as the seal.

INSTALLATION. Slopes of house connections shall, in general, be% inch per foot. For critical conditions, a minimum slope of 1/8 inch per foot may be approved.

Where "dry sewers", or "dry house connections" are installed, the upstream end of the house connection shall terminate at the curb line or as approved by the Authority. The lateral shall have a water tight seal to allow for testing and to prevent infiltration.

The Contractor shall mark the curb or pavement opposite the end of each house connection, in a suitable and approved permanent manner; by scoring where curbs or pavement exist, or by well marked permanent stakes elsewhere. Exact location and depth, referenced to a permanent marker shall be shown on a record drawing for any temporary dead end. Each location shall be checked by the Authority, and the final record drawings shall be submitted to the Authority for approval prior to final acceptance.

For house connections more than 8 feet below grade, a riser pipe shall be installed at a slope of not more than 45 degrees. (See Standard Details).

2.4.5 Special Structures

Information on pumping stations, treatment plants, stream crossing, or other special structures shall be submitted for approval in preliminary form, before detailed drawings are prepared, or equipment is ordered. Grease traps,

sand traps, or other special appurtenances may be required for special conditions. Advance approval of the NJDEP may be required.

Marine Pump Out Facilities[2.3]

Marine pump out facilities shall be a contained and enclosed unit connected directly into the existing facilities' sanitary sewer system or directly into a TRWRA sewer main. All connections into TRWRA system shall be in accordance with the Authority's current Rules and Regulations.

Design Requirements

Pump out facilities shall be a closed system so that surface runoff can not enter into the TRWRA System. All gravity connections shall have cleanouts every fifty (50) feet and shall have a "P" trap located five (5) feet from the pump. All dump facilities shall be a closed system and shall include grease traps and sand traps approved by the Authority to eliminate the discharge of grease and sand into the TRWRA System.

Piping requirements shall be in accordance with the Authority's current Rules and Regulations and local plumbing codes. In the case of conflict the most stringent requirements shall prevail.

All plans, specifications and inspections shall be in accordance with Sections 2.1.7 and 2.4.5 and approved by the Authority Engineer.

2.1 May 17, 1988 Resolution Adopted

2.7 November 18, 2008 Resolution No. 2008-11-111 Adopted, added to end of2.1.4. (a)

2.2 January 21, 1997 Resolution No. 97-01-02 Adopted, added Sections 2.1.4(b) and 2.1.9, amended 2.3.3

2.3 November 19, 1996 Resolution No. 96-11-91 Adopted, added Marine Pump Out

2.4 May 15, 2007 Resolution No. 2007-05-61 Adopted, modified Performance Guarantee

2.5 May 15, 2007 Resolution No. 2007-05-61 Adopted, revision to Engineering Inspection Fees

2.6 May 15, 2007 Resolution No. 2007-05-61 Adopted, requirements changed for Maintenance Guarantee

s: \z-rules and regulations\2015 rules & regulations\section 2 procedures-revised.18.nov.08.doc

3.0 STANDARDS FOR INDIVIDUAL CONNECTIONS

3.1 Procedures

The Owner or licensed Plumber or licensed Sewer Contractor must obtain an "Application for Sewer Connection" from the Authority, and fill out the application completely except the permit number and dates of inspection. A sketch must be included showing the planned Building Sewer location, with sufficient dimensions to indicate compliance with the Rules and Regulations, and to permit the Sewer to be located in the future. Slopes, sizes, cleanouts, and pipe materials must also be indicated.

Two (2) copies of the application must be submitted to the Authority, together with the required connection, tapping, and applicable inspection fees, in cash or in the form of a check made out to the Authority. The second copy will be returned to the property owner for their records.

Only the Authority's approved contractors shall install the House Connection. All work shall be completed in accordance with the Authority's rules and regulations, and any applicable Borough ordinances, or Board of Health ordinances. The owner is responsible to install the Building Sewer in accordance with the local plumbing codes.

Upon completion of all pipe work, but before connection of the Building Sewer to the House Connection (before backfilling), the applicant must give 2 days notice to the Authority so that the Authority may schedule an inspection to witness the connection. The owner is responsible to schedule any other inspections that may be required by the local plumbing official.

After inspection and approval by the Authority and the local plumbing official, the applicant is responsible for backfilling the excavation.

The Owner is responsible for maintaining the Building Sewer in a safe and watertight condition from the Building to the curb or easement line. If the Owner fails to maintain the Building Sewer properly as aforesaid, the Authority reserves the right to disconnect the Building Sewer.

