

ARTICLE I
Wastewater Systems Regulations Governing
the Use of Common Sewers
[Adopted 9/17/75; amended 8/10/88;
amended 6/19/91; amended 3/3/93]

Notes: - Under the authority of MGL Ch. 83, s. 10.

200-1 Definitions.

Unless the context specifically indicates otherwise, the meaning of the terms used in this regulation shall be as follows:

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

BUILDING DRAIN - shall mean that part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer, beginning five (5) feet (1.5 meters) outside the inner face of the building wall.

BUILDING SEWER - shall mean the extension from the building drain to the public sewer or other place of disposal.

COMBINED SEWER - shall mean a sewer receiving both surface runoff and sewage.

GARBAGE - shall mean solid wastes from the domestic and commercial preparation, cooking, and dispensing of food, and from the handling, storage, and sale of produce.

NATURAL OUTLET - shall mean any outlet into a watercourse, pond, ditch, lake, or other body of surface or groundwater.

PERSON - shall mean any individual, firm, company, association, society, corporation, or group.

pH - shall mean the logarithm of the reciprocal of the weight of hydrogen ions in grams per liter of solution.

PROPERLY SHREDDED GARBAGE - shall mean the wastes from the preparation, cooking, and dispensing of food that have been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one-half (1/2) inch (1.27 centimeters) in any dimension.

PUBLIC SEWER - shall mean a sewer in which all owners of abutting properties have common rights, and is controlled by public authority.

SANITARY SEWER - shall mean a sewer which carries sewage and to which storm, surface, and groundwaters are not intentionally admitted.

SEPTAGE - shall mean that material removed from any part of an individual sewage disposal system. **[Added March 3, 1993]**

SEWAGE - shall mean a combination of the water-carried wastes from residences, business buildings, institutions, and industrial establishments, together with such ground, surface, and stormwaters as may be present.

SEWAGE TREATMENT PLANT - shall mean any arrangement of devices and structures used for treating sewage.

SEWAGE WORKS - shall mean all facilities for collecting, pumping, treating, and disposing of sewage.

SEWER - shall mean a pipe or conduit for carrying sewage.

SEWER COMMISSIONERS - shall mean the Sewer Commissioners of the Town of Nantucket, or their authorized designee, agent or representative. **[Added August 10, 1988]**

SHALL - is mandatory; **MAY** - is permissive.

SLUG - shall mean any discharge of water, sewage, or industrial waste which in concentration of any given constituent or in quantity of flow exceeds for any period of duration longer than fifteen (15) times the average twenty-four (24) hour concentration or flows during normal operation.

STORM DRAIN - (sometimes termed "STORM SEWER") shall mean a sewer which carries storm and surface waters and drainage, but excludes sewage and industrial wastes, other than unpolluted cooling water.

SUPERINTENDENT - shall mean the Superintendent of the Department of Public Works of the Town of Nantucket, or his authorized deputy, agent, or representative.

SUSPENDED SOLIDS - shall mean solids that either float on the surface or, are in suspension in water, sewage, or other liquids, and which are removable by laboratory filtering.

TOWN - shall, for the purposes of these regulations, mean any area in the County of Nantucket served by a public sewer system.

TREASURER - shall mean the Treasurer of the Town of Nantucket. [Added August 10, 1988]

WASTES - shall be classified as follows:

INDUSTRIAL WASTES - shall mean any water carried or liquid waste resulting from any process of industry, manufacture, trade, or business, or from the development or recovery of any natural resource. [Amended March 3, 1993]

COMMERCIAL WASTES - shall mean the water carried wastes from nonmanufacturing establishments such as hotels, restaurants, stores, and places of business.

RESIDENTIAL WASTES - shall mean the water carried wastes from private dwellings.

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

200-2 Building Sewers and Connections [Amended September 29, 1993]

A. 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 written permit from the Superintendent. Any person proposing a new discharge into the system or a substantial change in the volume or character of pollutants that are being discharged into the system shall notify the Superintendent no less than forty-five days prior to the proposed change or connection.

B. All costs and expense incident to the installation and connection of the building sewer shall be borne by the owner, who shall make his own arrangements with a contractor approved and licensed (installer's permit) by the Board of Health, Town and County of Nantucket. The contractor shall do all cutting, patching, excavation, backfill, furnishing and installing pipe and making connection required. The owner shall indemnify the Town from any loss or damage that may directly or indirectly be occasioned by the installation of the building sewer.

C. A separate and independent building sewer shall be provided for every building; except where one building stands at the rear of another on an interior lot and no private sewer is available or can be constructed to the rear building through an adjoining alley, court, yard or driveway, the building sewer from the front building may be extended to the rear building and the whole considered as one building sewer. Approval of the Superintendent and the plumbing inspector is required for this exception.

D. Old building sewers may be used in connection with new buildings only when they are found, on examination and test by the Superintendent, to meet all requirements of this regulation.

E. Whenever possible, the building sewer shall be brought to the building at an elevation below the basement floor. In all buildings in which any building drain is too low to permit gravity flow to the public sewer, sanitary sewage carried by such building drain shall be lifted by an approved means and discharged to the building sewer. Exceptions will require a special permit upon submittal of approved plan.

F. No person shall make connection of roof downspouts, exterior foundation drains, areaway drains, or other sources of surface runoff or ground water to a building directly or indirectly to a public sanitary sewer.

G. The connection of the building sewer into the public sewer shall conform to the requirements of the building and plumbing code or other applicable rules and regulations of the Town, or the procedures set forth in appropriate specifications of the A.S.T.M. and the W.P.C.F. Manual of Practice No. 9. All such connections shall be made gastight and watertight. Any deviation from the prescribed procedures and materials must be approved by the Superintendent before installation.

H. The applicant for the building sewer permit shall notify the Superintendent when the building sewer is ready for inspection and connection to the public sewer. The connection shall be made by the applicant's contractor under the supervision of the Superintendent or his representative. Excavations shall not be closed until inspection is made.

I. All excavations for building sewer installation shall be adequately guarded with barricades, and lights so as to protect the public from hazard. Streets, sidewalks, parkways, and other public property disturbed in the course of work shall be restored in a manner satisfactory to the Town. Street opening permits must be obtained from the Department of Public Works prior to starting any work.

J. Prior to connection with a public sewer or the issuance of building sewer permits, pursuant to section 200-2A, the Superintendent (unless other designee named by the Sewer Commissioners) may, on receipt of written application, authorize design review of plans and specifications and inspection of construction for a privately designed and constructed sewer. Any such review and/or inspection undertaken shall not relieve any party from any of the obligations arising under these regulations, as now in force or as may be amended from time to time, or any other obligations under applicable federal or state laws, rules or regulations. Nor shall any such review or inspection constitute any waiver by the Town of its rights and privileges under said regulations, laws or rules. [Added August 10, 1988]

K. All costs and expense incident to any design review and/or inspection under section 200-2J shall be borne by applicant therefor. Applicant will indemnify and hold harmless the Town and all of its agents and employees of and from all of the costs and expenses incurred incident to such review, inspection and work relating thereto, including any professional, engineering and legal fees incurred. No such inspection or review under said section 200-2J shall be undertaken unless the applicant therefor shall deposit with the Treasurer an amount determined by the Superintendent (or other designee named by the Sewer Commissioners) as sufficient to cover all the costs of engineering, legal or other professional review and/or inspection. The account shall be administered and maintained as provided in section 200-2L. [Added August 10, 1988]

L. With respect to any account established pursuant to section 200-2K the Treasurer shall pay invoices pursuant to direction of the Superintendent (or other designee named by the Sewer Commissioners), who shall not direct any payment unless the Town gives 14 days notice (including a copy of such invoice) to the applicant. The balance of the account shall at no time until completion, be less than one-half the initial deposit, and applicant shall deposit with the Treasurer such additional funds as are required to restore the account to the amount of the initial deposit upon notice from the Town that the amount on deposit has been decreased by the expenditures described below to an amount at or near one-half the initial deposit. The account shall be closed and the remaining funds returned to applicant when, in the opinion of the Superintendent (or other designee named by the Sewer Commissioners), all work required and any subsequently approved modifications including all inspections required, have been completed. All notices herein shall be by first class mail. [Added August 10, 1988]

200-3 Use of the Public Sewers

A. No person shall discharge or cause to be discharged any stormwater, surface water, groundwater, roof runoff, subsurface drainage, uncontaminated cooling water, or unpolluted industrial process waters to any sanitary sewer.

B. Stormwater and all other unpolluted drainage shall be discharged to such sewers as are specifically designated as combined sewers or storm sewers, or to a natural outlet approved by the Superintendent. Industrial cooling water or unpolluted process waters may be discharged, on approval of the Superintendent, to a storm sewer, combined sewer, or natural outlet.

C. No person shall discharge or cause to be discharged any of the following described waters or wastes to any public sewers:

- 1) Any gasoline, benzene, naphtha, fuel oil or other flammable or explosive liquid, solid, or gas.

- 2) Any waters or wastes containing toxic or poisonous solids, liquids, or gases in sufficient quantity, either singly or by interaction with other wastes, to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals, create a public nuisance, or create any hazard in the receiving waters of the sewage treatment plant.
- 3) Any waters or wastes having a pH lower than 5.5, or having any other corrosive property capable of causing damage or hazard to structures, equipment, and personnel of the sewage works.
- 4) Solid or viscous substances in quantities or of such size 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, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, unground garbage, whole blood, paunch manure, hair and fleshings, entrails and paper dishes, cups, milk containers, etc., either whole or ground by garbage grinders.

D. No person shall discharge or cause to be discharged the following described substances, materials, waters, or wastes if it appears likely in the opinion of the Superintendent that such wastes can harm either the sewers, sewage treatment process, or equipment, have an adverse effect on the receiving stream, or can otherwise endanger life, limb, public property, or constitute a nuisance. In forming his opinion as to the acceptability of these wastes, the Superintendent will give consideration to such factors as the quantities of subject wastes in relation to flows and velocities in the sewers, materials of construction of the sewers, nature of the sewage treatment process, capacity of the sewage treatment plant, degree of treatability of, wastes in the sewage treatment plant, and other pertinent factors.

The substances prohibited are:

- 1) In no case shall heat, heated liquid or vapor be discharged to the sanitary sewer, in such quantities that the temperature at the POTW exceed 104 degrees (40 degrees C.) [Amended March 3, 1993]
- 2) Any water or waste containing fats, wax, grease, or oils, whether emulsified or not, in excess of one hundred (100) mg/l or containing substances which may solidify or become viscous at temperatures between thirty-two (32) and one hundred fifty (150) degrees F. (0 and 65 degrees C.)

- 3) Any garbage that has not been properly shredded. The installation and operation of any garbage grinder equipped with a motor of three-fourths (3/4) horsepower (0.76 hp metric) or greater shall be subject to review and approval of the Superintendent.
- 4) Any waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions whether neutralized or not.
- 5) Any waters or wastes containing iron, chromium, copper, lead, zinc, and similar objectionable or toxic substances; or wastes exerting an excessive chlorine requirement, to such degree that any such material received in the composite sewage at the sewage treatment works exceeds the limits established by the Superintendent for such materials.
- 6) Any waters or wastes containing phenols or other taste or odor producing substances, in such concentrations exceeding limits which may be established by the Superintendent as necessary, after treatment of the composite sewage to meet the requirements of the State, Federal, or other public agencies or jurisdiction for such discharge to the receiving waters.
- 7) Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the Superintendent in compliance with applicable State or Federal regulations.
- 8) Any waters or wastes having a pH in excess of 9.5
- 9) Materials which exert or cause:
 - a. Unusual concentrations of inert suspended solids (such as, but not limited to, Fullers earth, lime slurries, and lime residues) or of dissolved solids (such as, but not limited to, sodium chloride and sodium sulfate).
 - b. Excessive discoloration (such as, but not limited to, dye wastes and vegetable tanning solutions).
 - c. Unusual BOD, chemical oxygen demand, or chlorine requirements in such quantities as to constitute a significant load on the sewage treatment works.
 - d. Unusual volume of flow or concentration of wastes constituting "slugs" as defined herein.

- 10) Water or wastes containing substances which are not amenable to treatment or reduction by the sewage treatment process employed, or are amenable to treatment only to such degree that the sewage treatment plant effluent cannot meet the requirements of other agencies having jurisdiction over discharge to the receiving waters.

E. If any waters or wastes are discharged, or are proposed to be discharged to the public sewers, which waters contain the substances or possess the characteristics enumerated in section 200-3D, and which in the judgement of the Superintendent, may have a deleterious effect upon the sewage works, processes, equipment, or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the Superintendent may:

- 1) Reject the wastes,
- 2) Require pretreatment to an acceptable condition for discharge to the public sewers,
- 3) Require control over the quantities and rate of discharge, and/or
- 4) Require payment to cover the added cost of handling and treating the wastes not covered by existing taxes or sewer charges under the provisions of section 200-3J.

If the Superintendent permits the pretreatment or equalization of waste flows, the design and installation of the plants and equipment shall be subject to the review and approval of the Superintendent, and subject to the requirements of all applicable codes, regulations, and laws.

F. Grease, oil, and sand interceptors and/or standard MDC grease traps shall be provided when, in the opinion of the Superintendent, they are necessary for the proper handling of liquid wastes containing grease in excessive amounts, or any flammable wastes, sand, or other harmful ingredients; except that such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be of a type and capacity approved by the Superintendent, and shall be located as to be readily and easily accessible for cleaning and inspection.

G. Where preliminary treatment or flow-equalizing facilities are provided for any waters or wastes, they shall be maintained continuously in satisfactory and effective operation by the owner at his expense.

H. When required by the Superintendent, the owner of any property serviced by a building sewer carrying industrial wastes shall install a suitable control manhole together with such necessary meters, and other appurtenances in the building sewer to facilitate observation, sampling, and measurement of the wastes. Such manhole, when required, shall be accessible and safely located, and shall be constructed in accordance with plans approved by the Superintendent. The manhole shall be installed by the owner at his expense, and shall be maintained by him so as to be safe and accessible at all times.

I. All measurements, tests, and analyses of the characteristics of waters and wastes to which reference is made in this regulation 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, and shall be determined at the control manhole provided, or upon suitable samples taken at said 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. Sampling shall be carried out by customarily accepted methods to reflect the effect of constituents upon the sewage works and to determine the existence of hazards to life, limb, and property. (The particular analyses involved will determine whether a twenty-four (24) hour composite of all outfalls of a premise is appropriate or whether a grab sample or samples should be taken. Normally, but not always, BOD and suspended solids analyses are obtained from 24-hour composite of all outfalls whereas pH's are determined from periodic grab samples.)

- 1) All industries discharging into a public sewer shall perform such monitoring of their discharges as the Superintendent and/or other duly authorized employees of the City or Town may reasonably require, including installation, use, and maintenance of monitoring equipment, keeping records and reporting the results of such monitoring to the Superintendent. Such records shall be made available upon request by the Superintendent to other Agencies having jurisdiction over discharges to the receiving waters.

J. No statement contained in this article shall be construed as preventing any special agreement or Town and County arrangement between the Town of Nantucket and any industrial concern whereby an industrial waste of unusual strength of character may be accepted by the Town and County for treatment, subject to payment therefore by the industrial concern.

200-4 Protection from Damage

A. No unauthorized person shall maliciously, willfully, or negligently break, damage, destroy, uncover, deface, or tamper with any structure, appurtenance, or equipment which is a part of the sewage works. Any person violating this provision shall be subject to immediate arrest under charge of disorderly conduct.

200-5 Powers and Authority of Inspectors

A. The Superintendent and other duly authorized employees of the Town bearing proper credentials and identification shall be permitted to enter all properties for the purposes of inspection, observation, measurement, sampling, and testing in accordance with the provisions of this regulation. The Superintendent or his representatives shall have authority to inquire into any processes including metallurgical, chemical, oil, refining, ceramic, paper, or other industries having a direct bearing on the kind and source of discharge to the sewers or waterways or facilities for wastes treatment.

B. While performing the necessary work on private properties referred to in section 200-5A above, the Superintendent or duly authorized employees of the Town shall observe all safety rules applicable to the premises established by the company and the company shall be held harmless for injury or death to the Town employees and the Town shall indemnify the company against loss or damage to its property by Town employees and against liability asserted against the company and growing out of the gauging and sampling operation, except as such may be caused by negligence or failure of the company to maintain safe conditions as required in section 200-3H.

