Hatch Mott MacDonald

KEARNY MUNICIPAL UTILITIES AUTHORITY

Rules and Regulations

July 2012

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100. General Stipulations

A. Title

This document shall be known as the Kearny Municipal Utilities Authority (KMUA) Rules and Regulations of 2012 and cited as KMUA RR 12.

B. Office of the Authority and Hours of Business

1. The principal office and mailing address of the Authority and place of business is located at 39 Central Avenue, Kearny, NJ 07032-4602.

2. The office of the Authority will be open for the purpose of regular business between the hours of 9:00 a.m. and 4:00 p.m. prevailing time, each weekday, Monday through Friday, except on legal holidays.

C. Purpose

The purpose of these Rules and Regulations is to establish uniform requirements for dischargers into the KMUA wastewater collection, and to enable the KMUA to protect the public health, safety and welfare in furtherance of all applicable State and Federal laws relating thereto. These Rules and Regulations are established for the conduct of Authority business, and to provide a schedule of fees, rates and regulations under which the Authority will operate. The KMUA is established under the County and Municipal Utilities Authorities Law, New Jersey State Statute 40:14B-1 et seq.

D. Distribution

Copies of the Regulations, Specifications and User Rate Study shall be filed in the office of the Authority, and the same shall be available for the use and examination or purchase by the Public.

E. Compliance with Passaic Valley Sewerage Commission

All discharges are subject to review and approval by and the Rules and Regulations of the Passaic Valley Sewerage Commission (PVSC).

F. Effective Date and Provision for Change

1. These Rules and Regulations shall take effect immediately on adoption by the Authority and shall supersede the Rules and Regulations heretofore adopted by the Authority and any prior amendments thereof and supplements thereto.

2. In the event any section, paragraph, sentence, clause or part of these Rules and Regulations are changed by action of the Authority, the same shall in no way effect the remaining portions of them.

3. Revisions, partial revision, changes, modifications and additions may be made by the Authority at any regular meeting of the Authority upon approval of a majority of the full membership of the Authority and upon such notice as may be required by law.

101. Definitions

A. "Application for Service" shall mean an application prepared and completed by an Applicant, Customer or Owner in accord with the requirements as specified in Section 200.

B. "Authority" shall mean the Kearny Municipal Utilities Authority (KMUA).

C. “Authority Consulting Engineer” shall mean person or firm duly employed in such capacity by the Authority.

D. “Biochemical Oxygen Demand (B.O.D.)” shall mean the quantity of dissolved oxygen in milligrams per liter (mg/l) either in an effluent or in a waterbody, required during stabilization of decomposable organic matter by aerobic biochemical action as determined by analytical procedures set forth in the Manual of Methods for Chemical Analysis of Water and Wastes (USEPA, Office of Technology Transfer, Washington, D.C., March 1983).

E. “Board of Health” shall mean the Town of Kearny Board of Health or the Board of Health of the municipality in which the property to be sewered is located.

F. “Building Connection” shall mean any pipe or physical connection to the sewer owned and operated by the Authority.

G. "Connection" shall mean any operational or physical change to the generation of sewerage or change to the sewer collection or to the plumbing or piping of any building, facility, or structure either proposed or existing, which connects directly or indirectly to any portion of the KMUA facilities.

H. "Connection Fee" shall mean the initial charge made upon connection to the Authority’s system, or change in use of an existing connection. This charge is determined by the Authority from time to time so as to apportion a uniform shared cost of the sewer system that has been previously constructed.

I. "Customer", “Applicant”, or "Owner" shall mean any Person currently served, or making application for sewer connections that directly or indirectly will be connected to the sewer system or to which directly or indirectly has been furnished or supplied the products or services of the sewer system.

J. “Discharge” shall mean the action of pumping, leaching, releasing, spilling, leaking, pouring, emitting, emptying, or dumping and also means the causing of permitting any of the aforesaid.

K. “Domestic Sewage” shall mean the waste and wastewater from humans or household operations.

L. “Easement” shall mean an acquired legal right for the specific use of land owned by others.

M. "Equivalent Dwelling Unit (EDU)" shall mean a unit of sewage flow equal to 300 gallons per day.

N. "Executive Director" shall mean the person so designated by the Authority with the responsibility for the overall daily management of the Authority.

O. “Failure in a building connection” shall mean any defect in a pipe or joint which adversely affects performance of the sewer connection or which has the potential to cause adverse effects to the structural integrity or physical condition of the Authority’s sewer facilities.

P. "Industrial Wastes" means the liquid wastes resulting from the processes employed in industrial, manufacturing, trade or business establishments, as distinct from domestic or sanitary sewage.

Q. “Infiltration” shall mean leakage into the sanitary sewer system from ground water sources.

R. “Inflow” shall mean leakage into the sanitary sewer system of run-off from surface water sources, including by not limited to the introduction of surface water into the sanitary sewer from foundation drains and sump pumps.

S. “Inspector” shall mean the person assigned by the Authority or by the Authority’s representative to inspect the construction of Building Connections and Sanitary Sewers, and to such other duties as may be determined pursuant to these Rules and Regulations.

T. “Local Health Officer” shall mean the Town’s Health Officer, or his authorized deputy, agent or representative.

U. "Sewer Main" shall mean the Authority-owned or controlled piping and appurtenances used for the collection of sewage.

V. “NJDEP” shall mean the Department of Environmental Protection of the State of New Jersey.

W. "New Service" shall be defined as any sewer connection which had not been previously made, or a change in the character or nature of usage, or a connection which requires a treatment works approval from the NJDEP.

X. “Non-Domestic User” shall mean any user, including commercial users, industrial users and institutional users, discharging industrial wastes.

Y. “Planning Board” shall mean the Town of Kearny Planning Board.

Z. "Person" shall mean any individual, partnership, firm, corporation, association or any other organization or group.

AA. “Permit” shall mean the approval granted by the Authority.

BB. "Physical Connection" shall mean when the sewer facility which serves one unit or several units is capable of being used, and has been approved by the KMUA.

CC. “Professional Engineer” shall mean a person licensed to practice professional engineering in the State of New Jersey.

DD. “PVSC” shall mean the Passaic Valley Sewerage Commission.

EE. "Residential User" shall mean a single-family, multi-family, apartment, mobile home, or hotel/motel unit that is designed for and used exclusively for providing living accommodations.

FF. "Sanitary Sewage" shall mean the normal wastewater from residences, commercial establishments, institutions and industrial establishments, limited exclusively to the wastes from kitchens, bathrooms, water closets, lavatories and laundries.

GG. “Sanitary Sewer” shall mean a sewer which carries or is intended to carry sewage and into which storm, surface and ground water is not intentionally admitted.

HH. "Service Agreement" shall mean an agreement between the Applicant or Owner and the Authority, which details the contractual requirements of both parties for receiving and providing sewer service.

II. “Sewage” shall mean water carried wastes from residences, business buildings, institutions, industrial establishments, and other buildings or places.

JJ. “Sewer Service Area” shall mean that portion of Kearny which is serviced by the Kearny Municipal Utilities Authority conveyance system. A map of the sewer service area is attached to these Rules and Regulations as Appendix D.

KK. “Suspended Solids” shall mean total suspended matter that either floats on the surface of, or is in suspension in water, wastewater or other liquids, and that is removable by laboratory filtering and prescribed in “Standard Methods for the Examination of Water and Wastewater” and referred to as non-filterable residue.

LL. “Town” shall mean the Town of Kearny in the County of Hudson, State of New Jersey, or else the municipality in which the sewered or to be sewered property is located.

MM. “Treatment Works” shall mean any device or systems, whether publicly or privately owned or operated, used in the storage, treatment, recycling, or reclamation of domestic or industrial waste of a liquid nature including intercepting sewers, outfall sewers, sewage collection systems, cooling towers, and ponds, pumping, power and other equipment and their appurtenances; extensions, improvements, remodeling, additions, and alteration thereof; and any other works including sites for the treatment process 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, or industrial waste in the sanitary sewer systems.

NN. “User” shall mean any individual, firm, company, partnership, corporation, association, group or society, which discharges wastewater into a treatment works.

OO. “User Charges” shall mean rents, rates or fees, other than permit or application fees, made on an annual or other time basis, and charged for direct or indirect connection with, and the use of, the Authority’s sewer systems.

PP. “Wastewater” shall mean a combination of the liquid and water carried wastes from residences, commercial buildings, industrial plants, and institutions. In recent years, the word “wastewater” has taken precedent over the word “sewerage”.

QQ. “Zoning Board” shall mean Town of Kearny Zoning Board of Adjustment.

102. Sewer Connection Required

The owner of all houses, buildings or properties used for human occupancy, commerce, industry, recreation, or other purposes, situated within the KMUA District in the Town of Kearny and abutting any street, alley or right of way in which there is now located or may in the future be located a Public Sewer is hereby required at the owner's expense to install suitable wastewater facilities therein, and to connect such facilities directly or indirectly with the proper Public Sewer in accordance with the provisions of these Regulations within sixty (60) days after receipt of a notice to do so, provided that said buildings or properties have reasonable access to the Public Sewer as determined by the Authority. A property shall be presumed to have reasonable access if it is located within 200 feet of said sanitary sewer.

103. Separate Connection Required

A. A separate and independent sewer connection shall be provided for:

1. Each building under one roof owned by one person and occupied as one business or residence; or

2. A combination of buildings owned by one person in one common enclosure occupied by one family or business; or

3. Each side of a double house having a solid vertical partition wall making it subject to divided ownership.

B. A building owned by one person containing more than one store, apartment or office such as a shopping mall, an apartment house or an office building, may be serviced with one or more sewer laterals at the discretion of the Engineer, with the approval of the Authority.

C. If one building stands at the rear of another on an interior lot and no separate house connection is available or can be constructed to the rear building through an adjoining alley, court, yard or driveway, the house connection from the front building may be extended to the rear building, but the Authority does not and will not assume any obligation or responsibility for damage caused by or resulting from any such single connection.

104. Special Agreements

No provision of this document shall be construed to prevent a special agreement or arrangement between the Authority and a discharger of wastewater, subject to additional payment by the discharger.

105. Right of Entry: Inspection and Sampling

The Executive Director or its duly authorized representative shall have the right to enter the premises of any user to determine whether the user is complying with all requirements of these Rules and Regulations or order issued hereunder. Users shall allow the Executive Director or its duly authorized representative ready access to all parts of the premises for the purposes of

inspection, sampling, records examination and copying, and the performance of any additional duties

A. Where a user has security measures in force which require proper identification and clearance before entry into its premises, the user shall make necessary arrangements with its security guards so that, upon presentation of suitable identification, the Executive Director or its duly authorized representative will be permitted to enter without delay for the purposes of performing specific responsibilities.

B. The Executive Director or its duly authorized representative shall have the right to set upon the user's property, or require installation of such devices as are necessary to conduct sampling and/or metering of the user's operations. Compliance determinations with respect to these Rules and Regulations may be made on the basis of instantaneous grab samples, sequential samples or composite samples. Sequential and composite samples may be taken over a 24 hour period or any other time span as deemed necessary by KMUA to meet the requirements of a specific situation.

C. The Executive Director or its duly authorized representative may require the user to install monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the user at its own expense. All devices used to measure wastewater flow and quality shall be calibrated to ensure their accuracy.

D. Any temporary or permanent obstruction to safe and easy access to the facility to be inspected and/or sampled shall be promptly removed by the user at the written or verbal request of the Executive Director or its duly authorized representative and shall not be replaced. The costs of clearing such access shall be born by the user.

E. Unreasonable delays in allowing the Executive Director or its duly authorized representative access to the user's premises shall be a violation of these Regulations.

106. Confidentiality of Information

Information and data on a user obtained from reports, surveys, and monitoring programs, and from the Authority’s inspection and sampling activities, shall be available to the public without restriction, unless the user specifically requests, and is able to demonstrate to the satisfaction of the Authority and its General Counsel, that the release of such information would divulge information, processes, or methods of production entitled to protection as trade secrets under applicable state law. Any such request must be asserted at the time of submission of the information or data. When requested and demonstrated by the user furnishing a report that such information should be held confidential, the portions of a report which might disclose trade secrets or secret processes shall not be made available for inspection by the public, but shall be made available immediately upon request to governmental agencies for uses related to the NJPDES program or pretreatment program, and in enforcement proceedings involving the person furnishing the report. Wastewater constituents and characteristics and other "effluent data" as defined by 40 CFR 2.302 will not be recognized as confidential information and will be available to the public without restriction.

107. Maintenance

A. Maintenance by Customer

All sanitary sewer facilities from the sewer main to the building is owned and operated by the customer. The customer shall maintain all connections, service laterals, and fixtures in good order. All leaks in the service lateral from the building to the sewer main, or in any fixture in the premises served, must be repaired immediately by the Owner or occupant of the premises. The Customer shall be responsible for notifying the Authority of the company name of the party contracted to do any replacement work in the customer's service lateral prior to work being commenced, and said contractor shall not backfill any trench until the work has been inspected and approved by the Authority's representative. Any work not acceptable shall be immediately removed and/or replaced by work that is acceptable.

Excavations undertaken by the Authority in response to problems in the system, which are subsequently shown to be on the Building Connection and thus the responsibility of the Customer, shall be charged to the Customer in accordance with these Rules and Regulations.

B. Public Sewer System

The Authority will maintain only public sewer lines. Where a public sewer line has been installed by the Authority, this maintenance shall begin upon final acceptance unless other provisions are included in the construction contract. Where a line is installed in conjunction with development by an entity other than the Authority and later conveyed to the Authority, maintenance by the Authority will begin upon final acceptance.

C. Required Maintenance

Maintenance shall include but not be limited to measures to ensure water tight conditions, structural integrity, and safe access. Maintenance shall also include a program of inspection, removal of debris and cleaning to remove built up material from the pipe and manholes. Removal of debris and cleaning shall be accomplished in a manner which prevents the discharge of material to the Authority’s system.

D. Inspection and Cleaning Procedure for Private Sewer Systems and Control Manholes

1. Cleaning of all building sewers shall be inspected by Authority personnel. Unless cleaning is being performed to correct a sewage overflow, the Authority shall be provided with 24 hour advance notice and the property owner shall obtain an inspection permit (See Appendix B). Where inspection time exceeds four man hours, the owner shall pay the additional cost involved when billed.
2. Where a building sewer includes a control manhole, a screen shall be placed in the control manhole to catch debris removed from the line to the building. The line from the control manhole to the building shall be cleaned by hydraulic jetting and vacuuming. If the section of line from the control manhole to the street sewer is to be cleaned, the screen shall be placed in the first downstream manhole. The property owner shall dispose of all material

removed.

3. Where a building sewer does not include a control manhole, a screen shall be placed in the first downstream manhole. The building sewer shall be cleaned by hydraulic jetting while a vacuum is placed in the downstream manhole to remove debris. The property owner shall dispose of all material removed.

108. Authority Not Responsible

The Authority shall in no event be responsible for maintaining any portion of the sewer service line owned by the Customer from the building to the sewer main, or for damage done by sewage escaping there from or from lines or fixtures on the Customer's property. The customer shall at all times comply with applicable regulations, and make changes to the service, required by reason of changes of grade, relocation of Mains, or otherwise.

The Authority shall in no event be responsible for any backups or surcharges into fixtures or services. The Customer shall incorporate into the Building Connection special precautions, including but not limited to the installation of a backflow valve, to prevent backup of sewage because of high flows or blockages.

109. Responsibility for Blockage Correction

In the event of a blockage in a sewer line, the property owner or occupant shall immediately contact the Authority in person or by telephone (see Section 107(A)). A representative of the Authority will make an inspection to determine the location of the blockage. The Authority will be responsible only for blockages which occur in the sewer main. The property owner is responsible for all blockages, regardless of the cause, or by whom the line was constructed, which occur in a line between the building and the sewer main. In the event that the Authority representative determines that the blockage is in an area for which the Authority is responsible, he will initiate corrective action.

If the blockage is in an area for which the Authority is not responsible, the property owner shall make immediate arrangements for correction of the blockage at his own expense, utilizing, for example, the services of a private sewer cleaning service. If the Authority representative is unable to determine the area of responsibility, the blockage shall be corrected by and at the expenses of the property owner; however, an Authority representative shall be present to inspect such corrective action and if he determines that the blockage was the responsibility of the Authority, the Authority will reimburse the property owner for the expense of the corrective action.

Notwithstanding any of the foregoing, in the event that the above notification procedure is not followed by the property owner, then the Authority shall not be liable for the cost of any private action.

110. Severability

If any provision of this ordinance is invalidated by any court of competent jurisdiction, the remaining provisions shall not be affected and shall continue in full force and effect.

111. Indemnification

The Industrial Users of the KMUA system shall indemnify and save harmless the KMUA for any expense, loss or damage occasioned by the KMUA, by reason of violation of the Authority's Rules and Regulations, the discharge of industrial wastes or any prohibited substance, including, but not limited to the following:

A. Any cost incurred by the KMUA in removing, correcting, preventing or terminating any adverse effects upon the KMUA wastewater collection system;

B. Any increase in the cost of residuals, processing or disposal;

C. Any fines or penalties assessed against the KMUA for such violations of its permits;

D. The reasonable costs of any investigative inspection or monitoring survey which leads to the establishment of a violation of the Authority's Rules and Regulations and the reasonable costs of preparing and litigating, including any reasonable attorney's fees and costs, any action successfully concluded against the User for such violation; and

E. Any other actual or compensatory damages to the KMUA resulting from the discharge.

112. Notification Required

Users of the KMUA system are required to notify the Authority of any changes in the use, quality and/or quantity of the discharge to the Authority's sewer system. Each User shall promptly notify the Authority of any planned significant changes to the User's operation or system which may alter the quality and/or quantity of its wastewater, so the Authority can review and make a determination for approval or disapproval of the change in a timely manner. A significant change is defined, but not limited to, as follows:

A. Over 25% variation in the monthly average operation or process of the User;

B. Over 25% variation in the monthly average quality/quantity of the wastewater;

C. Introduction of a new product or raw material in significant quantity;

D. Discharge or potential discharge of any new toxic, hazardous, or incompatible pollutant;

E. Change in authorized representative or contact person;

F. Any significant and relevant operations, processes or other wastewater/discharge related activities previously not reported to the Township.

200. Application for Service

A. No Person shall build, install, modify change use, or operate any facility for the collection or discharge of sewage into the Authority's sanitary sewer, until written application on a form prepared by the Authority for a permit to do so has been completed and presented to the Authority for such purpose and a permit therefore duly issued.

B. An Application for Service shall be submitted to the Authority for a review of the proposed facilities, route of construction, estimated volumes of flow and whether an individual or comprehensive study of the sewerage system is required to be submitted by the Applicant. An Application for Service will not be considered complete unless all planning and design documents for the proposed facilities are signed and sealed by a Professional Engineer or Architect, as prescribed by law, registered in the State of New Jersey.

C. Application for Service shall be made on the Authority's Application for Sanitary Sewer Service form, attached as Appendix A.

D. The Authority will accept no application for service until the Applicant has paid all application fees and provided a reasonable escrow fee in the sole discretion of the Authority to defray professional charges incurred in processing the application. Furthermore, not application for service will be accepted until any and all fees in arrears and charges due by the applicant are paid in full.

E. The accepted application shall oblige the Applicant to pay to the Authority its rates and fees as established from time to time to comply with its Rules and Regulations.

F. All completed applications for sewer permits shall be approved on a first-come first-served basis. The obligation of the Authority to approve completed applications for sewer service is contingent upon the availability of capacity in both the physical sewerage facilities as well as in contractual capacities that the Authority and the Town of Kearny have with the Passaic Valley Sewerage Commission (PVSC).

G. The applicant shall not construct sewer facilities until such time as the Authority is in receipt of all necessary approvals from NJDEP, PVSC or any other municipal, state or federal agency that may be required.

H. The Authority shall not approve an application that is incomplete or an application for service that cannot be rendered as a result of a lack of conveyance or contractual capacity.

201. Conditions of Issued Permits

A. A permit issued by the Authority shall expire in 36 months from the date of issue unless otherwise provided for in the Service Agreement. The permit shall become null and void unless Physical Connection is made within the permit period. In situations where

construction has continued during the six-month period immediately prior to any expiration date of a permit, the permit may, at the sole discretion of the Authority, be renewed for additional six-month periods. Unless, so renewed, the permit will automatically expire at the expiration of the 36 month period or other period as provided for in the Service Agreement.

B. All permits are given on condition that the owners of the property served assume all risk of damages that may result from water getting into the premises from the sewer or their connections. Any drain subject to back flow or back pressure may be equipped with an approved type back water valve upon notification to the Authority.

202. Connection to the Authority's System by Developers and Others – Application Procedures

A. Planning Board Review

The Planning Board or Zoning Board reviews the site plan, including sanitary sewer construction details. If the site plan receives preliminary approval, the developer is instructed to write to KMUA to determine if capacity is available and the method of intended service.

B. Determination of Conveyance Capacity and Method of Service

The Authority receives a request for service from the developer and forwards the letter to the Authority's consulting engineer for review and comment. If a determination can be made, the consulting engineer indicates to the Authority that service or capacity is/is not available and the method of service. If a determination cannot be made, the consulting engineer advises the Authority what information is to be provided by the applicant to evaluate availability of adequate conveyance capacity. The Authority responds to developer.

C. Submission of Plans/Plan Review

1. The Engineer for the developer submits sanitary sewer plans to the Authority and requests a review and Authority Approval. The plans and specifications shall be in conformance with NJDEP "Technical Requirements for Treatment Works Approval Applications". NJ.A.C. 7: 14A-23 and these Rules and Regulations. The submission includes signed, sealed plans and specifications, the Engineer's Design Report, and (if applicable) the completed TWA application (except Authority's and agent's signature).
2. The Authority responds to the developer by letter. The Authority indicates it has received plans and requests an escrow deposit of $1,500.00 or as determined by the Authority's consulting engineer, to be held in escrow to cover the plan review fee. The Authority indicates the developer is responsible for review fees in excess of $1,500.00; unused amounts of such deposits will be credited toward inspection fees or refunded upon completion of the investigation or receipt of a letter from the applicant advising that no

further information is desired, that the investigations should be terminated and requesting that any funds remaining in the escrow deposit be refunded.

3. The only investigations not subject to this escrow requirement are those that do not require any engineering review by either Authority staff or the Authority's consultants but are of the type that can be handled as routine correspondence with the Authority without prolonged investigation.

4. Upon receipt of the escrow deposit in amount as indicated, the Authority forwards the plans, report and TWA to the Authority's consulting engineer for review. The Authority also requests estimate of review fee and inspection fees from the consulting engineer.

5. The Authority consulting engineer reviews the plans, and makes comments and required alterations. The engineer sends comments to the Authority with copies to developer's engineer.

6. The developer's engineer receives the Authority's consulting engineer's report and makes required changes and/or additions. The developer's engineer resubmits the plans to the Authority's consulting engineer.

7. If the amount of the escrow deposit originally placed is found to be insufficient, additional funds shall be added to the account prior to the continuation of the investigation, the release of any report or providing additional services.

D. Formal Application Procedures

1. The Authority's consulting engineer submits plans, design report, signed TWA application to the Authority with recommendation regarding Authority Approval. The consulting engineer agrees to serve as agent for the Authority and recommends that the Authority make application to NJDEP in behalf of developer.

2. Preliminary Planning Board Approval shall be a condition precedent to the submission of a TWA application to the NJDEP.

3. The Authority, by formal resolution, approves the plans and authorizes the Authority Executive Director to sign and execute the TWA form.

4. The Executive Director signs the TWA form and forwards all necessary resolutions and endorsements to developer's engineer who assembles the application package and submits these materials to NJDEP. The developer pays the TWA application fee directly to NJDEP.

5. All rights or entitlement contained in a TWA permit issued by NJDEP shall belong to the Authority and not to the Applicant.

6. The Authority reserves the right to withhold the submission of a TWA permit to NJDEP for good cause.

7. The Authority reserves the right to surrender any sewer main extension permit to NJDEP on a section-by-section basis, if substantial construction has not yet begun on that section to which the permit refers.

8. TWA permits shall be secured for each project or facility, whenever required, prior to the Authority issuing a Permit(s) to the Applicant.

E. Upon Authority Indicating Capacity is Available

1. Agreement between Authority and Developer.

   a. Upon the Authority indicating capacity is available and the method of service established, the Authority instructs the Authority Attorney to prepare the Service Agreement between the Authority and the developer reserving a specified capacity for a period not exceeding three (3) years unless a different period is established at time of agreement.

   b. Escrow deposit is made by the application for the Authority Attorney's review and preparation of Agreement.

   c. Prior to execution of Agreement, the Authority will not sign the TWA.

2. Inspection and Review Fees

   a. Upon return of approved NJDEP sewer construction permit, the Authority advises the developer of estimated inspection fees. The Authority also requests a deposit of $2,500.00 to be held in escrow to cover "as-built" plans review fee. The Authority indicates the developer is responsible for review fees in excess of the amount deposited in escrow. The inspection fee deposit in the full amount of estimated inspection fees and the as-built plans review fee are due 30 days prior to any sewer construction. The Authority indicates that the authorization to proceed is contingent upon receipt of the inspection fee deposit and the as-built plans review fee.

   b. Upon receipt of the inspection fee deposit and the NJDEP sewer construction permit, the Authority authorizes construction of sewers. See Permit for Sanitary Sewer Construction and Inspection (Appendix B).

   c. The developer proceeds to construct sewers, first indicating when construction will start to the Authority and the Authority's engineer. The developer is responsible for all inspection fees incurred.

F. Completion and Certification

1. Inspection during construction: During the construction of sanitary sewers, the developer will prepare a construction schedule for the Authority's consulting engineer so that adequate inspection during construction can be provided.

2. Completion and certification: Upon completion of construction, the developer requests certification by the Authority's engineer who submits same to NJDEP with copy to the Authority. No Certificate of Occupancy is issued until all fees, certifications, and connection fees are paid and permit to operate is received from NJDEP.

300. Standards

301. Plans and Profiles of all Proposed Sewer Mains

Two (2) sets of plans and profiles shall be submitted and shall be 24" x 36" uniform size. All plans shall be in a minimum scale of 1 inch equals 50 feet and profiles in a minimum scale of 5 feet vertical to 50 feet horizontal The plans shall show the following:

A. The plans and profiles shall show all underground utilities and appurtenances such as water mains, sanitary/storm sewers, gas and electric as may be applicable, and existing and proposed sewers, appurtenances, and contours. All existing and proposed streets shall be shown with surface elevations at all breaks in grade and street intersections. In addition, the true or magnetic meridian, boundary line, title, data and scales shall all be included. All sheets shall be numbered and breaks in plans or profiles appropriately indicated.

B. Sewers Mains and appurtenances to be constructed shall be clearly labeled. Existing utilities, including but not limited to sanitary/storm sewers and water mains shall be labeled as such. All topographical symbols and conventions shall be those used by the United States Geological Survey.

C. All elevations shall be shown on United States Geological Survey datum. All permanent benchmarks of the New Jersey Coast and Geodetic Survey shall be shown. Elevations of street surfaces shall be shown. The elevations of sewer inverts at end of reaches and at changes of grades shall be indicated. The elevations of streets surfaces shall be shown to the nearest 0.01 feet. Sewer inverts shall be shown to the nearest 0.01 feet. Sufficient benchmarks shall be permanently established for the area.

D. Inverts at all manholes, length and stationing at manholes, slopes for each reach in decimal form, sewer size, material, and material class shall be shown on the plans. Arrows shall show the direction of flow.

E. The plans for pumping stations shall include a general site plan showing boundaries, contours, proposed improvements, underground or overhead wires, and shall include the items referred to in the Engineer's Report that are related to the design drawing.

F. The Engineer’s Design Report shall contain the following minimum data:

1. Intended use of the proposed realty improvements and the characteristics of sewage expected from such use.
2. The size and capacity of existing Authority facilities and the anticipated effect of the proposed facilities on the existing sewerage system.
3. The estimated average daily and peak dry weather flow and descriptive formula utilized in calculating such estimates.
4. The Applicant's requested timeframe for the staging of any required off-site improvements.
5. Preliminary cost estimate for both on-site and off-site sewers.

6. Any other factors which would affect design and use of the sewerage system as determined by the KMUA.

7. Any other facilities or factors, which may be required by local agencies.

For Pumping Stations:

8. The operational characteristics including pumping rates, wet well detention times and force main velocities at minimum, maximum and average flow (both present and future).

9. Technical basis of design for the mechanical, structural and electrical elements of the station including emergency standby generator.

10. A review of any feasible options to service the area that may avoid pumping.

11. The proposed ownership of the pumping station, which shall be subject to Authority concurrence.

12. The Applicant's requested timeframe for the staging of the installation of any required equipment or facilities.

13. Preliminary cost estimate for construction and annual operating costs.

14. Any other factors which would affect design and use of the sewerage system.

G. The plans and specifications shall be in conformance with NJDEP "Technical Requirements for Treatment Works Approval Applications". N.J.A.C 7:14-23 and these Rules and Regulations.

302. Design Criteria for Construction of Facilities

A. All sanitary sewers shall be designed to carry a peak flow of four times the average flow estimated based on a twenty years flow projection when flowing full. Average flow shall be determined in accordance with NJAC 7:14A-23.3(a) criteria.

B. Sewers and force mains shall be designed to flow with a minimum velocity of not less than 2.0 fps (feet per second) at full flow based on Manning formula with n=0.013 or n=0.01 for PVC pipe. Acceptable materials used in the construction of sewers, service laterals and force mains are indicated in the KMUA standard specifications.

C. Sanitary Sewers shall be aligned along the center of the road and shall maintain a minimum horizontal separation of eight (8) feet from structures and utilities, with utility crossings of the sanitary sewer made at normal angles (90 degrees) unless otherwise approved by the Authority's Engineer. The underground water service pipe and the sanitary sewer shall be not less than ten (10) feet apart horizontally and shall be separated by undisturbed or compacted earth unless otherwise approved by the Authority.

D. Sanitary Sewers shall be laid with a minimum cover of 3 feet, unless otherwise approved in writing by the Authority's Consulting Engineer.

E. Concrete encasement in accordance with the Authority's standard construction detail of utility crossings (including sanitary sewer connections) of less than twelve (12) inches vertical separation.

F. Sanitary service laterals must be shown in conjunction with first floor elevations.

G. Locking manhole frame and covers shall be noted for all manholes in easements.

H. Sewer Easements must be illustrated and shall be sufficiently wide to allow a minimum of ten (10) feet on each side of the sewer main, with a minimum width of twenty (20) feet. Said easement shall be exclusive to the Authority unless otherwise recommended by the Authority's Consulting Engineer and approved by the Authority.

I. Where sewer facilities are the be owned by the Authority, the following Notes shall be added to the preliminary and final subdivision plans:

1. All sewer facilities and easements will be dedicated to the Kearny Municipal Utilities Authority (KMUA) upon acceptance.