3.2 Detailed Requirements

a. No unauthorized person shall uncover, make any connection with or opening into, use, alter, or disturb any Authority Sewer or appurtenance thereof without first obtaining a written permit from the Authority.

b. All costs and expense incident to the installation and connection of the Building Sewer and House Connection shall be borne by the Owner. The Owner shall be liable to the Authority for any loss or damage that may directly or indirectly be occasioned by the installation of the Building Sewer or House Connection, or any other cause if the owner fails to obtain the necessary permits.

c. A separate and independent House Connection and Building Sewer shall be provided for each dwelling, building, and property. There shall be one House Connection per lot. The Building Sewer shall comply with the local plumbing codes with respect to material, design, and installation. As noted above if the Building Sewer is not installed and maintained properly by the owner, the Authority reserves the right to disconnect the Building Sewer. The owner shall be responsible for all costs to disconnect and reconnect the Building Sewer.

d. In all existing buildings in which any building drain is too low to permit gravity flow to the public sewer, sanitary sewage carried by such drain shall be lifted by a sewage ejector or pump which shall be a submersible, heavy duty, non-clog type with a non-clog enclosed pump impeller, and which shall be capable of passing 2 1/2" spheres. A suction tripod shall be provided of sufficient height to provide proper suction entrance for the liquids and solids to be pumped. The pump casing, impeller and tripod shall be of cast iron. The motor shall be submersible, oil-filled, totally enclosed, ball bearing type with adequate thrust capability for the pump. It shall be equipped with a stainless steel shaft and an expansion diaphragm. Conduits and fittings shall be attached to the motors with watertight connections. Said pump and its installation shall conform to all municipal regulations and Building Codes. The installation, maintenance, and repair of the pumping system are the responsibility of the owner.

e. No person shall connect sump pumps, roof downspouts, exterior foundation drains, area-way drains, or other sources of surface runoff or ground water to a Building Sewer, Building Drain, or House Connection which is in turn connected directly or indirectly to a public Sanitary Sewer.

f. The connection of the Building Sewer into the Public Sewer shall conform to the requirements of the Building and Plumbing Codes or other applicable rules and regulations or ordinances. All such connections shall be made gastight and watertight. Any deviation from the prescribed procedures and materials must be approved before installation.

g. All excavations for Building Sewer installations shall be adequately guarded with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the Authority and Municipal officials.

h. A House Connection will be provided by the Authority, at the expense of the property owner, between the existing fronting Authority sewer and the curb, curb line, or easement limit. The joint made between the House Connection provided by the Authority and the Building Sewer provided by the Owner shall be secure and watertight. Standard approved fittings with flexible joints shall be used for the connection. The Building Sewer for all Buildings shall be connected to the Public Sewer at the curb line or easement line. Where possible, tests will be conducted by Authority personnel to insure the water tightness of the Building Sewer.

i. A riser and cleanout shall be installed on the House Connection behind the curb line/edge of pavement or easement limit.

4.0 Prohibited Discharges

It shall be unlawful for any person to discharge or cause to be discharged any pollutant or wastewater which will interfere with the operation and/or performance of the POTW. These general prohibitions apply to all users whether or not the use is subject to National Categorical Pretreatment Standards or any other National, State or Local Pretreatment Standards or Requirements. A user shall not under any circumstances contribute to the Authority's POTW the following substances:

1. Any 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 cause fire or explosion or be injurious in any other way to the POTW or to the operation of the POTW.

   At no time, shall two successive readings on an explosion hazard meter, at the point of discharge into the system (or at any point in the system) be more than five percent (5%) nor any single reading be over ten percent (10%) of the Lower Explosive Limit (LEL) of the meter.

   Prohibited materials include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides and sulfides and any other substances which the Authority, the State and/or EPA have determined present a fire hazard or a hazard to the system.

2. Solid or viscous substances which may cause obstruction to the flow in a sewer or other interference with the operation of the wastewater treatment facilities including, but not limited to: grease, garbage with particles greater than one-half inch (1/2") in any dimension, animal guts or tissues, paunch manure, bones, hair, hides or fleshings, entrails, whole blood, feather, ashes, cinders, sand, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grains, spent hops, wood, plastics, tar, asphalt residues, residues from refining or processing or fuel or lubricating oil, mud or glass grinding or polishing wastes.

3. Any wastewater having a pH less than 6.5 or greater than 8.0 or wastewater having any other corrosive property capable of causing damage or hazard to structures, equipment, and/or personnel of the POTW.

4. Any wastewater containing toxic pollutants in sufficient quantity, either singly or by interaction with other pollutants, to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, create a toxic effect in the receiving waters of the POTW, or to exceed the limitation set forth in a Categorical Pretreatment Standard. A toxic pollutant shall include but not be limited to any pollutant identified pursuant to Section 307(a) of the Act.

5. Any noxious or malodorous liquids, gases, or solids which either singly or by interaction with other wastes are sufficient to create a public nuisance or hazard to life or are sufficient to prevent entry into the sewers for their maintenance and repair.

