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CHAPTER 199, P. L. 1954
AND
STANDARDS FOR THE CONSTRUCTION
OF WATER SUPPLY SYSTEMS FOR
REALTY IMPROVEMENTS



New Jersey State Department of Health
Trenton 25, N. J.
1957

**STANDARDS FOR THE CONSTRUCTION OF WATER
SUPPLY SYSTEMS FOR REALTY IMPROVEMENTS**

Pursuant to the authority vested in the State Commissioner of Health under the provisions of Chapter 199, P. L. 1954, the following Standards for the Construction of Water Supply Systems for Realty Improvements are hereby promulgated this thirteenth day of December, 1956, to take effect January 1, 1957.

NEW JERSEY STATE DEPARTMENT OF HEALTH

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State Commissioner of Health

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CHAPTER 199, P. L. 1954

An Act to protect the public health by regulating the installation or erection of potable water supply and sewerage services upon certain realty improvements within this State and providing for the enforcement thereof.

BE IT ENACTED by the Senate and General Assembly of the State of New Jersey:

1. This act shall be known and may be cited as "The Realty Improvement Sewerage and Facilities Act (1954)."
2. As used in this act, unless the context clearly indicates otherwise, the following words shall have the following meaning:
 - (a) "Approved potable water supply" means water supply which has been approved by the State Department of Health, pursuant to Title 58 of the Revised Statutes, or any other law.
 - (b) "Approved sewer system" means a sanitary sewer system which has been approved by the State Department of Health pursuant to Title 58 of the Revised Statutes, or any other law.
 - (c) "Water supply system" means any installation or structure designed to provide domestic or potable water supply.
 - (d) "Sewerage facilities" means any installation or structure designed to provide for the collection and disposal of sewage.
 - (e) "Realty improvement" means any proposed new residence or other building the useful occupancy of which will require the installation or erection of a water supply system or sewerage facilities, other than one which is to be served by an approved water supply and an approved sewerage system.
 - (f) "Board" or "board of health" means the board of health of any municipality or the boards, bodies or officers in such municipality lawfully exercising any of the powers of a board of health under the laws governing such municipality, and includes any consolidated board of health or county board of health created and established pursuant to law.
 - (g) "State Department" means the State Department of Health.

(h) "Professional engineer" means a person licensed to practice professional engineering in this State.

3. No building permit for the construction of a realty improvement shall be issued by any municipal or other authority in this State nor shall the construction of any realty improvement be begun until the board of health having jurisdiction shall have certified that the proposed water supply system and sewerage facilities for the proposed realty improvements are in compliance with the provisions of this act and the standards for construction of such water supply and sewerage facilities promulgated by the State Department as herein provided and those established by local ordinances, where such local ordinances prescribe higher standards than those promulgated by the State Department.
4. Any board of health which has in its employ a licensed health officer or sanitary inspector of the first grade licensed by the State Department or a professional engineer shall issue certifications as provided in section 3 of this act if such health officer, sanitary inspector or professional engineer certifies to the board that the application and accompanying engineering data are in compliance with this act and the standards for construction hereinbefore referred to. A board of health not having personnel as described above may issue such certification, if an applicant for certification files with the board a certification made by a professional engineer stating that the proposed water supply system and sewerage facilities are in compliance with this act and said standards for construction.
5. Application for certification shall be in writing and shall be made on a form application blank when such blanks are provided by the board, and such application shall include such engineering data as shall be prescribed by said standards for construction. Copies of all applications and the accompanying engineering data for certifications to cover 50 or more realty improvements shall be filed with or mailed to the State Department on the date on which application is made to the board. Copies of all certifications by boards of health covering 50 or more realty improvements shall be mailed to the State Department by the board issuing the same on the date of issue.
6. The board of health shall issue or deny certification within 15 days after receiving an application for certification except that, in the case the board finds the data submitted by an applicant incomplete, the time for acting thereon shall be extended by 15 days beyond the date of submission of adequate supplements.

or amendatory data. Denial of certification shall be supported by a statement of the reasons for such action.

7. The State Department may invoke any certification covering 50 or more realty improvements; provided, that such action is taken within 15 days of the date of certification by the board of health; and provided, that such action is supported by a statement of the reasons therefor. If after revocation of any certification by the board, in any such case, such application is amended or supplemented, a copy thereof shall be filed with or mailed to the department on the date of its submission.
8. If any change in the physical conditions of any lands of a realty improvement, which will materially affect the operation of the water supply system or sewerage facilities covered by any certification issued under this act, shall be made after certification, the certification shall become null and void and a new certification shall be obtained before construction shall proceed. If 50 or more realty improvements are covered by such a valid certificate a copy of the application for a new certificate shall be mailed to the State Department on the date upon which it is submitted to the board.
9. In case any certification is denied by the board of health or is revoked by the State Department, a hearing shall be held thereon before the board or the State Department, as the case may be, within 15 days after request therefor is made by the applicant and upon such hearing the board of health or the State Department, as the case may be, shall affirm, alter or rescind its previous determination and take action accordingly within 15 days after the date of such hearing.
10. A board of health shall have power to make, or cause to be made, such inspections and tests as may be necessary to carry out the purposes of this act and its authorized representatives shall at all times have the right to enter upon lands of realty improvements for said purposes.
11. No septic tank, tile field, seepage pit or system or structure designed to provide sewerage facilities to any realty improvement shall be covered from view until the same has been inspected by an authorized representative of the board of health and permission to cover the same has been given by the board or its authorized representative.
12. Copies of any ordinances, which have been or shall be adopted by any municipality, establishing requirements equivalent to those required by this act and minimum standards for construction equivalent to those promulgated or to be

promulgated by the State Commissioner of Health under this act, shall be filed with the State Department within 10 days after the effective date of this act or within 10 days after the adoption thereof, whichever shall be later.