2. The KMUA has a non-encumbered easement. Other utilities and/or structures, whether above or below ground surface, shall not be constructed within the easement without the written permission of the Kearny Municipal Utilities Authority.

J. Construction details shall be in accordance with the Authority's Standards.

K. Wastewater pumping stations and force main pipelines are subject to review and approval by the Authority and must meet NJDEP requirements and standards.

303. Sewer Service Lateral

A. The Authority reserves the right to approve the size and type of sewer service lateral. The sewer lateral shall be constructed in accordance with the Authority's specifications and shall be inspected and approved by the Authority's representative prior to backfilling the trench. Any damage to the Authority's sewer main shall be immediately corrected and repaired to the satisfaction of the Authority. Any construction not approved shall be immediately removed and/or reconstructed in an approved manner. The sewer service lateral from the sewer main to the building shall be furnished and maintained by the Owner of the property and shall be installed by a licensed plumber. The use of vents on any portion of the service lateral that would permit the entrance of surface or storm water is prohibited.

B. No sewer service lateral shall be laid in the same trench with a gas pipe, drain or water pipe, or any other facility of any utility company, nor within three feet of any vault or other structure.

C. Where the replacement of the sewer service lateral from the sewer main to the structure is found to be necessary, the Owner will replace the service in the location as previously used unless approved by the Authority.

D. An existing building connection may be used in connection with a new building only when it is found on examination and test by or under the direction of the Authority's representative to meet all requirements of these Regulations.

304. Prohibited Connections & Discharges

It shall be unlawful for any Person to discharge or cause to be discharged any pollutant or wastewater that will interfere with the operation and/or performance of the Authority's wastewater transport system or the Passaic Valley Sewerage Commission Water Pollution Control Facility in Newark.

The Passaic Valley Sewerage Commission (PVSC) is responsible for implementation and enforcement of the Federal Categorical Pretreatment Standard applicable to a particular industrial subcategory, and for assuring that their sewage treatment plants meets all applicable federal and state standards, and accordingly all customers shall comply with all Rules and Regulations of the PVSC. Affected industrial users shall comply with the applicable standard(s) specified in 40 CFR 403, et seq.

These general prohibitions apply to all users whether or not the customer is subject to National Categorical Pretreatment Standards or any other Federal, State or Local Pretreatment Standards or Requirements.

Except as otherwise covered and allowed by these Rules and Regulations, the Town of Kearny, or as otherwise prohibited by the Rules and Regulations of the Passaic Valley Sewerage Commission, no person shall discharge or cause to be discharged any of the following described waters or wastes into any sewer:

A. Explosive Wastes: Wastes in such quantity which may create a fire or explosion hazard to the KMUA facilities, collection system or to the operation of the system.

B. Corrosive Wastes: Wastes in such quantity which will cause corrosion or deterioration of the KMUA facilities. Unless a higher limit is otherwise granted by the KMUA to a user, all wastes shall have a pH not less than 5. Unless otherwise authorized by the KMUA, all wastes shall have a pH not more than 10.5. Prohibited materials include, but are not limited to, acids, sulfides, concentrated chloride or fluoride compounds, etc.

C. Solids or Viscous Wastes: Solids or viscous wastes in amounts which would cause obstruction to the flow in a sewer, or otherwise interfere with the proper operation of the KMUA facilities. Prohibited materials include, but are not limited to, comminuted or uncomminuted garbage, bones, hides or fleshings, cinders, sand, stone or marble dust, glass, etc.

D. Oil and Grease: (1) Any industrial wastes containing floatable fats, wax, grease or oils. (2) Any industrial wastes containing more than 100 mg/l of petroleum based oil or grease.

E. Noxious Materials: Noxious or malodorous solids, liquids, or gases, which in sufficient quantity either singly or by interaction with other wastes, are capable of creating a public nuisance or hazard to life, or are or may be sufficient to prevent entry into a

sewer or other facilities for its operation, maintenance or repair.

F. Radioactive Wastes: Radioactive wastes or isotopes of such half life or concentration that they do not comply with regulations or orders issued by the appropriate authority having control over their use and which will, or may, cause damage or hazards to the KMUA facilities or personnel operating the system.

G. Interference: Any waste, including oxygen demanding wastes (BOD, etc.) or suspended solids or other material released in a discharge at a flow rate and/or pollutant concentration which causes or threatens to cause interference with the KMUA Facilities or is determined by KMUA to produce an interference.

H. Excessive Discharge Rate: Industrial wastes discharges in a slug or such volume or strength so as to cause a treatment process upset and subsequent loss of treatment efficiency.

I. Heat: Any discharge is excess of 150 °F (65 °C).

J. Unpolluted Waters: Any unpolluted water including, but not limited to, cooling water and uncontaminated storm water, which will increase the hydraulic load on the KMUA facilities, except as approved by the KMUA.

K. Ultra Hazardous Toxics: Those wastes designated by EPA, NJDEP or PVSC as sufficiently toxic that they shall not be discharged to the sanitary sewer in any concentrations.

L. Total Suspended Solids: No user shall discharge a wastewater containing excess of 172 mg/l Total Suspended Solids without express written consent of the KMUA.

M. No material or substance shall be discharged to the KMUA facilities which will adversely impact the operation of the facilities.

N. Where any waste is deemed objectionable by the Authority, the Authority shall have the power to refuse the same, or to accept the waste into its system, upon the user installing and using a specific treatment system satisfactory to the Authority, before the Authority shall accept such waste into its system.

306. Grease, Oil, and Sand Interceptors

A. Grease, oil and sand interceptors shall be provided when, in the opinion of the Authority, they are necessary for the proper handling of wastes containing grease or oil in excessive amounts or any flammable wastes, sand and other harmful ingredients. All interceptors shall be of a type and capacity approved by the Authority and Local Health Officer and shall be located so as to be readily and easily accessible for cleaning and inspection.

B. Where installed, all grease, oil and sand interceptors shall be maintained by the Owner,

at his expense, in continuously efficient operation at all times.

307. Garbage Disposal Units Restricted

No garbage disposal unit or garbage grinding or chopping device shall be attached to any pipe, conduit or otherwise in a manner allowing sediment or residue from such unit or device to be discharged into the sewer system.

308. Preliminary Treatment Facilities

A pretreatment facility or device may be required by the KMUA to treat or monitor industrial wastes prior to discharge to the KMUA facilities. The KMUA may require specific pretreatment facilities to be installed by the user. Where pretreatment or construction necessary to control or monitor industrial wastes is required, detailed plans and specifications, process descriptions and other pertinent data or information relating to the pretreatment facility or device shall first be filed with the Authority. Such filing shall not exempt the user nor the facility from compliance with any applicable code, ordinance, rule, regulation or order of any governmental authority or from these Rules and Regulations. All proposed pretreatment facilities shall be submitted to the KMUA for approval.

No additions or changes to existing pre-treatment facilities shall be made without the approval of the Authority. Plans and specifications for all pre-treatment facilities, including those required under the Rules and Regulations of the PVSC, shall be submitted to the Authority for approval. All costs associated with the review of the pre-treatment facility, including but not limited to fees of the Authority Consulting Engineer shall be reimbursed to the Authority prior to the actual discharge or connection. All pre-treatment facilities are also subject to the review and approval by the NJDEP and the PVSC.

If inspection of pretreatment facilities and devices by authorized personnel of the KMUA reveals such systems are not installed or operating in conformance with the plans and procedures submitted to the KMUA or are not operating in compliance with the effluent limitations required by the KMUA, the user shall make those modifications necessary to meet those requirements. All pretreatment systems judged by the Authority to require engineering design shall have plans prepared and signed and sealed by a Professional Engineer of suitable discipline. If pretreatment or control of waste flows is required, such facilities shall be maintained in good working order and operated as efficiently as possible by the owner or operator at his own cost and expense, subject to the requirements of these Rules and Regulations and all other applicable codes, ordinances and laws.

The Authority may require any user to monitor their discharge and to submit the data to the KMUA. These data shall become the property of the KMUA and shall be used for the purposes of determining the quality or quantity of material discharge, pretreatment requirements, determination of user fees or any other use the Authority deems appropriate.

309. Authority's Right of Revision

The Authority reserves the right to establish, by resolution or in sanitary sewer service permits or Service Agreements, more stringent standards or requirements on discharges to the Authority's wastewater transport system.

310. Dilution Prohibited

No user shall ever increase the use of process water, or in any way attempt to dilute a discharge, as a partial or complete substitute for adequate treatment to achieve compliance with a discharge limitation unless expressly authorized by an applicable pretreatment standard or requirement. The Executive Director may impose mass limitations on users who are using dilution to meet applicable pretreatment standards or requirements, or in other cases when the imposition of mass limitations is appropriate.

311. Sampling, Flow Measurement and Observation Facilities

A. When Required: The owner of any non residential property serviced by the Authority meeting the following criteria shall install a suitable structure or manhole, together with such meters and other appurtenances in the building sewer as may be necessary to facilitate observation, sampling and measurement of the wastes when directed by the Authority.

1. All newly constructed facilities.
2. Upon a change of use, tenant or ownership.
3. All facilities having hazardous substances as defined by 40 CFR Part 261 on site in quantities greater than normal retail quantities and not packaged for consumer use with the exception of fuel oil used for heating purposes.
4. Any facility which has on site non-hazardous substances in quantities which would have an adverse effect if discharged to the sanitary sewer system.
5. Any facility which discharges industrial waste.

In any case where a building is subdivided for use by more than one user or where portions of a building although not physically subdivided are, in fact, utilized by more than one user, the Authority shall have the right at any time to require the installation of the aforesaid observation facilities as to each such user. Such structure shall be accessible safely located and constructed in accordance with plans approved by the Authority and these Regulations.

The structure shall be installed by the owner at his expense. The structure shall also be maintained by the owner at his expense so as to be safe, accessible and suitable for sampling and monitoring at all times. Maintenance shall include but not be limited to maintaining water tight conditions, maintaining of manhole steps or ladders, maintaining structural integrity and removal of accumulated material from the ladder, manhole benching and channel. When material is removed, it shall be done in accordance with Section 107 of these Rules and Regulations.

B. All measurements, tests and the characteristics of waters and wastes to which reference is made in these Regulations shall be determined in accordance with the latest edition of “Standard Methods for the Examination of Water and Wastewater”, published by the Water Environment Federation; State Regulation or Federal Regulation as applicable. Sampling methods, location times, durations and frequencies may be determined on an individual basis by the Authority.

312. Performance and Maintenance Guarantees

A. "Performance guarantee" and "maintenance guarantee" shall mean either cash, third party surety bonds from a reputable insurance company or third party letters of credit from a financial institution authorized by the State of New Jersey to issue such guarantees, in a form that is acceptable to the Authority upon review of its general counsel.

B. Prior to the commencement of any construction of on-site or off-site facilities that either will be dedicated to the Authority or will remain as private property, the Applicant shall post with the Authority, or if so directed by the Authority assigned to the Town, a performance guarantee covering said on-site and off-site improvements and for the cost of producing As-Built drawings in accordance with Section 312, for all on-site and off-site facilities to be constructed. The amount to be posted under the performance guarantee shall be 120% of the estimated cost of the improvements to be constructed plus the estimated cost of producing As-Built drawings. The Authority shall approve the form of the Performance Guarantee before it shall be accepted.

C. The Applicant may request a reduction in the performance guarantee posted if at least 50% of the improvements to be constructed under the performance guarantee are satisfactorily completed and tested in accordance with KMUA Rules, Regulations and Specifications and if the improvements, in the opinion of the Authority, are adequately protected from future damage due to continuing construction. The Authority may allow up to a maximum of a 75% reduction of the dollar value of the improvements that are satisfactorily completed, tested and protected.

D. Maintenance guarantees shall be posted upon final acceptance of the improvement for a two-year period in an amount of 15% of the estimated cost of the improvements constructed. Final acceptance of the improvements constructed shall not occur until the date that the maintenance guarantee, in a form satisfactory to the Authority, shall be received by the Authority.

313. Construction of Facilities & As-Built Requirements

The Applicant shall construct and install, at no cost to the Authority, all off-site and all on-site sewerage systems and facilities, including Mains, force Mains, pumping stations and any related appurtenances which are necessary to provide service to the units for which Application for Service has been made. All construction shall be in accordance with the Rules, Regulations and

Specifications of the Authority and the engineering plans submitted by the Applicant and approved by the Authority.

The Applicant shall be responsible for the prompt restoration of all property wherein any construction work has been conducted. When construction is performed within property not owned by the Applicant, such as the right-of-way lines of a public street, the same shall be restored and maintained in accordance with these Rules and Regulations and as directed by the Authority.

Applicants that request sanitary sewer service from the Authority that require an extension of the sewer system shall provide the KMUA with as-built drawings prepared in AutoCAD format consistent with the KMUA's Geographical Information System (GIS). The Applicant shall also furnish to the Authority one (1) reproducible copy and four (4) prints of the "As-Built" drawings of the sewer system and facilities, certified by the engineer for the Applicant. The As-Built utility information shall be furnished to the KMUA prior to release of final Performance Guarantee and shall be submitted in a form suitable for ready integration with the KMUA's existing GIS Document Management System.

The as-built drawings shall be mapped on topographic base mapping at the same scale and contour interval as the existing KMUA GIS mapping plans. The as-built plans shall be predicated upon the New Jersey State Plane NAD 83 and NAVD 88 Coordinate System. The as-built plans will be submitted in ArcView or AutoCad format, with the mapped features geo-referenced within the ArcView or AutoCad file. That is, when a feature is identified or listed in the file it will return the x,y coordinate within NAD83 coordinate system. Horizontal and vertical mapping accuracy shall be 1-inch equals 100-foot scale accuracy per the National Map Accuracy Standards. Where practical, the as-built utility location mapping shall be tied into the field control points for the Authority's GIS mapping.

As-built drawings are to be developed with separate layers for all utility and base map features. At a minimum, developers shall be required to locate and map the following as-built (not proposed) components of the sewer system extensions constructed under the approvals granted by the KMUA.

A. Sanitary Sewer System

1. Sanitary sewer pipes and appurtenances shall be mapped in their entirety.
2. All sanitary sewer manholes.
3. All patron lateral connections with cleanouts.
4. Projects requiring sewage pumping stations and force mains shall map those facilities into the GIS as-built drawings.
5. Force mains and appurtenances shall be mapped in their entirety and shall be based on actual field locations determined at a minimum of every 50 feet and at every change in direction.
6. All air release valves and valve boxes.
7. All curb boxes for lateral connections and lateral connections from the main to the curb box.

B. Service Connections and Background

1. Lot and block of each lot in subdivision
2. Post office address numbers
3. Property lines
4. Street names

As built mapping symbology, blocks, line types, etc. shall follow normal cartographic standards of appearance. As-built drawings shall overlap into undisturbed adjoining areas by at least 20-feet on all sides. As-built plans, as a minimum, are to portray the same level of features shown on the existing KMUA GIS mapping plans. As-built plans shall show all underground utilities as to size, type and invert.

314. Required Documentation and Insurance

The Applicant shall submit to the Authority the following documentation a minimum of two weeks prior to the start of construction and shall request written permission from the Authority to start construction.

A. The Authority shall be notified in writing as to the name and address of the contractor and all sub-contractors, as well as the superintendent who shall be in charge and have full responsibility for supervision of construction. A pre-construction meeting shall be held if required by the Authority.

B. The applicant or contractor, unless expressly waived by the Authority, shall file with the Authority a performance guarantee satisfactory in accordance with Section 312.

C. All insurance required hereunder (except Workers' Compensation Insurance policies) shall include the interests of the Kearny Municipal Utilities Authority; the Town of Kearny; County of Hudson; the Authority Consulting Engineer and their employees; and Engineer's consultants, all of whom shall be listed as additional insureds on such policies. Contractor waives all rights of subrogation against the Authority; Authority Consulting Engineer and all parties named as additional insureds in such policies for all losses and damages caused by any of the perils covered by such policies and all such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any of the parties named as additional insureds.

D. The Authority must be provided insurance certificates from the Applicant’s contractor and all sub-contractors indicating the following minimum coverage and indemnification:

1. Worker's Compensation and Employer's Liability Insurance - covering all of the Contractor's employees directly or indirectly engaged in the performance of this Contract. This insurance shall comply with the statutory requirements of the State or States involved.
2. Commercial General Liability Insurance - with a limit of not less than $2,000,000 combined single limit for bodily injury and property damage. The Commercial General Liability Insurance shall include the Broad Form

Property Damage Liability Endorsement as well as coverage for explosion, collapse and underground (XCU) hazards and completed operations and products liability coverage. Blanket Contractual Liability Insurance must be included, to the extent covered by the standard form of Commercial General Liability policy in New Jersey (Broad Form with Blanket Contractual Liability Endorsement).

3. Comprehensive Automobile Liability Insurance - covering Contractor for claims arising from all owned, hired and non-owned vehicles with a limit of not less than $1,000,000 combined single limit for bodily injury and property damage.

4. Umbrella Liability Insurance - providing coverage at least as broad as that provided by the Commercial General Liability Insurance and Comprehensive Automobile Liability Insurance required above, with a limit of not less than $5,000,000 combined single limit for bodily injury and property damage.

5. Policy Limits - specified above are minimum, and wherever the law requires higher limits, the higher limits shall govern.

6. Periods of Coverage - All policies required shall remain in full force and effect until the Contractor's Maintenance Guarantee has been released.

7. Certificates of the insurance required above must be filed with the Authority with a copy to the Authority's Consulting Engineer two (2) weeks before the start of construction. All Certificates of Insurance must provide for a minimum thirty (30) days prior written notice to the Authority of any policy cancellation, material change, or non-renewal.

8. Forms of Policies - all liability insurance shall be on an occurrence basis.

9. Subcontractors - shall be required by the Contractor to provide the following insurance:

   a. Worker's Compensation and Employer's Liability Insurance - covering all of the subcontractor's employees directly or indirectly engaged in the construction. This insurance shall comply with the statutory requirements of the State or States involved and shall have an Employer's Liability Insurance limit of not less than $500,000 for bodily injury by accident, $500,000 for occupational disease and $500,000 aggregate limit.

   b. Commercial General Liability Insurance - with minimum limits of not less than $1,000,000 aggregate for bodily injury and property damage. The Commercial General Liability Insurance shall include the Broad Form Property Damage Liability Endorsement as well as coverage for explosion, collapse and underground (XCU) hazards, products liability coverage, with Blanket Contractual Liability and Completed Operations Coverage.

   c. Comprehensive Automobile Liability Insurance - covering subcontractor for claims arising from all owned, hired and non-owned vehicles with limits of not less than $1,000,000 aggregate for bodily injury and property damage.

d. Policy Limits - specified above are minimum, and wherever the law requires higher limits, the higher limits shall govern.

e. Periods of Coverage - All policies required under the Contract for subcontractors shall remain in full force and effect until the Contractor's Maintenance Bond has been released.

f. Certificates of the insurance required above must be filed with the Owner and the Engineer, in triplicate, before the subcontractor is permitted to start work. All Certificates of Insurance must provide for a minimum thirty (30) days prior written notice to the Owner of any policy cancellation, material change, or non-renewal.

10. The expiration date shall be listed for each policy, and certificates shall indicate that thirty (30) days written notice will be given to the Authority of expiration or cancellation of policies.

The Applicant and their Contractor shall not allow any subcontractor to commence work on his subcontract until all insurance required of the subcontractor has been so obtained and the proper Certificates of Insurance have been provided to the Authority and its Consulting Engineer.

Acceptance of the Contractor's insurance by the Authority shall not relieve or decrease the liability of the Contractor hereunder.

The applicant and their contractor is totally responsible for safety precautions on or off the site for operations relating to a project, and must carry insurance for personal injury or property damage, and must carry insurance for personal injury or property damage claims from employees, the public, or third parties and naming parties set forth in (C) above, as additional insured.

A representative of the Authority, or its Consulting Engineer, shall observe the construction of all sewer facilities to determine whether said construction is being constructed in accordance with these Rules and Regulations and the approved plans and specifications.

315. Construction Observation

No construction shall be started until such time as the Authority has granted permission therefore and notified the owner in writing. All copies of plans and specifications, as required by these Rules and Regulations, or otherwise requested by the Authority or the Authority's Consulting Engineer, shall be furnished by the Applicant at his cost and expense.

Prior to the start of construction, the Authority or their Consulting Engineer will assign a full time (unless otherwise desired by the Authority) observer and no work shall be started until such observer is assigned to the project. Construction observation shall be conducted during construction and may include, but not be limited to, checking of line and grade of the sewer main, checking of materials, checking of joints, observation of backfilling methods, observation of pavement replacement and observation and reporting upon performance tests. Despite the presence of an observer during the construction period, the Applicant and his contractor is responsible for meeting all requirements of these Rules and Regulations in conformance with

the plans and specifications approved by the Authority.

The applicant shall pay for the cost of all Authority Consulting Engineer services required by the project, including but not limited to, construction observation. Prior to the start of construction the applicant shall deposit with the Authority an amount, to be established by the Authority's Consulting Engineer, which shall be considered an estimate of inspection costs subject to revision upwards or downwards based on actual final costs for such observations. The Applicant shall also pay for the cost of any testing laboratory work ordered by the Authority or its observer to check strength of pipe and concrete, strength and absorption of brick and other material tests which might be required to determine conformance of materials with specifications and A.S.T.M. requirements.

No trench shall be backfilled until such time as the observer has checked the construction being undertaken and has authorized backfilling to proceed. In the same manner, any work that cannot be readily observed after construction or completion, including but not limited to, concrete reinforcement, pressure testing, etc., shall not be conducted without the authorization of the Authority's observer.

Notwithstanding anything contained in this section, in the event that an Application for Service is made for sewerage service for property which abuts existing sewer mains, and no permits are required from any state or federal agencies, the Authority reserves the right to provide a waiver of certain requirements of this section, including the payment of observation fees associated with the construction.

316. Certification of Completed Construction

The Authority’s consulting engineer shall certify first to the Authority and, after Authority approval, to the NJDEP (if applicable), that the construction has been satisfactorily completed and is in accordance with the plans and specifications.

In order to prepare this certification, the applicant must satisfactorily complete the following:

A. air test for leakage

B. mandrel for pipe deflection

C. television inspection (if required by the Authority)

D. submittal of television video to the Authority

E. submittal of televising company’s written log and report to the Authority

F. submittal of as-built plans and mylars or AutoCAD files or GIS Plans of as-builts

G. satisfactory final inspection

H. for pumping stations, full mechanical, duty and performance tests must be conducted on all equipment, and all operational and maintenance manuals and warranties must be submitted to the Authority in triplicate.

I. submittal of evidence that any property owners whose property is being provided with a stub has been consulted and agrees to the location of that stub.

J. if construction has occurred within an easement, that property subject to the easement has been restored in a manner required by such easement agreement and satisfactory to

the property owner of such property, and that all other conditions of the easement have been complied with.

Items A, B, C, G, and H must be performed in the presence of the Authority's Consulting Engineer.

317. Acceptance of Completed Construction

Unless otherwise waived in writing by the Authority, all sewerage system and facility extensions shall comply with this section. Following the successful completion of construction and testing of facilities, the Applicant shall request in writing that the Authority accept the systems and facilities and request a Permit for Sanitary Sewer Service (see Appendix C). The Authority's Consulting Engineer, or duly authorized representative of the Authority shall at that time, certify in writing to the Authority, with a copy to the Applicant, that the construction was completed in substantial conformance with approved plans and specifications with exceptions, if any, noted. The Applicant shall, at the time of the request, submit to the Authority any and all completed documents, which are necessary to:

A. Dedicate to the Authority, all sewer systems and facilities including Mains, force Mains, pumping stations and any and all related appurtenances, which are located in the public right-of-way or in easement areas approved by the Authority. All of the above is to be conveyed to the Authority free and clear of all liens, encumbrances and debts. A Bill of Sale or comparable conveyance document shall be included for all items conveyed. A statement shall be included certifying that everything conveyed to the Authority has been paid for in full. The Owner shall provide a Corporate resolution authorizing conveyance to the Authority.

B. Deed(s) (with warranties) at no cost to the Authority, extending all necessary titles or easements to lands necessary for the maintenance or operation of the sewerage systems and facilities, including, if required by the Authority, easements for extension of Mains to adjacent properties.

C. The Owner's contractor shall post a two-year maintenance guarantee, in compliance with Section 312, to cover cost of repairs for any latent defects discovered during the two-year period; and

D. Furnish to the Authority As- Built plans in accordance with the requirements detailed in Section 313, for the sewer system and facilities, certified by the engineer for the Applicant.

Upon the satisfactory completion and approval of construction and all of the requirements noted herein by the Authority, the Authority shall proceed to accept the systems and facilities so constructed and shall accept and have recorded, wherever necessary, the dedications, deeds, easements, bonds and as-built drawings. All costs for recording of documents shall be paid by Applicant. The responsibility for all construction, maintenance and cost of operations prior to acceptance by the Authority shall be borne by the Applicant.

The Authority shall not accept any sewer facilities, which are not located in the public right-of-way or in a dedicated easement approved by the Authority, even if the facilities were bonded

improvements included within the Application for Service. In this event, the Authority shall approve final construction, but shall not accept the facilities, and the facilities shall remain the private property of and shall be maintained by the Applicant.

Approximately eighteen months following the formal acceptance of the maintenance guarantee, the Authority shall have a final inspection made of the sewerage facilities and a report shall be prepared by its assigned representative outlining any deficiencies which must be corrected, or recommending release of the maintenance guarantee. The Applicant shall complete all repairs prior to the expiration of the two-year period, which shall be found necessary during the final inspection. If these repairs are not completed, as aforesaid, after notification by the Authority, the Authority shall have the right to invoke its rights under the terms of the Maintenance Guarantee.

318. Unauthorized Activation of a Connection

Removal of plugs or any other action or inaction which could allow the entrance of material into the sewer system shall be considered unauthorized activation of the connection. A penalty for unauthorized activation of a connection shall be assessed against the property owner, developer, contractor and/or other responsible party. The assessed amount shall be equal to the sum of the following:

A. Any and all direct costs incurred by the Authority in connection with the unauthorized activation; plus

B. Any and all indirect costs incurred by the Authority in connection with the unauthorized activation; plus

C. Penalty amount, up to the maximum indicated:
    1. 1st offense: $1,000.
    2. Each subsequent offence within one year of first offense: $2,000.

Assessment of the above penalties shall not preclude the Authority from pursuing further legal remedies against the property owner, developed, contractor and/or any other person involved. Upon issuance of a notice of assessment of a penalty, all sanitary work shall cease until such time as the penalty is paid.

319. Disconnection of Service Due to Demolition

In situations where the Customer is proposing to demolish a building on property that is serviced by sewer, or the Customer is proposing to construct a New Service, the Customer shall physically disconnect the existing sewer connection. The sewer service shall be physically disconnected at the sewer Main. Upon disconnection from the main, a letter will be provided to the Town of Kearny Building Department prior to issuance of a demolition permit. If the demolition is for the purpose of building a new structure on the property and the sewer service line will be utilized for the new building, then the sewer service line need only be physically disconnected and capped a sufficient distance from the building to prevent damage to the sewer service line during the demolition process. If this process requires a road opening permit which

is not available for whatever reason, the Customer will be required to submit an escrow deposit or other form of guarantee ensuring the proper disconnection of the sewer service line when the road opening permit is available.

400. Fees

A. Place of Payment: Fees are payable at the office of the Authority, either in person or by mail.

B. Billing: Bills will be sent over to the Owner, at the tax billing address. Copies may be sent to the Tenant as a courtesy, if requested. The property Owner is ultimately responsible for timely payment of all fees.

C. Check Reprocessing Fee: Upon receipt of notice of a check returned for non-payment for any reason, the Authority shall assess a Check Reprocessing Fee of $20.00 or the maximum permitted by statute.

D. Costs of Connection: All costs and expenses incidental to the installation and connection of the building sewer, including the Authority's connection fee, shall be borne by the Applicant for Sewer Service. The Applicant shall indemnify the Authority from any loss or damage that may directly or indirectly be occasioned by the installation of the building sewer.

E. Delinquent Service Charges & Collection: Pursuant to State Statute (N.J.S.A. 40:14B-41), in the event that a service charge with regard to any parcel of real estate shall not be paid as and when due, interest shall accrue and be due to the Authority on the unpaid balance at the rate of one and one-half percent (1 ½%) per month or up to the maximum amount allowed by law until such service charge, and the interest thereon, shall be fully paid to the Authority. The Authority shall have all additional remedies for enforcement and collection.

F. Any unpaid balance of any fees plus interest, attorney's fees and other costs of foreclosure thereon shall be a lien of the parcel of real property with respect to which service was rendered with the effect and pursuant to the procedures specified under N.J.S.A. 40:14B-42. The Authority shall give notice of delinquent charges on a periodic basis to the Town Tax Collector.

G. Whenever sewer service begins or terminates during the billing period, the user charge for said period shall be apportioned to the number of months of service during said period. Sewer service begins on the day following the making of the connection and terminates as contained in a written notice to such effect on the date of discontinuance thereof.

H. Any accounts remaining overdue for more than 1 year shall be subject to Tax Sale consistent with procedures of the Town of Kearny Tax Collector.

401. Basic Connection Fee

A. Connection Fees shall be calculated based upon the Authority's estimate of sewer usage. Where applicable, the Authority shall use NJDEP Design Criteria for projecting wastewater flows under N.J.A.C, 7:14A-23.3 to establish the estimate of sewer usage. The number of EDU's shall be established by dividing the estimated usage by 300 gallons per day and rounding up to the next whole number. The Connection Fee shall be computed by multiplying the number of EDU's by the EDU charge as established periodically by KMUA.

B. The applicant shall pay a one-time sewer Connection Fee for each EDU in an amount as established by the Sanitary Sewer User Charge Study in effect at the time prior to Completion and certification.

C. In the event that there is a change in use of a Building Connection which includes either a change in the character or nature of usage or a change in the size of the facility which results in an increase in the nature or extent of the usage, the Authority may impose an additional Connection Fee to correspond with the amount of increased usage.

D. The connection fee shall be due and payable at or before the time that the sanitary sewer service permit is issued by the Authority, the first temporary or permanent certificate of occupancy for any premises which will be served by the building connection is issued, and before any use be made thereof.

E. Whenever there is failure to pay the connection fee in advance either by cash or by other arrangement mentioned above or there is a default in the payment of the principal and/or interest charges on the connection fee, the connection fee shall be deemed a service charge as provided by statute and shall be collectable as such.