6. Any substance which may cause the POTW's effluent or any other product of the POTW such as residues, sludges, or scums, to be unsuitable for reclamation and reuse or to interfere with the reclamation process. In no case, shall a substance discharged to the POTW cause the POTW to be in non-compliance with sludge use or disposal criteria, guidelines or regulations developed under Section 405 of the Act; any criteria, guidelines, or regulations affecting sludge use or disposal developed pursuant to the Solid Waste Disposal Act, the Clean Air Act, the Toxic Substances Control Act, or State criteria applicable to the sludge management method being used.

7. Any substance which will cause the POTW to violate its NPDES and/or State Disposal System Permit or the receiving water quality standards.

8. Any wastewater with objectionable color not removed in the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions.

9. Any wastewater, liquid or vapors having a temperature higher than forty (40) degrees centigrade (105 degrees F).

10. Any pollutants, including oxygen demanding pollutants (BOD, etc.) released at a flow and/or pollutant concentration which a user knows or has reason to know will cause interference to the POTW. In no case shall a slug load have a flow rate or contain concentration or qualities of pollutants that exceed for any time period longer than fifteen (15) minutes more than three (3) times the average 24-hour concentration, quantities, or flow during normal operation.

11. Any wastewater containing any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the Authority in compliance with applicable State and/or Federal regulations.

12. Any non-polluted water including storm water and cooling water.

13. Any wastewater with Dissolved Oxygen concentration below 0.5 mg/l.

5.0 Industrial Wastes

Any person who is now discharging any industrial wastes into the TRWRA wastewater system or who desires to discharge any industrial wastes into the system must comply with these Rules and Regulations, and must apply for an Industrial Waste Discharge permit (Appendix A) within 90 days of the date these Rules and Regulations are issued.

The Industrial Waste Discharge permit will be issued by the TRWRA and shall be applicable for one year from the date the permit is issued. The authorized Representative of the industrial user shall complete the application and return it along with the appropriate application fee to TRWRA. The industrial user shall be responsible for reapplying for the new permit 30 days prior to the expiration date of the present permit. The industrial user shall be responsible for obtaining any updated Rules and Regulations prior to applying for a new Industrial waste discharge permit.

Industrial users shall be responsible to alter the operations of their facility either by pretreatment of their wastewater or modifications to their process in order for the facility to be in compliance with these Rules and Regulations. Industrial waste discharge permits will only be issued if the industrial user is in compliance with these Rules and Regulations.

Industrial users shall notify the Authority two weeks prior to any process changes which will alter the wastewater stream either in quantity or pollutant concentration of the wastewater.

5.1 Specific Pollutant Limitations

No person or user shall discharge wastewater in excess of the concentrations set forth in the table below.

Parameter	Maximum Instantaneous Concentration mg/L) Grab Sample
Arsenic	0.1
Barium	4.0
Boron	0.05
Cadmium	1.2
Chromium	7.0
Cobalt	1.0
Copper	4.5
Cyanides	1.9
Flourides	5.0

Lead	0.6
Manganese	1.0
Mercury	0.1
Nickel	4.1
Nitrogen	40.0
Phosphorous	15.0
Selenium	1.0
Silver	0.2
Sulfates	0.4
Sulfides	0.07
Sulfite	0.4
Zinc	4.2
pH Range	6.5-8.0
Suspended Solids	225
BOD	250

5.1.1 Authority's Right of Revision

The Authority reserves the right to update these Rules and Regulations and/or establish more stringent limitations or requirements on discharges to the wastewater system if deemed necessary to comply with the objectives presented in Section 1.1 of these Rules and Regulations.

5.1.2 Dilution Prohibition

No user shall increase the use of process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with these Rules and Regulations or those limitations contained in the Federal Categorical Pretreatment Standards, or in any other pollutant specific limitation developed by the Authority or State.

5.2 Federal Categorical Pretreatment Standards

Upon the promulgation of the Federal Categorical Pretreatment Standards for a particular industrial subcategory, the Federal Standard, if more stringent than limitations imposed under these Rules and Regulations for sources in that subcategory, shall immediately supersede the limitations imposed under these Rules and Regulations.

5.2.1 State Standards

Upon the promulgation of State pretreatment standards for a particular industrial subcategory, the State standard, if more stringent than the Federal standards and those specified under these Rules and Regulations shall immediately supersede those imposed under the Federal Standards or those hereinbefore described.