C. The Superintendent and other duly authorized employees of the Town bearing proper credentials and identification shall be permitted to enter all private properties through which the Town holds a duly negotiated easement for the measurement, sampling, repair, and maintenance of any portion of the sewage works lying within said easement. All entry and subsequent work, if any, on said easement, shall be done in full accordance with the terms of the duly negotiated easement pertaining to the private property involved. Standard easements shall be ten (10') feet plus ten (10') working space totalling twenty (20') feet, or ten (10') feet plus twenty (20') feet working space totalling (30') feet.

200-6 Penalties.

A. Any person found to be violating any provision of this regulation except section 200-4 shall be served by the Town with written notice stating the nature of the violation and providing a reasonable time limit for the satisfactory correction thereof. The offender shall, within the period of time stated in such notice, permanently cease all violations.

B. Any person who shall continue any violation beyond the time limit provided for in section 200-4A, shall be fined in the amount not exceeding one hundred dollars (\$100.00) for each violation. Each day in which any such violation shall continue shall be deemed a separate offense.

C. Any person violating any of the provisions of this regulation shall become liable to the Town for any expense, loss, or damage occasioned to the Town by reason of such violation.

200-7 Validity.

A. All regulations or parts of regulations in conflict herewith are hereby repealed.

B. The invalidity of any section, clause, sentence, or provision of this regulation shall not effect the validity of any other part of this regulation which can be given effect without such invalid part or parts.

200-8 Regulation in Force

A. This regulation shall be in full force and effect from and after its passage, approval, recording and publication as provided by law.

B. Passed and adopted by the Board of Selectmen of the Town of Nantucket, State of Massachusetts, on the 260th day of 1975.

200-9 Septic Tank Waste [Added June 19, 1991]

A. The Superintendent of the Department of Public Works shall determine, assign and maintain a facility for the discharge of septic tank waste to the sewerage collection system or treatment works of the Town of Nantucket. Such facility shall be the only point allowed for the discharge of septic tank waste and its use shall be governed by the following:

- 1) Only carriers licensed by the Board of Health and approved by the Board of Selectmen may discharge septage at the treatment facility.
- 2) Septic tank waste which does not meet the parameters established for sewerage in the regulations will not be accepted.
- 3) Discharge of septic tank waste is limited to the hours of normal operations for the Wastewater Treatment Facility; Monday through Friday from 7:00 AM to 3:30 PM unless otherwise arranged with the Chief Operator and approved by the D.P.W. Superintendent.
- 4) The pumping, hauling, discharge of septic tank waste shall be in accordance with the Commonwealth of Massachusetts Sanitary Code.
- 5) The fee for discharge of septic tank waste at the treatment facility shall be as follows:

0 - 500 gallons =	\$15.00
501 - 1000 gallons =	\$30.00
1001 - 1500 gallons =	\$45.00
1501 - 2000 gallons =	\$60.00
2001 - 2500 gallons =	\$75.00
- 6) All septage waste must be tested for pH to determine compliance with existing Sewer Regulations. The Chief Operator must be notified before industrial or commercial loads are discharged.
- 7) Haulers must provide the origin of the septic waste.
- 8) Clean up of discharge area is required.
- 9) Failure of the carrier to comply with these regulations, including failure to make payments as required shall be cause for the Board of Selectmen to revoke its permit to discharge at the facility.

ARTICLE II
Sewer User Fees
[Adopted 7/11/84; amended 3/24/93; amended 11/2/94;
amended 12/3/97]

- Notes:
- Under the authority of MGL Ch. 83, s. 16.
 - See also Chapter 41 of the Code of the Town of Nantucket.

200-10 Definitions.

EQR - shall be defined as "equivalent residential unit" as set forth in the Table in section 200-14 of this Regulation.

OPERATING & MAINTENANCE COSTS (O & M) - means all costs incurred by the Town of Nantucket in operating and maintaining the sewage collection, conveyance, and treatment facilities. Such costs shall include, but not be limited to, labor, labor overhead and administration, electrical power, repairs, equipment replacement, general maintenance, chemicals, building operating costs, vehicle operation and depreciation, and operating laboratory and monitoring programs. Such costs shall not include additional costs of sewage collection, conveyance, and treatment imposed upon the system by a particular user or users and where such costs are separately assessed pursuant to section 200-12.

RESIDENTIAL AND GENERAL COMMERCIAL USERS - means all residential and commercial land use activities connected to the Nantucket Sewage System which introduce no more than the equivalent of 25,000 gallons per day of domestic sanitary wastes to the treatment works.

SPECIAL USERS - means all land use activities connected to the Nantucket Sewage System which introduce more than the equivalent of 25,000 gallons per day of domestic sanitary wastes to the treatment works based on a combination of volume, strength and toxic waste factors.

200-11 Schedule of Rates - Residential and General Commercial Users.

The sewage system fee shall be based on the annual O & M costs of the sewer system attributable to each residential and general commercial user. It shall be calculated annually by using the following formula:

$$\frac{C}{A} \times B = F$$

Where: C = Annual O & M Costs
 A = Total Number of EQRs in the sewage system
 B = Individual customer EQR
 F = Sewage System User Fee

The EQR for each user shall be determined from the EQR user schedule presented in Exhibit 1 per section 200-14.

200-12 Special Charges.

The Board of Public Works shall enact special charges for "Special Users" including high strength industrial wastes, special difficult to handle wastes, septage tank pumpings, and other special wastes that reflect the added O & M cost of handling these materials.

200-13 Determination of Annual O & M Costs.

Each year the Superintendent of Public Works shall prepare a budget of O & M costs required for the proper operation and maintenance of the Nantucket sewage collection, conveyance and treatment facilities. This budget shall be prepared and submitted to the Board of Public Works and the Finance Committee at the same time as annual budgets are prepared for other Town operations generally.

The Superintendent of Public Works shall maintain a separate cost accounting system for the sewer system from that maintained for the Department's other operations. The fiscal year for the sewer system operations shall be the same as that of the Town. [Amended September 29, 1993]

The required total user charges to be recovered from all categories of users during each fiscal year shall be determined by subtracting any estimated residual O & M funds left over in the current year budget from the amount to be adopted for the following year. If estimated O & M costs for the current year exceed projected user fee revenues, then the deficit shall be added to the following year's budget.

200-14 Determination of the User EQR

Each residential and general commercial user shall be assigned an Equivalent Residential User Unit (EQR). This shall be based on the summer recreational season flow contribution potential of this user.

One (1) EQR is the sewage contribution potential of a single-family detached residence which contributes an estimated three hundred (300) gallons per day of sewage flow. Exhibit 1 presents the basis for determination of EQR factors for the various categories of sewer system users.

200-15 Bills for Sewage Services.

Charges for sewage services shall be billed to each customer in a minimum of semiannual installments to the extent possible, quarterly bills coinciding with the Water Company meter readings may be implemented. [Amended September 29, 1993]

Bill is considered delinquent thirty (30) days after mailing date. Delinquent notice sent fifteen (15) days thereafter. Sixty (60) days after mailing date a 1.5% interest charge per month on any outstanding balance more than thirty (30) days in arrears will be assessed. [Added September 29, 1993]

Payment in full of any outstanding balance must be made prior to Utility Billing Appeals Board Hearing. [Added September 29, 1993]

Residential property owners over the age of sixty-five (65) are permitted to make periodic payments of the bill provided that the bill is paid within one year following issuance. There shall be no interest charged or demand notices sent during this period. [Added September 29, 1993]

If a sewer bill shows an obvious accounting or classification error, the DPW Director may allow an adjustment of the bill without prior payment. [Added September 29, 1993]

The Board of Public Works may alter the formulas contained in section 200-11 above for the purpose of computing a customer's annual charges where, because of special circumstances surrounding that customer's sewage use, application of said formulas would be inequitable or would not result in charges substantially related to the cost to the Town of providing sewer services to the customer.

200-16 Severability Clause.

If any provision of these regulations or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or applications of these regulations which can be given effect without such invalid provisions or applications.

200-17 Effective date.

The effective date of initiation of the Sewage User Fee System shall be November 1, 1984. User fee bills shall be sent to all sewer system users in Nantucket Center and Siasconset. [Amended September 29, 1993]

200-18 Utility Fees Appeal Process. [Added September 29, 1993]

Requests for a reduction in the amount billed will follow the process shown in the flow chart and accompanying forms shown in exhibit 2 of Article III. User fees must be paid no later than thirty (30) days from the date of billing; any abatement authorized will later be returned to the applicant. Requests for abatements must be filed no later than thirty (30) days from the date of billing.

A request received on the APPLICATION FOR ABATEMENT FORM will be checked for a billing error, either a classification issue (reviewed by the Assessor) or a non-classification issue. If there is an obvious error, the Superintendent of Public Works can authorize the proper abatement, otherwise, the Superintendent of Public Works shall send a letter with the reason of disapproval to the applicant, which can then be appealed within thirty (30) days from the date of disapproval to the Utility Billing Appeals Board.

The Utility Billing Appeals Board shall consist of five members, two to be appointed by the Board of Selectmen as members of the general public and three appointed from their respective departments by the Building Commissioner, the DPW Superintendent and the Director of Municipal Finance. The Board shall make its best efforts to determine if an abatement of the amount billed to the applicant is warranted on the basis of the existence of a hardship; or, the recipient of the user fee charge demonstrates an alternate lawful arrangement for the disposal of recipient's solid waste at a landfill or disposal site other than the Town of Nantucket Landfill. Once the Board has received notice that an appeal is requested of the applicant, it shall make its best efforts to notify the applicant within ten (10) days of the hearing date. The Board shall then record the outcome of its vote and send a letter to the applicant to confirm the decision of the Board. If the appeal has been denied, the applicant will also be sent a denial notice from the Utility Billing Appeals Board. A final appeal from the decision of the Board may be made in writing within thirty (30) days to the Board of Public Works. [Amended December 3, 1997]

Payment in full of any outstanding balance must be made prior to a Utility Billing Appeals Board Hearing.

This Board will hear the applications for hardship and make recommendations to the Board of Public Works for its decision in the matter.

200-18.1 Exemptions. [Added November 2, 1994]

Commencing Fiscal Year 1995, unless otherwise adopted or amended, sewer user fees will not be assessed to properties that have been determined to be exempt from local taxation pursuant to the Town Assessor's records in accordance with Massachusetts General Laws Chapter 59, section 5, clauses 1 through 15 as of July first of each year.

Exhibit 1 - For Non-Metered Sewered Customers [Amended March 24, 1993]

User Fee Residential Equivalents for Land Use Activities.

<u>User Category</u>		<u>Gallons per day</u>	<u>EQRs</u>
<u>Residential Dwellings</u>			
Single-Family	up to 3 bedrooms	300	1.00
	each add'l bdrm	50	0.16
Cottages & Apts.	up to 2 bedrooms	150	0.50
	each add'l bedroom	50	0.16
Boarding Houses	per sleeping room	40	0.13
<u>Commercial Establishments</u>			
Hotels & Motels	per sleeping room	50	0.16
	w/restaurant per seat/day	35	0.12
	w/bar per sea/day	35	0.12
Restaurant, food service establishment, lounge, tavern	per seat	<u>35</u>	0.12
Office Building	per 1,000 sq. ft.	75	0.25
Dry Goods Stores	per 1,000 sq. ft.	50	0.16
Hospital	per bed	200	0.67
Service Station	per island	300	1.00
Church	per 10 seats	30	0.10
Tennis Club	per court	250	0.83
Bowling Alley	per alley	100	0.33
Country Club	dining room per 10 seats	100	0.33
Country Club snack bar or lunch room	per 10 seats	100	0.33

Country Club locker & showers per locker	20	0.10
Barber Shop/Beauty Salon per seat	100	0.33
<u>Other Establishments</u>		
Boarding Schools, Colleges per sleeping room	65	0.22
Nursing Home & Rest Home per room	100	0.33
School, without cafeteria, gymnasium or showers per 10 persons	100	0.33
School, with cafeteria, but not gymnasium or showers per 10 persons	150	0.50
School, with cafeteria, gymnasium or showers per 10 persons	200	0.67

Exhibit 2 - For Metered Sewered Customers [Added March 24, 1993]

All sewerred customers who have a water meter will be based on a base charge of \$90.00 per year plus \$.885 per unit of water consumption.

**ARTICLE III
Landfill User Fees**

**[Adopted 12/14/88; amended 1/17/90; amended 8/15/90;
amended 9/2/92; amended 11/4/92; amended 11/2/94;
amended 7/17/96; amended 10/15/97; amended 12/3/97]**

- Notes:
- Under the authority of Chapter 91 of the Code of the Town of Nantucket.
 - See also Chapter 42 of the Code of the Town of Nantucket.
 - The 9/2/92 amendment replaced in its entirety the initial regulation adopted on 12/14/88, as amended.

200-19 Landfill User Fee Classifications. [Amended October 15, 1997--original sections 200-19A & 200-19B replaced in their entirety]

A. Landfill User Fee Schedule

Town of Nantucket
Landfill User Fee
Schedule

Property Classification	Fee				
Class I	\$				
Lumber Yards	4,000				
Trucking Terminals	650				
Dockyards	650				
Moorings	200				
Slips	200				
Commercial Warehouses	650				
Automobile Sales	650				
Automobile Repair	650				
Gas Stations	650				
Car Wash	650				
Transportation Garages	650				
Funeral Home	650				
Art Galleries	650				
Movie Theaters	650				
Tennis Clubs without Restaurants	650				
Tennis Clubs with Restaurants	650				
Recreational	650				
Golf Course with Restaurants	650				
Golf Course without Restaurants	650				
Mixed Use Commercial	650				
Class 2A					
Commercial Greenhouses	650				
Hardware Stores	650				
Grocery Stores	6,000				

Following Classifications are Based on sq footage:	0-499	500-999	1000-1499	1500 & over	
Store/Shop (based on sq footage)	500	600	700	800	
Retail Condominium	500	600	700	800	
Office Building	500	600	700	800	
Office Condominium	500	600	700	800	
Bank Buildings	500	600	700	800	
Professional Building	500	600	700	800	
Professional Condominium	500	600	700	800	
Class 2B					
Fast Food	5,000				
Class 3					
Supermarkets	6,000				
Yacht Clubs	650				
Following Classifications are Based on occupancy rates:	0-24	25-49	50-74	75-99	100 & over
Restaurants	3,000	4,000	5,000	5,000	5,000
Class 4A (w/o restaurants)					
Boarding/Rooming Houses	650 plus \$100 per room				
Hotels	650 plus \$100 per room				
Motel Units	650 plus \$100 per room				
Class 4B (w/ restaurants)					
Boarding/Rooming Houses	650 plus \$100 per room				
Hotels	650 plus \$100 per room				
Motels	650 plus \$100 per room				

Residential	0-1	2	3	4	5
Classifications are based on the number of bedrooms per dwelling					
Single Family Dwellings	100	150	200	250	300
Townhouse	100	150	200	250	300
Two Family Dwellings	100	150	200	250	300
Three Family Dwellings	100	150	200	250	300
Apartments 4 - 8 Units	100	150	200	250	300
Apartments > 8 Units	100	150	200	250	300
Condominiums	100	150	200	250	300
Cooperatives	100	150	200	250	300
Multiple Dwelling Parcels	100	150	200	250	300
Mixed Use (Plus other uses by category) per schedule)	100	150	200	250	300
NON PROFITS					
Private Schools	650				
Hospital Owned Properties	650				
Hospitals	6,000				
Churches	200				
Church Owned Properties	200				
121A Corporations	200				
Housing Authorities	200				
Veterans Organizations	200				

Other Fees						
Tipping Fees						
C&D Waste						
Mixed		200 / ton				
Separated		100 / ton				
Metal						
Mixed		200 / ton				
Separated		100 / ton				
Land Clearing Debris						
Mixed		200 / ton				
Separated		100 / ton				
Appliance Charge						
		10 /unit				
Commercial Access Fee						
Packer/10 Wheel Vehicles		1,000 /truck				
Single Axle Dump Trucks		750 /truck				
Light Utility Trucks		500 /truck				
Tires						
Truck		10 /unit				
Auto		5 /unit				

B. Building Department: A fee for each new building, addition, demolition or renovation shown in exhibit 1 of this Article as additions to other building fees being charged.

200-20 Bills for Landfill User Fees. [Added September 29, 1993]

Charges for the Landfill User Fee shall be billed to each property owner (or where the property owner is an exempt entity, to the lessee or occupant thereof) in a minimum of semiannual installments.

Bill is considered delinquent thirty (30) days after mailing date. Delinquent notice sent fifteen (15) days thereafter. Sixty (60) days after mailing date a 1.5% interest charge per month on any outstanding balance more than thirty (30) days in arrears will be assessed.