13. There shall be appointed biennially an advisory committee to draft and recommend standards for the construction of water supply systems and sewerage facilities for realty improvements in order to insure their safety, adequacy and propriety for the purposes for which they are to be installed. One member of such committee shall be appointed by the Commissioner of Conservation and Economic Development from his department, 1 member shall be appointed by the State Commissioner of Health from his department and 1 member shall be appointed by the State Commissioner of Health from each list of 3 persons submitted by each of the following associations, namely:

New Jersey Association of Real Estate Boards,
New Jersey Health Officers Association,
New Jersey Society of Professional Engineers,
New Jersey State League of Municipalities,
New Jersey Home Builders Association,
New Jersey Institute of Municipal Attorneys, and
New Jersey Title Insurance Association.

In event that any of said associations shall fail to submit a list of such names within 10 days after written request to it by the State Commissioner of Health, the State Commissioner of Health may make the appointment according to his own discretion.

14. Such draft of recommended standards shall be submitted to the State Commissioner of Health who, having given due consideration to the same, shall promulgate standards for the construction of water supply systems and sewerage facilities for realty improvements in order to insure their safety, adequacy and propriety for the purposes for which they are to be installed, which standards shall constitute the minimum requirements to be met by applicants for certifications under this act. The standards shall specify the engineering data required to be submitted with applications for certification which shall include a plan of the land to be used for the realty improvement, elevations of existing and proposed physical features, reasonable details on surface and subsurface soil conditions, and, details of the type of construction and the physical features of the proposed water and sewerage facilities, and shall specify minimum requirements for the construction or erection of proposed water supply systems and sewerage facilities. Amendments of standards for construction shall be made

in the manner prescribed for the establishment of the original standards and the advisory committee shall be consulted on all proposed amendments.

15. In case the State Commissioner of Health shall not concur in any of the advisory committee's recommendations as to the standards for construction or any amendments thereof or supplements thereto, and shall promulgate standards not in accord with the committee's recommendations, the committee may appeal to the State Public Health Council thereon and shall be entitled to a hearing before the Council. After such hearing the Council shall make appropriate recommendations to the State Commissioner of Health who shall in turn make such changes, if any, in the standards for construction promulgated by him, as he deems in the interest of the public health.
16. No person or corporation shall construct or install any water supply system or sewerage facilities for a realty improvement, which are not in accordance with the provisions of the application or any amendment thereof or supplement thereto, made for any certification on which a certification shall be issued as herein provided, and any person or corporation violating any provisions of this section shall be subject to the penalties and remedies hereinafter provided for, which may be recovered and enforced by the board of health having jurisdiction in the municipality in which such violation shall occur.
17. Any person or corporation violating any provision of this act shall be liable to a penalty of \$200.00 for each offense and an additional penalty of \$25.00 for each day of continuance of violation after notice of the violation shall have been given to such person or corporation by the board of health having jurisdiction in the municipality in which such violation occurs, to be collected and enforced by summary proceedings for the collection of penalties pursuant to the "Penalty Enforcement Law."
18. The board of health having jurisdiction in the municipality in which any violation of any provision of this act occurs shall have the right to order all further work in and about any water supply system or sewerage facilities, which is being erected or installed in violation of this act, to be stopped forthwith, except such work as shall be necessary to remedy such violation, and, thereafter, to continue such work without any violation of any of the provisions of this act, and after the issuance of any such order and the service of a copy thereof upon any person connected with or working in and about the erection or installation of any such water supply system or sewerage facilities, or any part thereof, no further work shall be done thereon except as aforesaid and any person or corporation who, after having been served with a copy of such an order, shall

do any work or cause or permit any work to be done in or about the same except such as is hereinbefore provided, shall be liable to a penalty of \$200 to be collected and enforced by summary proceedings for the collection of penalties pursuant to the "Penalty Enforcement Law."

19. In case any water supply system or sewerage facilities or any part thereof is about to be, or is, or has been, erected or installed after the effective date of this act in violation of any of the provisions of this act as aforesaid, such erection or installation is hereby declared to be a nuisance and the board of health has jurisdiction in the municipality in which the realty improvement is situated to may institute a civil action for an injunction to prohibit the further violation of this act in any court of competent jurisdiction, which court shall have power to order an abatement of such nuisance, and to prevent its further maintenance and any further violation of this act, by injunction or otherwise according to the practice of said court.