402. Sanitary Sewer User Charge Study

A. The Sanitary Sewer User Charge Study is adopted with the purpose of providing funds which are adequate to pay all expenses of operation and maintenance of the sewerage system, including reserves, insurance, extensions and replacements and to pay punctually the principal and interest of bonds and maintain reserves or sinking funds as required under the terms of the contract with the bond-holders and as deemed necessary and desirable by the Authority. The service charges in said Sanitary Sewer User Charge Study are divided between connection fees and user charges and are equitable and uniformly distributed among the users for the purposes of keeping such charges as low as possible and to insure financial stability and the most advantageous rates of interest.

B. The Sanitary Sewer User Charge Study establishes user classes in order to bill customers most appropriately based upon the nature of user operations. Three user classes have been defined as follows:

1. Class I Customers with billing based on municipal water utilities meters.
2. Class II Customers with billing based on private water meters.
3. Class III Customers with billing based on wastewater meters.

C. User class status is subject to the review and approval of KMUA.

D. Users may request to change user classification by petitioning the Authority in writing. The petition shall include at a minimum the following items.

1. A Site Plan/Building Layout Diagram showing all water meter(s), wastewater meter(s), and sewer connections.

2. In order to obtain Class II customer status, the customer shall supply the Authority with documentation of the installation of private water meters placed to allow measurement of those water uses which generate wastewater.

3. In order to obtain Class III customer status, the customer shall supply the Authority with documentation of the installation of wastewater meters.

4. In order to obtain Class II or Class III customer status, the customer shall supply a water balance report signed and sealed by a Professional Engineer. The report must confirm the calibration of the meters and include data for all water consumed including water used in product, general flow and wastewater discharge. The water balance report must show agreement within ten percent between the water consumption meter records and the water balance calculated with data from the private water meters.

5. Class III customer status will be applied to customers which have significant wastewater generation that in not derived from the potable water system and/or has wastewater which has concentrations of pollutants which are not characteristic of the average wastewater as determined by KMUA. The customer shall be required to install flow metering and sampling facilities required to monitor the wastewater discharged to the KMUA system. These facilities shall be subject to approval and inspection by the KMUA.

6. A change in user class shall become effective starting with the next KMUA fiscal year.

E. KMUA representatives are authorized to monitor and inspect all meters utilized for the measurement of water for billing purposes.

F. Fees shall be payable in advance in accordance with the Sanitary Sewer User Charge Study.

G. The Sanitary Sewer User Charge Study may be amended from time to time by the Authority pursuant to the statute under which the authority is organized.

403. Surcharges on Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS)

Surcharge fees are assessed for monitored industries contributing higher concentrations of BOD and/or TSS than the average BOD and/or TSS concentration of the Town of Kearny wastewater and shall be paid in accordance with the Sanitary Sewer User Charge Study.

403. Funds Held in Escrow

Escrow fees shall be posted in advance by the Applicant with the Authority, and held in an escrow account. The Authority shall, from time to time, withdraw funds from this escrow account to reimburse itself for costs incurred by the KMUA for inspection, engineering review, legal review or for other services provided to Applicant by the KMUA. The amount which the Authority reimburses itself for the expenses of professional reviews and other services shall be the amount based upon the hourly rate then in effect with the Person or firm providing said service. In the event that the escrow fund is determined to be insufficient for required future work, depleted or in deficit, the Applicant shall post additional escrow funds with the Authority in an amount to be set by the Authority. The Applicant shall undertake no work on the project until additional escrow funds are deposited. The Applicant may request the return of any unused portion of the escrow funds at the completion or termination of construction and after the Authority has accepted all improvements, and after final release of all maintenance guarantees.

405. Disputed Bills

A. Any Customer that disputes a service charge rendered by the Authority for sewer service shall bring the disputed bill to the attention of the Authority within 30 days of the issuance of the bill. Said dispute shall be presented to the Authority in writing, stating the exact portion of the service charge that is in dispute and the reasons why the service charge is in dispute.

B. Upon receipt of a disputed service charge claim by a Customer, the Authority shall present a temporary estimated bill to the Customer, which shall be computed on the basis of the average usage during the preceding 12-month period or the usage during the same period of time in the preceding year, whichever, in the estimation of the Authority, presents a more accurate estimate. The Customer shall pay the amount of the temporary estimated bill within the same time limits for payment of the original bill.

C. The Authority shall investigate the bill dispute presented by the Customer and shall receive whatever supporting evidence the Customer may wish to present and shall determine whether the disputed bill is valid or is invalid in whole or in part. In the event that the Authority determines that any, or all of the disputed bill is due, and that amount exceeds the amount paid by the Customer under the temporary estimated bill, the difference shall be paid by the Customer within 14 days after notification is sent by the Authority. After said 14-day period, the bill shall be classified as delinquent and shall be processed as specified in Section 400.

500. Penalties for Violations

A. In the event of any violation of the Rules and Regulations of this Authority or of any improper or unauthorized use of any portion of the sewer system by any Person or Customer, then the Person or Customer shall, in the discretion of the Authority, be assessed a penalty of a maximum of $100.00 per day per EDU for each violation or improper or unauthorized use. The Person or Customer shall be given notice of the

penalty imposed and be further given an opportunity to be heard. Each action constituting a violation or improper or unauthorized use, as well as each property affected by the violation or improper or unauthorized use, as well as each day that the violation or improper or unauthorized use exists, shall be counted as separate violations for the purposes of determining the penalty to be imposed.

B. A hearing may be held before the Authority at which time the Person or Customer aggrieved or his attorney, may present evidence regarding either the violation or penalty imposed. The penalty, if any, that is imposed by the Authority after the hearing shall be paid within 15 days after the Person or Customer aggrieved receives written notice of the decision of the Authority.

C. In the event that the penalty is not paid as required under the Rules and Regulations, then the Authority, in its discretion, may terminate all sewer services to the Person or Customer and may declare all agreements or contracts with the Person or Customer null and void and of no force and effect.

D. The penalties imposed in this section shall be cumulative to the penalties described in other sections of these Rules and Regulations and to the other remedies afforded to the Authority by Statute.

Appendix A

Appendix A

Kearny Municipal Utilities Authority
39 Central Avenue
Kearny, New Jersey 07032
Tel (973) 465-5367 Fax (973) 465-5293

APPLICATION FOR SANITARY SEWER SERVICE

(1) Applicant _____ Telephone _____ Fax _____

Address _____ E-Mail _____

(2) Owner _____ Telephone _____ Fax _____

Address _____ E-Mail _____

Location of Property _____

Block No. _____ Lot (s) _____

(4) Estimated Sewerage Flow (GPD) _____ (Attach Flow Estimate Calculation)

(5) Proposed Use

(A) Industrial _____ Office _____ Warehouse _____

Commercial _____ Other _____

Number of Floors _____ Total Floor Space (Sq. Ft.) _____

Office Floor Space (Sq. Ft.) _____ Warehouse Floor Space (Sq. Ft.) _____

Number of Employees _____ Number of Floor Drains _____

Types of Facilities (Kitchen/Cafeteria/Laboratory, etc.) _____

(B) Restaurant _____ Institution _____

Type (Fast Food, Diner, Restaurant/Lounge, Other) _____

Seating Capacity _____ Number of Beds _____ Number of Employees _____

(C) List other documents included with Application: _____

_____

The undersigned certifies to the accuracy of the information provided and states that it understands and agrees to abide by the regulations, specifications and rate schedule of the Kearny Municipal Utilities Authority.

_____ _____

Property Owner/Application Date

DO NOT WRITE BELOW THIS LINE – FOR AUTHORITY USE ONLY

Date Application Received: _____ Escrow Account No.: _____

Site Plan Review Deposit: $_____ (Minimum $1,500.00) Connection Fee: $_____

Construction Inspection Deposit: $_____ (Minimum $2,500.00)

Make Check Payable to ”Kearny Municipal Utilities Authority”

Appendix B

Appendix B

Kearny Municipal Utilities Authority
39 Central Avenue
Kearny, New Jersey 07032
Tel (973) 465-5367 Fax (973) 465-5293

PERMIT FOR SANITARY SEWER CONSTRUCTION AND INSPECTION

In accordance with the Rules and Regulations of the Kearny Municipal Utilities Authority, Permit No. _____ , to construct sewer facilities per approved plans, is hereby issued for the following activity:

Name of Project: _____

Address: _____

Block: _____ Lot(s): _____

Activity: ( ) New Connection ( ) Change in Use ( ) Redevelopment ( ) Other

Description: _____
_____

Applicant/Owner/
Operator: _____ Telephone: _____ Fax: _____

Address: _____ E-Mail: _____

The Applicant/Owner/Operator is required to abide by the Rules, Regulations, Specifications and Rate Schedule of the Kearny Municipal Utilities Authority.

This permit is issued in accordance with the requirements of the Kearny Municipal Utilities Authority. It is not authorization to engage in the proposed activity unless such activity has been previously approved by the Municipality or other controlling agency.

Permit No: _____

Issuance Date: _____

Escrow Amount: _____

KEARNY MUNICIPAL UTILITIES AUTHORITY

_____
Executive Director/Authorized Representative

Appendix C

Appendix C

Kearny Municipal Utilities Authority
39 Central Avenue
Kearny, New Jersey 07032
Tel (973) 465-5367 Fax (973) 465-5293

PERMIT FOR SANITARY SEWER SERVICE

In accordance with the Rules and Regulations of the Kearny Municipal Utilities Authority, Permit No. _____ , to discharge an average daily flow of _____ gallons per day (GPD), is hereby issued for the following activity:

Name of Project: _____

Address: _____

Block: _____ Lot(s): _____

Activity: ( ) New Connection ( ) Change in Use ( ) Redevelopment ( ) Other

Description: _____
_____

Applicant/Owner/
Operator: _____ Telephone: _____ Fax: _____

Address: _____ E-Mail: _____

The Applicant/Owner/Operator is required to abide by the Rules, Regulations, Specifications and Rate Schedule of the Kearny Municipal Utilities Authority.

This permit is issued in accordance with the requirements of the Kearny Municipal Utilities Authority. It is not authorization to engage in the proposed activity unless such activity has been previously approved by the Municipality or other controlling agency.

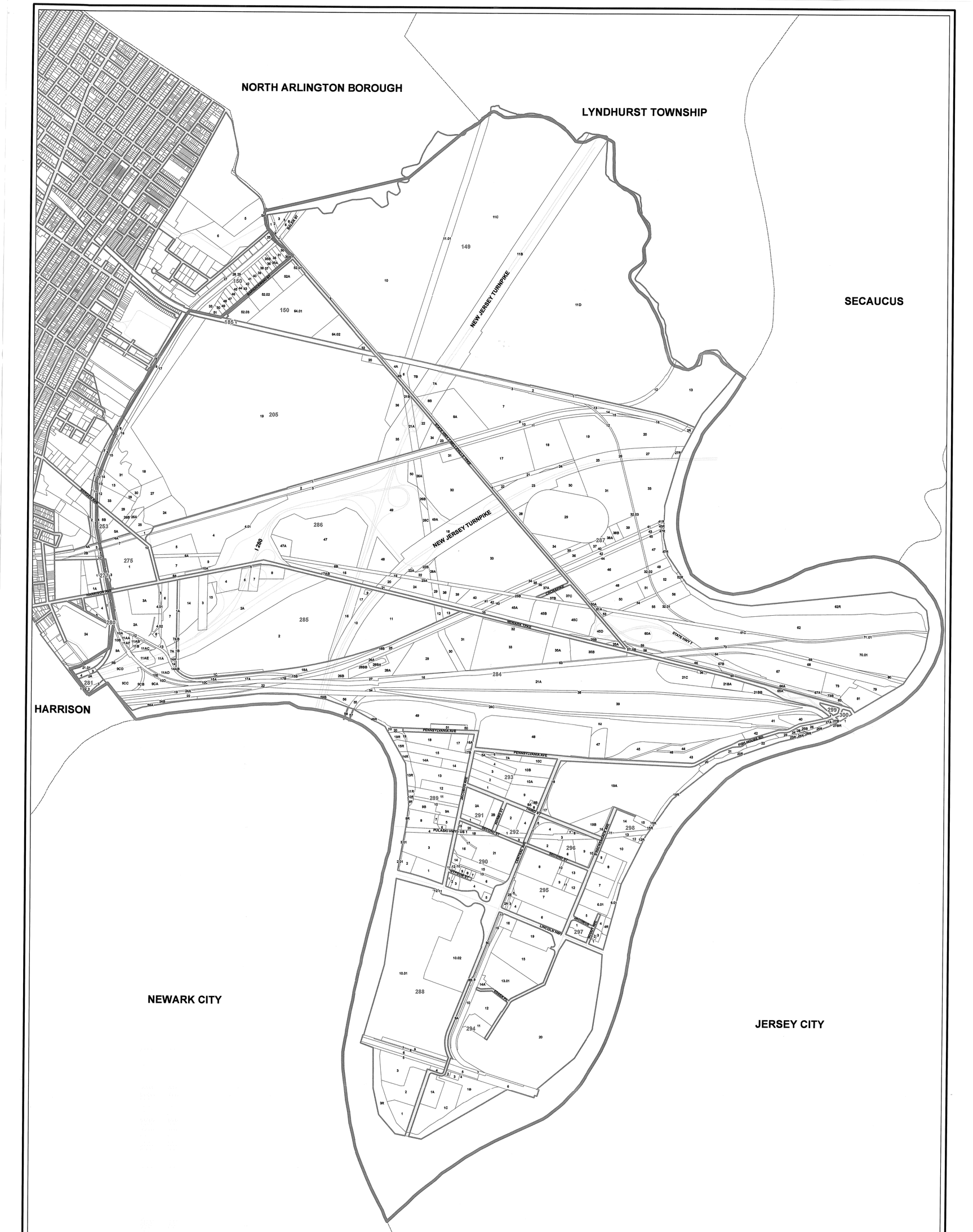
Permit No: _____

Issuance Date: _____

KEARNY MUNICIPAL UTILITIES AUTHORITY

_____
Executive Director/Authorized Representative

Appendix D



Legend

- Kearny Municipal Authority (K.M.U.A.) Sewer Service Area
- Parcels
- Block Limits
- Roads
- Municipal Boundary

KEARNY MUNICIPAL AUTHORITY (K.M.U.A.)

HUDSON COUNTY, NEW JERSEY

SEWER SERVICE AREA

N W E S

Area of Detail

0 900 1,800 Feet

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not state-authorized.

Hatch Mott MacDonald

Map Document: (P:\227470AA01\219746AA01\GIS\Projects\BlockLotLabeled.mxd)
6/28/2007 -- 1:11:45 PM

CHAPTER XXI SEWERS

21-1 USE REGULATIONS.

21-1.1 Definitions.

As used in this chapter:

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

Industrial cost recovery shall mean a charge to an industrial user based on its use of PVSC facilities to repay the capital cost outlay of the Federal share given the PVSC under the provisions of applicable Federal law allocable to the treatment of the wastes from the industrial user.

Industrial user shall mean any nongovernmental user of PVSC facilities identified in the Standard Industrial Classification Manual 1972, as amended and supplemented under Divisions A, B, D, E or I. A user may be excluded if it is determined that it introduces primarily segregated sanitary wastes.

Industrial waste or *wastes:*

a. The wastewater from industrial processes, trade or business, as distinct from domestic or sanitary wastes.

b. The liquid waste from an industrial process, as distinct from sanitary waste; all wastes except stormwater and sanitary wastes.

Major industry shall mean an industrial user of PVSC facilities that has a flow of fifty thousand (50,000) gallons or more per average workday; has in its waste a toxic pollutant in toxic amounts; or is found by the USEPA, the NJDEP or PVSC to have significant impact, either singly or in combination with other contributing industries, in the PVSC treatment works or upon the quality of the effluent from the PVSC treatment works.

Natural outlet shall mean an outlet, including storm sewers and combined **sewer** overflows, into a watercourse, pond, ditch, lake or other body of surface or ground water, including the Passaic River or any of its tributaries.

NJDEP shall mean the New Jersey Department of Environmental Protection.

NPDES shall mean the national pollution discharge elimination system.

pH shall mean the reciprocal of the logarithm of the hydrogen ion concentration. The concentration is the weight of hydrogen ions, in grams, per liter of solution. Neutral water has a pH value of seven (7) (a hydrogen concentration of 10^{-7}). Lower pH's are acid; higher pH's are alkaline.

Pretreatment shall mean treatment given by the industry to industrial waste prior to its discharge, directly or indirectly, to the PVSC facilities in order to remove illegal and/or undesirable constituents or to reduce the strength of the waste.

Public sewer shall mean a common **sewer** controlled by a governmental agency, public utility or the municipality.

PVSC shall mean the Passaic Valley Sewerage Commissioners.

Sanitary sewer shall mean a **sewer** that carries liquid and water-carried wastes from residences, commercial buildings, industrial plants and institutions, together with minor quantities of ground-, storm- and surface waters that are not admitted intentionally.

Sanitary waste shall mean waste derived principally from dwellings, office buildings and sanitary conveniences; when segregated from industrial wastes, may come from industrial plants or commercial enterprises.

Sewage shall mean the spent water of a community. The preferred term is "wastewater."

Sewer shall mean a pipe or conduit that carries wastewater or drainage water.

Slug shall mean any discharge of water or 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 or flow during normal operation.

Storm drain (sometimes called "storm **sewer**") shall mean drain or **sewer** for conveying water, groundwater, subsurface water or unpolluted water from any source.

Strength of waste shall mean a measurement of suspended solids and/or biochemical oxygen demand and/or chemical oxygen demand and/or any other parameter determined by PVSC as a fair indicator of the relative use, other than volumetric, of PVSC facilities by industrial wastes.

Suspended solids shall mean total suspended matter that either floats on the surface of or is in suspension in water, wastewater or other liquids and that is removable by laboratory filtering as prescribed in Standard Methods for the Examination of Water and Wastewater and referred to as "nonfilterable residue."

Toxic wastes in toxic amounts shall mean as defined by the USEPA in 40 CFR 129 (38 F.R. 24342, 9-7-73) and any superseding revisions.

Unpolluted water shall mean water of quality equal to or better than the effluent criteria in effect or water that would not cause violation of receiving water quality standards and would not be benefited by discharge to the sanitary sewers and wastewater treatment facilities provided.

USEPA shall mean the United States Environmental Protection Agency.

User charge shall mean a charge to users consisting of two (2) parts, the first part established by the PVSC based on volume and, where applicable, on strength and/or flow rate to pay for the use of the PVSC facilities and the second part established by the municipality to pay for the use of the local **sewer** system and to pay for administration of the billing and collection of the funds.

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

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

Wastewater treatment works shall mean the PVSC facilities.
(1973 Code § 119-1; Ord. No. 5-11-77)

21-1.2 Treatment Required Prior to Discharge; Permit.

It shall be unlawful to discharge into any natural outlet within the municipality any wastewater or other polluted waters, except where suitable treatment has been provided and where a national pollution discharge elimination system permit has been obtained from the appropriate governmental authority, where required. (1973 Code § 119-2; Ord. No. 5-11-77)

21-1.3 Permit Required.

No unauthorized person shall uncover, make any connections with or opening into, use, alter or disturb any public sewer or appurtenance thereof without first obtaining a permit from the appropriate municipal official. (1973 Code § 119-3; Ord. No. 5-11-77)

21-1.4 Application for Connection to Sanitary Sewer.

Application for sanitary sewer connections for dwellings, groups of dwellings or industrial or commercial establishments with only sanitary waste shall be made directly to the municipality. A fee shall be paid to the municipality to process the application as otherwise provided by ordinances of the municipality. The Governing Body of the municipality shall designate some suitable person to maintain a record of the number of sanitary applications and connections that are added and removed from the system and shall make an annual report to the Passaic Valley Sewerage Commissioners no later than February 1 of each year. When a direct connection to a PVSC sewer is requested by the applicant, the request shall first be endorsed with the approval of the Governing Body of the municipality and then submitted to the PVSC for their action. (1973 Code § 119-4; Ord. No. 5-11-77)

21-1.5 Application for Connection to Wastewater Facilities.

Applications for connections must be made and approved before a certificate of occupancy may be issued. The application shall be made to the municipality by the industry that generates the waste. However, the application must be signed by the owner of the property whereon the industry is located. After approval of the application by the municipality, the application shall be forwarded to the PVSC for classification and issuance of the permit by the PVSC. (1973 Code § 119-5; Ord. No. 5-11-77)

21-1.6 Industrial Sewer Waste Revision Application.

Any existing industrial user which proposes to make any change in its facility or its processing which significantly affects the quality or the quantity of its discharge into the system shall submit to the municipality an industrial sewer waste revision application showing the contemplated changes. Any new tenant or occupant of an existing industrial user shall submit an industrial sewer waste revision application. The application, if approved by the municipality, shall be sent to the PVSC, accompanied by the written approval of the municipality. Existing industrial users that have applied for permits may continue their discharge until their application has been processed by the PVSC, except for any discharges which constitute prohibited waste as otherwise provided in this chapter or unless notified by the PVSC to cease and desist their discharge. No certificate of occupancy shall be issued for an industrial use until an industrial permit has been issued by the PVSC, and no person shall occupy any building or structure for the purpose of a new industrial use until an industrial permit has been issued by the PVSC. (1973 Code § 119-6; Ord. No. 5-11-77)

21-1.7 Classification of Industrial Users.

a. Industrial users shall be classified by the PVSC as follows:

1. Category I:

(a) A Class I-A permit shall not be issued to an industry defined as a major industry and when issued shall allow the industry to discharge with no modifications or pretreatment of flow.

(b) A Class I-B permit is one issued to an industry classified as a major industry. This permit shall allow the industry to discharge with no modifications or pretreatment of flow. However, the PVSC may require the installation of monitoring equipment.

2. Category II:

(a) A Class II-A permit shall allow an industry to continue to discharge pretreated wastes in accordance with standards established in the permit.

(b) A Class II-B permit shall allow an industry to continue to discharge, subject to change of characteristics of its waste by pretreatment or other means, in accordance with a schedule as established by the PVSC in the permit.

3. Category III: The permit is denied and the discharge of prohibited materials must be halted or modified by a date established by the PVSC and in accordance with conditions contained in the permit denial.

b. The PVSC classification of an application is subject to change by the PVSC, upon written notification from the PVSC to the applicant by certified mail. Any change shall be accompanied by a detailed explanation of the reason for the change.
(1973 Code § 119-7; Ord. No. 5-11-77)

21-1.8 Appeal of Classification.

a. Any industry aggrieved by a permit classification by the PVSC shall have a right to appeal to the PVSC. Such an administrative appeal shall be taken within thirty (30) days of notification by the PVSC to the industry of its decision. The notice of appeal shall be delivered personally to the offices of the PVSC at 600 Wilson Avenue, Newark, New Jersey, or shall be sent by certified mail, return receipt requested. The taking of an appeal shall not stay the provisions of a Class III denial. During the time of appeal, however, the Class II permits shall be stayed. However, the staying shall not release any industry from meeting any requirements of any schedule set by the New Jersey Department of Environmental Protection or the United States Environmental Protection Agency.

b. Upon the filing of an appeal, the PVSC shall set the date and time for a hearing before the Commissioners. The applicant shall have the right to present evidence, shall have the right to be represented by counsel and shall have the right of cross-examination. Upon the conclusion of the hearing, the Commissioners shall make findings of fact and conclusions.
(1973 Code § 119-8; Ord. No. 5-11-77)

21-1.9 Proper Submission of Application.

All applications for industrial permits shall be submitted on forms to be supplied by the PVSC and shall comply with the instructions on the forms. (1973 Code § 119-9; Ord. No. 5-11-77)

21-1.10 Costs for Installation and Connection; Compliance.

All costs and expenses incidental to the installation and connection of the building sewer shall be borne by the applicant, and the applicant shall indemnify the municipality or the PVSC from any loss or damage that may be occasioned by the installation of the building sewer. All sewer connections shall be in accordance with the requirements of the municipality as otherwise provided by ordinance. In the case of the connection into a PVSC sewer, the connection shall be in accordance with the conditions contained in the approval of the PVSC. (1973 Code § 119-10; Ord. No. 5-11-77)

21-1.11 Certain Connections Restricted.

No person shall make connection of roof downspouts, foundation drains, areaway drains or other sources of surface runoff or groundwater to a building sewer or drain which, in turn, is connected directly or indirectly to a public sanitary sewer, unless approved by the municipality for the purpose of disposal of polluted surface drainage. (1973 Code § 119-11; Ord. No. 5-11-77)

21-1.12 Industrial Survey Form.

In addition to the application for the permit as hereinabove provided, each industrial user must complete an industrial survey form which will be supplied by the PVSC and, from time to time, shall update the form when required by the PVSC. (1973 Code § 119-12; Ord. No. 5-11-77)

21-1.13 Automatic Monitoring System.

Whenever an industry is classified as a major industry, it shall install an approved, sealed, automatic monitoring system if required by the PVSC. (1973 Code § 119-13; Ord. No. 5-11-77)

21-1.14 Discharge of Uncontaminated Water.

No uncontaminated water shall be discharged into the PVSC system except with the prior written consent of the municipality and the PVSC. There will be two (2) separate provisions, one (1) for municipalities with separate systems and one (1) for municipalities with combined systems. (1973 Code § 119-14; Ord. No. 5-11-77)

21-1.15 Adherence to Federal Pretreatment Standards.

When pretreatment standards are adopted by the United States Environmental Protection Agency for any given class of industries, then any industry within that class must conform to the United States Environmental Protection Agency timetable for adherence to pretreatment requirements, as well as all other applicable requirements promulgated by the United States Environmental Protection Agency, in accordance with the provisions of the law. Additionally, such industries shall comply with such more stringent standards necessitated by local conditions as determined from time to time by the PVSC. (1973 Code § 119-15; Ord. No. 5-11-77)

21-1.16 Access to Facilities.

All industrial users shall provide immediate access to its facilities at any time during normal working hours or at any other time that there is a discharge into the PVSC system or into any waters under the jurisdiction of the PVSC. Access shall be for the purpose of checking the quality of the discharge, taking samples and making tests of the discharge or for the purpose of permitting

enforcement of this section. The access shall be made available to the employees of the PVSC, the New Jersey Department of Environmental Protection, the United States Environmental Protection Agency and/or the municipality. All users shall provide access to property and premises for inspection for the purpose of determining if there is any violation of the terms or provisions of this section. (1973 Code § 119-6; Ord. No. 5-11-77)

21-1.17 Prohibited Wastes.

The following wastes are prohibited and may never by discharged into wastewater facilities of the municipality and the PVSC:

a. Wastes that may create a fire or explosion hazard in the **sewer** or wastewater facility, such as gasoline, fuel oil, cleaning solvents, etc.

b. Wastes that may impair or cause to be impaired the hydraulic capacity of the **sewer** system, such as ashes, sand, metal, precipitates, etc.

c. Wastes that may create a hazard to people, the **sewer** system, the treatment process or the receiving water, such as dangerous levels of toxic materials.

d. Wastes at a flow rate which is excessive over a relatively short time period so that there is a treatment process upset and substantial loss of treatment efficiency.

e. Wastes below a pH of five (5), unless the line is designated to accommodate such waste.

f. Any discharge of radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the PVSC in compliance with applicable State or Federal regulations.
(1973 Code § 119-17; Ord. No. 5-11-77)

21-1.18 Wastes Allowed by Special Permission.

The following wastes may not be discharged without special permission from the PVSC, upon a determination by the PVSC that the discharge would not be detrimental to the system:

a. Any discharge in excess of one hundred fifty (150° F.) degrees Fahrenheit [sixty-five (65° C.) degrees centigrade].

b. Any discharge containing more than one hundred (100) milligrams per liter of mineral oil or grease.

c. Any discharge containing floatable oil or grease.

d. Any discharge of heavy metals or any other toxic materials in toxic amounts, which amounts are to be established by the PVSC.

e. Any discharge quantities of flow or concentration which shall constitute a slug.

f. Wastes with a pH outside the limits of five point zero (5.0) to nine point zero (9.0).
(1973 Code § 119-18; Ord. No. 5-11-77)

21-1.19 Sampling Point.

Each major industrial user shall construct or otherwise have available a sampling point for sampling wastewater before it enters the municipal **sewer** system. Other industrial users may be required to construct such sampling point, if ordered so to do by the municipality or the PVSC. (1973 Code § 119-

19; Ord. No. 5-11-77)

21-1.20 Discharges Causing Damage; Interference with Treatment Process; Violation of Permit.

No discharge into the wastewater facilities of the PVSC shall be permitted from any source which causes physical damage, interferes with the treatment process or results in a violation of effluent limitations or other conditions contained in the national pollution discharge elimination system permit to discharge issued to the PVSC by the United States Environmental Protection Agency. (1973 Code § 119-20; Ord. No. 5-11-77)

21-1.21 Observation, Sampling and Measurement of Wastes.

When required by the municipality, the USEPA, the NJDEP or the PVSC, the owner of any property serviced by a building **sewer** carrying industrial wastes shall install a suitable structure, together with such necessary meters and other appurtenances to the building **sewer**, to facilitate observation, sampling and measurement of wastes. Such structure, when required, shall be accessibly and safely located and shall be constructed in accordance with plans approved by the governmental agency requiring it. The structure shall be installed by the applicant at his expense and shall be maintained by him so as to be safe and accessible at all times. (1973 Code § 119-21; Ord. No. 5-11-77)

21-1.22 Compliance Determination.

All persons subject to this section shall be required to provide information to the municipality and the PVSC as needed to determine compliance with this section. These requirements may include:

a. Wastewater discharge peak rate and volume over a specified time period.

b. Chemical analyses of wastewater;

c. Information on raw materials, processes and products affecting wastewater volume and quality.

d. Quantity and disposition of specific liquid, sludge, oil, solvent or other materials important to **sewer** use control.

e. A plot plan of sewers on the user's property showing **sewer** and pretreatment facility location.

f. Details of wastewater pretreatment facilities.

g. Details of systems to prevent and control the loss of materials through spills to the municipal **sewer**.

(1973 Code § 119-22; Ord. No. 5-11-77)

21-1.23 Measurements; Tests; Analysis.

All measurements, tests and analyses of the characteristics of waters and wastes to which reference is made in this chapter shall be determined in accordance with the latest edition of Standard Methods for the Examination of Water and Wastewater, published by the American Public Health Association, or other method or procedure as may be approved by the PVSC. Sampling methods, locations, times, durations and frequencies are to be determined on an individual basis, subject to the approval of the municipality and/or the PVSC. (1973 Code § 119-23; Ord. No. 5-11-77)

21-1.24 Compliance with Cost Regulations.

All users shall be required to comply with the requirement of user charge regulations and industrial cost recovery system regulations to be adopted by the PVSC in accordance with the requirements of the USEPA. The effective date for the implementation of user cost regulations and industrial cost recovery system regulations shall be established by resolution of the PVSC. The effective date shall be certified by the PVSC, and the written certification shall be filed in the office of the Municipal Clerk. (1973 Code § 119-24; Ord. No. 5-11-77)

21-1.25 User Charges for Industrial or Tax Exempt Users.