5.3 Accidental Discharges

All industrial users shall provide such facilities and institute such procedures as are reasonably necessary to prevent or minimize the potential for accidental discharge of prohibited substances or other materials listed in these Rules and Regulations, including but not limited to accidental discharge from liquid or raw material storage areas, from truck and rail car loading and unloading areas, from in-plant transfer or processing and materials handling areas, and from diked areas or holding ponds of any waste listed in these Rules and Regulations. Facilities to prevent accidental discharge of prohibited materials shall be provided and maintained at the user's own cost and expense. Detailed plans showing facilities and operating procedures to provide this protection shall be submitted to the Authority for review, and shall be approved by the Authority before construction of the facility. No user who commences contribution to the POTW after the effective date of these Rules and Regulations shall be permitted to introduce pollutants other than domestic sewage into the system until accidental discharge procedures have been approved by the Authority. Review and approval of such plans and operating procedures shall not relieve the industrial user from the responsibility to modify the user's facility as necessary to meet the requirements of these or future additional rules and regulations. In addition said review and approval does not in any way limit the liability of the property owner or operator. In the case of an accidental discharge, it is the responsibility of the user to immediately telephone and notify the Authority of the incident. The notification shall include location of discharge, type of waste, concentration and volume, and corrective action.

5.3.1 Written Notice

Within five (5) days following an accidental discharge the user shall submit to the Authority a detailed written report describing the cause of the discharge and the measures to be taken by the use 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 the POTW, fish kills, or any other damage to person or property; nor shall such notification relieve the user of civil penalties, or other liability which may be imposed by this article or other applicable law.

5.3.2 Notice to Employees

A notice or other notification plan shall be permanently posted on the user's bulletin board or other prominent place advising employees whom to call in the event of a dangerous discharge. Employers shall insure that all employees who may cause such a dangerous discharge to occur are advised of the emergency notification procedure.

5.4 Oil and Sand Interceptors[5.1]

Oil and sand interceptors shall be provided at all garages, service stations, car dealerships, automotive, motorcycle and marine repair shops and other locations where grease and oil or sand have the capability of entering the system through floor drains.

Where oil and sand have the capability of entering the sanitary sewer system through floor drains, sand and oil separators shall be provided. All sand and water separators shall be of a type and capacity approved by the Authority in compliance with local plumbing codes. The interceptors shall be located so as to trap all grease, oil and sand and prevent it from entering the sanitary sewer system. The interceptor shall be located so as to be easily accessible for cleaning and for inspection by the Authority.

Waste oil and waste antifreeze must be stored in containers approved by regulatory agencies having jurisdiction for such use and clearly marked with the words "waste oil" or "waste antifreeze". The collected material must be disposed of by a registered New Jersey Department of Environmental Protection waste hauler and invoiced as per New Jersey Department of Environmental Protection rules and regulations governing transport and disposal of this classification of waste. Invoices shall be made available to the Authority personnel for review during inspections.

5.5 Any person who handles waste oil and/or antifreeze must apply to the Authority annually for a permit approving the methods of disposal of such waste oil and/or antifreeze. Said annual renewal will not be approved until the prior years manifest of pump outs is submitted to the Authority. Pump out manifests must be available for inspection immediately upon demand.

5.6 Permit Feess.2

All garages, service stations, car dealership, automotive, motorcycle and marine repair shops or other location where grease, oil or sand have the capability of entering the sanitary sewer system shall be required to pay an annual permit fee of seventy five ($75.00) dollars. Said fee is payable at the time of initial inspection and thereafter as of March 31st of each year.

[5.1] July 18, 1989 Resolution Adopted, added Sections 5.4and 5.5

[5-2] August 15, 1989 Resolution Adopted, added fee requirement

s:\z-rules and regulations\2015 rules & regulations\section 5 industrial wastes.doc

6.0 Inspection and Testing of Wastewater

Inspection and testing of wastewater shall be performed by the Authority to determine if a user is in compliance with these Rules and Regulations. All industrial users are responsible for any wastewater analyses required by other governing agencies.

The user shall provide a control structure within their property limits whereby the inspection and testing of the wastewater may be carried out in a safe and efficient manner. Inspection and testing shall be carried out during any normal hours of operation for that user as indicated by them and without advance notice.

At the Authority's discretion some industrial users shall be required to install and operate, at their own cost, a flow meter which shall be continuously recording. All industrial users which are required to install such a flow meter will be required to operate the flow meter on a 24-hour basis and shall also be required to submit the recorded output to the Authority on demand.

6.1 Control Structure

A control structure in the form of a manhole and necessary appurtenances or other similar device shall be provided and maintained by the user on their property and at the expense of that user to monitor and control the flow of the wastewater. This control structure must be accessible for sampling and inspection of wastewater at all times.

Standard Specifications for design and construction of manholes are included in Section 2.0 of these Rules and Regulations. Construction drawings of new control structure must be approved by the Authority. After construction, record drawings shall be submitted to the Authority.

The Authority reserves the right to determine the location of the control structure for existing industrial users. If it is determined that the location of an existing control structure is inaccessible to the Authority, a new control structure shall be constructed and paid for by the industrial user.