20. This act shall take effect September 1, 1954.

Approved July 28, 1954.

**STANDARDS FOR THE CONSTRUCTION OF WATER SUPPLY SYSTEMS FOR
REALTY IMPROVEMENTS PROMULGATED DECEMBER 13, 1956 BY THE STATE
COMMISSIONER OF HEALTH
PURSUANT TO THE PROVISIONS OF CHAPTER 199, P. L. 1954
Takes Effect January 1, 1957**

**SECTION 1
DEFINITIONS**

1.1 The words, terms or phrases listed below for the purposes of these Standards shall be defined and interpreted as follows:

Administrative Authority. An Administrative Authority is the board of health.

Alter. Alter shall mean and include the replacing or repairing of any portion of an existing water supply system.

Approved. Approved shall mean accepted or acceptable under applicable specifications stated or cited in these Standards, or accepted as suitable for the proposed use under procedures and powers of administration delegated in these Standards.

Artesian Formations. Artesian formations are water bearing sand or gravel formations in which ground water is confined under hydrostatic pressure by tight

day or other sufficiently impermeable formations so as to restrict free hydraulic connection with other water-bearing formations and in which the supply is normally obtained from distant outcrop areas.

Authorized Agent. An authorized agent is a licensed health officer, sanitary inspector, plumbing inspector or any other properly qualified and licensed person who is delegated to function within specified limits as agent of the Administrative Authority.

Catchment Area. Catchment area is that area of the ground surface from which precipitation will recharge the source of water supply.

Certification. Certification by the board of health is a written statement, certifying that the proposed water supply system for the proposed realty improvement is in compliance with the provisions of Chapter 199, P. L. 1954 and these Standards.

Cesspool. A cesspool is a covered pit with open-jointed lining into which raw sewage is discharged, the liquid portion of which is disposed of by seepage or leaching into the surrounding porous soil, the solids or sludge being retained in the pit.

Cistern. A cistern is a covered tank in which rain water from a roof or roofs is stored for household or other purposes.

Construct. Construct shall mean and include building or installing a new water supply system or enlarging an existing water supply system.

Disposal Area. The disposal area is considered as the entire area used for underground dispersion of the liquid portion of sewage. It may consist of a seepage pit or a disposal field or a combination thereof.

Disposal Bed. A disposal bed consists of a shallow area from which the entire earth contents have been removed and the excavation partially filled with a satisfactory filtering material in which distribution lines have been laid and the entire area covered with top soil and a suitable vegetative growth.

Disposal Field. A disposal field is used for dispersion of the liquid portion of sewage into the ground as near the surface as possible. A disposal field may consist of disposal trenches, a disposal bed or a combination thereof.

Disposal Trench. Disposal trenches are shallow ditches with vertical sides and flat bottoms partially filled with a satisfactory filtering material in which a single distribution line has been laid, covered with top soil and a suitable vegetative cover

Diversion Grant. A diversion grant is a grant which has been approved by the Division of Water Policy and Supply of the Department of Conservation and Economic Development pursuant to Chapter 375, Laws of 1947 for the private use or diversion

of ground water in excess of 100,000 gallons daily from a well or other percolation sources in areas which have been delineated under the provisions of the law.

Ground Water. Ground water is sub-surface water which has filled the voids of the earth and cracks or fractures in the rock in what is called the zone of saturation.

Artesian Ground Water. Artesian ground water is ground water confined under hydrostatic pressure by a more or less impermeable overlying formation which restricts free hydraulic connection with other water bearing formations.

Free Ground Water. Free ground water is unconfined ground water where the upper surface or water table is free to rise and fall with changes in volume of stored water.

Industrial Waste. Industrial wastes are liquid wastes free of fecal matter resulting from the processes employed in industrial establishments.

Licensed Well Driller. A licensed well driller is one who has obtained either a Journeyman or Master well driller license under the provisions of Chapter 37, P. L. 1947.

Locate. Locate shall mean designating the site or place of the sources or other appurtenances of a water supply system.

Outcrop Area. Outcrop area is that portion of the ground surface where an artesian ground water formation is exposed to infiltration from precipitation.

Person. Person includes corporations, companies, associations, societies, firms, partnerships and joint stock companies as well as individuals.

Pollution. Pollution shall mean the existence of sewage, industrial waste, or other harmful or objectionable material in water. Sources of sewage pollution may be privies, septic tanks, cesspools, seepage pits, disposal fields such as disposal beds or disposal trenches, sink drains, storm drains, faulty sanitary sewers, barnyard and industrial wastes.

Potable Water. Any water used for drinking or culinary purposes meeting the "Potable Water Standards" adopted by the New Jersey State Department of Health.

Individual Water Supply. A water supply used for potable or domestic purposes in a single family residence.

Public Potable Water Supply. A municipally or privately owned water supply.

approved by the New Jersey State Department of Health, under the provisions of Article 1, Chapter 10 of Title 58 and Article 1, Chapter 11 of Title 58 of the Revised Statutes, which is distributed to consumers through a public water supply system.

