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PART I

Section 101 Purpose and Policy

101.1 These Rules and Regulations set forth uniform requirements for users of the collection system and/or wastewater treatment plant of the Mount Holly Municipal Utilities Authority (the "MHMUA"), and enables the MHMUA to comply with all applicable State and Federal laws, including the Clean Water Act (33 United States Code § 1251 et seq.) and the General Pretreatment Regulations (40 Code of Federal Regulations Part 403). The objectives of these Rules & Regulations are:

A. To prevent the introduction of pollutants into the Publicly Owned Treatment Works of the MHMUA ("POTW") that will interfere with its operation;

B. To prevent the introduction of pollutants into the POTW that will pass through the POTW, inadequately treated, into receiving waters, or otherwise be incompatible with the POTW;

C. To protect both POTW personnel who may be affected by wastewater and sludge in the course of their employment and the general public;

D. To promote reuse and recycling of industrial wastewater and sludge from the POTW;

E. To provide for fees for the equitable distribution of the cost of operation, maintenance, and improvement of the POTW; and

F. To enable the MHMUA to comply with its New Jersey Pollutant Discharge Elimination System permit conditions, sludge use and disposal requirements, and any other Federal or State laws to which the MHMUA is subject.

Section 102 Applicability

102.1 These Rules and Regulations shall apply to all Users of the POTW. These Rules and Regulations authorize the issuance of wastewater Service Agreements; provide for monitoring, compliance, and enforcement activities; establish administrative review procedures; require User reporting; and provide for the setting of fees for the equitable distribution of costs resulting from the program established herein.

Section 103 Abbreviations

103.1 The following abbreviations, when used in these Rules and Regulations, shall have the designated meanings:

BMPs	Best Management Practices
BOD	Biochemical Oxygen Demand
$CBOD_5$	Carbonaceous Biochemical Oxygen Demand, 5-day
CFR	Code of Federal Regulations
COD	Chemical Oxygen Demand
EDU	Equivalent Dwelling Unit
EPA	U.S. Environmental Protection Agency
gpd	gallons per day
IU	Industrial User
l	Liter
MHMUA	Mount Holly Municipal Utilities Authority
mg/l	milligrams per liter
NJ	State of New Jersey
N.J.A.C.	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
N.J.S.A.	New Jersey Statutes Annotated
NJPDES	New Jersey Pollutant Discharge Elimination System
NPDES	National Pollutant Discharge Elimination System
POTW	Publicly Owned Treatment Works
ppb	Parts per billion
ppm	Parts per million
RCRA	Resource Conservation and Recovery Act
SIC	Standard Industrial Classification
TKN	Total Kjeldahl Nitrogen
TSS	Total Suspended Solids
U.S.C.	United States Code

Section 104 Definitions

104.1 Unless the context specifically and clearly indicates otherwise, the meaning of terms used in these Rules and Regulations shall be as follows:

"Act" means the Municipal and County Utilities Authorities Law, constituting Chapter 183 of Pamphlet Laws of 1957, of the State of New Jersey, adopted August 22, 1957, and the acts amendatory thereof and supplemental thereto.

"Aliquot" means a sample of specific volume used to make up a total composite sample.

"Annually" means any one day during each calendar year that is also a day during which wastewater is discharged.

"Approval Authority" means the New Jersey Department of Environmental Protection.

"Authority" means The Mount Holly Municipal Utilities Authority, a public body politic and corporate of the State of New Jersey (also referred to as MHMUA).

"Authorized Representative of the User" - An authorized representative of the User may be: (1) A president, secretary, treasurer, or vice-president if the User is a corporation; (2) A general partner or proprietor if the User is a partnership or proprietorship, respectively; (3) A duly authorized representative of the individual designated above if such representative is the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiate and direct other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; can ensure that the necessary systems are established or actions taken to gather complete and accurate information for Service Agreement requirements ; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures, and that authorization is submitted to the MHMUA.

"Best Management Practices" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to implement the prohibitions listed in Section 110 of these Rules & Regulations. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw materials storage.

"Biochemical Oxygen Demand" (BOD) means the quantity of oxygen, expressed in milligrams per liter, utilized in the biochemical oxidation of organic matter under standard laboratory procedure for five (5) days at twenty (20) degrees Centigrade. The standard laboratory procedure shall be as defined in the latest publication of 40 CFR Part 136 "Guidelines Establishing Test Procedures for the Analysis of Pollutants."

"Bulk delivered wastes" means leachate, septage, wastewater or sludges delivered to the MHMUA's wastewater treatment facilities via tank trucks.

"Bypass" means the anticipated or unanticipated intentional diversion of waste streams from any portion of a treatment works.

"Categorical Pretreatment Standards" means a pretreatment standard promulgated by EPA or NJDEP specifying quantities or concentrations of pollutants or pollutant properties which may be discharged or introduced into a POTW by existing or new industrial users in specific industrial subcategories.

"Chlorine Demand" means the quantity of chlorine absorbed in water, wastewater or other liquids, allowing a residual of 0.1 parts per million (ppm) by weight after fifteen (15) minutes of contact. The standard laboratory procedure shall be as defined in the latest publication of 40 CFR Part 136 "Guidelines Establishing Test Procedures for the Analysis of Pollutants."

"Commissioner" means the Commissioner of the New Jersey Department of Environmental Protection (NJDEP) or his/her authorized representatives.

"Company" means any private corporation formed under the laws of the State of New Jersey or any other state.

"Compatible Pollutant" - Biochemical oxygen demand, suspended solids, pH, fecal coliform bacteria, oil and grease, and such additional pollutants as are now or may be in the future specified and controlled in the MHMUA's NPDES or NJPDES permit, where the POTW is designed to treat such pollutants and, in fact, does treat such pollutants to the degree required by the permit.

"Composite" means a combination of individual samples (aliquots) of at least 100 milliliters, collected at periodic intervals over the entire discharge day. For a continuous discharge, a minimum of twenty-four (24) aliquots (at hourly intervals) shall be collected and combined to constitute a twenty-four (24) hour composite sample. For intermittent discharges of more than four (4) hours duration, aliquots shall be taken at a maximum of thirty (30) minute intervals. For intermittent discharges of less than four (4) hours duration, aliquots shall be taken at a maximum of fifteen (15) minute intervals.

"Cooling Water" means any water used for the purpose of carrying away excess heat, and which may contain biocides or similar substances that are used to control biological growth.

"Daily" means every calendar day that is also a day during which wastewater is discharged.

"Department" means the New Jersey State Department of Environmental Protection.

"Director" means the Executive Director of the MHMUA or his/her authorized representatives.

"Domestic Wastewater" means the normal liquid wastes or liquid borne wastes from residences, commercial establishments, institutions and industrial establishments, limited to the wastes from kitchens, bathrooms, water closets, lavatories and home laundries.

"Equivalent Dwelling Unit" means the sewage quality and quantity generated at a typical residential dwelling unit and have a biochemical oxygen demand of 200 mg/l, a suspended solids concentration of 250 mg/l and an average daily flow of 300 gallons per day.

"EPA" means the United States Environmental Protection Agency.

"Federal Act" means the Federal Water Pollution Control Act Amendments of 1972, the Clean Water Act of 1977, as amended, 33 U.S.C. 1251, et. seq.

"Garbage" means domestic or commercial solid wastes resulting from the preparation, cooking, and dispensing of food and from handling, storage and sale of produce.

"Government" means the United States of America or any department or agency thereof.

"Grab" means an individual sample collected over a period not exceeding five (5) minutes.

"Grace Period" means the period of time afforded under N.J.S.A. 13:1D-125 et seq., commonly known as the Grace Period Law, for a Person or User to correct a minor violation in order to avoid imposition of a penalty that would be otherwise applicable for such violation.

"Hazardous pollutant" means (1) Any toxic pollutant; (2) Any hazardous substance as defined by the New Jersey Spill Compensation and Control Act, N.J.S.A. 58:10-23.11; (3) Any substance regulated as a pesticide under the Federal Insecticide, Fungicide and Rodenticide Act, 7 U.S.C. §§ 136 *et seq*.; (4) Any substance the use or manufacture of which is prohibited under the Federal Toxic Substances Control Act, 15 U.S.C. §§ 2601 *et seq*.; (5) Any substance identified as a known carcinogen by the International Agency for Research on Cancer; or (6) Any hazardous waste designated pursuant to the New Jersey Solid Waste Management Act, N.J.S.A. 13:1E-1 *et seq*. or the Federal Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 *et seq*.

"Holding Tank Waste" means any waste from holding tanks such as vessels, chemical toilets, campers, trailers, septic tanks, marina holding tanks and vacuum-pump tank trucks.

"Incompatible Pollutant" means any pollutant which is not a "compatible pollutant" as defined in this section.

"Indirect Discharge" means the discharge or the introduction of non-domestic pollutants from any source regulated under Section 307(b), (c) or (d) of the Act, (33 U.S.C 1251-1387), into the POTW (including holding tank waste discharged into the system).

"Industrial User" means any User discharging Industrial Wastewater into the POTW of the MHMUA.

"Industrial Wastewater" means the wastewater resulting from the processes employed by an Industrial or Non-Residential User with any groundwater, surface water, and storm water that may be present, whether treated or untreated.

"Interceptor Sewer" means a sewer of the MHMUA which carries wastewater and to which storm, surface, and groundwaters are not intentionally admitted.

"Interference" means a discharge which, alone or in conjunction with a discharge or discharges from other sources both (1) inhibits or disrupts a treatment works system or its treatment processes or operations, or its sludge processes, use or disposal; and (2) therefore causes a violation of any requirement of any State or Federal permit (including an increase in the magnitude or duration of a violation) or prevents the use or disposal of sludge produced by the Treatment Works in accordance with the following statutory provisions and regulations or permits issued thereunder: Section 405 of the Clean Water Act, the Solid Waste Disposal Act, the Clean Air Act, the Toxic Substances Control Act, the Marine Protection, Research and Sanctuaries Act and the New Jersey Water Pollution Control Act.

"Lateral" means the extension from the building sewer system to the MHMUA's Treatment Works.

"Local Authority" means any public body corporate and politic of the State of New Jersey.

"Main" means the MHMUA owned or leased piping and appurtenances, in or along public highways and streets, or along privately owned right-of-way, used for the collection of domestic sewage or industrial wastes from its Users.

"Monthly" means any one day during each calendar month that is also a day during which wastewater is discharged.

"National Pollutant Discharge Elimination System" (NPDES) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing discharge permits and imposing and enforcing pretreatment requirements under Sections 307, 402, 318 & 405 of the Clean Water Act of 1977 (33 U.S.C. 1251 et. seq.).

"New Jersey Pollutant Discharge Elimination System" (NJPDES) means the New Jersey system for the issuing, modifying, suspending, revoking and reissuing, terminating, monitoring, and enforcing, of discharge permits issued pursuant to NJAC 7:14A-1 et. seq.

"New Source" shall mean any building, structure, facility or installation from which there is or may be a discharge of pollutants, the construction of which commenced after the publication of proposed Pretreatment Standards under Section 307(c) of the Clean Water Act which will be applicable to such source if such standards are thereafter promulgated in accordance with that section, provided that: (1) the building, structure, facility or installation is constructed at a site at which no other source is located; or (2) the building, structure, facility or installation totally replaces the process or production equipment that causes the discharge of pollutants at an

existing source; or (3) the production or wastewater generating processes of the building, structure, facility or installation are substantially independent of an existing source at the same site. In determining whether these are substantially independent, factors such as the extent to which the new facility is integrated with the existing plant, and the extent to which the new facility is engaged in the same general type of activity as the existing source will be considered.

"Non-Residential User" means all Users and connections other than residential, including but not limited to, business, commercial, industry, restaurants, taverns, theaters, camps, churches, schools, etc.

“Owner” means the owner or operator of any facility or activity subject to these Rules and Regulations.

"Pass Through" means a discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the MHMUA’s NJPDES permit (including an increase in the magnitude or duration of a violation).

"Permit" means an authorization, license or equivalent control document issued by the MHMUA to implement the requirements of N.J.A.C. 7:14A even if any or all of the conditions of the permit have been stayed. Permit does not include any permit which has not yet been the subject of a final action, such as a "draft permit." Permit includes a letter agreement entered between the MHMUA and a User of the Treatment Works, setting effluent limitations and other conditions on the User of the MHMUA's Treatment Works. Permit also includes a general permit and a permit-by-rule.

"Permittee" means a User that has been issued a Service Agreement or other form of Permit for the discharge of wastewater into the MHMUA's Treatment Works.

"Person" means an individual, corporation, responsible corporate official for the purpose of enforcement action under Section 10 of the State Act, company, partnership, firm, association, owner or operator of a facility, political subdivision of this State and any state, Federal or interstate agency or an agent or employee thereof.

"pH" means the logarithm (base 10) of the reciprocal of the concentration of hydrogen ions in grams per liter of solution. Solutions with a pH greater than 7 are said to be basic; solutions with a pH less than 7 are said to be acidic; pH equal to 7 is considered neutral.

"Pollutant" means any dredged spoil, solid waste, incinerator residue, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, radioactive substance, thermal waste, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal or agricultural waste or other residue discharged into the Treatment Works or the waters of the State.

"Pretreatment" means the application of physical, chemical or biological processes or process changes or other means (except as prohibited by 40 CFR 403.6(d)) to reduce the amount of pollutants in, or alter the nature of the polluting properties of, an industrial wastewater prior to discharging such wastewater into the Treatment Works.

"Pretreatment Requirements" means any substantive or procedural requirement related to Pretreatment, other than a National Pretreatment Standard, imposed on an Industrial User.

"Pretreatment Standard" means any regulation containing pollutant discharge limits promulgated by the USEPA in accordance with Section 307(b) and (c) of the Act (33 U.S.C. 1251) which applies to Industrial Users. This term includes prohibitive discharge limits established pursuant to 40 CFR 403.5.

"Prohibited Pollutants" means any pollutant in amounts exceeding standards promulgated by the EPA or any subsequent Federal legislation pursuant to Section 307(a) of the Clean Water Act of 1977, including, but not limited to, those listed in Section 110 of these Rules & Regulations, and those chemical elements or compounds, phenols or other tastes or odor-producing substances, or any other substances normally not found in unpolluted waters which are not amenable to treatment or which may interfere with the biological processes or efficiency or which will pass through the Treatment Works Plant.

"Publicly Owned Treatment Works" (POTW) means a treatment works as defined by Section 212 of the Federal Act, (33 U.S.C. 1292) and as defined in these Rules and Regulations. For the purposes of these Rules and Regulations, "POTW" shall also mean any device or system used in the storage and treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a State or municipality. This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

"Quarterly" means any one day during each calendar quarter (January - March, April - June, July - September, October - December) that is also a day during which wastewater is discharged.

"Regional Administrator" means the Administrator of Region II of the United States Environmental Protection Agency or his/her authorized representative.

"Residential User" includes the following:

Single-Family: A building on a lot, designed and occupied exclusively as a residence for one family.

Two-Family: A building on a lot, designed and occupied exclusively as a residence for two families.

Three-Family: A building on a lot, designed and occupied exclusively as a residence for

three families.

Multiple-Family: A building on a lot, designed and occupied exclusively as a residence for four or more families.

Garden, High-Rise, Trailer Camps, and Multiple Type: A multiple dwelling or group of multiple dwellings on a lot which is held and is designed to be held in single ownership on which common yards and other common facilities and services may be provided, however, each dwelling unit shall have individual kitchen and bathroom facilities.

Boarding House, Lodging House, Nursing Home, Hotel, or Motel: A dwelling having a common kitchen and used for the purpose of providing lodging, or both lodging and meals for pay or for compensation of any kind, whether computed by day, week, or month, to persons occupying such dwelling other than members of a family.

"Semi-annually" means any one day during each period listed below that is also a day during which wastewater is discharged: January - June and July - December.

"Septage" means the combination of liquid and solid residues resulting from the treatment of waterborne domestic waste in individual subsurface sewage disposal systems.

"Serious Violation" is an exceedance of an effluent limitation for a discharge set forth in a Service Agreement, administrative order, or administrative consent agreement, including interim enforcement limits, by 20% or more for a hazardous pollutant, or by 40% or more for a nonhazardous pollutant, calculated on the basis of the monthly average, or, in the case of an effluent limitation expressed as a daily maximum and without a monthly average, on the basis of the monthly average of all maximum daily test results for that pollutant in any month. For pH, a serious violation shall be the greatest violation of a pH effluent range in any one calendar day which violation deviates from the midpoint by at least 40% of the midpoint of the range excluding excursions pursuant to Section 703 of these Rules & Regulations for IU's with continuous pH monitoring. On a case-by-case basis, a more stringent factor of exceedance to determine a serious violation may be used if the specific reasons, including the potential for harm to human health or the environment, are stated.

"Service Agreement" means the Permit issued by the MHMUA to certain Users which allows for the discharge of industrial wastewater with certain characteristics into the Treatment Works.

"Service Area" means the Township of Mount Holly, and those portions of Eastampton, Hainesport, Lumberton, Westampton and Moorestown in the County of Burlington, the State of New Jersey that discharge into the MHMUA's Treatment Works.

"Significant Industrial User" means any Industrial User that discharges industrial waste which either: (1) discharges twenty-five thousand (25,000) gallons or more per average workday (excluding sanitary, non-contact cooling and boiler blowdown wastewater) or contributes a

process wastestream which makes up 5% or more of the average dry weather hydraulic or organic capacity of MHMUA's Treatment Works; (2) has in it a toxic pollutant in toxic amounts as defined in standards issued under Section 307(b) of the Federal Water Pollution Control Act Amendments of 1972; (3) has significant impact, either singly or in connection with other contributing industries, on the Treatment Works or the quality of its effluent ; or (4) is subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N.

"Significant Noncomplier (Federal)" is an IU who commits any of the following violations: (1) chronic violation: sixty-six (66) percent or more of all of the measurements taken during a six month period exceed (by any magnitude) a numeric Pretreatment Standard or Requirement, including instantaneous limits, as defined by 40 CFR 403.3(l), for the same pollutant parameter; (2) technical review criteria: thirty-three (33) percent or more of all of the measurements for the same pollutant parameter taken during a six month period exceed the product of the numeric Pretreatment Standard or Requirement, including instantaneous limits, as defined by 40 CFR 403.3(l), multiplied by the applicable TRC (TRC=1.4 for BOD, TSS, fats, oil and grease, and 1.2 for all other pollutants except pH); (3) any other violation of a Pretreatment Standard or Requirement as defined by 40 CFR 403.3(l) (daily maximum, long-term average, instantaneous limit or narrative Standard) that the MHMUA determines has caused, alone or in combination with discharges, interference or pass through (including endangering the health of MHMUA personnel or the general public); (4) any discharge of a pollutant that has caused imminent endangerment to human health, welfare or to the environment or has resulted in the MHMUA's exercise of its emergency authority under the General Pretreatment Regulations, 40 CFR 403.8 (f)(l)(vi)(B) to halt or prevent such a discharge; (5) failure to meet, within ninety (90) days after the schedule date, a compliance milestone contained in a local Service Agreement or enforcement order for starting construction, completing construction, or attaining final compliance; (6) failure to submit required reports such as baseline monitoring reports, 90-day compliance reports, periodic self-monitoring reports, and reports on compliance with compliance schedules, within thirty (30) days after the due date; (7) failure to accurately report noncompliance; or (8) any other violation or group of violations, which may include a violation of Best Management Practices, which the MHMUA determines will adversely affect the operation or implementation of its Pretreatment program.

"Significant Noncomplier (State)" is an IU who commits any of the following violations:

(1) Serious Violation for the same pollutant at the same discharge point source, in any two months of any consecutive six month period; (2) exceedance of the monthly average or, in case of a pollutant for which no monthly average has been established, the monthly average of the daily maximums of an effluent limitation for the same pollutant at the same discharge point source by any amount in any four months of any consecutive six month period; (3) any exceedance of an effluent limitation for pH by any amount, excluding excursions pursuant to Section 703 of these Rules & Regulations for Users with continuous pH monitoring, at the same discharge point in any four months of any consecutive six month period; or (4) failure to

submit a completed periodic/self-monitoring report in any two months of any six month consecutive period;

"Slug" means any discharge of wastewater which in concentration of any given constituent or in quantity of flow exceeds for any period of duration longer than fifteen (15) minutes, more than five (5) times the average twenty-four (24) hour concentration of flows during normal operation.

"State" means the State of New Jersey.

"State Act" means the New Jersey "Water Pollution Control Act," N.J.S.A. 58: 10A-1 et. seq.

"Standard Industrial Classification" (SIC) means a classification pursuant to the Standard Industrial Classification Manual issued by the Executive Office of the President, Office of Management and Budget, 1987 and any amendments thereto.

"Storm Water" means any flow occurring during or immediately following any form of natural precipitation and resulting therefrom.

"Suspended Solids" means the Total Suspended (Non-filterable) Residue as listed in 40 CFR 136.

"Treatment Works" means the POTW as defined in these definitions and any device or system, whether public or private, used in the storage, treatment, recycling, or reclamation of municipal or industrial waste of a liquid nature, including: interceptor sewers, Mains, outfall sewers, local sewerage systems served by the MHMUA, cooling towers and ponds, pumping, power and other equipment and their appurtenances; extensions, improvements, remodelings, additions, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities; and other works including sites for the Treatment Works or for ultimate disposal of residues resulting from such treatment. Additionally, "Treatment Works" means any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of pollutants, including storm water runoff, or industrial waste in combined or separate storm water and sanitary sewer systems.

"Treatment Works Plant" means that portion of the Treatment Works designed to provide treatment to wastewater excluding the collection or interceptor system.

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with an effluent limitation because of an event beyond the reasonable control of the permittee, including fire, riot, sabotage, or a flood, storm event, natural cause, or other act of God, or other similar circumstance, which is the cause of the violation. "Upset" also includes noncompliance consequent to the performance of maintenance operations for which a prior exception has been granted by the MHMUA.

"User" or "Owner" means any Person who is or was an applicant for sewer service and who enters into an agreement with the MHMUA, including any owner of property who discharges, causes, or permits the discharge of wastewater into the Treatment Works.

"Wastewater" means the liquid and water-carried industrial or domestic wastes from dwellings, commercial buildings, industrial facilities, and institutions, together with any groundwater, surface water, and storm water that may be present, whether treated or untreated, which is discharged into or permitted to enter the Treatment Works.

"Weekly" means any one day during each calendar week that is also a day during which wastewater is discharged.

Section 105 Public Notice

105.1 The MHMUA shall provide public notice of the following:

A. Intent to enter into or deny a request for Industrial Waste Agreement(s).

B. Intent to substantially modify existing Industrial Waste Agreement(s).

C. Intent to renew existing Industrial Waste Agreement(s).

D. Intent to suspend existing Industrial Waste Agreement(s).

E. Intent to revoke existing Industrial Waste Agreement(s).

F. Determination of Industrial Users as Significant Noncompliers (Federal).

G. A proposed administrative consent order if it would establish interim enforcement limits that would relax discharge limitations established in a discharge agreement or prior administrative order.

H. Hearings.

105.2 Public Notices issued under Section 105.1 shall include the following:

A. Purpose of the public notice.

B. Name and address of the MHMUA official responsible for receipt of any comment or request for additional information.

C. Name and address of affected parties, if any.

D. Action, intended or having occurred, which necessitates the public notice.

E. Where applicable, the opportunity to request a hearing.

F. The time and place any scheduled hearing will occur.

G. Any additional information considered necessary or proper.

Moreover, any public notice issued pursuant to Section 105.1.G shall comply with the provision of Section 1101.4 of these Rules and Regulations.

105.3 Public notices of significant non-compliance violations as defined in 40 CFR 403 shall be published annually within ninety (90) days of the close of the preceding 40 CFR 403 annual reporting period. All other public notices shall be published, where possible, at least thirty (30) days prior to the date of the intended action.

105.4 Public notice shall be given by the following method:

A. Publication of the public notice in the official MHMUA newspaper.

B. Posting of the public notice at the MHMUA's office.

C. Mailing of the public notice to:

1. Industrial User or Significant Noncomplier.

2. NJDEP.

3. EPA.

4. Delaware Valley Regional Planning Commission.

5. Municipal governing body of the IU or Significant Noncomplier location.

6. Burlington County Board of Chosen Freeholders.

7. Any individual, corporation, etc. who has submitted a request for such notices.

105.5 The MHMUA shall maintain and shall make available for review or reproduction, at cost of preparation thereof, the following information:

A. Any and all copies of public notices.

B. Any and all comments received in response to the aforesaid public notices. ("Public Comment")

C. Tapes or transcripts of any hearing held by the MHMUA.

D. Written materials submitted at any hearing.

E. Final action taken by the MHMUA for which a public notice was given.

105.6 The MHMUA reserves the right to waive the aforesaid public notice procedures and Public Comment for the following:

A. Correction of typographical errors in any Industrial User Agreement.

B. Modifying the monitoring and/or reporting requirements of an Industrial User.

C. Modifying incremental compliance dates for Industrial Users.

D. Request for changes in ownership of a given facility or discharge.

E. Any activity where the MHMUA has received a determination from its attorney that such activity does not require the formality of public notice procedures and Public Comment.

105.7 At the time a final permit is issued, or when comments have been received during a comment period, the MHMUA shall issue a response-to-comments document to include, where applicable:

A. The action the MHMUA has taken on the final permit or revision;

B. The provisions, if any, of a draft permit or proposed revisions that have been changed in the final permit, and the reasons for any such change;

C. A description and response to all relevant comments on the proposed action or permit raised during the public comment period or hearing (if any).

Section 106 Access and Inspections

106.1 Properly identified and authorized agents of the MHMUA shall have the right of access to any property or premises served by the MHMUA, at all reasonable hours, for the purposes of reading meters, examining fixtures and pipes, observing the manner of use and discharge of water, sampling any discharge of wastewater to the Treatment Works, sampling any material used or stored on the site of the User, copying any records required to be kept under the provisions of these Rules and Regulations and for any other purpose proper and necessary in the conduct of the MHMUA's business.

106.2 The MHMUA and the agents of the EPA and the NJDEP shall have the right to enter the establishment of an Industrial User for inspection and observation of the operation of Industrial User's waste treatment facilities and measuring, testing, and collection of samples from any component thereof.

106.3 Representatives of the MHMUA shall have immediate access to all the facilities directly or indirectly connected to the MHMUA's Treatment Works during all reasonable hours and at such other times as may be necessary during emergencies as determined by the MHMUA. All Users shall provide easy access to the facility to be inspected and shall promptly remove any permanent or temporary obstruction at the verbal or written request of the MHMUA's representative.

Section 107 Confidential Information

107.1 Information and data from a User obtained from reports, questionnaires, hearings, monitoring programs, inspections, applications, or agreements, etc., shall be available to the public or other governmental agency without restriction unless the User specifically requests and is able to demonstrate to the satisfaction of the MHMUA that the release of such information would divulge information, processes or methods of production entitled to protection as trade secrets of the User.

107.2 When requested by a User furnishing information, the portions of that information which might disclose trade secrets or secret processes shall not be made available for inspection by the public unless the request is denied by the MHMUA or an appropriate State and/or Federal agency. Confidential information shall be made available upon written request to the EPA and/or the NJDEP for uses related to these Rules and Regulations, the NJPDES and/or the State or Federal pretreatment programs; provided, however, that such portions of said information shall be available for use by the State in judicial review or enforcement proceedings involving the person furnishing the information. Wastewater constituents and characteristics will not be recognized as confidential information.

Section 108 Charges & Fees

108.1 Rates shall be established in the "Schedule of Rates for Furnishing Sanitary Sewerage Service."

108.2 Unless other wastewater concentrations are determined by the MHMUA to be more critical, the charge for connections to and treating wastewater other than domestic shall be based on the applicable fee multiplied by the factor derived from the following equation:

$$.44 + .23 * (CBOD_5 \text{ ppm}/250)^{\blacktriangle} \quad \text{or} \quad (\text{COD ppm}/500)^{\blacktriangle}, \text{ whichever is greatest} + .31 * (TSS^{\blacktriangle\blacktriangle} \text{ ppm}/250)^{\blacktriangle} + .02 * (\text{Chlorine Demand ppm}/15)^{\blacktriangle}$$

▲ In cases where the quotient is less than 1, 1 shall be used as the value in parentheses.

▲▲ In cases where suspended solids, in the opinion of the MHMUA, do not represent the true characteristics of the solids loading, the MHMUA reserves the right to use total solids instead of suspended solids.

Section 109 Changes to These Rules and Regulations

109.1 The MHMUA reserves the right to promulgate changes to these Rules and Regulations and to the "Schedule of Rates for Furnishing Sanitary Sewerage Service" in order to conform to changes in applicable regulations or to comply with the objectives set forth at Section 101.

109.2 Any change to these Rules and Regulations or Schedule of Rates for Furnishing Sanitary Sewerage Service shall automatically modify any existing agreement between the MHMUA and any User or Industrial User.

109.3 No agent or employee of the MHMUA has authorization to bind it by any promise, agreement or representation not provided for in these rules.

Section 110 Prohibited Wastes

110.1 Pollutants that cause Pass Through or Interference.

110.2 Any solids, liquids, or gases which by themselves or by interaction with other substances may cause fire or explosion hazards, or in any other way be injurious to persons, property, or the operation or processes of the Treatment Works.

110.3 Any noxious or malodorous solids, liquids or gases, which, whether singly or by interaction with other substances, are capable of creating a public nuisance or hazard to life or preventing entry into the Treatment Works.

110.4 Pollutants which result in the presence of toxic gases, vapors, or fumes within the Treatment Works that may cause acute worker health and safety problems.

110.5 Any solids, greases, slurries, or viscous material of such character or in such quantity that, in the opinion of the MHMUA, may cause an obstruction to the flow in pumps or pipe lines or otherwise interfere with the proper functioning of the Treatment Works.

110.6 Any toxic substances, chemical elements or compounds in quantities sufficient to impair the operation or efficiency of the Treatment Works, or that will pass through the MHMUA's sewage treatment plant and cause the effluent thereof to exceed State or Interstate water quality requirements for the receiving stream.

110.7 Any pollutant which shall cause the MHMUA Treatment Works to be in violation of New Jersey Toxic Effluent Limitations as stated in 7:14A Appendix F thereof.

110.8 Any pollutant, including oxygen demanding pollutants (BOD, etc.), at any rate and/or concentration which will cause interference with the MHMUA's Treatment Works.

110.9 Any liquids having a pH lower than 5.5 or higher than 9.5 (except as provided in Section 703), or having any corrosive property capable of causing damage or hazards to structures, equipment or personnel of the Treatment Works.

110.10 Any radioactive isotopes without obtaining a special permit from the MHMUA.

110.11 Any liquid or vapor which generates heat in such amounts that will inhibit biological activity and result in Interference at the MHMUA's treatment plant, but in no case heat in such quantities that the influent temperature at the MHMUA's treatment plant exceeds 40 degrees Centigrade (104 degrees Fahrenheit).

110.12 Any waste or water containing more than 100 ppm as a monthly average or 150 ppm in any single sample of petroleum based oils and greases. (See NJAC 7:14A-12.8(d))

110.13 Any ashes, cinders, sand, mud, straw, shavings, metal, glass, bones, feathers, tires, plastic, wood, paunch manure, butchers' offal, or any other solids or viscous substances capable of causing obstruction to the flow or other interference with the proper operation of the Treatment Works.

110.14 Any water or waste containing suspended solids of such character and quantity that unusual attention or expense is required to handle such materials at the MHMUA sewage treatment plant.

110.15 Any grit and sludge from pits of service stations or other commercial or industrial establishments. Overflow from such pits to cesspool and septic tanks are acceptable, providing such overflow does not violate these Rules and Regulations.

110.16 Any gasoline or diesel engine cleanings or strippings of any kind from materials, supplies, or equipment.

110.17 Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause Interference or Pass Through.

110.18 Concentrated plating baths.

110.19 Formaldehyde and carbide wastes.

110.20 Wastes containing over 5 ppm of hydrogen sulfide, sulfur dioxide, nitrous oxide, or any halogens.

110.21 Pollutants which create a fire or explosion hazard in the MHMUA's facilities, including, but not limited to, waste streams with a closed cup flashpoint of <140 degrees F. or 60 degrees C. using test methods specified in 40 CFR 261.21, USEPA Regulations for identifying Hazardous Waste.

110.22 Suspended solids with a specific gravity over 2.80.

110.23 Antiseptic materials in excess of 100 ppm.

110.24 Paints and paint wastes.

110.25 Storm water, surface water, ground water, artesian well water, roof runoff, subsurface drainage, swimming pool drainage, condensate, and non-contact cooling water, unless specifically authorized by the MHMUA.

110.26 Detergents, surface-active agents, or other substances which may cause excessive foaming in the POTW.

110.27 Any trucked or hauled pollutants except at discharge points designated by the MHMUA.

110.28 Wastewater exceeding any of the following pollutant concentration limits:

PARAMETER	LIMIT (mg/l)
Lead	9.9
Zinc	12.8

The total maximum allowable Industrial User mass loadings that MHMUA may accept are summarized below. MHMUA may, on a case-by-case basis, allocate a portion of these loads to individual Industrial Users by imposing individual mass-based or concentration-based limits for the following parameters in addition to any other applicable limits:

PARAMETER	TOTAL IU MASS (kg/day)
Arsenic	1.26
Cadmium	1.23
Chromium	9.27
Copper	17.55
Cyanide	0.88
Mercury	0.24
Molybdenum	20.73
Nickel	15.36
Selenium	3.53
Silver	9.85
$CBOD_5$	15568
TKN	1902
TSS	20160

110.29 Except where expressly authorized to do so by an applicable Pretreatment Standard or Pretreatment Requirement, no Industrial User shall ever increase the use of process

water, or in any other way attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with a Pretreatment Standard or Pretreatment Requirement. The MHMUA may impose mass limitations on industrial users which are using dilution to meet applicable Pretreatment Standards or Pretreatment Requirements, or in other cases where the imposition of mass limitations is appropriate.

110.30 Any waste which violates any Pretreatment Standard, applicable Federal Categorical Standard, or other pretreatment standard.

110.31 The MHMUA may develop Best Management Practices (BMPs) to implement the prohibitions and local limits specified in this section. Such BMPs shall be considered local limits and Pretreatment Standards for the purposes of this section and section 307(d) of the Act.

Section 201 Application to Discharge

201.1 No User shall discharge wastewater to the MHMUA's Treatment Works without having first applied for and received the approval of the MHMUA. All forms for application for said approval shall be furnished by the MHMUA. A new application must be made and approved by the MHMUA upon any change in ownership or use of the property to be serviced or in the service, as described in the application. Upon discovery of an unapproved change, the MHMUA shall have the right, upon five (5) days' written notice, to discontinue the sewer service until such new application has been made and approved. Sewer service will be renewed under proper application when the conditions under which such service was discontinued are corrected, and upon the payment of all charges provided in the schedule of rates or rules of the MHMUA.

201.2 No sewer service will be furnished to any property where any possibility exists of the mingling of storm water and sanitary waste; nor will the MHMUA permit its Mains to be connected in any way to any piping, tank, vat or other apparatus containing liquids, chemicals, or any other matter which may flow back into the MHMUA's Mains, and consequently endanger the MHMUA’s treatment process.

201.3 Applications must be signed by the property Owner or his duly authorized agent.

201.4 Whenever sewer service is made available to an improved property by the MHMUA, connection to the MHMUA’s Treatment Works shall be made by the property Owner or User within a period of ninety (90) days from the date that service is made available. For the purpose of this Section, made available, shall mean the availability of a gravity main in any public road or public easement fronting any of the sides of a building lot or within sixty-five feet (65') of any point of their property.

201.5 Connection fees shall be paid in accordance with the connection fee schedule and Section 201.4 unless application for waiver is made to the MHMUA prior to the time limitations set forth in said Section 201.4. The MHMUA shall consider the waiver and advise the property owner or User within thirty (30) days of receipt of the request. The MHMUA shall provide the appropriate forms for a waiver at the MHMUA office.

201.6 General conditions applicable to all applications and connections:

A. No application for service will be accepted by the MHMUA until the property Owner or User has paid, or made satisfactory arrangements to pay, all arrears and charges due to the MHMUA from the property Owner or User at any property now or heretofore owned by him.

B. Applications for service connections will be accepted subject to there being existing Mains in streets or rights-of-way abutting the property to be served.

C. When a prospective User has made application for a new service, or has applied for the reinstatement of an existing service, it is assumed that the piping and fixtures on the User's property are in good condition.

D. An approved service connection must be made within one (1) month of the date the fee is paid and permit issued. The permit will become void after one (1) month but may be renewed for additional periods of one (1) month each upon payment of any increase in the amount of the connection fee over the fee paid at the time of the issuance of the original permit. Such connection must be in compliance with any change in the Rules and Regulations governing connections.

E. The MHMUA reserves the right to determine the size and kind of the service lateral from the Main to the curb line, from the curb line to the property to be served, or from the main in a right-of-way to the property to be served. Laterals shall be constructed in accordance with the MHMUA's specifications. The service lateral from the Main to the building shall be furnished, installed and maintained by the property Owner or the User, shall be laid in a straight line from the point of connection at the Main to the structure, and shall be at least three feet (3') below the surface of the ground, when the final grading of the property has been completed.

F. The section of service lateral from the MHMUA Main to the curb line, installed and maintained by the property Owner or User, shall be installed by a registered plumber, shall be inspected and approved by the MHMUA's inspector prior to backfilling the trench. Any construction not approved by the MHMUA shall be immediately removed and reconstructed in an approved manner. The section of service lateral from the curb line to the property point of discharge, installed and maintained by the property Owner or User, shall be installed by a registered plumber, with a permit and inspection from the local plumbing inspector.

G. No service lateral shall be laid in the same trench with any gas pipe, water service, or any other facility of any public service company, nor within three feet (3') of any open excavation, vault, meter pit; nor shall the location be in conflict with any sidewalk or driveway running at right angles to the front of the building.

H. All connections, service laterals and fixtures furnished by the User or property Owner shall be maintained in good order. All leaks in the service lateral or any fixture for the property served must be repaired immediately by the property Owner or User . The User or property Owner shall be responsible for notifying the MHMUA of the party engaged by said User or property Owner to do any maintenance work in the User's or property Owner's service lateral, prior to work being commenced, and said party shall not backfill any trench until the work has been inspected and approved by the MHMUA's representative and the local plumbing inspector. Any work not acceptable shall be immediately removed and replaced by work which is acceptable within 10 days or the work will be performed by the MHMUA or its agents and billed to the Owner or User as per the MHMUA's "Schedule of Rates for Furnishing Sanitary Sewerage Service".

I. The MHMUA shall in no way be responsible for maintaining any portion of the service lateral or for damage done by sewage escaping therefrom. The User and property Owner shall at all times comply with applicable municipal regulation with respect thereto, and make changes therein, required by reason of changes of grade, relocation of Mains or otherwise.

J. Service laterals to public buildings, churches, apartment houses, commercial establishments and industrial establishments shall be installed to conform to detailed plans and specifications submitted to the MHMUA by the User. Work may be performed only after review and approval of those plans and specifications by the MHMUA.

K. A service lateral shall not serve more than one property.

L. Where the renewal of the service lateral from the main to the structure is found to be necessary, the User will renew the service in the location previously used unless approved by the MHMUA.

M. A fee of sixty dollars ($60.00) shall be submitted with all S-5 applications, entitled "APPLICATION FOR SEWER CONNECTION PERMIT OR SEWER LATERAL REPLACEMENT APPROVAL TO BE USED ON A STREET WHERE A SEWER MAIN IS IN PLACE", to cover the cost of processing and inspecting replacement laterals.

N. Unless specifically exempted by the MHMUA in writing, the following shall not be connected to the service lateral, either directly or indirectly:

1. Floor drain, area drain or yard drain.
2. Rain conductor or downspout.
3. Grease pit.
4. Air conditioning equipment.
5. Storm water inlets or catch basins.
6. Drains from pieces of equipment or manufacturing processes, except when specifically authorized under the provisions of Sections 501 through 1601, inclusive, of these Rules and Regulations.
7. Swimming pool drains.

If found to exist, the Owner or User shall be cited and shall have 10 days to remove the illegal connection or they will be billed $1000 per day until it is corrected.

O. No prohibited wastes as listed in Section 110 shall be discharged.

P. The initial fees for the right to connect directly or indirectly to the MHMUA's Treatment Works shall include a connection charge or fee per unit, as well as fees for application, review, and inspection of work to be accomplished by the User in accordance with the MHMUA's Rules and Regulations. Said fees shall be as prescribed in the MHMUA's "Schedule of Rates for Furnishing Sanitary Sewerage Service."

Q. In cases of condominium ownership, each unit, whether residential or other than residential, shall be considered as separate entities for connection fee purposes.

R. Where the trench bottom of a service lateral is soft and yielding, the MHMUA reserves the right to require that the service be laid in partial or total concrete encasement. Junctions of two different types of pipe may, at the option of the MHMUA, be required to be encased in concrete of mix determined by the MHMUA.

S. No claims may be made against the MHMUA for damage to life or property, by reason of the breaking of any service pipe or appliance within the User's or property Owner's premises, unless caused by the negligence of the MHMUA or its employees. The MHMUA shall not be responsible for any damage done due to the failure of the Treatment Works for any cause beyond the MHMUA's control.

T. 40 CFR 403.1, et seq., is hereby incorporated by reference, including all supplements and amendments thereto.

U. 40 CFR Chapter I, Subchapter N is hereby incorporated by reference, including all supplements and amendments thereto.

201.7 Main Extensions

A. All multiple-unit developments shall extend their mains from the existing system at their expense with the approval of the MHMUA and the MHMUA Engineer. For the purposes of these Rules and Regulations, a Main extension shall mean any sewer pipe, line, structure or appurtenance used for the conveyance of domestic or industrial waste of a liquid nature, whether forced or by gravity, which:

1. Will extend along an easement through more than two properties, a roadway or public right-of-way;

2. Conveys flows from more than two buildings; or

3. Conveys, or will convey, 8,000 gallons per day or more of sewage flow determined in accordance with the criteria specified in N.J.A.C. 7:14A-23.3. This includes all sewer lines from a single building if the building utilizes more than one sewer line to convey waste to the sewer system and the aggregate waste flow is 8,000 gallons per day or more.

B. Applications for new extensions and the determination of the time when such extension may be installed shall be granted or rejected in reasonable exercise of the MHMUA's discretion, governed by the following considerations uniformly applied to all applicants:

1. The MHMUA shall consider whether or not the extension is necessary to discharge its primary purpose of relieving waters from pollution and reducing and abating the menace to the public health, resulting from such pollution, or otherwise necessary to protect the public health.

2. The MHMUA shall give weight to the economic and practical feasibility of providing the extension or providing it at the time requested in view of available funds; the cost of the extension in comparison with the revenue to be derived from it and the effect of any deficiency on the MHMUA's overall revenues; the adequacy of other means of sewerage disposal permitted and the number of persons to be benefited in comparison with the number to be benefited by the same cash outlay on the MHMUA’s existing commitments when its revenue is insufficient to do both.

C. The applicant shall be afforded a hearing and the MHMUA shall take testimony, stenographically recorded, in making its determination, based on the foregoing considerations.

D. The applicant shall be notified in writing of the MHMUA's decision, its findings and reasons for its decision.

E. The MHMUA may, depending upon its financial ability, and in its sole discretion extend its Mains to serve new Users.

F. Extensions to Serve Residential Subdivisions, Tracts, Housing Projects, Commercial and/or Industrial Developments or Organized Service Districts.

1. An applicant for Main extensions to serve a new residential subdivision, tract, housing project, commercial and/or industrial development shall be required to advance to the MHMUA, before construction is commenced, the estimated reasonable cost of installation of the Mains, from the nearest existing Main at least equal in size to the Main required to serve such development, including necessary service stubs or service pipelines, fittings, valves and housings therefrom, manholes and other appurtenances. If, in the opinion of the MHMUA, additional facilities are required specifically to provide additional treatment or collection capacity, as a result of the service requested, the cost of such facilities must be included in the advance.

2. To the extent money advanced pursuant to Section 201.7(F)(1) exceeds the actual cost of construction, engineering, legal and contingencies, such amount without interest shall be refunded.

3. The MHMUA may, at its option, permit the applicant to contract directly for the performance of all work by reliable established contractors. Prior to the commencement of work, the names of all contractors and subcontractors to be employed must be approved by the MHMUA and a performance bond posted in the full amount of the MHMUA Engineer's estimate of cost. After the completion of all work and prior to the acceptance of lines and appurtenances by the MHMUA, the applicant will post a two (2) year maintenance bond in the amount of ten percent (10%) of the value of work to be accepted. The applicant shall reimburse the MHMUA for all legal and engineering fees charged by its consultants in the preparation and/or review of contracts, bonds, plans, specifications, supervision and inspection, and all work incidental to the construction engaged in by the applicant.

201.8 All Users discharging any wastewater other than domestic wastewater shall make application using form S-1NR, and shall include the following information with the S-1NR:

A. A detailed description of the type and size of buildings.

B. The nature of the business to be conducted in each structure.

C. The number of and type of fixtures to be served.

D. The type, volume and chemical characteristics of the waste to be discharged.

E. The boundaries of the property.

F. The location within the property boundaries of the structure(s) to be served.

G. The location and profile, with respect to finished grade, of the services.

H. Details of the proposed connections to the sewerage system, and arrangements and detail of the meter installation (when required).

I. Design details and location of grease traps.

J. Design details and location of oil interceptors.

201.9 Applications must include the following items before they will be considered complete:

A. Fully completed S-1, S-1NR, S-3, S-4 or S-5 forms in triplicate.

B. Three copies of conceptual engineering plans.

C. Application fees in accordance with schedule 11 of the MHMUA's "Schedule of Rates for Furnishing Sanitary Sewerage Service."