Residential property owners over the age of sixty-five (65) are permitted to make periodic payments of the bill provided that the bill is paid within one year following issuance. There shall be no interest charged or demand notices sent during this period.

If a landfill bill shows an obvious accounting or classification error, the DPW Director may allow an adjustment of the bill without prior payment.

200-21 Utility Fees Appeal Process.

Requests for a reduction in the amount billed will follow the process shown in the flow chart and accompanying forms shown in exhibit 2 of this Article. User fees must be paid no later than thirty (30) days from the date of billing; any abatement authorized will later be returned to the applicant. Requests for abatements must be filed no later than thirty (30) days from the date of billing.

A request received on the APPLICATION FOR ABATEMENT FORM will be checked for a billing error, either a classification issue (reviewed by the Assessor) or a non-classification issue. If there is an obvious error, the Superintendent of Public Works can authorize the proper abatement, otherwise, the Superintendent of Public Works shall send a letter with the reason of disapproval to the applicant, which can then be appealed within thirty (30) days from the date of disapproval to the Utility Billing Appeals Board. [Amended September 29, 1993]

The Utility Billing Appeals Board shall consist of five members, two to be appointed by the Board of Selectmen as members of the general public and three appointed from their respective departments by the Building Commissioner, the DPW Superintendent and the Director of Municipal Finance. The Board shall make its best efforts to determine if an abatement of the amount billed to the applicant is warranted on the basis of the existence of a hardship; or, the recipient of the user fee charge demonstrates an alternate lawful arrangement for the disposal of recipient's solid waste at a landfill or disposal site other than the Town of Nantucket Landfill. Once the Board has received notice that an appeal is requested of the applicant, it shall make its best efforts to notify the applicant within ten (10) days of the hearing date. The Board shall then record the outcome of its vote and send a letter to the applicant to confirm the decision of the Board. If the appeal has been denied, the applicant will also be sent a denial notice from the Utility Billing Appeals Board. A final appeal from the decision of the Board may be made in writing within thirty (30) days to the Board of Public Works. **[amended November 4, 1992; amended September 29, 1993; amended December 3, 1997]**

Payment in full of any outstanding balance must be made prior to a Utility Billing Appeals Board Hearing. **[Added September 29, 1993]**

This Board will hear the applications for hardship and make recommendations to the Board of Public Works for its decision in the matter. **[Added September 29, 1993]**

200-21.1 Exemptions. [Added November 2, 1994]

Commencing Fiscal Year 1995, unless otherwise adopted or amended, landfill user fees will not be assessed to properties that have been determined to be exempt from local taxation pursuant to the Town Assessor's records in accordance with Massachusetts General Laws Chapter 59, section 5, clauses 1 through 15 as of July first of each year.

Exhibit 1.
[Amended July 17, 1996]

Building Department Fee Schedule

RESIDENTIAL

		Per Square Foot
I.	New Construction	
A.	Dwellings	0.05
	1) Additions	0.05
B.	Garages	0.05
	1) Studio Above	0.05
	2) Additions	0.05
C.	Accessory Buildings over 150 square feet	0.05
II.	Amendments to permits	
A.	Major floor plan, structural, etc. changes	0.05

COMMERCIAL

I.	New Construction	0.40
II.	Additions	0.05
III.	Alterations	
A.	Major floor plan, structural, etc. changes	0.05
IV.	Use Permits Conversion	
A.	Use Permit Only, No Alterations up to 500 se	0.10
V.	Amendments to Permits	
A.	Major floor plan, structural, etc. changes	0.05

Exhibit 2 - Flow Chart and Forms.

FLOW CHART
ABATEMENT REQUESTS

FILES ABATEMENT FORM

NON-CLASSIFICATION ISSUE

CLASSIFICATION ISSUE

REVIEW BY ASSESSOR

REVIEW BY DPW SUPT

ABATEMENT APPROVED

ABATEMENT DISAPPROVED

NOTIFICATION TO APPLICANT

NOTIFICATION TO APPLICANT

ABATEMENT FORM TO COLLECTOR

APPEAL PROCESS

MONTHLY REPORT

APPEAL FORM RECEIVED

REFUND SENT

HEARING DATE SET

END

NOTICE TO APPLICANT

HEARING

APPEAL

GRANTED

NOT GRANTED

NOTIFICATION TO APPLICANT
END

APPLICATION FOR ABATEMENT

DENIAL NOTICE

ARTICLE IV
Sewer Service Connection Regulations
[Adopted 5/4/88; amended 1/18/89;
amended 7/26/89; amended 8/17/90]

Notes: - Under the general authority of MGL Ch. 83.

200-22 Introduction.

- A. The purpose of this regulation is to establish a fair and equitable method of connecting with the Town of Nantucket Sewer System.
- B. Connection fees are to be assessed to recover a portion of the costs of Sewer System improvements.

200-23 Definitions.

In this regulation the following terms, unless a contrary meaning is required by the context or is specifically described, shall have the following meanings. The definitions of buildings and dwellings shall be construed in accordance with the Zoning Bylaw (Chapter 139 of the Code of the Town of Nantucket) which is incorporated herein by reference.

THE NANTUCKET SEWER SYSTEM - All structures, equipment, and processes required to collect, transport and treat the domestic and industrial wastewater on Nantucket Island.

DWELLING - A structure used or intended to be used by one (1) family or household for living, sleeping, cooking and eating.

DWELLING UNIT - A room or enclosed floor space within a dwelling used by or forming a habitable unit for one (1) family with facilities for living, sleeping, cooking and eating. A dwelling may consist of one or more dwelling units.

ACCESSORY APARTMENT - For the purposes of this regulation, an approved Accessory Apartment as defined in the Zoning Bylaws found in Chapter 139 of the Code of the Town of Nantucket, shall not be considered to be a dwelling or a dwelling unit.

COMMERCIAL ESTABLISHMENT - A structure, room, enclosed floor space, or combination of the aforementioned used in the course of providing professional, public and/or private services.

WASTEWATER - The spent water of the 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.

WASTEWATER FACILITIES - The structures, equipment, and processes required to collect, transport, and treat wastewater and dispose of the effluent.

SUBSTANTIALLY COMPLETE - A structure shall be defined as substantially complete as of the date of issuance of an occupancy permit.

AVAILABILITY OF NANTUCKET SEWER SYSTEM - The Nantucket Sewer System will be deemed to be available to every property within a sewer subdivision or which abuts a way served by such sewers and such availability shall be (a), for active existing sewers, as of the date of adoption of these regulations and (b), for new sewers, as of the date on which such new sewer line has been formally activated by the Town for the collection and pumping of wastewater flow.

EXISTING DWELLING, DWELLING UNIT, and/or COMMERCIAL ESTABLISHMENT - Any such structure as defined in this regulation which is substantially complete prior to the availability of the Nantucket Sewer System.

NEW DWELLING, DWELLING UNIT, PUBLIC and/or COMMERCIAL ESTABLISHMENT - Any such structure as defined in this regulation which is not substantially complete prior to the availability of the Nantucket Sewer System.

CONNECTION TO SEWER - A connection shall exist where any tie-in is made to the Nantucket Sewer System or appurtenance thereof which may now or in the future have the potential to contribute wastewater flow.

200-24 Required Sewer Service Connection; Connection Fee Assessment.

- A. It shall be unlawful to construct or repair any privy, privy vault septic tank, cesspool or other facility intended or used for the disposal of wastewater on or for the benefit of property to which the Nantucket Sewer System is available.
- B. An application, on forms prescribed by the Board of Health/Board of Public Works, shall be made with respect to each sewer connection required or permitted hereby. Each such application shall be approved, approved subject to further conditions or denied as the Board of Health/Board of Public Works shall determine.
- C. Upon the approval of an application for a connection to the Nantucket Sewer System, a connection fee shall be due and payable as set forth.

D. No person shall uncover, make any connections with or opening into, use, alter, or disturb any part of the Nantucket Sewer System or any appurtenance thereto unless an application therefor has been made, approval granted, additional conditions complied with and the connection fee paid, all in accordance with the provisions hereof or unless authorized in writing by the Superintendent of the Department of Public Works.

Any sewer connection made in violation of these regulations shall be disconnected. All costs incurred by the Town in the enforcement of this regulation, including disconnection and enforcement of this regulation, including disconnection and reconnection costs, shall be assessed as an additional connection fee. No reconnection will be allowed until all connection and additional connection fees have been paid.

E. No person shall discharge into the Nantucket Sewer System any substance which tends to interfere with the flow of sewerage or the proper operation of the sewerage system or the treatment and disposal works.

F. The Board of Health/Board of Public Works may impose a civil penalty not to exceed five thousand dollars (\$5,000.00) per day for each violation of these regulations.

G. The Board of Health/Board of Public Works may grant exemptions from these regulations.

200-25 Permits.

A. Action on application. The Superintendent of the Department of Public Works shall examine or cause to be examined all applications for permits and amendments thereto within thirty (30) days after filing. If the application does not conform to applicable sewer regulations and pertinent laws, he shall reject such application in writing. If he is satisfied that the proposed work conforms to the regulations and pertinent laws applicable thereto, he shall issue a permit. If the applicant receives no written answer within such 30 days, the permit shall be deemed denied. [added July 26, 1989]

B. Report to Building Department. The Superintendent of the Department of Public Works shall give to the Building Department of the municipality a copy of each permit issued within thirty (30) days of issuance. Such notice shall state the name of the person to whom the permit was granted and the location of the property (assessor's map and parcel number). [added July 26, 1989]

C. Expiration of permit. Any permit issued shall be deemed abandoned and invalid unless a building permit has been issued for the property within twelve (12) months after its issuance. This permit may be extended for periods not exceeding six (6) months each, but only to the same extent as the related building permit is extended, as may be determined in writing by the Superintendent of the Department of Public Works, with a fifty dollar (\$50.00) renewal fee charged for any such extension of time. [added July 26, 1989]

200-26 Sewer Service Connection Fees.

The Nantucket Sewer System connection fees shall be as follows:

- A. For any existing dwelling or existing dwelling unit, where connection to the Nantucket Sewer System is made within five (5) years of its availability, the sewer service connection fee shall be five hundred dollars (\$500.00) per dwelling or dwelling unit.
- B. For any existing dwelling or existing dwelling unit not connecting to the Nantucket Sewer System within five (5) years of its availability, the sewer service connection fee shall be two thousand (\$2,000.00) per dwelling or dwelling unit.
- C. For any new dwelling or new dwelling unit making connection to the Nantucket Sewer System, the sewer service connection fee shall be two thousand dollars (\$2,000.00) per dwelling or dwelling unit.
- D. For all residential dwellings, dwelling units and commercial establishments currently connected to the existing sewer system and operating under an existing Nantucket sewer permit, no sewer service connection fee will be assessed.
- E. For all public and/or commercial establishments, the sewer service connection fee shall be determined according to whether the establishment is considered "wet" or "dry"; there will be a Special Category for licensed lodging establishments. The determination of WET and DRY types of establishments will be made by the Board of Health/Board of Public Works based on estimated sewage contributions from such types of establishments. The DRY establishments will be charged a connection fee calculated as the square footage of the establishment times ten cents (\$.10) per square foot, provided that the minimum connection fee shall be Five Hundred Dollars (\$500.00) per unit. The WET establishments will be charged a connection fee calculated as the square footage

of the establishment times one dollar (\$1.00) per square foot, provided that the minimum connection fee shall be Two Thousand Dollars (\$2,000.00) per unit. The licensed lodging establishments include hotels, motels, licensed inns and guest houses; this Special Category will be charged a connection fee at an intermediate rate calculated as the square footage of the establishment times fifty-five cents (\$0.55) per square foot, provided that the minimum connection fee shall be One Thousand Two Hundred and Fifty Dollars (\$1,250.00) per unit. [amended January 18, 1989]

F. Where multiple dwellings or dwelling units exist on a single property, a sewer service connection fee, as defined herein, shall be assessed per dwelling or dwelling unit. This provision shall include all second homes, dwellings converted to multiple dwelling units, and all other multi-family dwellings on a single property or lot.

200-27 Regulation in Force.

This regulation shall be in full force and effect from and after its passage, approval, recording, and publication as provided by law.

200-28 Allocation System for Issuance of Sewer Connection Permits.

A. Effective period. This section shall be in effect only during the period of time the Administrative Order #782 or any Superseding Order (hereinafter collectively referred to as the "Administrative Order") issued by the Department of Environmental Protection or its predecessor organization, Department of Environmental Quality Engineering, remains in effect. [added August 17, 1989]

B. Applications. Application for Sewer Connection Permits shall contain such information and be presented on such forms as the Superintendent of Public Works may from time to time establish, including but not limited to the following: See Exhibit 1 of this Article. [added August 17, 1989]

C. Action on Application. The Superintendent of the Department of Public Works shall examine or cause to be examined all applications for permits and amendments thereto within thirty (30) days after filing. If the application does not conform to applicable sewer regulations and all pertinent laws, he shall reject such application in writing. If he is satisfied that the proposed work conforms to the regulations and pertinent laws applicable thereto and that there exists capacity within the then existing sewerage system to handle the flows applied for, the Superintendent shall cause the

flows applicable to such permit to be deducted from the total available capacity of the appropriate treatment facility (either Surfside or Siasconset). [added August 17, 1989]

D. Required Reports. The Superintendent of Public Works shall present the following reports and shall receive the following reports:

- 1) Report to Building Department: The Superintendent of the Department of Public Works shall give to the Building Department of the Town a copy of each permit issued within thirty (30) days of issuance. Such notice shall state the name of the person to whom the permit was granted, number of bedrooms or applicable Title V (of the State Sanitary Code) estimated flow, and the location of the property (assessor's map and parcel number).
- 2) Report to Division of Water Pollution Control, Department of Environmental Quality Engineering: Each quarter (January, April, July, October) the Superintendent of Public Works shall submit to the Division of Water Pollution Control a list of all permits issued by the Town during the quarter, which includes, the name of the permittee, the address of the sewer connection, the date of the permit issuance, the volume of permitted flow computed by using Flow Estimates contained in Title V (see Exhibit 2) of the State Sanitary Code and incorporated by reference herein and the type of use (i.e. residential or type of nonresidential use).
- 3) Report from Building Department: The Building Commissioner shall give to the Superintendent of Public Works a report which lists the name, address, and location of each building permit issued with an accompanying sewer permit with a date of issuance prior to June 6, 1989. These reports are to be filed with the Superintendent each month. He shall then calculate, or caused to be calculated, the volume of permitted flow for such permits and deduct said volume from the total available capacity of the appropriate treatment facility (either Surfside or Siasconset). [added August 17, 1989]

E. Expansion of Existing Sewer Connection Use. Applications for Building Permits received by the Building Department for remodeling, addition or changes in use of existing structures shall be forwarded by the Building Commissioner or his designee promptly upon receipt to the Superintendent of Public Works. The Superintendent shall calculate the sewage flow (computed by using Flow Estimates contained in Title V of the State Sanitary Code (see Exhibit 2) incorporated by reference herein) for such remodeling, addition or change in use, in

order to determine if flows and said permit is in conformity with an applicable state sewer extension permit. Upon finding sufficient capacity, the Superintendent shall notify the Building Commissioner in writing within ten (10) days that the Building Permit may be issued in conformity with the Administrative Order. Upon a finding of insufficient capacity, the Superintendent shall notify the Building Commissioner in writing within ten (10) days of a lack of capacity and that the Administrative Order restricts or prevents the issuance of the Building Permit. The Building Commissioner is to comply with the Administrative Order. The Superintendent shall deduct all such applicable flows for such issued Building Permits from the total available capacity of the treatment facility to which such sewage is destined (either Surfside or Siasconset). [added August 17, 1989]

F. Expiration of Sewer Connection Permit. Any sewer connection permit issued after adoption of this policy shall be deemed abandoned and invalid unless a building permit has been issued for the property within twelve (12) months after its issuance. However, for cause, one or more extensions of time, for periods not exceeding six (6) months each, may be granted in writing by the Superintendent of Public Works, with a fifty dollar (\$50.00) renewal fee charged for any such extension of time. This regulation shall apply to all sewer connection permits issued after the date of the June 6, 1989 Administrative Order. [added August 17, 1989]

G. Allocation System for Issuance of Sewer Connection Permits. The Superintendent of the Department of Public Works shall, as set forth in section 200-28C, issue sewer connection permits on the basis of First-Come-First-Served. Provided, however, that the permit application is not filed for a lot within an approved subdivision where the issuance of such permit would exceed the Nantucket Zoning (Chapter 139 of the Code of the Town of Nantucket, Zoning Bylaw, as herein incorporated by reference) requirements for phase development within said subdivision. [added August 17, 1989]

Exhibit 1.