Public Water Supply System. A municipally or privately owned system comprising structures which operating alone or with other structures result in the derivation, conveyance (or transmission) or distribution of water for potable or domestic purposes to consumers in twenty or more dwellings or properties; this definition does not include a public water treatment plant.

Individual Sewage Disposal System. An individual sewage disposal system is a subsurface sewage disposal system designed and constructed to treat sewage in a manner that will retain most of the settleable solids in a water-tight tank and to discharge the liquid portion to an adequate disposal area.

Privy. A privy is an earth or water-tight pit or receptacle for receiving non-water-carried human body wastes over which is placed a privy house containing a seat or seats.

Realty Improvement. Any proposed new residence or other building the useful occupancy of which will require the installation or erection of a water supply system or sewerage facilities, other than one which is to be served by an approved water supply and an approved sewerage system.

Semipublic Water Supply System. A semipublic water supply system is a water supply system from which potable water is supplied to consumers of more than one but less than twenty dwellings and from which water is used or made available for potable purposes to employees, tenants, members, guests, or the public at large in commercial offices, industrial, multiple dwelling or semipublic buildings, such as: apartments, rooming and boarding houses, hotels, motels, tourist cabins, trailer camp, restaurants, camps of all types, day and boarding schools, club houses, hospitals and other institutions, or is used in connection with the manufacture or handling of ice, dairy products, food or drinks.

Sanitary Sewage. Sanitary sewage is any liquid waste containing animal or vegetable matter in suspension or solution or the water-carried wastes resulting from the discharge of water-closets, laundry tubs, washing machines, sinks, dishwashers or any other source of water-carried waste of human origin or containing putrescible material.

Sanitary Sewer. A sanitary sewer is a pipe which carries sewage and to which storm, surface and ground waters are not intentionally admitted.

Seepage Pit. A seepage pit is a covered pit with open jointed lining through which septic tank effluent or laundry waste may seep or leach into the surrounding soil.

Septic Tank. A septic tank is a water-tight receptacle which receives the discharge from a building sewer or part thereof, and is designed and constructed so to permit settling of settleable solids from the liquid, digestion of the organic matter by detention and discharge of the liquid portion into a disposal area.

Spring. A spring is a natural surface feature where ground water issues from the rock or soil onto the land or into a body of water.

Subsurface Water. See Ground Water.

Surface Water. Surface water includes water found on the ground surface contained in a stream, pond or lake or any other natural water course.

Water Table. Water table is the upper surface of the free ground water in an unconfined zone of saturation. In an artesian formation, the water table corresponds to the top of the pressure surface.

Well. A well is an artificial excavation that derives water from the interstices of the rocks or soil which it penetrates.

Abandoned Well. Abandoned well is one no longer used.

Artesian Well. An artesian well is one which derives its water from a confined water-bearing formation in which the ground water is under hydrostatic pressure. An artesian well may or may not overflow at the surface.

Bored Well. Bored well is one that is excavated by means of a hand or power soil auger.

Condemned Well. Condemned well is one in which the water has been declared unsuitable for human use by the Administrative Authority.

Drilled Well. Drilled well is one that is excavated wholly or in part by means of a drill (either percussion or rotary) which operates by cutting by abrasion or by use of a water jet.

Driven Well. Driven well is one that is constructed by driving a casing at the end of which is a drive point and screen without the use of a drilling, boring or jetting device.

Dug Well. Dug well is one that is excavated by means of picks, shovels, or other hand tools, or by means of power equipment such as "orange peel" or "clam shell" buckets and is lined as digging progresses or after completion.

Rock Well. Rock well is one which derives water only from cracks and fissures in the rock.

Sunk Well. Sunk well is one in which the casing is lowered primarily by removing the soil by a water jet.

Water Table Well. A water table well is one which derives its water from an unconfined zone of saturation which has no protective impermeable cover over the water bearing formation. Water table wells are subject to periodic variations in water table levels.

Well Permit. A well permit is a permit issued by the Division of Water Policy and Supply of the Department of Conservation and Economic Development for the construction of a well in accordance with the provisions of Chapter 377, Laws of 1947.

Zone of Saturation. Zone of saturation is that portion of the earth and underlying rock in which all voids, interstices, fissures and cracks are completely filled with ground water.

Section 2

GENERAL REQUIREMENTS

2.1 Design. The following shall be considered in designing a water supply system for a realty improvement:

- a) A balanced system of supply, pumping, distribution and storage facilities to meet the demand.
- b) A dependable source of potable water supply.
- c) Potential and known sources of contamination.
- d) Geological formations.
- e) Availability of water from a public potable water supply within an economic distance from the realty improvement.
- f) Advisability of establishing a public potable water supply.

2.2 Water Consumption. Water supply systems shall be designed to provide a quantity of potable water as determined from the following table:

<u>Type of Realty Improvement</u>	<u>Gallons per person per day</u>
All-year private residences	60
Part-year private residences	40
Multiple family permanent residences such as apartments, rooming houses, boarding schools, hotels, club houses	50
Multiple family transient residences such as motels, some hotels, camps	30
Semi-public, nonresidential buildings such as restaurants, boarding houses, day schools, nonresident club houses	10
Semipublic nonresident recreation facilities such as day camps, picnic grounds	5

The demand for special types of realty improvements such as hospitals, and institutions shall be based on estimates of special use.