D. Conceptual review fees in accordance with schedule 11 of the MHMUA's "Schedule of Rates for Furnishing Sanitary Sewerage Service."

E. Applicable connection fee in accordance with the MHMUA's "Schedule of Rates for Furnishing Sanitary Sewerage Service."

F. Applicable escrow fees in accordance with the MHMUA's "Schedule of Rates for Furnishing Sanitary Sewerage Service."

G. Results of analyses as required by the MHMUA.

201.10 The MHMUA shall approve or disapprove all complete applications (except for industrial applications) within ninety (90) days of the date that the application is certified as complete. The MHMUA unilaterally reserves the right to extend the time for the aforesaid approval for a period not to exceed thirty (30) days.

201.11 Failure of the MHMUA to approve or disapprove an application within ninety (90) days of the application being certified as complete, or any extension thereof, (excluding industrial Users) shall constitute approval of the application and consent of the MHMUA to the construction of the facility. In the event the MHMUA fails to approve or disapprove the application within the aforesaid time, said application shall be marked "Approved Because of Failure to Act Within the Time Limitations Imposed by Law". In the further event of approval because of failure to act within the time limitation imposed, such approval shall not be binding upon State or Federal agencies which may assert jurisdiction over the review of plans for the construction of sewage disposal plants or other facilities for the collection, treatment or disposal. In the event that an application for the aforesaid construction of facilities is rejected by any State or Federal agency asserting jurisdiction for noncompliance with the rules, regulations or specifications of that agency, and said application is returned as disapproved, the applicant shall submit an amended S-3 Application to the MHMUA containing the changes, modifications or corrections requested by the Federal or State agency. Review and approval by the MHMUA of the amended S-3 Application shall begin again, upon certification of the Application as complete by the MHMUA, pursuant to the provisions contained herein.

201.12 An approved application shall constitute a contract between the MHMUA and the applicant, obliging the applicant to pay to the MHMUA its rates as established and amended from time to time and to comply with the MHMUA's Rules and Regulations.

Section 220 Determination of Non-Significant Categorical Industrial Users

220.1 The MHMUA may determine that an Industrial User subject to categorical Pretreatment Standards under 403.6 and 40 CFR chapter I, subchapter N is a Non-Significant Categorical Industrial User rather than a Significant Industrial User on a finding that the Industrial User never discharges more than 100 gallons per day (gpd) of total categorical wastewater (excluding sanitary, non-contact cooling and boiler blowdown wastewater, unless specifically included in the Pretreatment Standard) and the following conditions are met:

A. The Industrial User, prior to the MHMUA finding, has consistently complied with all applicable categorical Pretreatment Standards and Requirements;

B. The Industrial User annually submits the certification statement required by Section 602.8 of these Rules and Regulations together with any additional information necessary to support the certification statement; and

C. The Industrial User never discharges any untreated concentrated wastewater.

220.2 Where the MHMUA has determined that an Industrial User meets the criteria for classification as a Non-Significant Categorical Industrial User, the MHMUA will evaluate, at least once per year, whether an Industrial User continues to meet the criteria in Section 220.1, above.

Section 250 Disconnection/Interruption of Service

250.1 Except as otherwise provided in these Rules and Regulations, sewer service will not be considered subject to shutoff. Requests for discontinuance of sewer service will be permitted only in cases of demolition, fire, flooding, or by order of the Board of Health for vacation of the building serviced for health reasons. The Owner of the property receiving sewer service shall be responsible for the payment of sewer service charges at the minimum charges as established by the MHMUA during the time the property or structure is vacant. The User or Owner shall not turn off or disconnect or remove any sewage meter, or permit its disconnection or removal without the written consent of the MHMUA. No plumber, Owner, tenant or other unauthorized person shall disconnect or remove a sewer connection without the written consent of the MHMUA.

250.2 The MHMUA shall not assume any liability as insurer of property or person, and the MHMUA shall not guarantee any special service, capacity, or facility, other than is permitted by the ordinary and changing operating conditions of the MHMUA, as the same exists from day to day. The MHMUA shall be free and exempt from any and all claims for injury to any persons or property by reason of failure to provide collection or treatment capacity.

250.3 In the event of a breakdown, emergency, or any other unavoidable reason, the MHMUA shall have the right to cut off sewer service temporarily in order to make necessary repairs, connections, etc., but the MHMUA will use all reasonable and practical measures to notify the User or Owner of such discontinuance of service. In such case, the MHMUA shall not be liable for any damage or inconvenience experienced by the User, Owner, tenant or occupier of the property; or any claim against it at any time for interruption in service. When service is to be temporarily interrupted, notice will be given, when practicable, to all Users and Owners affected by the temporary interruption of service, stating the probable duration of the interruption and the purpose of the interruption.

250.4 The MHMUA has the right to reserve sufficient capacity in its facilities to adequately collect and treat sewage from all existing Users and Owners. The MHMUA may

restrict or regulate the quantity of wastewater discharge by the User or Owner in case of scarcity of capacity, or whenever the public welfare may so require.

250.5 Complaints with respect to the character of the service furnished, or the reading of the meters or of the bills rendered, must be made at the MHMUA's office either orally, or in writing. A record of such complaint will be kept by the MHMUA, noting the name and address of the complainant, the date, the nature of the complaint, and the remedy, if any.

Section 301 Bills and Payments

301.1 Regular meter readings received from private water or sewage meters or from the public water agency will be used to compute sewer charges. Bills will be rendered as soon as practicable after the reading of the respective meters. All bills are due and payable on presentation or delivery.

301.2 All Users or Owners shall be notified, at least annually, in conjunction with a regular bill, of the portion of their bill which is attributable to plant operation and maintenance, including replacement. All plant operation and maintenance, including replacement charges, shall be reviewed not less often than every two (2) years and the charges revised accordingly to ensure proportionate distribution to all classes of Users as contained in the MHMUA's "Schedule of Rates for Furnishing Sanitary Sewerage Service". The schedule of charges shall be adopted so as to generate sufficient revenues to cover the total Treatment Works and Treatment Works Plant operation and maintenance and replacement costs. Excess revenues, shall be utilized to adjust the succeeding years operation and maintenance and replacement costs.

301.3 Bills are payable at the billing office of the MHMUA located at 29 Washington Street, Mount Holly, New Jersey.

301.4 If a bill remains unpaid for a period of thirty (30) days after presentation, it shall be classed as delinquent and will be assessed a penalty equal to the maximum allowed by law. Payments made by mail will be credited on the date received. If a bill remains unpaid fourteen (14) days after being classified as delinquent, service may be disconnected at any time after not less than five (5) days written notice. If service is discontinued, it will not be restored until all unpaid bills and all charges, including a turn-on charge, are paid, or other satisfactory arrangements are made for payment.

301.5 No abatement on meter bills will be made for leaks, or for water wasted by damaged fixtures.

301.6 Deposits may be required from Users or Owners taking service for a period of less than thirty (30) days. The deposit shall be in an amount equal to the estimated gross bill for such temporary period, plus the cost of making and discontinuing such service.

Deposits may be required from any other User or Owner who becomes habitually delinquent, provided that in no instance will deposits be required in excess of the estimated gross bill for any single billing period plus one (1) month with a minimum of $25.00.

301.7 Any User or Owner having paid a deposit shall pay bills for sewer service as rendered, in accordance with the Rules and Regulations of the MHMUA, and the deposit shall not be considered as payment on account of a bill during the time the User or Owner is receiving service.

301.8 If a property is sold, deposits shall be returned at final settlement if all outstanding sewer fees have been paid. The MHMUA shall have the right to apply a deposit against outstanding bills at final settlement.

301.9 No interest will be paid on deposits.

301.10 Payment of any disputed bill, within the meaning of these Rules and Regulations, shall be made within thirty (30) days following presentation of the bill. Payment of any disputed bill which is withheld beyond the period herein mentioned shall be subject to penalty equal to the maximum allowed by law, unless the dispute is terminated substantially in favor of the User or owner and payment on the agreed amount is made within ten (10) days thereafter.

Section 401 (reserved)

PART II

Section 501 Industrial User Service Agreements

501.1 No Industrial User shall discharge other than domestic wastewater without a Service Agreement from the MHMUA for the discharge of industrial wastewater.

501.2 Industrial User Service Agreements shall include the following:

A. Dates through which the Service Agreement will be effective, but in no event longer than five years.

B. Prohibition of assignment without prior approval of the MHMUA.

C. Effluent limits, including Best Management Practices, based on applicable general pretreatment standards in 40 CFR 403, categorical pretreatment standards, local limits and State and local law.

D. Self-monitoring and reporting requirements as described in Sections 602.6 and 602.7.

E. Violation notification and resampling requirements as described in Section 601.4.

F. Notification requirement for the discharge of hazardous waste as described in Section 601.1.

G. Notification requirement for the discharge of slug loads or other potentially problematic discharges as described in Section 601.3.

H. Self-monitoring, sampling, reporting, notification and recordkeeping requirements, including an identification of the pollutants to be monitored (including the process for seeking a waiver for a pollutant neither present nor expected to be present in the Discharge in accordance with Section 604, or a specific waived pollutant in the case of an individual Service Agreement), sampling location, sampling frequency, and sample type, based on the applicable general pretreatment standards in 40 CFR 403, categorical pretreatment standards, local limits, and State and local law.

I. Statement of applicable civil and criminal penalties for violation of pretreatment standards and requirements, and any applicable compliance schedule. Such schedules may not extend the compliance date beyond applicable federal deadlines.

J. Requirement to maintain in good working order and operate as effectively as possible, at all times, any facilities or systems of control installed to achieve

compliance with the terms and conditions of the Service Agreement.

K. Requirements to control Slug Discharges, if determined by MHMUA to be necessary.

501.3 Any Industrial User proposing any changes in operation, character of waste discharges, flows or ownership shall submit a new application to MHMUA in accordance with Section 501.4 and receive approval from MHMUA before effecting said change(s).

501.4 Any Industrial User that has a Service Agreement with the MHMUA which will expire, or who anticipates, proposes or is found by the MHMUA to have a change, or increase in its permitted discharge shall file a complete application for said discharge in accordance with the following schedule:

A. Ninety (90) days prior to the scheduled start-up for any proposed or anticipated change in discharge.

B. One hundred and eighty (180) days prior to the expiration date on existing agreements.

C. Seven (7) days for those industries found by the MHMUA to have a change or increase in permitted discharge.

501.5 No permit shall be issued, renewed or modified by the MHMUA so as to relax any water quality standard or effluent limitation until the applicant, or permit holder, as the case may be, has paid all fees, penalties or fines due and owing pursuant to P.L.1977,c.74, or has entered into an agreement with the MHMUA establishing a payment schedule therefor.

501.6 MHMUA has the authority to condition or deny any increases or changes in pollutants by Industrial Users to the MHMUA where such contributions do not meet Pretreatment Standards and Requirements or if such contributions would cause MHMUA to violate its NJPDES permit.

501.7 MHMUA has the ability to require compliance with all applicable Pretreatment Standards and Regulations by Industrial Users as set forth under law and these Rules and Regulations.

501.8 The MHMUA may convert the mass limits of the Categorical Pretreatment Standards at 40 CFR parts 414, 419 and 455 to concentration limits for purposes of calculating limitations applicable to individual Industrial Users. When converting such limits to concentration limits, the MHMUA will use the concentrations listed in the applicable subparts of 40 CFR parts 414, 419 and 455, and document that dilution is not being substituted for treatment as prohibited by 40 CFR 403.6(d).

501.9 Pollutant discharge limits in categorical Pretreatment Standards are generally expressed either as concentration or mass limits. Wherever possible, where concentration limits are specified in standards, equivalent mass limits have been provided so that MHMUA may use either concentration or mass limits. Limits in categorical Pretreatment Standards shall apply to the effluent of the process regulated by the Standard, or as otherwise specified by the standard. When the limits in a categorical Pretreatment Standard are expressed only in terms of mass of pollutant per unit of production, the MHMUA may convert the limits to equivalent limitations expressed either as mass of pollutant discharged per day or effluent concentration for purposes of calculating effluent limitations applicable to individual Industrial Users in accordance with the following:

A. When calculating equivalent mass-per-day limitations as provided by Section 501.9, MHMUA shall calculate such limitations by multiplying the limits in the Standard by the Industrial User's average rate of production. This average rate of production shall be based not upon the designed production capacity but rather upon a reasonable measure of the Industrial User's actual long-term daily production, such as the average daily production during a representative year. For new sources, actual production shall be estimated using projected production.

B. When calculating equivalent concentration limitations as provided by Section 501.9, MHMUA shall calculate such limitations by dividing the mass limitations derived by Section 501.9.A by the average daily flow rate of the Industrial User's regulated process wastewater. This average daily flow rate shall be based upon a reasonable measure of the Industrial User's actual long-term average flow rate, such as the average daily flow rate during the representative year.

501.10 When the limits in a Categorical Pretreatment Standard are expressed only in terms of pollutant concentrations, an Industrial User may request that the MHMUA convert the limits to equivalent mass limits. The determination to convert concentration limits to mass limits is within the discretion of the MHMUA. The MHMUA may establish equivalent mass limits only if the Industrial User meets all the following conditions in paragraphs (A)(1) through (A)(5) of this section.

A. To be eligible for equivalent mass limits, the Industrial User must:

1. Employ, or demonstrate that it will employ, water conservation methods and technologies that substantially reduce water use during the term of its Service Agreement;

2. Currently use control and treatment technologies adequate to achieve compliance with the applicable categorical Pretreatment Standard, and not have used dilution as a substitute for treatment;

3. Provide sufficient information to establish the facility's actual average daily flow rate for all wastestreams, based on data from a continuous effluent flow monitoring device, as well as the facility's long-term average production rate. Both the actual average daily flow rate and long-term average production rate must be representative of current operating conditions;

4. Not have daily flow rates, production levels, or pollutant levels that vary so significantly that equivalent mass limits are not appropriate to control the Discharge; and

5. Have consistently complied with all applicable categorical Pretreatment Standards during the period prior to the Industrial User's request for equivalent mass limits.

B. An Industrial User subject to equivalent mass limits must:

1. Maintain and effectively operate control and treatment technologies adequate to achieve compliance with the equivalent mass limits;

2. Continue to record the facility's flow rates through the use of a continuous effluent flow monitoring device;

3. Continue to record the facility's production rates and notify the MHMUA whenever production rates are expected to vary by more than 20 percent from its baseline production rates determined in Section 501.10.A.3 of these Rules and Regulations. Upon notification of a revised production rate, the MHMUA will reassess the equivalent mass limit and revise the limit as necessary to reflect changed conditions at the facility; and

4. Continue to employ the same or comparable water conservation methods and technologies as those implemented pursuant to Section 501.10.A.1 of these Rules and Regulations so long as it discharges under an equivalent mass limit.

C. Where the MHMUA chooses to establish equivalent mass limits, it will:

1. Calculate the equivalent mass limit by multiplying the actual average daily flow rate of the regulated process(es) of the Industrial User by the concentration-based daily maximum and monthly average Standard for the applicable categorical Pretreatment Standard and the appropriate unit conversion factor;

2. Use the same production or flow figure in calculating both average and maximum equivalent limitations for Categorical Pretreatment Standards that specify one limit for calculating maximum daily discharge limitations and a second limit for calculating maximum monthly average, or 4-day average, limitations.

3. When notified of a revised production rate, reassess the equivalent mass limit and recalculate the limit as necessary to reflect changed conditions at the facility; and

4. Retain the same equivalent mass limit in subsequent Service Agreement terms if the Industrial User's actual average daily flow rate was reduced solely as a result of the implementation of water conservation methods and technologies, and the actual average daily flow rates used in the original calculation of the equivalent mass limit were not based on the use of dilution as a substitute for treatment pursuant to 40 CFR 403.6(d). The Industrial User must also be in compliance with 403.17 (regarding the prohibition of bypass).

D. The MHMUA may not express limits in terms of mass for pollutants such as pH, temperature, radiation, or other pollutants which cannot appropriately be expressed as mass.

E. Equivalent limitations calculated in accordance with Section 501.10.C of these Rules and Regulations are deemed Pretreatment Standards for the purposes of Section 307(d) of the act and this section. Once incorporated into its Service Agreement, the Industrial User must comply with the equivalent limitations in lieu of the promulgated categorical standards from which the equivalent limitations were derived.

501.11 Any Industrial User operating under a Service Agreement incorporating equivalent mass or concentration limits calculated from a production based standard shall notify MHMUA within two (2) business days after the User has a reasonable basis to know that the production level will significantly change within the next calendar month. Any User not notifying MHMUA of such anticipated change will be required to meet the mass or concentration limits in its Service Agreement that were based on the original estimate of the long term average production rate.

Section 550 Industrial User Service Agreement Appeal

550.1 Any Person or permittee that wishes to appeal any decision by the MHMUA to issue a new permit, modify a permit, revoke and reissue a permit, suspend a permit, revoke a permit or deny an application for a new permit or a permit renewal shall comply with the procedures set forth at N.J.A.C. 7:14A-17 *et seq*.

Section 601 Notification Requirements

601.1 Hazardous Waste Notification

A. Industrial Users shall notify the MHMUA, the EPA Regional Waste Management Division Director and NJDEP Hazardous Waste Division in writing of any proposed discharge into the sewer system of a substance, which, if otherwise disposed of, would be a hazardous waste under 40 CFR Part 261, EPA Regulations for Identifying Hazardous Waste. Such notification must include the name of the hazardous waste as set forth in 40 CFR part 261, the EPA hazardous waste number, and the type of discharge (continuous, batch or other). If the Industrial User discharges more than 100 kilograms of such waste per calendar month to the POTW, the notification shall also contain the following information to the extent such information is known and readily available to the Industrial User: An identification of the hazardous constituents contained in the wastes, an estimation of the mass and concentration of such constituents in the wastestream discharged during that calendar month, and an estimation of the mass of constituents in the wastestream expected to be discharged during the following twelve months. Notification shall be provided no later than 180 days after the discharge of the listed or characteristic hazardous waste. Any notification under this section need be submitted only once for each hazardous waste discharged. However, notifications of changed discharges must be submitted under 40 CFR 403.12(j). The notification requirement in this section does not apply to pollutants already reported under the self-monitoring requirements of 40 CFR 403.12(b), (d) and (e).

B. Dischargers are exempt from the requirements of Section 601.2(A) during a calendar month in which they discharge no more than fifteen kilograms of hazardous wastes, unless the wastes are acute hazardous wastes as specified in 40 CFR 261.30(d) and 261.33(e). Discharge of more than fifteen kilograms of non-acute hazardous wastes in a calendar month, or of any quantity of acute hazardous wastes as specified in 40 CFR 261.30(d) and 261.33(e), requires a one-time notification. Subsequent months during which the Industrial User discharges more than such quantities of any hazardous waste do not require additional notification.

C. In the case of any new regulations under Section 3001 of RCRA identifying additional characteristics of hazardous waste or listing any additional substance as a hazardous waste, the Industrial User must notify the POTW, the EPA regional Waste Management Waste Division Director, and NJDEP hazardous waste authorities of the discharge of such substance within 90 days of the effective date of such regulations.

D. In the case of any notification made under Section 601.1 of these Rules and Regulations, the Industrial User shall certify that it has a program in place to

reduce the volume and toxicity of hazardous waste generated to the degree it has determined to be economically practical.

601.2 Industrial Users shall notify the MHMUA of any exceedance of an effluent limitation that causes injury to persons, or damage to the environment, or poses a threat to human health or the environment, within two hours of its occurrence, or of the Industrial User becoming aware of the occurrence. Within 24 hours thereof, or of an exceedance, or of becoming aware of an exceedance, of an effluent limitation for a toxic pollutant, an Industrial User shall provide the MHMUA with such additional information on the discharge as may be required by the MHMUA, including an estimate of the danger posed by the discharge to the environment, whether the discharge is continuing, and the measures taken, or being taken to remediate the problem and any damage to the environment, and to avoid a repetition of the problem.

601.3 Industrial Users shall notify the MHMUA immediately of all discharges that could cause problems, including any slug discharge, as defined by 40 CFR 403.8(f)(2)(v). This notification is required even in the absence of a formal slug control plan (Section 702).

601.4 If sampling performed by an Industrial User (IU) indicates a violation of its Service Agreement or these Rules and Regulations, the IU shall notify the MHMUA within 24 hours of becoming aware of the violation. The IU shall also repeat the sampling and analysis and submit the results of the repeat analysis to the MHMUA within 30 days after becoming aware of the violation. Where MHMUA has performed the sampling and analysis in lieu of the IU,, the MHMUA will perform the repeat sampling and analysis unless it notifies the IU of the violation and requires the IU to perform the repeat analysis. The IU is not required to resample if (1) MHMUA performs sampling at the IU at a frequency of at least once per month, or (2) MHMUA performs sampling at the IU between the time when the IU performs its initial sampling and the time when the IU receives the results of this sampling.

601.5 Industrial Users shall report to the MHMUA any serious violation within 30 days of the violation, together with a statement indicating that the Industrial User understands the civil administrative penalties required to be assessed for serious violations, and explaining the nature of the serious violation and the measures taken to remedy the cause or prevent a reoccurrence of the serious violation.

601.6 For any unanticipated Bypass, an Industrial User shall submit written notification to the MHMUA within five days of the commencement of the discharge or of the Permittee becoming aware of the discharge, including the following information:

A. All properly signed, contemporaneous operating logs, or other relevant evidence, on the circumstances of the noncompliance;

B. The reasons that the unanticipated Bypass occurred, including the circumstances leading to the unanticipated Bypass;

C. Evidence that the Permittee was properly operating the facility at the time;

D. Evidence that the Permittee submitted notice of the unanticipated Bypass as required pursuant to Section 601.2 or 601.3, or in the case of an unanticipated Bypass resulting from the performance by the Permittee of maintenance operations, the Permittee provided prior notice and received prior written approval from the MHMUA, including the name, title, address and telephone number of the individual who satisfied this requirement, the date and specific time the individual notified the MHMUA for the Permittee, the specific method that the individual used to notify the MHMUA, and the name and title of the individual within the MHMUA to whom the Permittee gave such notice;

E. Evidence that the Permittee complied with all remedial measures the MHMUA required;

F. The Permittee's rationale for and all supporting documentation that the Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage, including the name, title, address and telephone number of the individual that made the determination for the Permittee, the data and information upon which that individual made the determination and any other information the MHMUA requests;

G. Evidence that there was no feasible alternative to the unanticipated Bypass, including but not limited to the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of downtime; and

H. Evidence that the unanticipated Bypass did not occur during normal periods of equipment downtime or preventive maintenance when back-up equipment should have been installed to avoid the unanticipated Bypass.

601.7 For an Upset, an Industrial User shall submit written notification to the MHMUA within five days of the commencement of the Upset or of the Permittee becoming aware of the Upset, including the following information:

A. All properly signed, contemporaneous operating logs, or other relevant evidence, on the circumstances of the noncompliance;

B. The reasons that the Upset occurred, including the cause of the Upset and the identity of the Person causing the Upset;

C. Evidence that the Permittee was properly operating the facility at the time;

D. Evidence that the Permittee submitted notice of the Upset as required pursuant to Section 601.2 or 601.3, or in the case of an Upset resulting from the performance by the Permittee of maintenance operations, the Permittee provided prior notice and received prior written approval from the MHMUA, including the name, title, address and telephone number of the individual who satisfied this requirement, the date and specific time the individual notified the MHMUA for the Permittee, the specific method that the individual used to notify the MHMUA, and the name and title of the individual within the MHMUA to whom the Permittee gave such notice; and

E. Evidence that the Permittee complied with all remedial measures the MHMUA required.

Section 602 Reporting Requirements

602.1 Within 180 days after the effective date of a Categorical Pretreatment Standard, or 180 days after the final administrative decision made upon a category determination submission under Sec. 403.6(a)(4), whichever is later, existing Industrial Users subject to such Categorical Pretreatment Standards and currently discharging to or scheduled to discharge to MHMUA shall be required to submit to MHMUA a report which contains the information listed in subsections A - G of this section. At least 90 days prior to commencement of discharge, New Sources, and sources that become Industrial Users subsequent to the promulgation of an applicable Categorical Pretreatment Standard, shall be required to submit to MHMUA a report which contains the information listed in subsections A - E of this section. New sources shall also be required to include in this report information on the method of pretreatment the source intends to use to meet applicable pretreatment standards. New Sources shall give estimates of the information requested in subsections D and E of this section.

A. The name and address of the facility including the name of the operator and owners.

B. A list of any environmental control permits held by or for the facility.

C. A brief description of the nature, average rate of production, and Standard Industrial Classification of the operation(s) carried out by the IU. This description shall include a schematic process diagram which indicates points of discharge to MHMUA from the regulated processes.

D. The IU shall submit information showing the measured average daily and maximum daily flow, in gallons per day, to MHMUA from each of the following:

1. Regulated process streams; and

2. Other streams as necessary to allow use of the combined wastestream formula of 40 CFR 403.6(e).

The MHMUA may allow for verifiable estimates of these flows where justified by cost or feasibility considerations.

E. Measurement of pollutants.

1. The IU shall identify the Pretreatment Standards applicable to each regulated process.

2. In addition, the IU shall submit the results of sampling and analysis identifying the nature and concentration (or mass, where required by the Standard or MHMUA) of regulated pollutants in the discharge from each regulated process. Both daily maximum and average concentration (or mass, where required) shall be reported. The sample shall be representative of daily operations.

3. A minimum of four (4) grab samples must be used for pH, cyanide, total phenols, oil and grease, sulfide, and volatile organics compounds for facilities for which historical sampling data do not exist; for facilities for which historical sampling data are available, MHMUA may authorize a lower minimum.

4. The IU shall take a minimum of one representative sample to compile that data necessary to comply with the requirements of this paragraph.

5. Samples should be taken immediately downstream from pretreatment facilities if such exist or immediately downstream from the regulated process if no pretreatment exists. If other wastewaters are mixed with the regulated wastewater prior to pretreatment the IU should measure the flows and concentrations necessary to allow use of the combined wastestream formula of 40 CFR 403.6(e) in order to evaluate compliance with the Pretreatment Standards. Where an alternate concentration or mass limit has been calculated in accordance with 40 CFR 403.6(e) this adjusted limit along with supporting data shall be submitted to MHMUA.

6. MHMUA may allow the submission of a baseline report which utilizes only historical data so long as the data provides information sufficient to determine the need for industrial pretreatment measures.

7. The baseline report shall indicate the time, date and place, of sampling, and methods of analysis, and shall certify that such sampling and analysis is representative of normal work cycles and expected pollutant discharges to the POTW.

8. In cases where the Standard requires compliance with a Best Management

Practice or pollution prevention alternative, the IU shall submit documentation as required by MHMUA or the applicable Standards to determine compliance with the standard.

F. Certification. A statement, reviewed by an authorized representative of the Industrial User and certified to by a qualified professional, indicating whether Pretreatment Standards are being met on a consistent basis, and, if not, whether additional operation and maintenance (O and M) and/or additional pretreatment is required for the IU to meet the Pretreatment Standards and Requirements.

G. Compliance schedule. If additional pretreatment and/or O and M will be required to meet the Pretreatment Standards; the shortest schedule by which the IU will provide such additional pretreatment and/or O and M. The completion date in this schedule shall not be later than the compliance date established for the applicable Pretreatment Standard.

1. Where the IU's Categorical Pretreatment Standard has been modified by a removal allowance (40 CFR 403.7), the combined wastestream formula (40 CFR 403.6(e)), and/or a Fundamentally Different Factors variance (40 CFR 403.13) at the time the IU submits the report required by this section, the information required by subsections F and G of this section shall pertain to the modified limits.

2. If the Categorical Pretreatment Standard is modified by a removal allowance (40 CFR 403.7), the combined wastestream formula (40 CFR 403.6(e)), and/or a Fundamentally Different Factors variance (40 CFR 403.13) after the IU submits the report required by this section, any necessary amendments to the information requested by subsections F and G of this section shall be submitted by the IU to MHMUA within 60 days after the modified limit is approved.

602.2 Compliance schedule for meeting Categorical Pretreatment Standards. The following conditions shall apply to the schedule required by Section 602.1.G:

A. The schedule shall contain increments of progress in the form of dates for the commencement and completion of major events leading to the construction and operation of additional pretreatment required for the IU to meet the applicable Categorical Pretreatment Standards (e.g., hiring an engineer, completing preliminary plans, completing final plans, executing contract for major components, commencing construction, completing construction, etc.).

B. No increment referred to in Section 602.2.A shall exceed 9 months. Not later than 14 days following each date in the schedule and the final date for compliance, the IU shall submit a progress report to MHMUA including, at a minimum, whether or not it complied with the increment of progress to be met on such date and, if not,

the date on which it expects to comply with this increment of progress, the reason for delay, and the steps being taken by the IU to return the construction to the schedule established. In no event shall more than 9 months elapse between such progress reports to MHMUA.

602.3 Report on compliance with Categorical Pretreatment Standard deadline. Within 90 days following the date for final compliance with applicable Categorical Pretreatment Standards or in the case of a New Source following commencement of the introduction of wastewater into MHMUA's treatment works, any IU subject to Pretreatment Standards and Requirements shall submit to MHMUA a report containing the information described in Sections 602.1 D - F. For IU's subject to equivalent mass or concentration limits established by MHMUA in accordance with the procedures in 40 CFR 403.6(c), this report shall contain a reasonable measure of the IU's long term production rate. For all other IU's subject to Categorical Pretreatment Standards expressed in terms of allowable pollutant discharge per unit of production (or other measure of operation), this report shall include the IU's actual production during the appropriate sampling period.

602.4 (reserved)

602.5 (reserved)

602.6 Any Significant Industrial User or Categorical Industrial User shall submit to the MHMUA monthly, a report indicating the nature and concentration (or mass), of pollutants in the effluent which are limited or required to be monitored by such Pretreatment Standards, or by local agreement. In cases where a local limit or Pretreatment Standard requires compliance with a Best Management Practice or pollution prevention alternative, the User must submit documentation required by the MHMUA or the applicable Pretreatment Standard to determine the compliance status of the User. In addition, this report shall include average flow and a record of all daily flows which, during the reporting period, exceeded the average daily flow reported in Section 602.1.D. These reports must be based on sampling and analysis performed in the period covered by the report. MHMUA shall require the number of grab samples necessary to assess and assure compliance by Industrial Users with Applicable Preatreatment Standards and Requirements. All analyses must be performed by NJ certified laboratories in accordance with the techniques described in 40 CFR 136 and amendments thereto, at the sole expense of the Industrial User. Monthly monitoring reports are due 30 days from the end of the reporting period and shall be submitted on forms provided or approved by the MHMUA. Reports shall be completed in accordance with the NJDEP "DMR Reporting Guidance Manual."

602.7 Notwithstanding the reporting requirements stipulated in a Service Agreement with the MHMUA, Industrial Users shall be required to file monthly reports with the MHMUA if said Industrial User:

A. In any month commits a serious violation or fails to submit a completed discharge monitoring report and does not contest, or unsuccessfully contests, the assessments of a civil administrative penalty therefor; or

B. Exceeds an effluent limitation for the same pollutant at the same discharge monitoring point by any amount for four out of six consecutive months.

The MHMUA may restore the reporting requirements in the Service Agreement if the Industrial User has not committed any of the violations identified in this section for six consecutive months.

602.8 An Industrial User determined to be a Non-Significant Categorical Industrial User by MHMUA pursuant to Section 220 of these Rules and Regulations must annually submit the following certification statement, signed by the Authorized Representative of the User (as defined in Section 104). This certification must accompany any alternative report required by the MHMUA: "Based on my inquiry of the person or persons directly responsible for managing compliance with the categorical Pretreatment Standards under 40 CFR ____, I certify that, to the best of my knowledge and belief that during the period from _____ ____, to _____, ____ [month, days, year]:(a) The facility described as _____ [facility name] met the definition of a non-significant categorical Industrial User as described in Section 220.1 ~~403.3(v)(2)~~; (b) the facility complied with all applicable Pretreatment Standards and requirements during this reporting period; and (c) the facility never discharged more than 100 gallons of total categorical wastewater on any given day during this reporting period. This compliance certification is based upon the following information:_____."

602.9 The Authorized Representative of the User (as defined in Section 104) signing any document under this Section 602 shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

602.10 The reports required by this Section 602 shall be subject to the provisions of 18 U.S.C. 1001 relating to fraud and false statements and the provisions of Section 309(c)(2) of the Federal Act governing false statements, representations or certifications in reports under the Federal Act; or under the State Act sections set forth in N.J.S.A. 58:10A-10.4(2) and (3), whichever is more stringent.

602.11 The reports required by Sections 602.1, 602.3 and 602.6 shall not be required of Non-Significant Categorical Industrial Users as determined by MHMUA pursuant to Section 220 of these Rules and Regulations.

602.12 If an Industrial User subject to the reporting requirements in Section 602.6 of these Rules and Regulations monitors any regulated pollutant at the appropriate sampling location more frequently than required by MHMUA, using the procedures prescribed in Section 603.3 of these Rules and Regulations, the results of this monitoring shall be included in the report.

Section 603 Sampling Requirements

603.1 Industrial Users shall provide a sampling point exclusive of sanitary wastes and inclusive of all industrial wastes subject to regulation.

603.2 Industrial wastes discharged or proposed to be discharged into the POTW shall be subject to sampling and analysis by the MHMUA.

603.3 Sampling and analyses shall be performed in accordance with procedures or techniques established by the Administrator of EPA pursuant to Section 304(h) of the Federal Act and contained in 40 CFR 136 and amendments thereto or with any other test procedures approved by the Administrator of EPA. Where 40 CFR 136 does not include a sampling or analytical technique for the pollutant in question, or where the Administrator of EPA determines that the part 136 sampling and analytical techniques are inappropriate for the pollutant in question, sampling and analysis shall be performed using validated analytical methods or any other sampling and analytical procedures, including procedures suggested by the POTW or other parties, approved by the Administrator of EPA.

603.4 A laboratory performing analyses shall be certified by NJDEP for the analysis of those specific parameters in accordance with N.J.A.C. 7:18.

603.5 The reports required in Sections 602.1, 602.3 and 602.6 of these Rules and Regulations shall be based upon data obtained through appropriate sampling and analysis performed during the period covered by the report, which data are representative of conditions occurring during the reporting period. MHMUA shall require that frequency of monitoring necessary to assess and assure compliance by Industrial Users with applicable Pretreatment Standards and Requirements. Grab samples must be used for pH, cyanide, total phenols, oil and grease, sulfide, and volatile organic compounds. For all other pollutants, 24-hour composite samples must be obtained through flow-proportional composite sampling techniques, unless time-proportional composite sampling or grab sampling is authorized by MHMUA. Where time-proportional composite sampling or grab sampling is authorized by MHMUA, the

samples must be representative of the discharge and the decision to allow the alternative sampling must be documented in the Industrial User file for that facility or facilities. Using protocols (including appropriate preservation) specified in 40 CFR Part 136 and appropriate EPA guidance, multiple grab samples collected during a 24-hour period may be composited prior to the analysis as follows: For cyanide, total phenols, and sulfides the samples may be composited in the laboratory or in the field; for volatile organics and oil & grease the samples may be composited in the laboratory. Composite samples for other parameters unaffected by the compositing procedures as documented in approved EPA methodologies may be authorized by MHMUA, as appropriate.

Section 604 Sampling Waivers for Categorical Pollutants

604.1 The MHMUA may authorize the Industrial User subject to a categorical Pretreatment Standard to forego sampling of a pollutant regulated by a categorical Pretreatment Standard if the Industrial User has demonstrated through sampling and other technical factors that the pollutant is neither present nor expected to be present in the Discharge, or is present only at background levels from intake water and without any increase in the pollutant due to activities of the Industrial User. This authorization is subject to the following conditions:

A. The MHMUA may authorize a waiver where a pollutant is determined to be present solely due to sanitary wastewater discharged from the facility provided that the sanitary wastewater is not regulated by an applicable categorical Standard and otherwise includes no process wastewater.

B. The monitoring waiver is valid only for the duration of the effective period of the Permit or other equivalent individual Service Agreement, but in no case longer than 5 years. The User must submit a new request for the waiver before the waiver can be granted for each subsequent Service Agreement.

C. In making a demonstration that a pollutant is not present, the Industrial User must provide data from at least one sampling of the facility's process wastewater prior to any treatment present at the facility that is representative of all wastewater from all processes. The request for a monitoring waiver must be signed by an Authorized Representative of the User and include the certification statement at Section 604.1.E, below. Non-detectable sample results may only be used as a demonstration that a pollutant is not present if the EPA approved method from 40 CFR Part 136 with the lowest minimum detection level for that pollutant was used in the analysis.

D. Any grant of the monitoring waiver by the MHMUA must be included as a condition in the User's Service Agreement. The reasons supporting the waiver and

any information submitted by the User in its request for the waiver will be maintained by the MHMUA for 5 years after expiration of the waiver.

E. Upon approval of the monitoring waiver and revision of the User's Service Agreement by the MHMUA, the Industrial User must certify on each report with the statement below, that there has been no increase in the pollutant in its wastestream due to activities of the Industrial User:

> Based on my inquiry of the person or persons directly responsible for managing compliance with the Pretreatment Standard for 40 CFR _____ [specify applicable National Pretreatment Standard part(s)], I certify that, to the best of my knowledge and belief, there has been no increase in the level of _____ [list pollutant(s)] in the wastewaters due to the activities at the facility since filing of the last periodic report under Section 602.6 of the Mount Holly MUA Rules and Regulations.

F. In the event that a waived pollutant is found to be present or is expected to be present based on changes that occur in the User's operations, the User must immediately: Comply with the monitoring requirements of Section 602.6 of these Rules and Regulations or other more frequent monitoring requirements imposed by the MHMUA and notify the MHMUA.

G. This provision does not supersede certification processes and requirements established in categorical Pretreatment Standards, except as otherwise specified in the categorical Pretreatment Standard.

Section 701 Pretreatment Facilities

701.1 MHMUA may require an IU or Pretreatment facility to install a device to treat or monitor industrial wastes prior to discharge to MHMUA. Where Pretreatment or construction necessary to control or monitor wastes is required, prior to the issuance of, or as prescribed in the Service Agreement, schematics, detailed plans and specifications, process descriptions and other pertinent data or information relating to such Pretreatment facility or device shall first be filed with the MHMUA. Such filing shall not exempt the Industrial User nor the Pretreatment or flow-control facility from compliance with any applicable code, ordinance, rule, regulation or order of any governmental authority or from these Rules and Regulations. Any subsequent alterations or additions to such Pretreatment or flow-control facilities shall not be made without submission of a new application to the MHMUA and approval of same from the MHMUA. The MHMUA reserves the right to require the plans and specifications submitted to the MHMUA to be prepared and signed by a professional engineer.

701.2 Industrial User flow meters shall be serviced and maintained in accordance with the manufacturer's recommendations at the sole cost of the Industrial User.

701.3 Pretreatment equipment shall be maintained in good working order and operated as efficiently as possible at the sole cost of the Industrial User.

701.4 Whenever it shall be found that a service installation or industrial waste Pretreatment facility is not in compliance with these Rules and Regulations and/or constructed and operated in any other manner than that approved by the MHMUA, service shall be disconnected and removed within thirty (30) days. The service shall not again be supplied until the service installation and industrial waste Pretreatment facility are constructed and operated according to these Rules and Regulations, and all expenses and damages are paid by the Industrial User or its successors or assigns.

701.5 Bypassing the industrial waste Pretreatment facilities shall not be allowed under any circumstances. Any accidental spills, overflows, equipment, or process failures must be reported to the MHMUA immediately.

Section 702 Slug Control Plan

702.1 The MHMUA shall evaluate whether each Significant Industrial User needs a plan or other action to control Slug Discharges. Each Significant Industrial User must be evaluated within one year of being designated a Significant Industrial User. For purposes of this subsection, a Slug Discharge is any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge, which has a reasonable potential to cause interference or pass through, or in any way violate these Rules and Regulations, local limits or permit conditions. The results of such activities shall be available to the Approval Authority upon request. Significant Industrial Users are required to notify MHMUA immediately of any changes at its facility affecting potential for a Slug Discharge. If MHMUA decides that a slug control plan is needed, the plan shall contain, at a minimum, the following elements:

A. A description of discharge practices, including non-routine batch discharges.

B. A description of stored chemicals.

C. Procedures for immediately notifying the MHMUA of any slug discharges, including any discharge that would violate a prohibition under 40 CFR 403.5(b), with procedures for follow-up written notification within five days.

D. If necessary, procedures to prevent adverse impact from accidental spills, including inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site run-off, worker

training, building of containment structures or equipment, measures for containing toxic organic pollutants (including solvents), and/or measures and equipment for emergency response.

Section 703 1% pH Excursion

703.1 Where any User continuously measures the pH of wastewater, the User shall maintain the pH of such wastewater within the range set forth in the applicable effluent limitations, except excursions from the range are permitted subject to the following limitations:

A. No discharge with a pH below 5.0 S.U. or equal to or higher than 12.5 shall be allowed.

B. Where a federal categorical pretreatment standard specifies a pH limit, no excursion shall be allowed unless expressly allowed by the standard itself.

C. The total time during which the pH values are outside the required range of pH values shall not exceed one percent of the time monitored per calendar month (i.e. 7 hours and 12 minutes for 30 days of continuous operation).

D. No individual excursion from the range of pH values shall exceed 60 minutes.

E. For purposes of this section, an "excursion" is an unintentional and temporary incident in which the pH value of discharge wastewater exceeds the range set forth in the applicable effluent limitations.

Section 801 Recordkeeping

801.1 All Industrial Users shall maintain records of all information resulting from any monitoring activities required by this Section, including documentation associated with Best Management Practices. Such records shall include for all samples:

A. The date, exact place, method, and time of sampling and the names of the person or persons taking the samples.

B. The dates analyses were performed.

C. Who performed the analyses.

D. The analytical techniques/methods used.

E. The results of such analyses.

801.2 Industrial Users shall retain records of all monitoring information including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by a permit issued by the MHMUA, records of all data used to complete the application for a permit issued by the MHMUA, and records of monitoring information required by the permit related to the permittee's disposal practices for a period of at least five years, or longer as required by N.J.A.C. 7:14A-20, from the date of the sample, measurement, report, application or record. The MHMUA may at any time extend this period through a written notice, and require that an Industrial User retain all records listed above for a period longer than five years as a result of enforcement action or litigation.

Section 901 Bulk Delivered Wastes

901.1 No Bulk Delivered Wastes shall be discharged into the Treatment Works without the prior approval of the MHMUA. A formal written agreement prepared by the MHMUA may be required, and the MHMUA reserves the right to require in-plant performance testing prior to executing the formal agreement.

901.2 All Bulk Delivered Wastes shall be free of toxic substances and hazardous waste as identified by the statutes, rules and regulations of NJDEP, MHMUA and EPA. If it is determined by the MHMUA that any delivery of Bulk Delivered Wastes contains such substances, the MHMUA at its sole discretion may refuse to accept the wastes.

901.3 If the MHMUA receives Bulk Delivered Wastes which contain any toxic substances or hazardous waste and as a result thereof any personal injury or property damage is caused by same, then the shipper or party who delivers same and originator shall indemnify and save MHMUA harmless for any claims, suits, injuries, death or damages, including costs and expenses thereof.

901.4 The charge for Bulk Delivered Waste treatment shall be in accordance with such schedule(s) as may be developed by the MHMUA and included in the most current edition of the "Schedule of Rates for Furnishing Sanitary Sewerage Service".

901.5 All Bulk Delivered Waste must be delivered to discharge points designated by the MHMUA and only in accordance with MHMUA procedures.