INFORMATION NEEDED FOR LOCAL SEWER PERMITS

- I. On a Plot Plan:
- Size of Sewer line
 - Cleanout Location (unless within the house)
 - Street "Y" or manhole location (distance between adjacent manholes)
 - Elevation difference if possible
 - Length of line
- II. On Sewer Permit Application:
- Flow estimates for proposed structure using Title V sewage flow estimates (see exhibit 2)
 - Number of Bedrooms
 - Map Number, Parcel Number, Lot Number
 - State Sewer Extension or Connection Permit Name, Number, Date Approved, Number of Residences to be served, Number of Bedrooms, Design Flow-Gallons Per Day (all if applicable)
- III. Check to the TOWN OF NANTUCKET in the amount of \$2,000 for a new residence, or \$500.00 if septic to sewer for residential. Commercial is determined according to whether the establishment is considered "wet" or "dry", as defined in the Sewer Service Connection Regulations of the Town of Nantucket, section 200-26E. The DRY establishments will be charged a connection fee calculated as the square footage of the establishment times ten cent (\$.10) per square foot, provided that the minimum connection fee shall be Five Hundred Dollars (\$500.00). The WET establishments will be charged a connection fee calculated as the square footage of the establishment times one dollar (\$1.00) per square foot, provided that the minimum connection fee shall be Two Thousand Dollars (\$2,000.00).
- IV. Sewer permit applications MUST be signed by the owner of the dwelling. If the owner is not available for signature, a letter with the POWER OF ATTORNEY for the owner's agent to sign in owner absence MUST be received. (Reason for this is CONDITIONS OF THIS PERMIT on the actual sewer permit). Power of Attorney forms can be obtained at the D.P.W. office, Madaket Road, Nantucket, MA.

****NOTE:** Once sewer line is installed, the D.P.W. should be called for an inspection of the sewer line BEFORE connection is cemented. Sewer line is NOT to be covered until inspected. If the connection is not inspected, the Building Permit will NOT be signed.

Exhibit 2.

SEWAGE FLOW ESTIMATES

Insert page from Title V State Sanitary Code here

7.13: Transfer of Permits

(1) Any sewer system extension or connection permit authorizing an industrial discharge to a sewer system is only valid for the person to whom it is issued, unless transferred pursuant to 314 CMR 7.13(1). Such permits shall be automatically transferred to a new permittee if:

- (a) The current permittee notifies the Director at least 30 days in advance of the proposed transfer date; and
- (b) The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them.

(2) Any sewer system extension or connection permit not subject to 314 CMR 7.13(1) automatically transfers to a subsequent owner, operator or occupant.

7.14: Signatories to Permit Applications and Reports

All permits, applications, and reports shall be signed as follows:

(1) For a **municipality, State, Federal, or other public agency** by a principal executive officer, ranking elected official or other duly authorized employee if such employee is responsible for overall operation of the treatment works.

(2) **For all other applicants and permittees** by a duly authorized representative. An authorized representative may be:

- (a) A principal executive officer of at least the level of vice president for a corporation.
- (b) A general partner or proprietor if for a partnership or sole proprietorship respectively.
- (c) A duly authorized representative of the individual designated in 314 CMR 7.14(2)(a) or (b) if such representative is responsible for the sewer extension or connection and the overall operation of the facility discharging thereto.

7.15: Calculation of Flows

Unless a variance is authorized by the Director in writing, applicants applying for a sewer extension or connection permit shall use the following figures in calculating daily sewage flow in completing the application:

SEWAGE FLOW ESTIMATES:

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Type of Establishment	Gallons per Person per day
Boarding Schools, Colleges	65
Nursing Home and Rest Home	100
School, without cafeteria, gymnasium or showers	10
School, with cafeteria, but not gymnasium or showers	15
School, with cafeteria, gymnasium and showers	20
Swimming Pool	10
Camp, resident - washroom and toilets	25
Camp, resident - mess hall	10
Camp, day - washroom and toilets	10
Camp, day - mess hall	3
Camp Ground - showers and toilets - per site	75
Gymnasium - per spectator	3
Gymnasium - per participant	25
Theater, Auditorium	3
Public Park - toilet wastes only	5
Public Park - bathhouse, showers, and flush toilets	10
Factory or Industrial Plant, without cafeteria	15
Factory of Industrial Plant, with cafeteria	20
Work or Construction Camp	50
	Gallons per Day
Single and multiple dwelling units - Per Bedroom motels, hotels, boarding houses	110
Tennis Club - per court	250
Bowling Alley - per alley	100
Country Club - dining room - per seat	10
Country Club - snack bar or lunch room - per seat	10
Country Club - locker and showers - per locker	20
Church - per seat	3
Church - vestry/kitchen - per person at capacity	5
Trailer, dump station - per site or per trailer	50

Mobile Home Park - per site	200
Office Building - per 1,000 sq. ft.	75
Dry Goods Stores - per 100 sq. ft.	5
Drive-In - per stall	5
Non-single family, Automatic clothes washer per washing machine	400
Hospital - per bed	200
Service Station, excluding thruway - per island	300
Skating Rink - 3,000 gallons per day plus 5 gallons per seat	300
Dog Pounds - Veterinary Clinics - per pen	50
Type of Establishment	Gallons per Seat or Chair per day
Restaurant, food service establishment, lounge, tavern	35
Restaurant, thruway service area	150
Restaurant, kitchen flow	15
Barber Shop/Beauty Salon per chair	100

For purposes of 314 CMR 7.15, a "bedroom" means any portion of a dwelling which is so designed as to furnish the minimum isolation necessary for use as a sleeping area. Such area shall not include kitchen, bathroom, dining room, halls, or unfinished cellar; but may include bedroom, den, study, sewing room, or sleeping loft

ARTICLE V
Biodegradable Packaging Regulations
[Adopted 1/10/90; amended 8/8/90]

- Notes:
- Under the authority of Chapter 91 of the Code of the Town of Nantucket.
 - The effective date of this Article upon its adoption was April 15, 1990.

200-29 Intent of Regulation.

The Town of Nantucket recognizes that discarded packaging constitutes the largest single category of waste within the Town and County of Nantucket's waste stream and is, therefore, a necessary focus of any effort towards reducing the filling of the Town's Landfill as well as towards reducing the economic and environmental costs of waste management.

In addition, the Town finds that discarded non-biodegradable packaging and plastic contained within the waste stream of Nantucket is a fundamental cause of problems associated with solid waste disposal.

The Town understands that the landfill space within the Town and County of Nantucket is diminishing rapidly; that the Department of Environmental Protection (DEP) mandates closure of existing unlined landfills in sensitive groundwater areas by 1993; that solid waste receiving areas outside the Island of Nantucket are becoming increasingly uncertain and expensive; and, that for both economic and environmental reasons, measures to simplify the chemical complexity of solid waste and, thereby streamline solid waste management must be vigorously pursued.

The Town finds that the chemical composition and ability of a substance to biodegrade are meaningful and useful criteria to focus upon when establishing public policy that is intended to improve the management and disposal of solid waste, reduce the cumulative impact of litter, encourage composting and other forms of recycling, and otherwise anticipate environmental problems that may be caused by municipal solid waste disposal programs. The Town also finds and determines that the use of plastics and other non-biodegradable packaging has become widespread throughout the Island and the resulting mixed substance waste stream is a serious impediment to solid waste management programs that are being considered for the Town and County of Nantucket.

The Town further finds that the widespread use of plastics and non-biodegradable packaging poses a threat to the environment on the Island of Nantucket by causing rapid filling of landfill space and by the possible introduction of toxic by-products into the groundwater and general environment of the Island of Nantucket.

The economic and environmental problems associated with the mixed substance waste stream are so severe that a program to incrementally simplify the chemical composition of solid waste, thereby encouraging the composting of putrescible biodegradable wastes and encouraging other forms of recycling of solid waste substances, is a policy goal of the Town of Nantucket.

Certain retail establishments within the Island of Nantucket are points of origin for a substantial volume of packaging waste and, therefore, are particularly susceptible to actions which have significant potential for simplifying the chemical composition of the waste stream.

The Town recognizes that there are readily available paper or biodegradable product substitutes for most of the retail packaging now being used on the Island, the use of which alternatives would be environmentally and economically advantageous to the community of Nantucket.

Therefore, the purpose of this bylaw is to incrementally, to the maximum extent possible, eliminate the use of non-biodegradable packaging originating at retail establishments within the Town and County of Nantucket, in order to protect the air, land, and waters of the Island against environmental contamination and degradation.

200-30 Definitions.

PACKAGING - shall mean all food and retail related wrappings, adhesives, cords, bindings, strings, bags, boxes, containers, portable styrofoam coolers, and disposable or non-reusable plates, cups, or drinking utensils intended for use within the Town and County of Nantucket. [Amended August 8, 1990]

BIODEGRADABLE PACKAGING - shall mean packaging other than plastic or styrofoam.

RETAIL ESTABLISHMENT - shall mean all sales outlets, stores, shops or other places of business located within the Town and County of Nantucket which sell or convey merchandise directly to the ultimate consumer. [Amended August 8, 1990]

RETAIL FOOD ESTABLISHMENT - shall mean all sales outlets, stores, shops, restaurants, clubs or other places of business located within the Town and County of Nantucket which sell, serve or convey foods directly to the ultimate consumer. This definition shall include but is not limited to any place where food is prepared, mixed, cooked, baked, smoked, preserved, bottled, packaged, handled, stored, manufactured, sold or offered to the public; similar places in which food or drink is prepared for sale or service on the premises or elsewhere; and any other establishment

or operation, including in-home caterers, where food is processed, prepared, stored, served or provided for the public regardless of whether there is a charge for the food. [Amended August 8, 1990]

RETAIL SERVICE ESTABLISHMENTS - shall mean all places of business located within the Town and County of Nantucket where a service, specialized or professional work, is offered to the public regardless of whether there is a charge for the service. [added August 8, 1990]

MERCHANDISE - shall mean products that are purchased in the retail stores.

200-31 Prohibition.

A. No retail establishment located and doing business within the Town and County of nantucket shall sell or convey merchandise to ultimate consumers within the Town and County of Nantucket unless such merchandise is sold without additional packaging or placed, wrapped or packaged in biodegradable packaging at the conclusion of any sales transaction which takes place on the premises of such retail establishment at or near a sales counter or equivalent customer purchasing station but prior to removal of such merchandise from the premises of such retail establishment.

B. No retail food establishment located and doing business within the Town and County of Nantucket shall give, sell, or provide food containers to any customer within the Town and County of Nantucket if such food container is composed of non-biodegradable materials.

C. Any packaging added by a retail service establishment located and doing business within the Town and County of Nantucket shall be of biodegradable, material. [Added August 8, 1990]

200-32 Exemptions.

Section 200-31 of this regulation shall not apply to the following items:

A. Any flexible transparent covering for uncooked or raw meat, poultry, raw fish, hard cheese, cold cuts, fruit, and vegetable products, baked goods, or bread;

B. Any food packaging used at hospitals or nursing homes;

C. Any plastic covers, covering materials, or lids that are not replaceable by biodegradable substitutes;

D. Any other packaging that is non-biodegradable for which there is no available substitute, so that a "hardship" is found by the method described in section 200-34 below. However, any reasonably absorbable increase in cost of the replacement item is not considered a hardship.

E. Any packaging which was purchased by the retail establishments prior to August 1, 1989 may be used. Proof of the date of purchase of such packaging must be presented upon request or in case of appeal.

200-33 Penalties.

In accordance with Chapter 91 Sections 3 and 6 of the Code of the Town of Nantucket, violations of these Regulations shall be subject to the penalties set forth in Chapter 1 of the Code of the Town of Nantucket.

200-34 Appeal Process.

Appeals of penalties shall be made to the Packaging Review Committee as established by the Board of Selectmen acting as the Board of Public Works. This committee may be made up of a representative of the Department of Public Works, Police and Health Departments, and four members of the community. [Amended August 8, 1990]

This Committee will hear the applications for hardship and make recommendations to the Board of Public Works for its decision in the matter.

In addition to the above mentioned procedures, the Town may at its discretion, seek to obtain voluntary compliance with Chapter 91, section 3 (and amendments thereto) of the Code of the Town of Nantucket and the above additional clarifications by way of notice, warning or educational means. This section shall not be construed to require that such non-compulsory methods must be employed.

ARTICLE VI
Sanitary Sewer Standards and Specifications
[Adopted 3/28/90]

Insert 30 page document here.

ARTICLE VI
TOWN OF NANTUCKET

Sanitary Sewer

STANDARDS AND SPECIFICATIONS

200-35 SECTION 1.00 Scope

The purpose of the Sanitary Sewer Specification is to set forth the criteria to be used in the design and construction of sanitary sewer mains and pump stations for approval and acceptance by the Town of Nantucket. These specifications shall also serve as a basis for the Nantucket Planning Board or their authorized representative.

200-36 SECTION 2.00 General Provisions

2.01 General

The provisions stipulated in this section are general in nature and shall be considered as applicable to all parts of these specifications including any supplements and revisions. All pump stations, sewer mains and appurtenances shall be designed by a Registered Professional Engineer, experienced in the design of such facilities and duly licensed to practice in the State of Massachusetts and all plans shall bear the original seal of a Registered Professional Engineer.

2.02 Definitions and Abbreviations

Wherever the following words, phrases or abbreviations appear in these specifications, they shall have the following meanings:

1. Town shall mean the Town of Nantucket, Massachusetts.
2. Town Code shall mean the official adopted town code regulations of Nantucket, Massachusetts.
3. Superintendent shall mean the Superintendent of the Department of Public Works, Town of Nantucket, Massachusetts, or his authorized representative acting on behalf of the Town.
4. Planning Board shall mean the Town of Nantucket, Massachusetts Planning Board or their representative.
5. Inspector shall mean an authorized representative of the Superintendent or of Planning Board at the site of the work.
6. Utility shall mean the Sewer Department of the Town of Nantucket, Massachusetts.
7. Contractor shall mean the Project proponent or his General Contractor hired to complete the construction of the facilities.

8. Wherever the words, "as directed", "as required", "as permitted" or words of like meaning are used, it shall be understood that the direction, requirements or permission of the Superintendent is intended.
9. Wherever references are made to standard specifications, methods of testing materials, codes, practices and requirements, it shall be understood that the latest revision of said references shall govern unless a specific revision is stated. Wherever any of the above abbreviations appear, they shall have the following meaning:

AASHO - American Association of State Highway Officials

ASA - American Standards Association

ASTM - American Society for Testing and Materials

AWWA - American Water Works Association

APWA - American Public Works Association

10. Wherever the words "these specifications" or words of similar connotation are used, it shall be understood that the reference is made to the Town of Nantucket, Sanitary Sewer Standards and Specifications, including all parts, supplements and revisions pertaining thereto.

2.03 Plan Approval

2.03.1 General

Three (3) copies of plans for proposed sanitary sewer main construction shall be submitted on 24x36 inch sheets with a scale of V=1"=4', H=1"=40' to the Town for approval. Two (2) copies shall be submitted to the Planning Board and one (1) copy shall be submitted to the Superintendent. An overall plan shall be submitted along with individual plan and profile sheets. The plan shall show lots to be served and the location of the sanitary sewer mains with reference to property lines. All service wyes shall be stationed for proper control and future location. The type, size, approximate location and number of all known underground utilities shall be shown on all drawings, including invert data. Profiles shall give dimensions, grade, rim elevations and invert elevations into and out of manholes of the sewer to be constructed. The Superintendent shall return said plans either with approval or a letter designating necessary revisions required to receive approval.

2.03.2 Effective Date

Should circumstances warrant changes to the approved plans or specifications, the proposed revision must be submitted and approval must be obtained from the Superintendent, Planning Board or their Designee, copies to be given to the Contractor, Developer and the

Developer's Engineer. No work shall proceed on that portion of the project being revised until said revisions are submitted, approved and distributed. Minor deviations from the plans or specifications may be by written permission from the Superintendent or his representative on the job. It shall be the responsibility of the Developer's Engineer to provide the Town with two (2) sets of "as-built" plans at the completion of the project verifying all elevations, utility locations and service locations. One (1) set to the Planning Board and one (1) set to the Superintendent.