2.3 Source of Supply. The source of supply shall be determined on the following basis:

- a) yield.
- b) nature and quality of the local water resources.
- c) number and type of realty improvements.
- d) **geologic or subsoil formations.**
- e) depth to acceptable ground water.

2.4 Sources of Water. The source of water supply may be from shallow or deep wells. The use of springs, rainfall cisterns, and surface water may be permitted by the Administrative Authority upon compliance with these standards.

2.5 Grading. Final grading shall provide adequate drainage of surface waters to protect the water supply from flooding.

2.6 Freezing. All parts of the water supply system shall be designed, located and constructed to protect against freezing.

2.7 **Cross connection.** No cross connection shall be established between a water supply system serving a realty improvement and an approved potable water supply unless approved in accordance with the provisions of Chapter 308, P. L. 1942.

2.8 **Frost-Proof Facilities.** No water supply connection shall be made to a frost-proof toilet or hydrant unless authorized by the Administrative Authority.

2.9 **Priming.** A pump which requires priming shall not be employed for any water supply system serving a realty improvement.

2.10 **Disinfection.** Upon completion of the installation of a water supply system or following repairs to its pumping equipment, it shall be flushed and disinfected in accordance with the instructions of the Administrative Authority.

2.11 **Protection.** All necessary measures shall be taken to prevent the contamination of the water-bearing stratum during the well construction.

Section 3 LOCATION

3.1 **General.** A water supply system located and installed under these standards shall be such that with reasonable maintenance, it will function in a satisfactory manner and will not be subject to contamination from surface or subsurface sources.

Springs situated on the side of or at the foot of a hill should not be used if cesspools, privies, sewers or other potential sources of contamination are located above the spring and in line with the flow of the water-bearing strata toward the spring. In no instance shall a spring be used if located closer than 200 feet from an upstream source of contamination.

Surface supplies subject to direct contamination from sewage and industrial waste shall not be used for potable purposes.

3.2 **Distances.** The approximate minimum distances for the location of the various component parts of a water supply system shall comply with those in the following table:

Component	MINIMUM DISTANCE - FEET					
	Building Sewer	Septic Tank	Distribution Box	Disposal Field	Seepage Pit	Cesspool
Well (a)	50	50	50	100(b)	100(b)	150
Suction Line	50	50	50	50	50	150
Water Supply Line	10	10	10	10	10	25

(a) Where coarse soil or limestone formations are encountered, the distance from a subsurface sewage disposal system may be increased by the Administrative Authority.

(b) Distances from disposal fields and seepage pits may be reduced to a minimum of 50 feet when the well is provided with an outside water-tight casing to a depth of 50 feet or more, or said casing extends and is sealed into an impervious stratum separating the water-bearing stratum from the stratum of soil used for sewage disposal.

3.3 Flooding. No part of any water supply system, except the intake and connection component of a surface supply, shall be located in an area subject to frequent surface water flooding or inundation by fresh or salt water.

3.4 Well Room. A well shall not be installed within the cellar or basement of any realty improvement. An offset basement pump and well room is not considered a part of the cellar or basement provided the floor of said offset room is at least 8 inches above the floor of the adjoining basement, and the offset room is constructed with a water-tight roof or cover so as to permit the removal of any part of the well construction or pumping equipment for maintenance and repair.

3.5 Pump Pits. Pump pits will be permitted if water-tight and provided with either a four-inch gravity drain to the ground surface or a sump pump. In no case shall a pump pit be located in or over a dug well.

Section 4

WELL CONSTRUCTION

4.1 General. The design, selection, location and construction shall conform to the provisions of Sections 2 and 3 and as prescribed herein for specific types of wells.

4.2 DRILLED WELL.

4.2.1 Casing

a) **Material.** Well casings shall be new standard wrought iron or steel well casing pipe. Well casings in excess of 6 inches in diameter, shall have a minimum wall thickness of $\frac{1}{4}$ inch.

- b) **Used or Reclaimed Pipe.** Damaged, used or reclaimed pipe shall not be used in the construction or equipment of any well for an individual water supply. Pipe withdrawn from a well of new construction is not considered as used or reclaimed.
- c) **Couplings.** Each section of the casing shall be joined with standard drive-pipe couplings with ample full threaded joints or by proper welding so that all joints shall be closed and water-tight as installed in the well.
- d) **Diameter.** The minimum inside diameter of the well casing shall be four inches. The minimum diameter of the drill hole for the casing for rock wells shall be four inches greater than the diameter of the casing.