6.2 Inspection

Inspection of user wastewater shall be carried out by an Authority representative. Inspections shall be performed at any time during the User's normal working day. An inspection may be either a total inspection or a sample inspection. A total inspection shall consist of the collection of samples from the control structure, observation of user operations, and observation of the pretreatment system. A sample inspection shall consist of collection of

wastewater samples only. All wastewater samples shall be grab or composite samples whichever the inspector deems necessary.

6.3 Testing

Testing shall be carried out by the Authority. Testing shall be paid for by the Authority only when the wastewater test indicates that the user is in compliance with these Rules and Regulations. Any time a User is not in compliance with the limitations hereinbefore described, the user shall be charged for the testing. All tests shall be performed in accordance with the latest edition of Standard Methods for the Examination of Water and Wastewater.

All laboratory reports of wastewater analyses performed by the industrial user either for its own purposes or another government agency shall be submitted to the Authority upon request.

6.4 Notice of Violations

All users not in compliance with these Rules and Regulations shall be notified, through their Authorized Representative, of the violation(s) by telephone followed by a written notice.

7.0 Violations and Penalty

If any wastewaters are discharged into the Regional Sewerage System or the Customer Collection Sewerage System, which contain the substances or possess the characteristics in excess of the concentration or limitations specified in Section 3.0 and 4.0, or which in the judgment of the Authority, has a deleterious effect upon the Regional Sewerage System (Sewers or Treatment Plant), receiving waters, human, animal or aquatic life, or constitute a public nuisance, or will result in increased treatment costs, the Authority will reject the waste, except for domestic waste, and issue a cease and desist order for that wastewater at any time and without prior notification.

All industrial users shall be charged for all additional costs incurred by the Authority as a result of the violation.

Falsification of any information, either written or oral, submitted to the Authority by an industrial user or representative thereof shall constitute a violation of these Rules and Regulations and shall be subject to the foregoing penalties.

7.1 Time Period to Rectify Violation

The User has 24 hours after notification, or 24 hours after becoming aware of the violation whichever is earlier as set forth in Section 6.4, to rectify the violation.

8.0 Miscellaneous

8.1 Authority Rights

Whenever, under the terms of these Rules and Regulations, the Authority is authorized to give its written consent, the Authority, in its discretion, may give or refuse such written consent and, if given, may restrict, limit or condition such consent in such manner as it shall deem advisable.

The user shall indemnify and save harmless the Authority and their officers, agents or employees, and each and every one of them against and from all suits, and costs of every kind and description and from all damages to which they or any of their officers, agents or employees may be subjected by reason of injury to the person or property of others resulting from the performance of any work dealing with wastewater or sewage works, or through the negligence of the user, or through any improper or defective machinery, implements or appliances employed by the user; and the user shall further indemnify and save harmless the Authority and their officers, agents and servants from the cost of all suits and actions of any kind of character whatsoever which may be brought or instituted by any subcontractor, material man or laborer who has performed work or furnished materials in or about the sewage works or by, or on account of, any claims or amount recovered from any infringement or patent, trademark or copyright.

8.2 Customer Community Requirements

In pursuant to N.J.A.C. 7:1OA-1.12, all customer communities shall submit monthly reports written by their licensed operator of their collection system. The monthly report will list and describe all industries which discharge into their collection system. This report shall be submitted on or before the 1Qth day of the month following each month for which the data is collected.

8.3 Industrial User Requirements

All industrial users shall immediately notify the Authority wherever the discharge of the industrial user will be discontinued or altered for any reason, including but not limited to a change of ownership of the facility, change in manufacturing process or change in facility location.

All industrial users shall provide the Authority's Representative with process information regarding the production of wastes and wastewater.

9.0 RATES AND SERVICE CHARGES SCHEDULES

9.0 Fees[9.1]

Any person who is discharging any industrial waste into the TRWRA wastewater system or who desires to discharge any industrial waste into the system must pay fees in accordance with the following:

A. Application Fee-Any person who makes application to discharge any industrial waste into the TRWRA system shall pay an application fee of $150.00.

A.i [9.2] Any person who makes application for a permit to discharge for any industrial use, discharging less than one hundred (100) gallons per day of industrial waste shall pay an annual permit fee of fifty ($50.00) dollars. Said fee is payable at the time of connection and thereafter as of January 1st of each year.

B. Any person who is to connect to the Authority wastewater system to discharge industrial waste or who is currently discharging industrial waste into the Authority system must pay an annual permit fee of $250.00. Said fee is payable at the time of connection and thereafter as of January 1 of each year.