2.04 Authority of the Superintendent

The Superintendent shall have the authority on behalf of the Town to ascertain that all design and construction of facilities is equal to or better than the minimum requirements set forth in these specifications. The Superintendent shall have the additional authority to assign an inspector to check any and all work, including all materials to be incorporated in the work, excavation, bedding, backfill and all construction methods and practice, within public and unaccepted ways, and for all connections to the Municipal Sewer System.

2.05 Authority of the Planning Board

The Planning Board shall have the authority to ascertain that all design and construction of facilities is equal to or better than the minimum requirements set forth in these specifications. The Planning Board shall have the additional authority to assign an inspector to check any and all work, including all materials to be incorporated in the work, excavation, bedding, backfill and all construction methods and practice within all proposed subdivisions.

2.06 Authority of the Inspector

Inspectors are assigned to assure that the Contractor is complying with these specifications. They have the authority to reject defective materials, inferior materials, defective workmanship and to suspend work until such time as the Contractor shall correct the situation in question, subject to final decision by the Superintendent.

2.07 Notice Before Beginning Work

The Contractor shall notify the Superintendent and the Planning Board in writing at least forty-eight hours before beginning any sewer main construction. If for any reason work should stop on a project during any stage of construction for a period of more than twenty-four hours, it shall be the responsibility of the Contractor to notify the Superintendent and the Planning Board at least twenty-four hours prior to any resumption of work on the project. If the Contractor intends to work extended shifts, double shifts or hours other than the normal workday of Town personnel, he shall notify the Superintendent at least twenty-four hours prior to such extension, except in the event of an emergency. Failure to provide notification may provide suspension of the Project.

2.08 Traffic Control

The Contractor shall be required to provide adequate construction signing, flagmen, barricades, etc., to warn vehicular and pedestrian traffic of work in progress and divert traffic as may be required during the course of construction. All signing shall be subject to the approval of the Superintendent. When specifically authorized by the Superintendent, portions of the streets shall be allowed to be closed to traffic for construction. However, the Contractor shall make every attempt to keep the time of closure of such streets to a minimum. It shall be the responsibility of the Contractor to notify the Fire and Police Departments, and ambulance service twenty-four (24) hours prior to the closure of any street. A street closure permit is required whenever a street is closed due to construction activity.

2.09 Rejected Materials

All Materials installed shall be free of defects of manufacture. Any defects or damaged materials found in the construction or on the construction site shall be marked and removed from the site. In the event the Contractor fails to remove rejected materials from the construction site within a reasonable length of time, the Superintendent may arrange for such removal at the expense of the Contractor.

2.09 Contractor's Responsibility

It shall be the responsibility of the Contractor to read and fully comply with all the provisions of these specifications and all laws and regulations that apply to local and state agencies..

2.10 Safety Requirements

All sanitary sewer main installations in the Town of Nantucket will be subject to current OSHA safety requirements. It shall be the responsibility of the Contractor to fully comply with these regulations.

2.12 As-Built Drawings

Within three (3) months after acceptance of the sewer system by the Superintendent, the Developer shall be responsible for furnishing the Town with two (2) sets of reproducible "as-built" drawings as per 2.03.

200-37 SECTION 3.00 Protection of Existing Facilities

3.01 General

The Contractor shall notify Dig Safe at 1-800-322-4844 and all utility companies and interested parties prior to commencement of work in order to insure that there will not be interruptions of services during construction. The Contractor shall be liable for all damages to existing structures, public or private, and he shall save the Town harmless from any liability or expense for injuries, damages or repairs to such facilities.

3.02 Responsibility for Repair

Should the utility be damaged in the construction operations, the Contractor shall immediately notify the owner of such utility, and unless authorized by the owner of the utility, the Contractor shall not attempt to make repairs.

200-38 SECTION 4.00 Trench Excavation

4.01 Scope

This section covers excavations, and trenching for the structures, pipelines and appurtenances.

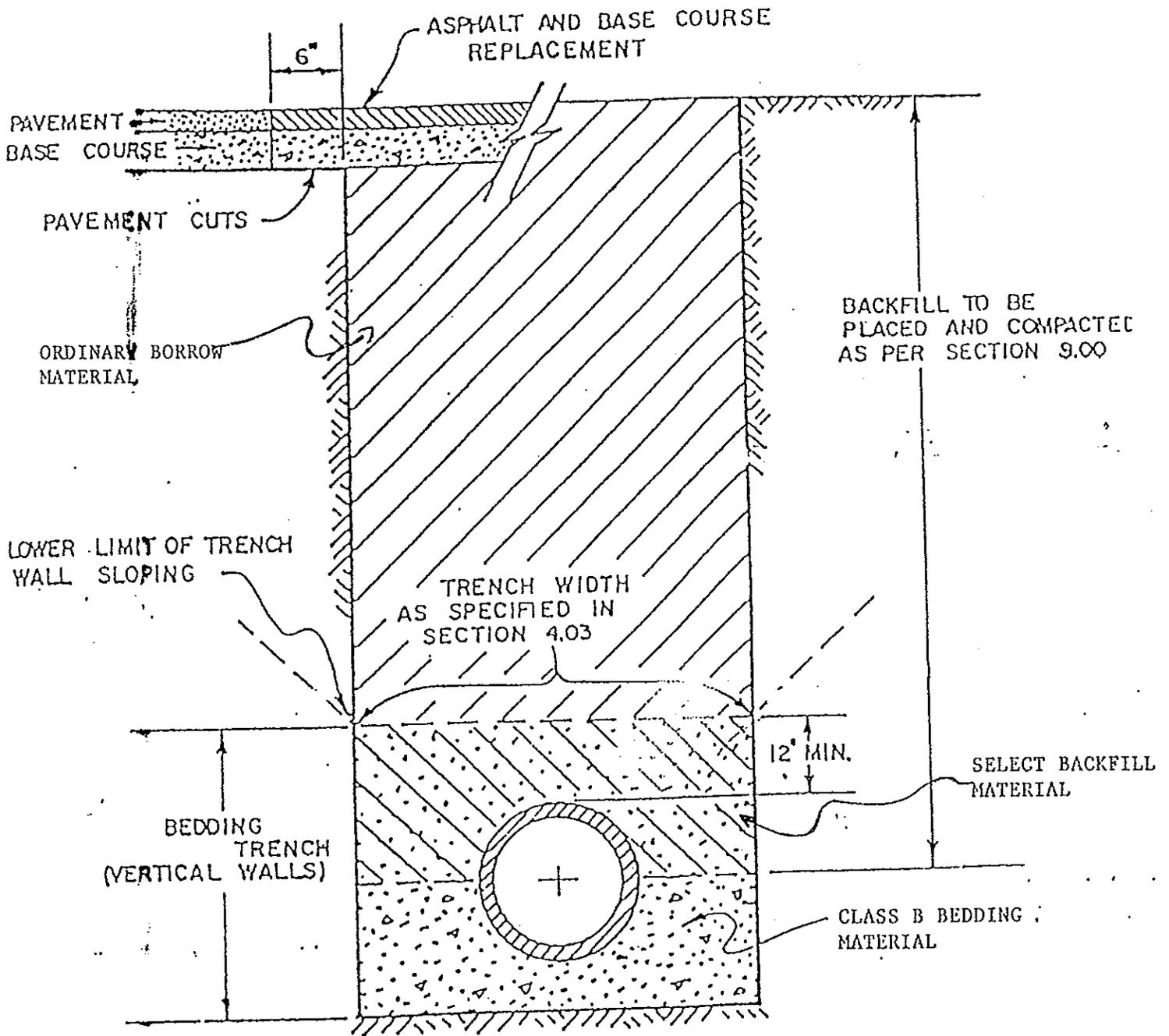
4.02 General

Except where shown otherwise on approved drawings, and except when the Superintendent gives written permission to do otherwise, all trench excavations shall be made by open cut to the depth required to construct the pipeline as shown on the drawings. Where depth of ditch and other conditions will allow it, tunneling, boring or jacking may be required under sidewalks, curb and gutter, or other structures. Written permission from the Superintendent must be obtained prior to any tunneling or jacking. In no case will tunneling be permitted for distances greater than ten (10) feet. When jacking is permitted, only persons experienced in that work, using suitable equipment, shall perform the jacking operation. The length of trench permitted to be open at any one time may be limited when, in the opinion of the Superintendent, such limitation is necessary for the safety and convenience of the public. Top soil shall be removed and piled separately for use in finish grading the grounds. During excavation, material suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks to avoid overloading and to prevent slides or cave-ins. All excavated materials not suitable for backfill shall be removed from the site at the Contractor's expense.

4.03 Trenching

4.03.1 General

Trenches shall be excavated to the width necessary to permit the pipe to be properly bedded, laid and jointed, and backfill materials placed as specified in Section 9.00. No trench shall have a width of less than the outside diameter of the pipe plus twelve (12) inches. The maximum clear trench width measured one (1) foot above the top of the pipe barrel shall not be greater than that shown in the following table unless otherwise specified.



TYPICAL TRENCH

TOWN OF NANTUCKET
 DEPARTMENT OF PUBLIC WORKS

APPROVED BY

DATE:

TRENCH WIDTH TABLE

<u>Pipe Dia.</u> <u>Inches</u>	<u>Max. Trench</u> <u>Inches</u>	<u>Pipe Dia.</u> <u>Inches</u>	<u>Max. Trench</u> <u>Inches</u>
8	28	30	56
10	30	33	60
12	33	36	68
15	36	42	75
18	40	48	82
21	44	54	89
24	48	60	96
27	52		

In the event the above stated maximum trench widths are exceeded either through accident or otherwise and if the Superintendent determines that the design loadings of the pipe will be exceeded, the Contractor will be required to use a pipe of a stronger class. The cost of such remedial measures shall be entirely at the Contractor's expense.

4.03.2 Sidewall Sloping

In the event that sidewalls of the trench are sloped to meet safety requirements, the sloping shall terminate at a depth not less than one (1) foot above the top of the pipe barrel, and from that point down the trench width shall be limited to that shown on the preceding table in 4.03.1 of this section.

4.04 Overexcavation

4.04.1 General

When the excavation is in firm earth, care shall be taken to avoid excavation below the established grade. All unauthorized excavation below the established depth made without the written authorization of the Superintendent shall be refilled with approved material and compacted by and at the expense of the Contractor.

4.04.2 Groundwater, unsuitable Trench Bottom

In case soft or otherwise unsuitable foundation material is encountered in trench bottom, such soil shall be removed to a depth as directed by the Superintendent. It shall be replaced with Superintendent approved backfill material and compacted as specified in Section 5.00 to provide a suitable foundation for the pipe. If groundwater enters the trench as it is being excavated, only enough trench shall be opened so as to permit the laying of one (1) joint of pipe.

4.05 Pavement Cuts

Where excavation is required under paved areas, including streets, bikepaths and sidewalks, the pavement shall be cut in such a manner as to effect a smooth, straight cut edge and as a vertical face six (6) inches minimum beyond the trench wall. The maximum width of pavement removed shall not exceed ten (10) feet, except as may be otherwise allowed for large pipe diameters.

Replacement of sub-base, base and pavement surface shall be by the Contractor and shall be equal to or better than the materials removed. All replacement materials and procedures shall be subject to the inspection and approval of the Superintendent according to the provisions of Section 11.00 of these specifications.

4.06 Removal of Water

The Contractor shall provide and maintain at all times ample means and devices to promptly and properly dispose of all water entering the trench excavation. Water shall be disposed of in a suitable manner without damage to adjacent property or without being a menace to public health and convenience. Unless authorized, in writing, trench water shall not be allowed to enter any sewer lines either by gravity or by pumping. All open ends of the pipe shall be tightly plugged at the end of each days work to insure that no water can flow into the sewer line in the event of a storm or a pump failure. All manholes under construction shall be sealed tightly to prevent flows from entering the system unless otherwise directed in writing.

200-39

SECTION 5.00 Bedding Materials

The minimum support for the pipe shall be directed by the Superintendent to meet conditions as they are met in the field.

5.01 Classes of Bedding and Cradles

5.01.1 Class A Bedding (Concrete Cradle)

Class A bedding shall be defined as that method of bedding in which the lower half of the pipe is set in concrete (3000 psi min.). The minimum thickness of concrete under the lowest part of the conduit shall be one-eighth (1/8) of the outside pipe diameter but not less than six (6) inches. The concrete shall extend upwards around the pipe to the springline of the pipe barrel. The concrete cradle shall extend across the entire width of the trench.

5.01.2 Class B Bedding

Class B bedding shall be defined as that method of bedding in which the pipe is set on compacted, native material. Compacted, Class B material shall be placed under the pipe and around the sides of the pipe up to the springline of the pipe barrel. The bedding material

LOWER LIMIT
OF TRENCH
WALL SLOPING

SELECT MATERIAL
BACKFILL AS PER
SECTION 9.00

3000 P.S.I. CONCRETE

TRENCH WIDTH
AS SPECIFIED
SECTION 4.03

12" MIN

$B_c = \text{PIPE O.D.}$

$1/8 B_c (\text{MIN. } 6")$

CLASS A

LOWER LIMIT
OF TRENCH
WALL SLOPING

SELECT MATERIAL
BACKFILL AS PER
SECTION 9.00

CLASS B BACKFILL
MATERIAL

TRENCH WIDTH
AS SPECIFIED
SECTION 4.03

12" MIN

$B_c = \text{PIPE O.D.}$

CLASS B

SELECT BACKFILL
MATERIAL

DEPTH AS
REQUIRED
(6" MIN.)

12" MIN.

3/4" STONE

LARGE STONE, BROKEN
CONC., ETC. IF REQUIRED

UNSTABLE SUBGRADE CONDITION

BEDDING REQUIREMENTS

shall be consolidated and compacted by hand to 95% maximum density as per ASTM D1557, Method C.

5.02 Native Bedding Material

Native bedding material is generally acceptable.

5.03 Stabilizing Material

In the event unstable trench conditions are found at pipeline grade, three-quarter (3/4) inch uniformly graded crushed stone shall be used for trench stabilization. The pipe shall be laid on a firm dry bed.

200-40

SECTION 6.00 Gravity Pipeline Design and Materials

6.01 Scope

This section deals with the design, the furnishing of all labor, equipment and materials, and the performance of all operations in connection with the construction of sanitary sewer mains.

6.02 General

All sanitary sewer mains shall be constructed using a pipe with a minimum nominal inside diameter of eight (8) inches. Only those pipe and joint materials and design criteria described in this section shall be approved for sanitary sewer design and construction.

6.02.1 Design

a. the maximum daily flow shall be determined by the following:

<u>Type of Establishment</u>	<u>Gallons per Person per Day</u>
Boarding Schools, Colleges	65
Nursing Home and Rest Home	100
School, w/o Cafeteria, Gymnasium or Showers	10
School, with Cafeteria, but not Gym or Showers	15
School, with Cafeteria, Gymnasium and Showers	20
Swimming Pool	10
Camp, resident - washrooms and toilets	25
Camp, resident - mess hall	10
Camp, day - washrooms and toilets	10
Camp, day - mess hall	3
Camp Ground, - Showers and Toilets - per site	75
Gymnasium - per Spectator	3
Gymnasium - per Participant	25
Theater, Auditorium	3
Public Park - toilet wastes only	5
Public Park - bathhouse, showers and flush toilets	10
Factory or Industrial Plant, w/o Cafeteria	15
Factory or Industrial Plant, with Cafeteria	20
Work or Construction Camp	50

	<u>Gallons per Day</u>
Single and multiple dwelling units - Per bedroom	110
motels, hotels, boarding houses	250
Tennis Club - per court	100
Bowling Alley - per alley	10
Country Club - dining room - per seat	10
Country Club - snack bar or lunch room - per seat	20
Country Club - locker room and showers - per locker	3
Church - per seat	5
Church - vestry/kitchen - per person at capacity	50
Trailer, dump station - per site or per trailer	200
Mobile Home Park - per site	75
Office Building - per 1,000 sq. ft.	5
Dry Goods Store - per 100 sq. ft.	5
Drive-in - per stall	400
Non-single family, Automatic Clothes Washer - per washing machine	200
Hospital - per bed	300
Service Station, excluding Thruway - per island	300
Skating Rink - 3,000 gallons per day plus 5 gallons per seat	

	<u>Gallons per Seat or Chair per Day</u>
Restaurant, food service establishment, lounge, tavern	35
Restaurant, thruway service area	150
Restaurant, kitchen flow	15
Barber Shop/Beauty Salon	100

NOTE: Laundromat wastes are considered industrial wastes and must be approved by the Department of Environmental Protection.

Estimated sewage flows other than those listed should be considered in relation to actual meter readings of established flow from known or similar installations. Generally, estimated sewage flows will be based on 200 percent of average water meter readings in order to assimilate maximum daily flows.