4.2.2. Casing Depth.

- a) **Water Table Wells.** In unconsolidated materials such as sand, gravel, silt, clay, or combinations thereof, the bottom of the casing shall extend at least 10 feet below the lowest seasonal stage with due allowance for drawdown of the static ground water table where yields of 10 gallons per minute can be obtained with pumping drawdown of 5 feet or less. For larger pumping capacities, the bottom of the casing shall extend a minimum of 10 feet below the pumping level for the desired yield with due allowances for seasonal fluctuations and for increased draft on the water-bearing formation. The casing shall be sealed securely in any tight or impermeable material encountered above the water-bearing formation.
- b) **Rock Wells.** The bottom of the casing and drill hole of rock wells shall extend a minimum distance of 10 feet into solid rock. The casing shall be securely driven into the solid rock and shall be firmly seated and sealed into said rock.
- c) **Limestone Rock Wells.** The casing for limestone rock wells shall extend to the approved source of supply and shall be protected as required and sealed into rock so as to exclude all unsuitable water from crevices located above the approved source of water.
- d) **Artesian Wells.** The casing for artesian wells shall extend through and be securely sealed into the impermeable stratum above the water-bearing formation.

4.2.3. Screen.

- a) All drilled wells shall be equipped with suitable noncorrosive screen, installed below the bottom of the water-tight casing or shaft lining and

securely fastened when sand, gravel or other unconsolidated material is encountered in the water-bearing formation. The length and size of openings shall be satisfactory to develop the desired yield and to confine the sand or other loose material. The installation shall expose all of the slotted or porous area to the water-bearing formation.

4.2.4. Sealing.

- a) **Shallow Wells Other Than Rock Wells.** The annular opening for a minimum depth of 10 feet below the surface platform slab or pump-room floor shall be filled with concrete or puddled clay to provide a water-tight collar around the casing at least 6 inches thick.
- b) **Rock Wells.** The annular opening between the casing and the drill hole shall be filled with a neat Portland cement grout or a 1:1 ratio cement sand grout of approved consistency extending from the bottom of the casing in the drill hole to the surface platform slab or pump-room floor. The grout mixture shall be placed in one continuous operation and shall be applied from the bottom upward so as to reduce voids to a minimum. The casing shall be centered in the drill hole, using guides if necessary and shall be firmly seated on solid rock in the bottom of the drill hole with a neat cement grout.
- c) **Open Casings.** The seal between the pump base and concrete platform or pump-room floor shall be water-tight and all openings between the casing and the drop pipe shall be closed with an approved type of water-tight sanitary seal.
- d) **Closed Casings.** All closed casings shall be sealed and covered with an approved standard type of well seal and all openings through the casing for the pump discharge or drop-line shall be made with an approved standard type of seal. Vents, if required, shall be properly screened with the opening terminating in a downward direction.

4.3. DRIVEN WELL

4.3.1 Casing.

- a) **Material.** Well casings shall be new standard wrought-iron or steel drive pipe.
- b) **Used or Reclaimed Pipe.** Damaged, used or reclaimed pipe shall not be

used in the construction or equipment of any well for an individual water supply. Pipe withdrawn from a well of new construction is not considered as used or reclaimed.

- c) **Couplings.** Each section of the casing shall be joined with standard drive-pipe couplings with ample full threaded joints so that all joints shall be closed and water-tight as installed in the well.
- d) **Diameter.** The minimum inside diameter of the pipe casing shall be 1¼ inches.

4.3.2 Casing Depth

- a) **Water Table Wells.** The top of the well point or the perforated section of the casing shall extend at least 10 feet below the lowest minimum seasonal stage of the static ground water table for driven wells of 2½ inches or less in diameter. For driven wells of greater diameter, the minimum depth shall conform to the provisions of Section 4.2.2.a for drilled wells.
- b) **Artesian Wells.** The water-tight casing for all artesian wells shall conform to the provisions of Section 4.2.2.a for drilled wells.

4.3.3 **Well Points.** The casing of all driven wells shall be equipped with a standard drive point and a well point or perforated section of sufficient length to develop the desired yield in the water-bearing formation.

4.3.4 **Methods of Construction.** No well or well point shall be driven with the assistance of a water jet without the approval of the Administrative Authority.

- a) **Water Jet.** Water jets and the water supply may only be used upon approval by the Administrative Authority. The flow from the water jet shall be confined by an exterior wrought iron or steel casing conforming to the provisions of Section 4.5 for the construction of sunk wells. The exterior casing shall be centered on the drive pipe or well casing, and shall terminate above the ground water table and shall provide a diameter not more than 4 to 6 inches greater than the diameter of the drive pipe or well casing. The annular opening between the exterior casing and the drive pipe or well casing shall be filled with a neat Portland cement or a 1:1 ratio cement-sand grout of proper consistency, carefully introduced as specified in Section 4.2.4.b so as to reduce voids to a minimum. If desired, the exterior casing can be pulled as the grout mixture is in-

roduced.

- b) **Bored Holes.** The annular opening between the bored hole and the drive pipe or well casing shall be filled with a neat Portland cement or 1:1 ratio cement-sand grout of proper consistency, carefully introduced as specified in Section 4.2.4.b so as to reduce voids to a minimum. The bored hole shall be centered on the drive pipe or well casing, shall terminate above the ground water table and shall provide a diameter not more than 4 to 6 inches greater than the diameter of the drive pipe or well casing.
- c) **Dug Holes.** The annular opening between the drive pipe or well casing and the undistributed material around the edge of the hole shall be filled with concrete or puddled clay to provide a water-tight collar not less than 6 inches thick where the surface material has been disturbed during the construction.
- d) **Bored, Sunk or Dug Wells.** All wells or well points driven in the bottom of a bored, dug or approved type of sunk well shall be sealed by a 24-inch thick, impermeable bed of concrete where the diameter of the well is more than 6 inches greater than the diameter drive pipe or well casing. For well diameters 6 inches or less, the drive pipe or well casing shall be sealed as specified in Section 4.2.4.a.