9.1 Rate Schedule For Sewer Service

Every property owner connected to the Authority system or who is required to connect to the Authority system shall pay service charges and other charges in accordance with the following schedule:

Property owners who experience a change in use or a change in the number of employees for commercial accounts shall promptly notify the Authority in writing documenting the change and its effective date. In the event the property experiences a decrease in employees and a credit for said decrease is requested, the maximum credit from the date of notice is six months.[9.6]

TYPE OF SERVICE	NO.OF UNIT CHARGES
1. Single Family Dwelling	1
2. Multi-family Dwelling (Including apartment house, duplex, garden apartments, rooming house, boarding house, condominium, townhouse, hotel,	

motel, school or other dormitory) as follows:

a. For each single family unit or apartment with kitchen and sanitary (water closet or equivalent) facilities therein 1

b. For each room, unit or apartment not included in "a" above with sanitary (water closet or equivalent) facilities therein 0.5

c. For each room, unit or apartment not included in "a" and "b" above without sanitary (water closet or equivalent) facilities therein 0.25

3. Commercial establishments not otherwise included in paragraph 4 to 8 inclusive (including stores, offices, shopping centers, factories and any other non-residential minor waste producing facilities) as follows:

a. For each real property with up to four persons working on or otherwise connected or identified with such real property 1

b. In addition to "a", for each additional person over four working on or otherwise connected or identified with such real property, per person 0.25

c. In computing the foregoing, persons working part time on or otherwise connected or identified with such real property shall be counted as one-half person

4. Trailer Parks and Single Family Trailers.
For each single family trailer and for each unoccupied trailer stall 1

5. Schools	
a. For each 100 students and school personnel or portion thereof, based upon the number of students listed as enrolled on the "Application for State School Aid" each year (October 15) and the number of personnel employed therein	3.5
b. In addition to "a" an additional charge is made where showers are installed, per 100 students and personnel	1.5
c. In addition to "a" and "b", where a cafeteria with kitchen facilities is installed, per 100 students and personnel	1.5
6. Church, public building (other than school), library, post office, firehouse, first aid station	1
7. Service Station and/or Garage (without automatic or semi-automatic car washing facilities)	2
8. Theatres, for each 100 person capacity or fraction thereof	1.5
9. Industrial property including: restaurants, luncheonettes, diners, taverns, catering establishments, social or commercial facilities, laundries, hospitals, nursing homes, automatic or semi-automatic car washing facilities and other major waste producing facilities shall be charged for each 75,000 gallons annually, or part thereof, of water consumed or in connection with the real property in excess of 75,000 gallons annually, making due	

allowance for commercial use of water upon proof satisfactory to the Authority of the amount of such water not discharged into the sewerage facilities. 1

For each 1,000 gallons in excess of 75,000 gallons annually the rate per 1,000 gallons is $ 4.80[9.3] [9.4] [9. 7] in accordance with the most recent revision of the Schedule of Charges. 1

9.2 Amount of Unit Charge For Sewer Service

The amount to be paid for annual sewer service for each unit charge shall be in accordance with the most recent revision of the Schedule of Charges. Any property connected or required to be connected shall be charged not less than one unit.

Sewer service charges shall be paid in advance every 3 months on residentially used real property and monthly on non-residentially used real property or as the Authority may otherwise determine from time to time.

All service charges, connection charges and other costs shall be paid to the Authority at its office at 1 Highland Avenue, Monmouth Beach, New Jersey 07750 or at such other locations as the Authority may from time to time require.

In addition to the foregoing charges, an additional charge shall be paid for waste from garbage grinders in excess of Yz horsepower and for those acceptable wastes set forth in Standards for Acceptable Wastes of the Rules and Regulations heretofore adopted by this Authority on August 18, 1970 and as may be hereafter amended and supplemented. Such additional charge or charges shall be based upon the actual cost to the Authority for the treatment and handling of such wastes, giving weight to the characteristics of the sewage and other wastes and other special matter affecting the cost of treatment and disposal thereof, including chlorine demand, biochemical oxygen demand, concentration of solids and chemical composition

9.3 Tapping Charges

1. Where the Authority has installed the lateral from the Authority's sewer to the curb line, property line or easement line, as part of the installation of the overall facilities of the Authority, the Authority shall be paid in accordance with the most recent revision of the Schedule of Charges, plus administration and

inspection charges of in accordance with the most recent revision of the Schedule of Charges.

2. Where the user required connection to the sewer system after construction of the mains by the Authority has been completed and sewer service is available to the user, the Authority shall be paid the Authority's costs plus an administrative charge equal to 25 percent of such costs for the installation of the lateral from the Authority's sewer to the curb line, property line or easement line, manholes, stubs, wyes, risers and similar installations.

   The Authority's charge is based upon quotations from the Authority's contractors and will be furnished upon request.

3. Payment for the tapping charge shall be due upon application for service.

9.4 INTEREST ON UNPAID SERVICE CHARGES

Interest will be charged on the unpaid balance of any service charge or balance due on the connection fee at the rate of 1 Y:! percent for each month of delinquency, or the maximum provided by law.