PART III

Section 1001 Enforcement Response Plan

Enforcement actions shall be taken in accordance with the following:

UNAUTHORIZED DISCHARGES

NONCOMPLIANCE	NATURE OF THE VIOLATION	ENFORCEMENT RESPONSES	TIME FRAME	PERSONNEL	TYPE OF VIOLATIONS & GRACE PERIOD
1. Discharge without a permit (Permit required)	No harm to POTW environment	NOV with application form, if needed	60 days	Executive director	Non-minor
	Harm to POTW/environment (IU meets SNC criteria under 40 CFR 403.8(f)(2)(vii)	Take action to halt activity	2 days	Executive director	Non-minor
	Noncompliance with order to submit application	Seek penalty	6 months	Executive director	Non-minor
2. Failure to renew	Failure to submit application prior to 180 days of expiration of current permit	NOV	60 days	Executive director	Non-minor
	Failure to apply continues after notice by the POTW	Seek penalty	6 months	Executive director	Non-minor
3. Discharge outside scope of application/permit	Failure to notify in advance of new introductions of pollutants or significant change in existing pollutants	NOV with permit application to be modified	60 days	Executive director	Non-minor

DISCHARGE LIMIT VIOLATION

NONCOMPLIANCE	NATURE OF THE VIOLATION	ENFORCEMENT RESPONSES	TIME FRAME	PERSONNEL	TYPE OF VIOLATIONS & GRACE PERIOD
1. Exceedance of local or Federal standard (permit limit)	Individual or monthly non-serious violation	NOV; compliance response/corrective action plan, if needed	60 days from receipt	Executive director	Non-minor
	Serious violation (individual or monthly)	NOV; Seek at least a mandatory minimum penalty in accordance with N.J.A.C. 7:14-8.16	NOV – 60 days Penalty - 6 months	Executive director	Non-minor
2. Exceedance of local or Federal standard (permit limit) (continued)	Significant Noncompliance (IU meets SNC criteria under 40 CFR Part 403)	Public notice	Annually, but no later than 60 days after 403 annual report submitted to NJDEP.	Executive director	Non-minor
	Significant noncompliance (IU meets SNC criteria in NJWPCA, under N.J.S.A. 58:10A-3.w.)	NOV; Seek at least a mandatory minimum penalty in accordance with N.J.A.C. 7:14-8.16	NOV – 60 days Penalty - 6 months	Executive director	Non-minor

MONITORING AND REPORTING VIOLATIONS

NONCOMPLIANCE	NATURE OF THE VIOLATION	ENFORCEMENT RESPONSES	TIME FRAME	PERSONNEL	TYPE OF VIOLATIONS & GRACE PERIOD
1. Reporting violation	Late, 5 or more days after due date (but complete)	NOV, seek penalty, including at least mandatory minimum penalty for overdue effluent parameter information, if any, in accordance with N.J.A.C. 7:14-8.9 (note: Penalty waived if complete report is received within 10 days of receipt of the NOV)	6 months	Executive director	Non-minor
	Late 31 days or more after due date (but complete)	Public notice, NOV, and seek penalty, including at least mandatory minimum penalty for overdue effluent parameter information, if any, in accordance with N.J.A.C. 7:14-8.9 (note: Penalty waived if complete report is received within 10 days of receipt of the NOV)	Public notice in accordance with approved program Penalty within 6 months	Executive director	Non-minor
	Incomplete for effluent parameter omission	Seek at least a mandatory minimum penalty in accordance with N.J.A.C. 7:14-8.9	6 months	Executive director	Non-minor
	Incomplete for data omission (IU meets SNC criteria under 40 CFR Part 403)	Public notice	Annually	Executive director	Non-minor
	Incomplete for other omission (IU meets SNC criteria under NJWPCA)	Public notice and seek penalty, including at least mandatory minimum penalty in accordance with N.J.A.C. 7:14-8.16	Public notice in accordance with approved program Penalty within 6 months		Non-minor

MONITORING AND REPORTING VIOLATIONS (CONTINUED)

NONCOMPLIANCE	NATURE OF THE VIOLATION	ENFORCEMENT RESPONSES	TIME FRAME	PERSONNEL	TYPE OF VIOLATIONS & GRACE PERIOD
	Incomplete for effluent parameter omission (IU meets SNC criteria under NJWPCA)	Public notice and seek at least a mandatory minimum penalty in accordance with N.J.A.C. 7:14-8.9 and N.J.A.C. 7:14-8.16(a)	Public notice in accordance with approved program Penalty within 6 months	Executive director	Non-minor
	Incomplete for other omissions	NOV	60 days	Executive director	Minor – 10 days
	Falsification	Seek penalty or refer to county prosecutor	60 days	Executive director	Non-minor
	Tampering with or rendering inaccurate, sampling or monitoring equipment	Seek penalty or refer to county prosecutor	60 days	Executive director	Non-minor
2. Failure to adhere to compliance schedules (in control document, permit, AO/ACO, letter of agreement)	Missed milestone by less than 30 days	NOV, seek penalty (note: penalty may be waived if final compliance is met by due date)	6 months	Executive director	Non-minor
	Missed milestone by more than 30 days (IU meets SNC criteria under 40 CFR Part 403)	NOV, seek penalty, public notice (note: penalty may be waived if final compliance is met by due date)	6 months	Executive director	Non-minor
	Failure to meet final compliance date	NOV, seek penalty	6 months	Executive director	Non-minor

MONITORING AND REPORTING VIOLATIONS (CONTINUED)

NONCOMPLIANCE	NATURE OF THE VIOLATION	ENFORCEMENT RESPONSES	TIME FRAME	PERSONNEL	TYPE OF VIOLATIONS & GRACE PERIOD
3. Failure to notify	Failure to report spill or changed discharge	NOV; seek penalty where necessary	NOV w/in 60 days of discovery; penalty no later than 6 months of discovery	Executive director	Non-minor
4. Failure to monitor correctly	Incorrect sample location, incorrect sample type, incorrect sample collection techniques, or incorrect sample analysis	NOV, with proper resampling, including sample analysis	60 days	Executive director	Non-minor
5. Failure to report additional monitoring	POTW inspection finds additional files	NOV with request to submit additional monitoring data	60 days	Executive director	Non-minor

OTHER VIOLATIONS

NONCOMPLIANCE	NATURE OF THE VIOLATION	ENFORCEMENT RESPONSES	TIME FRAME	PERSONNEL	TYPE OF VIOLATIONS & GRACE PERIOD
1. Wastestreams are diluted to achieve discharge limits	Dilution	NOV, seek penalty	NOV-60 days; penalty-6 months	Executive director	Non-minor
2. Continuing failure to halt or prevent a discharge which caused or causes imminent endangerment to human health, welfare, or the environment or has resulted in the POTW's exercise of its emergency authority under 40 CFR 403.8(f)(1)(vi)(B)	Refusal to discontinue activity upon notification	Take physical (effective) action or seek court order to halt discharge	2 days max.	Executive director	Non-minor
3. Failure to maintain in good working order and properly operate, any facilities or systems of control installed to achieve compliance with the terms and conditions of the permit	Violation of operating requirements	NOV	60 days	Executive director	Non-minor
4. Entry denial	Entry denied or consent withdrawn. Copies of records denied	NOV, seek penalty	6 months	Executive director	Non-minor
5. Inadequate record keeping	POTW inspector finds files incomplete or missing	NOV	60 days	Executive director	Non-minor

Section 1101 Civil and Administrative Remedies

1101.1 Whenever the MHMUA or its agent finds that any User or Person has violated or is violating a Service Agreement, these Rules and Regulations, or any prohibition, limitation or requirement contained therein, it may serve upon such User or Person a written notice stating the nature of the violation and providing a reasonable time for the satisfactory correction thereof.

1101.2 Whenever the MHMUA or its agent finds that any User or Person continues to violate these Rules and Regulations, or any prohibition, limitation or requirement contained herein, it may serve upon such User or Person a written notice stating the nature of the violation, a specific action to be taken to correct the noncompliance and providing a reasonable time for the satisfactory correction thereof.

1101.3 If a User or Person generates a discharge which presents or may present an endangerment to the environment or which threatens to interfere with the operation of MHMUA's Treatment Works, MHMUA may (after providing notice and an opportunity to respond) halt or prevent such discharge. In the event of a violation which reasonably appears to present imminent endangerment to the health and welfare of persons, the environment or the facilities owned and operated by the MHMUA, the MHMUA may order the User or Person to immediately cease and desist such violation. MHMUA may also take action in accordance with Section 1101.6.

1101.4 Whenever the MHMUA or its agent finds that an Industrial User has violated an order or continues to violate these Rules and Regulations, or any prohibition, limitation or requirement contained herein, the Director may issue a Compliance Order (CO) or an Administrative Consent Order (ACO) to the Industrial User responsible for the discharge. The CO or ACO will (1) specify the provision or provisions of the rule, regulation or discharge agreement being violated, (2) cite the action which caused such violation, (3) require compliance with such provision or provisions, and (4) give notice to the person of his right to a hearing on the matters contained in the CO or ACO. The CO or ACO will also contain a specified time period in which sewer service shall be discontinued unless adequate treatment facilities, devices, or other related appurtenances have been installed and are properly operated. The CO or ACO may also contain other such requirements as might be reasonably necessary and appropriate to address the noncompliance, including the installation of pretreatment technology, additional self-monitoring, and management practices. The MHMUA will issue a public notice in accordance with Section 105. The public notice shall announce the length of the comment period, which shall be not less than 30 days, commencing from the date of publication of the public notice. The public notice shall also include a summary statement describing the nature of the violation necessitating the administrative consent order and its terms or conditions; shall specify how additional information on the administrative consent order may be obtained; and shall identify to

whom written comments are to be submitted. At least three days prior to the publication of the public notice, a written notice, containing the same information to be provided in the published notice, shall be mailed to the mayor or chief executive officer of the governing body of the municipality and county in which the violation occurred, and to any other interested persons, including any other governmental agencies. The MHMUA shall consider the written comments received during the comment period prior to final adoption of a CO or ACO. Not later than the date that final action is taken on the proposed CO or ACO, the MHMUA shall notify each person or group having submitted written comments of the main provisions of the approved CO or ACO and respond to the comments received therefrom. The MHMUA, on its own initiative or at the request of any person submitting written comments pursuant to this section of these Rules and Regulations, may hold a public hearing on a proposed CO or ACO, prior to final adoption if the order would establish interim enforcement limits that would relax for more than 24 months discharge limitations established in a discharge agreement or a prior CO or ACO. Public notice for the public hearing to be held pursuant to this rule shall be published not more than 30 days and not less than 15 days prior to the holding of the hearing. The hearing shall be held in the offices of the MHMUA.

1101.5 If a violation is not corrected by timely compliance, the MHMUA or its agent may order any User or Person who causes or allows an unauthorized discharge to show cause before the MHMUA why service should not be terminated or other penalties not imposed. A notice shall be served on the offending party, specifying the time and place of the hearing to be held by the MHMUA and directing the offending party to show cause before the MHMUA why an order should not be entered directing the termination of service. The notice of hearing shall be served personally or by registered or certified mail, at least thirty (30) days prior to the hearing; except in cases of emergency, in the sole discretion of the MHMUA, this time period may be shortened. Service may be made on any agent or officer of a corporation. The MHMUA may, itself, conduct the hearing and take evidence or may designate any of its commissioners or any officer or employee of the MHMUA to:

A. Issue in the name of the MHMUA notices of hearings requesting the attendance and testimony of witnesses and the production of evidence relevant to any matter involved in any such hearings.

B. Take the evidence.

C. Transmit or report of the evidence and hearing, including transcripts/records and any other evidence, together with the recommendations to the MHMUA for action thereon.

At any public hearing, testimony taken before the MHMUA or any person designated by it, must be under oath and recorded either by the hearing officer in a summary

manner or stenographically. In the latter case, the transcript, so recorded, will be made available to any member of the public or any party to the hearing upon payment of the cost therefor.

After the MHMUA has reviewed the evidence, it may issue an order to the party responsible for the discharge, directing that, following a specified time period, sewer service shall be discontinued unless adequate treatment facilities, devices, or other related appurtenances shall have been installed or existing treatment facilities, devices or other related appurtenances are properly operated, and such further orders and directives as are necessary and appropriate given the nature of the violation.

1101.6 Pursuant to NJSA 58:11-56, the MHMUA may seal or close off any connection to the Treatment Works of any User or Person who violates the following conditions of these Rules and Regulations:

A. Misrepresentation in applications submitted to the MHMUA.

B. Failure of a User or Person to factually report the wastewater constituents and characteristics of his discharge.

C. Failure of a User or Person to report significant changes in operations, or wastewater constituents and characteristics.

D. Refusal or withdrawal of reasonable access to the User's or Person's premises for the purpose of inspection, monitoring or review/copying of records.

E. Discharging detrimental wastewater into the tributary collection systems and appurtenances, wastewater treatment facilities or the POTW.

F. Discharging wastewater from any property, facility or structure or for purposes other than described in any application approved by the MHMUA.

G. Neglecting to make or renew deposits, or for nonpayment of any charges accruing under any application to the MHMUA.

H. Making, or refusing to sever, any cross connection between a pipe or fixture carrying metered water, and a pipe or fixture carrying water from any other source.

I. Violations of any Pretreatment Standards.

J. Violations of the provisions of these Rules and Regulations.

K. Any User or Person discharging other than domestic wastewater not in compliance with these Rules and Regulations.

1101.7 Whenever the MHMUA finds that any Person is in violation of any provision of these Rules and Regulations or a Service Agreement issued by the MHMUA or fails to comply with these Rules and Regulations or the Federal Act, the State Act or any applicable rules or regulations regarding same, or who fails to pay a civil administrative penalty in full pursuant to Section 1101.7 (C)(2), or to make a payment pursuant to a payment schedule entered into with MHMUA, the MHMUA may:

A. Issue an order requiring any such Person to comply with Section 1101.4 of these Rules and Regulations; or

B. Bring a civil action in the Superior Court or a court of competent jurisdiction in the county in accordance with N.J.S.A. 58:10A-10(c). Such action may include, singly or in combination:

1. A temporary or permanent injunction.

2. Assessment of the violator for the reasonable costs of any investigation, inspection or monitoring survey which led to the establishment of the violation, and for the reasonable costs of preparing and litigating the case under this Section.

3. Assessment of the violator for any reasonable cost incurred by MHMUA in removing, correcting or terminating the adverse effects upon water quality resulting from any unauthorized discharge of pollutants for which the action under this Section may have been brought.

4. Assessment against the violator of compensatory damages for any loss or destruction of wildlife, fish or aquatic life, or other natural resources, and for any other actual damages caused by an unauthorized discharge.

5. Assessment against a violator of the actual amount of any economic benefits accruing to the violator from a violation. Economic benefits may include the amount of any savings realized from avoided capital or noncapital costs resulting from the violation; the return earned or that may be earned on the amount of avoided costs; any benefits accruing to the violator as a result of a competitive market advantage enjoyed by reason of the violation; or any other benefits resulting from the violation. Assessments under (B) (4) of this Section shall be paid to MHMUA, except that compensatory damages shall be paid by specific order of the court to any persons who have been aggrieved by the unauthorized discharge; or,

C. After consultation with a compliance officer designated by the Department[1], issue a civil administrative penalty for any violation of the provisions of N.J.S.A. 58:10A-

[1] NJDEP considers compliance with an approved enforcement response plan equivalent to consultation with NJDEP

1, including a violation of any rule, regulation or Pretreatment Standard adopted by the MHMUA, or assess, by civil administrative order, any costs recoverable pursuant to N.J.S.A. 58:10A-10 (c), including the reasonable costs of investigation and inspection, and preparing and litigating the case before an administrative law judge pursuant to this section, except assessments for compensatory damages and economic benefits. Notice of the penalty or assessments shall be given to the violator in writing by the MHMUA, and payment of the penalty or assessment shall be due and payable, unless a hearing is requested in writing by the violator in accordance with N.J.S.A. 58:10A-10.5 and N.J.A.C. 7:14A-8.4, within 20 days of receipt of notice. If a hearing is requested, the penalty or assessment shall be deemed a contested case and shall be submitted to the Office of Administrative Law for an administrative hearing in accordance with N.J.S.A. 52:14B-9 and 52:14B-10. Upon conclusion of an administrative hearing held pursuant to N.J.S.A. 58:10A-10.5, the administrative law judge shall prepare and transmit a recommended report and decision on the case to the Director and to each party of record, as prescribed in N.J.S.A. 52:14B-10 (c). The Director shall afford each party of record an opportunity to file exceptions, objections and replies thereto, and to present arguments, either orally or in writing, as required by the MHMUA. After reviewing the record of the administrative law judge, and any filings received thereon, but not later than 45 days after receipt of the record and decision, the Director shall adopt, reject, or modify the recommended report and decision. If the Director fails to modify or reject the report within the 45-day period, the decision of the administrative law judge shall be deemed adopted as the final decision of the Director, and the recommended report and decision shall be made a part of the record in the case. For good cause shown, and upon certification by the Director of the Office of Administrative Law and the Director of the MHMUA, the time limits established herein may be extended. A final decision or order of the Director of the MHMUA shall be in writing or stated in the record. A final decision shall include separately stated findings of fact and conclusions of law, based upon the evidence of record at the hearing of the administrative law judge. Findings of fact shall be accompanied by a concise and explicit statement of the underlying facts supporting the findings. A final decision or order may incorporate by reference any or all of the recommendations of the administrative law judge. Parties of record shall be notified either by personal service or by mail of any final decision or order. Upon request, a copy of the decision or order shall be delivered or mailed forthwith by registered or certified mail to each party of record and to a party's attorney of record. A final decision or order shall be effective on the date of delivery or mailing, whichever is sooner, to the party or parties of record, or shall be effective on any date thereafter, as the MHMUA may provide in the decision or order. The date of delivery or mailing shall be stamped on the face of the final decision or order. A final decision or order shall be considered a final agency action, and shall be appealable in the same manner as a final agency action of a State department or agency in accordance with N.J.S.A. 58:10A-10.8.

1. A User or Person who is assessed a civil administrative penalty, or is subject to an assessment levied pursuant to this Section, and fails to contest or to pay the penalty or assessment, or fails to enter into a payment schedule within 30 days of the date that the penalty or assessment is due and owing or has an assessment upheld in whole or in part, shall be subject to the maximum rate of interest permitted by law on the amount of the penalty or assessment from the date that the amount was due and owing. The rate of interest shall be that established by the New Jersey Supreme Court for interest rates on judgments, as set forth in the Rules Governing the Courts of the State of New Jersey.

2. Any User or Person who fails to pay a civil administrative penalty or assessment, in whole or in part, when due and owing, or who fails to agree to a payment schedule therefor, shall be subject to the civil penalty provisions in Section 1101.7.D.

3. A civil administrative penalty or assessment imposed pursuant to a final order:

    a. May be collected or enforced by summary proceeding in a court of competent jurisdiction in accordance with the "penalty enforcement law," (N.J.S.A. 2A:58-1 et seq.); or

    b. Shall constitute a debt of the violator, and the civil administrative penalty may be docketed with the Clerk of the Superior Court, and shall have the same standing as any judgment docketed pursuant to N.J.S.A. 2A:16-1.; or

D. Bring an action for a civil penalty in accordance with N.J.S.A. 58:10A-10(e) whereby any Person who violates these Rules & Regulations or an administrative order issued pursuant to Section 1101.4, or a court order pursuant to Section 1101.7 (B), or who fails to pay a civil administrative penalty in full pursuant to Section 1101.7 (C), or to make a payment pursuant to a payment schedule entered into with MHMUA, shall be subject upon order of a court to a civil penalty not to exceed $50,000.00 per day of such violation, and each day's continuance of the violation shall constitute a separate violation. Any penalty incurred under this subsection may be recovered with costs, and, if applicable, interest charges, in a summary proceeding pursuant to "the penalty enforcement law" (N.J.S.A. 2A:58-1 et seq.). In addition to any civil penalties, costs or interest charges, the Court, in accordance with Section 1101.7(B)(5), may assess against a violator of the amount of any actual economic benefits accruing to the violator from the violation. The Superior Court shall have jurisdiction to enforce the "penalty enforcement law" in conjunction with these Rules & Regulations; or

E. Petition the Attorney General or Burlington County Prosecutor to bring a criminal action in accordance with N.J.S.A. 58:10A-10(f); or

F. Immediately and effectively halt or prevent any discharge to the Treatment Works which reasonably appears to present an imminent endangerment to the health or welfare of persons, or which presents or may present an endangerment to the environment or which threatens to interfere with the operation of the POTW.

The MHMUA shall have discretion to pursue any of the above remedies which it deems appropriate.

1101.8 The Director or his agent shall be authorized to issue a summons for violations of any provision of N.J.S.A. 58:10A-1 *et seq.*, including any MHMUA rule, regulation or Pretreatment Standard if the amount of the civil penalty to be assessed is $5,000 or less. Any summons issued under this Section shall

A. Specify the provision or provisions of the rule, regulation or discharge Service Agreement of which he is in violation

B. Cite the action which caused such violation

C. Require compliance with such provision or provisions

D. Be enforceable, in accordance with the "penalty enforcement law," N.J.S.2A. :58-1 *et seq.* in the Mount Holly Municipal Court.

E. Be signed and issued by any person authorized to enforce the provisions of N.J.S.A. 58:10A-1 *et seq.*

F. Require compliance with such provision or provisions

G. Give notice to the person of his right to a hearing on the matters contained in the summons.

Proceedings before, and appeals from a decision of a municipal court shall be in accordance with the Rules Governing the Court of the State of New Jersey.

Section 1201 Penalty Determination

1201.1 All civil administrative penalty assessments shall be issued in accordance with N.J.A.C. 7:14-8 *et seq.*, which is incorporated by reference into these Rules and Regulations., and shall include any applicable grace period in accordance with section 1204 *et seq.* of these Rules and Regulations.

1201.2 Any Person or User found to have violated an order of the MHMUA, or who willfully or negligently failed to comply with any provisions of these Rules and Regulations, shall be subject to all penalties allowed by law for each offense; specifically, N.J.S.A. 58:10A-1 et seq. and 58:11-55 each day on which a violation shall occur or continue

shall be deemed a separate and distinct offense. In addition to the penalties provided herein, the MHMUA may recover reasonable attorney's fees, court costs, and costs of litigation by appropriate suit at law against the Person or User found to have violated the provisions of these Rules and Regulations.

1201.3 The MHMUA may assess a civil administrative penalty against any indirect discharger of not more than $50,000, for each violation of each provision of the Water Pollution Control Act and for each violation of any rule, Pretreatment Standard, effluent limitation, administrative order or Permit.

1201.4 Each violation of any provision of the Water Pollution Control Act or any rule, Pretreatment Standard, effluent limitation, administrative order or Permit issued by the MHMUA, shall constitute an additional, separate and distinct violation. In addition, the unpermitted discharge of each separate pollutant shall constitute an additional, separate and distinct violation.

1201.5 Each day during which a violation as set forth in Section 1201.4 continues shall constitute an additional, separate and distinct violation. The MHMUA may assess a civil administrative penalty for violations described in this Section as described in 1201.6.

1201.6 To assess a civil administrative penalty pursuant to this Section, the MHMUA shall:

A. Identify the penalty range within the matrix in Section 1201.7 by:

1. Determining the seriousness of the violation pursuant to Section 1201.8 and

2. Determining the conduct of the violator pursuant to Section 1201.9.

B. The penalty shall be assessed at the midpoint of the range within the matrix in Section 1201.7, unless adjusted pursuant to Section 1201.10.

1201.7 The matrix of ranges of penalties is as follows:

SERIOUSNESS

CONDUCT	Major	Moderate	Minor
Major	$10,000-$50,000	$5,000-$25,000	$2,000-$13,000
Moderate	$5,000-$10,000	$2,500-$5,000	$500-$3,000
Minor	$500-$7,500	$500-$2,500	$250-$1,250

1201.8 The MHMUA shall determine the seriousness of the violation as major, moderate or minor as set forth in Section 1201.8 A. through C.

A. Major shall include:

1. Any violation of any effluent limitation that is measured by concentration or mass for any discharge exceeding the effluent limitation as follows:

   a. By more than 50 percent for a hazardous pollutant; or

   b. By more than 100 percent for a non-hazardous pollutant; or

2. Any discharge of a pollutant that has caused imminent endangerment to human health, welfare or to the environment; and /or

3. The greatest violation of a pH effluent range in any one calendar day which violation deviates from the midpoint of the range by more than 50% of the midpoint of the range excluding the excursions specifically excepted by a NJPDES/SIU issued permit under N.J.A.C. 7:14A-1 et seq with continuous pH monitoring; and /or

4. Any other violation not included in Sections 1201.8 A. 1. through 3. which either:

   a. Has caused or has the potential to cause serious harm to human health or the environment; or

   b. Seriously deviates from the requirements of the Water Pollution Control Act or of any rule, Pretreatment Standard, effluent limitation, administrative order or Permit issued pursuant thereto; serious deviation shall include, but not be limited to, those violations that are in complete contravention of the requirement, or if some of the requirement is met, which severely impair or undermine the operation or intent of the requirement.

B. Moderate shall include:

1. Any violation, other than a violation of an effluent limitation identified in Sections 1201.8 B. 2. or 3., which has caused or has the potential to cause substantial harm to human health or the environment; or

2. Any violation of an effluent limitation which is measured by concentration or mass of any discharge exceeding the effluent limitation as follows:

a. By 20 to 50 percent for a hazardous pollutant; or

b. By 40 to 100 percent for a non-hazardous pollutant; or

3. The greatest violation of a pH effluent range in any one calendar day which violation deviates from the midpoint of the range by at least 40 percent but no more than 50 percent of the midpoint of the range excluding the excursions specifically excepted by a NJPDES/SIU issued permit under N.J.A.C. 7:14A-1 et seq with continuous pH monitoring; or

4. Any violation, other than a violation of an effluent limitation identified in Section1201.8 B. 2. or 3., which substantially deviates from the requirements of the Water Pollution Control Act or of any rule, Pretreatment Standard, effluent limitation, administrative order or Permit issued pursuant thereto; substantial deviation shall include, but not be limited to, violations that are in substantial contravention of the requirements or which substantially impair or undermine the operation or intent of the requirement.

C. Minor shall include:

1. Any violation, other than a violation of an effluent limitation identified in Section 1208.1 C. 2. or 3., not included in Section 1208.1 A. or B.; or

2. Any violation of an effluent limitation which is measured by concentration or mass for any discharge exceeding the effluent limitation as follows:

a. By less than 20 percent for a hazardous pollutant; or

b. By less than 40 percent for a non-hazardous pollutant; or

3. The greatest violation of a pH effluent range in any one calendar day which violation deviates from the midpoint of the range by less than 40 percent of the midpoint of the range excluding the excursions specifically excepted by Section 703 of these Rules and Regulations.

1201.9 The MHMUA shall determine the conduct of the violator as major, moderate or minor as follows:

A. Major shall include any intentional, deliberate, purposeful, knowing or willful act or omission by the violator.

B. Moderate shall include any unintentional but foreseeable act or omission by the violator.

C. Minor shall include any other conduct not included in Sections 1201.9 A. or B.

1201.10 The MHMUA may move from the midpoint of the range, to an amount not greater than the maximum amount nor less than the minimum amount in the range, on the basis of the following factors:

A. The compliance history of the violator:

1. No violations of the same effluent limitation and discharge point at all in the two years immediately preceding the pending violation will result in a reduction equal to 25 percent of the midpoint.

2. No serious or fewer than four lesser violations of the same effluent limitation and discharge point in the two years immediately preceding the pending violation will result in a reduction equal to ten percent reduction of the midpoint.

3. One isolated serious violation or four or more lesser violations of the same effluent limitation and discharge point in the two years immediately preceding the date of the pending violation will result in an increase equal to ten percent of the midpoint.

4. Any violation(s) which caused a Person to become or remain in significant noncompliance (State) for two or more isolated serious violations where such violations are of the same effluent limitation and discharge point in the two years immediately preceding the date of the pending violation will result in a 25 percent increase from the midpoint.

B. Where the nature, timing and effectiveness of any measures taken by the violator to mitigate the effects of the violation for which the penalty is being assessed results in compliance within 30 days of receipt of the notice of violation from the MHMUA;

C. Any unusual or extraordinary costs or impacts directly or indirectly imposed on the public or the environment as a result of the violation;

D. Any impacts on the receiving water, including stress upon the aquatic biota, or impairment of receiving water uses, such as for recreational or drinking water supply, resulting from the violation; and/or

E. Other specific circumstances of the violator or violation.

Section 1202 Civil Administrative Penalty for Submitting False or Inaccurate Information

1202.1 The MHMUA may assess a civil administrative penalty pursuant to this Section against each violator who submits inaccurate information or who makes a false statement, representation, or certification in any application, record or other document required to be submitted or maintained, or who falsifies, tampers with or renders inaccurate any monitoring device or method required to be maintained under the Water Pollution Control Act, MHMUA issued Service Agreement or any rule, water quality standard, effluent limitation, administrative order or Permit issued pursuant thereto. Any violation under this section is non-minor and therefore not subject to a grace period.

1202.2 Each day, from the day of submittal by the violator of the false or inaccurate information to the MHMUA to the day of receipt by the MHMUA of a written correction by the violator shall be an additional, separate and distinct violation.

1202.3 The MHMUA shall assess a civil administrative penalty for violations described in this Section based on the conduct of the violator at the midpoint of the following ranges except as adjusted pursuant to Section 1202.5:

A. For each intentional, deliberate, purposeful knowing or willful act or omission by the violator, the civil administrative penalty shall be in an amount up to $50,000 per act or omission;

B. For each other violation not identified pursuant to Section 1202.3(A) for which the violator does not correct the violation within 10 days after becoming aware of the violation, the civil administrative penalty shall be in an amount up to $30,000; and

C. For each other violation not identified pursuant to Section 1202.3(A) for which the violator corrects the violation within 10 days after becoming aware of the violation, the civil administrative penalty shall be in an amount up to $1,000.

1202.4 The MHMUA may assess a penalty against each violator who fails to perform monitoring or sampling or to submit discharge monitoring reports or baseline monitoring reports required by a Service Agreement or administrative order. Each violation, including each parameter that is required to be monitored, sampled and reported and that is not monitored, sampled and reported is an additional, separate and distinct violation. Each day during which a violation continues shall constitute an additional, separate and distinct violation. Except as provided in Section 1301.2, MHMUA shall assess a civil administrative penalty for violations described in this section based on the conduct of the violator at the midpoint of the following ranges except as adjusted pursuant to Section 1202.5:

A. For any intentional, deliberate, purposeful, knowing or willful act or omission by the violator, the civil administrative penalty shall be in an amount up to $50,000;

B. For any unintentional but foreseeable act or omission by the violator, the civil administrative penalty shall be in an amount up to $40,000; or

C. For any other violations the civil administrative penalty shall be in an amount up to $20,000.

Any violation under this section is non-minor and therefore not subject to a grace period.

1202.5 The MHMUA may, in its discretion, adjust the amount determined pursuant to Sections 1202.3 and 1202.4 to assess a civil administrative penalty in an amount no greater than the maximum amount nor less than the minimum amount in the range on the basis of the following factors:

A. The compliance history of the violator;

B. The number, frequency and severity of the violations;

C. The measures taken by the violator to mitigate the effects of the current violation or to prevent future violations;

D. The deterrent effect of the penalty;

E. The cooperation of the violator in correcting the violation, remedying any environmental damage caused by the violation and ensuring that the violation does not reoccur;

F. Any unusual or extraordinary costs or impacts directly or indirectly imposed on the public or the environment as a result of the violation;

G. Any impacts on the receiving water, including stress upon the aquatic biota, or impairment of receiving water uses, such as for recreational or drinking water supply, resulting from the violation; and/or

H. Other specific circumstances of the violator or violation.

Section 1203 Grace period applicability; procedures

1203.1 Each violation identified in the table at Section 1204.4 of these Rules and Regulations by an "M" in the Type of Violation column and for which the conditions at Section 1203.3 below are satisfied, is a minor violation, and is subject to a grace period, the length of which is indicated in the column with the heading Grace Period.

1203.2 Each violation identified in the table at Section 1204.4 of these Rules and Regulations by an "NM" in the Type of Violation column is a non-minor violation and is not subject to a grace period.

1203.3 The MHMUA shall provide a grace period for any violation identified as minor under this section, provided the following conditions are met:

A. The violation is not the result of the purposeful, knowing, reckless or criminally negligent conduct of the Person or User responsible for the violation;

B. The violation poses minimal risk to the public health, safety and natural resources;

C. The violation does not materially and substantially undermine or impair the goals of the regulatory program;

D. The activity or condition constituting the violation is capable of being corrected and compliance achieved within the time prescribed by the MHMUA;

E. The activity or condition constituting the violation has existed for less than 12 months prior to the date of discovery by the MHMUA;

F. In the case of a violation that involves a permit, the Person or User responsible for the violation has not been identified in a previous enforcement action by the MHMUA as responsible for a violation of the same requirement of the same permit within the preceding 12-month period;

G. In the case of a violation that does not involve a permit, the Person or User responsible for the violation has not been notified in a previous enforcement action by the MHMUA as responsible for the same or a substantially similar violation at the same facility within the preceding 12-month period; and

H. In the case of any violation, the Person or User responsible for the violation has not been identified by the MHMUA as responsible for the same or substantially similar violations at any time that reasonably indicate a pattern of illegal conduct and not isolated incidents on the part of the Person or User responsible;

1203.4 For a violation determined to be minor under Section 1203.3 above, the following provisions apply:

A. The MHMUA shall issue a notice of violation to the Person or User responsible for the minor violation that:

1. Identifies the condition or activity that constitutes the violation and the

specific statutory and regulatory provision or other requirement violated; and

2. Specifies that a penalty may be imposed unless the minor violation is corrected and compliance is achieved within the specified grace period.

B. If the Person or User responsible for the minor violation corrects that violation and demonstrates, in accordance with Section 1203.4.C below, that compliance has been achieved within the specified grace period, the MHMUA shall not impose a penalty for the violation.

C. The Person or User responsible for a violation shall submit to the MHMUA, before the end of the specified grace period, written information certified to be true and signed by the Person or User responsible for the minor violation, detailing the corrective action taken or compliance achieved.

D. If the Person or User responsible for the minor violation seeks additional time beyond the specified grace period to achieve compliance, the Person or User shall request an extension of the specified grace period. The request shall be made in writing, be certified to be true and signed by the Person or User responsible for the minor violation, and received by the MHMUA no later than one week before the end of the specified grace period. The request shall include the anticipated time needed to achieve compliance, the specific cause or causes of the delay, and any measures taken or to be taken to minimize the time needed to achieve compliance. The MHMUA may, at its discretion, approve in writing an extension, which shall not exceed 90 days, to accommodate the anticipated delay in achieving compliance. In exercising its discretion to approve a request for an extension, the MHMUA may consider the following:

1. Whether the violator has taken reasonable measures to achieve compliance in a timely manner;

2. Whether the delay has been caused by circumstances beyond the control of the violator;

3. Whether the delay will pose a risk to the public health, safety and natural resources; and

4. Whether the delay will materially or substantially undermine or impair the goals of the regulatory program.

E. If the Person or User responsible for the minor violation fails to demonstrate to the MHMUA that the violation has been corrected and compliance achieved within the specified grace period or within the approved extension, if any, the MHMUA may, in accordance with the provisions of this chapter, impose a penalty that is

retroactive to the date the notice of violation under Section 1203.4.A above was issued.

F. The Person or User responsible for a minor violation shall not request more than one extension of a grace period specified in a notice of violation.

Section 1204 Table of minor and non-minor violations; grace periods

1204.1 Table 1 (of this Section) identifies particular violations of these Rules and Regulations as minor or non-minor for purposes of a grace period, and identify the duration of the grace period for minor violations. The descriptions of the violations set forth in the tables in this section are provided for informational purposes only. In the event that there is a conflict between a violation description in Table 1 and the Rule to which the violation description corresponds, the Rule shall govern.

1204.2 MHMUA may assess a civil administrative penalty for a violation of these Rules and Regulations, and/or for a violation of any rule, consent agreement or administrative order adopted or issued pursuant thereto, that is not listed in Table 1 following the procedure under Section 1204.3 below.

1204.3 For violations not listed in Table 1, the MHMUA shall determine whether the violation is a minor violation and subject to a grace period or whether the violation is non-minor and not subject to a grace period as follows:

A. If, pursuant to Section 1204.4 below, the violation is comparable to a violation listed in Table 1 and the comparable violation in Table 1 is minor, then the violation under this section is also minor, provided the criteria at Section 1203.3 *et seq*. are also met. The minor violation shall be subject to the grace period set forth in Table 1 for the comparable violation.

B. If the violation is not comparable to a violation listed in Table 1 and the violation meets all of the criteria at Section 1203.3 *et seq.*, then the violation under this section is minor. The minor violation shall be subject to a grace period of 30 days.

C. If, pursuant to Section 1204.4 below, the violation is comparable to a violation listed in Table 1 and the comparable violation in Table 1 is non-minor, then the violation under this section is also non-minor and the penalty shall be assessed in accordance with Section 1201 of these Rules and Regulations.

D. If the violation is not comparable to a violation listed in Table 1 and the violation does not meet the requirements of Section 1203.3 above, the violation is non-minor and the penalty shall be assessed in accordance with Section 1201 of these Rules and Regulations.

1204.4 Comparability of a violation under Section 1204.3 above with a violation listed in Table 1 is based upon the nature of the violation (for example, a violation of recordkeeping, permit limitation, or monitoring).

Table 1

Rule Citation	Description of Violation	Type of Violation	Grace Period
106.1	Failure to allow inspection of facilities, equipment, practices, operations or to allow, sampling or copying records	Non minor	
106.2	Failure to allow inspection or sampling	Non minor	
106.3	Failure to provide access to all facilities connected to MHMUA's DTW	Non minor	
201.1	Discharging without first filing application	Non minor	
201.3	Failure of property Owner or his duly authorized agent to sign application	Minor	30 days
201.5	Failure to pay connection fee	Non minor	
201.6.N	Connecting prohibited fixtures	Non minor	
201.6.O	Discharging prohibited waste	Non minor	
201.8	Failure to include required information on application form	Non minor	
201.9	Failure to submit supporting documentation with application	Non minor	
501.1	Discharging other than domestic waste without Service Agreement	Non minor	
501.3	Failure to file S-1NR for changes	Non minor	
501.4	Failure to file S-1NR for renewal	Non minor	
501.11	Failure to notify of significant change in production level	Non minor	
601.1	Failure to notify of hazardous waste	Non minor	
601.2	Failure to notify of an injurious exceedence	Non minor	
601.3	Failure to notify of a slug load	Non minor	
601.4	Failure to notify of a violation	Non minor	
601.5	Failure to notify of a serious violation	Non minor	
601.6	Failure to notify of an unanticipated bypass	Non minor	
601.7	Failure to notify of an upset	Non minor	
602.1	Failure to submit baseline monitoring report	Non minor	
602.2.B	Failure to submit compliance schedule progress report	Non minor	
602.3	Failure to submit continuing compliance report	Non minor	
602.6	Failure to submit monthly monitoring report, pollution prevention alternative or best management practice documentation	Non minor	
602.7	Failure to submit monthly monitoring report	Non minor	
602.8	Failure of authorized representative to make required	Non minor	

	certification		
602.9	Failure of authorized representative to make required certification	Non minor	
603	Failure to conduct sampling as required	Non minor	
604.1.E	Failure of authorized representative to make required certification	Non minor	
604.1.F	Failure to monitor and notify for waived pollutant when present or expected to be present	Non minor	
701	Failure to operate or maintain pretreatment equipment as required	Non minor	
702.1	Failure to submit a complete slug control plan if required	Non minor	
703.1	Failure to comply with continuous pH monitoring excursion requirements	Non minor	
801.1	Failure to maintain records	Non minor	
901	Failure to comply with MHMUA's bulk delivered wastes requirements	Non minor	
1202.1	Submission of false or inaccurate information	Non minor	
1202.4	Failure to Monitor	Non minor	

Section 1301 Mandatory Minimum Penalty Assessments

1301.1 Notwithstanding the provisions of Section 1201.6, the MHMUA shall assess a minimum mandatory civil administrative penalty in an amount:

A. Not less than $1,000 for each serious violation as defined under N.J.A.C. 7:14-8.2; and

B. Not less than $5,000 for each violation that causes a violator to be, or continue to be, a Significant Noncomplier as defined under N.J.A.C. 7:14-8.2.

1301.2 For any User or Person's failure to submit a complete discharge monitoring report, the MHMUA shall assess a minimum mandatory civil administrative penalty of not less than $100.00 for each effluent parameter omitted on a discharge monitoring report, nor greater than $50,000 per month for any one discharge monitoring report, for any discharge monitoring report required to be submitted under N.J.A.C. 7:14-8.9(e).

A. The civil administrative penalty assessed pursuant to Section 1301.2 shall begin to accrue on the fifth day after the date on which the discharge monitoring report was due and shall continue to accrue for at least 30 days if the violation is not corrected.

B. The MHMUA may continue to assess civil administrative penalties for the failure to submit a complete discharge monitoring report beyond the 30-day period referenced in Section 1301.2 (A) until the violation is corrected.

C. To contest a civil administrative penalty assessed pursuant to this Section, a violator shall submit evidence of extenuating circumstances beyond the control of the Permittee, including circumstances that prevented timely submission of a complete discharge monitoring report, or portion thereof, within 30 days after the date on which the effluent parameter information was required to be reported to the MHMUA. If the violator fails to submit the required information within this 30-day period, the violator shall have waived its right to contest the civil administrative penalty in this manner and be barred from doing so.

D. A violator will not be subject to a civil administrative penalty for the inadvertent omission of one or more effluent parameters in a discharge monitoring report if both of the following conditions are met:

1. The violator submits the omitted information to the MHMUA within 10 days after receipt by the violator of notice of the omission; and

2. The violator demonstrates to the satisfaction of the MHMUA that the violation for which the MHMUA assessed the civil administrative penalty was due to an inadvertent omission by the violator of one or more effluent parameters.

Section 1401 Penalty Settlement Provisions

1401.1 The MHMUA may settle any civil administrative penalty assessed pursuant to Sections 1201 and 1202 according to the factors identified in Section 1401.2, as follows:

A. The MHMUA may reduce the civil administrative penalty up to 50 percent, provided that the penalty as reduced is not less than any applicable minimum amount set forth at Sections 1301.1, 1301.2 and 1201.7; and

B. The MHMUA may not reduce the amount of any component of a civil administrative penalty which represents the economic benefit gained by the violator from the violation.

1401.2 In settling a civil administrative penalty, the MHMUA may consider the following:

A. Mitigating or extenuating circumstances not considered in the notice of civil administrative penalty assessment;

B. The implementation by the violator of pollution prevention and/or abatement measures in addition to those minimally required by applicable statute or rule;

C. The implementation by the violator of measures to clean up, reverse or repair environmental damage previously caused by the violation;

D. The full payment by the violator of a specified part of the civil administrative penalty assessed if made within a time period established by the MHMUA in an administrative order and/or a notice of civil administrative penalty assessment and provided that the violator waives the right to request an ad judicatory hearing on the civil administrative penalty; and/or

E. Any other terms or conditions acceptable to the MHMUA.

Section 1501 Affirmative Defense

1501.1 A User or Person may be entitled to an affirmative defense to liability for a mandatory minimum civil administrative penalty assessment for a violation of a discharge limitation occurring as a result of an Upset, an anticipated or unanticipated Bypass, or a testing or laboratory error. A User or Person shall be entitled to an affirmative defense only if, in the determination of the MHMUA, the User or Person satisfies the notification provisions of Sections 601 and 1501 of these Rules and Regulations, as applicable.

1501.2 A User or Person asserting an Upset as an affirmative defense pursuant to this Section, except in the case of an approved maintenance operation, shall notify the MHMUA

within 24 hours of the occurrence, or of becoming aware of the occurrence, and within five days thereof, shall submit written documentation, including properly signed, contemporaneous operating logs, or other relevant evidence on the circumstances of the violation, and demonstrating, as applicable, that:

A. The Upset occurred, including the cause of the Upset and, as necessary, the identity of the Person causing the Upset;

B. The facility was at the time being properly operated;

C. The User or Person submitted notice of the Upset as required pursuant to these Rules and Regulations, or, in the case of an Upset resulting from the performance by the User or Person, the User or Person provided prior notice and received an approval therefore from the MHMUA; and

D. The User or Person complied with any remedial measures required by the MHMUA.

1501.3 A User or Person asserting an unanticipated Bypass as an affirmative defense pursuant to this Section shall notify the MHMUA of the unanticipated Bypass within 24 hours of its occurrence, and, within five days thereof, shall submit documentation, including properly signed, contemporaneous operating logs, or other relevant evidence, on the circumstances of the violation, and demonstrating, that:

A. The unanticipated Bypass occurred, including the circumstances leading to the Bypass;

B. The facility was at the time being properly operated;

C. The User or Person submitted notice of the Bypass as required pursuant to these Rules and Regulations;

D. The User or Person complied with any remedial measures required by the MHMUA;

E. The Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

F. There was no feasible alternative to the Bypass such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of downtime, except that the provisions of this paragraph shall not apply to a Bypass occurring during normal periods of equipment downtime or preventative maintenance if, on the basis of the reasonable engineering judgment of the MHMUA, back-up equipment should have been installed to avoid the need for Bypass.

1501.4 A User or Person may assert an anticipated Bypass as an affirmative defense pursuant to this Section of the Rules and Regulations only if the User or Person provided prior notice to the MHMUA, if possible, at least 10 days prior to the date of the Bypass, and the MHMUA approved the Bypass, and if the User or Person is able to demonstrate that:

A. The Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

B. There was no feasible alternative to the Bypass such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of downtime, except that the provisions of this Section of the Rules and Regulations shall not apply to a Bypass occurring during normal periods of equipment downtime or preventative maintenance if, on the basis of reasonable engineering judgment of the MHMUA, back-up equipment should have been installed to avoid the need for a Bypass.

1501.5 A User or Person asserting a testing or laboratory error as an affirmative defense pursuant to this Section of the Rules and Regulations shall have the burden to demonstrate, to the satisfaction of the MHMUA, that a serious violation involving the exceedance of a discharge limitation was the result of unanticipated test interferences, sample contamination, analytical defects, or procedural deficiencies in sampling or other similar circumstances beyond the control of the User or Person.

1501.6 A determination by the MHMUA on a claim that a violation of an effluent limitation was caused by an Upset, a Bypass or a testing or laboratory error shall be considered final action on the matter for the purposes of the "Administrative Procedures Act," N.J.S.A. 52:14B-1, and shall be subject only to review by a court of competent jurisdiction.

1501.7 A User or Person shall have an affirmative defense in any action brought against it alleging a violation of the prohibitions numbered 1, 3, 7, 8, 11 & 13, in Section 110 of these Rules & Regulations where the User or Person can demonstrate that:

A. It did not know or have reason to know that its discharge, alone or in conjunction with a discharge or discharges from other sources, would cause Pass Through or Interference; and

B.

1. A local limit designed to prevent Pass Through and/or Interference, as the case may be, was developed in accordance with 40 CFR 403.5(c) for each pollutant in the User's or Person’s discharge that caused Pass Through or Interference, and the User or Person was in compliance with each such local limit directly prior to and during the Pass Through or Interference; or

2. If a local limit designed to prevent Pass Through and/or Interference, as the case may be, has not been developed in accordance with 40 CFR 403.5(c) for the pollutant(s) that caused the Pass Through or Interference, the User's or Person's discharge directly prior to and during the Pass Through or Interference did not change substantially in nature or constituents from the User's or Person's prior discharge activity when the POTW was regularly in compliance with the MHMUA's NJPDES permit requirements and, in the case of Interference, applicable requirements for sewage sludge use or disposal.