4.3.5 Sealing.

- a) **Open Casings.** The seal between the pump base and concrete platform or pump room floor shall be water-tight and all openings between the casing and the drop line shall be closed with an approved type of water-tight sanitary seal.
- b) **Closed Casings.** All closed casings shall be sealed and covered with an approved standard type of well seal and all openings through the casing for the pump discharge or drop-pipe shall be made with an approved standard type seal. Vents, if required, shall be properly screened with the opening terminating in a downward direction.

4.3.6 Drop Line. A separate inside pipe 3 inches or more in diameter known as a drop line shall be installed in all drive pipe casings.

4.4 BORED WELL.

4.4.1 Limitations.

- a) Bored wells less than 20 feet in depth shall not be used for a semi-public water supply or for a private water supply to more than one realty improvement, or for any individual water supply in a locality where seepage pits or cesspools are used as a means of sewage disposal.
- b) Bored wells shall not be constructed in an artesian formation unless special precautions satisfactory to the Administrative Authority are provided to seal the casing into the impermeable stratum above the water-bearing formation.
- c) Water jets or other similar devices or procedures shall not be used in the construction of a bored well.

4.4.2 Casing.

- a) **Material.** Casings shall be constructed preferably of new standard steel black pipe, standard wrought iron or steel well casing pipe or corrugated iron or other sheet metal pipe. Reinforced concrete or cement-asbestos pipe may be used when approved by the Administrative Authority. Bell and spigot pipe, tile pipe, or stove pipe of any kind shall not be used. All metal pipe casing in excess of 6 inches in diameter shall have a minimum wall thickness of $\frac{1}{4}$ inch.
- b) **Used or Reclaimed Pipe.** Damaged, used or reclaimed pipe shall not be used in the construction or equipment of any well for an individual water supply. Pipe withdrawn from a well of new construction is not considered as used or reclaimed.
- c) **Joints.** Each section of a metal pipe casing shall be welded or fastened with an appropriate, approved type of coupling to provide a closed, water-tight joint when installed in the well. Riveted joints are not permitted. Concrete and cement-asbestos pipe shall be laid with the inside spigot upwards to reduce leakage.
- d) **Diameter.** The minimum inside diameter of the casing shall be 3 inches where a screen or other type of perforated or porous casing is installed. Where the well is terminated at the bottom of the water-tight casing, the minimum inside diameter shall be such as to expose sufficient water-bearing surface to develop the required yield without disturbance of the water-bearing material.

4.4.3. Casing Depth.

- a) **Water Table Wells.** The minimum depth to the bottom of the water-casing shall conform to the provisions of Section 4.2.2.a for drilled wells except as otherwise authorized by the Administrative Authority, the depth of the bottom of the water-tight casing may be reduced to a minimum of 5 feet below the lowest minimum seasonal stage of the static ground water table, provided, however, that the bottom of the water-tight casing shall not be less than 20 feet below the surface of the ground.
- b) **Artesian Wells.** The minimum depth of the water-tight casing shall conform to the provisions of Section 4.2.2.d for drilled wells.

4.4.4. Screen. Unless otherwise authorized by the Administrative Authority, all bored wells shall be equipped with a screen or other type of suitable perforated or porous casing conforming to the provisions of Section 4.2.3. The minimum length of screen or substitute shall be 4 feet.

Where the water-tight casing is terminated at the bottom of the hole, the exposed water-bearing surface shall be protected by a layer of clean gravel 6 inches or more in thickness as specified by the Administrative Authority.

4.4.5. Construction of Bored Hole.

- a) **Depth.** The bored hole shall extend from the surface of the ground into the water bearing formation below the ground water table but not less than 20 feet in depth below the surface of the ground.

Unless otherwise authorized by the Administrative Authority, the bored well shall provide sufficient depth below the water-tight casing for a screen or other type of perforated or porous casing acceptable to the Administrative Authority.

- b) **Diameter.** The minimum diameter of the bore hole shall be 4 to 6 inches greater than the maximum outside diameter of the casing for the entire depth of the water-tight casing except for water-tight metal casing where the depth may be reduced to a minimum of 10 feet below the surface of the ground with the consent of the Administrative Authority. For the balance of the hole, the diameter of the bore hole shall provide a close fit for the casing and screen where the latter is used.

4.4.6 Sealing.

- a) **Annular Opening.** The annular opening between the water-tight casing

and the bore hole shall be filled for the entire depth with a 1:1 ratio cement-sand grout of proper consistency, carefully introduced as specified in Section 4.2.4.b so as to reduce voids to a minimum. For water-tight metal casings, soft puddled clay may be used with the consent of the Administrative Authority.