6.02.2 Location and Cover

Sewer mains, generally, are placed along street centerline and shall be located a minimum of ten (10) feet horizontally from existing or proposed water mains. Depth of cross country sewer mains shall be a minimum of three and one-half (3 1/2) feet measured from the top of the pipe to the proposed grade at the surface of the ground. Where possible, sewers shall be installed deep enough to accommodate all future extensions and connections that can be foreseen and deep enough to allow the sewer main and service connections to pass beneath other utilities. Gravity sewers within a street shall generally be a minimum of seven (7) to eight (8) feet measured from top of the ground.

6.02.3 Alignment and Slope

Sewer mains and appurtenances shall be located on the lines and grades shown on the plans of the work. The slope of the mains shall be such that the full flowing velocity is not less than two (2) feet per second, nor greater than ten (10) feet per second. Sewer mains shall be designed so that the pipeline between any two adjacent manholes is on a straight line.

<u>Sewer Size</u>	<u>Minimum Sewer Slope</u>	<u>Minimum Slope in Feet per 100 feet</u>
8-inch		0.40
10-inch		0.28
12-inch		0.22
15-inch		0.15
18-inch		0.12
21-inch		0.10
24-inch		0.08
27-inch		0.067
30-inch		0.058
36-inch		0.046

6.03 Material Handling and Storage

All fittings and accessories shall be loaded and unloaded or otherwise handled in such a manner as to minimize the possibility of damage prior to installation. All materials shall be stored at the construction site in such a way as to prevent damage and to assure they are kept as clean as possible prior to installation.

6.04 Water Line Protection

Where sewer lines cross water mains or come within ten (10) horizontal feet of each other, the sewer pipe shall be a minimum of eighteen (18) inches clear distance vertically below the water main. If this clear distance is not feasible, the pipe section must be designed and constructed so as to protect the water main. Minimum protection shall consist of the installation of an impervious and structural sewer. For example: at crossing,

- a. One length of pressure pipe at least eighteen (18) feet long centered over the water main with an additional length of pressure pipe installed on both sides of the centered pipe. Joints between the sewer pipe and the pressure pipe shall be encased in a concrete collar at least six (6) inches either side of the joint, as shall the joints between the pressure pipes.

In all cases, suitable backfill or other structural protection shall be provided to preclude settling and/or failure of the higher pipe.

Should the condition exist where a sewer main must be constructed crossing above or below a water main, the minimum clear distance vertically shall be six (6) inches. When sewer lines cross above water mains or within a vertical clear distance of eighteen (18) inches below water mains, the crossing must be so designed on the plans and must be constructed so as to protect the water main. Minimum water main protection under these conditions shall consist of the installation of an impervious and structural sewer for a distance of ten (10) feet each side of the water main. In all cases, no joints shall be permitted within ten (10) feet each way of water line unless encased. In all cases, suitable backfill or other structural protection shall be provided to preclude settling and/or failure of the higher pipe. These requirements for water line protection from sewer lines shall be equally applicable to all service connections.

6.05 Gravity Pipe, Fittings and Joints

6.05.1 Materials

Poly Vinyl Chloride Pipe (PVC)

1. General - All PVC pipe shall meet the requirements of ASTM Designation D3034 "Type PSM Poly Vinyl Chloride (PVC) Sewer Pipe and Fittings", latest revision. The maximum allowable length per section of pipe from bell to spigot shall not exceed twenty (20) feet.
2. Wall Thickness - The wall thickness of all PVC pipe shall meet ASTM Designation D3034:SDR 35 or better.
3. Diameter - The diameter indicated on the drawings shall mean the inside diameter of the pipe. Pipe shall be so constructed that initial vertical diameter does not decrease by more than 2 1/2% with a longer term maximum of 5%.
4. Joints - Pipe joint assemblies shall be bell and spigot with a O-ring rubber gasket or solvent weld for clean-outs or lamp holes. Pipe joint assemblies shall meet ASTM D3212.
5. Marking - All flexible conduit shall be marked with the following:
 - a) Name or Trademark of Manufacturer
 - b) ASTM Specifications
 - c) Nominal Diameter

6. Acceptance - In addition to any deficiencies covered by ASTM D3034, PVC which has any of the following visual defects will not be accepted:
 - a) Improperly formed pipe such that the pipe intended to be straight has an ordinate, measured from the concave side of the pipe, exceeding one and one-sixteenth ($1 \frac{1}{16}$) inch per foot of length.
 - b) Pipe which is sufficiently out-of-round to prohibit proper jointing.
 - c) Improperly formed bell and spigot ends.
 - d) Fractured, cracked, chipped or otherwise sufficiently damaged pipe which will result in an improperly constructed pipeline.
 - e) Pipe that has been damaged during shipment or handling even if previously approved before shipment.
7. Surface Finish - The interior and exterior surfaces of all PVC pipe shall be uniform in color, smooth and free of scratches or blisters.
8. Infiltration-Exfiltration - The maximum infiltration-exfiltration rate shall be limited to 100 gallons per inch diameter per day per mile.

6.05.2 Installation

Pipe shall be installed at the depths and locations shown on the drawings. No rocks larger than two (2) inches in diameter will be permitted within one (1) foot of the pipe. Sufficient handwork will be necessary around the bell so that the pipe will have a firm bearing from end to end. This will ensure that the weight of the pipe and backfill will be carried on the body of the pipe and not concentrated on the bell. All adjustments to line and grade must be made by scraping or filling with acceptable compacted material under the body of the pipe. Wedging or blocking of the bell of the pipe will not be permitted. When trench excavation encounters gravel material larger than two (2) inch nominal diameter, the pipe shall be backfilled in conformance with Section 5.00 - 5.01.2 Class B bedding and hand tamped to springline. A minimum of twelve (12) inches of select material shall be placed over the pipe prior to any backfill of the main trench.

The pipe shall be laid upgrade from structure to structure, with bell end upgrade, unless other wise directed or permitted by the Superintendent.

6.06 Encasements

6.06.1 Materials

Concrete for encasements shall have a minimum cement content of five point five (5.5) sacks per cubic yard and a maximum water content of six point nine (6.9) gallons per sack of cement and shall have a minimum compressive strength of 3000 psi in twenty-eight (28) days.

6.06.2 Installation

Prior to placing the concrete for cradles or encasements, temporary supports consisting of concrete blocks or bricks shall be used to support the pipe in place. Not more than two (2) supports shall be used for each pipe length, one adjacent to the shoulder of the bell and the other near the spigot end. See Class A bedding Detail.

No encasements shall be poured until the Superintendent has inspected and approved the pipe to be encased and its supports.

200-41 SECTION 7.00 Sewer Taps and Services

7.01 Sewer Services

Sanitary sewer mains which are designated for residential subdivisions shall have "T's" included in the main for 6" service line connections or TEE/WYE fittings with elastometric gaskets which are to be located at approximately the middle of the lot to be served. The 6" service lines are to be constructed in conjunction with the mains and are to be installed to the property line and plugged. The 6-inch service lines shall be laid at a minimum slope of 1/4 inch per foot, unless otherwise approved by the Superintendent. The Developer's Engineer shall place a grade stake locating each sewer service before it is installed. Both the TEE and the end of service shall be marked with a timber post extending from the bottom of the service line to a point approximately 18" above grade. In the event there is the need for additional service line connections once the main has been installed, said connections shall be tapped to the main by the Town Sewer Department. Under no circumstance shall a Contractor be allowed to tap a sewer main without written permission of the Superintendent.

7.01.1 Manholes Required

When a new sewer service is located more than three hundred (300) feet from an existing manhole, the property owner will be required to install a manhole adjacent to the service connection.

7.02 Connection to Existing Sewer Mains

Town of Nantucket Department of Public Works employees are to make all physical connections to sewer mains. The Contractor/Property Owner shall

be responsible for excavating the trench to expose the main. The Contractor/Property Owner shall notify the Department of Public Works at least twenty-four (24) hours prior to the time for connection.

All taps are to be made with approved saddles.

7.03 Ownership of Service Lines

The service line as described from the Town Sewer Main to the property served is to be owned and maintained by the property owner.

200-42 SECTION 8.00 Manholes

8.01 General

Manholes shall be installed wherever there is a change in elevation, size, direction, slope, at junctions, at the ends of each main and at intervals of not more than 300 feet apart. All dead end manholes where future sewer main extension is anticipated shall have a stub with an approved end cap provided by the Contractor. All manholes shall be precast reinforced concrete manholes, unless otherwise approved by the Superintendent.

8.02 Manhole Size

The internal diameter of the manhole barrel shall be forty-eight (48) inches for sewers less than twenty-four (24) inches in diameter; and sixty (60) inches for sewers twenty-four (24) inches in diameter of greater

8.02.1 Wall Thickness

The wall thickness of precast concrete sections shall meet the following minimum requirements:

<u>Section Diameter (inches)</u>	<u>Minimum Wall Thickness (inches)</u>
48	5
60	6

8.02.2 Cone Section Thickness

The cone sections shall have a minimum wall thickness of 5 inches at the bottom and a minimum wall thickness of 8 inches at the top. Conical sections shall taper from a minimum 48 inch diameter to a 24 or 30 inch diameter at the top.

8.03 Materials

The materials to be used in the construction of manholes shall conform to the following requirements:

8.03.1 Precast Manholes

All precast concrete sections shall conform to ASTM C478 and shall

be so marked by the manufacturer. The date of manufacture and the name or trademark of the manufacturer shall also be clearly marked on the inside of each precast section. The minimum compressive strength of concrete shall be 4,000 psi at 28 days.

8.03.2 Manhole Bases

All manholes shall have precast concrete bases with invert channels formed of brick and mortar. Drop-over manhole bases may be used only with the approval of the Superintendent.

8.03.3 Reinforcing Steel

Circumferential steel reinforcement in wall and bases shall be a minimum of 0.12 sq. in./lin. ft. for 4 foot diameter sections and 0.17 sq. in./lin. ft. for 5 foot diameter sections. Reinforcing shall extend into tongue and groove.

8.03.4 Aggregate

Aggregate shall conform to Standard Specifications for Concrete Aggregate ASTM C33.

8.03.5 Mortar

Mortar shall be composed of Portland Cement, hydrated lime and sand in which the volume of sand shall not exceed three times the sum of the volumes of cement and lime. The proportions of cement and lime shall be as directed and may vary from 1:1/4 for dense hard-burned brick to 1:3/4 for softer brick. In general, mortar for grade SS Brick shall be mixed in the volume proportions of 1:1/2:4-1/2; portland cement to hydrated lime to sand.

8.03.6 Cement

All cement used in concrete and mortar shall conform to ASTM C150, Type II.

8.03.7 Hydrated Lime

Hydrated lime shall be type S conforming to ASTM C207.

8.03.8 Sand

The sand shall comply with ASTM C144 specifications for "fine Aggregate", except that all of the sand shall pass a No. 8 sieve.

8.03.9 Brick

All brick used in the construction of manholes shall conform to ASTM C32, Grade SS.

8.03.10 Manhole Steps

Manhole steps shall conform to ASTM C478 and shall be fabricated of either extruded aluminum or steel reinforced plastic. Steps shall be spaced at a maximum of 12 inches.

8.03.11 Frames and Covers

Frames and covers shall be at least Class 30 conforming to ASTM A48, with the word "SEWER" cast on the cover. Manhole frames shall have a minimum 24 inch opening. Covers with more than two lifting notches will not be accepted. The lifting notch shall not allow surface water to enter the manhole.

8.03.12 Gaskets

Gasket materials shall be top grade (100% solids, vulcanized) butyl rubber and shall meet or exceed Federal Specifications SS-S-00210 and AASHTO M-198.

8.03.13 Couplings

Couplings at the manhole-pipe interface shall be of the method on the detail drawing. The boot system shall be neoprene rubber with stainless steel straps recommended for this type of connection. Only cast-in-place couplings shall be acceptable; couplings for core-drilled or cast-in-place openings will be rejected.

8.03.14 Cast-in-place Manholes

Cast-in-place manholes shall be used only with the approval of the Superintendent. Concrete used in cast-in-place manholes and manhole bases shall have a twenty-eight (28) day strength of 4000 psi and shall contain not less than six (6) sacks of Portland Cement per cubic yard.

8.04 Construction

Manhole shall be constructed at the location and to the elevations indicated on the drawings. Manholes shall be so constructed so as to form a circle in a horizontal plane. The internal diameter of four (4) foot manhole barrel shall be maintained to a distance of not more than four (4) feet below finished grade. From that point, the manhole barrel shall be tapered to the twenty-four (24) inch internal diameter for four (4) foot diameter manholes, as shown on the standard manhole drawing. The internal diameter of five (5) foot manhole barrels shall be maintained to a distance of not more than six (6) feet below finished grade. From that point, the manhole barrel shall be tapered to the twenty-four (24) inch internal diameter for five (5) foot diameter manholes.,

The cone section shall not extend closer than eight (8) inches and not more than sixteen (16) inches from the top of the manhole cover. Brick,

mortared in place, or precast concrete adjustment rings shall be used on top of the cone to support and adjust the manhole frame to the required final grade. The outside of the brick shall be covered by mortar, five-eighths (5/8) inch thick, troweled smooth.

Butyl rubber joint sealant shall be installed between each concrete section.

All holes in sections used for handling the sections shall be thoroughly plugged with mortar. Mortar shall be one part cement to 1-1/2 parts sand, mixed slightly damp to the touch (just short of "balling"), hammered onto the holes until it is dense and an excess of paste appears on the surface, and then finished smooth and flush with the adjoining surfaces.

Bricks shall be moistened by a suitable means, as directed, until they are neither so dry as to absorb water from the mortar nor so wet as to be slippery when laid.

Each brick shall be laid as a header in a full bed and joint of mortar without requiring subsequent grouting, flushing or filling, and shall be thoroughly bonded as directed.

The brick inverts shall conform accurately to the size of the adjoining pipes. Side inverts shall be curved and main inverts (where direction changes) shall be laid out in smooth curves of the longest possible radius which is tangent to the centerline of adjoining pipe.

8.05 Connections to Existing Manholes

Sewer pipe connection to existing manholes where there is no existing pipe stubbed out shall be made in such a manner that the finished work will conform as nearly as practicable to the essential requirements specified for new manholes. The Contractor shall core out as small an opening in the existing manhole as necessary to insert the new sewer pipe. The existing bench shall be chipped to the cross-section of the new pipe in order to form a smooth continuous invert similar to what would be formed in a new base. Cement grout shall be used as necessary to smoothly finish the new invert and to seal the new line so the junction is watertight.

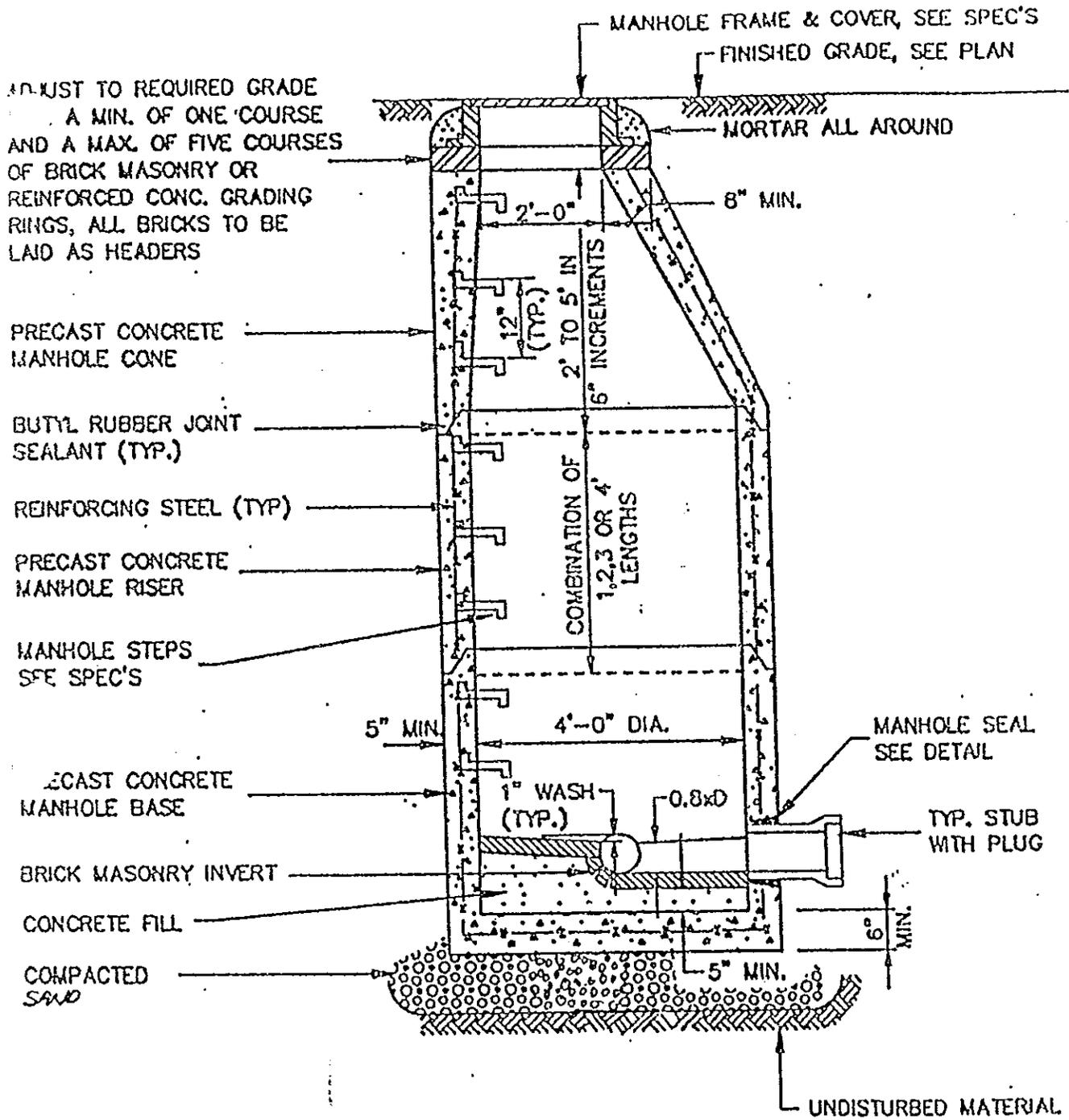
8.05.1 Service Connections to Manholes

Service lines are not to be connected directly into manholes.