1501.8 An assertion of an Upset, a Bypass or a testing or laboratory error as an affirmative defense pursuant to this Section of the Rules and Regulations may not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

1501.9 If the MHMUA determines, pursuant to provisions of this Section, that a violation of an effluent limitation was caused by an Upset, a Bypass or a testing or laboratory error, the MHMUA shall waive any mandatory civil administrative penalty required to be assessed pursuant to N.J.S.A. 58:10A-10.1, and the violation shall not be considered a serious violation or violation causing a Person to be designated a Significant Noncomplier (State).

1501.10 Nothing contained in Sections 1501.2 or 1501.3 shall be construed to limit the requirement to report to the MHMUA any exceedance of a discharge limitation that causes injury to persons, or damage to the environment, or poses a threat to human health or the environment, within 2 hours of its occurrence, or of the discharger becoming aware of the occurrence. Within 24 hours thereof, or of an exceedance, or of becoming aware of an exceedance, of an effluent limitation for a toxic pollutant, a discharger shall provide the MHMUA with such additional information on the discharge as may be required, including an estimate of the danger posed by the discharge to the environment, whether the discharge is continuing, and the measures taken, or being taken, to remediate the problem and any damage to the environment, and to avoid a repetition of the problem.

Section 1550 Disbursement of Penalty Monies

1550.1 Of the amount of any penalty assessed and collected pursuant to an action brought by the MHMUA in accordance with N.J.S.A. 58:10A-10, 10% shall be forwarded to the NJDEP and deposited in the Wastewater Treatment Operators' Training Account. The remainder shall be used solely for the MHMUA's enforcement purposes and for upgrading the Treatment Works.

1550.2 Of the penalty amount collected through the issuance of a summons pursuant to

N.J.S.A. 58:10A-10.4, 10% shall be paid to the municipality or municipalities in which the municipal court retains jurisdiction for use for court purposes, with the remainder to be retained by the MHMUA.

Section 1601 Criminal Penalties

1601.1 As used in this subsection, "purposely", "knowingly", "recklessly", and "negligently" shall have the same meaning as defined in N.J.S.A. 2C:2-2.

1601.2 As used in this Section, a significant adverse environmental effect exists when an action or omission of the defendant causes: serious harm or damage to wildlife, freshwater or saltwater fish, any other aquatic or marine life, water fowl, or to their habitats, or to livestock, or agricultural crops; serious harm, or degradation of any ground or surface waters used for drinking, agricultural, navigational, recreational or industrial purposes; or any other serious articulable harm or damage to, or degradation of, the lands or waters of the State, including ocean waters subject to its jurisdiction pursuant to N.J.S.A. 58:10A-47.

1601.3 Any Person who purposely, knowingly, or recklessly violates the State Act or who causes a significant adverse environmental effect, shall, upon conviction, be guilty of the crime of the second degree and shall, notwithstanding the provisions of subsection (a) of N.J.S.A. 2C:43-3, be subject to a fine of not less than $25,000.00 nor more than $250,000.00 per day of violation, or imprisonment, or by both.

1601.4 Any User or Person who purposely, knowingly, or recklessly violates the State Act, including making a false statement, representation, or certification, record or other document filed or required to be maintained under the State Act, or by falsifying, tampering with, or rendering inaccurate any monitoring device or other method required to be maintained under the State Act, or by failing to submit a monitoring report, or any portion thereof, required under the Sate Act, shall upon conviction be guilty of a crime of the third degree and shall, notwithstanding the provisions of subsection b. of N.J.S.A. 2C:43-3, be subject to a fine of not less than $5,000.00 nor more than $75,000.00 per day of violation, or by imprisonment, or both.

1601.5 Any User or Person who negligently violates the State Act, including making a false statement, representation, or certification in any application, record, or other document filed or required to be maintained under the State Act, or by falsifying, tampering with, or rendering inaccurate any monitoring device or method required to be maintained under the State Act, or by failing to submit a discharge monitoring report, or any portion thereof, required under the State Act, shall, upon completion, be guilty of a crime of the fourth degree, and shall, notwithstanding the provisions of subsection b. of N.J.S.A. 2C:43-3, be subject to a fine of not less than $5,000.00 nor more than $50,000.00 per day of violation, or by imprisonment, or by both.

1601.6 Any User or Person who purposely or knowingly violates an effluent limitation or other condition of a permit, or who discharges without a permit, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, as defined in subsection b. of N.J.S.A. 2C:11-1, shall, upon conviction, be guilty of a crime in the first degree, and shall, notwithstanding the provisions of subsection a. of N.J.S.A. 2C:43-3, be subject to a fine of not less than $50,000.00 nor more than $250,000.00, or, in the case of a corporation, a fine of not less than $200,000.00 nor more than $1,000,000.00 or by imprisonment, or by both.

1601.7 Any User or Person who knowingly makes any false statement, representation or certification in any application, record, report, plant or other document filed or required to be maintained pursuant to these Rules and Regulations, or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or sampling equipment required under these Rules and Regulations, shall, upon conviction, be punished to the fullest extent allowed by law.

PART IV

Section 2000 GENERAL

Section 2001 Sanitary Sewer Lines

2001.1 The maximum length of any line between manholes shall not exceed three hundred fifty feet (350').

2001.2 A manhole shall be constructed at any point where the line is intersected or changes either in direction, grade or size. No curved lines shall be allowed.

2001.3 A drop manhole shall be constructed when the invert of the influent and effluent lines of the manhole differs by twenty-four inches (24") or greater. Drop manholes shall be utilized only when absolutely necessary and with prior approval from the MHMUA. The MHMUA may limit the number of drop manholes and their locations.

2001.4 Force mains shall not be tied directly into a gravity manhole. A collector manhole shall be constructed adjacent to the gravity manhole and the force main terminated in this collector manhole. The effluent from the collector manhole will flow by gravity into the manhole that is part of the gravity system.

2001.5 Sanitary sewer mains shall not be installed under either curbs or sidewalks. No underdrains, conduits and/or cables of any nature shall be installed in the same trench with sanitary sewerage.

2001.6 Ductile iron pipe shall be used:

A. When either a sanitary main or lateral connection is installed at a depth of cover less than thirty-six inches (36"). However, no piping will be installed with a depth of cover less than thirty inches (30"). If less than thirty inches (30”) cover is available, then written approval must be obtained from the MHMUA for the piping installation.

B. When the depth of cover over either a sanitary main or lateral is greater than twenty feet (20'). The use of PVC pipe at depths of cover greater than twenty feet (20') is prohibited.

C. At all stream crossings or along any streams when the distance to the embankment is less than ten feet (10'). All sanitary mains or laterals extending across any stream shall have at least thirty-six inches (36") of cover and be encased

in minimum six inches (6") of concrete.

D. At crossings of sewer mains/laterals and:

1. Water Mains: Sewers and water mains generally shall be separated, a distance of at least ten feet (10') horizontally. If such separation is not possible, the pipes shall be in separate trenches with the sewer at least eighteen inches (18") below the bottom of the water main; or such other separation as approved by the MHMUA and NJDEP shall be made. In general, the vertical separation at a crossing of sewer and water line shall be at least eighteen inches (18"). Where this not possible, the sewer shall be constructed of ductile iron pipe using mechanical or push on joints for a distance of at least ten feet (10') on both sides of the crossing or other suitable protection shall be provided.

2. All Piping and Utilities: Provide twelve-inch (12") minimum vertical clearance between sewer mains/laterals and other piping or utilities crossing either above or below. If other piping or utilities cross twelve to eighteen inches above the sewer mains/laterals, support the top piping or utility with concrete cradles (see Detail Sheet No. 1).

3. A minimum of twelve-inch (12") clearance shall be maintained between the outside surface of sewer mains/laterals and outside surface of other pipes, utilities and structures.

2001.7 Any sewer within one hundred feet (100') of a water supply well or below-grade reservoir shall be of ductile iron, cast iron or other suitable material and shall be properly protected and of completely watertight construction.

2001.8 When a new sanitary line is constructed and tied into an active manhole, the new line shall be plugged. This line shall remain plugged until all testing has been completed on the new sanitary sewer main and all associated lines. This plug shall not be removed without the approval of the MHMUA or their representative.

2001.9 When a new manhole is constructed, the frame and cover shall be installed immediately after the manhole wall installation is completed. The new system shall not be used as an area drain. The area around the manhole shall be graded to prevent inflow from entering through the manhole frame and cover (see Section 2104.1 M).

2001.10 All sanitary sewer lines must be installed in accordance with approved drawings, and all fittings are to be installed at the time the sanitary main is constructed. Saddles and repair clamps are not acceptable on new lines and shall be used only with prior

approval of the MHMUA or their representative, and shall be installed in strict accordance with their instructions. If and when saddles are approved, they shall be of the strap-on type; no bolt-on saddles will be permitted.

2001.11 All sanitary sewer laterals that are scheduled for connection to a specific sewer main must be connected and extended to the right-of-way line prior to performing any acceptance testing on that line.

2001.12 When trenching or boring in or along State, City, Borough, Town, County and/or Township highways, the Contractor shall be governed by the conditions, restrictions and regulations made by the State Highway Department, the County, Municipal and/or the Township Officials. These regulations shall be in addition to those set down in this specification.

Section 2002 Minimum Grades and Velocity of Flow

2002.1 All sewers shall be constructed of materials acceptable to the MHMUA and be designed with such hydraulic slope to result in a mean velocity of not less than two (2) feet per second when flowing either full or half full. This is based on Knutter's or Manning's formula with an N value of 0.013. The slope in feet per 100 feet of sewer shall not be less than the values presented in Table 1.

TABLE 1
MINIMUM PIPE SLOPE PER 100 LINEAR FEET

PIPE DIAMETER	SLOPE IN FEET PER 100 FEET OF SEWER
8″	0.40
8″	0.80 (on terminal sewer main connections)
10″	0.29
12″	0.22
14″	0.17
15″	0.16
16″	0.14
18″	0.12
20″	0.10
21″	0.095
24″	0.080
27″	0.067
30″	0.058
36″	0.046

2002.2 Grades producing velocities in excess of ten (10) feet per second are not recommended. The minimum size of sewer mains shall be 8-inch diameter.

Section 2003 Changes in Pipe Size

2003.1 When a smaller sewer joins a larger one, the invert of the larger sewer should be lowered sufficiently to maintain the same energy gradient. An approximate method for securing these results is to place the 0.8 depth point of both sewers at the same elevation.

Section 2004 Sanitary Force Mains

2004.1 The construction of a sanitary force main is necessary any time a lift station is required. The length of this line is dependent upon the distance to the nearest gravity manhole or wastewater treatment plant. The size of the line is dependent upon the quantity of sewage to be pumped from the lift station to its destination.

2004.2 The pipe and fittings used in the construction of force mains shall be PVC or ductile iron unless prior MHMUA approval is obtained in writing permitting the use of another material.

2004.3 Force mains shall be laid as close as possible to a constant grade. When this is not possible, low and/or high points in the line may result; therefore, manholes must be constructed at these locations. Blow off manholes shall be constructed at the low points while air relief manholes are required at the high points along the main. These units shall be constructed in accordance with Detail Sheets No. 2, 3, 4 and 5.

2004.4 All force main pipe and fittings shall conform to the material specifications included in these Rules and Regulations.

2004.5 Force mains shall be provided with minimum four feet (4') depth of cover.

2004.6 Force main velocities shall not be less than two feet-per-second at normal pumping rates.

2004.7 Thrust blocks shall be installed, or lines shall be rodded, at all bends greater than ten degrees (10^{o}), and at all tees and plugs. This is to prevent movement of the lines or appurtenances under pressure. Joint restraints may be permitted in lieu of thrust blocks upon approval of the MHMUA.

2004.8 Permissible deflection of force main joints shall not exceed the amount recommended by the manufacturer.

2004.9 The following is a list of requirements governing the construction of thrust blocks:

A. All thrust blocks shall be constructed of cast-in-place concrete with a minimum

twenty-eight (28) day compression strength of 4,000 psi.

B. The bearing area of the thrust blocks shall be placed against undisturbed soils, and this area shall be sufficient to prevent any movement when lines are tested and again when they are put into operation. The thrust block size will vary with the size of the line and the soil bearing properties of the soil. In making this calculation, 150 psig shall be used as the internal line pressure. See nomograph on Detail Sheets No. 7 and 8 for determining thrust block size.

1. The nomograph does not apply to vertical down bends. Restraining methods for these bends shall be approved by the MHMUA Engineer.

2004.10 For the protection of the force main, provide a plastic marking tape in accordance with the following description:

A. Plastic marking tape shall be of plastic material with integral wires, foil backing or other means to enable detection by a metal detector when the tape is buried up to three feet (3') deep. The tape shall have the words "SEWER LINE BELOW" in contrasting letters repeated continuously. The tape shall be of a type specifically manufactured for marking and locating underground utilities. The metallic core of the tape shall be encased in a protective jacket or provided with other means to protect it from corrosion.

B. Plastic marking tape shall be placed directly above the force main at a depth of two (2.0) feet below the normal ground elevation. The tape shall be laid flat in a continuous manner without kinks, knots or other irregularities which may interfere with the proper performance of the tape.

2004.11 Before construction commences, Contractor shall submit detailed sketches to the MHMUA Engineer for approval showing the force main depth of cover and dimensions and description of all materials comprising the air relief system.

Section 2005 Inspection and Testing of Sanitary Sewer Systems

2005.1 The MHMUA requires that their representative inspect all sanitary sewer and appurtenances that tie into the system. Inspection shall commence at the moment construction is initiated and shall continue until all construction has been completed and the new sewer construction has been accepted.

2005.2 The developer shall conduct a pre-construction meeting with the MHMUA inspection personnel and the Contractor at least one (1) week prior to commencing construction.

2005.3 At least forty-eight (48) hours in advance of construction the Developer/Contractor shall confirm with the inspection office that work is scheduled to begin. The notification of construction commencement is the direct responsibility of the Developer/Contractor and should they neglect to request same, all work accomplished without inspection shall automatically be considered unacceptable. Extreme care should be taken to avoid this situation since all construction not accessible for complete visual inspection must be reestablished in such a manner as to allow for same before it will be accepted.

2005.4 Items of Inspection during construction may consist of the following:

A. All materials used during construction meet the minimum requirements of the MHMUA and are in accordance with approved drawings.

B. All construction is accomplished in accordance with approved drawings, specifications, rules and regulations.

C. All permits and easements have been obtained prior to initiating construction.

D. Trenches are dug and maintained in accordance with the requirements of these Rules and Regulations.

E. The bedding of pipe and appurtenances is in accordance with that prescribed in these Rules and Regulations.

F. Workmanship in general meets the requirements of the MHMUA and any additional requirements of other interested agencies.

G. All materials used in the construction of sanitary sewage collection or treatment facilities are protected prior to, during and after construction.

H. Care is being exercised during construction to avoid the possibility of any water or other foreign matter entering active sewer lines.

I. All lines are laid at the prescribed grades and are free of foreign material.

J. All joints are made in the prescribed manner for the particular pipe or fittings being used.

K. All force mains shall have exact locations marked on record plans using permanent objects such as building corners, manholes or utility poles as reference points.

L. All lateral construction is in accordance with that prescribed in these Rules and Regulations.

M. All manholes, wet wells, pump stations and appurtenances are constructed in accordance with requirements of these Rules and Regulations.

N. All material used for backfill is acceptable as required by physical location.

O. Proper repair is accomplished on roads that were cut or damaged during construction.

P. Clean up and restoration of area after construction has been completed. This will include anything that is a direct or indirect result of the construction.

Q. During construction, water is not pumped or diverted in such a manner so as to damage surrounding or downstream properties. Excessive damage to trees, shrubs or plant life shall not occur during the construction of sanitary lines or systems.

R. All sanitary sewer construction that ties into the existing sanitary sewage system for which the MHMUA has responsibility is required to meet the minimum requirements of inspection and test as specified by the MHMUA.

2005.5 Although visual inspection is performed by the MHMUA's representative during sanitary sewer construction, additional inspection and testing must be performed prior to their becoming part of the active system. Inspection shall consist of general visual observation of pipe terminations in manholes, backfilling of manhole, rim elevations on manholes, manhole channel construction, sealing and finishing of manholes and general inspection to insure there is no infiltration occurring in the manhole. Preliminary Inspection refers to tests and inspections that are performed prior to the completion of road, curb and sidewalk construction. Final Inspection does not take place until all construction has been completed on a specific section or a complete development. Final Inspection and/or Testing is performed by section or complete development depending upon the manner in which it is/was bonded. Requests for Final Inspection must be submitted in writing by the Developer/ Contractor and must be accompanied by two sets of record plans.

2005.6 Once Final Inspection has been completed and the MHMUA has accepted the new construction, the Performance Bond shall be released for sanitary sewers with the exception of ten percent (10%), which shall be held in escrow as a two-year Maintenance Bond. This sum shall be released in full at the end of that period, providing none of this money was required by the MHMUA to perform maintenance on the subject sanitary system.

2005.7 An Inspector must be present to inspect any repairs performed on a sanitary sewer line, if this line is to be considered acceptable.

Section 2006 Retest and Inspection

2006.1 Retest and inspection shall be performed on sanitary lines at any time when, in the opinion of the MHMUA, the damage inflicted on the sanitary sewer system during construction is of such magnitude that retesting and inspection is deemed necessary.

Section 2007 Product Selection

2007.1 All materials shall be in accordance with the approved drawings and specifications. Any deviations from these documents shall be submitted in writing to the MHMUA for review.

Section 2008 Product Delivery, Storage and Handling

2008.1 Deliver all materials to the job site in their original unopened containers with all labels intact and legible at time of use.

2008.2 Storage of materials shall be provided as follows:

A. Store materials to prevent physical damage.

B. Store pipe and fittings off the ground to prevent dirt and debris from entering.

C. Store flexible gasket materials and joint primer or adhesive compounds, in a cool dry place. Keep rubber gaskets clean, away from oil, grease, excessive heat, and out of the direct rays of the sun.

2008.3 Handling of materials shall include the following:

A. Protect materials during transportation and installation to avoid physical damage.

B. Use extra care in cold weather when flexibility and impact resistance of PVC pipe is reduced.

C. Do not install out-of-round pipe.

D. Unload pipe to prevent abrasion.

E. Do not drag or push pipe when handling or distributing at the project site.

Section 2009 Inspection by Contractor

2009.1 The Contractor shall check PVC pipe for the following information which shall be clearly marked on each pipe section:

A. Pipe type and SDR number;

B. Nominal pipe size;

C. The PVC cell classification (for example 12454-B);

D. Name or trademark or manufacturer; and

E. The ASTM Specification designation.

2009.2 The Contractor shall check PVC fittings for the following markings:

A. The ASTM Specification designation;

B. Manufacturer's name or trademark;

C. Nominal size; and

D. The material designation (for example PVC, PSM).

2009.3 The Contractor shall inspect all pipe and fittings for defects prior to placement in the trench. The pipe and fittings shall be free from visible cracks, holes, foreign inclusions or other injurious defects.

2009.4 Assure that all materials are to the type specified and are not defective. Unmarked pipe or pipe and materials not meeting specified requirements shall be removed from the site as directed by the MHMUA's representative.

Section 2010 Construction Prerequisites

2010.1 Prior to starting construction of a sewer system, the applicant must possess the following:

A. Final approval of S-1/S-1NR, S-2 and/or S-3 application;

B. A set of MHMUA approved drawings and specifications stamped "Approved - General Arrangement"; and

C. A NJDEP sewer main construction permit, if required.

2010.2 Prior to construction, the applicant must have paid all the necessary charges and fees as per the MHMUA's Schedule of Rates for Furnishing Sanitary Sewerage Service.

2010.3 Prior to construction, the applicant must have submitted the necessary bonding to the MHMUA.

2010.4 When easements are necessary, all paperwork must be in order and submitted to the MHMUA before work can start.

2010.5 If road-opening permits are required, the applicant must also obtain these before work can start.

Section 2011 Site Restoration

2011.1 The Contractor shall systematically and thoroughly clean up the work as it progresses, leaving the line of the trench in substantially the same condition as existed prior to performing the work.

2011.2 All unused materials, excess excavations, etc., shall be the property of the MHMUA and shall be removed as the work progresses. Property shall be restored to its condition before construction and clean-up work shall be progressed to the entire satisfaction of the MHMUA.

Section 2100 MATERIALS

2100.1 Prior written approval of the MHMUA is required before any other type of material not specified under Materials Sections 2101, 2102 or 2103 is used.

Section 2101 Ductile Iron Pipe and Fittings

2101.1 Pipe shall conform to AWWA C151 and shall be thickness Class 51 minimum.

2101.2 Joints shall conform to AWWA C111.

2101.3 Fittings shall conform to AWWA C110.

2101.4 When required, flanged piping shall conform to AWWA C115.

2101.5 All ductile iron pipe and fittings shall be provided with a minimum 1 mil. thick bituminous lining. All pipe and fittings shall be provided without cement lining.

Section 2102 Cast Iron Fittings

2102.1 Fittings shall conform to AWWA C110 and be provided with a minimum 1 mil. thick bituminous lining. All fittings shall be provided without cement lining.

Section 2103 PVC Pipe and Fittings

2103.1 Gravity Sewers: PVC pipe and fittings shall conform to the following:

A. ASTM D-3034; SDR 35; Sizes 4" through 15" diameter.

B. ASTM F-679; Sizes 18" through 27" diameter.

C. ASTM F-794; Sizes 18" through 48" diameter; pipe wall construction type to be approved by the MHMUA Engineer.

D. Joint design: ASTM D-3212, Push-On Type Joint using an elastomeric ring gasket. Infiltration shall not exceed 50 gallons-per-inch-diameter-per-mile-per-day.

E. Joint material: Elastomeric ring rubber gasket, ASTM F-477.

F. Joint material Primer/Adhesive: As provided or specified by pipe manufacturer.

2103.2 Pressure Pipe (Only where approved by the MHMUA Engineer) and Gravity Sewers: PVC pipe and fittings shall conform to the following:

A. Coupling shall be an integral part of pipe.

B. Pipe shall have slip-on joints with a rubber ring seal supplied by the pipe manufacturer.

C. Pipe shall conform to either ASTM D-2241, AWWA C-900 or AWWA C-905 and be rated for the following pressure classes:

1. ASTM D-2241:

a. DR-32.5, Pressure Class 125.

b. DR-26, Pressure Class 160.

c. DR-21, Pressure Class 200.

2. AWWA C-900: 4" through 12" diameter:

a. DR-25, Pressure Class 100.

b. DR-18, Pressure Class 150.

c. DR-14, Pressure Class 200.

3. AWWA C-905: 14" through 36" diameter:

a. DR-41, Pressure Class 100.

b. DR-32.5, Pressure Class 125.

c. DR-26, Pressure Class 160.

d. DR-25, Pressure Class 165.

e. DR-21, Pressure Class 200.

f. DR-18, Pressure Class 235.

2103.3 Submittal Requirements for PVC Pipe:

A. Manufacturer's literature and recommendations as follows are to be submitted with the construction plan applications:

1. Manufacturer's descriptive literature for all materials to be used.

2. Pipe manufacturer's recommended method of gasket installation.

B. Certificates as follows are to be submitted prior to construction:

1. Manufacturer's certified letter stating that pipe or joint material ordered meets specified requirements. Letter shall indicate compliance with appropriate ASTM designations listed.

2103.4 PVC piping shall be installed in accordance with the trench details provided on Detail Sheets No. 20 & 21 included as part of these Rules and Regulations.

Section 2104 Manhole Construction – General

2104.1 Construction details for manholes are provided on Detail Sheets No. 2, 3, 4, 5, 9 and 10 included as part of these Rules and Regulations. The general requirements are as follows:

A. Unless otherwise approved, all manholes shall be manufactured of 4000 psi precast concrete in accordance with ASTM C-478.

B. As required by the MHMUA, the Manufacturer/Contractor shall substantiate that the buoyant forces have been overcome by the weight of the manhole.

C. No inside drops shall be permitted on any manholes.

D. All castings shall be set in cement and pointed so as to eliminate any chances of infiltration.

E. All manhole channels shall be constructed of brick and/or concrete to a depth of eighty percent (80%) of the pipe size and the width of the channel must be equal to that of the pipe it is servicing.

F. Ladders shall be installed on the downstream side of the manhole just to the left of the channel, unless the channel configuration prevents safe access. This ladder location in all cases shall be the flat side of the manhole.

G. Ladder rungs shall be a minimum of seven inches (7") from the wall to the ladder centerline from the top of the manhole to the bottom.

H. Ladder rungs shall not protrude in excess of one and one-half inches (1 ½ ") beyond the rung above or below it.

I. The optimum spacing between rungs shall be twelve inches (12"), and in no case shall exceed fourteen inches (14").

J. Unless otherwise approved by the MHMUA Engineer, all ladder rungs shall be fabricated of aluminum conforming to the current American Society for Testing Materials Specification C-478.

K. A pipe terminating in manholes shall be trimmed to within one and one-half inches (1 ½ ") of the manhole wall.

L. Manhole rims shall be set at the base paving elevation and adjusted at a later date prior to installing the surface course. The use of manhole rim extension rings shall be prohibited.

M. Manholes located in unpaved areas shall have the cover raised a minimum of nine inches (9") above the finished grade with fill built up and gradually sloping away from the cover. Manholes located in paved areas shall have the cover raised a minimum of two inches (2") above the finished grade with fill built up and gradually sloping away from the cover.

N. Manufacturer's frame and cover information shall be provided to the MHMUA for each type installed. All lettering on covers shall be raised and two inches (2") long.

O. If requested by the MHMUA, the developer shall provide one (1) spare manhole frame and cover at no cost to the MHMUA for each fifty (50) housing units, or parts thereof, constructed.

P. Each manhole shall be constructed absolutely watertight. Provide infiltration inserts for all newly installed and rehabilitated manholes.

Q. The invert channels shall be smooth and semicircular in shape conforming to the inside of the adjacent sewer section:

1. Changes in direction of flow shall be made with a smooth curve of as large a radius as the size of the manhole will permit.

2. Changes in size and grade of the channels shall be made gradually and evenly.

3. The invert channels shall be formed in the concrete fill above the manhole base.

4. The floor of the manhole outside the channels shall be smooth and shall slope toward the channels not less than one inch (1") per foot nor more than two inches (2") per foot.

R. Terminal manholes shall be positioned at least one half of the way across the lot of the last unit being serviced.

S. The centerline of all incoming gravity sewer mains shall be positioned at least ninety degrees (90^{o}) away from the outgoing gravity sewer main centerline.

Section 2105 Precast Manholes

2105.1 A minimum of eight inches (8") of stone shall be required under all precast manholes or manhole bases.

2105.2 All precast manholes shall be installed with the ladder on the downstream side just to the left of the channel**,** unless the channel configuration prevents safe access.

2105.3 Rubber gaskets are required between each manhole section.

2105.4 Joints between manhole sections and lift holes must be filled with nonshrink grout.

2105.5 All manhole interiors and exteriors shall be coated with two (2) coats of a MHMUA approved epoxy coating. White shall be used on the interior and green shall be used on the exterior.

2105.6 A maximum of four (4) courses of brick (12" total height) shall be used on any manhole. One concrete spacer may be added to suit grade. When a greater number of courses are required to attain the proper grade, another minimum forty-eight inch (48") diameter manhole section shall be installed beneath the proposed brickwork.

2105.7 Flat tops for precast manholes shall be permitted only when prior written approval has been granted.

2105.8 Manholes shall be installed in accordance with Detail Sheets No. 9 & 10 included as part of these Rules and Regulations.

Section 2106 Block Manholes

2106.1 All block manholes must be constructed on a concrete base. This concrete must be eight inches (8") thick for manholes nine feet (9') or less in depth, and twelve inches (12") thick for those with a depth greater than nine feet (9').

2106.2 Double block construction is required for manholes over nine feet (9') in depth below the nine feet (9') level.

2106.3 The complete manhole must be constructed out of barrel block. The cone portion of the manhole must be constructed using the proper block for each course, since the interior must be smooth and void of any protruding edges or corners.

2106.4 The interior of block manholes must have the joints rubbed or the joints pointed.

2106.5 The complete outside of the manhole must be parged to a thickness of one-half inch (1/2") to prevent any infiltration.

2106.6 After parging dries, all manhole interiors and exteriors shall be coated with two (2) coats of a MHMUA approved epoxy coating. White shall be used on the interior and green shall be used on the exterior.

2106.7 The downstream side of the manhole must be vertical (flat side), and the ladder must be installed on this side just to the left of the channel, unless the channel configuration prevents safe access.

2106.8 Mortar shall be a ratio of 1:2 cement-sand mortar mix.

Section 2107 Laterals

2107.1 All laterals are to be connected to the main by means of a wye connection only. The standard lateral connection shall be six inches (6"). When larger pipe sizes are desired for service laterals, prior written approval shall be required before they are scheduled for installation. All service laterals shall be laid with the same care prescribed in sewer mains, which includes stoning of the trench bottom when necessary to obtain a stable base under the pipe.

2107.2 No lateral shall be connected directly to a manhole. The lateral must be a minimum distance of five feet (5') downstream of the manhole.

2107.3 The standard sewer service lateral shall be constructed of PVC SDR-35, Ductile Iron or a combination thereof. If the owner or builder desires to use pipe of a material other than that listed above, he must obtain prior written approval.

2107.4 For new housing developments, the standard sewer lateral shall be constructed of six-inch (6") pipe from the sewer main to the cleanout, and four-inch (4") pipe from the cleanout to the building. The Developer/Contractor must supply the lateral stub from the cleanout to the right-of-way line. For laterals not in a new housing development, the owner is responsible for installing the lateral in accordance with the above requirement for new housing developments. Buildings other than single-family-residential shall be required to maintain a minimum six-inch 6" lateral to the building, whether existing or new.

2107.5 All sanitary sewer laterals shall be installed at a minimum grade of one-quarter inch (1/4") per foot, unless otherwise approved by the MHMUA Engineer. However, in no instance shall the laterals be installed at a grade less than one-eighth inch (1/8") per foot.

2107.6 All laterals shall be installed at a constant grade and in a straight line. There shall be a cleanout constructed two feet (2') behind the curbline or at the right-of-way line. Cleanouts are required at any point where it is necessary to change the direction of the lateral. Cleanouts are required every seventy-five feet (75') on long laterals. The

cleanouts shall be 6" in diameter. For cleanout and lateral construction details, see Detail Sheets No. 11 and 12.

2107.7 When a deep cut lateral connection is required, it must be provided in accordance with Detail Sheet No. 12.

2107.8 When a lateral cleanout in a paved area is required, it must be provided in accordance with Detail Sheet No. 12.

2107.9 Minimum depth for a sanitary sewer lateral is thirty-six inches (36") unless otherwise approved by the MHMUA Engineer. However, in no instance will the depth of cover be less than thirty inches (30"). If less than thirty inches (30") cover is available, then written approval must be obtained from the MHMUA for the piping installation.

Section 2108 Lateral Connection to and Disconnection from Existing Sewers

2108.1 Connections of the saddle type installed in the main sewer line shall be made in a smooth, round hole, machine-drilled into the top quarter of the main sewer pipe. The saddle shall be a CB Sewer Saddle as manufactured by Romac Industries, Inc., Bothell, WA, or approved equal.

A. The core shall be retained and presented to the MHMUA inspector at the time of inspection.

B. The fitting should be such to insure that no protrusion of the fitting into the main sewer pipe shall result. The fitting shall conform to the contour of the sanitary sewer and shall be one that is specifically designed to fit the particular size main sewer pipe into which the connection is made.

C. The machine-drilled hole shall be of such size to provide one-eighth (1/8") space between the shoulder of the fitting and the face of the main sewer pipe when installing.

D. Any voids created by the Contractor/Plumber in constructing lateral connections to existing sanitary sewer mains shall be unacceptable. The use of any joint material to fill such voids shall be prohibited.

E. Should the existing sanitary sewer main be found to be damaged where the tapping of the main is to take place, or should a proper lateral saddle connection not be achieved, or should there be voids created in making the lateral connection, then the Contractor/Plumber in the presence of the MHMUA inspector, shall replace a section of the sanitary sewer main and provide a wye connection for the lateral.

2108.2 Prior to the demolition of any building serviced by the MHMUA, the lateral must be cut and capped, or plugged. The MHMUA will notify the appropriate township that its requirements for demolition have been satisfied once the following conditions are met:

A. The Owner shall notify the MHMUA (609-267-1110) at least twenty-four (24) hours in advance of the sewer service lateral disconnection work.

B. Service lateral connections must be cut and permanently capped, or sealed at a location to be determined by the MHMUA, at the time of application for termination of sewer service.

1. A plastic cap shall be installed on the terminal end of plastic sewer lines using plastic cement or PVC glue; or

2. One linear foot of concrete shall be installed inside the terminal end of the following types of pipe: ACP, VCP, cast iron, ductile iron or orangeburg.

C. An application fee of $60.00 must be paid to the MHMUA along with a completed MHMUA "Application for Termination of Sewer Service Prior to Demolition of a Structure". A sketch of the proposed service lateral termination must accompany this application.

D. It is the Owner's responsibility to notify the township in which the property is located, in order to obtain authorization to demolish the structure. The Township cannot allow demolition until the MHMUA's requirements have been met. Contact phone numbers for the six (6) townships serviced by the MHMUA are as follows:

1. Mount Holly Township Construction Office: 609-267-6633;

2. Lumberton Township Construction Office: 609-267-3217;

3. Hainesport Township Construction Office: 609-267-2730;

4. Eastampton Township Construction Office: 609-267-5723;

5. Westampton Township Construction Office: 609-267-1891; and

00000 6. Moorestown Township Construction Office: 609-235-0912.

2108.3 Replacement laterals shall be six inches (6″) in diameter from an existing sewer main to the cleanout located behind the curb or at the right-of-way. The cleanout riser shall be six inches (6″) in diameter.

Section 2109 Inverted Siphons

2109.1 Inverted siphons shall be of ductile iron or other MHMUA approved material and shall have not less than two (2) barrels.

2109.2 Provision for cleaning the barrels shall be provided.

2109.3 When possible, a pipe velocity of 3.0 feet per second during average daily flow shall be provided.

2109.4 Minimum pipe diameters shall be as approved by the MHMUA Engineer.

2109.5 Inverted siphons shall be permitted only by MHMUA prior approval and only if no other feasible alternative exists.

Section 2200 PUMPING STATIONS

Section 2201 General Requirements

2201.1 Unless otherwise approved by the MHMUA, pump stations shall be the underground concrete wet well type using submersible pumps.

2201.2 All gates, electrical and control panels, valve pits, etc. shall be pad locked with keyed alike locks, unless otherwise approved. MHMUA shall provide the lock number.

2201.3 At least two (2) pumps shall be provided at each pump station. All pumps shall be designed for at least 2.5 times the expected average daily flow for ten (10) years hence. Pumps shall be designed to overcome the total static and ultimate dynamic head conditions of the force main, both when the ultimate system flow is being discharged and when the proposed pump station is the only station operating. Minimum pump capacity shall be 100 gpm and shall also depend on the size of the station.

2201.4 Pump stations shall be provided as one of the following systems:

A. Two Pump System:

1. One pump shall be considered a standby for the other.

2. Both pumps shall be the same capacity.

3. The pump considered as the lead pump shall be alternated on each lead pump start-up.

4. For stations equipped with two pumps, a manual switch shall be provided with the following selections: 1-2, 2-1, Alt.

B. Three Pump System

1. The pumps shall be of such capacity that with any one pump out of service the remaining pumps shall have the capacity to handle the expected maximum flow.

2. Lead pump is selected by a manual switch. The manual switch shall be capable of selecting the lead, lag, second lag, and the pump sequence alternating function.

3. Provisions shall also be included for all of the pumps to operate in parallel,

should the level in the wet well continue to rise above the starting level for the lag and second lag pumps.

2201.5 Pumps shall be capable of passing spheres of at least three inches (3") in diameter, and pump discharge piping shall be at least four inches (4") in diameter.

2201.6 Pump stations shall be located outside the NJDEP 100-year flood fringe area and shall not be subject to flooding. Pump stations shall be accessible by motor vehicles. Easement and property boundary documentation shall be submitted. Property corners shall be set.

2201.7 Provide a minimum 1,000-pound capacity winch with a 2.5 - 4.0 to 1 cranking ratio. The winch and davit (or jib crane) must be sized in accordance with the pump size to be used. Winch shall be electric and provided with its own electric receptacle and an Occupational Safety and Health Administration (OSHA) approved mechanical braking system. A removable, swiveling type davit (or jib crane) shall support the winch. The davit (or jib crane) shall permit the winch to lift either the wet well comminutor or the pumping equipment from the wet well. Winch cable shall be minimum 3/16-inch diameter stainless steel and have sufficient length to reach the bottom of the wet well. The end of the cable shall be furnished with a spring-loaded stainless steel hook. Winch, davit (or jib crane), and supports shall be provided with rust-resistant shop prime and finish coats of paint.

2201.8 Provide 3-phase, four wire, 460/277-volt wye service; or 3-phase, four wire, 240/120-volt delta service with a midpoint ground. Single-phase service will not be accepted. If a dry type transformer is to be installed for 240/120-volt single-phase power, it must have a minimum rating of 6 KVA. Electrical wiring size shall not be downgraded in any run. An individual circuit breaker shall be provided for the following equipment: each pump motor, dehumidifier, heater, convenience receptacle, control circuit, wet well light and wet well blower. In addition, provide at least one spare circuit breaker rated for 20-amps.

2201.9 An emergency power source shall be provided with automatic transfer capability in case of primary power failure. See Section 2207 of these Rules and Regulations.

2201.10 Provide an alarm system that signifies the problem at both the MHMUA treatment plant and at the pump station site. See Section 2206 of these Rules and Regulations.

2201.11 Pump station design shall comply with Occupational Safety and Health Administration standards. Refer to OSHA Section 1910.27 for minimum dimensions of access hatch openings. Refer to OSHA Section 1910.23 for railings.

2201.12 A separate OSHA approved davit (to be approved by the MHMUA) shall be supplied and shall be used to secure the MHMUA provided fall prevention system.

2201.13 The pump station design shall include a complete analysis of buoyant forces. In addition, structural design calculations for all concrete structures and metal support systems shall be submitted. Electrical plans must also be submitted. Also, when a PLC is used, original software and a fully labeled copy of the programming logic on disk shall be submitted.

2201.14 Provide a minimum of seven (7) copies of all shop drawings to the MHMUA prior to manufacture for review.

2201.15 Before the pump station is operational, provide seven (7) copies of the pump station operations and maintenance manual including, but not limited to:

A. Certified pump curves for all raw sewage pumps actually furnished.

B. Record plans of the pumping station (including slab thickness and reinforcing, piping and electrical conduits).

C. Suggested maintenance schedule.

D. Complete and detailed schematics of all electrical systems and controls, including schematic and wiring diagrams for the engine alternator set, automatic transfer switch and an interconnecting diagram showing connections to individual components which constitute the standby power system.

E. Complete and detailed exploded view drawings of all equipment included with the pump station.

F. Written equipment warranties.

2201.16 Pump station operations and maintenance manual shall be bound in 3-ring binders, including a Table of Contents and section dividers to separate the various major components. Each binder shall contain a digital copy of the binder contents. Drawings shall be provided in Tagged Image File (tif) format. All other documents shall be in Portable Document File (pdf) format. Electronic media shall be archival quality compact disk (CD), Memorex "Pro-Gold™ Archival CD-Rs" or approved equal.

2201.17 MHMUA Engineer to perform on-site testing of all equipment including, but not limited to, determining pump capacity. The Contractor and the pump station manufacturer's representative shall be present for the testing.

2201.18 The Applicant shall coordinate progress of the work with utilities and local authorities that require inspection and approval of the work.

2201.19 The pump station and generator manufacturers shall each provide the services of a factory trained representative for a minimum period of eight (8) hours to perform initial start-up of the pump station and generator, and to instruct the MHMUA's operating personnel in the operation and maintenance of the equipment. This instruction time is in addition to any required testing and equipment start-up preparation.

2201.20 The equipment manufacturers shall provide a warranty that guarantees the equipment to be free from defects in material and workmanship for a period up to two (2) years from the date of acceptance by the MHMUA. During the guarantee period, the Contractor/Developer or manufacturer shall provide, without charge, materials for the replacement of all defective parts. In addition, the manufacturer shall provide all labor to replace the following defective components: pumps, pump motors, the structures, valves, flow meter, and ductile iron piping. Unless otherwise instructed, the warranty shall be made out in the MHMUA's name. All updated manufacturers' warranty information shall be transmitted to the MHMUA.

2201.21 All aluminum materials shall be suitably protected against dissimilar materials such as concrete, steel, non-ferrous metals, etc., using neoprene washers, painting or other approved methods.

2201.22 Unless otherwise approved by the MHMUA Engineer all ferrous metal materials that are not hot-dipped galvanized shall receive shop primer and finish coats of paint.

2201.23 All electrical equipment and work shall comply with Fire Underwriter Laboratory's regulations for the location involved and with the National Electric Code.

2201.24 The MHMUA shall be provided with special repair tools and accessories for each pump station. The MHMUA shall be provided with one year's supply of manufacturer's suggested spare parts. The spare parts shall include mechanical seals, O-rings, wear rings, upper bearings and lower bearings. Installation instructions shall be provided with each spare part. Spare parts shall be packed in separate sturdy containers with indelible identification markings.

2201.25 In addition to the above criteria, all pump stations shall meet the New Jersey Department of Environmental Protection Rules and Regulations for the Preparation and Submission of Plans for Sewer Systems and Wastewater Treatment Plants.

2201.26 Safety Grating shall be provided for all wet well and valve vault access hatches.

A. Safety Grating shall be designed to combine covering of the opening, fall-through protection per OSHA Standard 1910.23, and controlled Confined Space Entry per OSHA Standard 1910.146.

B. The Safety Grating shall be made of 6061-T6 aluminum with a minimum ultimate strength of 38,000 psi, and minimum yield strength of 35,000 psi, as per ASTM B221.

C. Safety Grating shall be designed to withstand a minimum live load of 300 pounds per square foot. Deflection shall not exceed $1/150^{th}$ of the span.

D. Grate openings shall be 5" x 5", which will allow for visual inspection, limited maintenance and float adjustments while the safety grate fall through protection is left in place.

E. Design must assure that the fall through protection is in place before the doors can be closed.

F. Each grate shall be provided with an opening arm, which will allow opening of the grate, and shall be equipped with a locking device to prevent unauthorized entry into the confined space.

G. Each grate shall be provided with a permanent hinging system, which shall lock the grate in the ninety degree (90^0) position once opened.

H. Safety Grating shall be coated with an OSHA type safety orange color, promoting visual awareness of the hazard.

I. Safety Grating shall be manufactured by Halliday Products, Orlando, FL, or approved equal.

2201.27 Contractor shall provide the following for a MHMUA provided odor control system:

A. Concrete pad shall be designed to support a HDPE tank. The minimum size of the concrete pad shall be nine feet by nine feet by six inches (9'x9'X6"). Compressive strength of the concrete shall be a minimum of 4000 psi. The size of the tank is to be determined by the MHMUA based on the feed rate required for the pump station. The tank shall provide a minimum of sixty (60) days storage.

B. Provide 1-inch Schedule 80 PVC piping for the water supply for the system.

C. Provide a 2-inch PVC coated steel pipe sleeve for the vendor supplied chemical feed tubing. The PVC coated steel pipe sleeve shall be installed from the concrete pad to the closest influent manhole and shall extend and be capped approximately six inches (6") above the pad.

D. Provide PVC coated steel conduit and wiring as required to install a Ground-Fault

Circuit-Interrupter (GFCI) type convenience duplex outlet, 20-amp, 115-volts at the concrete pad with a TayMac Model No. MX-3200 weatherproof-while-in-use metal cover manufactured by TayMac Corporation, Gilbert, AZ, or approved equal. A breaker shall be installed for this outlet in the pump station control panel and it shall be labeled "Odor Control System."

Section 2202 Wet Well

2202.1 Minimum wet well diameter shall be eight feet (8'). Top of the wet well slab shall be a minimum of nine inches (9") above the finished grade.

2202.2 Unless specified otherwise, concrete wet well construction shall conform to:

A. ASTM C478, Precast Reinforced Concrete Manhole Sections.

B. ASTM C890, Minimum Structural Design Loading For Monolithic or Sectional Precast Concrete Water and Wastewater Structures.

C. ASTM C913, Precast Concrete Water and Wastewater Structures.

D. ASTM C443, Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets (for joint design only).

E. ASTM C923, Resilient Connectors between Reinforced Concrete Manhole Structures and Pipes.

2202.3 There shall be no joint between the base slab and first riser section as these two sections shall be monolithically constructed (cast-in-place simultaneously). Joint material shall be a double row of waterproofing as distributed by Concrete Products Supply Company, E-Z STIK, or approved equal. After installation all wall joint waterproofing material shall be cut flush with the wet well interior wall.

2202.4 The floors of wet wells shall slope at least forty-five degrees (45^{o}) toward pump suctions to prevent solids accumulation.

2202.5 Provide a spotlight above the wet well top slab with a local on/off switch. The spotlight should be mounted on a swinging arm capable of positioning the light over all access hatch openings. Spotlight shall be Dayton Model 2Y653, or approved equal (see Detail Sheet No. 13).

2202.6 All raw sewage shall be passed through a particle shredding Comminutor before pumping unless special pumping equipment approved by the MHMUA is utilized, and shall meet the following requirements:

A. Shafts: The shafts shall be minimum 2 inches (2″) hexagonal 4140 alloy steel, hardened and precision ground for uniformity.