All industrial or tax exempt users shall be charged directly for sewage use in an amount as set forth in PVSC report UBC 640 (Direct Bill User Control Report) which report shall be open for public inspection at the request of any such user. (1973 Code § 119-24A; Ord. No. 5-26-83)

21-1.26 Damage to Wastewater Facilities.

No person shall intentionally break, damage, destroy, uncover, deface or tamper with any structure, appurtenance or equipment which is part of the wastewater facilities. (1973 Code § 119-25; Ord. No. 5-11-77)

21-1.27 Administration.

The Governing Body shall appoint or designate some suitable person to administer this section. (1973 Code § 119-26; Ord. No. 5-11-11)

21-1.28 Compliance with PVSC Regulations.

All users of the wastewater facilities shall comply with the requirements of the written rules and regulations of the PVSC which have been adopted and which from time to time shall be adopted, which regulations shall become effective upon the filing of certified copies in the office of the Municipal Clerk after the effective date of this section. (1973 Code § 119-27; Ord. No. 5-11-77)

21-1.29 Termination of Permit or Authority to Discharge.

Violations of any of the provisions of this section or any permit issued under the authority of this section may result in the termination of the permit and/or the termination of the authority to discharge into the system. (1973 Code § 119-28; Ord. No. 5-11-77)

21-1.30 Violations and Penalties.

Any person violating any of the provisions of this section shall, upon conviction thereof, be liable to the penalty stated in Chapter I, Section 1-5. Each and every day in which a violation of any provisions of this section exists shall constitute a separate violation. (1973 Code § 119-29; Ord. No. 5-11-77; New)

21-2 DISCHARGE REGULATIONS.

21-2.1 Purpose.

The following regulations as to the use of the sewer system serving the Kearny Sewage-Treatment Plant are essential to prevent hazard to human beings, damage to the sewers, treatment plant structures and equipment, and other facilities in the system or impairment of the efficiency of the treatment

operation with reflected failure to meet required standards of agencies having jurisdiction thereof. (1973 Code § 118-1)

21-2.2 Prohibited Discharges.

a. *Stormwater Excluded.* No person, firm or corporation shall discharge or cause to be discharged any stormwater, surface water, groundwater, roof runoff, subsurface drainage, uncontaminated cooling water subject to the other provisions of this section, or unpolluted industrial process waters into the aforementioned sanitary **sewer** system.

b. *Stormwater Discharged to Other Outlets.* Stormwater and all other unpolluted drainage shall be discharged into such sewers as are specifically designed as storm sewers, into a natural outlet approved by the Town Engineer or the Municipal Enforcement Committee as hereinafter defined. Uncontaminated cooling water or unpolluted industrial process water shall be discharged into a storm **sewer** or natural outlet upon the approval of the Town Engineer or the Municipal Enforcement Committee.

c. *Material Excluded.* Except as hereinafter provided, no person, firm or corporation shall discharge or cause to be discharged, or allow to run, leak or escape into the aforementioned **sewer** system, or into any private **sewer** connected with the aforementioned **sewer** system, any of the following described materials, wastes or substances, except such small quantities as may be presented in normal household wastes:

1. Any gasoline, benzene, naphtha, fuel oil or other explosive liquids, solids or gases.

2. Any waters or wastes containing toxic or other poisonous substances or gases in sufficient quantities, either singly or by interaction with other wastes, to injure any sewage-treatment structure or equipment; or which constitute a hazard to

humans or animals, or create a public nuisance or interfere with the beneficiary uses of the receiving waters.

3. Any waters or wastes having a corrosive property capable of causing damage or hazard to structures, equipment or personnel of the sewage works.

4. Solid or viscous substance in quantities or of such size and volume capable of causing obstruction to the flow in sewers, or other interference with the proper operation of the sewage works such as, but not limited to:

Ashes	Leaves
Bones	Mud
Cinders	Paper dishes, cups
Coffee grounds	Plastic
Construction materials	Rags
Containers, etc., either whole or shredded	Sand
Dead animals	Shavings
Entrails	Straw
Feathers	Unshredded vegetables
Fur	Vegetables in bulk
Glass	Wax
Hair and fleshings	Wood

5. Any liquid or vapor having a temperature higher than one hundred fifty (150° F.) degrees Fahrenheit [sixty-five (65° C.) degrees centigrade].

6. Any waste or water which may contain petroleum hydrocarbons, such as grease, oil and oil sludges from garages, repair shops, machine shops, industrial establishments, in concentrations in excess of one hundred (100) mg per liter. However, fats and greases such as those derived from cooking and food processing may be discharged to sewers, provided that the concentration and physical dispersion of the fats and greases does not result in separation and the adherence to **sewer** structures or appurtenances. If there is evidence of adherence of such materials to structures, or if such materials cause blockage in the **sewer** system, then the waste water carrying such materials must be effectively treated by a process or device such as a grease trap or interceptor before its discharge to sewers.

7. Any substances which may solidify or become viscous between thirty-two degrees and one hundred fifty (32° and 150° F.) degrees Fahrenheit.

8. Coal, tar, its derivatives and waste.

9. Paints and waste products from paint manu-facturing.

10. Water or wastes having a pH lower than four point five (4.5) or higher than nine point five (9.5) or having any other corrosive property apt to cause damage or hazard to structures, equipment of the **sewer** system or personnel employed in its operation.

11. Any noxious or malodorous gas or substance capable of creating a public nuisance.

12. Any natural drainage, or recycled river, harbor or ocean waters.

d. *Grinding, Shredding Garbage.*

1. Under no circumstances will the discharge of garbage or refuse, whether shredded or unshredded, be permitted into the **sewer** system, except that, properly shredded garbage from household grinders will be accepted.

2. When, in the opinion of the Town Engineer, or the Municipal Enforcement Committee, the solids in any industrial waste require comminution before discharge to the system, not only must the necessary comminution facilities be approved for adequacy, but also the operating results must satisfactorily abate the problem which such solids may tend to create in the **sewer** system.

e. *Prevention of Accidental Spillage.* Any physical connection to a public **sewer**, building **sewer**, or to a private **sewer** connected to a public **sewer**, from vessels, tanks or containers receiving any of the hereinbefore-mentioned materials and substances from which quantities of the aforesaid prohibited materials or substances could accidentally be discharged directly or indirectly into the aforementioned **sewer** system is prohibited. Precautions shall be taken to prevent the accidental spillage of any of the hereinbefore-mentioned material to floor drains, basins, downspouts, gutters, etc., from any manufacturing process or storage vessel.

f. *Control of Odors.* The control of all odors emanating from a building **sewer** shall at all times be the responsibility of the owner of the connection. Such person, firm or corporation shall take all necessary steps to eliminate undue odors at their source or to install means and methods, such as traps, draft, stacks, flap valves or other devices to prevent the discharge or development of offensive odors within the sewers. The cost of such devices and all attendant expenses shall be borne solely by the

owners of the premises.
(1973 Code § 118-2; Ord. No. 11-8-78)

21-2.3 Restricted Discharges.

No person, firm or corporation, shall without prior approval of the Town Engineer, discharge or cause to be discharged the following described substances, materials, waters or wastes into the aforementioned **sewer** system. Such approval shall not be granted if it appears likely, in the opinion of the Town Engineer, that such wastes can harm either the sewers, sewage-treatment process or equipment; have an adverse effect on the receiving waters; or can otherwise endanger life, limb, public property or constitute a nuisance. In forming his opinion as to the acceptability of these wastes, the Town Engineer will give consideration to such factors as the quantities of subject wastes in relation to flows and velocities in the sewers, materials or construction of the sewers, nature of the sewage-treatment process, capacity of the sewage-treatment plant, and other pertinent factors including, but not limited to, the following:

a. Any waters or wastes containing iron, chromium, copper, zinc, and similar heavy metals or objectionable or toxic substances, or any waters or wastes containing strong acid, iron-pickling wastes or concentrated plating solutions or wastes exerting an excessive chlorine requirement.

b. Any waters or wastes containing phenols or odor-producing substances in such concentration that after treatment of the composite sewage fail to meet the requirements of the State, Federal or other public agencies having jurisdiction over the receiving waters.

c. Any radioactive wastes or isotopes of such half-life or concentration, which, after treatment of the composite **sewer**, fail to meet the requirements of the State, Federal or other public agencies having jurisdiction over the receiving waters.

d. Materials which exert or cause:

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

2. Unusual volume of flow or concentration of wastes constituting sludge.

e. Typical industries requiring approval before discharge of wastes include:

Tanning	Distilling
Metal pickling	Public laundering
Galvanizing	Laundromats
Plating	Food processing
Pulp	Meat packing
Paper making	Wood scouring
Brewing	Soap making
Glue manufacturing	Slaughterhouses
Bleaching and dyeing	Dairies
Munitions manufacturing	Dairy products
Oil refining	Sugar refining
Wool washing	Fat rendering
Rubber production	Manufacturing of syrups
Salt works	Cotton textile
Manufacture or processing	Jam or jelly

Chemical Pharmaceutical

or any industry producing wastes with strong acid or alkaline reactions or which will form deposits or cause damage to the sewers or to appurtenances of sewage-treatment works. The process or processes employed in the pretreatment of such wastes shall in each case be satisfactory to and shall have the written approval of the Town Engineer.
(1973 Code § 118-3)

21-2.4 Toxic Substances Prohibited or Accepted Conditionally.

a. The following is a partial list of toxic substances and pathogenic bacteria, the admission of which into the aforementioned **sewer** system is hereby prohibited unless approved by the Town Engineer. Approval shall not be granted unless their concentration is reduced by treatment at the source to a point that will meet the general purposes of these rules and regulations:

1. Alcohols
2. Antibiotics
3. Arsenic and arsenicals
4. Bromine, iodine, chlorine
5. Copper and copper salts
6. Creosols or creosotes
7. Fluorides
8. Formaldehydes
9. Mercury and mercurials
10. Phenols and their derivatives
11. Silver and silver compounds
12. Sulfonamides, toxic dyes (organic or mineral)
13. Zinc compounds
14. All strong oxidizing agents, such as chromates, dichromates, permanganates, peroxides, etc.
15. Chemical compounds producing flammable or explosive gases, either upon acidification, alkalization, oxidation or reduction
16. Strong reducing agents such as nitrites, sulphites and thiosulphates, etc.
17. Wastes from industrial processes or hospital procedures containing viable pathogenic organisms

b. When the volume of a single toxic industrial waste discharge of a group of industries within a single contributor area is so large as to interfere with plant operation, the Town Engineer of the Municipal Enforcement Committee may impose separate or special concentration limits upon the contributors.
(1973 Code § 118-4; Ord. No. 11-8-78)

21-2.5 Construction of Manhole.

When required by the Town Engineer or the Municipal Enforcement Committee, the owner of any property served by a building **sewer** carrying industrial wastes shall install a suitable control manhole in the building **sewer** to facilitate observation, sampling, and measurement of wastes. Such manhole, when required, shall be accessible and safely located and shall be constructed in accordance with plans approved by the Town. The manhole shall be installed by the owner at his expense, and shall be maintained by him. (1973 Code § 118-5; Ord. No. 11-8-78)

21-2.6 Measurements; Tests; Analyses.

All measurements, tests and analyses shall be taken by the Town of the characteristics of waters and wastes and shall be determined in accordance with American Public Health Association Standard Methods for the Examination of Water and Sewage, and shall be determined upon suitable samples taken at the control manhole. In the event that no special manhole has been required, the control manhole shall be considered to be the nearest downstream manhole in the public **sewer** to the point at which the building **sewer** is connected. (1973 Code § 118-6)

21-2.7 Authorized Personnel to Make Inspections.

The Town Engineer, members of the Municipal Enforcement Committee and its duly authorized officers and employees bearing proper credentials and identification shall be permitted to enter upon all properties for the purpose of inspection, observation, measurement, sampling and testing in accordance with the provisions of this section. (1973 Code § 118-7; Ord. No. 11-8-78)

21-2.8 Municipal Enforcement Committee.

The provisions of this section shall be enforced where so stated by the Municipal Enforcement Committee which shall consist of the following persons:

a. Councilman serving as Chairman of Sewage Treatment Plant Committee.

b. Town Engineer.

c. Health Officer.

d. Superintendent of Sewage Treatment Plant.

e. Water Superintendent.

(1973 Code § 118-7A)

21-2.9 Hearings; Appeals.

a. Whenever it is claimed that the zone rates or surcharges are improper in any respect, or that the provisions of this section do not apply, or that the true intent and meaning of the section has been misconstrued, or that a decision of the Town Engineer made hereunder has been an improper one, or for any other grievance arising hereunder, the aggrieved claimant may appeal the decision or the grievance in writing to the Mayor and Town Council, in which event the matter will be set down for a special hearing, at which time all interested persons shall present evidence relevant to the subject matter of the hearing. Notice of the hearing in writing shall be given to the aggrieved claimant at least ten (10) days in advance by mailing same to the claimant's last post-office address.

b. The Mayor and Town Council shall have the authority to modify any of the provisions of this section where it finds there are practical difficulties in the way of carrying out the strict letter of the section, or where the proofs indicate that the chapter is unreasonable, arbitrary, discriminatory or confiscatory in its application to any user, provided that the spirit of the section shall be observed, the public health, safety and welfare secured and substantial justice done. The burden of proof shall be on the user (aggrieved claimant).

c. Appeals shall be made forty-five (45) days after the grievance arises or after the rendering of a decision by the Town Engineer.
(1973 Code § 118-8)

21-2.10 Violations and Penalties.

Any person who shall violate any of the provisions of this section shall, upon conviction thereof, be liable to the penalty stated in Chapter I, Section 1-5. Each violation of any of the provisions of this section, and each day the same is violated, shall be deemed and taken to be a separate and distinct offense. (1973 Code § 118-9; New)

21-3 IMPROPER DISPOSAL OF WASTE.

21-3.1 Purpose.

The purpose of this section is to prohibit the spilling, dumping, or disposal of materials other than stormwater to the municipal separate storm **sewer** system (MS4) operated by the Town of Kearny, so as to protect public health, safety and welfare, and to prescribe penalties for the failure to comply. (Ord. No. 2006-(O)-12 § 4)

21-3.2 Definitions.

For the purpose of this section, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this section clearly demonstrates a difference meaning. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

Municipal separate storm sewer system (MS4) shall mean a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) that is owned or operated by The Town of Kearny or other public body, and is designed and used for collecting and conveying stormwater MS4s do not include combined **sewer** systems, which are **sewer** systems that are designed to carry sanitary sewage at all times and to collect and transport stormwater from streets and other sources.

Person shall mean any individual, corporation, company, partnership, firm, association, or political subdivision of this State subject to municipal jurisdiction.

Stormwater shall mean water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, is captured by separate storm sewers or other sewerage or drainage facilities, or is conveyed by snow removal equipment.
(Ord. No. 2006-(O)-12 § 4)

21-3.3 Prohibited Conduct.

The spilling, dumping or disposal of materials other than stormwater to the municipal separate storm sewer system operated by Town of Kearny is prohibited. The spilling, dumping, or disposal of materials other than stormwater in such a manner as to cause the discharge of pollutants to the municipal separate storm sewer system is also prohibited. (Ord. No. 2006-(O)-12 § 4)

21-3.4 Exceptions to Prohibition.

a. Water line flushing and discharging from potable water sources.

b. Uncontaminated ground water (e.g., infiltration, crawl space or basement sump pumps, foundation or footing drains, rising ground water).

c. Air conditioning condensate (excluding contact and non-contact cooling water).

d. Irrigation water (including landscape and lawn watering runoff).

e. Flows from springs, riparian habitats and wetlands, water reservoir discharges and diverted stream flows.

f Residential car washing water, and residential swimming pool discharges.

g. Sidewalk, driveway and street wash water.

h. Flows from firefighting activities.

i. Flows from rinsing of the following equipment with clean water:

1. Beach maintenance equipment immediately following their use for their intended purposes; and

2. Equipment used in the application of salt and de-icing material immediately following salt and de-icing material applications. Prior to rinsing with clean water, all residual salt and deicing materials must be removed from equipment and vehicles to the maximum extent practicable using dry cleaning methods (e.g., shoveling and sweeping). Recovered materials are to be returned to storage for reuse or properly discarded.

Rinsing of equipment, as noted in the above situation is limited to exterior, undercarriage, and exposed parts and does not apply to engines or other enclosed machinery.
(Ord. No. 2006-(O)-12 § 4)

21-3.5 Enforcement.

This section shall be enforced by the Department of Public Works of the Town of Kearny and any other department hereinafter designated by the Town Administrator. (Ord. No. 2006-(O)-12 § 4)

21-3.6 Penalties.

Any person(s) who continues to be in violation of the provisions of this section, after being duly notified, shall be subject to a fine not to exceed five hundred ($500.00) dollars for each violation committed hereunder. Each day's failure to comply with any section or subsection shall constitute a separate violation.

Where a person has been convicted of a violation of this section and within twelve (12) months thereafter has been found guilty of a second violation of this section, the Judge of the Kearny Municipal

Court may, if the Judge finds the second offense was willful, sentence the offender to imprisonment in the County jail for a period not to exceed ninety (90) days in addition to or in lieu of the fine set forth above. (Ord. No. 2006-(O)-12 § 4)

21-4 ILLICIT CONNECTION.

21-4.1 Purpose.

The purpose of this section is to illicit connection to the municipal separate storm **sewer** system(s) operated by the Town of Kearny, so as to protect public health, safety and welfare, and to prescribe penalties for the failure to comply. (Ord. No. 2006-(O)-12 § 7)

21-4.2 Definitions.

For the purpose of this section, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use in the text of this section clearly demonstrates a different meaning. When not inconsistent with the text, words used in the present tense include the future, words used in the plural number include the singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory. The definitions below are the same as or based on corresponding definitions in the New Jersey Pollutant Discharge Elimination System (NJPDES) rules at N.J.A.C. 7:14A-1.2.

Domestic sewage shall mean waste and wastewater from humans or household operations.

Illicit connection shall mean any physical or nonphysical connection that discharges domestic sewage, non-contact cooling water, process wastewater, or other industrial waste (other than stormwater) to the municipal separate storm **sewer** system operated by the Town of Kearny, unless that discharge is authorized under a NJPDES Permit other than the Tier A Municipal Stormwater General Permit (NJPDES Permit Number NJ0141852). Non-physical connections may include, but are not limited to, leaks, flows, or overflows into the municipal separate storm **sewer** system.

Industrial waste shall mean nondomestic waste, including, but not limited to, those pollutants regulated under Section 307(a), (b), or (c) of the Federal Clean Water Act (33 U.S.C. §1317(a), (b) or (c)).

Municipal separate storm sewer system (MS4) shall mean a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) that is owned or operated by The Town of Kearny or other public body, and is designed and used for collecting and conveying stormwater. MS4s do not include combined **sewer** systems, which are **sewer** systems that are designed to carry sanitary sewage at all times and to collect and transport stormwater from streets and other sources.

NJPDES permit shall mean a permit issued by the New Jersey Department of Environmental Protection to implement the New Jersey Pollutant Discharge Elimination System (NJPDES) rules at N.J.A.C. 7:14A.

Non-contact cooling water shall mean water used to reduce temperature for the purpose of cooling. Such waters do not come into direct contact with any raw material, intermediate product (other than heat) or finished product. Non-contract cooling water may however contain algaecides, or biocides to control fouling of equipment such as heat exchangers, and/or corrosion inhibitors.

Person shall mean any individual, corporation, company, partnership, firm, association, or political subdivision of this State subject to municipal jurisdiction.

Process wastewater shall mean any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product. Process wastewater includes, but is not limited to, leachate and cooling water other than non-contact cooling water.

Stormwater shall mean water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, is captured by separate storm sewers or other sewerage or drainage facilities, or is conveyed by snow removal equipment.

(Ord. No. 2006-(O)-12 § 7)

21-4.3 Prohibited Conduct.

No person shall discharge or cause to be discharged through an illicit connection to the municipal separate storm system operated by the Town of Kearny any domestic sewage, non-contact cooling water, process waste water, or other industrial waste (other than stormwater). (Ord. No. 2006-(O)-12 § 7)

21-4.4 Enforcement.

This section shall be enforced by the Department of Public Works of the Town of Kearny and any other department hereinafter designated by the Town Administrator. (Ord. No. 2006-(O)-12 § 7)

21-4.5 Violations and Penalties.

Any person(s) who continues to be in violation of the provisions of this section, after being duly notified, shall be subject to a fine not to exceed five hundred ($500.00) dollars for each violation committed hereunder. Each day's failure to comply with any section or subsection shall constitute a separate violation.

Where a person has been convicted of a violation of this section and within twelve (12) months thereafter has been found guilty of a second violation of this section, the Judge of the Kearny Municipal Court may, if the Judge finds the second offense was willful, sentence the offender to imprisonment in the County jail for a period not to exceed ninety (90) days in addition to or in lieu of the fine set forth above. (Ord. No. 2006-(O)-12 § 7)

Appendix E

1st Read 2/11/03
Publish - 2/17/03
2nd Read - 3/25/03
Publish - 3/28/03

TOWN OF KEARNY
COUNTY OF HUDSON
2003 - (O) -13

ORDINANCE AMENDING SECTION 2-57.1c. OF THE TOWN CODE TO ENLARGE THE KMUA SERVICE DISTRICT

BE IT ORDAINED by the Mayor and Council of the Town of Kearny, Hudson County, New Jersey that:

1. Schedule A referred to in Section 2-57.1c. of the Town Code and on file in the Office of the Town Clerk be and hereby is revised to include not only what was described in the original Schedule A, but also that portion referred to as Detail B on Schedule A, revised November 2002, a copy of which is attached hereto.

2. A copy of Schedule A, revised November 2002, shall be maintained on file at the Office of the Town Clerk.

I certify that the foregoing ordinance was introduced by the Council on first reading on February 11, 2003, duly published according to law, and passed on second reading and final passage on March 25, 2003.

DOREEN CALI, TOWN CLERK

I hereby approve the foregoing ordinance this 25th day of March, 2003.

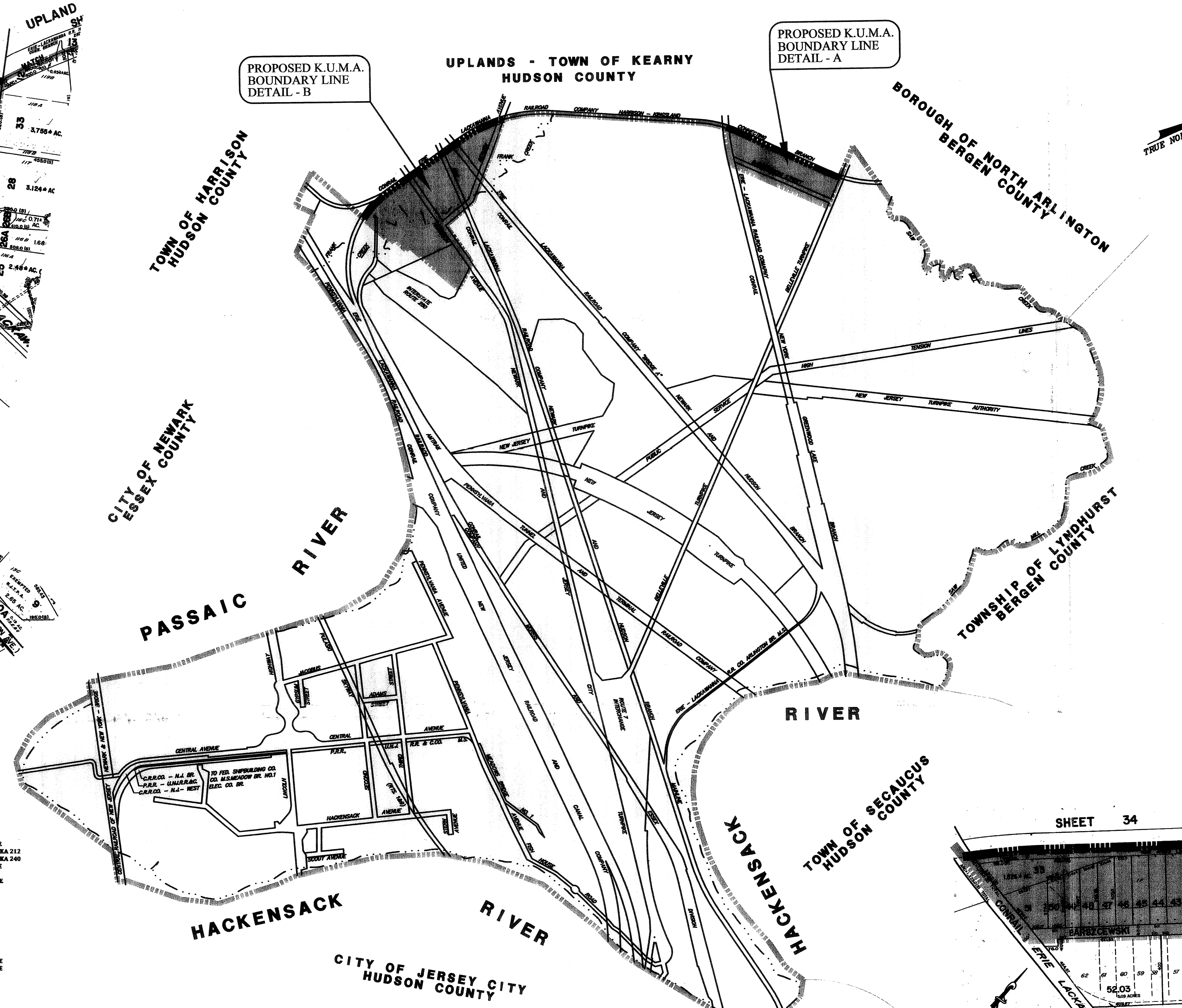
ALBERTO G. SANTOS, MAYOR

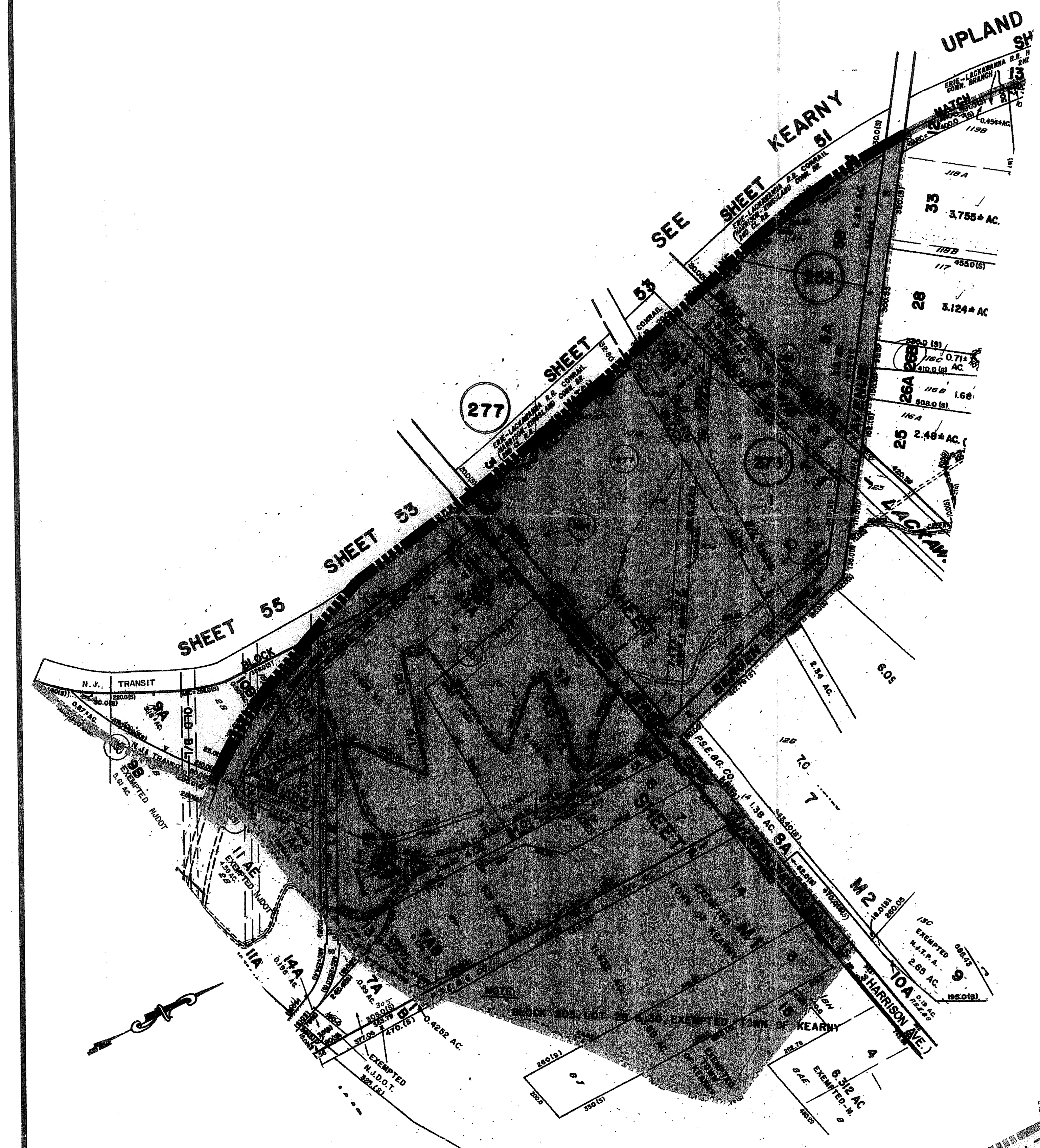
Reviewed

Town Attorney

3-26-03
KMUA
Naglia

Appendix F

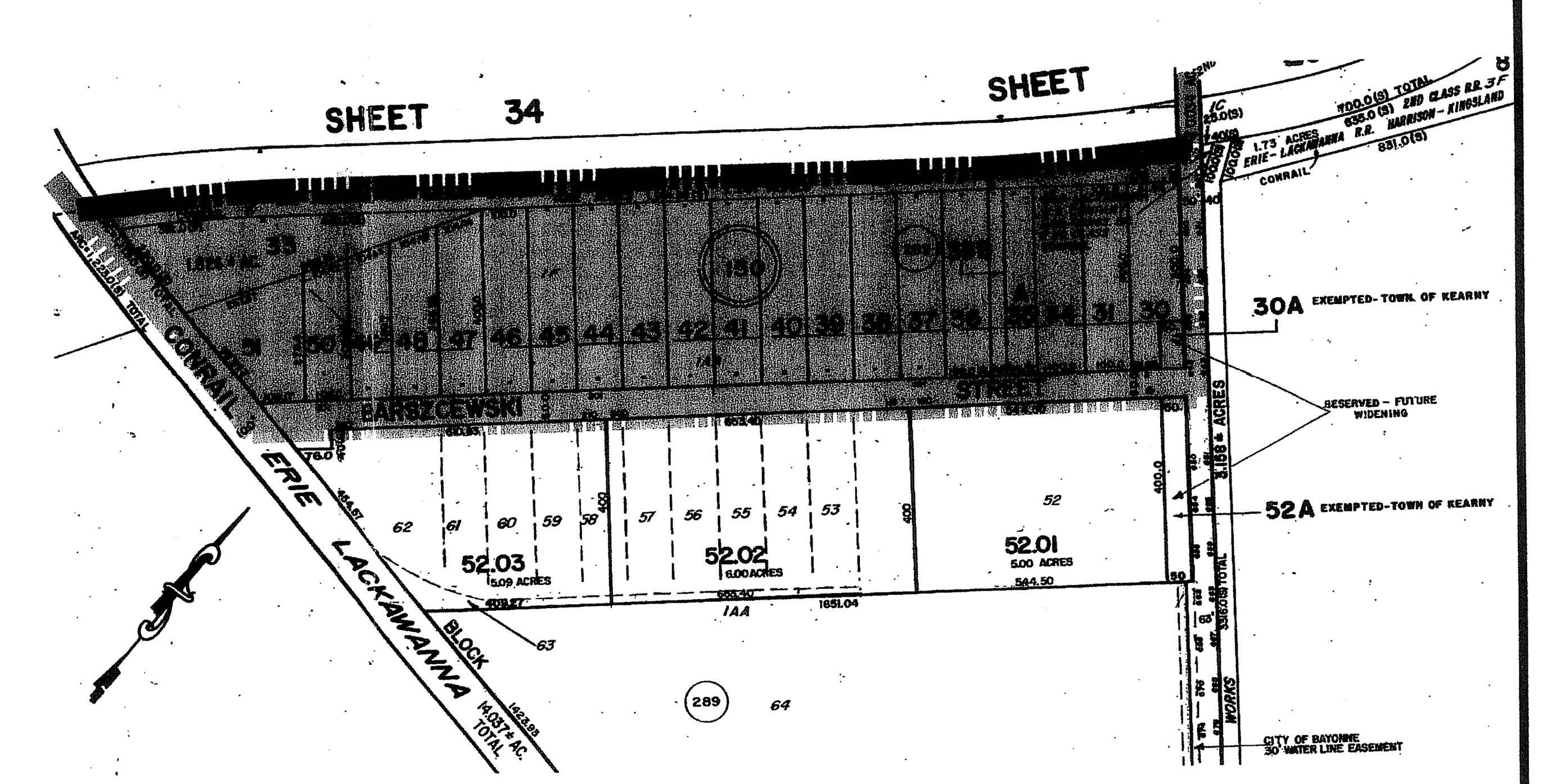




DETAIL - B

Scale: 1"=300'