8.06 Outside Drop Manholes

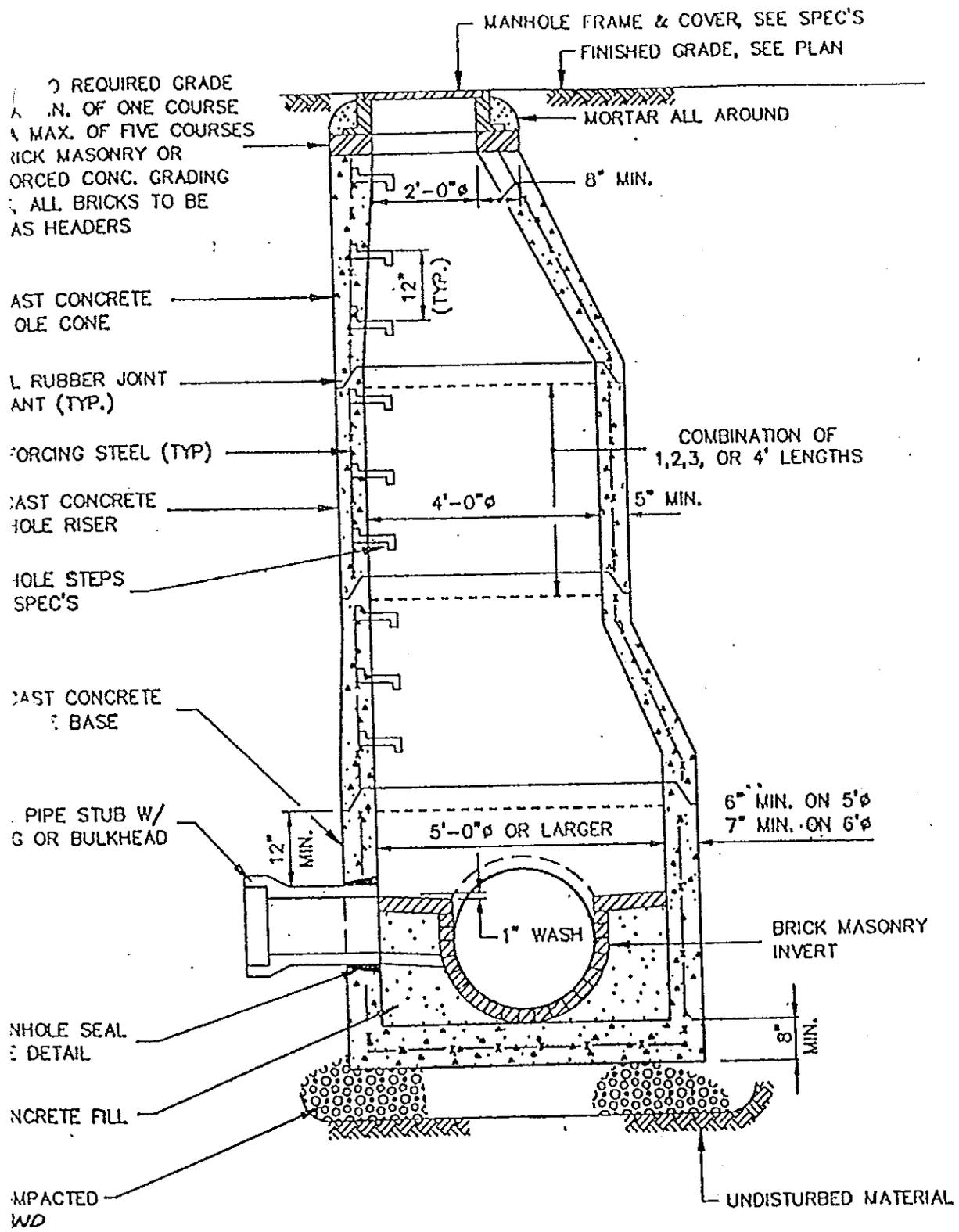
Whenever the elevation difference between the incoming sewer invert and the invert of the manhole is equal to or greater than twenty-four (24) inches, an outside drop shall be indicated on the drawings and shall be constructed as shown on the Standard Detail Drawings.

The drop pipe shall be the same diameter, material and class as the sewer pipe entering the manhole. After installation of the outside drop section

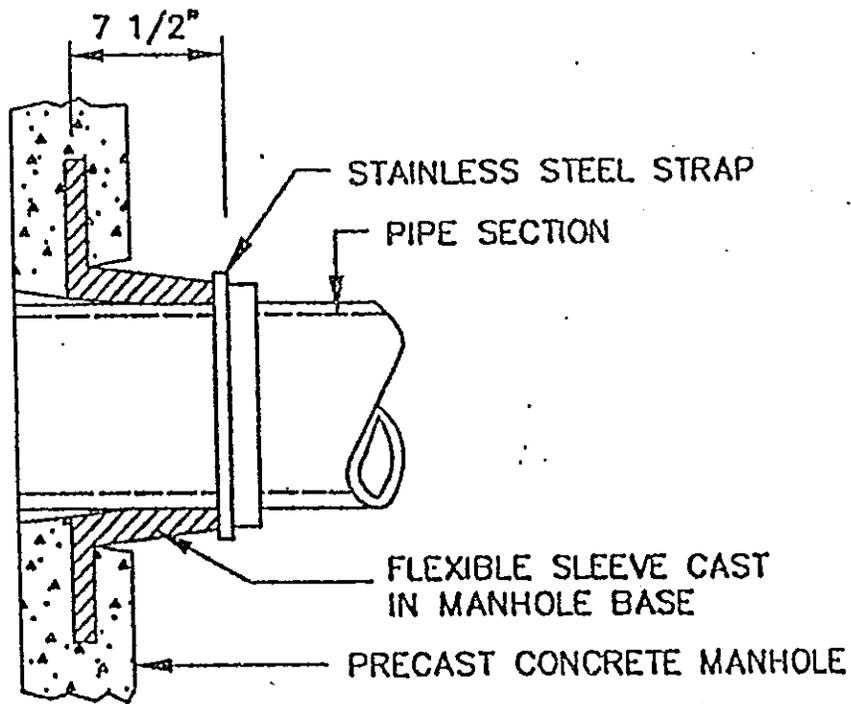


**4'-0" DIA. PRECAST
CONCRETE MANHOLE DETAIL**

N.T.S.

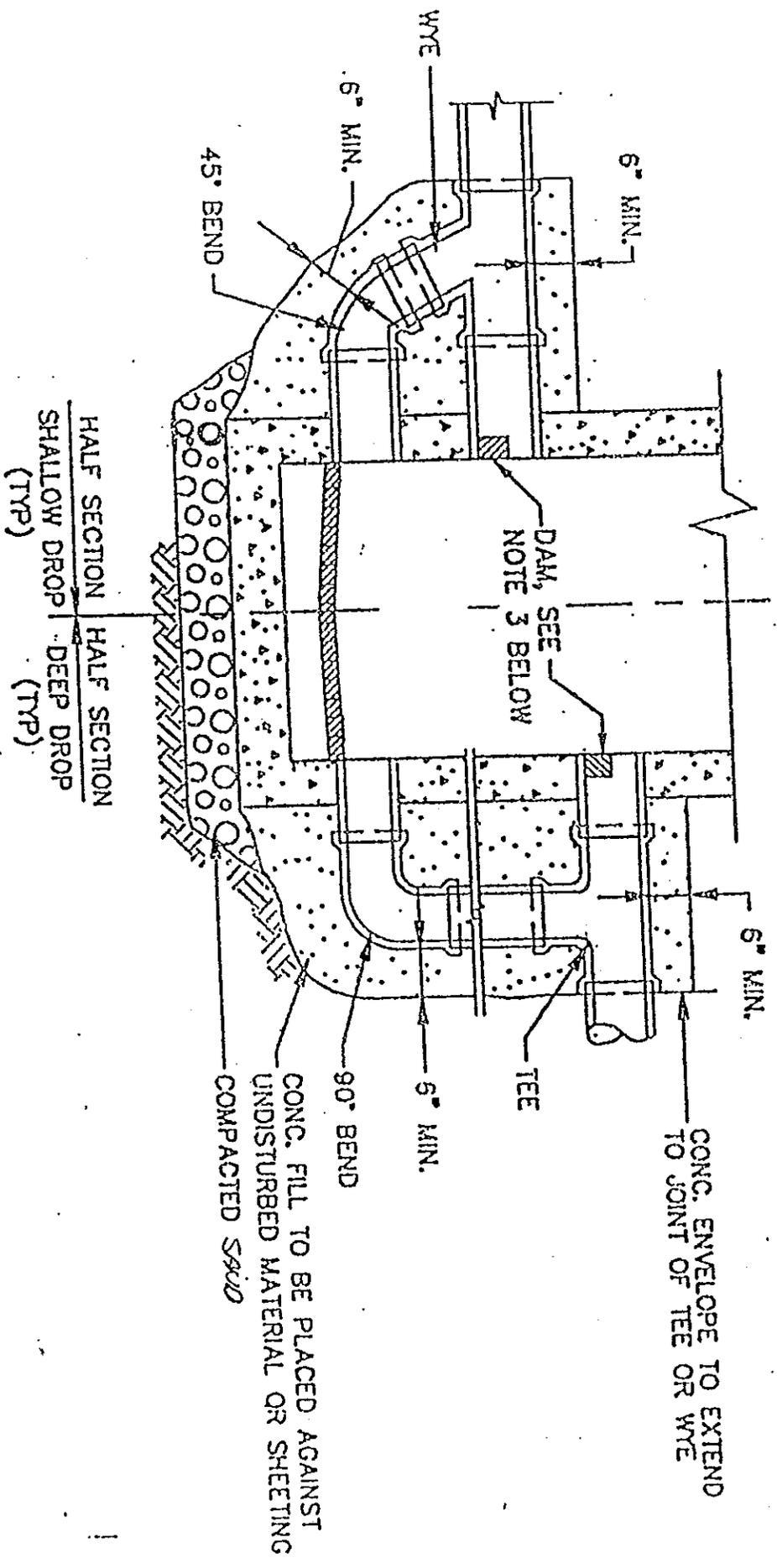


5'-0" DIA. OR LARGER
PRECAST CONCRETE MANHOLE DETAIL



MANHOLE SEAL DETAIL
(FLEXIBLE SLEEVE)

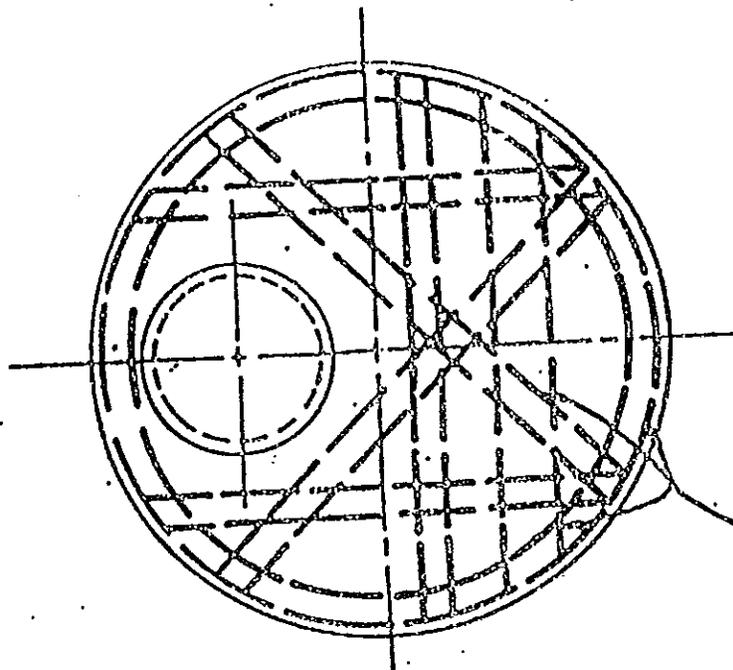
N.T.S.



- NOTES:**
1. DROP PIPE TO BE SAME DIAMETER AS SEWER DISCHARGE INTO MANHOLE UNLESS OTHERWISE SHOWN ON DRAWINGS.
 2. DIMENSIONS & CONSTRUCTION OF DROP MANHOLE TO BE SIMILAR TO TYPICAL MANHOLE EXCEPT AS SHOWN.
 3. FOR PVC PIPE, EPOXY HALF PLUG TO PIPE. FOR DI, VC AND RC PIPE, MORTAR AND BRICK IN PIPE.

DROP CONNECTION DETAIL

N.T.S.



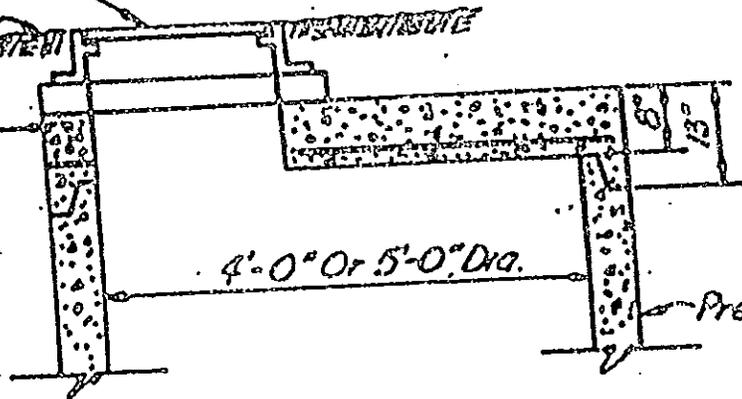
Reinforcing To Meet
H-80 Loading

PLAN

Manhole Frame & Cover
See Spec's

Finished Grade, See Plan

Top Slab To Be Used
Where Cone Section
Cannot Be Installed



Precast Manhole Base

MANHOLE TOP SLAB

and pipe connections into the manhole, the entire vertical, outside assembly shall be encased in concrete, as shown on the drawings, using concrete with strength of at least 2,000 psi.

8.07 Waterproofing

The exterior surfaces of all precast manhole bases, walls and cones shall be given one shop coat of bituminous waterproofing.

200-43

SECTION 9.00 Backfill and Compaction of Backfill

9.01 General

In general, backfill material shall be that material excavated from pipeline trenches on the site that is free from frozen materials and large amounts of organic or other objectionable materials. When, in the opinion of the Superintendent, the excavated materials is not satisfactory as backfill or whenever there is a shortage of satisfactory backfill material, the Contractor shall furnish all necessary suitable backfill material and shall dispose of the condemned excavated material.

Unless otherwise specified, all excess backfill material shall be disposed of off right-of-way and public property by the contractor at his own expense.

Backfilling shall proceed immediately after each joint of the pipe is laid in order to protect the line.