B. Cutters: Single piece cutter cartridges shall be of 4140 alloy steel comprising a plurality of seven (7) tooth cam-shaped cutter elements. This one piece element shall be designed for heavy duty cutting. It shall provide easy assembly with no more than six (6) elements for a twelve inch (12″) chamber. The monolithic cutter cartridge design shall avoid catastrophic cutter stack collapse due to the cracking of one or more cutters. Units using multitudes of individual cutters and spacers are not acceptable.

C. Particle Deflector: A particle deflector shall be attached to the side rails to prevent large particles from bypassing cutter action. Particles are returned for cutting while water is allowed to pass through; thereby, reducing pressure drop.

D. Housing: The housing shall be cast from grade 65-45 ductile iron.

E. Seals and Bearings:

1. Primary Seals: The primary seals shall feature elastomeric members which operate as opposing disk springs when compressed, and at the same time keeping the faces of the two (2) metallic rings together insuring positive sealing. No metal springs shall be used.

2. Labyrinth Rings: The contact-less labyrinth rings shall be supplied to further protect from coarse and fine granular contaminants.

3. Bearings: The bearings shall be oversized deep groove double seal Conrad type. The basic Dynamic Load is 7500 lbs.

F. Re-Tightening: The unit shall not require cutter stack re-tightening as part of a regular maintenance procedure.

G. Mounting Frame: The unit shall be supported by a CF-4000 channel frame in 304 stainless steel. Channel frame shall be mounted to the wall and shall allow the unit to be easily installed and removed without entering the manhole. It shall be designed for direct flow from the gravity sewer pipe into the unit. An overflow bar screen shall be included.

H. Drive and Motor: The unit shall be driven by a direct coupled speed reducer. A flexible coupling shall be used to segregate the reducer from the machine. The reducer shall be rated for twenty-four (24) hours a day high shock service.

1. The motor shall be 3 Hp, 230/460-volts with a submersible explosion-proof enclosure.

2. Shaft Gears: Two (2) counter rotating shafts shall be driven by two (2) heavy-duty spur gears hardened to a Rockwell C of 40 – 45.

I. Electrical Controls:

1. An Automatic Reversing Controller shall be supplied with oil tight controls and overload heater protection. The contents of the controller shall be encased in a NEMA Type 3R rated enclosure fabricated of 14 gage Type 304 stainless steel as manufactured by Hoffman Enclosures, Inc., Anoka, MN, or approved equal.

2. A three position "Hand-Off-Auto" switch shall control the mode of operation. The controller shall sense overload currents indicating a jam condition. The comminutor shall stop, momentarily reverse, and then resume forward position. The controller shall reset if no overloads occur for 30 seconds. The controller shall incorporate a main disconnect switch.

3. A total of two (2) dry contacts for computer interfacing are required, both being 120V digital inputs. A common alarm failure and comminutor status (on-off) shall be the two inputs.

J. All conduit containing power and control cables shall be PVC coated steel conduit.

K. An explosion-proof seal shall be located between the explosion-proof junction box at the wet well and the control panel. Junction boxes installed inside the wet well shall be prohibited.

L. The unit shall be a "Taskmaster Model TM8512" manufactured by Franklin Miller, Inc., West Orange, NJ, or approved equal.

2202.7 Provide railing around all openings as per the requirements in OSHA 1910.23.

2202.8 Provide an access hatch for the wet well based on the following requirements:

A. One large access hatch shall be provided to accommodate removal of the comminutor and pumps. Hatch size shall be as large as can be structurally accommodated in the wet well top slab. Minimum hatch width shall be thirty

inches (30"). Minimum hatch length shall be thirty-six inches (36"). Locating the hatch door hinges on the same side of the opening as the Comminutor guides is not permitted.

B. The hatch door shall be constructed of at least 1/4" thick aluminum diamond plate. Provide a notch in the door for the winch cable.

C. The hatch shall be reinforced with aluminum stiffeners to withstand a minimum live load of 300 pounds per square foot.

D. Channel frames shall be of minimum 1/4" thick standard aluminum sections with an anchor flange around the perimeter. A 1 ½" aluminum drainage coupling shall be located in the channel frame.

E. Each hatch shall be equipped with heavy duty hinges, lifting handle, spring-assisted operators, and automatic hold open arm with release handle, all of stainless steel. In addition, all hardware shall be stainless steel.

F. Two (2) heavy-duty stainless steel safety chains shall be provided on each end of all double leaf doors.

G. The hatch cover shall be mill finished.

H. All metal used in fabricating the access doors shall be either aluminum or stainless steel. All aluminum shall be alloy 6061-T6 or 6063-T6, and all stainless steel shall be AISI Type 316.

I. The access hatch shall be provided with a recessed padlock hasp located in the hatch frame. A hinged lid that is flush with the top surface of the hatch shall cover the recessed padlock area.

J. The access hatch shall also be provided with a Type 316 stainless steel Slam Lock System with a removable key as manufactured by Halliday Products, Orlando, FL; The Bilco Company, New Hanover, CT, or approved equal.

K. Manufacturer shall guarantee against defects in material or workmanship for a period of five (5) years.

L. Safety Grating shall be provided for all access hatches as described in Section 2201.

M. Access hatches shall be manufactured by The Bilco Company, New Hanover, CT; Halliday Products, Orlando, FL; or approved equal.

2202.9 Provide a six inch (6") diameter Schedule 80 PVC stilling well for a Submersible Water Level Sensor as shown on Detail Sheet 23. Stilling well shall be inserted through a core drilled hole in the top concrete slab such that it terminates six inches (6") above the wet well finished floor and twelve inches (12") above the top of the concrete slab. Core opening shall be sealed with link seal. A removable Schedule 80 PVC flange shall be attached to the top of the stilling well such that the Submersible Water Level Sensor can be removed. Provide a seal-tite conduit as shown on Detail Sheet 23. Provide Type 304 stainless steel anchors and hardware spaced twenty-four inches (24") on center. Drill ½ inch diameter holes in the stilling well to allow water to pass into the stilling well. Starting at twelve inches (12") from the bottom of the stilling well, the hole spacing shall be two (2) holes every twelve inches (12"), separated by one-hundred-eighty degrees (180^0), up to the high water level.

2202.10 Provide a "Birdcage" Submersible Water Level Sensor manufactured by Blue Ribbon Sales & Services, Winter Park, FL (Part No. BC001-10-40), or approved equal, based on the following requirements (see Detail Sheet No. 23):

A. The "Birdcage" Submersible Water Level Sensor measures the water level in wet wells and shall consist of a submersible bonded strain gauge Inconel pressure-sensing element, encased in a watertight case with a 316 stainless steel, FM-approved, explosion resistant body. It shall be supplied with forty feet (40') of shielded and vented cable, able to withstand two hundred (200) pounds of tensile strength, allowing the Submersible Water Level Sensor to be suspended directly by its own cable. Additional stainless steel cable support shall be provided as necessary. The device shall operate with a 24 VDC power supply. The output shall be a standard 4-20 maDC control signal, factory set proportional to the selected 0 – 10 psi range of the Submersible Water Level Sensor, and shall have an accuracy of < 0.5% across the temperature band, with a one year stability of <0.2% FSO.

2202.11 Provide two inch (2") diameter minimum PVC drainage piping from the valve vault to the wet well. Piping shall include a p-trap, and an inline duckbill-type check valve by Red Valve Company, Carnegie, PA, or approved equal.

2202.12 Provide watertight connections for all piping installations through concrete structures.

2202.13 Provide high water and low water mechanical float alarms. Alarms shall be activated by use of a non-mercury switch and operate independently of the Submersible Water Level Sensor. Float balls shall be tied into the ADEMCO alarm system. Power shall be from an intrinsically safe system no greater than 24-volts.

2202.14 Provide a blower based on the following:

A. Capable of thirty (30) air changes per hour.

B. Discharges air into the wet well.

C. To be located above ground and a minimum of two feet (2′) away from the wet well.

D. Non-corrosive material to be used for the blower and the blower enclosure.

E. Discharge piping material to be PVC. Piping extends to one foot (1′) above the top of the influent sewer. Piping to be adequately supported every four feet (4').

F. Direct drive.

G. Fan to have terminal box mounted on the exterior for ready wiring.

H. Provisions for manual operation only shall be provided. On/off switch shall be located adjacent to the blower at least eighteen inches (18") higher than the wet well top of slab elevation.

I. Developer's Engineer to specify blower capacity and static pressure. Provide backup calculations.

J. Blower shall be manufactured by The New York Blower Company, Willowbrook, IL, or approved equal.

2202.15 An automatic, corrosion-resistant, FRP, butterfly valve shall be provided on the discharge piping from the blower into the wet well. The valve shall be installed such that it is shut when the blower is off, thus preventing the escape of corrosive wet well gases through the discharge piping into the blower, which could damage the blower components. The valve shall automatically open when the blower is turned on and remain open during blower operation. The valve shall automatically close when the blower is turned off. The butterfly valve shall be located adjacent to the blower enclosure such that it is easily accessible for maintenance.

2202.16 Provide a minimum four-inch (4") diameter Class 53 flanged ductile iron air vent. Air vent discharge to be positioned three feet (3') above the wet well top slab elevation. End of vent to be provided with a gooseneck piping arrangement and stainless steel bird screen. The wet well top slab vent penetration detail shall include provisions for removing the vent piping and providing adequate support. The selected vent diameter shall be based on the selected blower static operating pressure. The interior surface of the ductile iron air vent shall have a minimum 1 mil thick bituminous coating. The exterior surface of the ductile iron air vent shall receive one coat of Sherman Williams Kem Bond HS universal primer and two coats of Sherman Williams Pro Industrial Multi –Surface Acrylic B66-500, or approved equal. The color shall be

Cedar Green SW4072.

2202.17 On the entire interior concrete surface of the precast wet well, the Contractor is to provide two (2) epoxy coatings of Sherman Williams Pro Industrial High Performance Epoxy B67-200 (or PVC liner), White (SW4089) in color; conforming to the painting system manufacturer's recommendations and the following:

A. Concrete shall have cured for a minimum of thirty (30) days.

B. Do not apply coatings when surrounding air temperature as measured in the shade, is below fifty degrees (50º) F and when temperature of surface to be painted is below fifty degrees (50º) F.

C. Do not apply coatings to wet or damp surfaces, during periods of rain, snow, fog, or mist or when relative humidity exceeds eighty-five percent (85%). If dew or condensation is present, delay applying epoxy until surfaces to be painted are dry.

D. Do not apply coatings when it is expected that the air temperature in the shade will drop below fifty degrees (50º) F, or that the relative humidity will exceed eighty-five percent (85%) within eighteen (18) hours after application of paint. Complete each day's painting sufficiently to allow for a minimum of six (6) hours drying time prior to the time of day when condensation will occur.

E. Surface Preparation: Sandblast all surfaces to be coated in accordance with SSPC-SP7 Brush-off Blast Cleaning. Do not leave blast-cleaned surfaces uncoated for more than twenty-four (24) hours.

F. Painting Schedule: Minimum two (2) full coats, minimum twenty (20) mils dry film thickness after application of the last coat. Minimum paint solids volume to be seventy percent (70%).

G. Comply with coating system manufacturer's recommendations for initial coat film thickness, drying time between succeeding coats, and curing time before immersion.

H. Any location where coats of paint have peeled off, bubbled, or cracked shall be considered to be a failure of the paint system. Developer shall make repairs at all points where failures are observed by removing the deteriorated coating, cleaning the surface, and recoating with the same paint system.

2202.18 On the exterior concrete surface of the precast wet well, the Contractor is to provide two (2) coats of a MHMUA approved epoxy coating, green in color.

2202.19 Raw Sewage Piping: Piping to be minimum Class 53 ductile iron conforming to AWWA C-151. Cement lined ductile iron pipe is not permitted. The exterior surface of the piping shall receive one (1) coat of Sherman Williams Kem Bond HS universal primer and two (2) coats of Sherman Williams Pro Industrial High Performance Epoxy B67-200, or approved equal. The color shall be ANSI 70 Gray. Piping shall be capable of withstanding minimum one-hundred-fifty (150) psi pressure. All piping shall be flanged.

2202.20 A spare gallon of each coating color utilized shall be supplied to the MHMUA.

2202.21 All materials inside the wet well shall be aluminum alloy 6061-T6, 6063-T5 or 6063-T6, AISI Type 316 stainless steel, PVC or reinforced fiberglass. This includes the pipe supports, expansion anchors, anchor bolts, nuts and washers.

2202.22 Minimum wet well lead pump operating volume shall be calculated based on the following:

Lead pump operating volume, gal =

$$\frac{\text{Pump rate, gpm @ Hazen Williams C = 100 friction factor [1] by Total Cycle Time, Min.[2]}}{6}$$

[1]For pump stations connected to common force mains, the pump rate utilized shall be with all other pumps on the system operating.

[2]Total Cycle Time (two fill and one pump operating period):

Minimum fifteen (15) minutes for seventy-five (75) horsepower motors and less, and any additional time as recommended by motor manufacturers.

Minimum twenty (20) minutes for greater than seventy-five (75) horsepower motors and any additional time as recommended by motor manufacturers.

For pump stations discharging into a common force main the lead pump operating volume may be reduced if approved by the MHMUA Engineer.

Wet well lead pump operating volume shall not exceed ten (10) minutes retention for one (1) fill period when flow is at the design average daily flow.

2202.23 Lag pump-on level shall be set a minimum of six inches (6") above the lead pump-on level. The Submersible Water Level Sensor high water alarm shall be set a minimum of six inches (6") above the lag pump-on level. The high water mechanical float alarm elevation shall be set below the bottom of the influent pipe and shall be set a minimum of six inches (6") above the Submersible Water Level Sensor high water alarm.

Section 2203 Valve Vault and Piping

2203.1 Provide a valve vault structure capable of housing valves, discharge gauges, flow meter, emergency bypass, etc. As a minimum, the vault inside dimensions shall be 6 feet wide by 7 feet long by 7 feet high (6'x 7'x 7').

2203.2 Provide discharge gauge for each pump. For each pump provide a ball valve followed by a diaphragm seal protector and a gauge (1 per pump). In addition for drainage purposes provide a tee at the low point in the connection between the ball valve and diaphragm seal with a ball valve after the tee. Through the use of this ball valve any liquid in the connection shall drain onto the floor. Each gauge shall be liquid-filled, 4½" in diameter with a two-hundred-seventy degree (270^0) scale and a phenolic case. All gauges shall have a ½" NPT connection. Gauge assemblies shall be of the type that does not contact the waste stream.

A. Discharge Gauges: All gauges shall contain a stainless steel bourdon tube. Each gauge shall be provided with one of the following ranges.

	Pressure, psi
Total Graduation	30/60/100
Figure Intervals	5/10/20
Graduating Marks	1/2/2

The range selected shall be the one shown which exceeds the ultimate pump shutoff head and has the pump total dynamic head at mid-range. Gauges shall be manufactured by WIKA Instrumentation Corporation, Lawrenceville, GA, or approved equal.

B. Diaphragm Seals: Provide ½" process connection with flushing connection, ½" instrument connection AISI Type 316 stainless steel bottom housing and halocarbon filling fluid. Provide AISI Type 316 diaphragm material when the pump first design point discharge pressure is over fifteen (15) psi, and Viton diaphragm material when the pump discharge pressure is fifteen (15) psi and less. All diaphragm seals shall be capable of operating under vacuum conditions. Seals shall be manufactured by Ashcroft or approved equal.

2203.3 Provide a GFCI receptacle on the exterior (near the top) of the valve vault, with a two inch (2") PVC pipe sleeve through the wall of the valve vault for a dehumidifier.

2203.4 Provide an automatically operated dehumidifier, mounted on the vault wall. List the dehumidifier rating on the drawings. The number of pints to be removed per hour, based on eighty degrees (80^0) F and sixty-eight percent (68%) relative humidity, will depend on the size of the valve vault. Condensate from the dehumidifier shall drain to the sump.

2203.5 Raw Sewage Pump Valves and Piping: Piping to be minimum Class 53 ductile iron conforming to AWWA C-151. Cement lined ductile iron pipe is not permitted. Provide both a check valve and plug valve on the discharge side of each pump. All check valves shall be the spring and lever type and shall be in accordance with AWWA standards. Check valves shall be manufactured by Miliken Valve Company, Bethlehem, PA., or approved equal. All plug valves shall be of the tight closing, resilient-faced, non-lubricating variety and shall be of eccentric design such that the valve's pressure member (plug) rises off the body seat contact area immediately upon shaft rotation during the opening movement. Port areas shall be eighty percent (80%) of the adjacent pipe area. Plug valves shall be manufactured by Miliken Valve Company, Bethlehem, PA., or approved equal. The exterior surface of the piping and valves shall receive one (1) coat of Sherman Williams Kem Bond HS universal primer and two (2) coats of Sherman Williams Pro Industrial High Performance Epoxy B67-200, or approved equal. The color shall be ANSI 70 Gray. All piping and valves shall be capable of withstanding minimum one-hundred-fifty (150) psi pressure. All piping and valves shall be flanged.

2203.6 Provide an access hatch for the vault based on the following requirements:

A. One large access hatch shall be provided for personnel access. Hatch size shall be as large as can be structurally accommodated in the valve vault top slab. Minimum hatch width shall be thirty inches (30"). Minimum hatch length shall be thirty-six inches (36"). Locating the hatch door hinges on the same side of the opening as the access ladder is not permitted.

B. The hatch door shall be constructed of a minimum 1/4" thick aluminum diamond plate.

C. The hatch shall be reinforced with aluminum stiffeners to withstand a minimum live load of 300 pounds per square foot.

D. Channel frames shall be of minimum 1/4" thick standard aluminum sections with an anchor flange around the perimeter. A 1½" aluminum drainage coupling shall

be located in the channel frame.

E. Each hatch shall be equipped with heavy duty hinges, lifting handle, spring operators, and automatic hold open arm with release handle, all of stainless steel. In addition, all hardware shall be stainless steel.

F. Two (2) heavy-duty stainless steel safety chains shall be provided on each end of all double leaf doors.

G. The hatch cover shall be mill finished.

H. All metal used in fabricating the access doors shall be either aluminum or stainless steel. All aluminum shall be alloy 6061-T6 or 6063-T6, and all stainless steel shall be AISI Type 316.

I. The access hatch shall be provided with a recessed padlock hasp located in the hatch frame. A hinged lid that is flush with the top surface of the hatch shall cover the recessed padlock area.

J. The access hatch shall be provided with a Type 316 stainless steel Slam Lock System with a removable key as manufactured by Halliday Products, Orlando, FL; The Bilco Company, New Hanover, CT; or approved equal.

K. Manufacturer shall guarantee against defects in material or workmanship for a period of five (5) years.

L. Safety grating shall be provided for all access hatches as described in Section 2201.

M. Access hatches shall be manufactured by The Bilco Company, New Hanover, CT; Halliday Products, Orlando, FL; or approved equal.

2203.7 Provide an aluminum access ladder for the valve vault.

A. All ladder rungs shall be D-shaped with a serrated contact surface. The rungs shall be a minimum of sixteen inches (16") long and spaced on twelve-inch (12") centers. Provide a minimum of seven inches (7") from the wall to the centerline of the rungs. Ladder supports shall be provided on four foot (4') centers. Access ladder and supports shall be aluminum alloy 6061-T6 or 6063-T6.

B. At the top of the ladder provide a removable grab bar system as shown on Detail

Sheet No. 16.

2203.8 On the interior concrete surface of the precast valve vault, the Contractor is to provide two (2) epoxy coatings of Sherman Williams Pro Industrial High Performance Epoxy B67-200, White (SW4089) in color; conforming to the painting system manufacturer's recommendations and the following:

A. Concrete shall have cured for a minimum of thirty (30) days.

B. Do not apply coatings when surrounding air temperature as measured in the shade is below fifty degrees (50^{o}) F, and when the temperature of the surface to be painted is below fifty degrees (50^{o}) F.

C. Do not apply coatings to wet or damp surfaces, during periods of rain, snow, fog, or mist or when relative humidity exceeds eighty-five percent (85%). If dew or condensation is present, delay applying epoxy until surfaces to be painted are dry.

D. Do not apply coatings when it is expected that the air temperature in the shade will drop below fifty degrees (50^{o}) F, or that the relative humidity will exceed eighty-five percent (85%) within eighteen (18) hours after application of paint. Complete each day's painting sufficiently to allow for a minimum of six (6) hours drying time prior to the time of day when condensation will occur.

E. Surface Preparation: Sandblast all surfaces to be coated in accordance with SSPC-SP7 Brush-off Blast Cleaning. Do not leave blast-cleaned surfaces uncoated for more than twenty-four (24) hours.

F. Painting Schedule: Minimum two (2) full coats, minimum twenty (20) mils dry film thickness after application of the last coat. Minimum paint solids volume to be seventy percent (70%).

G. Comply with coating system manufacturer's recommendations for initial coat film thickness, drying time between succeeding coats and curing time before immersion.

H. Any location where coats of paint have peeled off, bubbled, or cracked shall be considered to be a failure of the paint system. Developer shall make repairs at all points where failures are observed by removing the deteriorated coating, cleaning the surface, and recoating with the same paint system.

2203.9 On the exterior concrete surface of the precast valve vault, the Contractor is to provide two (2) coats of a MHMUA approved epoxy coating, green in color.

2203.10 A spare gallon of each coating color utilized shall be supplied to the MHMUA.

Section 2204 Flow Meter

2204.1 The pump station flow meter shall measure flow through the pump's discharge forcemain using electrical magnetic flow detection principles. The pump station flow meter shall be an Optiflux KC 2000 electromagnetic flow meter manufactured by Krohne, Inc., Peabody, MA, or approved equal.

2204.2 The flow meter shall be located in the pump station's valve vault and shall be installed in accordance with the manufacturer's recommendations.

A. Connections: Flow meter shall be flanged for connection to flanged ductile iron pipe connection.

B. Liner: Polyurethane or nitrile (Buna-n), or approved equal.

C. Electrodes: Flush-mount, replaceable, stainless steel (AISI 316 L), or approved equal.

2204.3 The flow meter converter shall be an IFC 100 unit manufactured by Krohne, Inc., Peabody, MA, or approved equal; and shall be compatible for use with the Krohne Optiflux KC 2000 electromagnetic flow meter. At a minimum, "Flow Rate" and "Total Gallons Metered" shall be available for display.

A. Type: Intelligent Microprocessor-based.

B. Mounting: Remote in pump control panel.

C. Power Supply: 120 VAC, 60Hz.

D. Analog Output: 4 – 20 mADC.

2204.4 The flow meter electronics shall have password protection of site set-up information, built-in diagnostics and battery backup to preserve site set-up information from power loss. Flow meter electronics shall retain, at a minimum, the last totalized flow information prior to power loss until normal AC power is restored. Power requirements shall be 110-Volts/60 Hz; 24-Volts DC shall be available as an option.

2204.5 System Accuracy: 0.5% at velocities over 3 feet per second.

2204.6 Installation: The pump station flow meter shall require no calibration other than programming. The flow meter shall require no connection to existing wiring other than the AC power line, input sensors, and output requirements.

Section 2205 Pumping System

2205.1 The raw sewage pumps shall be non-clog submersible of heavy cast iron construction. Specify pump total capacity, total dynamic head and minimum efficiency. Provide backup calculations. Design pump friction losses shall be based on a Hazen-Williams C value of 100. The pump net positive suction head (NPSH) required shall never exceed the NPSH available in the system at the eye of the impeller. The pumps shall be covered by a 5-year (10,000 hour) warranty for Municipal Permanent Installations. The pumps shall be manufactured by ITT Flygt, Trumbull, CT, or approved equal.

I. The pumps shall be automatically and firmly connected to the discharge connection, guided by no less than two guide bars extending from the top of the station to the discharge connection. There shall be no need for personnel to enter the wet well. Sealing of the pumping unit to the discharge connection shall be accomplished by a machined, metal-to-metal watertight contact. Sealing of the discharge interface with a diaphragm, O-ring or profile gasket will not be acceptable. No portion of the pump shall bear directly on the sump floor.

J. Each pump shall be provided with two AISI Type 316 stainless steel (minimum Schedule 40) pipe guide rails along with intermediate supports and guide rail bracket anchored to the wet well top slab. Provide at least one intermediate support for each guide rail system at an elevation as approved by the MHMUA Engineer. The guide rail and support system shall be designed by the manufacturer based on the pump weight.

K. The manufacturer shall provide a cast-iron fitting that shall be permanently mounted in the wet well. The fitting shall cantilever the entire pump volute and motor from the volute discharge flange, providing an unobstructed sump floor under the pump. Supports from the underside of the pump volute or pump suction sump floor shall not be acceptable.

L. The fitting shall include a ninety degree (90^0) cast-iron pipe elbow to connect to the vertical piping, and shall provide mounts for the two guide rails that will guide the pump into position. The pumping units shall automatically and positively mate with the fitting when lowered into place. The pumps shall be removable for inspection or service requiring no bolts, nuts or other fastenings to be disconnected. Sealing of the discharge interface with a diaphragm, O-ring or gasket is not permitted. The pump shall be supported by a watertight,

positive machined metal-to-metal interlocking flange.

M. Sealing design shall incorporate metal-to-metal contact between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile or Viton rubber O-rings. Fittings shall be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides without the requirement of a specific torque limit.

N. Rectangular cross-sectioned gaskets requiring specific torque limits to achieve compression shall not be considered as adequate or equal. No secondary sealing compounds, elliptical O-rings, grease or other devices shall be used.

O. Each pump shall be provided with a Flygt Grip Eye Lifting System, or approved equal. Each Grip Eye Lifting System shall consist of a wrought alloy steel grip eye, three hot-dipped galvanized steel end shackles, three feet (3') of 7/16" Hi-Test hot-dipped galvanized chain, 3/8" diameter AISI Type 316 stainless steel cable looped at each end, and a stainless steel spring loaded hook. One end shackle shall be provided at each end of the chain to join the pump and cable with the chain. The cable shall be of sufficient length to extend from the end of the chain to the spring-loaded hook that is mounted just below the top slab access door frame. Contractor to provide all AISI Type 316 stainless steel appurtenances, bolts and washers to mount the spring loaded hook. No nylon lines shall be permitted. Entire lifting system to be designed by the manufacturer to lift the pump.

P. Each pump shall have a stainless steel nameplate attached to its frame with stainless steel screws. As a minimum the following information shall be displayed on the nameplate:

Q. Manufacturer's name;

R. Model number;

S. Serial number;

T. Rated capacity in gpm;

U. Rated total dynamic head in feet;

V. Pump speed;

W. Bearing information; and

X. Impeller diameter in inches.

Y. Major pump components shall be made of gray cast iron, ASTM A-48, Class 30, with smooth surfaces devoid of blowholes or other irregularities. All exposed nuts or bolts shall be AISI Type 316 stainless steel construction. All metal surfaces coming into contact with the pumpage, other than stainless steel, shall be protected by a factory applied spray coating of alkyd primer with a chlorinated rubber paint finish on the exterior of the pump.

Z. The impellers shall be of gray cast iron, ASTM A-48, Class 30, dynamically balanced, double shrouded non-clogging design having a long through-let without acute turns. The impellers shall be capable of handling solids, fibrous materials, heavy sludge and other matter found in wastewater. Whenever possible, a full vaned, not vortex, impeller shall be used for maximum hydraulic efficiency; thus reducing operating costs. Mass moment of inertia calculations shall be provided by the pump manufacturer upon request. Impellers shall be retained with an allen-head bolt and shall be capable of passing a minimum 3-inch diameter solid. All impellers shall be coated with alkyd resin primer.

AA. A wear ring system shall be used to provide efficient sealing between the volute and suction inlet of the impellers. The wear ring shall be stationary and made of a material suitable for the application with an "interference fit".

BB. Pump volute(s) shall be single-piece gray cast iron, ASTM A-48, Class 30, non-concentric design with smooth passages large enough to pass any solids that may enter the impeller. Minimum inlet and discharge sizes shall be as specified.

CC. All pump motors shall be high efficiency, 460 or 240-volts, 3-phase, 60 hertz, 1,800 rpm maximum. The motor shall have grease lubricated anti-friction bearings of sufficient size to carry all pump thrust loads and have a minimum B-10 life of

one-hundred-thousand (100,000) hours at the first pump design point. Motors shall be fitted with lifting devices, each capable of supporting the entire weight of the pump and motor. Motors shall be explosion-proof.

DD. Motors shall be sufficiently cooled by the surrounding environment or pumped media. A water-cooling jacket is not required.

EE. Each motor shall have a stainless steel nameplate attached to its frame with stainless steel screws. The following information shall be displayed on the nameplate:

FF. Manufacturer's name;

GG. Model number;

HH. Serial number;

II. Frame description;

JJ. Service factor;

KK. Motor speed;

LL. Motor voltage;

MM. Insulation class;

NN. Bearing information;

OO. Motor horsepower; and

PP. Motor amps.

QQ. Motor wiring diagram shall be located either on the nameplate or in the conduit box.

RR. In order to prevent simultaneous starting of all pump motors, provide a delay timer for the lag pump. The design engineer to provide delay timer range and initial setting information in both the shop drawings and Operation/Maintenance literature.

SS. The pump motor shall be induction type with a squirrel cage rotor, shell-type design, housed in an air-filled, watertight chamber, NEMA B type. The stator windings and stator leads shall be insulated with moisture resistant Class F insulation rated for one-hundred-fifty-five degrees (155^0) Centigrade (three-hundred-eleven degrees (311^0) Fahrenheit). The stator shall be dipped and baked three times in Class F varnish and shall be heat-shrink fitted into the stator housing. The use of bolts, pins or other fastening devices requiring penetration of the stator housing is not acceptable. The motor shall be designed for continuous duty handling pumped media of forty degrees (40^0) Centigrade (one-hundred-four degrees (104^0) Fahrenheit), and be capable of up to ten (10) evenly spaced starts per hour. The rotor bars and short circuit rings shall be made of case aluminum. Thermal switches set to open at one-hundred-twenty-five degrees (125^0) Centigrade (two-hundred-sixty degrees (260^0) Fahrenheit), shall be embedded in the stator lead coils to monitor the temperature of each phase winding. These thermal switches shall be used in conjunction with and supplemental to external motor overload protection and shall be connected to the control panel.

TT. All stators shall incorporate thermal switches in series to monitor the temperature of each phase winding. At one-hundred-twenty-five degrees (125^0) Centigrade (two-hundred-sixty degrees (260^0) Fahrenheit), the thermal switches shall open, stop the motor and activate an alarm.

UU. A leakage sensor shall be provided to detect water in the stator chamber. The Float Leakage Sensor (FLS) is a small float switch used to detect the presence of water in the stator chamber. When activated, the FLS will stop the motor and send an alarm both local and/or remote. Use of voltage sensitive solid-state sensors and trip temperature above one-hundred-twenty-five degrees (125^0) Centigrade (two-hundred-sixty degrees (260^0) Fahrenheit) shall not be allowed.

VV. The thermal switches shall be connected to a control status monitoring unit such as a Flygt Mini-CAS, or approved equal. The control status monitoring unit shall be mounted in the control panel.

WW. The pump motor shall be supplied with an automatic motor insulation monitoring device that will activate an alarm if the motor winding resistance

falls to one (1) megohm or less. (See Section 2206.5 (D))

XX. The motor horsepower shall be adequate so that the pump is non-overloading throughout the entire pump performance curve from shut-off through run-out.

YY. Provide a ten-year motor warranty.

ZZ. The cable entry seal design shall preclude specific torque requirements to insure a watertight and submersible seal. The cable entry shall consist of a single cylindrical elastomeric grommet, flanked by washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter and compressed by the body containing a strain relief function, separate from the function of sealing the cable. The assembly shall provide ease of changing the cable when necessary using the same entry seal.

AAA. The junction chamber containing the terminal board shall be hermetically sealed from the motor by an elastomeric O-ring seal. Connection between the cable conductors and stator leads shall be made with threaded compression type binding posts permanently affixed to a terminal board. Wire nuts or crimping type connection devices are not considered equivalent. The motor and pump shall be designed and assembled by the same manufacturer.

BBB. The combined Service Factor (combined effect of voltage, frequency and specific gravity) shall be a minimum of 1.15. The motor shall have a voltage tolerance of plus or minus 10%. The motor shall be designed for operation up to forty degrees (40^0) Centigrade (one-hundred-four degrees (104^0) Fahrenheit) ambient, and with a temperature fuse not to exceed eighty degrees (80^0) Centigrade (one-hundred-seventy-six degrees (176^0) Fahrenheit). A performance chart shall be provided showing curves for torque, current, power factor, input/output kW and efficiency. This chart shall also include data on starting and no-load characteristics.

CCC. The power cable shall be sized according to the National Electrical Code and the Insulated Cable Engineers Association standards and shall be of sufficient length to reach the junction box without the need for any splices. The outer jacket of the cable shall be oil-resistant chloroprene rubber. The motor and cable shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of sixty-five (65) feet.

DDD. All conduit containing power and control cables shall be PVC-coated steel conduit.

EEE. An explosion-proof seal shall be located between the explosion-proof junction box at the wet well and the control panel. Junction boxes installed inside the wet well shall be prohibited.

FFF. The pump shaft shall rotate on two bearings. Motor bearings shall be permanently grease lubricated. The upper bearing shall be a single deep groove ball bearing. The lower bearing shall be a two-row angular contact bearing to compensate for axial thrust and radial forces. Single-row lower bearings are not acceptable.

GGG. Each pump shall be provided with a tandem mechanical shaft seal system consisting of two totally independent seal assemblies. The seals shall operate in an oil reservoir that hydrodynamically lubricates the lapped seal faces at a constant rate. The lower, primary seal unit, located between the pump and the oil chamber, shall contain one stationary and one positively driven rotating tungsten-carbide ring. The upper, secondary seal unit, located between the oil chamber and the motor housing shall contain one stationary ceramic seal ring and one positively driven rotating carbon seal ring. Each seal interface shall be held in contact by its own spring system. The seals shall require neither maintenance nor adjustment nor depend on direction of rotation for sealing. The position of both mechanical seals shall depend on the shaft. Mounting of the lower mechanical seal on the impeller hub will not be acceptable. For special applications, other seal face materials shall be available.

HHH. The following seal types shall not be considered acceptable nor equal to the dual independent seal specified: shaft seals without positively driven rotating members; conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces; cartridge type systems; system requiring a pressure differential to offset pressure and to effect sealing.

III. Each pump shall be provided with an oil chamber for the shaft sealing system. The oil chamber shall be designed to prevent overfilling and to provide oil expansion capacity. The drain and inspection plug, with positive anti-leak seal,

shall be easily accessible from the outside. The seal system shall not rely upon the pumped media for lubrication. The motor shall be able to operate dry without damage while pumping under load.

JJJ. Pump and motor shaft shall be the same unit. The pump shaft is an extension of the motor shaft. Couplings shall not be acceptable. The pump shaft shall be AISI Type 420 stainless steel.

KKK. If a shaft material of lower quality than AISI Type 420 stainless steel is used, a shaft sleeve of AISI Type 420 stainless steel is necessary to protect the shaft material. However, shaft sleeves only protect the shaft around the lower mechanical seal. No protection is provided in the oil housing and above. Therefore, the use of stainless steel sleeves shall not be considered equal to stainless steel shafts.

LLL. Provide one (1) Flygt 4901 flush valve.

2205.2 Pump Control Panel

A. The enclosure shall be a NEMA Type 3R rated enclosure fabricated of 14 gage Type 304 stainless steel as manufactured by Hoffman Enclosures, Inc., Anoka, MN, or approved equal. The enclosure shall be a pedestal mount with a minimum depth of eighteen inches (18") sized to adequately house all the components. The enclosure shall be equipped with an outer door mounted on a continuous vertical hinge, and sealed around its entire perimeter to be completely weatherproof. The door gasket shall be a seamless foam-in-place type. Door shall be held in the closed position with "POWERGLIDE® padlocking handles", or approved equal, to assure a positive weatherproof seal. The use of individual door clamps is unacceptable. The panel shall have an internal electrical heater, a thermal management system to protect components from excessive heat, and shall be equipped with a drip shield.

B. Circuit breaker handles shall be provided to allow operation of circuit breakers without entering the compartment, and shall be capable of being locked in the open position with padlocks. All control switches, indicator lights, elapsed time meters, Programmable Logic Controller (PLC) and Human Machine Interface (HMI) capable of displaying and storing alarm condition information, and other operational devices shall be mounted on the inside door. The front door shall open

a minimum of one-hundred-fifty degrees (150^0) to allow access to equipment for maintenance.

C. The back plate shall be manufactured of 12-gauge sheet steel and be finished with a primer coat and two coats of baked-on white enamel. All hardware mounted to the back plate shall be accomplished with machine thread tapped holes. Sheet metal screws are not acceptable. All devices shall be permanently identified.

D. Heavy items shall be provided with mounting reinforcements as required.

E. Provide an automatically operated heater. List the heater rating on the drawings.

F. Panel shall be provided with sufficient interior volume to house the PLC, electrical controls, variable frequency drives (VFDs), transformers, HMI screen and recessed housing, heater, pump controller, flow metering equipment, and the telemetry system specified herein.

G. Provide a thermal magnetic main circuit breaker sized according to system load per the National Electrical Code and as indicated on the electrical drawings. It shall prevent the enclosure door from opening while the main circuit breaker is in the "ON" position. A defeat mechanism shall be included on the operating handle for use by authorized service personnel. Circuit breakers shall be of proper trip rating for the specific application and shall have adequate fault current interrupting ratings to safely interrupt available fault currents. Circuit breakers shall be of the molded case type.

H. Provide three-phase silicon oxide lightning arrestor on the incoming power lines.

I. Each pump motor shall be provided with a VFD. The VFD shall be microprocessor based as manufactured by Yaskawa Electric America, New Berlin, WI, or approved equal, and shall be provided with the following features:

1. Adjustable acceleration ramp time.

2. Adjustable current limit to limit the motor current to a preset level.

3. Solid-state overload protection with manual reset located on front of panel.

4. Phase loss protection.

5. Shorted SCR protection.

6. Auxiliary contacts for run and fault indicator control wiring.

J. Transformers shall be of the dry type construction with adequate capacity to serve all load(s) connected thereto on a continuous basis. Manufacturer shall assume all loads are operating simultaneously. Transformer voltage shall be 480-120 volt, single-phase. Provide primary and secondary circuit breakers for each transformer. Circuit breakers shall be of proper voltage and fault current ratings for the circuits to which they are connected and have trip ratings not to exceed the requirements of the National Electrical Code. The control transformer is to be sized 2.5 times the calculated load.

K. Individual circuit breakers shall be provided for the following equipment: the main 480-volt panel disconnect, the generator, each VFD, the level control system, and the alarm system. Provide two (2) spare circuit breakers rated for 120-volts, 20-amps.

L. The main circuit breaker, VFDs, and feeder circuit breakers shall be sized in accordance with the National Electric Code.

M. All 120/240-volt single-phase circuit breakers shall be mounted to provide operator access without requiring opening of the inner control panel doors. Each circuit shall be provided with a nameplate indicating equipment served.

N. Each circuit breaker shall be the thermal magnetic type suitable for branch disconnect service and over-current protection. Each single-phase auxiliary motor shall be equipped with an over-current protection device, in addition to its branch circuit breaker, or shall be impedance protected. The 480-volt circuit breakers shall have a minimum short circuit capability of 20,000 RMS symmetrical amperes.

O. Each indicator light and pump control switch shall be mounted on the inside door of the control panel. All devices and switches shall be identified, with a black Micarta nameplate with 1/8" high white letters, indicating its function and/or designation. A coded electrical wiring diagram shall be provided by the MHMUA.

P. The following equipment shall be provided on the face of the control panel:

1. Non-resettable minimum six (6) digit hour run meter for each pump.

2. A manual lead, lag, second lag, and alternating function switch. In the automatic mode, the automatic alternator shall change the pump designed to be the lead pump at the completion of each pumping operation. Provisions shall also be made for the pumps to rise above the starting level for the lag pump.

3. A Hand-Off-Auto (HOA) selector switch for each pump. The pumps shall operate as follows:

    a. In the "HAND" position, the pump controlled by the switch will run regardless of the wet well level. The pump will continue to run until the switch is turned to either "OFF" or "AUTO".

    b. In the "OFF" position, the pump is turned off.

    c. In the "AUTO" position, the operation of the pump is controlled automatically by the PLC.

4. Human Machine Interface mounted in a custom recessed housing.

Q. A delay timer shall be provided so as to prevent the lag pump from simultaneously starting with the lead pump when power is restored to the pump station after an outage. Delay time range shall be 0-30 seconds. Initially, the timer shall be set at fifteen (15) seconds.

R. All control circuit components shall be UL listed/recognized.

S. Terminal block shall be provided for all connections. Terminal blocks shall be rated 600-volts, current rating as applicable, but not less than 30-amperes, and shall be box lug type. They shall snap together and include nylon barriers between terminals. A terminal marking strip shall be included.

T. All lights, HOA selector switches and pushbuttons shall be oil-tight. Lights shall be Push-to-Test LED style and shall be thirty (30) mm in diameter.

U. Control relays shall be general purpose type with a contact rating of not less than 10-amps at 120-volt AC. Each relay shall be octal base type with din rail mounted bases. All relays and timers shall be mounted in sockets. High and low level float relays shall be provided with a timed delay relay to prevent the relay from chattering when the water level comes in contact with the float.

V. The float operator PLC override indicator light shall be LED type with Push-to-Test function.

W. A 20-amp Ground Fault Circuit Interrupter (GFCI) type convenience duplex outlet shall be provided in accordance with the MHMUA supplied electrical drawings.

2205.3 Level Control System

A. Functional Description:

1. The Level Control System shall start, stop and adjust the speed of the pump motors in response to changes in wet well level, as set forth herein.

2. The Level Control System shall be designed to accomplish the following tasks:

a. Continuously monitor the level of liquid in the wet well to maintain a constant level.

b. Start, stop and vary the speed of the pumps as required to maintain a constant level in the wet well.

c. Select the sequence of pump operation upon operator command automatic alteration.

d. Provide alarm indications upon occurrence of predetermined malfunctions.

B. Functional Requirements:

1. On increasing wet well level, the lead pump shall start at minimum speed. The speed shall be automatically adjusted to maintain a fixed level in the wet well. If the lead pump is running at full speed and the level continues to rise, the lead pump shall be slowed to its minimum speed and the lag pump shall be started at minimum speed. Both pumps shall have their speed ramped up, in unison, until the level reaches its normal set point.

2. On decreasing wet well level, both pumps shall slow down in unison until the minimum pump speed is reached. At minimum pump speed, the lag pump is stopped and the lead pump speed is increased until the level reaches its set point.

3. The pump considered as the lead pump shall be alternated on each lead pump start-up. The lead, lag, and second lag manual selector switch shall override the automatic alternation unless the switch is in the "Alt" position.

4. The Hand-Off-Auto (HOA) selector switches for each pump shall bypass the pump controller.

2205.4 Pump Controller

A. A pump controller shall be provided to accept the input level signal from the Submersible Water Level Sensor and control the operation of the pumps. The pump controller shall consist of an operator interface (Human Machine Interface (HMI)) and Programmable Logic Controller (PLC). The pump controller shall be Allen Bradley CompactLogix Controller Model No. 1769-L32E, or approved equal. Also, the following needs to be included along with the Allen Bradley CompactLogix Controller Model No. 1769-L32E:

1. One (1) Allen Bradley 1769-ECR Compact I/O Right End Cap/Terminator;

2. One (1) Allen Bradley 1769-PA2 Power Supply;

3. Two (2) Allen Bradley 1769-IA16 Compact I/O 16 Point 120 VAC Input Modules;

4. One (1) Allen Bradley 1769-OA8 Compact I/O 8 Point 120/240 VAC Output Module;

5. One (1) Allen Bradley 1769-IF4 Compact I/O 4 Point Analog Input Module; and

6. One (1) Allen Bradley 9324-RLD200ENE Register in Passport; or approved equal.

B. The HMI shall allow workstation performance loading with capabilities including: menus, data entry, data displays, security passwords, and interactive alarms.

C. All HMI screens and functionality, programs, and logic are to be written and developed by the MHMUA and provided to the Contractor.

D. The HMI display shall be Model EA7-T8C Touch Panel as manufactured by C-more, or approved equal. The touch panel shall be an eight inch (8″) color screen with VGA resolution and shall have a 400-MHz CPU and an operating range of 20.4 – 28.8 VDC. The touch panel shall be NEMA 4/4X rated with built-in Ethernet and USB ports and shall be equipped with compact flash data storage. The touch panel shall have a replaceable backlight with a fifty-thousand (50,000)

hour half-life rating.

E. The HMI display shall be recessed mounted on the front door of the pump control panel a minimum of six inches (6") from the inner cabinet control panel face by means of an add-on custom housing constructed of 18-gauge sheet steel. All surfaces of the custom housing shall be powder coated flat black to provide maximum contrast with the HMI display screen. A typical detail for the custom housing, hardware, and HMI mounting is shown on Detail Sheet No. 19.

F. The operation of the control system shall assure that a pump will be available in the case of a pump failure and automatically switch to an available unit.

Section 2206 Alarm System

2206.1 The alarm conditions indicated below shall be transmitted to the MHMUA's Rancocas Road Treatment Plant via a telephone line using a digital communicator.

2206.2 Installation of the site alarm system shall include the following features:

A. Installation, within the control panel, of a HMI Operator Interface to announce a change of condition for the monitored status or alarm conditions. All alarm functions, ladder logic, screen displays and alarm history programming shall be provided to the Contractor by the MHMUA.

B. Installation, within the control panel, of an ADEMCO 794 four channel digital communicator with programmed ADEMCO No. 691 E-PROM.