Block	Lot	Additional Lots	Owner	Owner's Mailing Address			Address of Property
253	5.A		NEWMARK, ANN ETAL	150 E 69 ST APT 11 T	NEW YORK, NY	10021	MEADOWS
253	5.B		SKY VIEW REALTY CORP	450 BERGEN AVE	KEARNY, NJ	07032	MEADOWS
275	1	L6,8,9-277/9-13	THE FOUR B'S	71 PARK AVE, WEST	VINELAND, NJ	08360	1200 HARRISON AVE
284	1		N J TRANSIT	P O BOX 10009	NEWARK, NJ	07101	HARRISON AVE
284	2.A	L3B, 3BA	VINELAND CONSTRUCTION CO	71 WEST PARK AVE	VINELAND, NJ	08360	148-150 HARRISON AVE
284	3.A	L4, 5	SAIJ REALTY, INC ETAL	71 W PARK AVE	VINELAND, NJ	08360	1217 HARRISON AVE/AKA 212
284	6		VINELAND CONSTRUCTION CO	71 WEST PARK AVE	VINELAND, NJ	08630	1221 HARRISON AVE/AKA 240
284	7		CAMPBELL, DOUGLAS F ETAL	800 BERGEN ST	HARRISON, NJ	07029	252-268 HARRISON AVE
284	7.AB		P S E & G CO	80 PARK PL T-6B	NEWARK, NJ	07101	MEADOWS
284	8		VINELAND CONSTRUCTION CO	71 WEST PARK AVE	VINELAND, NJ	08360	REAR NEWARK/J C TPKE
284	9.A		EDGAR-CHARLES RLTY C/O L BLOZEN	600-602 SCHUYLER AVE	KEARNY, NJ	07032	MEADOWS
284	9.B		CONRAIL CORP PROP TAX DEPT	P O BOX 8499	PHILADELPHIA, PA	19101	MEADOWS
284	11.AA	L PT OF 10A	LINDE-GRIFFITH CONSTRUCTION CO	152 PASSAIC ST	NEWARK, NJ	07104	MEADOWS
284	11.AB		LINDE-GRIFFITH CONSTRUCTION CO	152 PASSAIC ST	NEWARK, NJ	07104	MEADOWS
284	11.AC		LINDE-GRIFFITH CONSTRUCTION CO	152 PASSAIC ST	NEWARK, NJ	07104	MEADOWS
284	11.AF		CONRAIL CORP C/O PROP TAX DEPT	P O BOX 8499	PHILADELPHIA, PA	19101	MEADOWS
284	12		VINELAND CONSTRUCTION CO	71 WEST PARK AVENUE	VINELAND, NJ	08360	MEADOWS
284	13		CONRAIL CORP %PROP TAX DEPT	PO BOX 8499	PHILADELPHIA, PA	19101	MEADOWS
285	1.A		P S E & G CO	80 PARK PLAZA T-6B	NEWARK, NJ	07101	270 HARRISON AVE
285	3		HUDSON MEADOWS URBAN RENEWAL CORP	525 RIVERSIDE AVE	LYNDHURST, NJ	07071	308-324 HARRISON AVE
285	14		KEARNY, TOWN OF	402 KEARNY AVE	KEARNY, NJ	07032	272-306 HARRISON AVE
285	15		KEARNY, TOWN OF	402 KEARNY AVE	KEARNY, NJ	07032	MEADOWS



DETAIL - A

Scale: 1"=300'

Block	Lot	Additional Lots	Owner	Owner's Mailing Address			Address of Property
150	29		N J TRANSIT CORP	PO BOX 10009	NEWARK, NJ	07101	MEADOWS
150	30	L31, 34, 35A	CRISTELLI, PAT C/O DMB LEASING	1281 WESTSIDE AVE	JERSEY CITY, NJ	07306	BARSZEWSKI ST
150	30.A		KEARNY, TOWN OF	402 KEARNY AVE	KEARNY, NJ	07032	642 BELLEVILLE TPKE
150	33		N J TRANSIT CORP	PO BOX 10009	NEWARK, NJ	07101	BELLEVILLE PIKE
150	35.B	L36-51	NEWMAN, HENRY TRUSTEE-SAFER PROPS	1875 MC CARTER HWY	NEWARK, NJ	07104	BARSZCEWSKI ST
150.A	32		HUDSON MEAD URB RENEW % KINGS CT	525 RIVERSIDE AVE	LYNDHURST, NJ	07071	MEADOWS

KEARNY MUNICIPAL AUTHORITY (K.M.U.A.) JURISDICTIONAL MAP

NOVEMBER 2002

TOWN OF KEARNY

HUDSON COUNTY NEW JERSEY

A PROJECT OF

NEGLIA ENGINEERING ASSOCIATES

34 PARK AVENUE LYNDHURST NEW JERSEY
TEL: 201-939-8805 FAX: 201-939-0846 E-MAIL: NEA@NEGLIAENGINEERING.COM

LEGEND

EXISTING SERVICE DISTRICT BOUNDARY

PROPOSED SERVICE DISTRICT BOUNDARY

1000 0 500 1000 2000

(IN FEET)
1 INCH = 1000 FT.

GRAPHIC SCALE

M:\Kearny\KEARMUN02.042 (M.U.A. Jurisdictional Map)\CAD\general\MUA_Jurisitional_Map-111402.dwg, 8/23/2004 11:00:18 AM

Appendix G

Appendix G

Standard Specifications

This section provides information on the minimum standards of the Kearny Municipal Utilities Authority. The Applicant and his Design Engineer shall assure that the construction of all sewerage facilities are conducted in accordance with these minimum standards.

The Authority reserves the right to periodically modify these Standard Specifications to address changes in regulations or engineering standards. Accordingly, the Design Engineer shall verify prior to design that the standards contained herein have not been modified in any manner, and shall implement and use the Authority's standard construction specifications in effect at the time.

General Requirements

The Standard Specifications consist of nine (9) items as follows:

1. Excavation, Removal and Backfill
2. Furnishing and Placing Select Backfill
3. Furnishing and Placing ¾" Gravel or Broken Stone
4. Construction of Precast Concrete Manholes
5. Furnishing and Installing PVC Sanitary Sewer Pipe
6. Furnishing and Installing Ductile Iron Sanitary Sewer Pipe
7. Furnishing and Installing HDPE Force Main Sewer Pipe
8. Lateral Connections
9. PVC Branch Connections (PVC Sewer Pipe)

Road opening permits must be obtained from the Town of Kearny prior to undertaking any construction in or along the Town of Kearny public right-of-ways. Backfill and resurfacing of County and NJDOT roadways shall be as per the requirements of the County and NJDOT. The Contractor is specifically alerted to include the requirements for traffic control, working hour restrictions, and provision of uniformed Municipal Policemen when working within municipal, County, and NJDOT right-of ways.

The construction schedule is to be coordinated with the Owner, the Design Engineer, the Town of Kearny, The Kearny Municipal Utilities Authority, and the Authority's Consulting Engineer. Regularly scheduled job meetings are to occur at least monthly during the full contract period and thereafter as may be necessary.

FOR EXCAVATION, REMOVAL AND BACKFILL

Character of Material

The Contractor shall, by inspection, by test pits or borings made by him or by other adequate methods, satisfy himself regarding the character and amount of the various classes of material to be encountered in the work to be performed. If quicksand is encountered, no separate classification will be made.

Any and all fill imported to the site shall be certified as clean fill. An original copy of such certification, and/or laboratory analysis reports, must be provided to the Authority prior to the material being brought to the site.

Excavation, Clearances and Trimming

Excavation shall be of sufficient width to permit work to be done competently, in the manner and of the size specified and shown, and limits shall be such as to permit the use of outside forms, unless permission for alternate procedure is specifically granted. In no case shall excavations be carried below grade by machine and backfill be used to bring foundations to the grade of bottom slabs, footings or pipelines.

All excavations for pipe in boulders, rock masonry, or other similar materials shall be excavated to a level at least six (6) inches below the invert of the pipe to firm ground, and carefully refilled with clean 3/4 inch broken stone or other approved material. Rock or boulders shall be removed from sides of trenches to a plane twelve (12) inches outside the inside wall of the pipe, unless permission to do otherwise is expressly given.

Excavation lines shall, in general, conform with pay lines for various classes of excavation. The trench width just above the top of the pipe shall be maintained as narrow as possible and in general shall not exceed the inside diameter of pipe plus two (2) feet.

Unauthorized Excavation

If any excavation is caused by the Contractor's error, or wherever the excavation is carried beyond or below the lines and grades given by the Engineer, the Contractor shall, at his own expense, refill all such excavated space with such material and in such manner as may be directed, in order to insure the stability of the various structures. Beneath all structures, space excavated without authorization shall be refilled with 2500 lb. concrete by the Contractor and at his own expense.

Sheeting and Bracing

Where necessary, particularly to prevent disturbance, damage or settlement of adjacent structures, pipelines, utilities, improvements or paving, excavation shall be adequately

sheeted and braced. In areas where specifically designed sheeting is not designated, the Contractor shall submit to the Engineer a sketch showing details and installation procedures of all sheeting and bracing for excavations exceeding five (5) feet in depth. Said plan, details, and procedures shall be submitted well in advance of the start of excavation. This sketch shall be accompanied by a signed and sealed certificate from a currently licensed New Jersey Professional Engineer, stating that the sheeting and bracing design shown on the sketch meets all the latest requirements of the New Jersey Construction Safety Code and the Federal Occupational Safety and Health Act.

Sheeting and bracing shall be furnished and installed, and if ordered by the Engineer, left permanently in place. If sheeting is not ordered to be left in place it shall be removed.

Any damage to new or existing structures occurring through settlement, water or earth pressure, or other causes due to inadequate bracing, or through negligence or fault of the Contractor in any other manner, shall be repaired by the Contractor at his own expense.

Removal of Water and Protection from Flooding

The Contractor shall remove all water from the excavation promptly and continuously throughout the progress of the work and shall keep the excavation dry at all times by approved methods such as sumps, underdrains, or well points until the structures to be built therein are completed. Pumping shall be continuous if necessary or ordered by the Engineer to protect the work and/or to maintain satisfactory progress.

Precautions shall be taken to protect uncompleted work from flooding during storm or from other causes. All pipelines or structures not stable against uplift during construction or prior to completion shall be thoroughly braced or otherwise protected.

All necessary precautions shall be taken to prevent disturbance of and to properly drain the areas upon which concrete is to be poured, and upon which pipe is to be laid.

Contractor’s equipment shall be adequate to keep all concrete work dry until properly set.

Topsoil

In unpaved areas, all topsoil shall be carefully removed from the site of the work over the entire width of the Contractor's operations, including areas used for heaping excavated material and over which equipment will be driven. Topsoil shall be stored separately and replaced in the final grading and embankments to the designated lines and grades, in an approved manner.

Compacting Foundations

Wherever the development of suitable foundation conditions requires it, the Contractor shall take the proper means of compacting such foundation material. After excavation to grade,

the surface shall be tamped, or otherwise consolidated to adequately prepare the bottom for the loads to come upon it, the method depending upon the quality and condition of the material. Where so required, screened gravel, shall be placed on the surface and shall be compacted into the sub-grade in such thickness as may be required by the Engineer.

Additional Excavation

Wherever, in the opinion of the Engineer, the material found at the grades for the slabs, wall footings, or pipe inverts, is not satisfactory, the Contractor shall make any additional excavations as directed by the Engineer, and shall refill the same to required grade with selected material.

Backfilling

As soon as practicable, after the pipe or masonry has been placed and the masonry has acquired a suitable degree of hardness, the backfilling shall begin and shall thereafter be prosecuted expeditiously.

The Engineer shall have the right to make such selection of the material for various portions of the backfill as may be required for the satisfactory execution of the work.

Only such material as is suitable for backfilling shall be used. All boulders, rock or other unsuitable material shall be disposed of by the Contractor.

In general, backfill in easements shall be with existing excavated material, and backfill within existing roadways, road shoulders, driveways and parking areas shall be with select backfill.

Backfill compaction within existing roadways, road shoulders, driveways and parking areas shall be in accordance with the requirements of this item and included under the prices bid for the various subdivisions of this item.

All lumber, rubbish, and braces shall be carefully removed from behind walls or other structures, unless ordered left in place by the Engineer. Backfill under the PVC pipe haunches, around the pipe, and up to the top of the pipe shall be with ¾ inch clean stone in accordance with the requirements of the Engineer. Backfill up to a cover of at least 12 inches over the top of the pipe shall be ¾ inch clean stone, unless otherwise ordered. Backfill under pipe haunches, around pipe and up to a cover of at least 12 inches over the top of the pipe shall be placed by hand in 6-inch layers, each layer to be thoroughly compacted by mechanical tampers of an approved type. Hydro-hammers are not to be used 3 feet or less from the top of the pipe. Compaction and tamping shall be as directed to the end that the pipe shall be securely bedded and protected at the end of each day's operation.

All trenches or excavations shall then be backfilled in mechanically compacted and vibrated 12-inch layers to the original surface of the ground or up to such grades as shall be directed.

The backfilling shall be done as completely as possible in such a manner as to prevent after-settlement around all structures and pipelines. No heavy stones or boulders shall be allowed to drop into the trench. The trenches and excavations shall be wet down as required to obtain optimum density while the backfilling is being carried out.

In rights-of-way and paper streets, backfill between a plane 12 inches above the top of the pipe and the finished surface grade shall be so placed as to keep settlement to a minimum and the contractor shall restore to proper grade such settlement that might occur.

All backfill in embankments shall be thoroughly compacted by rollers of approved size and weight or by other approved methods.

Disposal of Material

Material excavated shall be disposed of in backfilling, building embankments, making fills, and grading around the work as may be directed, and to the lines and grades established by the Engineer.

Temporary storage of excavated material shall not be on environmentally sensitive areas.

Excess material shall be disposed of by the Contractor in locations outside of the working areas. The areas shall be selected by the Contractor. The Contractor shall abide by all State, County and local laws and ordinances, shall secure all permits and disposal fees as necessary.

So far as possible, the excavated material may be temporarily disposed of on the site of the work and used as fill where possible in other sections of the work, but it shall not be done in a manner to interfere with the satisfactory carrying out of the work, nor shall it be dumped in such a location as to cause pressures against newly placed masonry.

In streets or adjacent to private property, material shall be stored at such locations as will not unduly interfere with traffic of any nature, and in no case shall material be stored in locations which will cause damage to existing improvements.

Solid Waste Disposal

The Contractor is directed to Public Law NJAC 7:26-1 et seq. Rules of the Bureau of Solid Waste Management, as revised. In general, this law requires that all solid wastes (concrete, black top, demolition or construction debris, etc.) must be disposed in an approved, licensed landfill site. Also, any truck hauling this type of material to a landfill must have a permit issued by the Bureau of Solid Waste Management.

Temporary Bridges and Crossings

The Contractor shall, where required to expedite the work, or where required to maintain traffic, or where otherwise ordered by the Engineer, construct temporary bridges, or

walkways, of adequate sized members to safely carry the loads which may reasonably be anticipated, and the sizes of the members used shall meet with the approval of the Engineer.

Temporary bridge shall be removed when they are no longer needed and the area shall be restored. Erosion and sediment control procedures are to be included as described in the specifications.

Protection and Restoration of Existing Structures and Pipe Lines

The Contractor shall carefully protect all existing structures, both above and underground, including but not limited to poles, curbs, driveways, parking areas, privately owned pavements, signs, sumps, pits, catch basins, manholes, underground tanks, and building foundations; pipelines; including gas mains, water mains, hydrants, drain lines, storm sewers, sanitary sewers; service connections, conduits, and miscellaneous underground pipelines; and shall restore same to a condition equivalent to conditions existing prior to his operation.

The Contractor is specifically directed to the requirements of protecting all trees along the route of the work in an approved manner.

The work of protecting and restoring existing utilities and facilities and including trees where no definite physical interference exists, or where the interference is avoidable, shall be the responsibility of the Contractor.

Ample precautions shall be taken to prevent settlement of existing improvements.

The work will be located so as to avoid interference to the greatest degree practicable, based upon data available as to depth and location of existing utilities and other existing facilities.

The Contractor shall, insofar as possible, determine in advance of excavating by trenching machines, the location of all utilities and other subsurface structures and facilities and shall accurately mark same so that they may be avoided by the machine.

Where existing utilities or other sub-surface facilities adjacent to the trench or crossing through the trench, require temporary support or protections, the work shall the responsibility of the Contractor.

Where definite physical interference would be unavoidable in the final work and necessitates the removal, alteration, replacement or extension of existing utilities, the Contractor shall make all excavations for such work under this item and shall cooperate with other forces engaged in the work.

The labor, pipe and other material necessary for removing, altering, replacing, or extending such utilities, other than for excavation, will, unless otherwise ordered, be coordinated by the Contractor with the respective utility companies or other owners involved. In specific cases

the Contractor may be ordered to perform such work unless otherwise completed by the utility.

The Contractor shall be responsible for protecting all existing Kearny MUA appurtenances including but not limited to sanitary manholes and clean-out access covers hereafter referred to as utility castings. The Contractor shall accurately mark out the location of all utility castings in advance of milling of the roadway. Care shall be exercised during the milling/paving operations to avoid damage to the utility castings by the milling/paving machines. Following the milling operation and prior to pavement, the Contractor shall inspect all utility castings within the roadway to assure that they were not hit and displaced during the milling activity and that no millings have entered the utility castings. The Contractor shall be responsible for removing any and all millings from utility castings and shall assure that complete and clear access is available to all utility appurtenances. In addition, the Contractor shall remove and reinstall/replace to the satisfaction of the KMUA all utility castings which have been dislodged by the milling or paving operations.

The Contractor shall also be responsible for raising all utility castings located in the roadway to the proposed finished grade in areas where the roadway is scheduled for additional pavement above the existing rim elevations. The work and materials associated with altering, replacing or extending such utility castings shall be the sole responsibility of the Contractor and shall be coordinated by the Contractor with the Authority prior to work being undertaken.

The KMUA shall be contacted within 48 hours of final paving to schedule an inspection of all the utility castings within the project area to assure compliance with this specification. All utility castings determined to have been buried, damaged, moved or in any other way affected by the project shall be reinstalled, replaced or uncovered to the satisfaction of the KMUA within two weeks notification by the Authority.

Removal and Restoration of Pavement, Curbing and Sidewalks

All sidewalks, curbs, lawns, private driveways, pavement, and other improvements damaged or removed due to the Contractor's operations shall be restored to a condition at least equivalent to conditions existing prior to the Contractor's operations. Replacement or restoration shall be done in accordance with applicable provisions of this Specification and in conformity with the requirements of the authorities in charge; all work to be done to the satisfaction of the Engineer. Gravel driveways shall be restored using 3/4-inch stone and dust, or such gravel equal to the existing and acceptable to the Owner and the Engineer. Work on Town, County or NJDOT roadways shall be conducted in accordance with Town, County or NJDOT requirements and details.

All sidewalks and pavements, including pavements on roads, shall be maintained during the period of trench consolidation, and the Contractor shall be expected to keep his trench adequately protected at all times. Pavement cutters shall be used prior to excavation to reduce the pavement disturbance to a minimum.

The Contractor shall use barricades and lights and adequate signs to indicate that the trench is soft, and upon settling of the trench shall immediately bring the trench up to the required grade. Where the trench has reached some degree of settlement and may be used for vehicular traffic, the Contractor shall fill in any holes or ruts which may occur (prior to placement of temporary pavement) with crushed stone to maintain a safe and satisfactory condition at all times.

Work in Lawn Areas and Easements

Where the work is in easements located within privately owned lawn areas, rear yards, etc., the Contractor shall make every effort to minimize disturbance to the area. All trees shall be boxed or otherwise protected. Excavated material shall be stored on tarpaulins or other means used to prevent it from being spread on the ground. Backfill shall be completed on the same day. Only under unusual circumstances shall a trench be allowed to remain open overnight. Topsoil shall be removed and stored separately, and upon completion of backfill shall be evenly spread over the disturbed area. If settlement occurs, the Contractor shall bring in additional topsoil of an approved variety, to bring the trench up to grade.

All disturbed lawns, trees, shrubs, bushes, planting, fences, walls, driveways, walkways, etc., shall be restored to the satisfaction of the Owner. It is required that the Contractor take "before and after" photographs of all such areas. Any disturbance or damage to existing structures and/or any site enhancement, shall be immediately repaired in kind by the Contractor without compensation.

Methods

Methods of excavation and construction must be in accordance with the State of New Jersey, Department of Labor & Industry, Bureau of Engineering & Safety, CONSTRUCTION SAFETY CODE, and all other local, state, or federal requirements.

Methods of excavation shall be as required by job conditions; in general, excavation may be done by suitable power equipment, but in cases where working room is limited or where necessary to prevent damage to existing structures, hand methods shall be used.

Tunneling

Proposed methods and schedule for tunneling operations shall be submitted to the Authority Engineer for approval, and shall meet all requirements of the authority having jurisdiction.

Tunneling operations shall be conducted in such a manner as to prevent settling or other damage to the roadway or other surface improvements. Shoring shall be provided and installed as required by ground conditions to prevent settling or loss of ground. Tunnel cross section shall be held to a minimum practicable size.

Immediately following installation and testing of the section of the pipe in the tunnel, the entire tunnel shall be solidly backfilled with a stiff sand-cement mixture containing not less than two (2) bags of cement per cubic yard of mixture. Extreme care shall be taken to insure that all voids are filled; the backfill mixture shall be rammed in place from both sides, working progressively from the center to the ends of the tunnel.

Blasting

No blasting will be permitted at locations near existing structures or near water, sewer, drain, oil, gas, cable or other utilities. Where blasting is permitted, the Contractor shall take every precaution to protect all portions of the work already constructed or being constructed and shall use small charges and give ample notice so as not to endanger persons or property. Copies of local and state permits shall be provided to the Authority prior to the start of the work.

Limited blasting may be permitted within the project area provided that the Contractor obtains approval from the appropriate utility companies having services in the area. The Contractor shall ascertain where blasting is permitted, and to what extent prior to submitting a bid.

Where blasting is not permitted, the rock shall be removed with air driven hammers or other methods approved by the Authority Engineer.

Notice shall be submitted to the Authority Engineer and the appropriate utility companies at least one (1) week prior to the start of blasting operations. If the Contractor fails to give the required notice, the Authority Engineer can delay the start of blasting at no additional cost to the Owner. It shall be the Contractor's responsibility to obtain all permits, post all bonds, etc., as required relating to blasting operations and pay all costs pertaining thereto. The Contractor shall also pay the wages of any inspectors required by the utility companies as necessary during the work. In addition, the Contractor shall comply with all requirements of utility companies regarding charge size and type.

The Contractor, in addition to observing all of the requirements set forth and all municipal and county ordinances and State laws relative to the transportation, storage, handling and use of explosives, shall also conform to any further regulations which the Authority Engineer may deem necessary in this respect. The Contractor shall be liable for all damage to persons or property caused by blast or explosion, and shall hold the Authority and its Engineer harmless from any claims resulting there-from.

Blasting on New Jersey Department of Transportation property is generally not permitted. Should rock be encountered on Department of Transportation property, and/or rights-of-way, the rock shall be removed by air driven hammers, ripping methods, rock splitting methods, etc. Should the above methods prove unfeasible, the Contractor shall obtain written approval from the Department of Transportation, prior to any blasting. This approval shall be submitted to the Engineer at least one week prior to any blasting operations.

Prior to performing blasting operations, the Contractor shall have complete surveys performed on all homes and structures along the sewer alignment where blasting is proposed. Written preblast surveys shall promptly be provided (in a form acceptable to the Authority) to the Authority upon completion of the survey.

The Contractor shall monitor all blasting by use of approved seismic instrumentation to ensure that frequency and peak particle velocity standards are strictly adhered to in accordance with Local and New Jersey State Standards.

Abandonment of Existing Sewers

Where deemed necessary and approved by the Authority in the approved plans and specifications, the Contractor shall undertake the abandonment of existing sewers. The abandonment of existing sewers must be coordinated with the Authority and must be approved by the system operator. The cast iron frames, covers and castings on all manholes to be abandoned shall be removed and transported to the KMUA Pumping Station, or as designated by the Authority for future use.

The downstream end of the existing sewer to be abandoned shall be plugged with concrete or capped with a mechanical plug. All structures within a minimum distance of 12-inches from existing grade shall be demolished and removed. All sewers and manholes to be abandoned shall then be filled with pea gravel or sand and capped with a minimum of 4-inches of concrete. The upstream end of the pipes shall be capped or plugged and the ground surfaces adjacent to all manholes shall be restored to their original condition.

* * * * *

FOR FURNISHING & PLACING SELECT BACKFILL

Quarry Process

Where specified or required by the Authority or Engineer, the Contractor shall furnish, place and compact quarry process. Quarry process, Type I-5, N.J.D.O.T. Standard Specification, free of clay and foreign material, as approved by the Engineer; shall be accurately leveled to required grades, and shall be compacted by tamping or other approved means to the required grade.

Gradation shall be as follows:

Sieve Size	Percentage by Weight Passing Square Mesh Sieve
2”	100
¾”	70-100
No. 4	30-80
No. 50	10-35
No. 200	5-12

Sand and Gravel

Where required by the Authority or Engineer, the Contractor shall furnish, place, and compact bank run sand and gravel. Bank run sand and gravel shall be back run supply, Type I-3, N.J.D.O.T. Standard Specification, free of clay and foreign material, as approved by the Engineer; shall be accurately leveled to required grades, and shall be compacted by tamping or other approved means to the required grade.

Gradation shall be as follows:

Sieve Size	Percentage by Weight Passing Square Mesh Sieve
4”	100
¾”	60-100
No. 1	30-100
No. 50	5-35
No. 200	0-5

Recycled Concrete Aggregate (RCA) shall not be allowed as backfill in trenches.

* * * * *

FOR FURNISHING AND PLACING ¾" GRAVEL
OR BROKEN STONE
(Including Excavation)

Broken stone or screened gravel shall be a clean, hard, durable, strong, washed gravel or crushed stone conforming to the requirements of N.J.D.O.T. Standard Specifications for Coarse Aggregate, Size No. 57 (3/4" Gravel or Broken Stone). The gravel or stone shall have the following gradation:

U.S. Sieve Size	Percent Passing
1 1/2 Inch	100
1 Inch	95-100
1/2 Inch	25-60
No. 4	0-10
No. 8	0-5

The material shall be accurately leveled to required grades, and where required shall be compacted by tamping or other approved means.

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FOR CONSTRUCTION OF PRECAST CONCRETE MANHOLES

Description

Precast concrete manholes shall consist of pre-cast reinforced concrete sections, a conical or flat slab top section, and a base section conforming to the requirements of the Kearny MUA, as illustrated on the Authority's standard details, and as specified herein.

Precast manhole sections shall be manufactured in accordance with ASTM Designation C478 (latest revisions). The minimum compressive strength of the concrete for all sections shall be 4,000 psi. The maximum allowable absorption of the concrete shall not exceed eight (8) percent of the dry weight. Tests shall be as described in ASTM C76 (latest revisions). The circumferential steel reinforcement for riser pipe, cone sections and base walls shall be a minimum of that called for under Specification for Pre-cast Reinforced Concrete Manhole Sections, ASTM C-478 (latest revisions). Flat slab top sections shall be designed to carry an H-20 wheel load. All manhole sections shall be manufactured by the "wet cast method."

Joints of the manhole sections shall be formed entirely of concrete employing a round rubber gasket and, when assembled, shall be self- centering and make a uniform watertight joint. Manholes manufactured without a rubber gasket joint shall use bitumastic tape installed in the joint at the time of assembly. Except for those surfaces within the gasket groove, all inside surfaces of the bell or outside surfaces of the spigot, or both, on which the rubber gasket may bear during the closure of the joint and at any degree of partial closure shall be parallel within one (1) degree and have an angle of not more than two (2) degrees with the longitudinal axis of the pipe. In joints formed entirely of concrete, the distance from either side of the gasket to the end of the bell or spigot shall not be less than 3/4 inch. The gasket spaces between the bell and spigot shall be so shaped as to provide grooves that will prevent the gasket from disengaging from its compression surface or being blown out by hydrostatic pressures. Joints shall be mortared on exterior and interior surfaces.