Backfill material shall be placed around the haunches of the pipe and compacted as specified in Section 5.00. The remainder of the trench shall be filled in one or more lifts with the backfill material specified by the Superintendent in such a manner so as not to damage the pipe or to cause any misalignment of the installed main.

9.02 Materials

Backfill materials will be specified by the Superintendent to meet conditions as they are met in the field.

9.02.1 Select Backfill Materials

Select backfill material shall consist of material which has been excavated from the trench except for rubbish, frozen material, broken pavement, other debris, stones or consolidated material greater than two (2) inches in diameter when within twelve (12) inches of pipe, organic muck, or other materials considered deleterious by the Superintendent.

9.02.2 Stabilizing Materials

In the event unsuitable trench conditions, as determined by the Superintendent, are found at pipeline grade, three quarter (3/4)

inch uniformly graded, crushed rock shall be used for trenching stabilization and to assist in trench dewatering

9.02.3 Ordinary Borrow Material

Ordinary borrow material may not be placed in the trench until the installed pipeline is covered with at least twelve (12) inches of other specified and compacted backfill materials to prevent pipeline damage from larger stones.

<u>Sieve Size</u>	<u>Total Passing by Sizes (% by Weight)</u>
No. 4	100
No. 10	80
No. 200	5 to 15

It will be the responsibility of the Contractor to locate material meeting this specification and to secure approval of the Superintendent before such material is delivered to the project.

Ordinary borrow material may not be placed in the trench until the installed pipeline is covered with at least twelve (12) inches of other specified and compacted backfill materials to prevent pipeline damage from larger stones.

9.03 Compaction of Backfill

9.03.1 Compacting Native Bedding Materials

Native bedding material shall be deposited in layers and compacted by surface or internal vibrators, hand or power tampers. The material shall be compacted to a minimum of 95% of maximum density as determined by ASTM 01557, Method C.

9.03.2 Compacting Select Backfill and Ordinary Borrow Materials

Backfill material in trenches shall be compacted to 95% of Maximum density. Maximum density shall be defined by ASTM 01557, Method C. The moisture content of the backfill material shall be plus or minus 2% of optimum.

9.03.3 Flooding and Jetting of Trenches

Flooding and jetting of trenches shall not be permitted until the trench has been backfilled and hand tamped to a depth of twelve (12) inches over the top of the pipe and the balance of the trench has been filled with native material for one-half (1/2) the total trench depth.

9.04 Maintenance of Backfill

All backfill shall be maintained in a satisfactory condition, and all places showing signs of settlement shall be filled and maintained at the Contractor's expense for a period of one (1) year following the completion of construction and acceptance of the construction by the Town.

200-44 SECTION 10.00 Surface Restoration

Where pavement, curb and gutter, sidewalks, drainage culverts, headwalls, etc., or other improved surfaces have been removed during the course of the work, such items shall be restored to a condition equal to that prior the removal, to the same elevation and alignment. The subgrade for all restored surfaces shall be thoroughly compacted by mechanical or hand tampers, weighing not less than twenty (20) pounds by vibratory rollers or by other proposed means of compaction acceptable to the Superintendent. All restoration of existing structures and conditions shall be at the Contractor's expense.

200-45 SECTION 11.00 Testing and Inspection

11.01 Scope

The purpose of this section is to outline in chronological order the steps and necessary tests for approval by the Town of all newly installed sanitary sewer mains.

11.02 General

In addition to any other testing or inspection requirements set forth elsewhere in these specifications, testing, inspection of the completed work will be specified below.

11.03 Compaction Tests

11.03.1 General

Backfill material in trenches shall be compacted as outlined in Section 9.00 Backfill and compaction of Backfill.

11.03.2 Compaction Tests Required

The Superintendent shall have the authority to determine the number and location of compaction tests required. Compaction tests to be furnished by a recognized soil testing laboratory or registered professional engineer approved by the Superintendent. Copies of all proctor curves and test results showing location of sample collection and test sites must be furnished to the Superintendent for approval.

11.03.3 Compaction Test Failure

If the required state of compaction is not obtained, it shall be the responsibility of the Contractor to recompact the material as

specified in Section 9.00. In cases where there is repeated failure to achieve the required state of compaction, the Superintendent may require that the backfill be removed and recompacted in six (6) inch lifts.

11.04 Infiltration Test

After compaction of fill materials has been completed, tested and approved, the Superintendent will, if necessary check infiltration of groundwater into the main. This check will begin at the furthest upgrade end of the system and proceed downgrade in the main from section to section. A section shall be defined as any portion of installed sewer line between two (2) adjacent manholes.

No individual section with its connections and appurtenances shall leak under normal exterior groundwater pressure more than 100 gallons per inch of inside diameter per mile of sewer per twenty-four (24) hours.

11.04.1 Leakage Testing

The low pressure air test may be used if approved by the Superintendent. The air test shall conform to the uni-Bell Recommended Practice for low pressure Air Testing of Installed Sewer Pipe, UNI-B-6. the starting air pressure for the test shall be 4 psi. The minimum duration permitted for the prescribed low pressure air exfiltration pressure drop between two consecutive manholes shall not be less than provided in Table I or Table II of UNI-B-6. the two tables are reproduced on the following pages.

The sewers shall be tested after building connections are installed to the property line.

Upon completion of a section of the sewer, the Contractor shall dewater it and conduct a satisfactory test to measure the infiltration or, where necessary, exfiltration for at least twenty-four (24) hours. The amount of infiltration or exfiltration shall not exceed 100 gallons per inch-diameter per mile of sewer per twenty-four (24) hours. The Contractor shall be responsible for the satisfactory watertightness of the entire section of sewer and shall satisfactorily repair all joints or other locations that are not sufficiently watertight.

The infiltration test measures leakage into a section of sewer and shall be used where the groundwater level is one (1) foot or more above the crown of the section sewer pipe at its upper end. For making the infiltration tests, underdrains, if used, shall be plugged and other groundwater drainage shall be stopped to permit the groundwater to return to its normal level insofar as practicable. Allowances shall be made for water which may enter the sewer through pipe connections and inlets during the infiltration test.

TABLE 1

SPECIFICATION TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP
FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015

1 Pipe Diameter (in.)	2 Minimum Time (min: sec)	3 Length for Minimum Time (ft)	4 Time for Longer Length (sec)	Specification 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	3:46
6	5:40	398	.854 L	5:40	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	

TABLE 2

SPECIFICATION TIME REQUIRED FOR A 0.5 PSIG PRESSURE DROP
FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015

1 Pipe Diameter (in.)	2 Minimum Time (min: sec)	3 Length for Minimum Time (ft)	4 Time for Longer Length (sec)	Specification Time for Length (L) Shown (min:sec)								
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft	
4	1:53	597	.190 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427 L	2:50	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12
8	3:47	298	.760 L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42	5:42
10	4:43	239	1.187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54	8:54
12	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50	12:50
15	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02	20:02
18	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51	28:51
21	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16	39:16
24	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17	51:17
27	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	64:54	64:54
30	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07	80:07
33	15:35	72	12.926 L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57	96:57
36	17:00	66	15.384 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23	115:23

As required, suitable bulkheads shall be installed to permit the test of the sewer.

Where the groundwater level is less than one (1) foot above the top of the pipe at its upper end, the exfiltration test shall be used. The sewers shall be subjected to an internal pressure by plugging the pipe at the lower end and then filling the pipelines and manholes with clean water to a height of two (2) feet above the top of the sewer at its upper end. When slopes between manholes are steep, the contractor shall insure that this test can be accomplished without danger of forcing stoppers from wye or tee branches.

The rate of exfiltration from the sewers shall be determined by measuring the amount of water required to maintain the level two (2) feet above the top of the pipe.

The Contractor shall construct such weirs or other means of measurements as may be required, shall furnish water and shall do all necessary pumping to enable the test to be properly made.

Should the sections under test fail to meet the requirements, the Contractor shall do all work of locating and repairing leaks and retesting as the Superintendent may require without additional compensation. A plan of the method of repairing any leaks that are found shall be submitted to the superintendent for approval.

11.05 Obstructions

After compaction of fill material has been completed and approved and if infiltration rates are below specified maximums (11.04 of this Section), the Superintendent will flash a light through the installed pipe between manholes to check for true alignment, obstructions and to see that no pipes are broken. All sewer mains must be cleaned and free obstructions. Any obstructions shall be removed and unsatisfactory construction replaced as required by the Superintendent at the Contractor's Expense. If visual inspection is not possible, the Contractor shall "ball" or televise such sewer lines under the supervision of the Superintendent to insure that the lines are clear.

11.06 Repair of Broken Pipe

For old sewers only. New sewers should be dug up and replaced. The method of repair for broken or misaligned sewer pipe will be specified by the Superintendent as conditions are met in the field. No encasements shall be placed on an installed sewer main until the Superintendent has inspected the unearthed joint to be repaired. If joints are to be repaired internally by television camera packing equipment, the Superintendent shall be notified at least forty-eight (48) hours prior to this work, and he shall be at the site of the repair work while it is being done unless otherwise specified.

11.07 Pipe Deflection

Maximum ring deflection of the pipeline under load shall be limited to 5% of the vertical internal pipe diameter. (All pipe exceeding this deflection shall be repaired or replaced by the Contractor at no expense to the Town.)

11.07.1 Pipe Deflection Measurement

No less than six months after completion of the PVC sewer pipe installation, the contractor shall test the pipeline for deflection using a "go no-go" deflection mandrel having a minimum of nine (9) evenly spaced arms or prongs. The "go no-go" gauge shall be hand pulled through all sections of the pipeline by the Contractor. The Contractor shall submit drawings of the "go no-go" gauge to the Superintendent for approval prior to testing. Complete dimensions of the gauge for each diameter of pipe to be tested shall be provided on the drawings.

Any Section of pipe found to equal or exceed 5.0 percent deflection shall be deemed a failed pipe and shall be excavated and replaced by the Contractor at his own expense.

For pipe tested less than six (6) months after installation, any section of pipe found to equal or exceed 2.5 percent deflection shall be deemed a failed pipe and shall be excavated and replaced by the Contractor at his own expense.

11.08 Force Main Testing

Prior to the pressure and leakage tests, the piping shall be thoroughly flushed clean of all dirt, dust, oil, grease and other foreign material. This work shall be done with care to avoid damage to linings and coatings.

11.08.1 Pressure and Leakage Tests

Except as otherwise directed, all pipelines shall be given combined pressure and leakage tests in section of approved length. The Contractor shall furnish and install suitable temporary testing plugs and caps; all necessary pressure pumps, pipe connections, meters, gates, and other necessary equipment; and all labor required. The Owner or Engineer shall have the privilege of using their own gauges.

Subject to approval and provided that the tests are made within a reasonable time considering the progress of the project as a whole, and the need to put the section into service, the Contractor may make the tests when he desires.

Unless it has already been done, the section of pipe to be tested shall be filled with water of approved quality, and all air shall be expelled from the pipe. If hydrants and blowoffs are not available

at high points for releasing air, the Contractor shall make the necessary excavations and do the necessary backfilling and make the necessary taps at such points and shall remove any corporations used for testing and shall plug said holes after completion of the test.

The section under test shall be maintained full of water for a period of twenty-four (24) hours prior to the combined pressure and leakage test being applied.

The pressure and leakage test shall consist of first raising the water pressure (based on the elevation of the lowest point of the section under test corrected to the gauge location) to a pressure in pounds per square inch numerically equal to the pressure rating of the pipe (normally 150 psi). If the Contractor cannot achieve the specified pressure and maintain it for a period of one hour, the section shall be considered as having failed to pass the pressure test.

Following or during the pressure test, the Contractor shall make a leakage test by metering the flow of water into the pipe while maintaining in the section being tested a pressure equal to the pressure rating of the pipe. If the average leakage during a two-hour period exceeds a rate of 11.6 gallons per inch of diameter per twenty-four (24) hours per mile of pipeline, the section shall be considered as having failed the leakage test. For example, if 1,000 feet of 12-inch pipe is to be tested, the allowable leakage is 2.2 gallons over a 2 hour period, calculated as follows:

$$L = \frac{(11.6 \text{ gal}) \times (12") \times (2 \text{ hr.}) \times (1000')}{(1") \times (24 \text{ hr.}) \times (5280')} = 2.2 \text{ gal}$$

If the section fails to pass the pressure and leakage test, the Contractor shall do everything necessary to locate, uncover, and repair or replace the defective pipe, fitting or joint, all at his own expense and without extension of time for completion of the work. Additional tests and repairs shall be made until the section passes the specified test.

If, in the judgement of the Superintendent, it is impracticable to follow the foregoing procedure exactly for any reason, modifications in the procedure shall be made as required and approved, but in any event the Contractor shall be responsible for the ultimate tightness of the line within the above leakage and pressure requirements.

12.01 Standards

Pump stations and force mains shall be designed in accordance with the Water Pollution Control Federation Manual of Practice No. FD-4 "Design of Wastewater and Stormwater Pumping Stations" and the New England Interstate Water Pollution Control Commission Manual TR-16 "Guides for the Design of Wastewater Treatment Works".

12.02 General

Three (3) bound copies of the pump station design report and pertinent catalog cuts shall be submitted to the Superintendent for approval.

12.02.1 Pump Station Design Report

The design report shall include as a minimum the following information:

- * The area to be served by the pump station
- * The design flows of the pump station
- * The total dynamic head (TDH) of the system
- * The type and size of the force main
- * The velocities within the force main
- * The pump cycle
- * The size of the pumps along with the pump curve
- * The size of the pump chamber/wetwell
- * The below grade soil and water conditions
- * Verification of downstream capacities

12.02.2 Catalog Cuts

As a minimum, the following catalog cuts shall be provided:

- * Pumps and pump accessories
- * Pump Curves
- * Generator
- * Electrical work
- * Alarms
- * Enclosures
- * Pump chamber/wetwell

12.03 Design

12.03.1 Materials

The pump chamber, vault, wetwell, etc. shall be constructed of materials approved by the Superintendent.

12.03.2 Alarms

The design of the pump station shall include alarms for low water level, high water level and power failure. A visible alarm (flashing light) shall be located at the pump station, and the alarm shall also be telemetered or auto-dialed to an additional location, as directed by the Superintendent.

12.03.3 Generator

Each pump station shall be equipped with an emergency, engine driven on-site generator to supply power to the pumps in the event of a

power failure. The generator shall be equipped with an automatic transfer switch which will transfer the load to the generator when it reaches proper operating speed, transfer load back to the permanent power source when normal power is restored and shut down the engine driven generator, all without operator assistance.

The generator shall be housed in an enclosure or building approved by the Superintendent and the Nantucket Historical District Commission.

12.04 Operation and Maintenance

12.04.1 Land Deeds

The proper land deeds and other legal documents for the pump station land shall be in place before final approval is granted and construction begins.

12.04.2 Guarantee Period

The pump station shall have a one-year guarantee period after acceptance by the Town. The Developer shall bear the cost of all repairs within the one year guarantee period.

12.04.3 Operation and Maintenance Report

The Developer shall make provisions for a one year operation and maintenance report on the pump station. The Developer shall bear all costs associated with and resulting from this report

TABLE 3

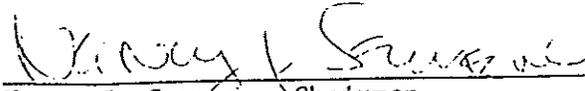
Ratio of Maximum Day to Peak Flows

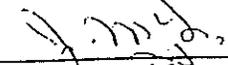
Maximum 24 Hour Flow (mgd)	Conversion Factor	Peak Flow (mgd)
0.1	3.00	0.30
0.2	2.88	0.58
0.3	2.78	0.83
0.4	2.69	1.08
0.5	2.60	1.30
0.6	2.52	1.51
0.7	2.45	1.72
0.8	2.39	1.91
0.9	2.33	2.10
1.0	2.28	2.28
1.5	2.09	3.14
2.0	1.98	3.96
2.5	1.91	4.78
3.0	1.86	5.58
3.5	1.84	6.44
4.0	1.82	7.28
4.5	1.81	8.15
5.0	1.81	9.05
5.5	1.81	9.95
6.0	1.80	10.80

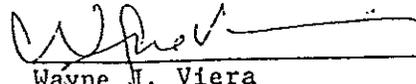
These Specifications shall be in full force and effect from and after their adoption.

Approved this 28th day of March, 1990.

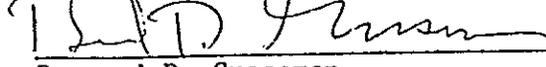
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