C. Following installation of the telephone system at the pump station, the OWNER shall provide the E-PROM programmer with the station telephone number and pump station identification number.

D. Installation, within the control panel, of a 12-volt, 8.5-amp-hours minimum battery with charger.

E. Installation, within the control panel, of a low battery alarm (ADEMCO Channel 8).

2206.3 All pumping system controls and alarm system components shall be located within the pump station control panel.

2206.4 All ADEMCO equipment shall be secured to the inside of the control panel.

A. All alarm wiring outside the control panel shall be in conduits.

B. All above grade junction boxes shall be secured and supported.

C. The Telephone Service Supplier provided interface box shall be securely mounted in close proximity (within six feet (6')) of the control panel and shall be securely affixed to, and supported by an independent, free standing, support structure capable of withstanding all weather extremes. Wooden or corrosive metal structures are unacceptable.

D. All conduits from the control panel to the wet well shall have explosion-proof seals in accordance with the NEC.

2206.5 The following switches, relays and devices shall be integral to the alarm system.

A. Float Switches: In the wet well all excess float switch wiring shall be neatly wound on a stainless steel support provided specifically for supporting the wiring. All conduit penetrations in the wet well shall be watertight.

1. High wet well level: A liquid level sensing switch shall be provided to sense a high water level condition. The switch shall hang into the wet well and shall activate a contact to indicate the high water condition.

2. Low wet well level: A liquid level sensing switch shall be provided to sense a low water level condition. The switch shall hang into the wet well and shall activate a contact to indicate the low water condition.

3. Both the high and low wet well level switches shall be wired to an intrinsically safe control circuit for a Class 1, Division 1, Group D location. Control voltage shall be no greater than 24-volts D.C. The liquid level switches shall be Flygt Corporation Model ENM-10, or approved equal.

B. For stations where emergency generators and transfer switch gear are not provided, three-phase power failure alarm (phase monitor relay): A relay with double-pole, double-throw contacts to monitor and protect against phase loss (single phasing), under voltage (brown outs) and phase reversal (improper sequence) shall be provided. Relay shall automatically reset when three-phase service returns to normal. Adjustable operating voltage shall be between 430 and 480-volts. Drop out voltage shall be between 387 and 432-volts. The inner control panel door shall be equipped with a voltage display. The display shall be a Simpson Model H335-600V with a 3 position phase selector switch, or approved equal.

C. AC power failure: A relay with double-pole, double-throw contacts shall be provided and mounted in the main control panel to signal failure of the 115-volt circuit feeding the DC power supply.

D. Motor insulation monitoring system:

1. If required by the pump manufacturer, each pump is to be supplied with an automatic motor insulation monitoring device in accordance with the manufacturer's recommendations.

2206.6 The ADEMCO communicator channels shall be programmed as follows:

A. Channel 1: All other local alarms not included in Channels 2 - 4:

1. High wet well water level alarm from the Submersible Water Level Sensor.

2. Pump #1 Over Temperature.

3. Pump #2 Over Temperature.

4. Pump #1 Seal Failure.

5. Pump #2 Seal Failure.

6. Comminutor Over Torque.

7. Low wet well water level alarm from the Submersible Water Level Sensor.

B. Channel 2:

1. High wet well water level alarm from the mechanical high water float.

2. Pump #1 extended pump run alarm. Run long alarm from 1-99 minutes Time Delay Relay (TDR).

3. Pump #2 extended pump run alarm. Run long alarm from 1-99 minutes TDR.

C. Channel 3:

1. Loss of single-phase power to Programmable Logic Controller (PLC).

D. Channel 4:

1. Power being supplied from the generator.

E. Channel 8:

1. Low ADEMCO battery voltage.

2206.7 A summary of the various functions, descriptions, alarms and specifications (display value, decimal places, PLC Signal Input Type, ADEMCO Input, etc.,) is provided as follows:

Function	Description	Display Value	Decimal Places	HMI Display	Operator Programmable	HMI Alarm	HMI Alarm History	Ademco Input	PLC Signal Input type
Wet Well Level	Actual Level	Decimal Feet	0.00	Yes	NO	No	No	No	Analog (4-20 mA)
Pump(s) Discharge Flow	Instantaneous Flow	Gallons Per Minute	0.0	Yes	NO	No	No	No	Analog (4-20 mA)
Pump(s) Discharge Flow	Total Metered Flow (MG)	Million Gallons	0.0000	Yes	NO	No	No	No	Program Calculated
Pump #1 Run Start	Pump #1 Start Level	Decimal Feet	0.00	Yes	Yes	No	No	No	Program Calculated
Pump #2 Run Start	Pump #2 Start Level	Decimal Feet	0.00	Yes	Yes	No	No	No	Program Calculated
Pump #1 Run Stop	Pump #1 Stop Level	Decimal Feet	0.00	Yes	Yes	No	No	No	Program Calculated
Pump #2 Run Stop	Pump #2 Stop Level	Decimal Feet	0.00	Yes	Yes	No	No	No	Program Calculated
Pump #1 On/Off	On/Off Indicator	On/Off	N/A	Yes	No	No	No	No	Digital (120 AC)
Pump #2 On/Off	On/Off Indicator	On/Off	N/A	Yes	No	No	No	No	Digital (120 AC)
Pump #1 Run Hours	Accumulated Hours	Decimal Hours	0.0	NO	NO	No	No	No	N/A
Pump #2 Run Hours	Accumulated Hours	Decimal Hours	0.0	NO	NO	No	No	No	N/A
Pump #1 Extended Run	Operator Set	Minutes	0	Yes	Yes	Yes	Yes	Channel 2	Digital (120 AC)
Pump #2 Extended Run	Operator Set	Minutes	0	Yes	Yes	Yes	Yes	Channel 2	Digital (120 AC)
Pump #1 Over Temperature	Pump Motor Thermal Switch	On/Off	N/A	Yes	NO	Yes	Yes	Channel 1	Digital (120 AC)
Pump #2 Over Temperature	Pump Motor Thermal Switch	On/Off	N/A	Yes	NO	Yes	Yes	Channel 1	Digital (120 AC)
Pump #1 Seal Failure	Pump Motor Internal Float Switch	On/Off	N/A	Yes	NO	Yes	Yes	Channel 1	Digital (120 AC)
Pump #2 Seal Failure	Pump Motor Internal Float Switch	On/Off	N/A	Yes	NO	Yes	Yes	Channel 1	Digital (120 AC)
Comminutor On/Off	On/Off Indicator	On/Off	N/A	Yes	NO	Yes	Yes	NO	Digital (120 AC)
Comminutor Over Torque	Over Torque Condition Present	Yes/NO	N/A	Yes	NO	Yes	Yes	Channel 1	Digital (120 AC)
Loss Of Control Power	Loss of Power to PLC	N/A	N/A	N/A	N/A	N/A	N/A	Channel 3	12 Volt DC
Low Wet Well Level	Transducer Low Level	On/Off	N/A	Yes	Yes	Yes	Yes	Channel 1	Program Calculated
High Wet Well Level	Transducer High Level	On/Off	N/A	Yes	Yes	Yes	Yes	Channel 1	Program Calculated
High High Wet Well Level	High Level Float	On/Off	N/A	Yes	N/A	Yes	Yes	Channel 2	120 Volt AC /PLC 12 Volt DC/Ademco
Power Source	Standby Generator/ City Power	City/Gen.	N/A	Yes	No	Yes	Yes	Channel 4	120 Volt AC /PLC 12 Volt DC/Ademco
Low Ademco Battery Power	Low Ademco Battery Voltage	N/A	N/A	N/A	N/A	N/A	N/A	Channel 8	>12 Volt DC
Loss of Level Transducer	Loss of Signal from Level Transducer	Yes/No	N/A	Yes	N/A	Yes	Yes	NO	12 Volt DC

Section 2207 Standby Emergency Power Engine/Generator

2207.1 General:

A. Where natural gas is available, the Contractor shall furnish and install a complete natural gas engine/generator set, complete, at the job site. The complete standby system shall consist of:

1. An engine/generator set to provide standby electric power during periods of failure of normal utility power supply. The engine/generator capacity shall be selected on the following basis:

a. Engine/generator set capacity shall be sized assuming that the raw sewage pumps will be operating with motors sized to drive the installed pumps with the largest pump impeller required for all future flows and all future total dynamic head conditions.

b. Starting: Unit shall be capable of simultaneously starting all raw sewage pumps required to handle the average daily flow, and a minimum accessory load of 7.5 KW due to equipment. Any additional loads for items such as exterior lights shall also be included. A time delay device shall be used to sequentially start the remaining raw sewage pumps.

c. Operation: Unit shall be capable of continuously running all station equipment.

d. Unit shall be 3-phase, 60 hertz and capable of delivering the required power as described above at 0.80 power factor.

e. Voltage regulation from no load to rated load shall be within plus or minus five percent (5%) of rated voltage for any size unit.

f. Instantaneous voltage dip for all possible sequences of load application and motor starting for loads described in conditions of service shall not exceed twenty percent (20%) of normal voltage.

g. Sound Attenuation: The unit shall be designed so that the maximum sound level generated shall not exceed seventy-two (72) dB at a distance of fifty feet (50') from the intake of the exhaust system. Sound readings shall

be taken with the generator operating under a full load condition. Applicant to provide certification from manufacturer.

2. Engine/generator set control console mounted on the generator.

3. An automatic load transfer control to provide automatic starting and stopping of the generator and switching of the load.

   a. Upon loss of normal utility power supply, the generator shall start automatically. After reaching full voltage, the generator shall operate an automatic transfer switch to connect the critical load to the generator. After utility power is restored, the critical load is transferred back to the utility service, and the generator is automatically shut down.

4. Mounted accessories and other equipment as specified.

5. Weatherproof, heavy gauge painted steel or aluminum housing with removable side panels, insulated as necessary.

6. The engine/generator set shall be manufactured by Onan/Cummins, Columbus, IN, or approved equal.

2207.2 Natural Gas Engine:

A. The engine shall be a stationary heavy-duty compression ignition, cold starting, natural gas type arranged for direct connection to an alternating current diesel generator. Engine shall have a published brake horsepower rating capable of operating the generator at the speed required during full load output. Engine shall be capable of driving the generator of the specified rating on a continuous standby basis for the duration of normal utility power supply interruptions.

B. The engine shall be cooled by a unit-mounted radiator with integral jacket, water circulating pump, and fan. Thermostatically controlled water jacket heater shall be 1,000-watt minimum unless otherwise approved, and shall be powered through an outlet from an independent 20A, 120V circuit. Radiator shall be of sufficient capacity to operate engine at full rated generator load at 120^{o} F ambient temperature.

C. Oil lubrication shall be supplied by a positive displacement, lube oil pump. The engine shall have a replaceable, full-flow, oil filter located ahead of the lube oil

pump. An oil cooler shall be supplied if recommended by the generator manufacturer.

D. The engine's exhaust muffler shall be provided for the size of the engine as recommended by the manufacturer. The muffler shall be of the critical type. The muffler shall be mounted on the sound-attenuating weatherproof enclosure.

E. Performance and materials shall be in accordance with pertinent ANSI, ASTM, IEEE, NEMA, NFPA and UL standards.

F. The engine driving the emergency generator is required to be permitted for emissions of air contaminates by the New Jersey Department of Environmental Protection (NJDEP), Division of Air Quality. Engine emissions from the engine under design "load" conditions shall be in complete conformance with all NJDEP issued permits as well as all provisions and limitations detailed in N.J.A.C. 7:27 et seq.

2207.3 Generator:

A. The generator shall be rated for continuous duty and shall be a rotating field, engine-driven, direct-connected, synchronous type with amortisseur winding. The generator frame shall be drip-proof with all openings guarded. Bearings shall be sleeve or sealed ball type.

B. Generator insulation shall be Class B or F in accordance with NEMA Standards. Temperature rise shall be in accordance with NEMA Standards for continuous duty at all output ratings.

C. Voltage regulator shall be an automatic, temperature compensated, solid-state type with a manual adjustment range of plus or minus five percent (5%) of rated voltage.

D. Exciter shall be a solid-state, brushless, rotating type.

E. Fast acting fuses or other protective devices shall be incorporated where failure of regulator or exciter components could result in damage to the generator field or exciter windings.

F. Voltage regulator and exciter shall be mounted in the generator control panel or elsewhere so as to protect from and isolate from vibration.

G. Generator and exciter shall conform to all applicable requirements of NEMA Standards.

H. Generator lead terminal box shall be of ample size to accept and terminate connecting cables. Generator leads shall be furnished with terminal connectors suitable for connecting cables.

2207.4 Engine Electrical System:

A. Electrical system shall include a manufacturer's recommended lead acid heavy-duty battery, starting motor, voltage and current-regulated charging generator or alternator, and a separate battery charger. Battery shall be of suitable capacity to start engine at all load conditions and shall be mounted in an accessible location in the enclosure. Provide battery cables and a battery rack.

2207.5 Control Panels:

A. Engine and generator control panels may be separate panels, or a combined panel, and shall be mounted with vibration isolators on the unit in a NEMA 3R enclosure. The control module shall be located on the generator end of the set. Instruments shall be of the direct-reading type, factory mounted and factory connected. Instruments shall be accurate within three percent (3%).

B. Provide engine/generator set control panel(s) with the following features and instruments:

1. Three position run-stop-remote switch.

2. Manual starting switch.

3. Fully automatic starting from pilot device, initiating start when normal utility power fails. Automatic cranking shall be interrupted cycle type not affected by ambient temperature with an overall time limit. A total of three (3) cranking cycles (approximately 10 seconds each) shall automatically shut down the engine.

4. Automatic engine shutdown for the following fault conditions:

a. Overcrank.

b. Overspeed.

c. Low lube oil pressure.

d. High engine temperature.

5. Indicator lamps shall be provided to signal the following functions:

a. RUN - indicates start disconnect.

b. OVERCRANK - indicates the starter has been locked out because cranking time was excessive.

c. OVERSPEED - indicates engine has shut down because of excessive RPM.

d. HIGH ENGINE TEMPERATURE - indicates engine has shut down because of critically high temperature.

e. LOW OIL PRESSURE - indicates engine has shut down because of critically low oil pressure.

f. PRE-HIGH ENGINE TEMPERTURE - indicates engine temperature is marginally high.

g. PRE-LOW OIL PRESSURE - indicates oil pressure is marginally low.

h. LOW ENGINE TEMPERATURE - indicates engine temperature is marginally low for starting.

i. SWITCH OFF (FLASHING) - indicates control switch is in the "STOP" position.

j. LOW FUEL - indicates fuel supply is marginally low (diesel generator only).

k. Two spare faults (red), for future MHMUA use.

6. A fault reset switch shall be provided to clear fault indications and to allow restarting of the engine after shutdown faults. The control design shall be such that the fault indication shall remain until reset. The fault indicator memory shall not be dependent on the presence of either AC or DC voltage and shall

retain the fault status memory even through complete removal and replacement of the starting batteries. The fault reset function shall operate only when the RUN-STOP-REMOTE switch is in the "STOP" position.

7. A locking screwdriver type potentiometer to adjust the voltage + five percent (5%) from rated value.

8. Manual reset exciter field circuit breaker.

9. AC voltmeter, 90-degree (90^0) scale, 2½" flange, two percent (2%) switchboard meter.

10. AC ammeter, 90-degree (90^0) scale, 2½" flange, two percent (2%) switchboard meter.

11. Frequency meter 45 - 65 Hz., 90-degree (90^0) scale, 2½" flange, +0.6 Hz. panel meter.

12. Four position AC meter phase selector switch to read line current and voltage in each phase with off position.

13. Water temperature gauge.

14. Ammeter charging circuit.

15. Lubricating oil pressure gauge.

16. Run time meter.

17. Light with On/Off switch for panel illumination.

2207.6 Generator Weatherproof Enclosure:

A. The engine/generator set shall be factory enclosed in a weatherproof heavy gauge painted steel or aluminum housing constructed with corner posts and finished with baked enamel paint. Enclosure shall have large, easily opened hinged doors and/or removable panels to allow access to the engine, generator, and control panel(s). Each door is to be fitted with rust-proof hardware, and shall be lockable.

B. Steel shall be minimum 16-gauge thickness and aluminum shall be Alloy 6061-T6

with a minimum thickness of 0.04 inches. Provide sound attenuated walls and roof to reduce generator noise as required to meet the requirements in these Rules and Regulations (Section 2207.1 (A) 1g).

2207.7 Appurtenances:

A. All accessories needed for the proper operation of the engine/generator set shall be furnished. These shall include, but not be limited to the following:

1. A painted critical type exhaust muffler, and stainless steel flexible exhaust connection. Muffler shall be factory mounted on the housing with the condensate drain located at the bottom. To prevent birds from entering the muffler, a threaded exhaust piping extension shall be installed with the end of the piping cut at a forty-five degree (45^{o}) angle. The shortest end of the pipe shall be on the bottom. The exhaust discharge shall be directed away from the wet well blower inlet.

2. If a diesel generator is permitted, provide an above ground fuel tank of the double-walled, skid type mounted directly below the generator. The capacity of the fuel tank shall be determined by the Contractor in full compliance with applicable prevailing Federal, State, and/or Local codes, and shall be approved by the MHMUA. Fuel system shall include fuel gauge, leak detector, fuel lift pump (if recommended by the generator manufacturer), and all necessary fuel piping. Fuel piping shall be Type K soft temper copper tubing installed by the manufacturer. The exterior of the tank shall be marked with the type of fuel, C.A.S. number and maximum tank capacity in gallons. Engine shall be capable of operating satisfactorily on No. 2 fuel oil. Fuel supply pump with replaceable fuel filter shall be supplied.

3. A mechanical governor capable of maintaining engine speed within five percent (5%) of synchronous speed from no load to full load shall be furnished.

4. Control wires running between the generator and the transfer switch shall have termination identification on both ends. Identification shall be provided for each device or function and shall be silk-screened white on a black background.

2207.8 Paint:

A. Unless otherwise noted, paint for the exterior surfaces of the equipment (including

skids) shall be two (2) coats of acceptable oil and heat-resistant paint, applied after the surfaces have been thoroughly cleaned and prepared with a suitable priming coat.

B. The generator muffler shall be protected with two (2) coats of a high heat aluminum paint. The paint system shall be primed in accordance with the manufacturer's recommendations.

C. All painted surfaces damaged during installation shall be restored by the applicant.

2207.9 Spare Parts:

A. Provide spare parts as recommended by the manufacturer for six (6) months of operation for each engine/generator set in addition to the following:

1. One (1) filter for each type of service; and

2. One (1) set of fuses for each rating.

2207.10 Automatic Load Transfer Control:

A. The complete automatic load transfer control shall include the necessary relays and components parts, together with the UL listed and tested interlocked contactor, and shall provide the following functions:

1. Upon normal utility power line outage, automatically start the generator, and when the generator comes up to voltage, disconnect the normal circuits from the main line and transfer them to the emergency generator’s output.

2. Upon normal utility power line return, transfer the load back to the main line.

3. For generators feeding raw sewage pumps of greater than fifty (50) horsepower there shall be time delays provided to protect the motor from sudden application of power.

4. The generator shall operate a minimum of ten (10) minutes prior to shutdown.

B. Each contact pole of the main transfer device shall be a double-break design, with solid silver cadmium contacts, capable of handling both non-inductive and inductive loads and allow for inrush currents of twenty (20) times the continuous

rating. Contact pressure shall be maintained by a coil spring, not a part of the current carrying path. The ampere rating of the transfer switch shall be sufficient to handle the capacity of the generator and loads being transferred.

C. The control shall contain a 12 or 24-volt, fused, battery trickle charging circuit, with a rheostat and ammeter, to maintain fully charged starting batteries.

D. The automatic transfer switch shall be provided with terminal lugs for copper wire and shall have individual, heat resistant chambers to protect against arcing. The transfer switch shall be provided with mechanical and electrical interlocks to prevent simultaneously energizing both normal utility and emergency service.

E. The transfer switch shall be located in a NEMA 3R enclosure.

F. Control accessories in the NEMA 3R enclosure shall mount on a dead front, swing out control accessory panel to avoid shock hazard while adjusting control functions, but will swing out exposing the wiring to facilitate servicing. Indicating lamps and meters shall be set in a front mounted panel to be visible with only opening the NEMA 3R enclosure door.

G. Solid-state voltage sensors shall simultaneously monitor all phases of the normal utility source and phases of the emergency source to provide adjustable range sensors for field adjustment for specific application needs. Voltage sensors shall be temperature compensated type, for maximum deviation over the temperature range of -20^{o}F to +175^{o}F. Voltage sensors shall allow for adjustment to sense the partial loss of voltage on any phase of the normal utility or emergency source, even where motor feedback voltages exist.

H. Controls shall signal the emergency power system to start upon signal from the normal utility source voltage sensors. Solid-state time delay start, adjustable from zero (0) to five (5) seconds, shall avoid nuisance start-ups on momentary voltage dips or momentary interruptions.

I. Switch shall transfer the load to the emergency power system after the generator set reaches proper voltage and frequency. Solid-state timer delay transfer, adjustable from two (2) to one-hundred-twenty (120) seconds shall allow the engine /generator set to stabilize before application of load.

J. For raw sewage pump motors equal to or less than fifty (50) horsepower, the transfer switch shall control the generator set to allow the generator set to start and transfer load within ten (10) seconds after normal utility source power failure. For larger raw sewage pump motors the timing shall be adjusted accordingly.

K. Switch shall retransfer the load to the normal utility source after normal power restoration. Solid-state time delay retransfer, adjustable from zero (0) to thirty (30) minutes, shall allow:

1. Normal power to stabilize before retransfer;

2. Staggered retransfer;

3. Engine to run unloaded for cool down before shutdown; and

4. Cool down period to be adjustable from zero (0) to ten (10) minutes.

L. The operating power for transfer and retransfer shall be obtained from the source to which the load is being transferred. Controls shall provide an automatic retransfer of the load from the emergency source to the normal utility source if the emergency source fails when the normal utility source is available.

M. Transfer switches shall have the "Programmed Transition" feature available by plugging the proper Program Timer into the factory installed timing receptacle. This provides the capability of either factory or field installation of this feature. This feature shall incorporate a field adjustable time delay of 1.5 to 15 seconds. The time delay shall occur during switching in both directions, during which time the load is isolated from both the normal utility and emergency sources. This will allow residual voltage components of motors or other inductive loads (such as transformers) to decay before completing the switching cycle. The Program Timer shall be connected in a manner that will not cause the time delay in switching, where the time delay has already been established by the loss of voltage to the load during normal utility source power interruptions. Transfer methods that use the “In-Phase Monitoring” mode of operation are not acceptable. Provide program timer.

N. Controls shall provide built-in "control mode status indicators", consisting of LEDs to indicate a sequence of functions such as the following:

1. Source 1 OK;
2. 2 - wire run;
3. Source 2 OK;
4. Timing for Transfer;
5. Transfer Command;
6. Timing for Retransfer;
7. Retransfer Command; and
8. Timing for Stop.

These indicators shall allow the operator to determine that the controls are properly sequencing, and shall assist in determining the sequence of any malfunctions that may occur.

O. The power source (utility or emergency) shall be displayed in a location which does not require opening the automatic transfer switch panel doors.

P. Provide position indicator lamps (green "NORMAL" and red "EMERGENCY") and a key operated selector switch to provide the following positions and functions:

1. TEST - Simulated normal utility power loss to the control unit for testing of the generator set, including transfer to load. Control system shall provide for "system test without load transfer" for use in that manner when desired.
2. NORMAL - This is the normal operating position and it restores the load to the normal utility source after “TEST” and after time delays.
3. RETRANSFER - Momentary position to override retransfer time delay and cause immediate return to the normal utility source after “TEST” or an actual outage.

Q. Provide an exerciser clock to set the day, time and duration of the generator set exercise period; also include a "with/without load" selector switch. Clock shall have a one (1) week dial minimum. If normal utility power is interrupted while the generator is exercising without load, the load shall be immediately transferred

to the generator set.

R. Provide battery charger, SCR voltage regulated type, with float and taper features, 12 or 24-volt DC as required for the generator set. Charger shall have charging ammeter and fuse protection. Charger shall not be damaged during engine cranking.

S. Transfer switch capacity shall be no smaller than the disconnect switch capacity.

T. The automatic transfer switch shall be an Onan Model OTPC as manufactured by Onan/Cummins, Columbus, IN, or approved equal.

2207.11 Products:

A. Single Manufacturer: This equipment shall be manufactured by a single source manufacturer who has been regularly engaged in the production of engine /generator sets. The emergency electric generating system described herein, including these components shall be factory built, factory tested, and shipped by one source of supply and responsibility for warranty, parts and service. This manufacturer shall have a local representative, within a fifty (50) mile radius, who can provide factory trained servicemen, required stock of replacement parts, and technical assistance.

B. Safety Standards: The electric generating system must meet all requirements of NFPA 110 (latest edition) including design specifications, prototype tests, one-step full-load pickup, and installation acceptance. Automatic transfer switch shall conform to UL 1008.

C. The responsibility for performance to this specification includes the entire system and cannot be split up among individual suppliers of components comprising the system, but must be assumed solely by the supplier of the system.

D. All controls shall be the standard of the manufacturer, who is engaged in the manufacture of engine /generator sets, transfer switches, and accessories and has them available for sale on the open market. Control parts shall be identified by part numbers of this manufacturer and shall have second source listing where applicable.

2207.12 Installation:

A. Mount engine/generator set on a structural steel frame or skid. Provide internal or external vibration isolators suitable to prevent transmission of vibration between the set and frame to the concrete pad.

B. Provide non-corrosive spacers that prevent the generator skid from coming in contact with the concrete pad.

C. All bolts, nuts, and washers, either buried, embedded in concrete, or exposed above grade shall be stainless steel.

D. The fuel tank, if provided, shall be completely filled by the Applicant after testing is completed.

2207.13 Field Quality Control:

A. Provide full-load test utilizing portable test bank for two (2) hours minimum. Simulate power failure including operation of the transfer switch, automatic starting cycle, automatic shutdown and return to normal utility power. All testing procedures shall be as described in NFPA 110 under Installation Acceptance.

2207.14 Personnel Training:

A. The generator manufacturer shall provide the services of a factory-trained representative for a minimum period of eight (8) hours to perform initial start-up of the generator, and to instruct the MHMUA's personnel in the operation and maintenance of the equipment. Initial start-up of generator shall conform to NFPA 110.

2207.15 Shop Drawings and Operation and Maintenance (O&M) Manuals:

A. Applicant's engineer to specify generator capacity and shall provide the MHMUA with backup information justifying the capacity selection. As a minimum, backup information shall identify motor voltage, motor code letter, starting sequence, and full or reduced voltage starting requirements. Manufacturer's load calculation sheets for both the specified generator and the furnished generator shall be submitted to the MHMUA.

B. Applicant shall provide seven (7) copies of the manufacturer's shop drawings for approval prior to fabrication. As a minimum, shop drawings shall contain:

1. Plan and elevation views with both overall and interconnection point dimensions, fuel consumption rate curves at various loads, ventilation and combustion air requirements, and electrical diagrams including schematic and interconnection diagrams.

2. Product data showing options included, unit dimensions, weights, ratings, interconnection points, and internal wiring diagrams for engine, generator, control panel, transfer switch, battery, battery rack, battery charger, exhaust silencer, vibration isolators and skid tank.

3. Generator capacity with backup information, as listed above, justifying the capacity selection.

C. Provide seven (7) copies of the generator operations and maintenance manual including but not limited to:

1. Record plans of the concrete support pad and conduit locations.

2. Suggested maintenance schedule and step-by-step maintenance procedures.

3. Complete and detailed schematics of all electrical system and controls, including schematic and wiring diagrams for the engine generator set, automatic transfer switch, and an interconnecting diagram showing connections to individual components which constitute the standby power system.

4. Complete and detailed exploded view drawings of all equipment, including descriptions of all parts.

5. Copy of all approved shop drawings.

6. Written warranties:

a. All operations and maintenance literature shall be bound in 3-ring binders, including a table of contents, and shall be divided into as many sections as appropriate for the different major components.

b. All operation and maintenance and warranty materials shall be submitted before testing of the generator takes place.

2207.16 Warranty:

A. The complete standby electric power system, including engine /generator set and transfer switch equipped with the automatic exercise timer, and running time meter, shall be warranted for a period of five (5) years or fifteen hundred (1,500) operating hours, whichever occurs first, from the date of acceptance by the MHMUA. During the warranty period, manufacturer shall promptly furnish the MHMUA with the replacement parts for all items deemed defective. Multiple warranties for individual components (engine, generator, controls, etc.) shall not be acceptable. Satisfactory warranty documents must be provided. This warranty shall be detailed in available written documents. In the judgment of the MHMUA, the manufacturer supplying the warranty for the complete Standby Emergency Power Engine/Generator System must have the necessary financial strength and technical expertise with all components supplied to provide adequate warranty support.

Section 2208 Pump Station Site

2208.1 Provide a privacy fence, seven feet (7') high fabric with privacy slats and topped with three (3) strands of barbed wire, along the pump station area perimeter, unless otherwise approved by the MHMUA in writing. All fence shall be located a minimum of ten feet (10') from the back of the present or future public right-of-way line or privately owned curbing and sidewalk. All slabs, equipment and utilities shall be located within the fenced area at least three feet (3') away from the fence. The fence shall include a minimum of one (1) three feet (3') wide man gate and one (1) fifteen feet (15') wide double gate.

A. Fence shall be vinyl coated and provided as follows:

1. Fabric: Material shall be thermally fused vinyl coated steel chain link fabric conforming to ASTM F-668, Type 2B with a two inch (2") mesh. Vinyl coating thickness shall be a minimum of 0.006 inches. Vinyl color shall be green. Galvanized core wire shall be 0.148 inch diameter with a break load of one-thousand-two-hundred-ninety (1,290) pounds. Galvanizing shall be in accordance with ASTM A-641.

2. Framing: Materials shall be vinyl coated Schedule 40 galvanized pipe conforming to ASTM A-120. Vinyl coating shall be 10 - 14 mils thick and applied by the fusion bonding process. Framing shall conform to the following dimensions and weights:

	Nominal O.D. (inches)	Weight lbs./ft.
a. End, corner and pull posts:	2.875	5.97
b. Rails & post braces:	1.66	2.27
c. Line posts:	2.375	3.65
d. Gate posts:	2.875	5.79

The inside surface shall be given corrosion protection. The internal coating shall be applied before or after welding and shall protect the metal from corrosion when subjected to the salt spray test of ASTM B-117 for three-hundred (300) hours with the end point of five percent (5%) Red Rust.

3. Accessories:

   a. Post and line caps, rail and brace ends, sleeves, tension bars, tension and brace bands, truss rods, and other accessories shall conform to ASTM F626 and shall be vinyl coated.

   b. Tie wire shall be 13 gauge vinyl coated.

   c. Tension wire shall be 6 gauge vinyl coated wire fastened with vinyl coated hog rings.

   d. Privacy slats shall be rigid plastic, dark green color, vertical mounting units interlocked with horizontal members of like material and color.

4. Barbed Wire:

   a. Extension arms shall conform to ASTM F626, be vinyl coated and equipped with slots for supporting three (3) strands of barbed wire at a forty-five degree (45^{o}) angle to the fence. Extension arms shall slope towards the outward side of the fence.

   b. Barbed wire shall be maximum-security type, vinyl coated, 12½ gauge line wires with 14 gauge barbs spaced three inches (3") apart.

5. Swing Gate:

a. Materials shall conform to ASTM F900 and be constructed of vinyl-coated components. Thickness of vinyl coating shall be 10 to 15 mils. Fabric and other accessories shall be as specified herein.

6. Hardware:

a. Hinges: Hinges shall be structurally capable of supporting the gate leaf and allow the gate to open and close without binding. The hinges shall be so designed to permit the gate to swing a full one-hundred-eighty degrees (180^{o}) outward.

b. Double Gate Latch: This latch shall be a drop rod or plunger bar arranged to engage the gate stop. Locking devices shall be constructed so that the center drop rod or plunger bar cannot be raised when the gate is locked. The latching devices shall have provision for a padlock.

c. Gate Stops: Gate stops shall be provided for all double gates and shall be suitable for setting in concrete for the center drop rod or plunger.

d. Keepers: Keepers shall be provided for each gate leaf over five feet (5') wide. Gatekeepers shall consist of a mechanical device for securing the free end of the gate when in the fully open position.

e. All hardware shall be galvanized and vinyl coated.

7. Installation:

a. Locate line posts at equal distance spacing, not exceeding ten foot (10') centers.

b. Locate pull posts at positions where the fence changes direction more than thirty degrees (30^{o}), and at all points where there are abrupt changes in grade.

c. Set line posts, end posts, corner posts, gate posts, and gates plumb and level to a maximum of ¼ inch in ten feet (10') off direct vertical alignment.

d. Install ground-set items in concrete as follows:

(1) Minimum concrete strength: 4,000 psi

(2) Minimum concrete dimensions:

Min.
Concrete

	Min. Depth to Top of Concrete - Inches	Min. Concrete Depth - Inches	Min. Concrete Diameter - Inches	Depth Below Bottom of Post - Inches
Line Post	0	42	OD + 10	12
Corner Post	0	48	OD + 10	12
Gate Post	0	48	OD + 12	12
Gate Plunger Rod Catch	0	24	12	12

(3) Place concrete around the posts in a continuous pour. Trowel finish tops of footings and slope or dome to direct water away from the posts.

(4) Posts shall not be installed until the site paving is completed.

e. Fabric:

(1) Place fabric on the side of the fence posts facing outward from the area being enclosed.

(2) Stretch the fabric tight between the terminal posts.

(3) Position the bottom of the fabric approximately one (1) to two (2) inches above the ground level along the continuous length of the fence. Perform all cutting, filling and all other grading necessary to achieve this result and to allow for proper operation of the gates, using materials and methods approved by the MHMUA Engineer.

(4) Join ends of the fabric by weaving with a single strand of selvage twisted to match the balance of the fabric.

(5) Cut and attach the fabric independently at all terminal posts. Attach the fabric to the terminal post using tension bars and band or clips. Thread the tension bars through the fabric.

(6) Attach the fabric to line posts using wire ties twelve inches (12") on center.

(7) Attach the top edge of the fabric to the top rail using wire ties twelve inches (12") on center.

(8) Attach the bottom edge of the fabric to the bottom tension wire using hot rings.

(9) Fabric selvage shall be knuckled on one end and twisted on the other.

2208.2 Provide external lighting with protective covering. Unless otherwise approved by the MHMUA Engineer the operation of the external lighting shall be controlled by a photocell. Photocell shall be located on the side of the light post at a maximum elevation of five feet (5′) above grade. A manual photocell override shall be provided. Provide a minimum of one-foot-candle illumination at the generator, electrical control pad and wet well.

2208.3 Unless otherwise approved in writing by the MHMUA, screening of the site is to be provided around the outside perimeter of the station fence using Douglas fir evergreen trees. All trees shall be a minimum of seven (7) to eight (8) feet high planted on eight foot (8') centers. Set centerline of trees at five feet (5') off the fence. Provide an eight foot (8') wide wood mulch area six inches (6") thick with a polyethylene weed barrier below starting out from the edge of the pump station pavement.

A. The site shall be inspected by the tree provider (or landscaper) as to the suitability of the above planting scheme.

B. Planting and care instructions are to be provided.

2208.4 Provide a gravity sewer manhole within the pump station's fence.

2208.5 Provide a source of potable water with a water meter just outside the pump station's fence. The party responsible for maintenance of the water service upstream of the water meter pit shall be listed on the drawings. See Detail Sheet No. 17.

2208.6 Within the pump station fenced-in area, provide a Merrill Manufacturing Company Model AF7504, or approved equal, freeze-proof post hydrant with a 3/4" inlet, 3/4" threaded brass hose nozzle, one inch (1") galvanized steel pipe outer casing, 1/8" drain hole and furnished for four foot (4') depth of bury. Provide a Watts Regulator Company Model No. U909 (QT) RPZ, or approved equal, vacuum breaker-backflow preventor in a heated/insulated enclosure manufactured by Hot Box, Jacksonville, FL, Model HB 1.5, or approved equal.

A. Provide a minimum of one (1) cubic yard of 3/4" washed gravel below the hydrant for drainage purposes.

B. Provide fifty feet (50') of 3/4" heavy duty, double layer nylon reinforced rubber

water hose with a black outer jacket as supplied by Grainger (#IP650), or approved equal. Provide a high-pressure adjustable brass nozzle with an adjustable spray pattern and removable barrel to fit the 3/4" hose. Nozzle shall be as supplied by Grainger (#2P139), or approved equal. Provide a galvanized steel hose rack on a stand located adjacent to the post hydrant. Stand shall be five feet (5') high by two-inch (2") diameter Schedule 40 galvanized pipe with a pipe cap. Set pipe two feet (2') deep with a twelve-inch (12") diameter by two feet (2') deep concrete footing. Bolt rack to the pipe with two ¼" 20-thread three inch (3") long stainless steel carriage bolts with self-locking nuts. Post hydrant, hose rack and stand shall all be painted blue. Hydrant and stand to be located out of the motor vehicle traffic area. No connections between fresh water and sewage pumps or pipes shall be permitted.

2208.7 Within the fenced-in area the ground surface shall be paved with the following:

A. Six inches (6") of quarry blend stone conforming to Section 901.09 of the NJDOT Standard Specifications.

B. Four inches (4") of stabilized base material conforming to NJDOT Standard Specifications Section 304.02 material requirements. Mixture shall conform to Mix No. I-2, Stone Mix, Section 304.03 and Section 903, Table 903-1 of the NJDOT Standard Specifications.

C. Two inches (2") of F.A.B.C. surface course conforming to NJDOT Standard Specifications Section 404.02 material requirements. Mixture shall conform to Mix No. I-5, Section 903, Table 903-1 of the NJDOT Standard Specifications.

D. Pavement to extend a minimum of six inches (6") beyond the fence perimeter. Apply a tack coat conforming to NJDOT Standard Specifications Grade RC-70 to RC-T cutback asphalt or Grade SS-1 emulsified asphalt, Section 904.02 or 904.03 over the entire stabilized base course.

E. Extending from the wet well area, the pavement shall have a minimum 0.75% slope towards the perimeter fence. Finished surfaces shall be free from all roller marks, ridges and voids. Contractor shall flood surfaces with water upon completion of paving operations. Any areas holding water deep enough to cover a nickel shall be leveled in a manner that will assure complete bonding of the patch with the pavement surface. Leveling patches shall be made with suitable approved sand

filled asphalt emulsion mixes. If greater than fifteen percent (15%) of the surface requires patching, the entire surface shall be subject to rejection.

2208.8 Provide a fifteen feet (15') wide driveway up to the pump station gate. Double leaf gate shall be a minimum fifteen feet (15') wide and shall open outwards. A motor vehicle entering the site shall have the ability to drive to the wet well davit. The access drive shall include a turnabout area.

2208.9 The generator shall be anchored on a concrete pad at least five feet (5') away from the wet well perimeter. All electrical controls shall be mounted on a support system anchored by a concrete pad. The concrete pads shall extend a minimum of nine inches (9") above final grade.

2208.10 All bolts, nuts and washers that are buried, embedded in concrete, or exposed above grade shall be stainless steel. All nuts and rods for harnessing shall be bituminous coated.

2208.11 Unless otherwise approved by the MHMUA Engineer, all backfill in the pump station pit and sewer main trenches below the pump station paved surface shall be:

A. Free from deleterious debris, stumps, brush, weeds, roots, sod, rubbish, garbage and matter that may decay.

B. Free from stones or rock fragments larger than two inches (2") in greatest dimension.

C. Free of materials that, in the opinion of the MHMUA Engineer, may create voids or prevent proper compaction.

D. Free of construction material debris.

E. Select fill Designation I-13 conforming to Section 901.09 of the NJDOT Standard Specifications for Road and Bridge Construction.

2208.12 Place backfill materials in layers not more than six inches (6") in loose depth and compact each layer of backfill at ninety-five percent (95%) maximum dry density or ninety percent (90%) relative dry density. Place backfill materials uniformly around the wet well to approximately the same elevation in each lift.

2208.13 The pump station easement shall extend to at least ten feet (10') outside the pump station fence and shall include the access road and turnaround area. Property corners shall be set.

2208.14 In the event the pumps or force main are temporarily inoperable in the future, provide a bypass piping system with tees and valving as shown on Detail Sheet No. 18. In addition, provide a plug valve before and after the force main wye connection to isolate the force main. The system shall be located within the valve vault. All valves shall be opened by turning to the left, or counterclockwise. Valve boxes shall be constructed of cast iron with a round base. Valve box covers shall read "SEWER". Inside diameter of the valve box column shall be 5 ¼ inches. A "T" handle steel socket wrench of 5/8 inch round stock and long enough to extend three feet (3') above the ground shall be furnished. The wrench shall be capable of operating all valves.

2208.15 Signage for the pump stations shall be provided by the Contractor. The number, sizes, material of fabrication, locations, and wording for all signage shall be provided to the Contractor by the MHMUA.

A. All switchboards, panelboards, industrial control panels, meter socket enclosures, motor control centers, and access doors for electrical cabinets shall be field marked to warn of the voltage and the potential electrical arc-flash hazard in accordance with the National Electric Code (NEC), NFPA 70E-2004 and any other prevailing Federal, State, or Local requirements. At a minimum, labels shall include but not be limited to the following information:

1. Flash Hazard Boundary in inches;

2. Calories: Flash Hazard at ____ inches;

3. Hazard Category and required Personal Protective Equipment (PPE);

4. Shock Hazard when energized components are exposed/cover is removed;

5 Classification Class of Gloves to be worn;

6. Limited Approach in inches;

7. Restricted Approach in inches;

8. Prohibited Approach in inches; and

9. Location/Identifier.

2208.16 Wet Well Joints Leakage Test: Before putting the pump station into operation the Contractor shall fill the wet well to the top with clean water to demonstrate that all of the wet well joints are watertight. Water level shall be maintained at the top of the wet well slab for one (1) hour by the Contractor without the addition of water. Before the test commences the Contractor shall position a sufficient number of pumps to dewater the wet well in the event of a leak. If the test is unsuccessful, the Contractor shall

make repairs and retest as many times as is necessary. All tests shall be conducted in the presence of the MHMUA Engineer.

2208.17 Provide a rechargeable, minimum five (5) pound capacity fire extinguisher (Class ABC) mounted where directed by the MHMUA.

2208.18 Provide a fully supplied first aid kit mounted where directed by the MHMUA. Provide a Johnson & Johnson No. 8161, or approved equal.

2208.19 A frost-free Emergency Eyewash/Shower may be required by the MHMUA. If required, the frost-free Emergency Eyewash/Shower shall be manufactured by Bradley Corporation, Menomonee Falls, WI, Model No. S19-310NN, or approved equal.

Section 2300 GREASE TRAPS

2300.1 Grease traps shall be installed at motels, cafeterias, restaurants, hospitals, schools and other institutions having large volumes of kitchen wastewater. Grease traps shall be located as close to the source of the wastewater as possible.

2300.2 Unless otherwise approved by the MHMUA, grease traps at restaurants shall have a capacity that is the greater of:

A. 750 gallons; or

B. gallons as determined by the following equation:

Size of grease trap = D x GL x ST x HR/2 x LF

Where: D = number of seats in the dining area
GL = 5 gallons (wastewater per meal)
ST = storage capacity factor = 2.5
HR = number of hours open
LF = loading factor:
1.25 - interstate freeway
1.00 - other freeway
1.00 - recreational area
0.80 - main highway
0.50 - other highway

2300.3 Unless otherwise approved by the MHMUA, grease traps at hospitals, nursing homes and other commercial kitchens with varied seating capacity shall have a capacity that is the greater of:

A. 750 gallons; or

B. gallons as determined by the following equation:

Size of Grease Trap = M x GL x ST x LF

Where: M = meals per day
GL = 4.5 gallons (wastewater per meal)
ST = storage capacity factor = 2.5
LF = loading factor:
1.25 - garbage disposal & dishwater
1.00 - dishwasher only
0.75 - garbage disposal only
0.50 - no dishwasher or garbage disposal

2300.4 All dishwasher water should either be cooled or diverted around the grease trap.

2300.5 All grease traps shall be cleaned after seventy-five percent (75%) of the unit's grease retention capacity has been reached. Grease retention capacity is defined as the amount of grease (pounds) that the trap can hold before its average efficiency drops below ninety percent (90%).

2300.6 The MHMUA reserves the right to impose the following monitoring and reporting requirements on Non-Residential Users having grease traps or oil interceptors:

A. The Non-Residential User shall abide by these Rules and Regulations as they are in existence now and as they may be modified from time to time. These Rules and Regulations are incorporated by reference into each permit and the Non-Residential User shall be bound thereby.

B. The Non-Residential User shall comply with all laws and regulations of the State of New Jersey and the United States concerning all sewage and waste disposal discharged into the MHMUA's system.

C. The Non-Residential User shall properly dispose of and maintain appropriate written records of disposal of all oil interceptor or grease trap oils and grease. The Non-Residential User shall bear all costs associated with this disposal and record keeping.

D. Written procedures for the removal and disposal of waste oil and grease from the

oil interceptor or grease trap shall be filed with the MHMUA within forty-five (45) days of the issuance of a permit, maintained posted on-site in close proximity to such unit(s), and followed at all times.

E. The Non-Residential User shall physically inspect the grease trap or oil interceptor unit and all visible piping and appurtenances no less often than monthly, and maintain a posted written record of such inspection including the date, time and individual completing the task.

F. During the month of February of each year, the Non-Residential User shall file with the MHMUA copies of all invoices paid in the preceding calendar year to maintain the grease trap or oil interceptor and appurtenances, including invoices for disposal of accumulated oil, grease and solids.