Taper sections and cone sections shall be used wherever possible to reduce the manhole diameter to that required for the manhole castings. Where required to meet field conditions, the Contractor shall furnish manholes with flat slab top sections.

Joints between manhole walls and pipelines shall consist of a circular rubber gasket integrally cast with the manhole wall which protrudes into the openings provided for the pipes or a flexible rubber sleeve which is clamped to the exterior of the pipe barrel.

Floors and inverts shall be of best quality vitrified brick or concrete. Inverts shall have a cross section of the exact shape of the sewers which are connected, and changes in size shall be made gradually and evenly, unless otherwise specifically directed. Half pipe inverts may be used in straight-through manholes.

Materials

Concrete Foundation Mat: Where directed by the Engineer, concrete foundation mats for manholes shall be constructed in accordance with the Authority's standard details; concrete mat shall be 3000 pound concrete.

Frames and Covers: The Contractor shall furnish and set level to the proper grade, cast iron manhole frames and covers as follows:

1. Campbell Foundry No. 1202B Standard

2. Campbell Foundry No. 1012B Watertight Frame

In easements, covers shall be furnished with an approved locking device.

All castings for manhole frames and covers shall be of tough grey iron, free from cracks, holes and cold shuts. The quality shall be such that a blow from a hammer will produce an indentation on a rectangular edge of the casting without flaking the metal.

All castings shall be made accurately to dimensions and shall be machined to provide even bearing surfaces. Covers must fit the frames in any position, and if found to rattle under traffic, shall be replaced. Filling to obtain tight covers will not be permitted. No plugging, burning in or filling will be allowed. The frame shall be thoroughly bedded in mortar.

Where more than one size of type of frames and covers are included in the same contract, the Engineer shall specify, in the field, the locations of each type.

Steps: During the construction of each manhole, steps of bar aluminum seven-eights of an inch (7/8") square shall be set in place on the inside of the manhole, and spaced not more than twelve (12) inches center to centers. Steps shall be properly embedded in the wall.

Aluminum alloys shall be Type 6061-T6 or equal. As an alternative, steps shall be polypropylene plastic with ½ inch Grade 60 steel reinforcement.

Installation

Precast base sections shall be installed on a crushed stone or concrete foundation mat as indicated on the Authority's standard detail drawings. The bell of the manhole base shall be wiped clean, be free of all dirt and grit, and liberally soaped in preparation for receiving the riser, cone or slab top section. Prior to snapping the gasket onto the spigot groove of the riser or cone section, the gasket should be wiped clean and well soaped. A screw driver or hammer handle inserted beneath the gasket and run around the pipe will insure even seating. The riser or cone section with gasket in place should then be lowered into the bell of the manhole base, taking care that no dirt gets into the joint or on the gasket. Additional riser or cone sections should be joined in a similar manner. For manholes not employing a rubber

gasket, the bitumastic tape shall be placed on and completely around the cleaned concrete joint in such a manner that it will be pressed by the pre-cast manhole section above it.

Prior to backfilling all exterior joints shall be cleaned and mortared. After the mortar has obtained adequate set the entire exterior of the manhole shall be painted with one coat of an approved bituminous sealing compound. Manhole sections may be coated prior to installation, however, those portions which will be mortared after installation shall not be coated until mortar is applied. A bituminous or plastic type exterior joint filler may be used if recommended by the manhole manufacturer.

Upon completion, all debris shall be removed from manholes.

Watertight Work Required

The entire work of constructing manholes must be carried on in a manner to insure watertight work, and any leaks in manholes shall be caulked, repaired, or the entire work shall be removed and rebuilt.

Attention is particularly called to the necessity of keeping the water level below all parts of the brick or concrete foundation and walls until the cement has obtained adequate set.

* * * * *

FURNISHING AND INSTALLING PVC SANITARY SEWER PIPE

Pipe

All pipe shall be best quality unplasticized polyvinyl chloride sewer pipe, adequate for the external loading conditions, with joints providing flexibility and watertightness under service conditions. Smooth internal surfaces, producing high carrying capacity obtainable with best standard practice and best workmanship, will be required. Gravity sewer pipe shall be in accordance with ASTM D3034 for sizes 4-inch through 15-inch, and ASTM F679 for sizes greater than 15-inch (latest revisions). Pressure sewer pipe shall be in accordance with ASTM D2241 (latest revisions). Sewer pipe shall meet the requirements for extra strength sections of the above noted ASTM Specification (minimum of SDR-35 for gravity pipe and SDR-21 for pressure pipe).

The pipe shall be accurate and of uniform dimensions. All pipe shall be straight and true to form without bulges, dents, cracks, tears, or other defects which will affect strength, and shall have no bulges or dents on interior surfaces which will result in a noticeable variation in diameter from that obtained on adjacent unaffected portions of the surface. Each pipe shall not vary in length more than 1.0 inch in a length of 12-1/2 feet (20 feet for pressure pipe) measured as mid-ordinate. Materials properties shall meet the test requirements of ASTM D1784 (latest revisions).

Joints

Joints shall be of the bell and 76 spigot type with rubber ring. Joints shall be manufactured in accordance with ASTM 3212 (ASTM D3139 Pressure Pipe), latest revision. The bell shall consist of an integral wall section with a solid cross-section rubber ring factory assembled. The ring groove shall be so designed as to prevent ring displacement. Sizes shall be as required by field conditions. Jointing shall be in accordance with recommendations of the manufacturer.

Branch Connections

Branch connections shall be of the type that are manufactured integrally with the main sewer pipe and shall be PVC 45 degrees or 60 degrees wyes connections or 90 degree tee connections of a 4-inch or 6-inch diameter. Branch connections shall be best quality unplasticized polyvinyl chloride (PVC) sewer pipe and shall be provided and installed in accordance with applicable sections and details.

Laying

All pipe shall be carefully examined for dents, excessive deflection, or bowing, and other defects. The minimum pipe cover shall be 4 feet unless otherwise approved by the Engineer.

No pipe known to be defective shall be laid. If any pipe is found to be broken or defective after being laid, it shall be removed and replaced by sound pipe without any further payment.

Joint surfaces shall be protected from damage and shall be carefully examined before jointing. No damaged joints shall be used in the work.

Pipe shall be thoroughly cleaned and ample precautions shall be taken to prevent entrance of dirt and debris into the pipe after laying. Exposed ends of the sewer shall be provided with temporary plugs or covers.

All pipe shall be carefully laid to true alignment and grade and installed in accordance with ASTM D2321 (latest revisions).

The trench bottom shall be carefully graded to the proper elevation, and the maximum practical solid bearing area shall be provided throughout its entire length, prior to swinging the pipe into place. Requirements for proper bedding shall also include adherence to typical bedding details.

Care shall be taken not be excavate below grade. Material excavated below adopted grade shall be replaced by material which meets with the approval of the Engineer.

All pipe shall be accurately centered prior to jointing and then thoroughly driven home.

All trenches shall be dewatered prior to laying pipe.

Immediately after the pipe is brought to final position, it shall be thoroughly secured and properly bedded, and ample support shall be provided to prevent settlement or disturbances as detailed in these specifications.

Pipe shall be protected during construction against possible flotation due to pouring of concrete cradle or in case the trench becomes flooded prior to placing the backfill.

Six-inch wide metallic warning tape shall be buried approximately two feet above all PVC pipe. The tape shall be capable of being detected with a non-ferric metal detector.

Jointing

Pipe shall be carefully jointed in conformity with the best practice and the detailed instructions of the manufacturers. All pipe ends shall be thoroughly cleaned prior to and during the jointing operation. The pipe end shall be thoroughly lubricated in accordance with the recommendations of the manufacturer.

Actual details of required jointing practice will depend upon the particular type adopted, but shall in all cases, involve approved practice and shall be such as to produce the required results, particularly with regard to watertightness.

Bedding and Compaction Notes

1. Bedding, haunch material and initial backfill to one foot above the top of the pipe shall be in ¾ inch clean crushed stone in accordance with the requirements of the Engineer.
2. After placement of pipe, the Contractor shall install haunch material and compact to 90% relative density utilizing equipment as necessary. Note: Hydro-hammers are not to be used 3 feet or less from the top of the pipe.
3. After installation of haunch material, the Contractor shall install initial backfill and compact to 90% relative density.
4. If the Contractor excavates to greater depth or a wider trench than specified, it shall be his responsibility to install material and compaction as deemed necessary by the Engineer to achieve the required bedding strength.
5. Precautions shall be taken to insure sufficient material is placed under the pipe haunch (area between botton and springline of pipe) to provide adequate side support. Take precaution to prevent movement of the pipe during the placement of the material in this area. All sheeting below the top of the pipe shall be left in place.

Movable trench supports shall be used only in either wide trench construction (wide trenches are classified as trenches whose width at the top of the pipe is greater than 2-1/2 pipe diameters on each side of the pipe) where supports extend below the top of the pipe or on a stable shelf above the pipe with the pipe installed in a narrow, vertical sub-ditch. (Uni-bell B-5)

Connection to Existing Brick Manholes

Connection of new or replacement gravity sewers at existing brick manholes shall be performed using an elastometric plastic waterstop. The Contractor shall carefully remove the damaged section of pipe at the manhole wall or create an opening in the manhole wall using saws or other appropriate methods to accept the new gravity sewer. All efforts shall be made to limit the opening in the existing manhole to a diameter that is less than 6-inches greater than the pipe to be installed. The opening in the wall shall be cleaned and the edges roughened to facilitate the adherence of grout.

The waterstop shall be as manufactured by Fernco, Inc., or approved equal. The waterstop shall be installed on the new pipe section in accordance with the manufacturer's recommendations. The pipe and waterstop shall be positioned in the opening at the required elevation so that the waterstop is centered along the wall's thickness. As an alternative, a sand-coated PVC manhole adaptor, as manufactured by GPK Products, or approved equal, may be used. Non-shrink, non-metallic grout shall be carefully applied between the edges of the wall opening and the watertight device. Grout shall be Five-Star Structural Concrete as manufactured by U.S. Grout Corporation, or approved equal.

Connection to Existing Pre-Cast Manholes

Connections of new or replacement gravity sewers at existing pre-cast concrete manholes shall be made by using the cast in place flexible gasket if available, or by core drilling the manhole wall and by the use of a Kor-n-seal gasket or approved equal. The channel and benching in the manhole shall be reconstructed as necessary with non-shrink grout to provide a smooth transition between the new and existing main connections.

Where it is determined by the Authority to be unfeasible to core drill an existing manhole, the Contractor shall use a hammer drill to create an adequately sized opening to accept the incoming sewer at the invert specified on the plans. A waterstop as manufactured by Fernco or approved equal shall be provided on the clean end of the new pipe. The waterstop shall be positioned so that it is centered on the manhole wall. As an alternative, a sand-coated PVC manhole adaptor, as manufactured by GPK Products, or approved equal, may be used. Non-shrink grout shall be placed around the waterstop or manhole adaptor to fill the voids between the manhole walls and the watertight device. Prior to placement of the grout, the manhole surface shall be roughened to facilitate adherence of the grout.

Leakage and Testing

If an inspection of the completed sewer or any part thereof shows any manholes, pipes, or joints which allow the infiltration of water in a noticeable stream or jet, the defective work or material shall be replaced or repaired as directed.

After the correction of any visible leakage, two independent tests shall be performed upon the proposed sewer as described herein. Failure to meet the requirements of any test shall be cause for the Engineer to direct the Contractor to take corrective measures. The tests to be performed as follows:

Low Pressure Air Test

The Contractor shall furnish all equipment and personnel to conduct an acceptance test using low pressure air. The test shall be conducted on all main line sewers following the installation of building connection run outs to the edge of the easement, or five (5) feet beyond the edge of pavement or curb. Branch connections shall be provided with plugs or caps as necessary to withstand the specified air test.

The Contractor shall first clean and flush all lines, and all debris flushed out shall be removed at each downstream manhole. Cleaning and flushing operations shall be performed in accordance with the KMUA Rules and Regulations and shall be witnessed by the Authority or its representative.

All test plugs, gauges, an air compressor, and personnel for conducting the acceptance test shall be furnished by the Contractor. The test shall be observed by the Authority or the Authority's Engineer.

The section of line being tested shall be securely plugged at each manhole. All stoppers shall be adequately braced.

For the acceptance test, air shall be slowly supplied to the plugged section of pipe to be tested until the internal air pressure reaches 5.0 psi greater than the average back pressure of any groundwater that may submerge the pipe. At least two minutes shall be allowed for temperature stabilization before proceeding further. The back pressure of any groundwater caused by the water head above the invert of the pipe must be determined by a method approved by the Engineer. This back pressure must be added to the standard test pressures to compensate for the groundwater effect on the air test.

The rate of air loss shall then be determined by measuring the time interval required for the internal pressure to decrease from 3.5 psi to 2.5 psi greater than the average back pressure of any groundwater that may submerge the pipe. The pipeline shall be considered acceptable, when the 1.0 psi pressure drop is not less than the holding time listed in the air test table on Page G-22.

If the pipe installation fails to meet these requirements, the Contractor shall determine at his own expense the source or sources of exfiltration, and he shall repair or replace all defective materials or workmanship. The complete pipe installation shall meet the requirement of this test.

THE ATTENTION OF THE CONTRACTOR IS DIRECTED TO THE STRICT REQUIREMENTS RELATIVE TO PERMISSIBLE RATES OF EXFILTRATION AND INFILTRATION AND TO THE IMPORTANCE OF THESE SPECIFICATIONS RELATIVE TO TIGHT JOINTS REQUIRED.

Vertical Deflection Limitations

The Contractor shall also furnish all equipment and personnel to conduct deflection testing on all PVC pipe installed. The total vertical wall deflection of the PVC sewer pipe shall not exceed seven and one-half percent (7 1/2%) of the inside pipe diameter. Deflection testing shall not be conducted earlier than fourteen (14) days after placement and compaction of the backfill. In addition, the groundwater level shall be kept below the invert of the pipe during the deflection testing.

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

Note that the deflection device shall be pulled through the pipeline using only the force of one (1) man without the aid of any devices other than the rope/chain attached to the deflection device.

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

Force Main Pipe Leakage and Testing

No leakage will be permitted at the test pressure. Contractor shall brace and otherwise secure the piping against movement at the test pressure. The entire pressure sewer pipeline shall be hydrostatically tested at a pressure equal to 1.5 times the maximum working pressure, maximum head of water, or shutoff head for the pumps, whichever is larger, and shall hold the test pressure for at least two (2) hours with no drop in pressure or water leakage during the test period.

Contractor shall furnish all labor, materials, and equipment, including water, bracing, gauges, connections, fittings, pumps and all else required to complete the testing. The test pressure will be based on the lowest elevation of the line and corrected to the elevation of the test gauge.

The test shall be conducted after the trench backfill is completed. The test shall be witnessed by the Authority or its representative. Should the pipeline fail the test, the Contractor shall determine the cause of failure, replace the defective joints, fittings or pipes, and retest the pipeline, repeating the process until the test is passed.

The Contractor may also pretest the pipe joints by testing the pipeline for leakage at lower pressure before backfilling the trench. However, he is under no obligation to do this and he must complete the leakage test after backfilling as described above whether or not he has pretested the pipe joints before backfilling.

Internal Inspection of Gravity Sewers

If determined to be necessary by the Authority or its engineer, gravity sewers shall be internally inspected by closed circuited TV following the completion of acceptable air and deflection testing. The internal inspection shall be observed by the Authority or its Engineer and a video tape of the entire inspection and a written report of the same shall be provided to the Authority.

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MINIMUM HOLDING TIME REQUIRED FOR

PRESSURE TO DROP FROM 3-1/2 TO 2-1/2 PSIG

1 Pipe Dia-meter (in.)	2 Minimum Time (min: sec)	3 Length Time for Minimum Time (ft)	4 for Longer Length (sec)	Minimum Time for Length (L) Shown (min:sec)							
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
4	3:46	597	.380 L 3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46	
6	5:40	398	.854 L 5:40	5:40	5:40	5:40	5:40	5.40	5:42	6:24	
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852 L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46

REF: UNI-BELL PLASTIC PIPE ASSOCIATION, PUB. UNI-B-6-79
"RECOMMENDED PRACTICE FOR LOW-PRESSURE AIR TESTING OF INSTALLED SEWER PIPE"

FURNISHING AND INSTALLING DUCTILE IRON SANITARY SEWER PIPE

Material

Ductile iron pipe shall be centrifugally cast cement-lined and shall conform with the latest revision of ANSI/ AWWA C151/A21.51 (latest revision), Ductile Iron Pipe Centrifugally Cast in Metal Molds or Sand Lined Molds for Water or Other Liquids. Cement lining shall conform with the latest revision of ANSI/AWWA C104/A21.4 (latest revision), Cement Mortar Lining for Cast Iron and Ductile Iron Pipe and Fittings for Water and shall be twice that specified in Section 4-8.1 of ANSI A21.4 (latest revision). The cement lining shall include a bituminous seal coat approximately 1 mil thick. Pipe exterior shall receive a standard foundry coal tar dip coating in accordance with AWWA C151 (latest revision). Pipe may be furnished in 18 or 20-foot nominal laying lengths.

Joints shall be of the push-on type with a rubber gasket conforming with the latest revision of ANSI/AWWA C111/A21.11, Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings. Pipe plain ends shall be suitably beveled to permit easy entry into the bell. Pipe joints shall be "Tyton" as manufactured by United States Pipe and Foundry Company, "Fastite" as manufactured by American Cast Iron Pipe Company, "Super BellTite" as manufactured by Clow Cast Iron Pipe and Foundry Company, "Tyton Joint" as manufactured by Griffin Pipe Products Company, or equal.

Each pipe delivered to the job shall have clearly marked, the weight, class designation and sampling period. In addition, each pipe shall have cast on the face of the bell the manufacturer's mark and the year the pipe was produced.

Pipe shall be minimum Pressure Class 250 (Class 52) unless otherwise indicated.

Ductile iron fittings shall be cement lined, mechanical joint, meeting the American National Standard for Ductile Iron Compact Fittings, 3-inch through 24-inch, for Water Service, ANSI/AWWA C153-/ANSIA21.53, latest revision thereof. Mechanical joints shall conform with ANSI/AWWA C111/A21.11, latest revision for Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings. Cement lining shall conform to ANSI/AWWA C104/A21.4 (latest revision) Cement Mortar Lining for Ductile Iron Pipe and Fittings for Water shall be twice that specified in Section 4-8.1 of ANSI A21.4 (latest revision) and include a bituminous seal coat. The exterior surface of fittings receives a standard foundry coal tar dip coating, product to meet with EPA approval.

Ductile iron tees to be used for branch connections for services on gravity sewers shall be push joint. Ductile iron pipe fittings in stream and stream crossings shall be furnished with mechanical joints and set screw retainer glands.

Pipe Thickness

Pipe thickness design shall be in accordance with the latest revision of ANSI/AWWA C150/A21.50 Thickness Design of Ductile Iron Pipe, latest edition, with design based upon maximum anticipated working pressure combined with a 50% increase for water hammer and utilizing the maximum anticipated earth loading conditions combined with and H-20 live loading. Bedding condition shall be in accordance with the Authority's Standard Trench Detail. Minimum acceptable pipe thickness is Class 52 (Pressure Class 250), or as required by the Engineer.

Ductile Iron Pipe Laying

The minimum cover over pipe shall be 3 feet.

All pipe shall be carefully examined for defects, and no pipe known to be defective shall be laid. If any pipe is found to be broken or defective after being laid, it shall be removed and replaced by sound pipe without any further payment.

Joint surfaces shall be protected from damage, and shall be carefully examined before jointing. No damaged joints shall be used in the work.

Pipe shall be thoroughly cleaned and ample precautions shall be taken to prevent entrance of dirt and debris into the pipe after laying.

Exposed ends of all uncompleted lines shall be provided with plugs or covers at all times when pipe laying is not actually in progress.

All pipe shall be carefully laid to true alignment and grade with bell ends facing upgrade.

All trenches shall be dewatered prior to pipe laying.

The trench bottom shall be carefully graded to the proper elevation, and the maximum practical solid bearing area shall be provided throughout its entire length, prior to swinging the pipe into place. No blocking under the pipe will be permitted. The pipe shall be laid on a minimum of 6-inches of ¾ inch clean broken stone in accordance with the requirements of the Authority.

Care shall be taken not to excavate below grade. Materials excavated below adopted grade shall be replaced by material which will meet with the approval of the Engineer, without any further payment.

Immediately after the pipe is brought to final position, it shall be thoroughly secured and properly bedded, in accordance with ANSI/AWWA C150/A21.50 (latest revisions), and ample support shall be provided to prevent settlement or disturbance.

Pipe shall be protected during construction against possible flotation due to pouring of concrete or in case the trench becomes flooded prior to placing the backfill, either with water, or a wet mud mixture.

Laying shall be in strict accordance with recommendations of pipe manufacturer.

Ductile Iron Pipe Jointing

Jointing shall be done in strict conformance with manufacturer's recommendations. Pipe shall be handled with care to avoid damage to the lining and coating.

Cutting of pipe where required shall be done in a neat and workmanlike manner using power driven pipe cutters or other means which will produce a smooth end normal to the pipe axis with the cement lining undamaged. Cut ends shall be beveled to avoid damage to the gasket. Pipe ends shall be thoroughly cleaned prior to jointing and only approved lubricants shall be used. Gland bolts for fittings shall be uniformly tightened using torque limiting ratchet wrenches properly set to the foot pound of torque as recommended by the manufacturer.

Pipe shall be properly aligned to line and grade. Where necessary to change direction, pipe may be deflected in the joint in accordance with the manufacturer’s recommendations.

Yellow warning tape shall be buried approximately two (2) feet above all force mains.

Leakage and Testing

If an inspection of the completed sewer or any part thereof shows any manholes, pipes, or joints which allow the infiltration of water in a noticeable stream or jet, the defective work or material shall be replaced or repaired as directed.

Before final acceptance of the sewers, the Contractor shall furnish all equipment and personnel to conduct an acceptance test using low pressure air. Test shall be conducted on all main line sewers prior to the installation of the house connections.

The contractor shall first clean and flush all lines, and all debris flushed out shall be removed at each downstream manhole. Cleaning and flushing shall be in accordance with the Authority’s Rules and Regulations and witnessed by the Authority.

All test plugs, gauges, an air compressor, and personnel for conducting the acceptance test shall be furnished by the Contractor. The test shall be conducted under the supervision of the Engineer.

The section of line being tested shall be securely plugged at each manhole. All stoppers shall be adequately braced.

For the acceptance test, air shall be slowly supplied to the plugged section of pipe to be tested until the internal air pressure reaches 5.0 psi greater than the average back pressure of any groundwater that may submerge the pipe. At least two minutes shall be allowed for temperature stabilization before proceeding further. The back pressure of any groundwater caused by the water head above the invert of the pipe must be determined by a method approved by the Engineer. This back pressure must be added to the standard test pressure to compensate for the groundwater effect on the air test.

The rate of air loss shall be considered acceptable, when the 1.0 psi pressure drop is not less than the holding time listed in the air test table on Page G-28.

If the pipe installation fails to meet these requirements, the Contractor shall determine at his own expense the source or sources of exfiltration, and he shall repair or replace all defective materials or workmanship. The complete pipe installation shall meet the requirement of this test.

Force Main Pipe Leakage and Testing

No leakage will be permitted at the test pressure. Contractor shall brace and otherwise secure the piping against movement at the test pressure. The entire pressure sewer pipeline shall be hydrostatically tested at a pressure equal to 1.5 times the maximum working pressure, maximum head of water, or shutoff head for the pumps, whichever is larger, and shall hold the test pressure for at least two (2) hours with no drop in pressure or water leakage during the test period.

Contractor shall furnish all labor, materials, and equipment, including water, bracing, gauges, connections, fittings, pumps and all else required to complete the testing. The test pressure will be based on the lowest elevation of the line and corrected to the elevation of the test gauge.

The test shall be conducted after the trench backfill is completed. The test shall be witnessed by the Authority or its representative. Should the pipeline fail the test, the Contractor shall determine the cause of failure, replace the defective joints, fittings or pipes, and retest the pipeline, repeating the process until the test is passed.

The Contractor may also pretest the pipe joints by testing the pipeline for leakage at lower pressure before backfilling the trench. However, he is under no obligation to do this and he must complete the leakage test after backfilling as described above whether or not he has pretested the pipe joints before backfilling.

Internal Inspection of Gravity Sewers

If determined to be necessary by the Authority or its engineer, gravity sewers shall be internally inspected by closed circuited TV following the completion of acceptable air and deflection testing. The internal inspection shall be observed by the Authority or its Engineer and a video tape of the entire inspection and a written report of the same shall be provided to the Authority.

MINIMUM HOLDING TIME REQUIRED FOR

PRESSURE TO DROP FROM 3-1/2 TO 2-1/2 PSIG

1 Pipe Dia-meter (in.)	2 Minimum Time (min: sec)	3 Length Time for Minimum Time (ft)	4 for Longer Length (sec)	Minimum Time for Length (L) Shown (min:sec)							
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
4	3:46	597	.380 L 3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46	
6	5:40	398	.854 L 5:40	5:40	5:40	5:40	5:40	5.40	5:42	6:24	
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24	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852 L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46

REF: UNI-BELL PLASTIC PIPE ASSOCIATION, PUB. UNI-B-6-79
"RECOMMENDED PRACTICE FOR LOW-PRESSURE AIR TESTING OF INSTALLED SEWER PIPE"

FURNISHING AND INSTALLING HDPE FORCE MAIN SEWER PIPE

Pipe

Pipe shall have a nominal DIPS (Ductile Iron Pipe Size) OD and be Performance Pipe Driscoplex Series 4300 or equal. Pipe shall be manufactured from a PE 3408 resin listed with the Plastic Pipe Institute (PPI) as TR-4. The resin material shall meet the specifications of ASTM D 3350, latest revision, with a minimum cell classification of PE345464C. Pipe shall have a manufacturing standard of ASTM D-3035. The pipe shall contain no recycled compounds except that generated in the manufacturer's own plant from resin of the same specification from the same raw material. The pipe shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, voids, or other injurious defects.

Pipe shall be DR-11, 160 psi WPR.

Pipe, fittings and joints shall meet or exceed the following physical properties:

Property	ASTM Test Method	Nominal Value
Density, gm/cc	D 1505	0.955
Tensile Strength @ Break, psi	D 638	4,500
Tensile Strength @ Yield, psi	D 638	> 3,200
Elongation, %	D 638	> 800
Flexural Modulus, psi	D790	136,000

ASTM D 1248 Classification: Type III, Category 5, Class C, Grade P 34

Fittings

BUTT FUSION FITTINGS: Butt fusion fittings shall be in accordance with ASTM D-3261 and shall be manufactured by injection molding, a combination of extrusion and machining, or fabricated from HDPE pipe conforming to this specification. All fittings shall be pressure rated to provide a working pressure rating no less than that of the pipe. Fabricated fittings shall be manufactured using a McElroy Datalogger to record fusion pressure and temperature. A graphic representation of the temperature and pressure data for all fusion joints made producing fittings shall be maintained as part of the quality control. The fitting shall be homogeneous throughout and free of visible cracks, holes, foreign inclusions, voids, or other injurious defects.

ELECTROFUSION FITTINGS: Electrofusion Fittings shall be PE3408 HDPE, Cell Classification of 345464C as determined by ASTM D-3350, latest revision, and be the same base resin as the pipe. Electrofusion Fittings shall have a manufacturing standard of ASTM F-1055.

Installation – General

PIPE & FITTINGS: Size as indicated on the plans. Install as shown in accordance with manufacturer's recommendations. No pipe coils to be used under 50 degrees Fahrenheit.

Joining

BUTT FUSION: Sections of polyethylene pipe should be joined into continuous lengths on the jobsite above ground. The joining method shall be the butt fusion method and shall be performed in strict accordance with the pipe manufacturer's recommendations. The butt fusion equipment used in the joining procedures should be capable of meeting all conditions recommended by the pipe manufacturer, including, but not limited to, temperature requirements of 400 degrees Fahrenheit, alignment, and an interfacial fusion pressure of 75 PSI. The butt fusion joining will produce a joint weld strength equal to or greater than the tensile strength of the pipe itself.

Quality And Workmanship

The pipe and/or fitting manufacturer's production facility shall be open for inspection by the Authority or his designated agents with a reasonable advance notice. During inspection, the manufacturer shall demonstrate that it has facilities capable of manufacturing and testing the pipe and/or fittings to the standards required by this specification.

Pipe Packaging, Handling & Storage

The manufacturer shall package the pipe in a manner designed to deliver the pipe to the project neatly, intact and without physical damage. The transportation carriers shall use appropriate methods and intermittent checks to insure the pipe is properly supported, stacked and restrained during transportation such that the pipe is not nicked, gouged, or physically damaged.

Pipe shall be stored on clean, level ground to prevent undue scratching or gouging. If the pipe must be stacked for storage, such stacking shall be done in accordance with the pipe manufacturer's recommendations. The pipe shall be handled in such a manner that it is not pulled over sharp objects or cut by chokers or lifting equipment.

Sections of pipe having been discovered with cuts or gouges in excess of 10% of the pipe wall thickness shall be cut out and removed. The undamaged portions of the pipe shall be rejoined using the heat fusion joining method.

Fused segments of the pipe shall be handled so as to avoid damage to the pipe. Chains or cable type chokers must be avoided when lifting fused sections of pipe. Nylon slings are preferred. Spreader bars are recommended when lifting long fused sections.

Trench Construction

Trenching shall be done in accordance with the Authority's Standard Trench Detail.

Testing

HDPE force main shall be tested as per pipe manufacturer's recommendations. The hydro-test shall be conducted in accordance with the "Inspections, Tests and Safety Considerations" document as available through PPI. If a system component such as a fabricated or mechanical fitting has a pressure rating less than that of the pipe, the piping system shall be pressure tested to the manufacturer's guideline on that component. The Contractor shall submit the pipe manufacturer's recommended testing procedures for the Engineer's review prior to starting the testing work.

In general, the Contractor shall test all HDPE force main piping to a pressure equal to l.5 times the maximum working pressure, maximum head of water, or shutoff head for the pumps, whichever is larger. Test pressures shall be held continuously for two (2) hours. The test readings shall be taken at the high point of the line or at a location approved by the Engineer.

Wherever conditions will permit, piping which is to be buried shall be tested before trenches are backfilled. All joints shall be examined during the open trench test and all visible leaks entirely stopped.

The Contractor shall furnish all labor, equipment, gauges, water, air and all else necessary for carrying out the testing of all piping. The Authority reserves the right to periodically check the Contractor's test apparatus for accuracy.