9.5 REVIEW OF USER CHARGES

User charges shall be reviewed not less often than every two years. A survey or sampling of the number of employees at commercial establishments shall be conducted every two years. The user charge system will be revised, if necessary, at such times to accomplish the following:

1. Maintain the proportionate distribution of operation and maintenance cost among users.

2. Generate sufficient revenues to pay the total operation and maintenance cost.

9.6 COMPLIANCE WITH FEDERAL RULES AND REGULATIONS

All users shall comply with the current United States Environmental Protection Agency Rules and Regulations regarding user charge systems.

9.7 EFFECTIVE DATE

The within Schedule of Charges will be effective as noted on said schedule.

9.8 CONNECTION FEE[9.5]

9.8.1 The Connection Fee for participant municipalities shall be in accordance with the most current Schedule of Charges.

9.1 May 19, 1987 Resolution Adopted

9.2 December 20, 1988 Resolution Adopted

9.3 February 11 1992 Resolution Adopted, amended rates

9.4 January 9, 1996 Resolution Adopted, amended rates

9.5 October 1, 1996 Resolution No. 96-10-78 Adopted, added Connection Fee

9.6 February 19, 2008 Resolution #2008-02-31

S:\Rules and Regulations\2015\Section 9 Rates and Service Charge Schedules rvsd 2-19-08.doc

s:\rules and regulations\2015 rules & regulations\section 9 rates and service charge schedules rvsd 2-19-08.doc

10 CONNECTION CHARGE SCHEDULE FOR SEWER SERVICE

Every property owner connecting to the Authority's system shall pay connection charges in accordance with the following schedule:

TYPE OF SERVICE	NO. OF UNIT CHARGES
1. Single Family Dwelling	1.00
2. Multi-family Dwelling (Including apartment house, duplex, garden apartments, rooming house, boarding house, condominium, townhouse, hotel, motel, school or other dormitory) as follows:	
a. For each single-family unit or apartment with kitchen and sanitary (water closet or equivalent) facilities therein	1.00
b. For each room, unit or apartment not included in "a" above with sanitary (water closet or equivalent) facilities therein	0.50
c. For each room, unit or apartment not included in "a" and "b" above without sanitary (water closet or equivalent) facilities therein	0.25
3. Commercial establishments not otherwise included in paragraph 4 to 8 below inclusive (including stores, offices, shopping centers, factories and any other non-residential minor waste producing facilities) as follows:	
a. For each real property with up to four persons working on or otherwise connected or identified with such real property	1.00

	b. In addition to "3.a" for each additional person over four working on or otherwise connected or identified with such real property, per person	0.25
	c. In computing "3a" and "3b" foregoing, persons working part time on or otherwise connected or identified with such real property shall be counted as one-half person	
4.	Trailer Parks and Single Family Trailers. For each single family trailer and for each unoccupied trailer stall	1.00
5.	Schools	
	a. For each 100 students and school personnel or portion thereof, based upon the number of students listed as enrolled on the "Application for State School Aid" each year (October 15) and the number of personnel employed therein	3.50
	b. In addition to "5.a" an additional charge is made where showers are installed, per 100 students and personnel	1.50
	c. In addition to "5.a" and "5.b", where a cafeteria with kitchen facilities is installed, per 100 students and personnel	1.50
6.	Church, public building (other than school), library, post office, firehouse, first aid station	1.00
7.	Service Station and/or Garage (without automatic or semi-automatic car washing facilities)	2.00
8.	Theatres, for each 100 person capacity or fraction thereof	1.50

9.	Restaurants, luncheonettes, diners, taverns, catering establishments, for each seating capacity of 25 or fraction thereof	1.00
10.	Laundromats, for each washing machine	0.50
11.	Hospitals, nursing homes, or other medical care facility, for each bed	0.25
	a. Restaurant facilities, per section "10.9"	
	b. Laundry facilities, per section "10.1O"	
	c. Laboratory facilities, per section "10.3"	
12.	Motel, Hotels, Inns, per room	0.50
	a. Restaurant facilities, per section "10.9"	
	b. Laundry facilities, per section "10.10"	
13.	a. Industrial property including automatic or semi-automatic car washing facilities and major waste producing facilities shall be charged a connection fee for each 75,000 gallons, or part thereof, of water projected to be consumed or in connection with the real property annually. In the event the volume of flow exceeds one (1) equivalent unit, the number of excess units shall be calculated in one-tenth's (1/10) of an equivalent unit; or	
	b. For each 75,000 gallons annually, or fraction thereof, by applying the projected flow criteria set forth in N.J.A.C. 7:14A-23.3, et seq.	1.00

14. Changes of Use

a. Upon an addition, alteration, or change in use of any building which increases the flow over the existing flow, an additional connection fee may be charged based upon the above schedule. Credit shall be given to connection fees previously paid. A change in use shall include but not be limited to, condominium conversions.