Section 2400 METHODS OF CONSTRUCTION

Section 2401 Excavation

2401.1 Excavation shall not be made below the required level except where unstable soil is encountered.

A. Whenever excavation has been made below the required level, it shall be replaced with trench stabilization material as specified herein and shall be thoroughly tamped.

B. The MHMUA Engineer shall determine the depth of removal of unstable soil encountered.

2401.2 Excavation for manholes and other structures shall have a twelve inch (12") minimum and a twenty-four inch (24") maximum clearance on all sides.

2401.3 The maximum trench width to a point one foot (1') above the outside top of the pipe shall be the pipe outer diameter plus sixteen inches (16").

2401.4 Rocks and boulders present in excavation shall be removed within six inches (6") of the pipe.

2401.5 Excavations shall be confined within the narrowest possible limit and made as nearly as possible in a vertical line; and any sheathing, shoring, bracing and timbering which is necessary to obtain this result shall be done as hereinafter specified.

2401.6 Preliminary excavation shall be made only to a depth of three inches (3") above the final depth of any trench or other excavations.

A. The remaining depth shall be carefully excavated, shaped, and formed with hand tools immediately preceding the laying of pipe or placing concrete.

B. Trench bottoms shall be accurately formed to receive and support the bottom of the barrel of the pipe.

C. Additional excavation shall be made in pipe trenches at the pipe joints and to prevent any possibility of a pipe resting on the bell rather than the barrel.

2401.7 All excavations shall be in compliance with the Federal Occupational Safety and Health Act, and Rules and Regulations of the State of New Jersey Department of Labor and Industry, Bureau of Engineering and Safety, N.J.A.C. 12:180.

Section 2402 Grading

2402.1 Ground adjacent to the excavations shall be graded to prevent water intrusion.

2402.2 The Contractor shall remove any water accumulating in excavations by pumping or by other suitable means.

Section 2403 Bracing, Shoring and Sheeting

2403.1 The Contractor shall do all bracing, shoring and sheeting necessary to prevent failure of the banks of the excavation and to protect the work, workmen, public, under and above ground utilities and structures, pavements, and public and private property.

2403.2 No bracing, shoring or sheeting shall be placed below the bottom of the pipe or structure unless approved by the MHMUA Engineer.

2403.3 Shoring, sheeting and bracing of any kind shall be withdrawn as the backfilling proceeds, except that the MHMUA Engineer may require such bracing to be left in place if it has been placed below the bottom of any structure or pipe, or if he deems it necessary in order to protect adjacent structures, utilities or property.

2403.4 All bracing, shoring and sheeting shall be performed in accordance with all applicable Occupational Safety and Health Administration (OSHA), State, and Local regulations and requirements.

Section 2404 Dewatering

2404.1 The Contractor shall provide, install and operate an adequate well-point system for dewatering when necessary to stabilize trench bottoms and banks or other excavations or when necessary to protect the work, workmen, public, under and above ground utilities and structures, pavements and public and private property.

2404.2 The well-point system or portions thereof shall be removed by the Contractor upon the completion of backfill, and the holes remaining from the points shall be backfilled and thoroughly tamped.

2404.3 Any and all groundwater, which may gather in the trenches from any source whatsoever, must be pumped or bailed to provide a dry trench during the pipe laying functions.

2404.4 No water shall be permitted to run through the open pipe joints or through the pipe during the construction period.

2404.5 All water pumped from the trenches shall be disposed of in a manner satisfactory to the MHMUA or any interested government agency.

Section 2405 Backfilling

2405.1 Initial backfill materials shall be soil aggregate designation I-8 conforming to the requirement of Section 901.09 and Table 901-2 of the NJDOT Standard Specifications for Road and Bridge Construction, or stone crushings to conform with AASHTO designation M-43 (ASTM designation D448), size No. 8, 1/8" to 3/8" clean, free flowing and shall meet all ASTM C-33 requirements for quality and soundness.

2405.2 Install initial backfill material as shown in Detail Sheets No. 20 and 21 for the type of pipe being used.

2405.3 Material shall be placed under the pipe haunch to provide adequate side support. Material shall be installed for the entire trench width and shall be tamped and rodded to insure full contact with the pipe at haunch up to the top of pipe.

2405.4 Little or no tamping of the initial backfill directly over the pipe shall be done.

2405.5 After the structure has been completed, inspected and approved; or in the case of pipe, after each joint has been made, inspected and approved, backfill shall proceed immediately.

A. When pipe has been laid, this shall be done in six inch (6") layers of loose granular material free from large stones, each layer thoroughly tamped to a height of

twenty-four inches (24") above the outside top of the pipe.

B. The remainder of the trench and the entire excavation of all structures and pipe shall be backfilled in twelve inch (12") layers, loose measure, each layer thoroughly tamped.

2405.6 Dampening of the material to be tamped may be required by the MHMUA Engineer.

2405.7 Trench backfill material may be used from on-site excavation. All on-site backfill materials shall be subject to the approval of the MHMUA Engineer, and to the following requirements:

A. Free from deleterious substances, stumps, brush, weeds, roots, sod, rubbish, garbage and matter that may decay.

B. Free from stones or rock fragments larger than two inches (2") in greatest dimension to a height of two feet (2') above the top of pipes and structures.

C. Free of large rocks or lumps that, in the opinion of the MHMUA Engineer, may create voids or prevent proper compaction.

2405.8 Soil aggregate select backfill materials when required by the MHMUA Engineer shall conform to Section 901.09 of the NJDOT Standard Specifications for Road and Bridge Construction. Select backfill material shall be Designation I-13.

Section 2406 Compacting of Soil

2406.1 Compaction shall conform to Section 207 of the NJDOT Standard Specifications for Road and Bridge Construction, except that puddling shall not be permitted.

2406.2 In addition to the above requirements, compaction under and within five feet (5') of access roads shall meet the following requirements:

A. Compact top twelve inches (12") of subgrade and each layer of backfill or fill material at ninety-five percent (95%) maximum dry density or ninety percent (90%) relative dry density.

Section 2407 Pipe Bedding

2407.1 Care must be taken to bed the pipe properly on a stable bottom.

2407.2 When required, varying amounts of trench stabilization material must be used to stabilize the area under the pipe.

2407.3 The grading of the trench bottom must be such that the bottom of the pipe, for its entire length, is resting on stable material, which will result in even loading along the pipe after the trench is backfilled and during the earth settling process.

A. For PVC pipe, initial backfill is considered stable material.

B. For ductile iron pipe, trench stabilization material or virgin soil is considered stable material.

2407.4 When the backfill material around ductile iron pipe, in the opinion of the MHMUA Engineer, is not suitable, the area around the pipe must be filled with trench stabilization material or select fill up to the pipe springline.

2407.5 At no time shall trench stabilization material be scraped up along the sides of the trench and piled along the sides of the pipe. The practice of pyramiding trench stabilization material along the line is unacceptable.

2407.6 Trench stabilization material for bedding under pipes and structures shall be broken stone conforming to Section 901.04 of the NJDOT Standard Specifications for Road and Bridge Construction. Size shall be coarse aggregate, Designation No. 8 (1/8" to 3/8").

Section 2408 Pipe Installation

2408.1 Once the trench has been established at the proper depth and grade, and the bottom of the trench satisfactorily stabilized, the pipe and associated items shall be installed.

2408.2 Installation of all sanitary sewer lines and appurtenances shall be done in the presence of the MHMUA's Inspector.

2408.3 The Builder and/or the Contractor is responsible for notifying the MHMUA forty-eight (48) hours in advance that inspection shall be required at a specific time and place.

A. Should the Contractor neglect to notify the MHMUA that inspection is required, and proceed without inspection, all work performed without inspection shall be considered unacceptable.

2408.4 Pipe installation shall conform to the following:

A. Lay pipe only in the presence of the Inspector. The MHMUA may order removal and relaying of pipe not so laid.

B. Fine grade trench bottom so that pipe is supported for its full length.

C. Lay pipe to lines and grades shown on the plans. Face socket end of the pipe in the direction of pipe laying.

D. Do not lay pipe on unsuitable material, in a wet trench, or in the same trench with another pipe or utility.

E. Lower pipe into the trench with ropes, machinery, or other means approved by the Inspector.

2408.5 General procedure for joining pipe:

A. DO NOT USE EXCAVATING EQUIPMENT TO SHOVE PIPE SECTIONS TOGETHER.

B. Hold pipe securely and in proper alignment when joining.

C. Do not disturb previously made joints. Check completed piping to assure joints are intact. Insure placement of backfill over pipe is accomplished without disturbing pipe position.

D. Do not allow earth, stones, or other debris to enter pipe or fittings.

E. Method of installing joint materials and joining piping shall be in strict accordance with the manufacturer's printed instructions as approved by the MHMUA Engineer.

Section 2500 RECORD PLAN REQUIREMENTS

2500.1 The following procedure defines the minimum requirements imposed on the Developer/Contractor when submitting record plans for gravity main and force main construction.

2500.2 The Developer/Contractor shall meet all of the requirements listed under the preliminary submittal requirements section before commencing witnessed testing of any gravity main or force main.

2500.3 Any submittals not meeting all the minimum requirements listed in the following procedure shall not be reviewed by the MHMUA Engineer.

Section 2501 Preliminary Record Plan Submittal Requirements

2501.1 General Requirements:

A. This submittal consists of utilizing the approved drawing set with the design information distinguished from the corresponding record plan information. Methods such as circling or drawing a thin line through the design information shall be utilized. The design and record plan information shall be legible.

B. Each submittal shall consist of four (4) copies of each drawing included in the record plan transmittal.

C. If the alignment of the gravity main or force main has been revised during construction, the revised alignment shall be shown on the record plans.

D. All titles to easements shall be based on the recorded alignment of the piping. All MHMUA easements shall be recorded with Burlington County by the applicant. Documentation substantiating that this has been accomplished shall be submitted to the MHMUA.

2501.2 Gravity Mains

A. The following information shall be shown on a plan and profile:

1. Recorded manhole rim elevations shall be provided.

2. Recorded invert elevation of <u>all</u> pipes penetrating each manhole shall be provided.

3. Recorded pipe lengths measured from manhole centerline to manhole centerline shall be provided.

4. Recorded pipe slopes shall be calculated by the applicant and indicated.

5. Recorded pipe diameter and pipe material shall be provided.

6. Locations of all known utility crossings, recorded concrete encasements, concrete cradles, and in-place sheeting or shoring shall be noted.

B. The following information shall be shown on a plan drawing.

1. The recorded length from each lateral connection to the downstream manhole shall be provided. In addition, the recorded length from the last lateral to the upstream manhole shall be provided.

2. Any lateral deviating from the standard wye connection and the 1/4" per foot slope shall be noted.

3. Any lateral installed for a future connection shall have the pipe cover and global positioning system (GPS) coordinates with sub-meter accuracy taken at the end of the lateral.

4. The recorded manhole frame and cover manufacturer's name and model number shall be listed.

2501.3 Force Mains

A. The following information shall be shown on a plan and profile. The profile shall show the location of all crossing utilities and their invert elevation.

1. Recorded invert elevation at each bend shall be provided. In addition the invert elevation at the force main recorded high point shall be provided.

2. GPS coordinates with sub-meter accuracy at each bend shall be provided.

3. The recorded pipe length between bends shall be provided.

4. All bend angles shall be noted.

5. The dimensions for each thrust block shall be provided.

6. When restrained joints are provided, the dimension to the first unrestrained joint shall be provided.

7. Manufacturer's data on air relief valves, gauges and all valves shall be provided separately.

8. Record drawings of any air relief and blow-off chambers shall be provided.

9. Recorded pipe diameter and pipe material shall be provided. References to ductile iron pipe being non-cement lined shall be included.

Section 2502 Final Record Plan Submittal Requirement

2502.1 The final submittal is the record plan which consists of the entire project on one (1) 1" = 100' scale plan view with the streets outlined and labeled, and the recorded lateral, gravity main and force main information shown. For smaller projects the record plan scale may be adjusted or the original drawings utilized as a background. The drawing size shall be twenty-four inches (24") by thirty-six inches (36"). Unless other arrangements are made by the applicant, the MHMUA Engineer shall prepare the final record plan submittal and the cost for same shall be borne by applicant.

2502.2 Before Contract closeout, transfer all record documents to electronic media. Drawings shall be provided in Tagged Image File (tif) format. All other documents shall be in Portable Document File (pdf) format. Scan all record documents in their original size. Electronic media shall be archival quality compact disc (CD), Memorex "Pro Gold™ Archival CD-Rs", or approved equal.

2502.3 At Contract closeout, deliver six (6) copies of the record documents along with the original marked-up record documents and two (2) copies of the record documents on electronic media to the MHMUA.

Section 2600 SANITARY SEWER MAIN TESTING

2600.1 All sanitary sewer mains are required to pass the following tests to insure there will be neither exfiltration nor infiltration:

A. Gravity Mains

1. Exfiltration and Lamping Tests: All gravity mains.

2. Deflection Testing: PVC gravity mains only.

B. Force Mains:

1. Exfiltration: All force mains.

C. No testing by the MHMUA Engineer shall be conducted until the requirements provided in the Record Plan Section are met.

D. All sanitary sewer mains shall be color televised (after having been flushed with water) prior to acceptance by the MHMUA.

Section 2601 Method of Testing – Exfiltration Test for Gravity Mains

2601.1 General requirements:

A. Exfiltration tests shall be performed on all gravity mains.

B. Perform all tests in presence of the MHMUA Engineer.

C. Conduct exfiltration test when all utilities (including gas, water, telephone and sewers), manholes, and laterals have been installed.

D. Establish test sections between consecutive manholes as directed by the MHMUA Engineer.

E. All requirements of this Section shall be met prior to acceptance of sewer facilities by the MHMUA.

2601.2 Procedure for exfiltration test (low pressure air test, 3.5 lbs.):

A. Plug test section of sewer line at each end. Tap one (1) plug and provide air inlet connection for filling pipe from air compressor.

B. Cap or plug all service laterals, stubs and fittings connecting to sewer test section; brace same against internal pressure to prevent air leakage by slippage and blowouts.

C. Connect air hose to tapped plug selected for air inlet. Connect other end of air hose to portable air control equipment used for controlling air entry rate to sewer test section and monitoring air pressure in pipeline.

D. Air control equipment shall include shut-off valve, pressure regulating valve, pressure reduction valve and a monitoring pressure gauge having a pressure range from 0 to 5 psi and an accuracy of +0.04 psi.

E. Connect another air hose between the air compressor (or other source of compressed air) and air control equipment. This completes the test equipment set up.

F. Supply air to test section slowly, filling pipeline until a constant pressure of 3.5 psig is maintained. Air pressure must be regulated to prevent pressure inside the pipe from exceeding 5.0 psig.

G. When a constant pressure of 3.5 psig is reached, throttle the air supply to maintain internal pressure above 3.0 psig for at least five (5) minutes, permitting temperature of entering air to equalize with temperature of pipe wall. During this stabilization period, check all capped and plugged fittings with a soap solution to detect leakage at connections.

H. If leakage is detected, release pressure in the line and tighten all leaky caps and plugs. Start test operation again by supplying air. When necessary to bleed off air to tighten or repair faulty connection, a new five-minute interval shall be allowed after pipeline has been refilled.

I. After this stabilization period, adjust air pressure to 3.5 psig and shut off or disconnect the air supply. Observe the gauge until the air pressure reaches 3.0 psig. At 3.0 psig commence timing with a stopwatch that is allowed to run until

the line pressure drops to 2.5 psig. The time required, as shown on the stopwatch, for a pressure loss of 0.5 psig is used to compute air loss.

J. If the time, in minutes and seconds, for the air pressure to drop from 3.0 to 2.5 psig is GREATER than that shown in Table 2 for the designated pipe size, then the section undergoing the test shall have passed.

K. If the time, in minutes and seconds, for a 0.5 psig drop is LESS than that shown in Table 2 for the designated pipe size, then the section of pipe shall have failed the test. Necessary repairs shall then be made by the Contractor and the line shall be retested.

2601.3 Procedure for air pressure correction due to groundwater:

A. Air pressure correction is required when the prevailing groundwater is above the sewer line being tested. Under this condition, the air test pressure shall be increased 0.433 psi for each foot that the groundwater level is above the invert of the pipe.

B. Establish height of the groundwater (in feet) above the pipe invert:

1. DURING SEWER AND MANHOLE CONSTRUCTION, install a one-half inch diameter pipe nipple (threaded on one or both ends, approximately ten inches long) through the manhole wall directly on top of one of the sewer pipes entering the manhole, with the threaded end of the nipple extending inside the manhole.

2. Seal the pipe nipple with a threaded one-half inch (1/2") cap.

3. Immediately before air testing, determine the groundwater level by removing the threaded cap from the nipple, blowing air through the pipe nipple to remove any obstructions, and connecting a clear plastic tube to the pipe nipple.

4. Hold the plastic tube vertically permitting water to rise to the groundwater level.

5. After the water level has stabilized in the plastic tube, measure the vertical height of the water, in feet, above the invert of the sewer pipe.

C. Determine the air pressure correction, which is added to the 3.0 psig normal starting pressure of the test, by dividing the vertical height in feet by 2.31. The result gives the air pressure correction in pounds per square inch to be added.

Example: If the vertical height of water from the sewer invert to the top of the water column measures 11.55 feet, the additional air pressure required would be:

$$\frac{11.55}{2.31} = 5 \text{ psig}$$

Starting pressure of the test would be 3.0 plus 5 or 8.0 psig, and the one-half pound drop becomes 7.5 psig. (There is no change in the allowable drop of 0.5 psig or in the time requirements established for the basic air test.)

Section 2602 Method of Testing – Lamping

2602.1 General:

A. Lamping tests shall be performed on all gravity sewer lines.

B. Lamping shall be performed by the MHMUA Engineer. The Contractor shall provide all of the necessary labor, gas detectors and safety equipment to assist the MHMUA Engineer during the lamping inspection.

2602.2 Procedure for lamping:

A. Lamping consists of visually examining the inside of the pipe between two consecutive manholes using a light and mirror.

B. The light is shown from one manhole towards the other manhole.

C. A mirror is held at the invert of the pipe and adjusted so that the light and barrel of the pipe can be seen.

D. The barrel of the pipe shall have no vertical deflection and at least seventy-five percent (75%) of the barrel shall be visible in the horizontal direction.

E. In the event that lamping shows the pipe not laid to line and grade within the acceptance limits specified above, then it shall be repaired and relamped as necessary until the lamping complies with the acceptance limits.

F. No lamping shall be performed until all gravity lines have been jet cleaned and vacuumed.

Section 2603 Method of Testing – Deflection

2603.1 General:

A. Deflection tests shall be performed on PVC gravity sewer lines only.

B. For pipe conforming to the requirements of ASTM D-3034, ASTM F-679, ASTM F-794, ASTM D-2241, AWWA C-900 and AWWA C-905 the maximum allowable pipe deflection (reduction in vertical inside diameter) shall be 5%.

2603.2 Procedure for Deflection Testing:

A. Deflection tests shall be successfully performed on the complete installation by means of one of the following methods prior to the acceptance of construction.

1. "Go-No-Go" mandrel properly sized.

2. Calibrated television.

Section 2604 Sanitary Force Main Testing

2604.1 General Requirements:

A. The Contractor shall be responsible for supplying all equipment, tools and personnel to perform the necessary tests. He shall also provide personnel as required to assist the MHMUA Engineer during his visual inspection. The MHMUA Engineer must be present at all times during pressure testing of a force main.

B. A visual inspection of all terminations and manholes shall be performed to insure that construction on this force main system meets all the drawing and specifications requirements, and in addition, all clean-up work has been completed.

Section 2605 Method of Testing – Exfiltration Test for Force Mains

2605.1 General requirements:

A. Exfiltration tests shall be performed on all force mains.

B. Perform all tests in the presence of the MHMUA Engineer.

C. Conduct exfiltration test prior to backfilling trench.

D. Establish test sections between valves, or as directed by the MHMUA Engineer.

E. All requirements of this Section shall be met prior to acceptance of the force main by the MHMUA.

2605.2 Procedure for exfiltration test:

A. Expel air from the pipe through blow-offs, or taps required for the release of air from high points. Taps for release of air and blow-offs for filling the pipe and releasing air shall be provided by the Contractor.

B. Fill each pipe section slowly with water, and subject the pipe to a hydrostatic pressure of 150-psi for one (1) hour. When the test pressure is reached, measure the amount of make-up water required to maintain this pressure during the one (1) hour test period.

C. Leakage shall not exceed twelve (12) gallons per inch of diameter per mile of pipe per day. Pipelines failing to meet this requirement shall be repaired and retested as specified above.

D. Compute leakage as follows:

1. Gallons of make-up water x 24 = gallons loss/day

2. Gallons loss/day x $\frac{\text{feet of pipe testing}}{\text{5,280 feet/mile}}$ = gallons loss/mile/day

3. $\frac{\text{Gallons loss/mile/day}}{\text{Pipe dia. in inches}}$ = Gallons loss/inch diameter/mile/day

4. Allowable exfiltration rate is 12 gallons loss/ inch diameter/mile/day

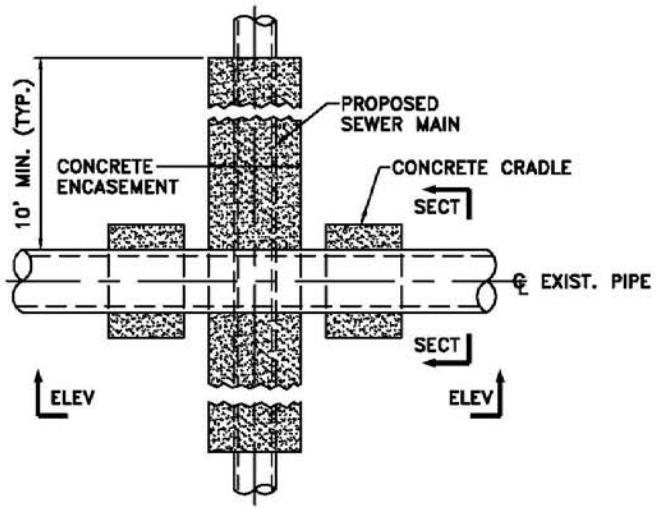
TABLE 2

TIME REQUIREMENTS FOR AIR TESTING
FOR SEWER LINE OF UNIFORM PIPE SIZE*

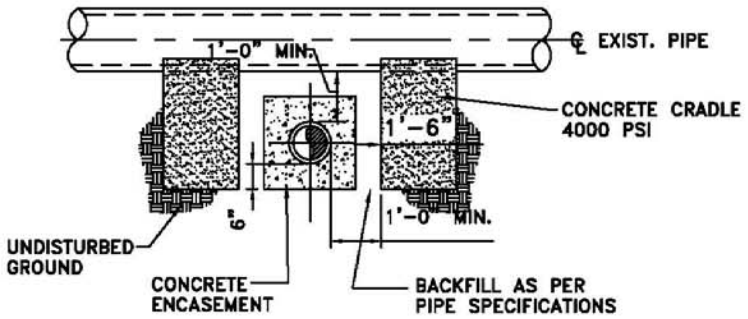
Pipe Size	Time	
Inches	Minutes	Seconds
4**	2	32
6**	3	50
8**	5	6
10	6	22
12	7	39
14	8	56
15	9	35
16	10	12
18	11	34
20	12	45
21	13	30

* Multi-Pipe Sizes: When sewer line undergoing test is eight-inch (8") or larger diameter pipe and includes different sized laterals, the figures in Table 2 for uniform sewer main sizes WILL NOT give reliable or accurate criteria for the test. Where multi-pipe sizes are to undergo air testing, the MHMUA Engineer will compute "average" size in inches which is multiplied by 38.2 seconds. The results give minimum time in seconds acceptable for pressure drop of 0.5 psig for "averaged" diameter pipe.

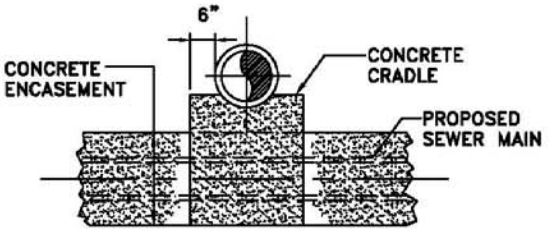
** For eight-inch (8") and smaller pipe only, if during the five-minute stabilization period, pressure drops less than 0.5 psig after initial pressurization and air is NOT added, pipe section undergoing test shall have passed.



PLAN



ELEVATION



SECTION

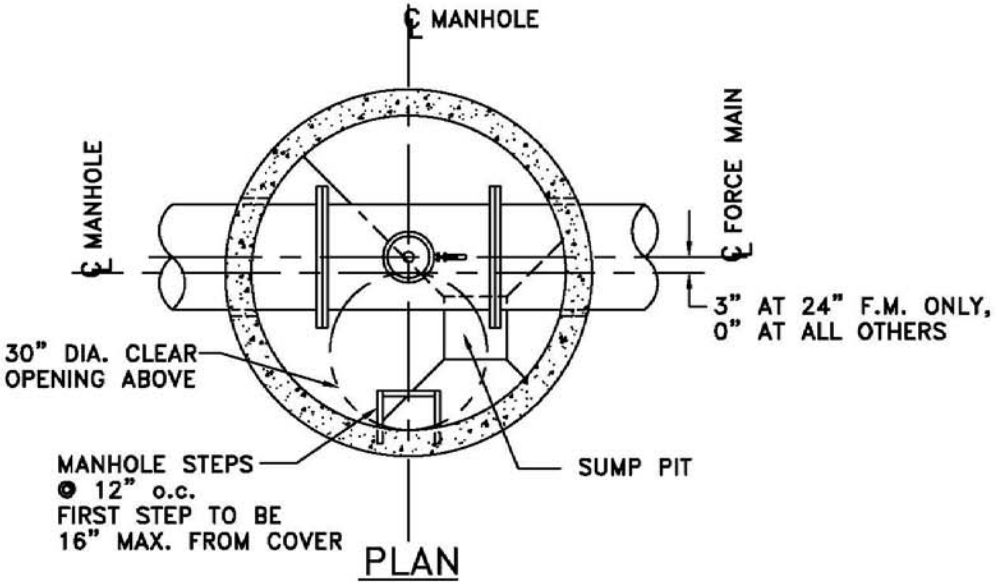
CONC. CRADLE NOTE:

USE CONC. CRADLES WHERE LESS THAN 18" VERTICAL SEPARATION IS PROVIDED BETWEEN THE OUTSIDE WALLS OF THE SEWER MAIN AND ANY PIPE CROSSING ABOVE.

CONCRETE CRADLE

BY	DATE	REVISIONS	MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY	CONCRETE CRADLE DETAIL	DATE : 7/2000 DWN BY : JMB	SHT. NO. 1

M:\ Projects\ M00300007000\ STD-DETS\ SHT1-23 DATE: JUN 19, 2009 TIME: 11:09 AM



AIR RELIEF MANHOLE

NOTES (AIR RELIEF MANHOLE):

1. CIRCUMFERENTIAL STEEL
   48" DIA. M.H. – 0.12 SQ. IN. / VERT. FT.
   60" DIA. M.H. – 0.15 SQ. IN. / VERT. FT.
2. 4000 PSI CONCRETE – PRECAST MANHOLE SECTIONS
3. ALL VALVES SHALL CLOSE IN CLOCKWISE DIRECTION
4. PRECAST REINFORCED MANHOLE SECTIONS TO COMPLY WITH ASTM SPECIFICATION C478.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTING ADEQUATE BALLAST TO OFFSET FLOTATION FORCES ACTING ON MANHOLES.
6. A.R.I. AIR RELIEF VALVE TO BE MODEL D-025-T.
7. COMPOUND GAUGE SHALL BE 4 1/2" DIAL, 30" VAC., SAME PRESSURE RANGE AS PUMP DISCHARGE GUAGE, STAINLESS STEEL BOURDON TUBE TYPE, 1/2" BOTTOM CONNECTION WITH A PHENOLIC CASE. WIKA OR APPROVED EQUAL.
8. DIAPHRAGM SEAL SHALL HAVE 1" THREADED PROCESS CONNECTION, FLUSHING CONNECTION, 1/2" INSTRUMENT CONNECTION, AISI TYPE 316 STAINLESS STEEL BOTTOM HOUSING & HALOCARBON FILLING FLUID. PROVIDE VITON DIAPHRAGM MATERIAL. SEAL SHALL WORK UNDER VACUUM CONDITIONS. WIKA OR APPROVED EQUAL.
9. ALL GALV. STEEL PIPE SHALL BE HOT DIPPED IN ACCORDANCE WITH ASTM A123.

BY	DATE	REVISIONS

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

FORCE MAIN AIR RELIEF MH PLAN, NOTES & SCHEDULE

DATE : 7/2000

DWN BY : JMB

SHT. NO. 2

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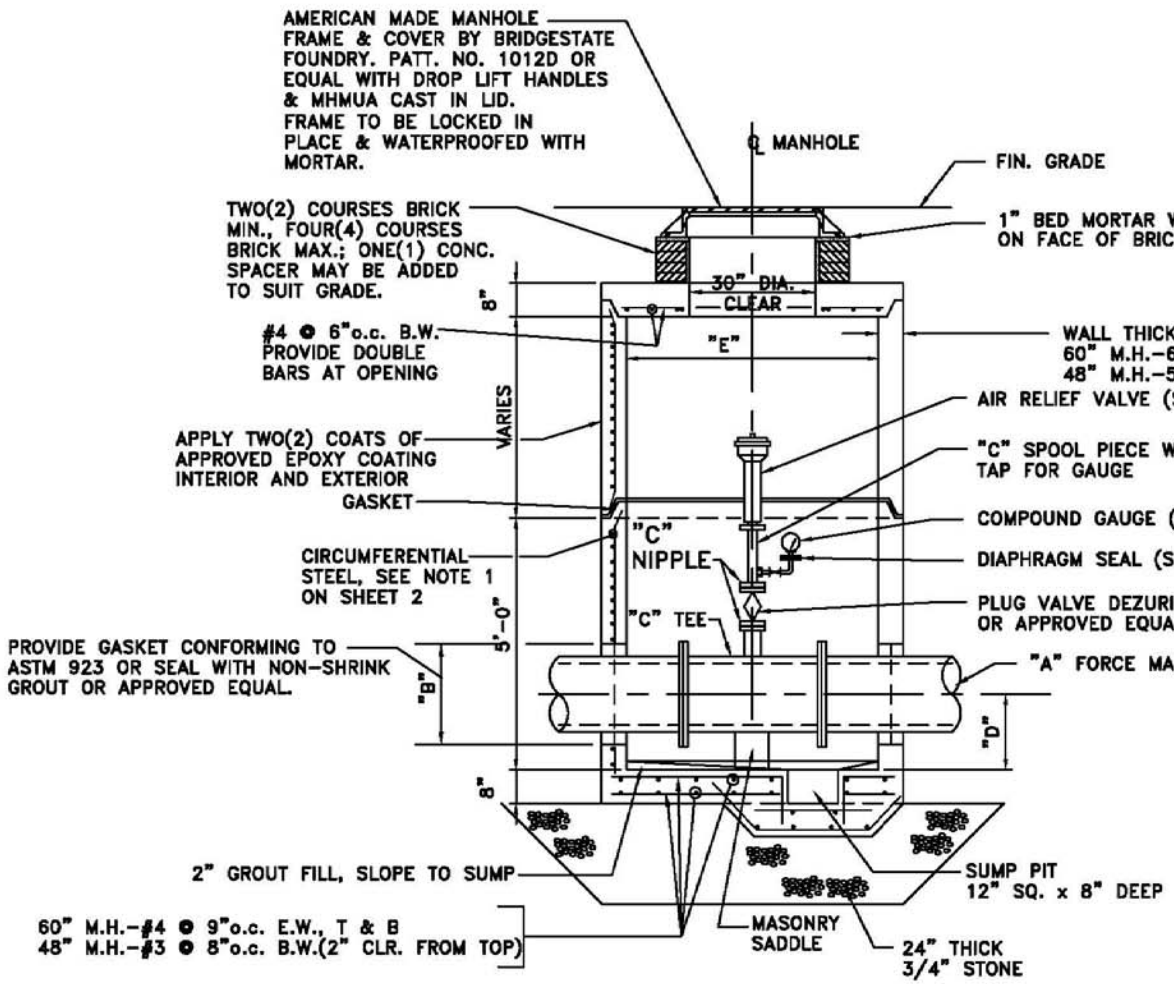

SECTION

AIR RELIEF MANHOLE

AIR RELIEF MANHOLE SCHEDULE				
"A" FORCE MAIN SIZE Inches	"B"* OPNG. FOR F.M. Inches	"C" FITTING SIZE Inches	"D" FORCE MAIN ℄ Inches	"E" M.H. DIA. (I.D.) Inches
4	10	2	11	48
6	12	2	12	48
8	15	2	13	48
10	18	2	14	48
12	20	2	15	48
16	25	3	17	48
18	27	3	18	60
20	29	3	19	60
24	33	3	21	60

* BLOCK MANHOLE ONLY

BY	DATE	REVISIONS

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

FORCE MAIN AIR RELIEF MH SECTION

DATE : 7/2000

DWN BY : JMB

SHT. NO. 3

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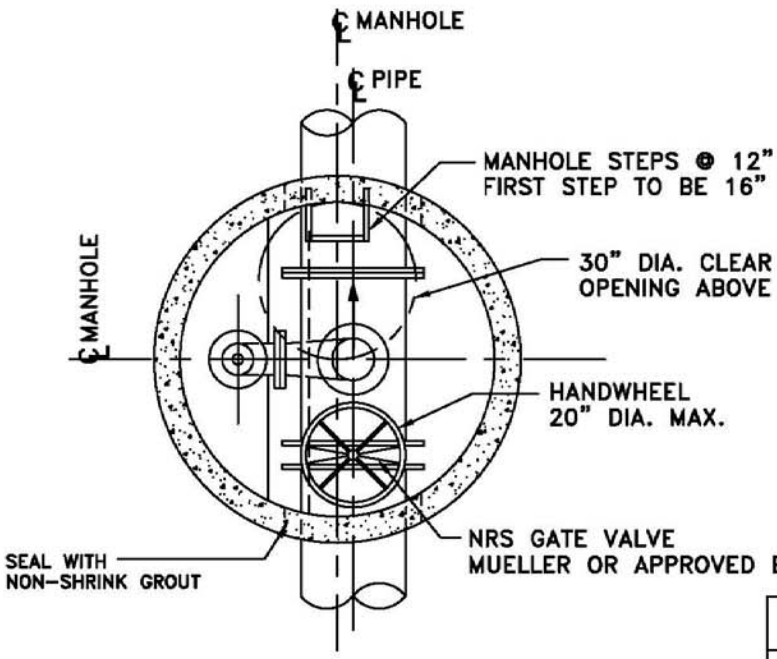


PLAN

BLOW-OFF MANHOLE

BLOW-OFF MANHOLE SCHEDULE

FORCE MAIN SIZE Inches	DIMENSIONS A Inches	B Inches	C Inches	D A+B+C Inches	E Approx. Inches	F M.H.I.D. Inches	TEE RUN/BRANCH Inches	BASE ELL # 1 (LONG RADIUS) Inches	BASE ELL # 2 Inches	RISER Inches
4	7	9	6.5	22.5	21	48	4/4	4	4	4
6	7	9	8	24	27	48	6/4	4	4	4
8	8	11.5	9	28.5	33	60	8/6	6	6	6
10	8	11.5	11	30.5	37	60	10/6	6	6	6
12	8	11.5	12	31.5	44	60	12/6	6	6	6
16	8	11.5	15	34.5	54	60	16/6	6	6	6
18	9	14	15.5	38.5	61	60	18/8	8red6	6	6
20	9	14	17	40	69	60	20/8	8red6	6	6
24	9	14	19	42	81	60	24/8	8red6	6	6

BY	DATE	REVISIONS

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

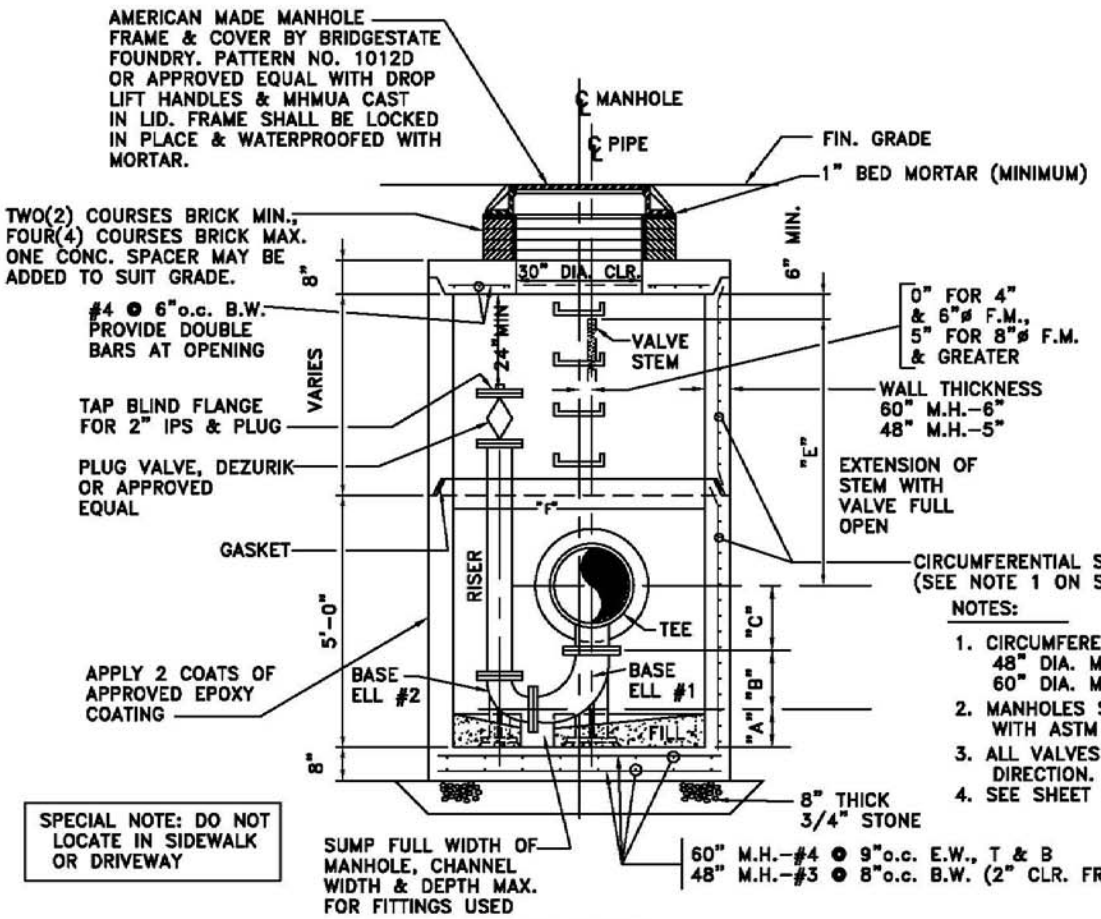
FORCE MAIN BLOW-OFF MANHOLE-PLAN & SCHEDULE

DATE : 7/2000

DWN BY : JMB

SHT. NO. 4

M:\ Projects\ M00300007000\ STD-DETS\ SHT1-23 DATE: JUN 19, 2009 TIME: 11:09 AM



NOTES:

1. CIRCUMFERENTIAL STEEL
   48" DIA. M.H. – 0.12 SQ. IN./VERT. FT.
   60" DIA. M.H. – 0.15 SQ. IN./VERT. FT.
2. MANHOLES SHALL BE PRECAST CONCRETE IN ACCORDANCE WITH ASTM C478.
3. ALL VALVES SHALL CLOSE IN CLOCKWISE DIRECTION.
4. SEE SHEET 4 FOR MANHOLE SCHEDULE

SECTION

BLOW-OFF MANHOLE

BY	DATE	REVISIONS

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

FORCE MAIN BLOW OFF MANHOLE–SECTION

DATE : 7/2000

DWN BY : JMB

SHT. NO. 5

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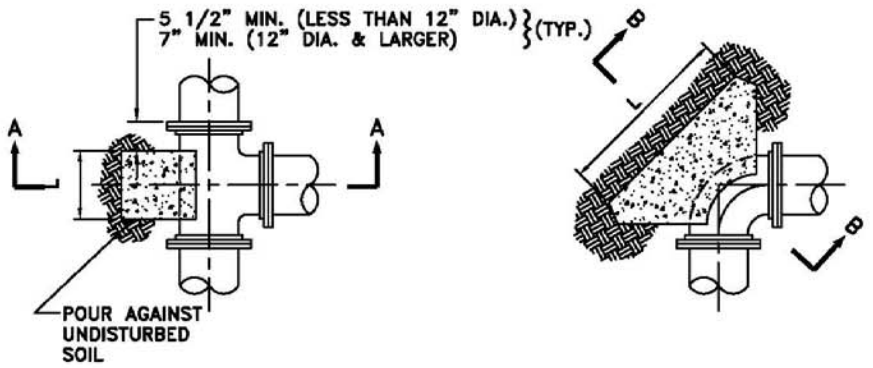
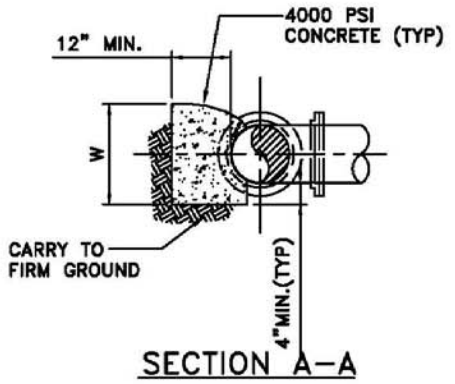
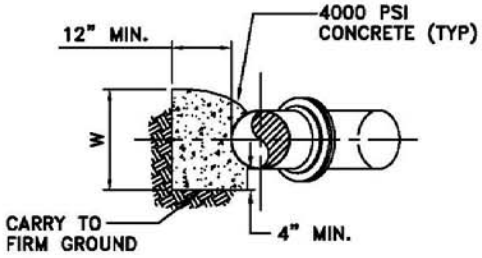


PLAN AT TEE

PLAN AT BEND



SECTION A–A



SECTION B–B

THRUST BLOCKS

BY	DATE	REVISIONS

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

THRUST BLOCK DETAIL

DATE : 7/2000

DWN BY : JMB

SHT. NO. 6

M:\ Projects\ M00300007000\ STD–DETS\ SHT1–23 DATE: JUN 19, 2009 TIME: 11:09 AM

THRUST BLOCK NOMOGRAPH
INDEX LINE
DEAD END
1
2
3
T
H
Q
d
P
Δ
MOUNT HOLLY
MUNICIPAL UTILITIES AUTHORITY
THRUST BLOCK
NOMOGRAPH
DATE : 7/2000
DWN BY : JMB
SHT. NO. 7
BY DATE REVISIONS

PROCEDURE FOR CALCULATING REQUIRED AREA OF THRUST BLOCK

LEGEND

H – HYDRAULIC HEAD/WATER PRESSURE, FT.
d – DIAMETER OF PIPE, IN.
△ – PIPE BEND, DEGREE
T – TOTAL RADIAL THRUST, LBS.
P – SOIL BEARING PRESSURE, PSI
a – AREA OF THRUST BLOCK, SQ. FT. (LxW)

STEP (1)

CONSTRUCT LINE FROM "DIAMETER OF PIPE" (d) TO "WATER PRESSURE/HYDRAULIC HEAD (H) TO ESTABLISH POINT ON "INDEX LINE".

STEP (2)

CONSTRUCT LINE FROM "PIPE BEND" (△) THROUGH ESTABLISHED POINT ON "INDEX LINE" TO INTERSECT "TOTAL RADIAL THRUST" (T) LINE.

STEP (3)

CONSTRUCT LINE FROM POINT ON "TOTAL RADIAL THRUST" (T) LINE TO KNOWN POINT ON "SOIL BEARING PRESSURE" (P) LINE WHICH DETERMINES REQUIRED "AREA OF THRUST BLOCK" (a).

EXAMPLE: GIVEN (A) 16" DIAMETER PIPE – 45° ELBOW
(B) WATER PRESSURE 60 PSI
(C) SOIL BEARING PRESSURE 2000 PSI
(1) LINE d–H–INDEX POINT
(2) LINE △ – INDEX POINT–T (9000 LBS)
(3) LINE T–P–a
REQUIRED THRUST BLOCK BEARING AREA = 4.5 S.F.