All piping, fittings, caps and plugs shall be adequately braced and anchored to withstand the test pressures. The Contractor shall review the Contract Drawings before starting piping installation and shall take special note of where (a) piping enters or leaves sumps, channels and tanks without valving and where (b) piping begins or terminates with fittings which will be difficult or impractical to seal, plug and anchor. For these cases, the Contractor shall devise and perform such tests as shall be acceptable and approved by the Authority Engineer and as shall demonstrate that the piping meets the test pressures and leakage requirements specified herein.

The Contractor shall be required to provide appropriate drawings detailing the methods which the Contractor intends to use regarding the temporary closure or plugging of pipes terminating as open

ends in structures for which testing will be required. These drawings will be reviewed by the Engineer for their applicability and utility before any testing may proceed.

When a section of pipe of a length deemed adequate by the Engineer is ready for testing, the lines designed for carrying liquids shall be thoroughly vented and a leakage test shall be made with the line free of air. Leaks at joints or in the pipe and fittings shall be corrected by an approved means, and the piping retested in accordance with this specification until it successfully passes the test.

Cleaning and Flushing

On completion, the interior of all piping shall be carefully cleaned and flushed. Cleaning and flushing operations shall be performed in accordance with the KMUA Rules and Regulations and shall be witnessed by the Authority or its representative.

* * * * *

LATERAL CONNECTIONS

General

Lateral connections shall be PVC pipe or ductile iron pipe from the main sewer to the easement line or to the building as may be specifically ordered by the Authority's Consulting Engineer. All work shall be in accordance with the Authority's details included in the Rules and Regulations.

Materials and Workmanship

PVC pipe shall be Class SDR-35. Ductile iron pipe shall be Pressure Class 250 (Class 52).

Lateral connections in any given street shall be laid coincidentally with or shortly after, main sewer is installed so that street repairs and cleanup are rapidly completely.

The lateral connections shall be plugged at the upstream end with a solid pipe plug secured in place to prevent infiltration. A 2"x 4" timber shall be left in the trench to indicate the location of the end of the line and shall extend from the invert of the pipe to a point 18" above the ground. The pipe shall be laid on a continuous upgrade of not less than 1/4" per foot (4-inch diameter pipe) or 1/8" per foot (6-inch diameter pipe) and located where ordered by the Authority's Consulting Engineer.

Where lateral connections exceed 60 feet in length or where ordered by the Authority's Consulting Engineer, the Contractor shall install cleanouts. Cleanouts shall be constructed of PVC or ductile iron pipe, fittings, caps and plugs of the same size and material used in the house connection pipe. Where required by the Engineer, entire cleanout shall be encased.

* * * * *

FOR PVC BRANCH CONNECTIONS
(PVC SEWER PIPE)

General

When directed by the Engineer, the Contractor shall install 4" x 8" Tee branch connections.

For PVC sewer pipe, an approved wye or tee-wye connection fitting shall be installed in the collection main in accordance with the instruction of the pipe manufacturer. The entire connection shall be encased in concrete as detailed on the Contract Documents.

Materials and Workmanship

The connections shall be made as shown on the Drawings or herein specified. Branch connections for PVC sewer pipe; shall be such as to meet ASTM Standards as specified in ASTM-D3034 (latest revision) SDR 35.

All PVC branch connections shall be supported to firm undisturbed ground with concrete encasement as directed by the Authority's Consulting Engineer.

The connection fitting shall be installed as located in the field by the Authority's Consulting Engineer.

All fittings shall be PVC sewer pipe fittings with a rubber ring in each bell and ring groove so designed as to prevent ring displacement.

* * * * *

Appendix H

Appendix H

Standard Construction Details

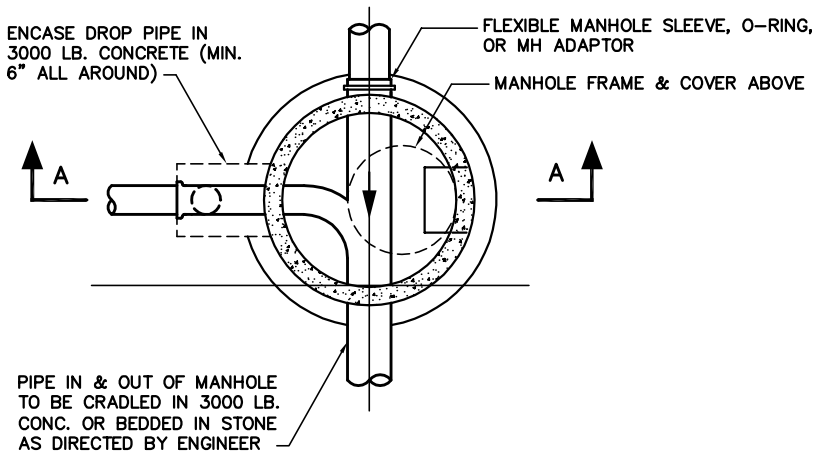
This section provides information on the minimum standards of the Kearny Municipal Utilities Authority. The Applicant and his Design Engineer shall assure that the construction of all sewerage facilities are conducted in accordance with these minimum standards.

The Authority reserves the right to periodically modify these Standard Construction Details to address changes in regulations or engineering standards. Accordingly, the Design Engineer shall verify prior to design that the details contained herein have not been modified in any manner, and shall implement and use the Authority's standard construction details in effect at the time.

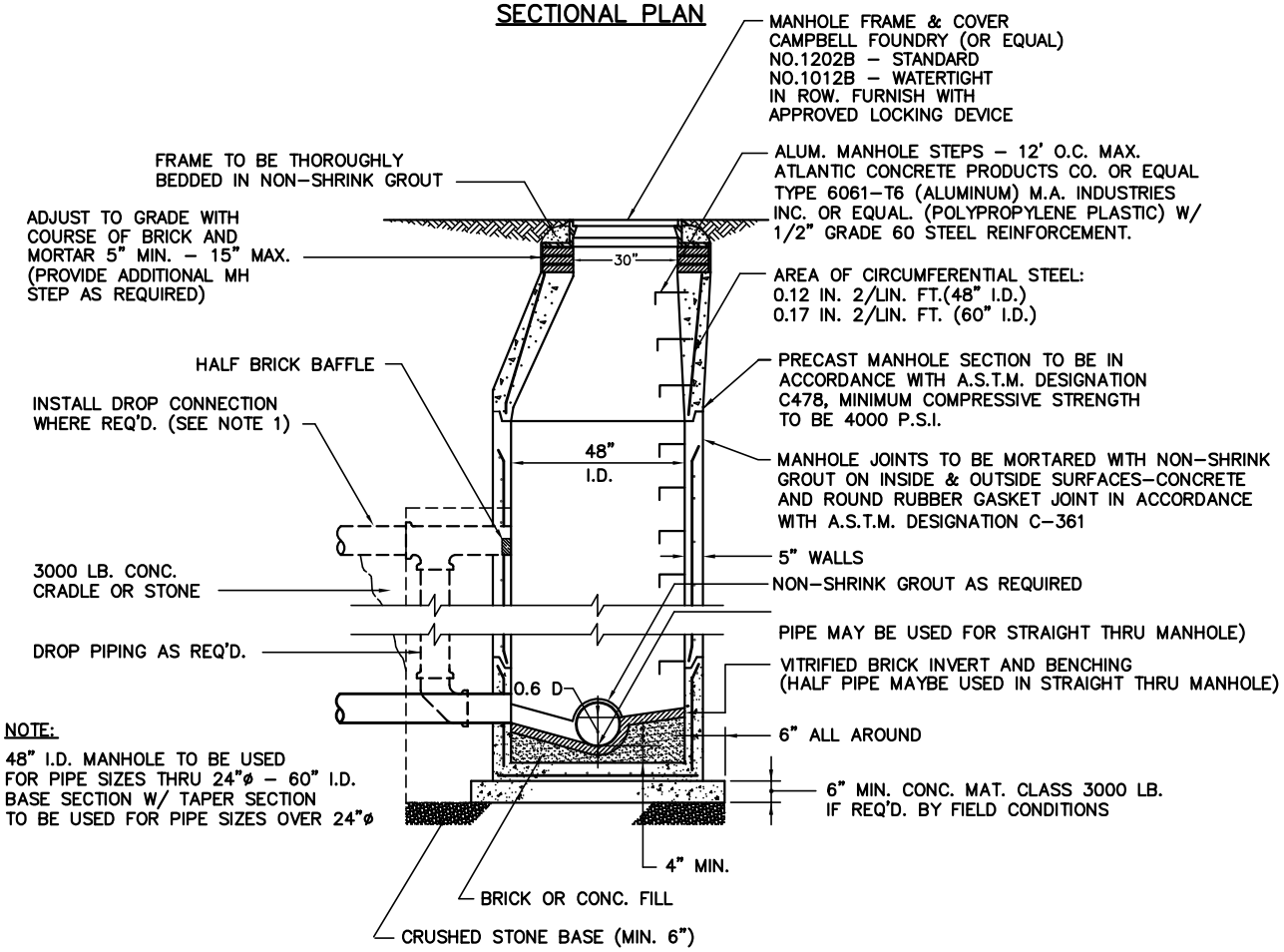
General Requirements

The Standard Construction Details consist of seventeen (17) items as follows:

1. Standard Sanitary Manhole Detail
2. Doghouse Manhole Detail
3. Flat Slab Top Detail
4. Drop Connection Detail
5. Typical Building Connection
6. Lateral Detail Connection by Saddle Tap to Pipe
7. Cleanout Riser Cover Detail
8. PVC Pipe to Existing Sanitary Manhole Detail
9. Detail for Joining Existing Pipe to New Pipe
10. Sanitary Sewer – Utility Crossing Detail
11. Pipe Crossing Detail
12. Concrete Cut-off Collar
13. Small Diameter Force Main Connection
14. Trench Detail
15. Pavement Replacement
16. Lawn Restoration
17. Thrust Block Details



SECTIONAL PLAN



NOTE:
48" I.D. MANHOLE TO BE USED FOR PIPE SIZES THRU 24"ø - 60" I.D. BASE SECTION W/ TAPER SECTION TO BE USED FOR PIPE SIZES OVER 24"ø

SECTION A - A

NOTES:

1. ENTIRE EXTERIOR TO RECEIVE COATING OF BITUMINOUS SEALER.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST O.S.H.A. STANDARDS.
3. BASE TO BE :
   I.D. 4'-0" FOR SEWERS < 24" DIA.
   I.D. 5'-0" FOR SEWERS 24" - 36" DIA.
   WITH TRANSITION SECTION BETWEEN BASE AND CONE SECTION
4. CONNECTIONS INTO EXISTING MANHOLES SHALL BE COMPLETED USING A SUITABLE ADAPTOR AS APPROVED BY THE ENGINEER.

STANDARD SANITARY MANHOLE DETAIL

NOT TO SCALE

Hatch Mott MacDonald

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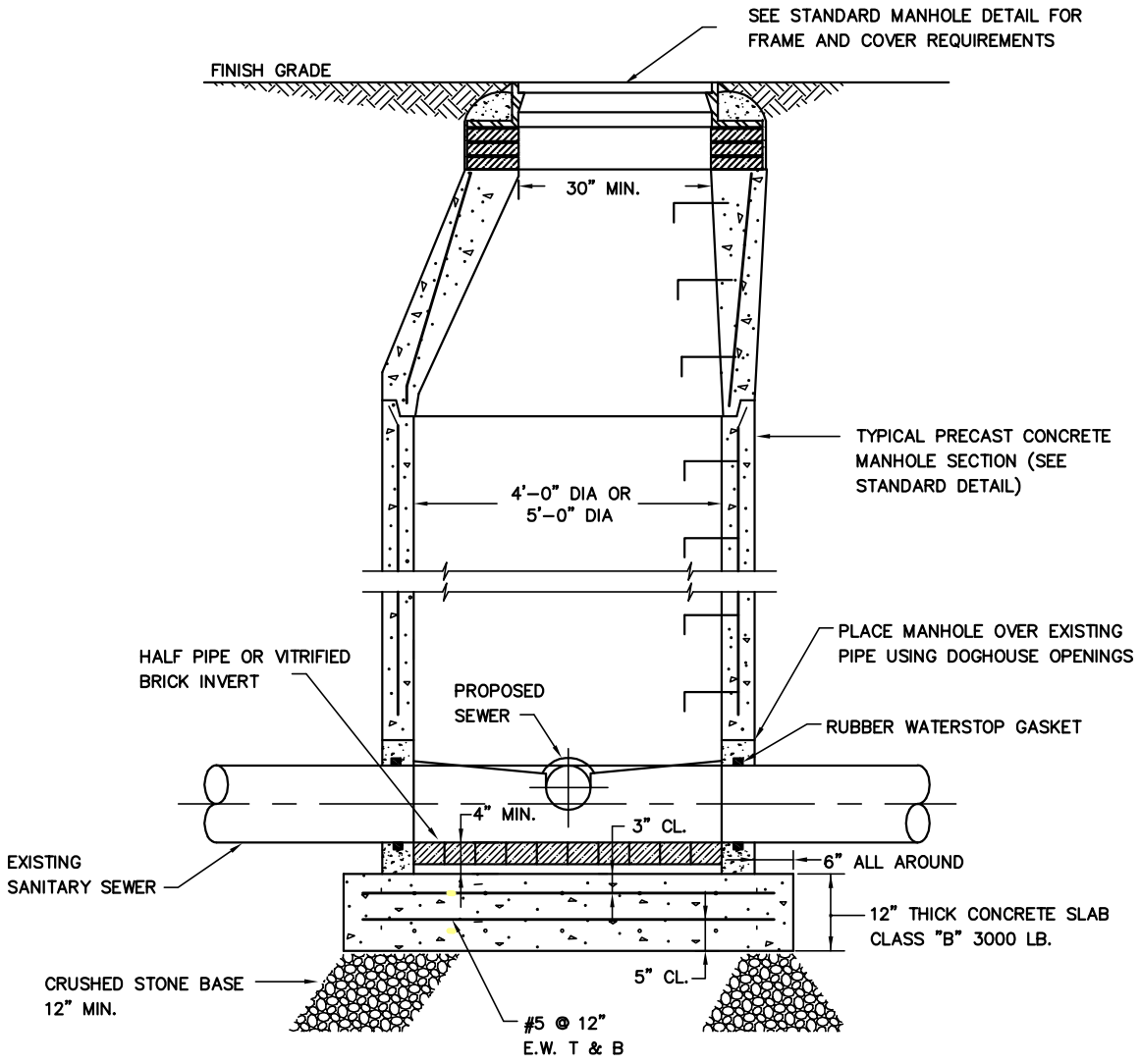
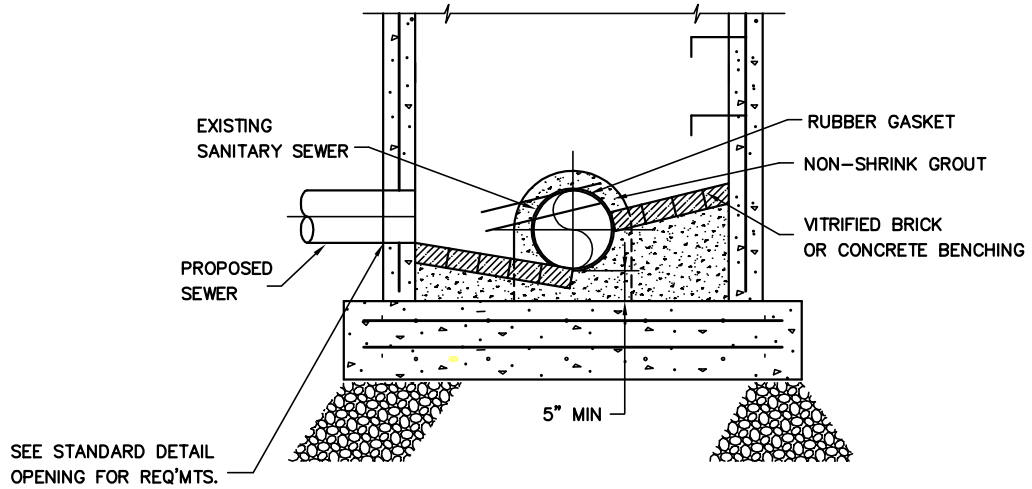


SECTION A



SECTION B

DOGHOUSE MANHOLE DETAIL

NOT TO SCALE

Hatch Mott MacDonald

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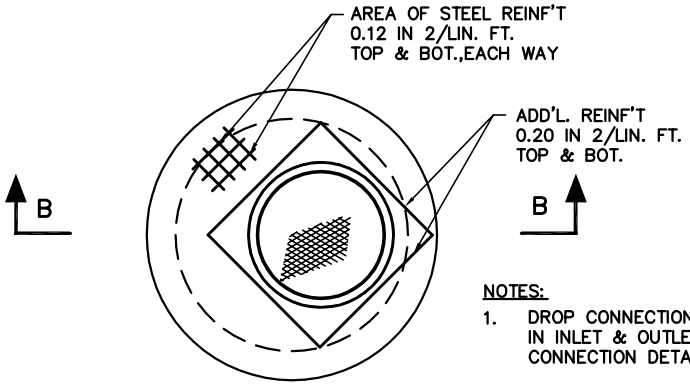
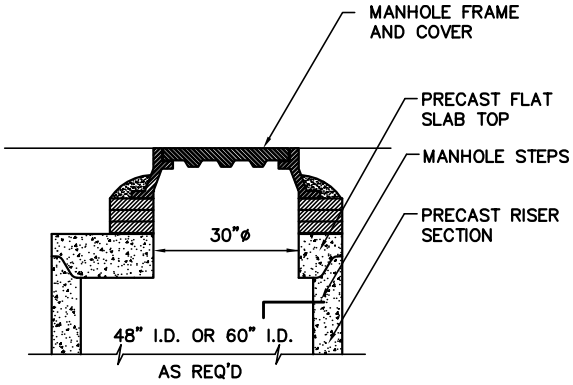


PLAN

NOTES:

1. DROP CONNECTION TO BE USED IN ALL CASES WHERE DIFFERENCE IN INLET & OUTLET INVERTS IS GREATER THAN 2 FEET. (SEE DROP CONNECTION DETAIL)
2. FLAT TOP TO BE USED ONLY WHERE SHALLOW CONDITIONS DO NOT PERMIT USE OF CONE SECTION. (SEE FLAT TOP DETAIL) AND APPROVED BY THE ENGINEER.



SECTION B – B

FLAT SLAB TOP DETAIL

NOT TO SCALE

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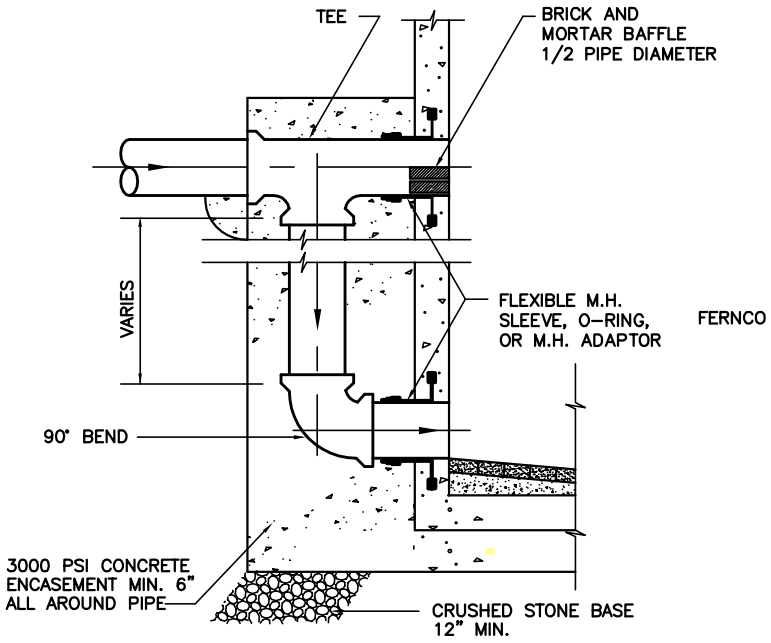

NOTE:

PRECAST DROP MANHOLE BASE AND RISER SECTIONS MAY BE USED WHEN APPROVED BY THE ENGINEER.

DROP CONNECTION DETAIL

NOT TO SCALE

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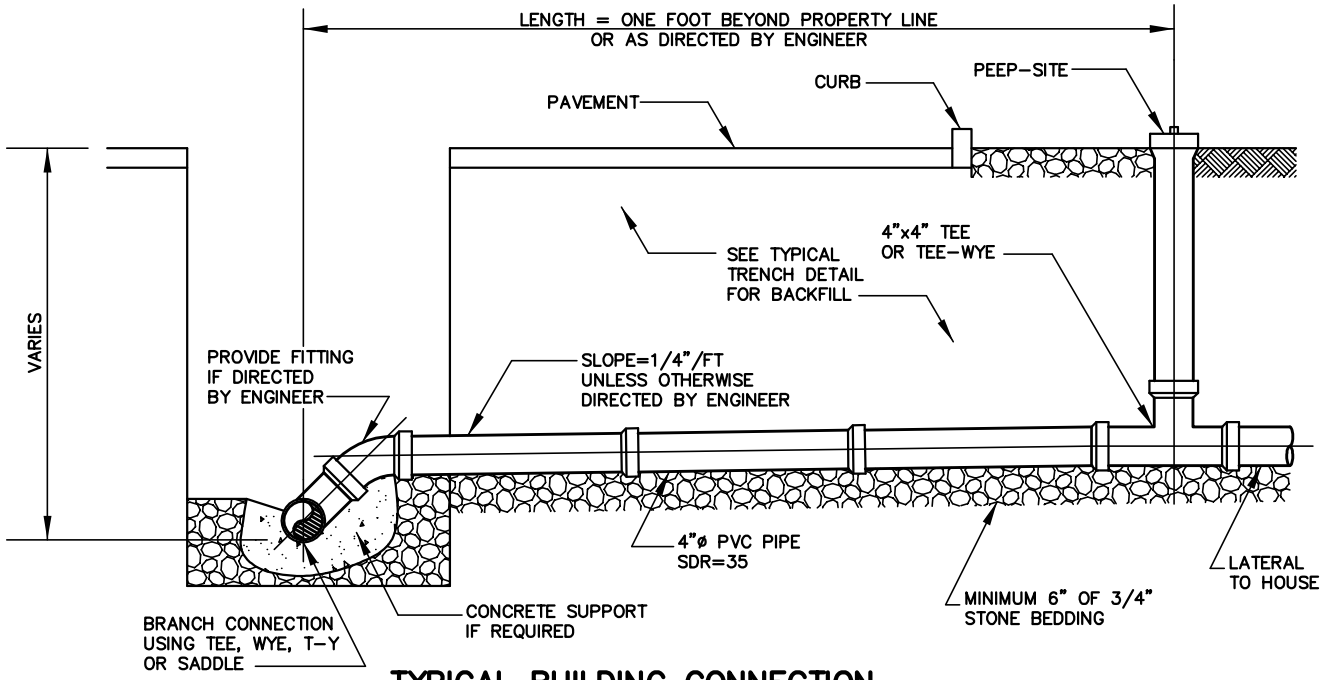
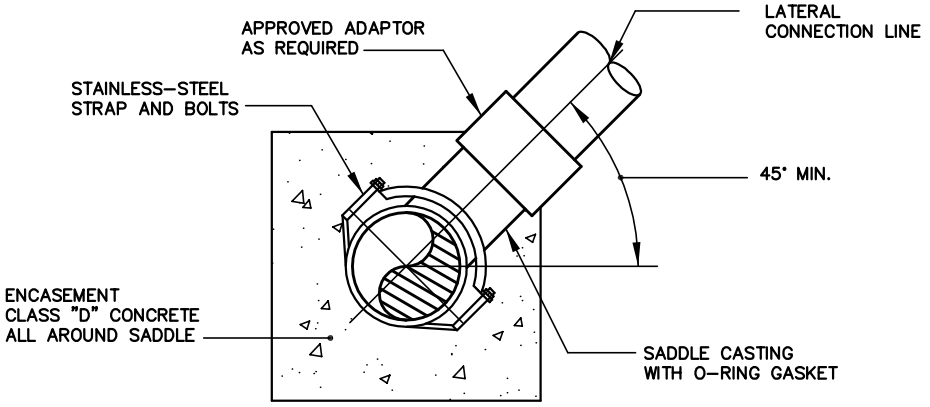


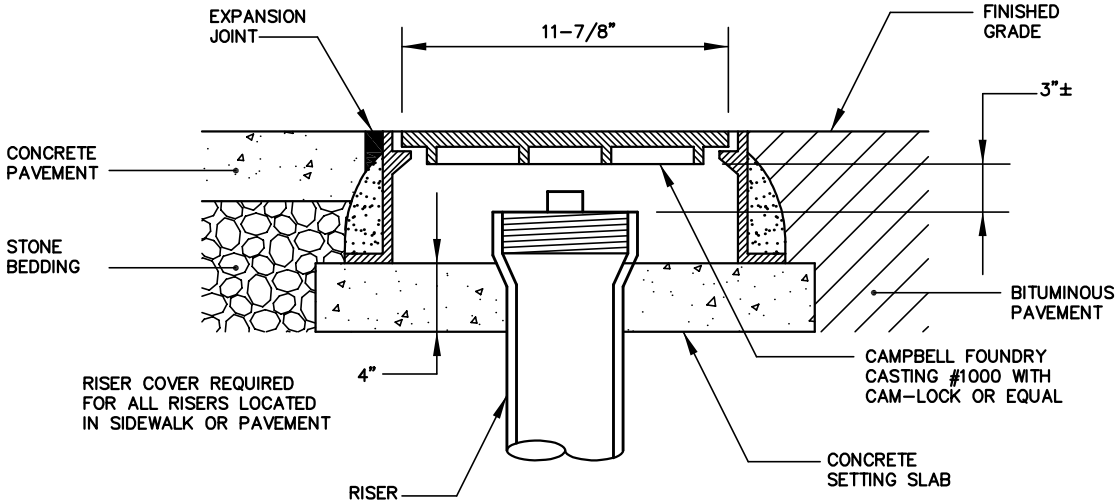
TYPICAL BUILDING CONNECTION

NOT TO SCALE



LATERAL DETAIL CONNECTION BY SADDLE TAP TO PIPE

NOT TO SCALE



CLEANOUT RISER COVER DETAIL

NOT TO SCALE

Hatch Mott MacDonald

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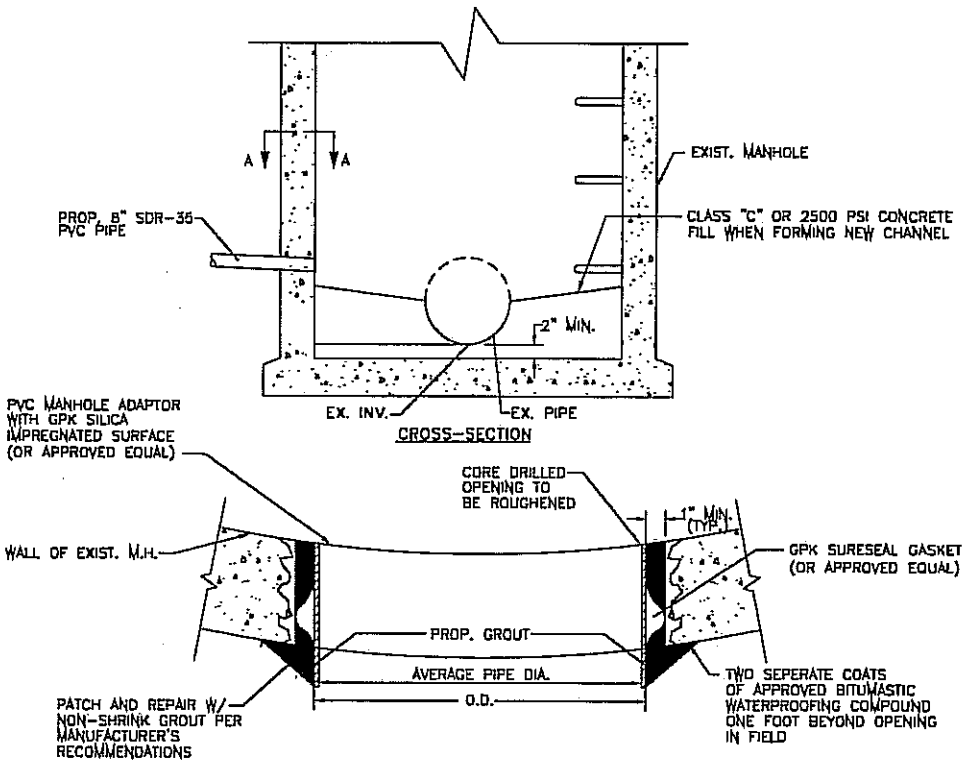

PVC PIPE TO EXISTING SANITARY MANHOLE DETAIL

NOT TO SCALE

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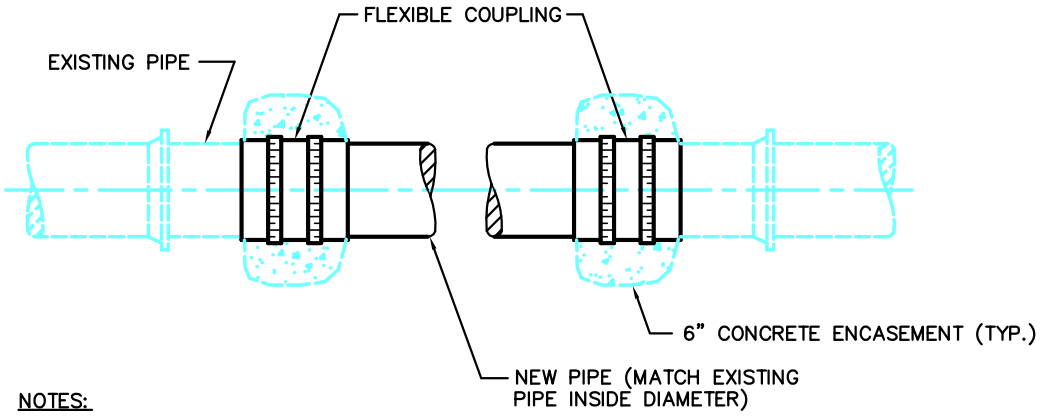
Hatch Mott MacDonald



NOTES:

1. FLEXIBLE COUPLING TO BE FERNCO 1000 SERIES OR APPROVED EQUAL.
2. ALL NEW PIPE SHALL BE SDR-35 PVC PIPE.

DETAIL FOR JOINING EXISTING PIPE TO NEW PIPE

NOT TO SCALE

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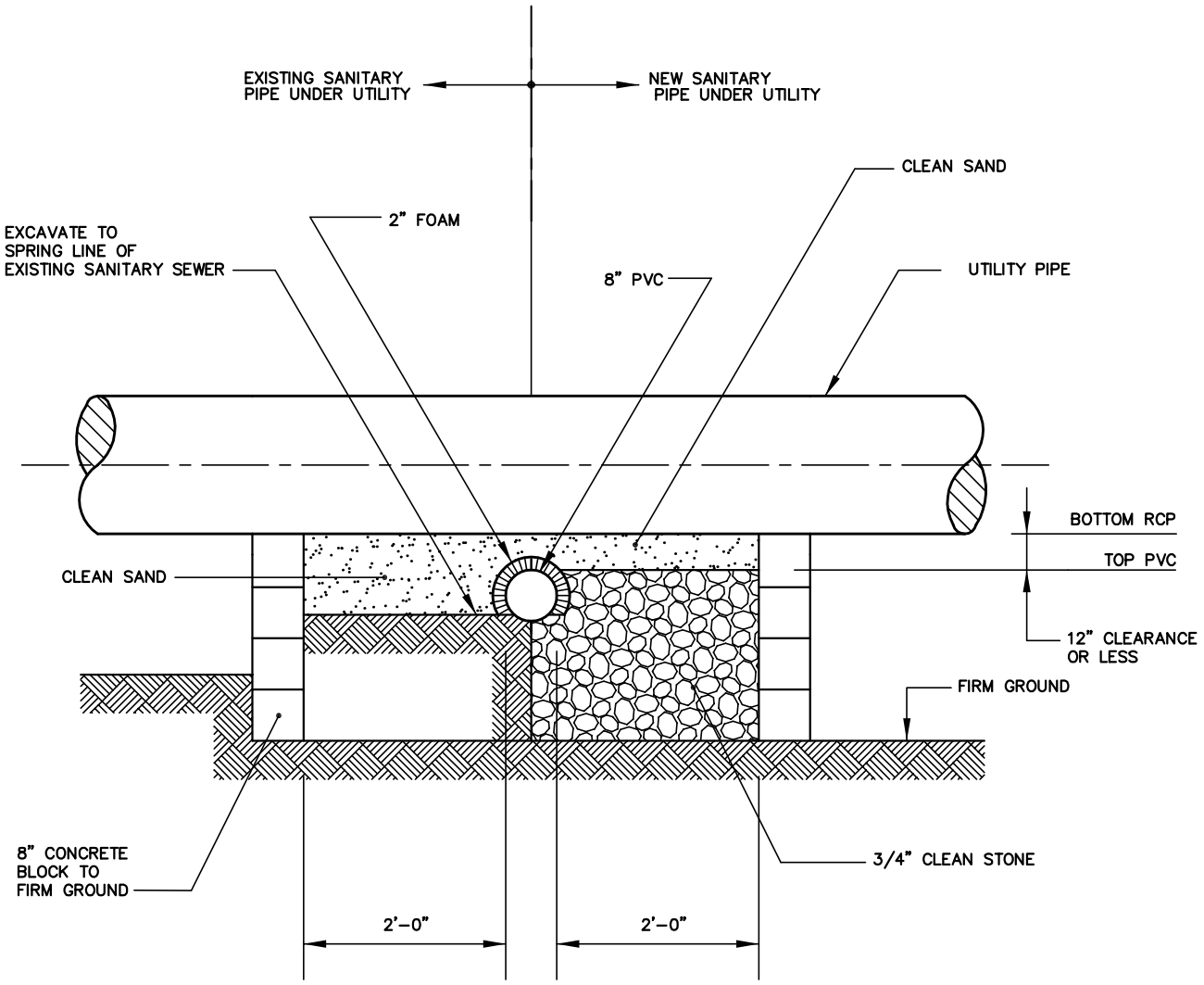

SANITARY SEWER – UTILITY CROSSING DETAIL

NOT TO SCALE

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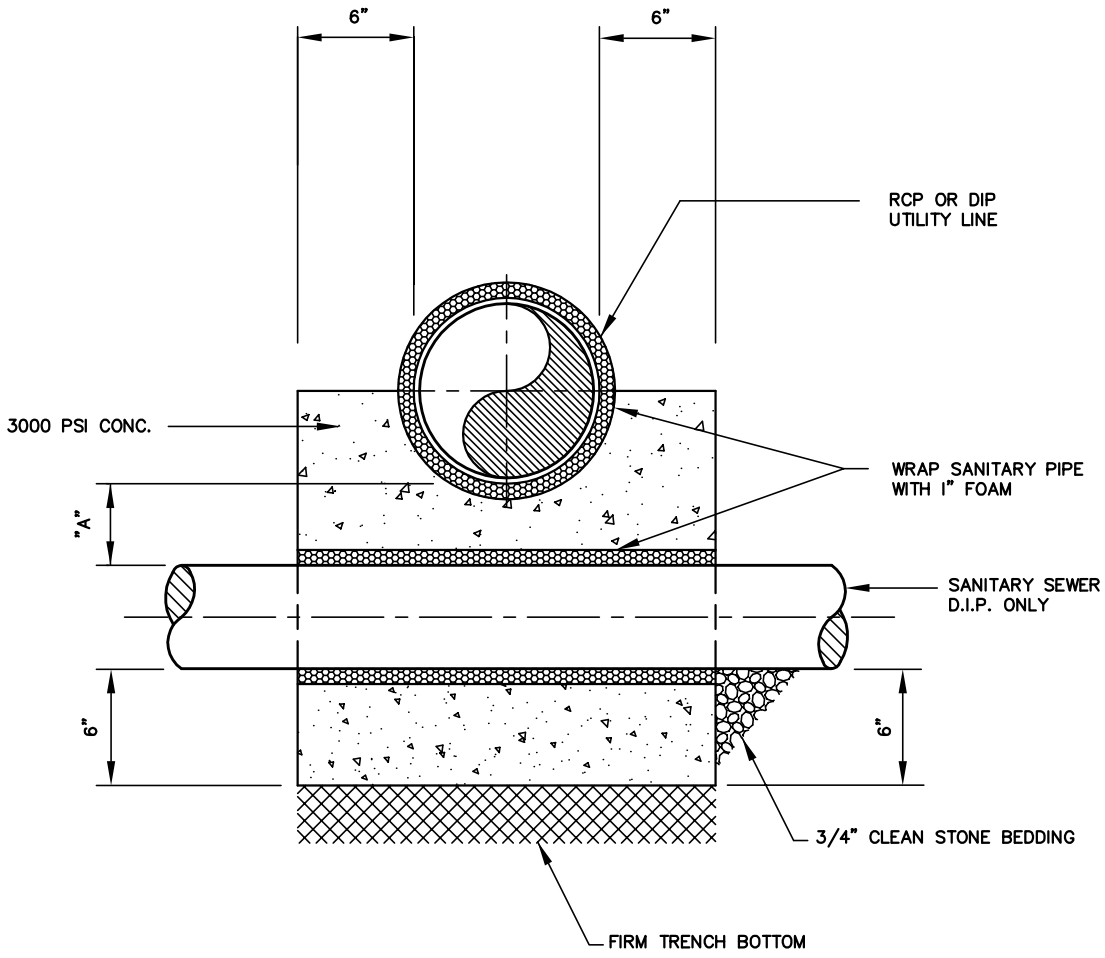

NOTE:

CONCRETE ENCASEMENT SHALL BE PROVIDED WHERE DIMENSION "A" IS 12" OR LESS OR WHERE DIRECTED BY THE ENGINEER.

PIPE CROSSING DETAIL

NOT TO SCALE

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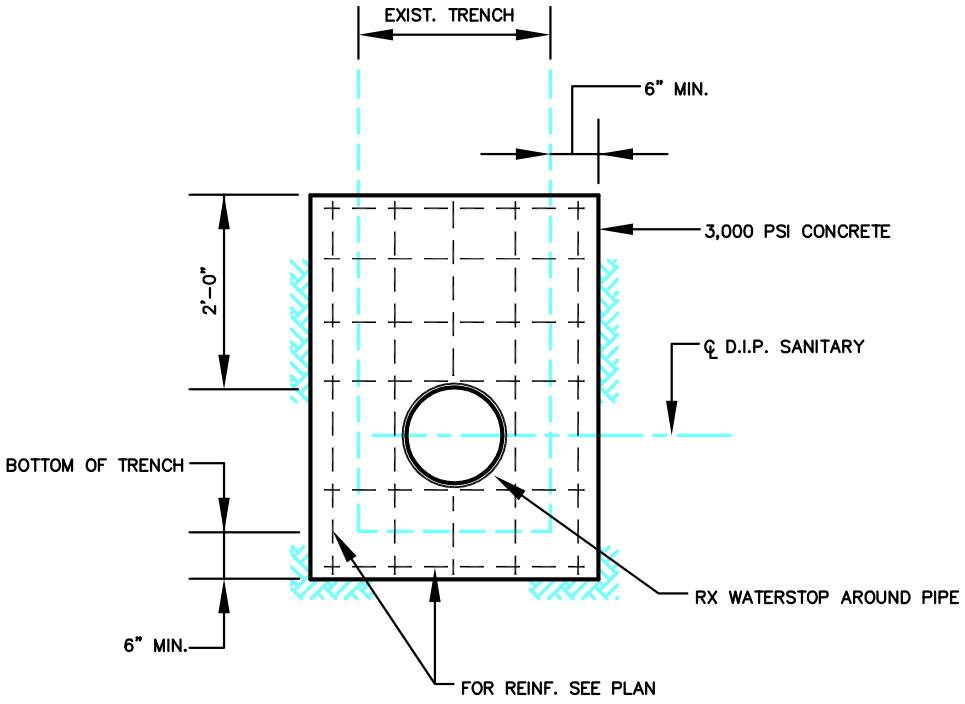
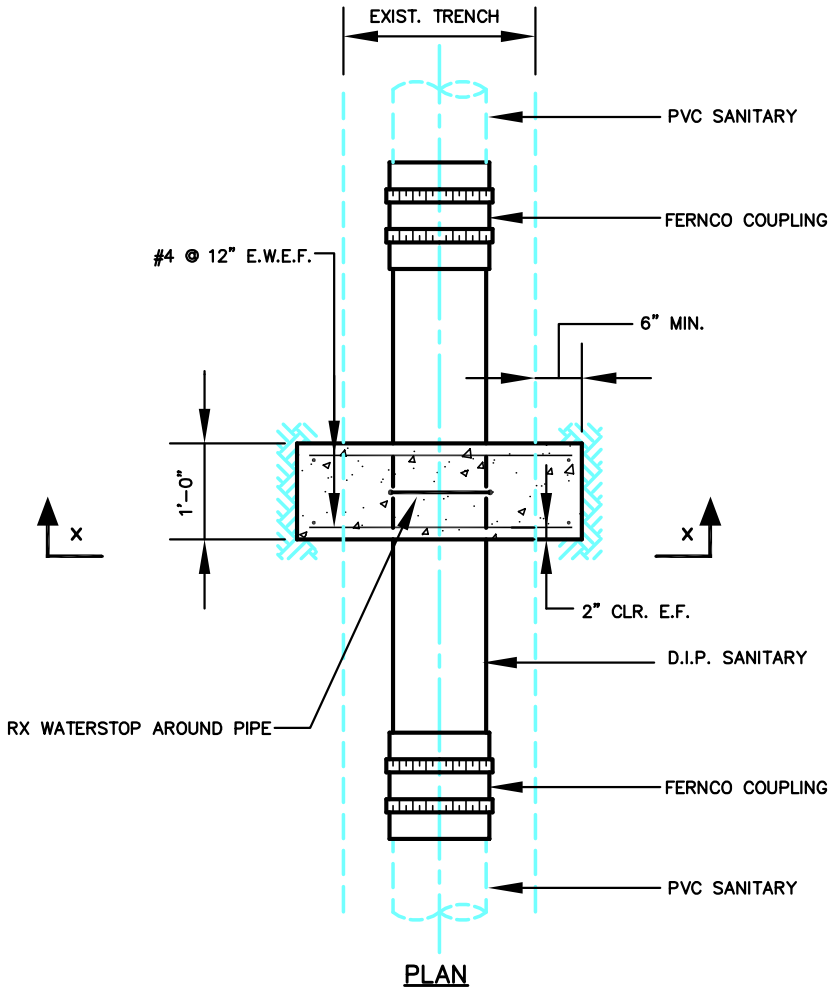


SECTION X–X



PLAN

CONCRETE CUT–OFF COLLAR

NOT TO SCALE

Hatch Mott MacDonald

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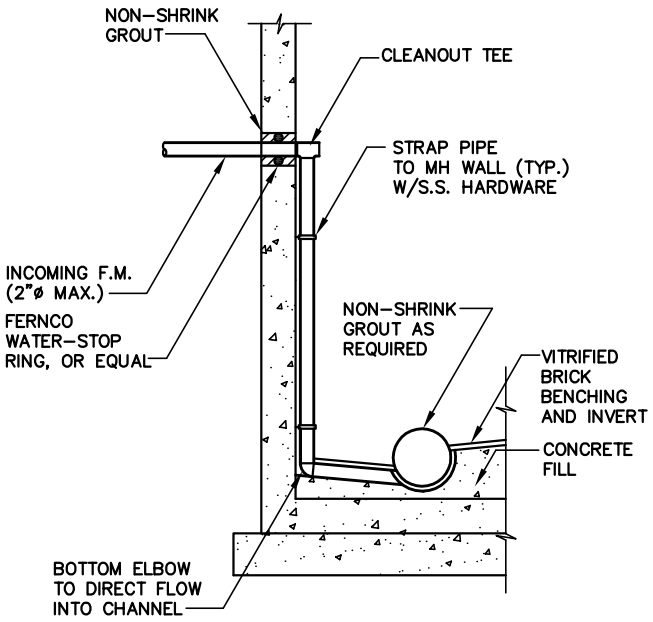

SMALL DIAMETER
FORCE MAIN CONNECTION

NOT TO SCALE

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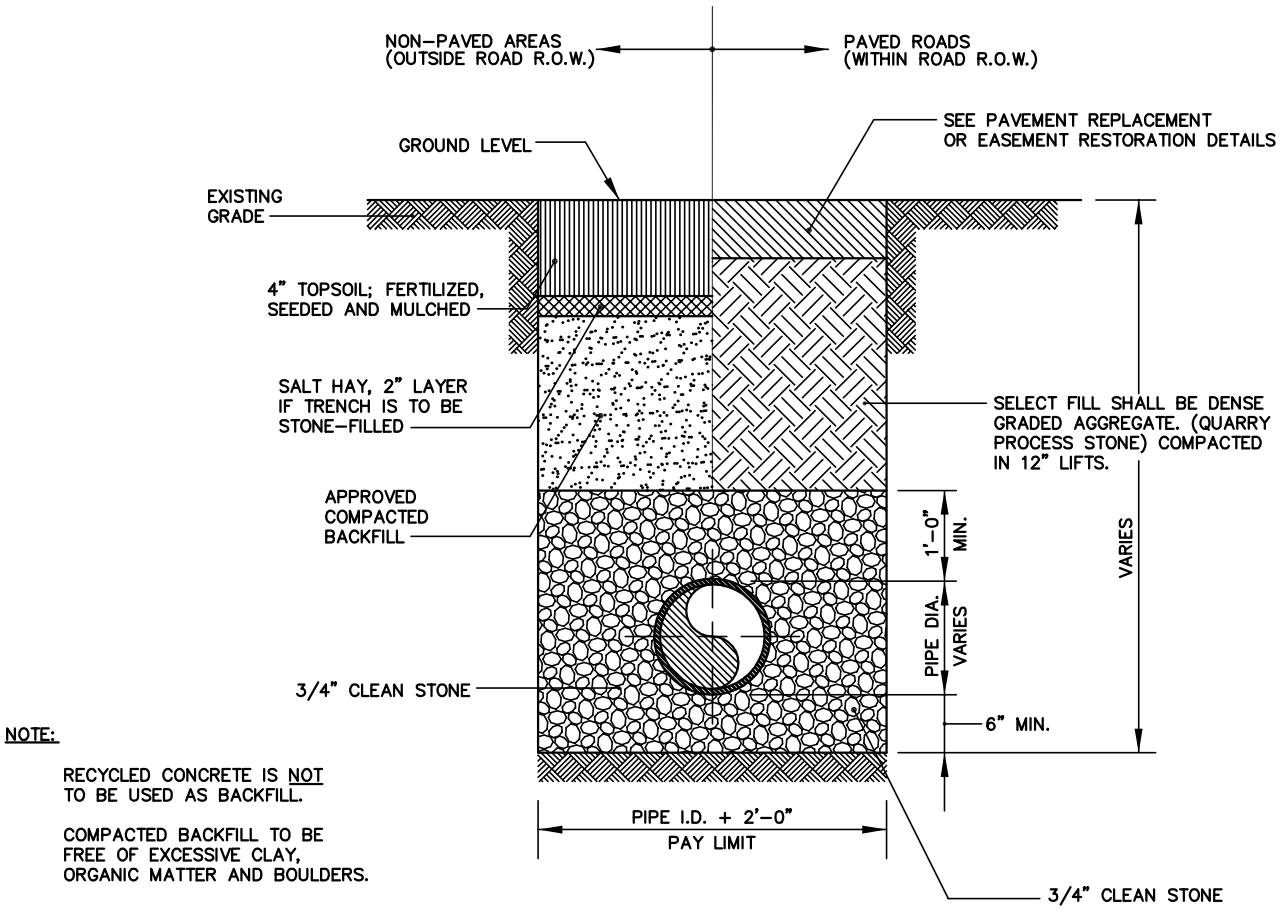
Hatch Mott MacDonald



NOTE:

RECYCLED CONCRETE IS NOT TO BE USED AS BACKFILL.

COMPACTED BACKFILL TO BE FREE OF EXCESSIVE CLAY, ORGANIC MATTER AND BOULDERS.

TYPICAL SECTION

TRENCH DETAIL

NOT TO SCALE

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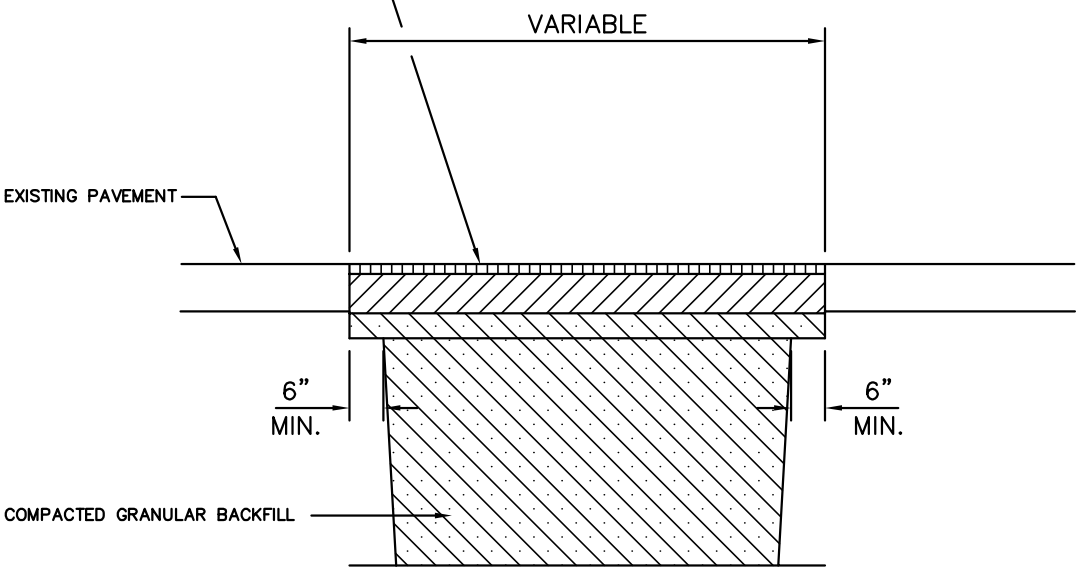
PAVING REQUIREMENTS:

LINE MUST BE SAW CUT IN EXISTING PAVEMENT.
EDGES OF EXISTING PAVEMENT MUST BE TACK COATED.
6" THICK, TYPE 5, CLASS A, QUARRY PROCESS MIX.
6" THICK, BITUMINOUS STABILIZED BASE
CONSTRUCTED IN TWO LIFTS (1–2).
2" SURFACE COURSE I–4.

NOTE:

THE APPLICANT IS REQUIRED TO OBTAIN THE TOWN OF KEARNY CONSTRUCTION DETAILS FROM THE TOWN OF KEARNY ENGINEER.



PAVEMENT REPLACEMENT

NOT TO SCALE

NOTES:

1. WHERE PIPE LINE IS PLACED IN EXISTING OR FUTURE RIGHT–OF–WAY, BACKFILL SHALL BE MECHANICALLY TAMPED IN LAYERS NOT TO EXCEED 2 FEET IN THICKNESS.
2. SHEETING WILL BE USED WHEN REQUIRED BY THE CONSTRUCTION SAFETY CODE OF THE STATE OF NEW JERSEY AND OSHA.
3. WHEN UNSUITABLE BACKFILL CONDITIONS EXIST, SELECT FILL SHALL BE USED AS BACKFILL FOR THE ENTIRE DEPTH OF TRENCH AS DIRECTED BY THE ENGINEER.
4. SELECT FILL SHALL BE PLACED FOR A MINIMUM DEPTH OF 2 FEET OVER THE TOP OF PIPE.
5. SELECT FILL SHALL BE QUARRY PROCESS STONE OR EQUIVALENT AS APPROVED BY THE ENGINEER.
6. NO UNSATISFACTORY SITE MATERIAL SHALL BE REPLACED IN THE UPPER LAYERS OF THE BACKFILL.
7. RECYCLED CONCRETE IS NOT TO BE USED AS BACKFILL.
8. COMPACTED BACKFILL IS TO BE FREE OF EXCESSIVE CLAY, ORGANIC MATTER AND BOULDERS.

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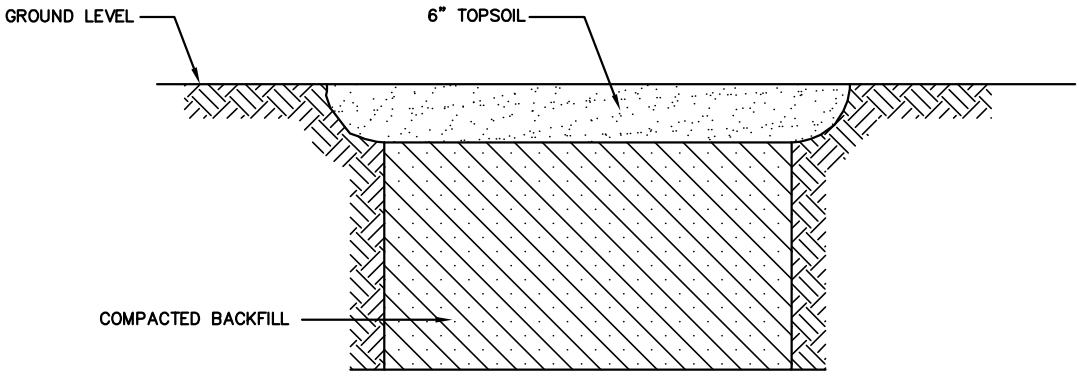
6" OF TOP SOIL AND SEED AS REQUIRED.
SEED TO BE NEW JERSEY MIX 4 WITH CLOVER EVENLY SPREAD.
FERTILIZER OF FORMULA 5–10–5 SHALL BE SPREAD
AT A RATE OF 50 LB. PER 1000 SQ. FT.
LIME SHALL BE APPLIED AT THE RATE OF 60 LB. PER 1000 SQ. FT.



LAWN RESTORATION

NOT TO SCALE

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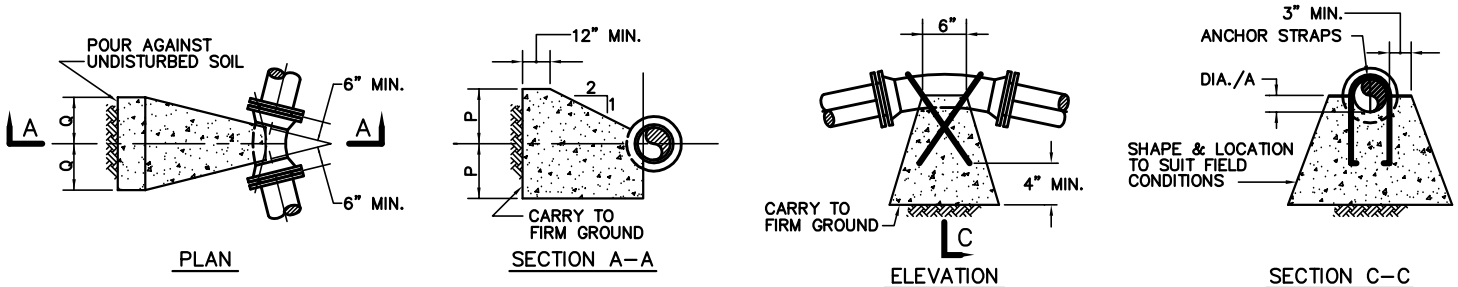
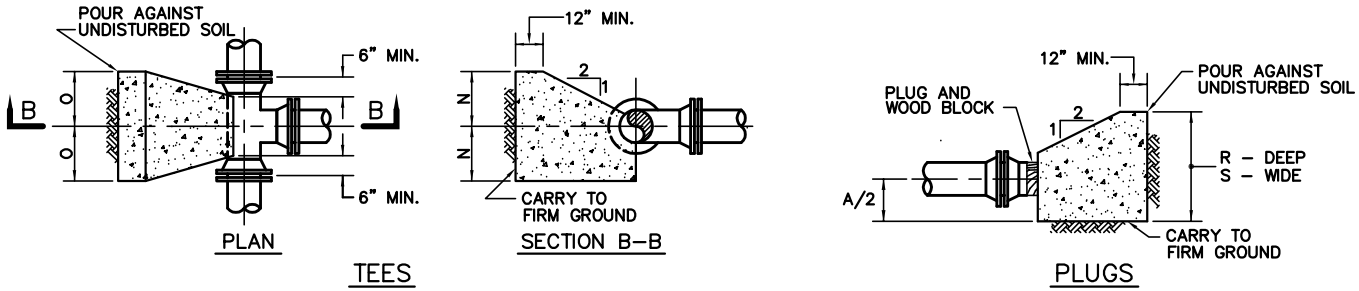


HORIZONTAL AND VERTICAL UPWARD BENDS

VERTICAL DOWNWARD BENDS



			THRUST BLOCKS FOR TEES, HORIZ. & VERTICAL BENDS AND PLUGS THRUST BLOCKS DESIGNED FOR REQUIRED TEST PRESSURE AND 2000 PSF SOIL PRESSURE											
			200 PSI TEST PRESSURE								220 PSI TEST PRESSURE			
	DESCRIPTION	DIMENSION	6"ø	8"ø	12"ø	16"ø	20"ø	36"ø	42"ø	48"ø	12"ø	20"ø	48"ø	54"ø
	TEES	N	1'–0"	1'–3"	1'–6"	2'–0"	2'–0"	3'–0"	3'–9"	4'–0"	1'–6"	2'–3"	4'–0"	4'–3"
		O	1'–4"	1'–10"	3'–3"	4'–3"	6'–6"	13'–7"	14'–9"	17'–11"	3'–7"	6'–5"	19'–9"	23'–6"
HORIZ. & VERT. UPWARD	90° BENDS	P	1'–0"	1'–3"	1'–6"	2'–0"	2'–0"	3'–0"	3'–9"	4'–0"	1'–6"	2'–3"	4'–0"	4'–3"
		Q	1'–4"	1'–10"	3'–3"	4'–3"	6'–6"	13'–7"	14'–9"	17'–11"	3'–7"	6'–5"	19'–9"	23'–6"
	45° BENDS	P	0'–9"	1'–0"	1'–3"	1'–9"	1'–9"	3'–0"	3'–6"	3'–9"	1'–3"	2'–0"	4'–0"	4'–3"
		Q	1'–0"	1'–3"	2'–2"	2'–8"	4'–1"	7'–5"	8'–7"	10'–5"	2'–4"	3'–11"	10'–8"	12'–9"
	22½° BENDS	P	0'–6"	0'–9"	1'–0"	1'–6"	1'–9"	2'–6"	3'–0"	3'–6"	1'–0"	1'–6"	3'–6"	3'–6"
		Q	0'–9"	0'–11"	1'–4"	1'–7"	2'–1"	4'–7"	5'–1"	5'–8"	1'–6"	2'–8"	6'–3"	7'–11"
	11¼° BENDS	P	0'–5"	0'–6"	0'–8"	1'–0"	1'–3"	2'–0"	2'–6"	3'–0"	0'–9"	1'–0"	3'–0"	3'–0"
		Q	0'–6"	0'–8"	1'–1"	1'–3"	1'–6"	2'–10"	3'–1"	3'–4"	1'–0"	2'–0"	3'–8"	4'–6"
	5° BENDS	P	0'–3"	0'–5"	0'–7"	0'–9"	0'–11"	1'–6"	1'–9"	2'–0"	0'–6"	0'–11"	2'–0"	2'–6"
		Q	0'–5"	0'–5"	0'–8"	0'–10"	1'–0"	1'–11"	2'–3"	2'–6"	0'–10"	1'–2"	2'–9"	2'–10"
VERTICAL DOWNWARD	45° BENDS	MIN. CONC.* ANCHORAGE	1.4 CY	2.5 CY	5.2 CY	9.0 CY	13.9 CY	43.6 CY	58.8 CY	76.6 CY	5.7 CY	15.3 CY	84.3 CY	106.5 CY
	22½° BENDS	MIN. CONC.* ANCHORAGE	0.7 CY	1.3 CY	2.7 CY	4.6 CY	7.1 CY	22.2 CY	30.0 CY	39.1 CY	2.9 CY	7.8 CY	43.0 CY	54.3 CY
	11¼° BENDS	MIN. CONC.* ANCHORAGE	0.4 CY	0.7 CY	1.4 CY	2.3 CY	3.6 CY	11.2 CY	15.1 CY	19.6 CY	1.5 CY	3.9 CY	21.6 CY	27.3 CY
	5° BENDS	MIN. CONC.* ANCHORAGE	0.2 CY	0.3 CY	0.7 CY	1.2 CY	1.8 CY	5.6 CY	7.6 CY	9.8 CY	0.8 CY	2.0 CY	10.8 CY	13.9 CY
	PLUGS	R	2'–0"	2'–6"	3'–0"	4'–0"	4'–0"	6'–0"	7'–6"	8'–0"	3'–0"	4'–6"	8'–0"	8'–6"
		S	2'–8"	3'–8"	6'–6"	8'–6"	13'–0"	27'–2"	29'–6"	35'–10"	7'–2"	12'–10"	39'–6"	47'–0"

* MIN. CONC. ANCHORAGE WITHOUT BACKFILL AND NO GROUND WATER CONDITION.

THRUST BLOCK DETAILS

NOT TO SCALE

Hatch Mott MacDonald