15. Payment of Connection Fees

Any connection charges due to the Authority shall be paid at the time a Certificate of Occupancy is issued.

16. These charges shall be in full force and effect as of the most recently approved resolution for said connection fee.

17. CERTAIN AFFORDABLE HOUSING PROJECTS

Connection fees to public housing authorities and non-profit organizations building affordable housing projects that consist of new connections to the system are to be computed by providing a 50% reduction in the connection fee established in this Rate Schedule.

Connection fees to public housing authorities and non-profit organizations building affordable housing projects that consist of replacement units for demolished or refurbished units, and for which a connection fee was previously paid, are to be computed by charging the lesser of a.) the reduced rate of 50% of the connection fee established in this Rate Schedule, or b.) the connection fee established in this Rate Schedule, minus a credit in the amount of a connection fee previously paid for the housing units being replaced, provided the public housing authority and non-profit organization can establish the connection fee previously paid. If the amount of the previous connection fee cannot be established, the reduced rate of 50% of the connection fee established in this Rate Schedule shall apply.

SCHEDULE OF CHARGES	
Subdivision – Site Plan Minor Site Plan Major Site Plan	 $25.00 $100.00
Minor Subdivision Plan	$25.00
Major Subdivision Plan (plus $10.00/Lot over 15 Lots, Maximum Fee $250.00)	$150.00 (Minimum)
Treatment Works Approval (WQM-003, LURP, etc)	$100.00
Developer's Agreement (If required)	$500.00
Performance Guarantee	100% of Sewer Improvements
Maintenance Guarantee (Minimum One (1) Year	25% of Sewer Improvements
Engineering Inspection Fee	15% of cost of sewerage facilities up to $30,000.00: 10% of cost of sewerage facilities between $30,001.00 to $50,000.00; 8% of cost of sewerage facilities between $50,001.00 to $100,000.00 and 5% of cost of sewerage facilities greater than $100,001.00.
Connection Fees	$5,500.00 per unit 11.1,11.2,11.4,11.5,11.6,11.7,11.8,11.9, 11.10, 11.11, 11.13, 11.14,11.15,11.16, 11.17,11.18
Existing Tap Charge	$562.50
Disconnection Fee	$200.00
Reconnection Fee	$200.00
Sewer Search Sewer Search Update	$15.00 $10.00
Copy Fees In accordance with Amendment to N.J.S.A. 47:1A-5.b 8 ½ x 11 11 x 14 Rules & Regulations on CD Electronic Records – Free of Charge	11.12 $ 0.05 per page $ 0.07 per page $10.00
Industrial Dischargers Application Fee for Industrial Waste Annual Fee, less than 100 GPD Annual Fee, greater than 100 GPD Grease/Oil/Sand Trap	 $150.00 $50.00 Annually $250.00 Annually $75.00 Annually
Sewer Service Single Family Dwelling Multi-Family Commercial Users Industrial users	 $360.00[11.3] See Section 9 See Section 9 $360.00 per 75,000 gallons, plus $4.80 for every 1000 gallons over 75,000 gallons

11.1 February 20, 2001 – Resolution #2001-02-16 Connection Fee

11.2 February 19, 2002 – Resolution #2002-02-09 Connection Fee

11.3 August 13, 2002 – Resolution #2002-08-77 Amended Sewer Service Rate

11.4 April 15, 2003 – Resolution #2003-04-43 Connection Fee

11.5 March 16, 2004 – Resolution #2004-03-31 Connection Fee

11.6 February 15, 2005 – Resolution #2005-02-11 Connection Fee

11.7 February 21, 2006 – Resolution #2006-02-08 Connection Fee

11.8 February 20, 2007 – Resolution #2007-02-14 Connection Fee

11.9 February 19, 2008 – Resolution #2008-02-09 Connection Fee

11.10 February 17, 2009 – Resolution #2009-02-14 Connection Fee

11.11 February 16, 2010 – Resolution #2010-02-10 Connection Fee& Affordable Housing Reduced Rates

11.12 July 20, 2010 – Resolution #2010-07-66 – OPRA Fee Schedules - Copy Fees

11.13 February 15, 2011 – Resolution #2011-02-09 Connection Fee

11.14 February 21, 2012 – Resolution #2012-02-09 Connection Fee

11.15 February 19, 2013 – Resolution #2013-02-09 Connection Fee

11.16 February 18, 2014 – Resolution #2014-02-14 Connection Fee

11.17 February 17, 2015 – Resolution #2015-02-09 Connection Fee

11.18 May 17, 2016 – Resolution #2016-05-48 Connection Fee

s:\z-rules and regulations\2015 rules & regulations\section 11 schedule of charges revised 2-17-15.doc