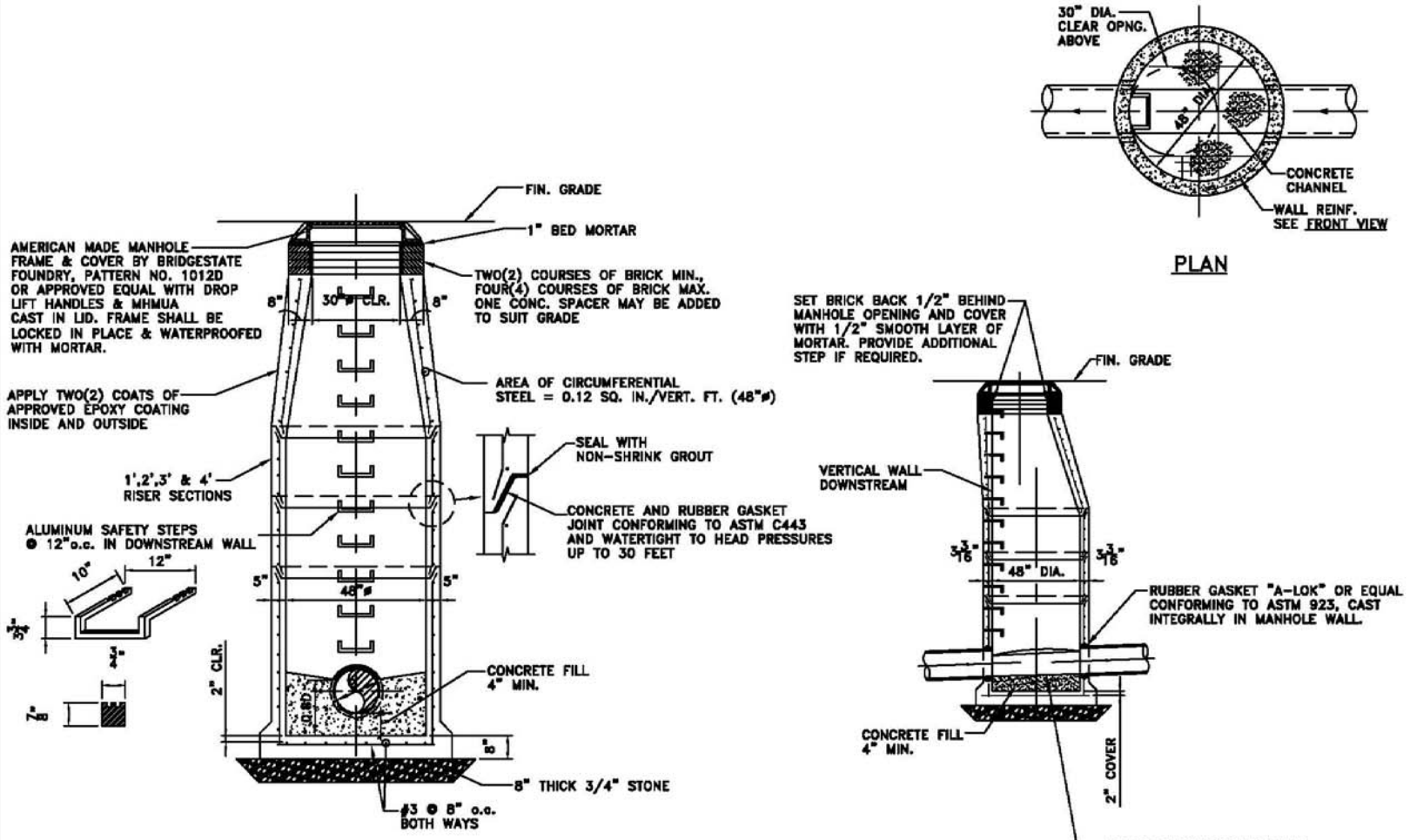
NOTES:

1. NOMOGRAPH DOES NOT APPLY FOR VERTICAL DOWN BENDS.
2. INTERNAL WATER PRESSURE TO BE 150 psi.
3. SOIL BEARING PRESSURE TO BE DETERMINED IN FIELD.

THRUST BLOCK NOMOGRAPH NOTES

BY	DATE	REVISIONS	MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY	THRUST BLOCK NOMOGRAPH NOTES	DATE : 7/2000 DWN BY : JMB	SHT. NO. 8

M:\ Projects\ M00300007000\ STD–DETS\ SHT1–23 DATE: JUN 19, 2009 TIME: 11:09 AM



SANITARY SEWER MANHOLE

BY	DATE	REVISIONS

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

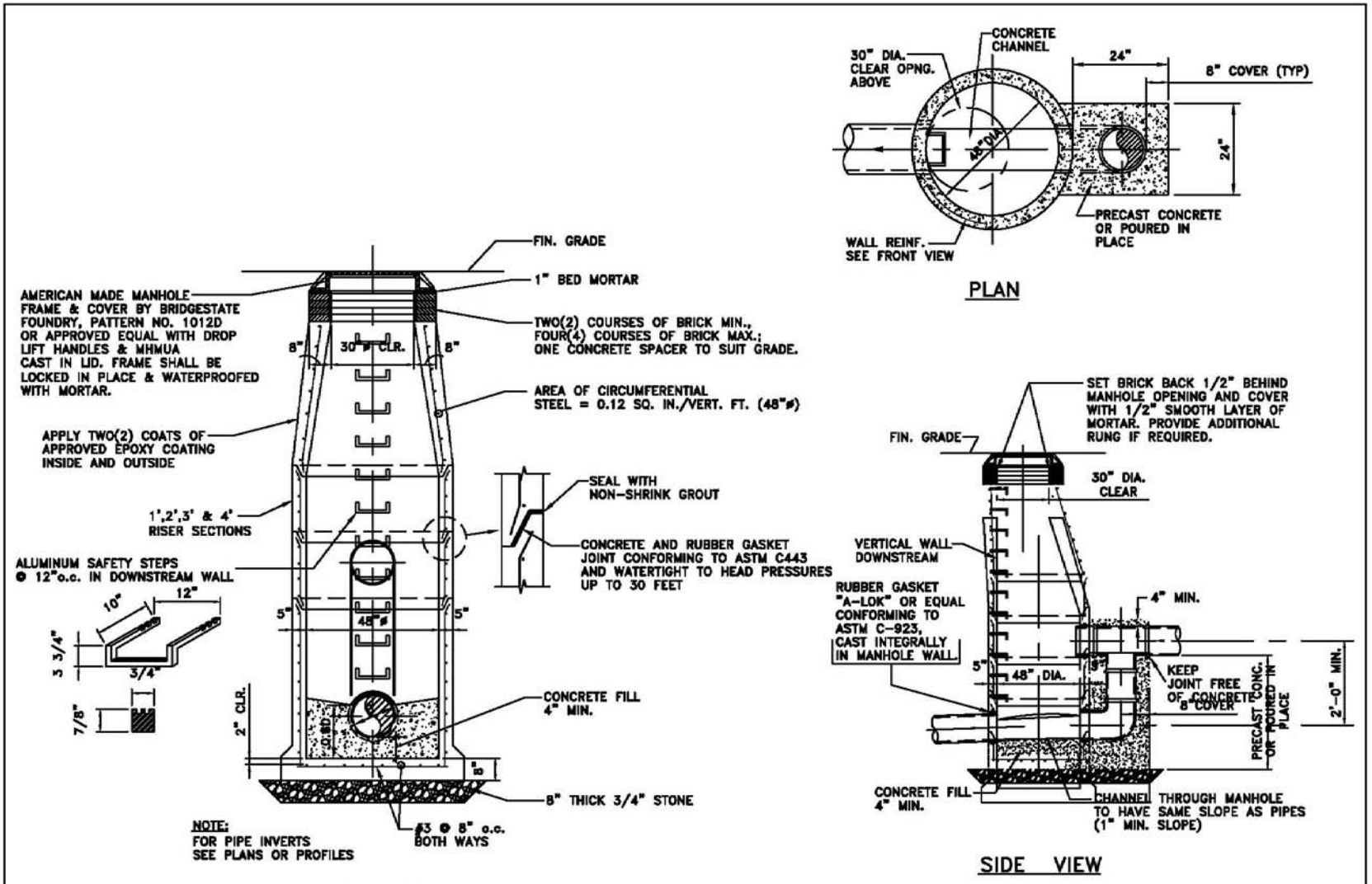
SANITARY SEWER PRECAST CONCRETE MANHOLE

DATE : 7/2000

DWN BY : JMB

SHT. NO. 9

M:\ Projects\ M00300007000\ STD-DETS\ SHT1-23 DATE: JUN 19, 2009 TIME: 11:09 AM



SANITARY SEWER DROP MANHOLE

BY	DATE	REVISIONS

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

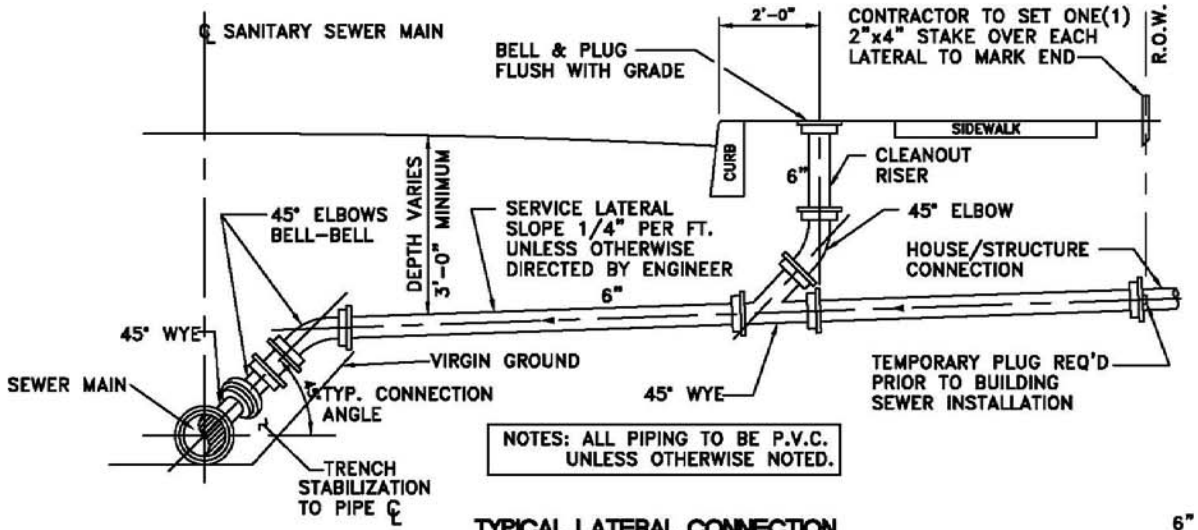
SANITARY SEWER PRECAST CONCRETE DROP MANHOLE

DATE : 7/2000

DWN BY : JMB

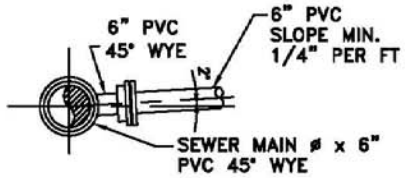
SHT. NO. 10

M:\ Projects\ M00300007000\ STD-DETS\ SHT1-23 DATE: JUN 19, 2009 TIME: 11:09 AM



NOTES: ALL PIPING TO BE P.V.C. UNLESS OTHERWISE NOTED.

TYPICAL LATERAL CONNECTION



ALTERNATE CONNECTION

AT SEWER MAIN

ONLY PERMITTED WHERE APPROVED BY THE ENGINEER

BY	DATE	REVISIONS

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

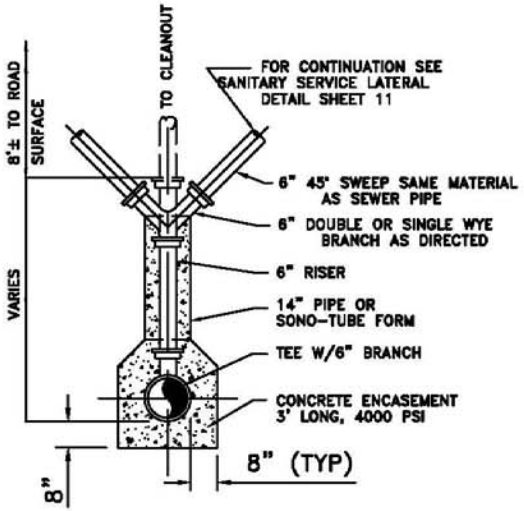
SANITARY SERVICE LATERAL AND ALTERNATE CONNECTION

DATE : 7/2000

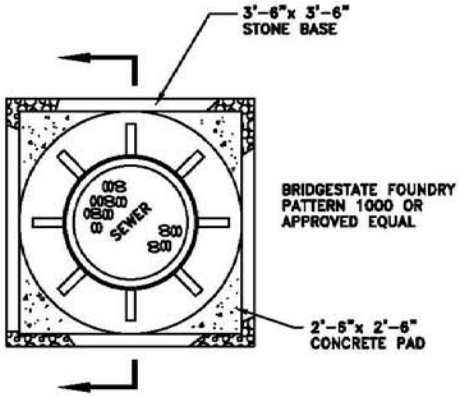
DWN BY : JMB

SHT. NO. 11

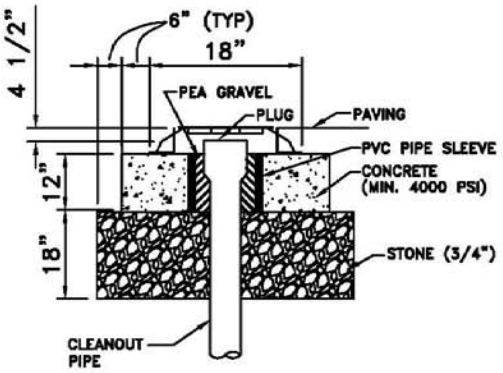
M:\ Projects\ M00300007000\ STD-DETS\ SHT1-23 DATE: JUN 19, 2009 TIME: 11:09 AM



DEEP CUT LATERAL CONNECTION



PLAN



SECTION

LATERAL CLEANOUT IN PAVED AREA

BY	DATE	REVISIONS
KMW	6/28/05	ADD SLEEVE AND GRAVEL

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

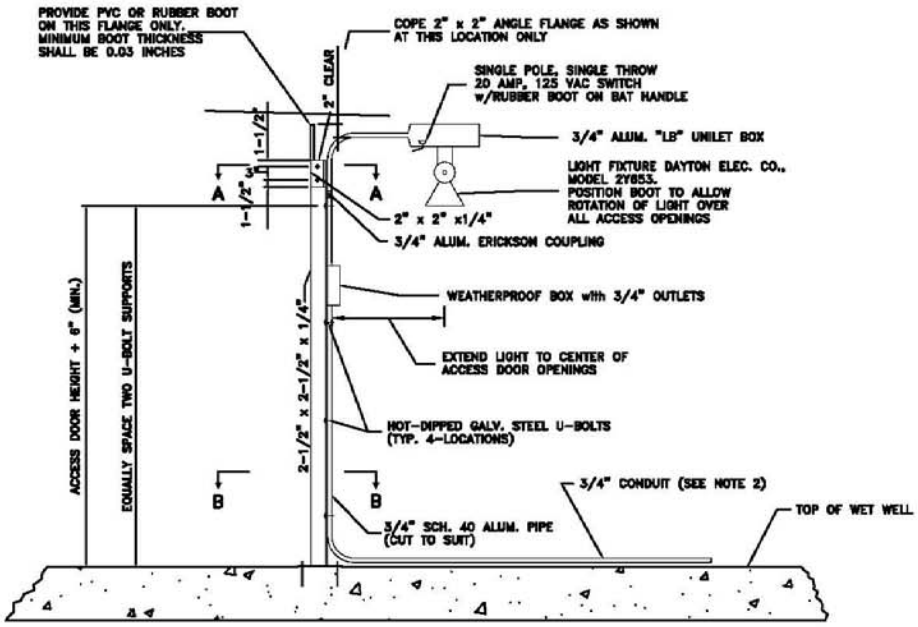
DEEP CUT LATERAL CONNECTION

DATE : 7/2000

DWN BY : JMB

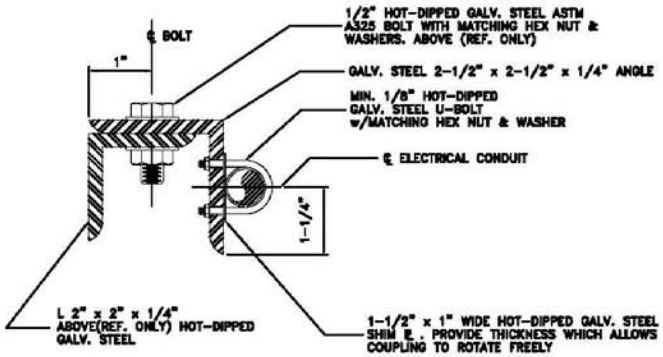
SHT. NO. 12

M:\ Projects\ M00300007000\ STD-DETS\ SHT1-23 DATE: JUN 19, 2009 TIME: 11:09 AM

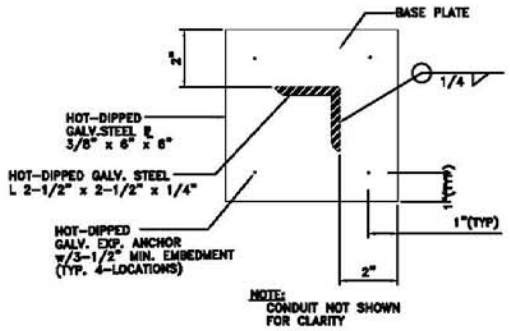


NOTES:
1. APPLICANT'S ENGINEER TO SHOW BASE PLATE LOCATION ON PLAN VIEW OF WET WELL.

2. PROVIDE PVC HOLDDOWN STRAPS @ 4'-0" O.C. W/ S.S. ANCHORS.



SECTION A



SECTION B

WET WELL SWIVEL LIGHT

BY	DATE	REVISIONS

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

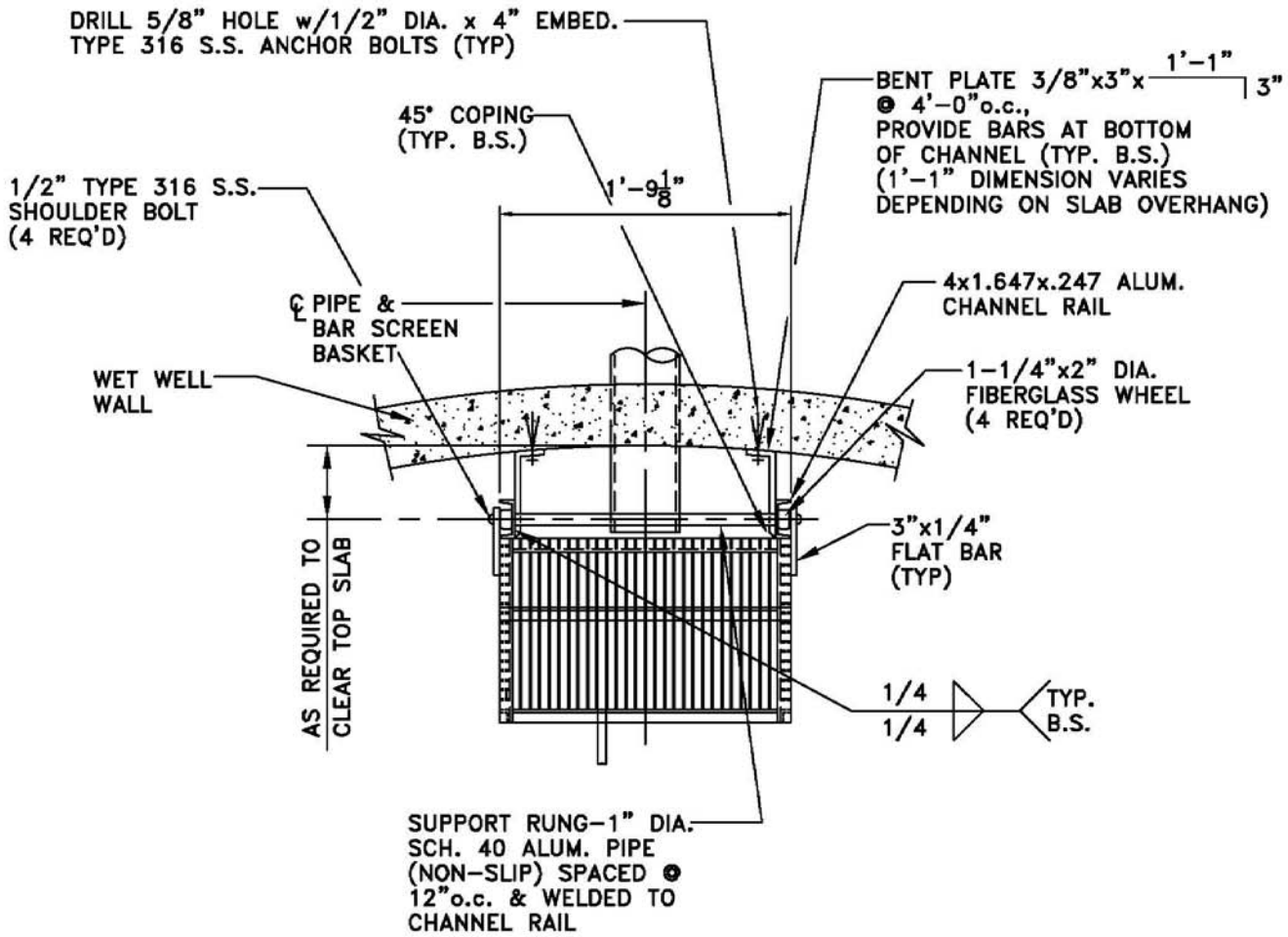
WET WELL SWIVEL LIGHT

DATE : 7/2000

DWN BY : JMB

SHT. NO. 13

M:\ Projects\ M00300007000\ STD-DETS\ SHT1-23 DATE: JUN 19, 2009 TIME: 11:09 AM



PLAN

BAR SCREEN

BY	DATE	REVISIONS

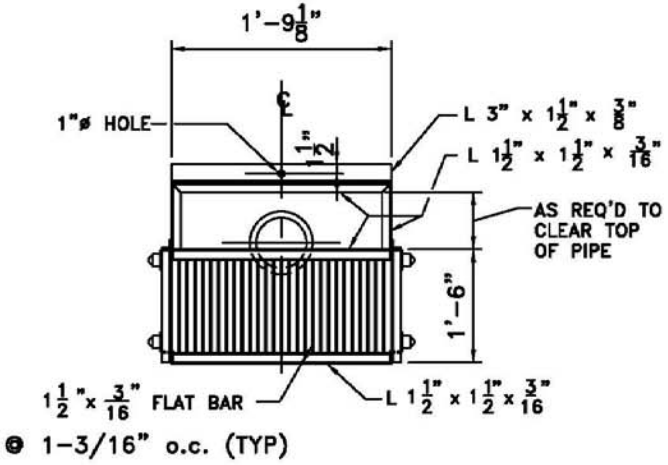
MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

BAR SCREEN
WET WELL (PLAN)

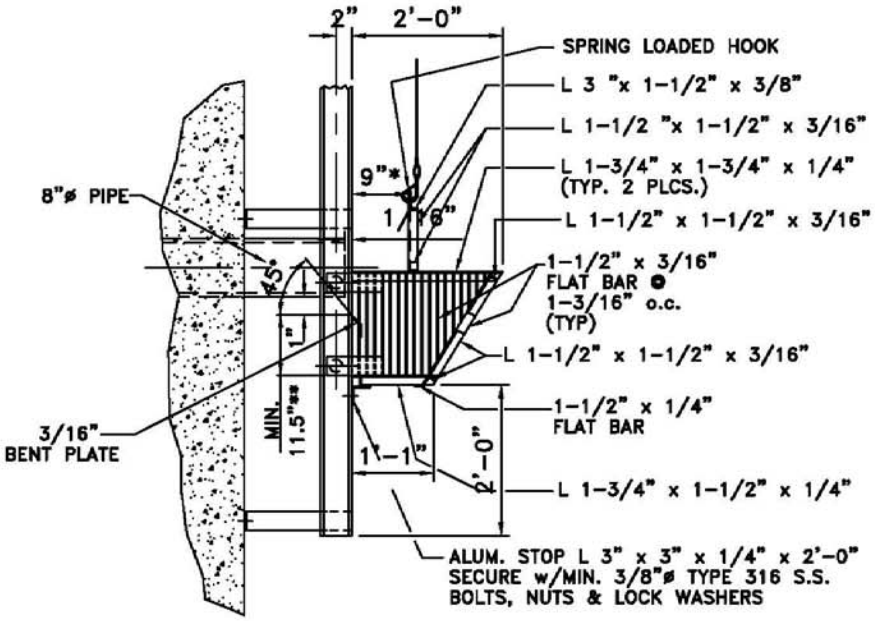
DATE : 7/2000
DWN BY : JMB

SHT. NO. 14

M:\ Projects\ M00300007000\ STD-DETS\ SHT1-23 DATE: JUN 19, 2009 TIME: 11:09 AM



FRONT VIEW



SIDE VIEW

NOTES:

1. * CONTRACTOR TO COORDINATE DIMEN'S IN ORDER TO PROVIDE A DIRECTLY VERTICAL ALIGNMENT OF THE BAR SCREEN CABLE.
2. **PROVIDE 1-1/2"x3/16" @ 1-3/16" CENTER TO CENTER FLAT BARS ON BACK SIDE OF BAR SCREEN FOR ENTIRE 11" DEPTH.
3. BAR SCREEN WIDTH SHOWN IS FOR 8" SEWER. WIDTH SHALL INCREASE WITH LARGER SEWER.
4. ALL MATERIAL UTILIZED TO FABRICATE AND INSTALL THE BAR SCREEN SYSTEM SHALL BE EITHER ALUMINUM ALLOY 6061-T6 OR 6063-T6, TYPE 316 STAINLESS STEEL (S.S.) OR REINFORCED FIBERGLASS.

BAR SCREEN

BY	DATE	REVISIONS

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

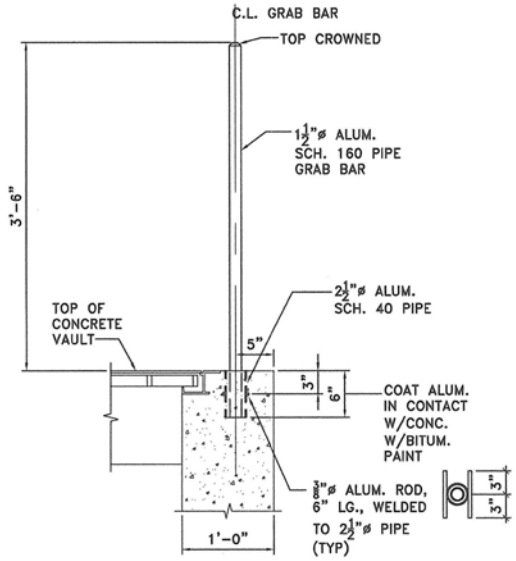
BAR SCREEN WET WELL FRONT AND SIDE VIEWS

DATE : 7/2000

DWN BY : JMB

SHT. NO. 15

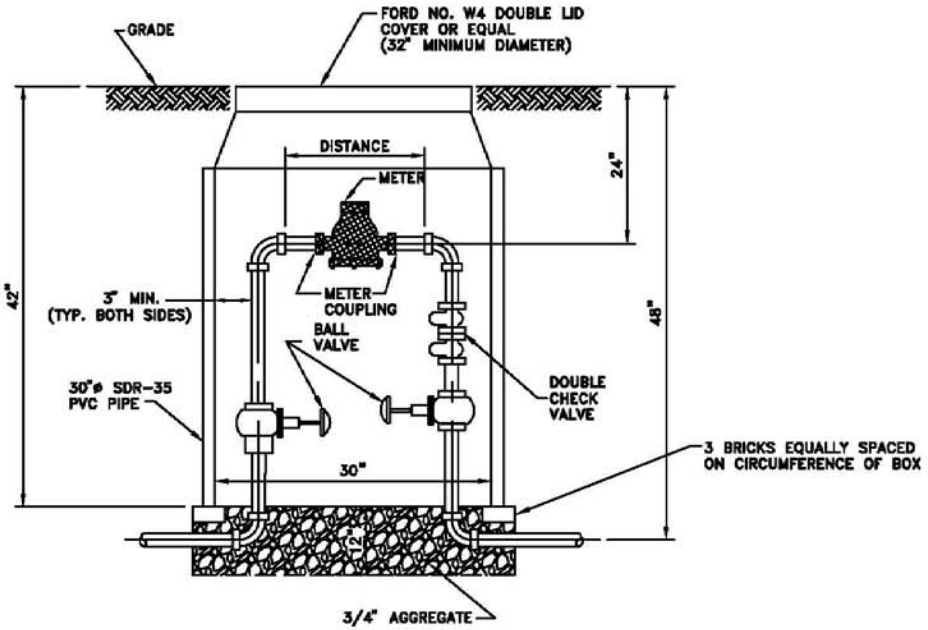
M:\ Projects\ M00300007000\ STD-DETS\ SHT1-23 DATE: JUN 19, 2009 TIME: 11:09 AM



REMOVABLE ALUMINUM GRAB BAR

SCALE: 1" = 1'-0"

BY	DATE	REVISIONS	MOUNT HOLLY MUNICIPAL UTILITY AUTHORITY	REMOVABLE GRAB BAR DETAIL	DATE: 1/2009 DRAWN BY:	SHEET NO. 16



NOTE:

1. METER COUPLINGS ARE PROVIDED BY THE WATER COMPANY AND INSTALLED BY THE CUSTOMER. SHADED AREAS ARE SUPPLIED, INSTALLED, MAINTAINED AND OWNED BY THE WATER COMPANY. ALL NON-SHADED AREAS ARE SUPPLIED, INSTALLED, MAINTAINED AND OWNED BY THE CUSTOMER EXCEPT WHERE NOTED OTHERWISE.
2. ELECTRIC LINES ARE NOT TO BE GROUNDED TO WATER PIPING
3. METER DIAMETER TO BE 5/8" OR 1"
4. ALL PIPING TO BE 3/4" DIAMETER (TYPE K) COPPER.

SIZE OF METER	DISTANCE
5/8"	12"
1"	15-1/2"

WATER METER PIT

BY	DATE	REVISIONS

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

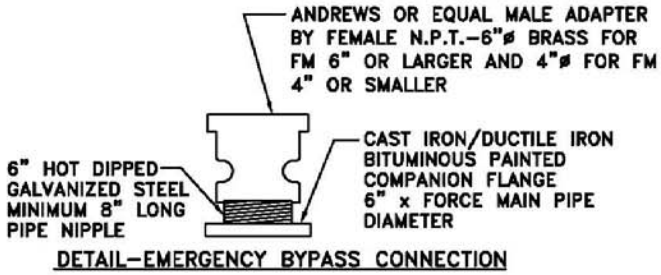
WATER METER PIT DETAIL

DATE : 7/2000

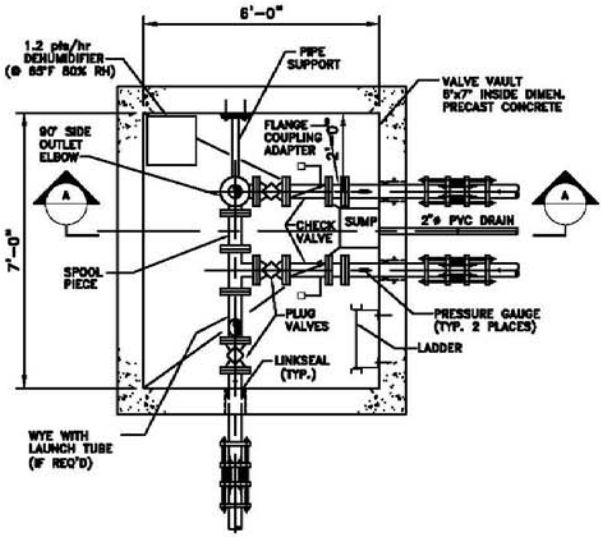
DWN BY : JMB

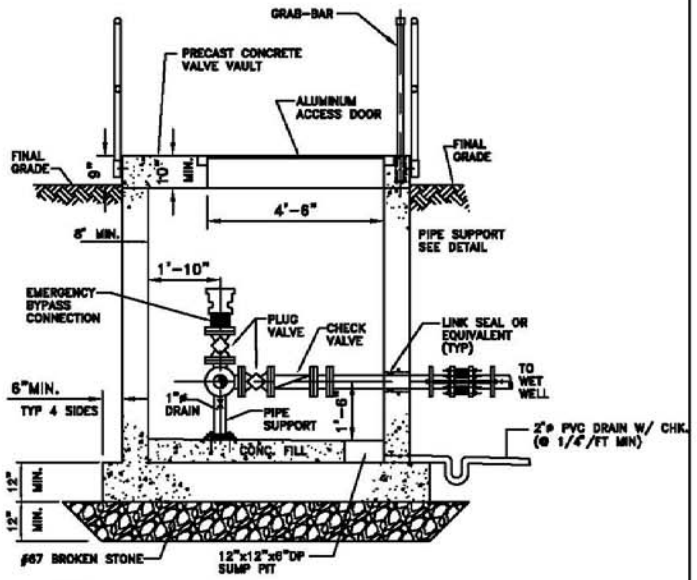
SHT. NO. 17

M:\ Projects\ M00300007000\ STD-DETS\ SHT1-23 DATE: JUN 19, 2009 TIME: 11:09 AM



DETAIL–EMERGENCY BYPASS CONNECTION





NOTES
1. GALVANIZED STEEL PIPE SUPPORTS TO BE PROVIDED AS REQUIRED.
2. CONCRETE TO BE SLOPED TOWARDS 2"ø PVC DRAIN PIPE IN BOTTOM OF VALVE VAULT.

SECTION A
SCALE: 1/2"=1'–0"

VALVE VAULT

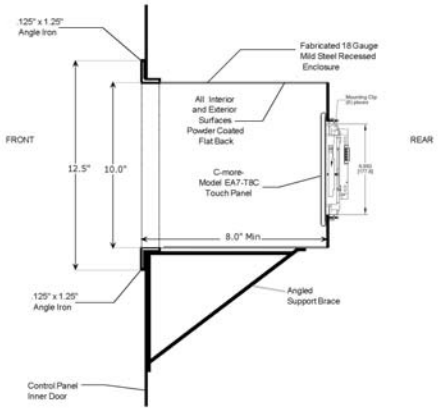
BY	DATE	REVISIONS

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

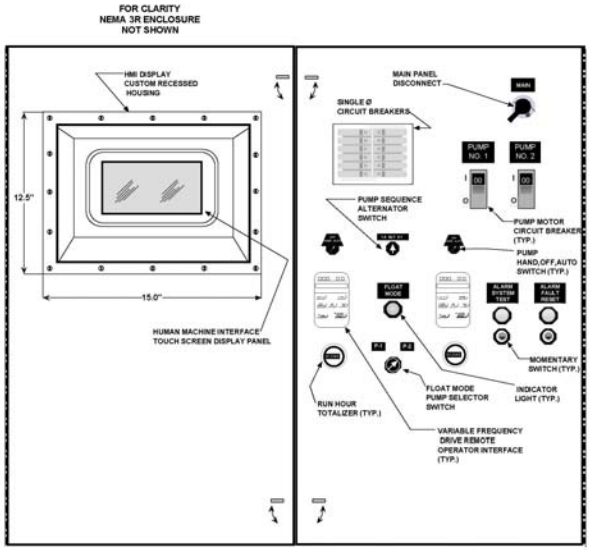
VALVE VAULT AND DETAILS

DATE : 7/2000
DWN BY : JMB
SHT. NO. 18

M:\ Projects\ M00300007000\ STD–DETS\ SHT1–2% DATE: JUN 19, 2009 TIME: 11:09 AM

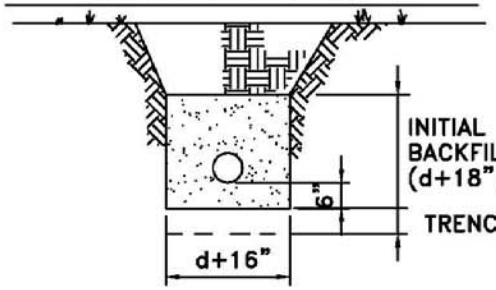
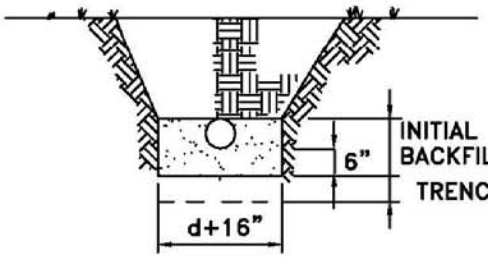
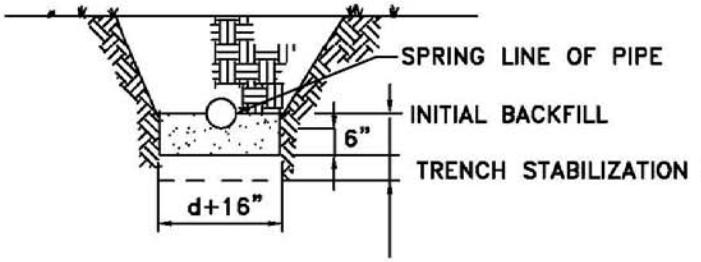


CUSTOM RECESSED TOUCH SCREEN BOX DETAIL



PUMP CONTROL PANEL DETAIL

BY	DATE	REVISIONS	MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY	CUSTOM RECESSED BOX FOR TOUCH PANEL DETAIL N.T.S.	DATE 3/2009 DRAWN BY:	SHEET NO. 19

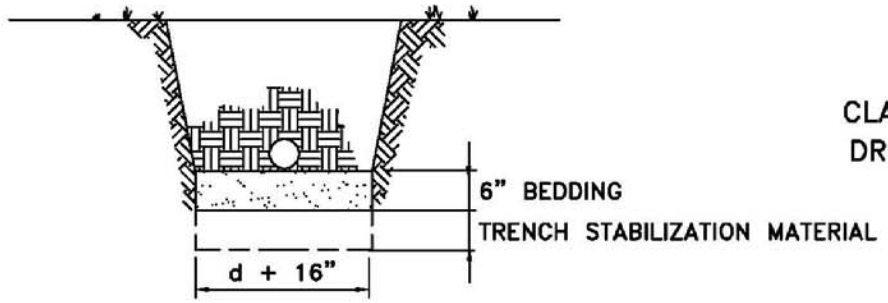
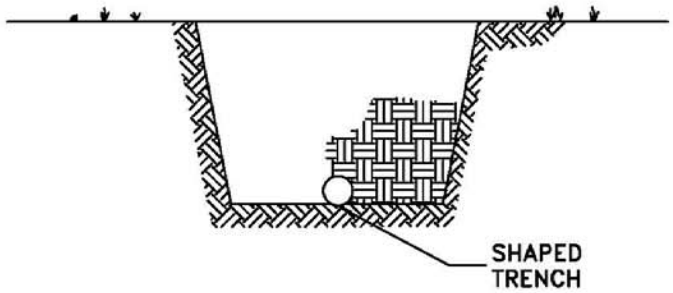
SPECIFIED CLASS OF P.V.C. PIPE WITH 3–12' OF COVER	BEDDING AND INITIAL BACKFILL REQUIREMENTS FOR SPECIFIED PIPE CLASS & COVER CONDITION	SPECIFIED CLASS OF P.V.C. PIPE WITH 12–20' OF COVER
SDR–35		SDR–35
d = PIPE DIAMETER		
N/A		CLASS 100 DR–25
CLASS 100 DR–25		CLASS 150 DR–18

NOTE
SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS ON PIPING AND EARTHWORK

P.V.C. GRAVITY SANITARY SEWER AND LATERAL INSTALLATION

BY	DATE	REVISIONS	MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY	PVC GRAVITY SEWER INSTALLATION	DATE : 7/2000	SHT. NO. 20
					DWN BY : JMB	

M:\ Projects\ M00300007000\ STD–DETS\ SHT1–23 DATE: JUN 19, 2009 TIME: 11:09 AM

SPECIFIED CLASS OF P.V.C. PIPE WITH 3–12' OF COVER	BEDDING AND INITIAL BACKFILL REQUIREMENTS FOR SPECIFIED PIPE CLASS & COVER CONDITION	SPECIFIED CLASS OF P.V.C. PIPE WITH 12–20' OF COVER
CLASS 150 DR–18		CLASS 200 DR–14
CLASS 200 DR–14		N/A

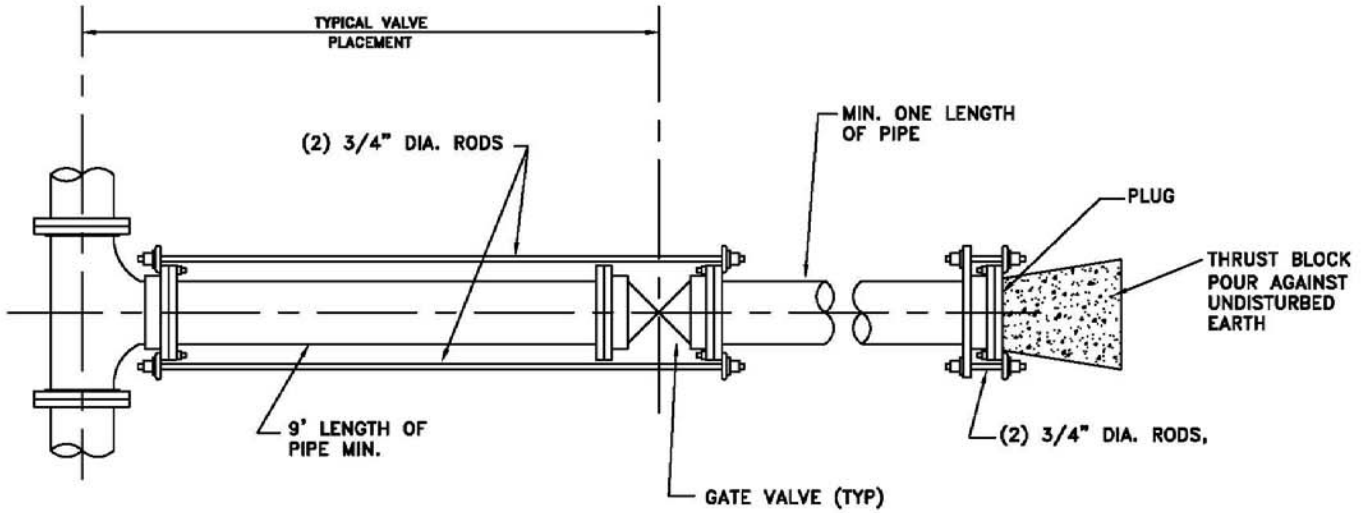
NOTES:

1. DEPTH OF COVER OVER P.V.C. PIPE:
   MINIMUM: 3 FEET
   MAXIMUM: 20 FEET
2. DEPTH OF TRENCH STABILIZATION MATERIAL TO BE DETERMINED BY AUTHORITY'S ENGINEER.

P.V.C. GRAVITY SANITARY SEWER AND LATERAL INSTALLATION

BY	DATE	REVISIONS	MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY	PVC GRAVITY SEWER INSTALLATION	DATE : 7/2000 DWN BY : JMB	SHT. NO. 21

M:\ Projects\ M00300007000\ STD–DETS\ SHT1–23 DATE: JUN 19, 2009 TIME: 11:09 AM

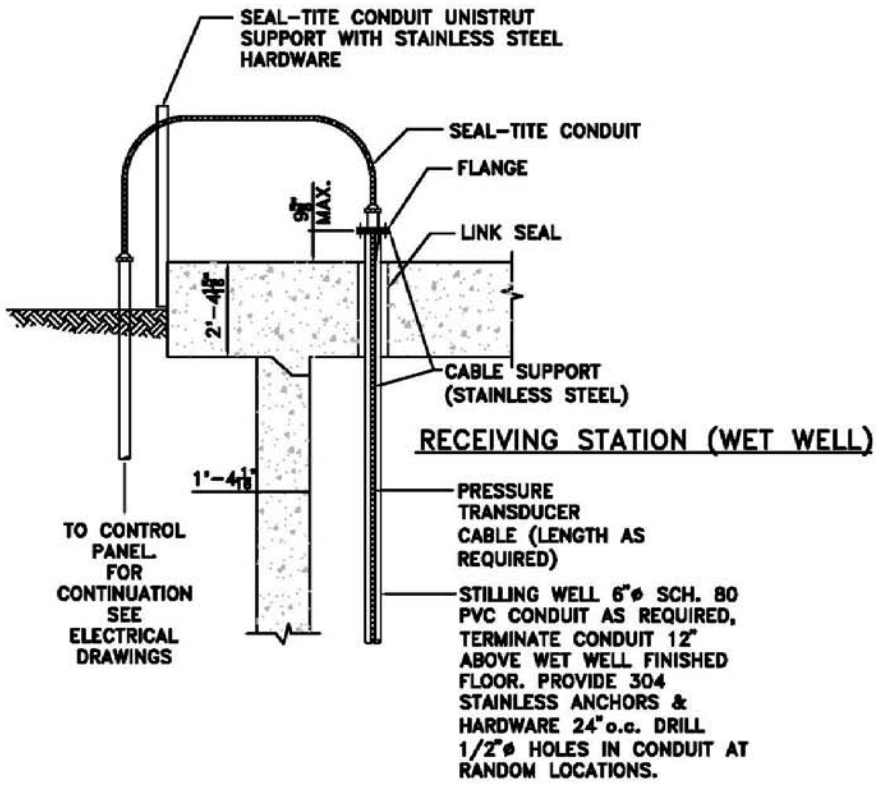


ALL TIE RODS TO BE INSTALLED WITH TWO COATS OF BITUMASTIC PAINT.

FUTURE STUB CONNECTION

BY	DATE	REVISIONS	MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY	TYPICAL STUB FOR FUTURE CONNECTION	DATE : 7/2000 DWN BY : JMB	SHT. NO. 22

M:\ Projects\ M00300007000\ STD-DETS\ SHT1-23 DATE: JUN 19, 2009 TIME: 11:09 AM



TRANSDUCER

PRESSURE TRANSDUCER, EXPLOSION PROOF,

SHALL BE MODEL BC01002- CABLE LENGTH (IF >40 FT.) BY C.A. BRIGGS CO., WILLOW GROVE, PA.

BY	DATE	REVISIONS

MOUNT HOLLY MUNICIPAL UTILITIES AUTHORITY

SUBMERSIBLE TRANSDUCER

DATE : 8/2004

DWN BY : JMB

SHT. NO. 23

M:\ Projects\ M00300007000\ STD-DETS\ SHT1-23 DATE: JUN 19, 2009 TIME: 11:09 AM