- b) **Open Casings.** The seal between the pump base and concrete platform or pump-room floor shall be water-tight and all openings between the casing and the drop pipe shall be closed with an approved type of water-tight sanitary seal.
- c) **Closed Casings.** All closed casings shall be sealed and covered with an approved standard type of well seal and all openings through the casing for the pump discharge or drop-line shall be made with an approved standard type of seal. Vents, if required, shall be properly screened with the opening terminating in a downward direction.

4.5 SUNK WELLS.

4.5.1 Limitations.

- a) The installation and use of sunk wells for individual water supply is limited to a private water supply in a locality where seepage pits or cess-pools are not used as a means of sewage disposal. Special approval to make such an installation shall be obtained from the Administrative Authority.
- b) Sunk wells shall not be constructed or installed in any artesian formation.

4.5.2 Casing.

- a) **Material.** The water-tight casing shall be constructed of new, standard steel black pipe, standard wrought iron or steel well casing pipe or corrugated iron or other sheet metal pipe. Well casings in excess of 6 inches in diameter shall have a minimum thickness of $\frac{1}{4}$ inch.
- b) **Used or Reclaimed Pipe.** Damaged, used or reclaimed pipe shall not be used in the construction or equipment of any well for an individual water supply. Pipe withdrawn from a well of new construction is not considered as used or reclaimed.
- c) **Joints.** Each section of the casing shell shall be welded or fastened with

an appropriate approved type of coupling to provide a closed, water-tight joint when installed in the well. Riveted joints are not permitted.

- d) **Diameter.** The minimum inside diameter of the casing shall conform to the provisions of Section 4.4.2.d for bored wells.

4.5.3 Casing Depth. The minimum depth to the bottom of the water-tight casing shall conform to the provisions of Section 4.4.3.a for bored wells.

4.5.4 Screen. Screens, if provided, shall conform to the provisions of Section 4.4.4 for bored wells.

4.5.5 Method of Construction.

- a) **Jetting.** All sunk wells shall be constructed so as to confine as far as practicable the erosive effect of the water jet within the casing and to maintain the bottom of the casing at all times at or below the jetting nozzle. Where substantial erosion is experienced outside of the casing the use of a larger diameter casing may be specified by the Administrative Authority to reduce the annular opening between the casing and the undisturbed material. Special precautions shall also be taken to carry the liquid material away from the site of the well.
- b) **Water Used During Construction.** All water used during the construction of a well shall be of approved quality satisfactory to the Administrative Authority. Liberal chlorination of such water may be required.
- c) **Depth.** Unless otherwise authorized by the Administrative Authority, the sunk well shall provide sufficient depth below the water-tight casing for a screen or other type of perforated or porous casing acceptable to the Administrative Authority.

4.5.6 Sealing

- a) **Annular Opening.** The annular opening between the water-tight casing and the bore hole shall be filled for the entire depth with a 1:1 ratio cement-sand grout of proper consistency, carefully introduced as specified in Section 4.2.4.b so as to reduce voids to a minimum. For water-tight metal casings, soft puddled clay may be used with the consent of the Administrative Authority.
- b) **Open Casings.** The seal between the pump base and concrete platform

or pump-room floor shall be water-tight and all openings between the casing and the drop pipe shall be closed with an approved type of water-tight sanitary seal.

- c) **Closed Casings.** All closed casings shall be sealed and covered with an approved standard type of well seal and all openings through the casing for the pump discharge or drop-line shall be made with an approved standard type of seal. Vents, if required, shall be properly screened with the opening terminating in a downward direction.

4.6 DUG WELL

4.6.1 Limitations

- a) The installation and use of dug wells shall conform to the provisions of Section 4.5.1a for sunk wells.
- b) Dug wells shall not be constructed or installed in any artesian formation.
- c) Water jets or other similar devices or procedures shall not be used in the construction of a dug well.

4.6.2. Casing.

- a) **Material.** The water-tight casing or lining of a dug well shall be constructed of new, standard wrought iron or steel black pipe or other prefabricated lining of equal quality having a wall thickness of at least $\frac{1}{4}$ inches; reinforced concrete pipe or equal when encased in a 4 inch reinforced concrete exterior water-tight lining; or stone, brick, concrete, cinder or terra cotta block when encased in a 6 inch reinforced concrete exterior water-tight lining. Other materials of construction acceptable to the Administrative Authority may be used so as to provide a water-tight construction of sufficient strength and durability to maintain the opening and withstand the loads imposed. The method of installation shall be satisfactory to the Administrative Authority.

4.6.3. **Casing Depth.** The minimum depth to the bottom of the water-tight casing shall conform to the provisions of Section 4.4.3.a for bored wells.

4.6.4. **Excavation.** The excavation shall provide a smooth, vertical shaft, of adequate size for the installation of the type of casing or lining selected. The face of the hole shall be shored and braced as required to maintain the natural stability of

the soil. Where a pipe or other type of prefabricated casing is used as an open caisson, the excavation shall provide an annular space of not less than 2 inches more than 6 inches around the outside of the casing for the depth of the water-casing.

4.6.5. Porous Casing (Screen). At the point where the dug well extends below the bottom of the water-tight casing into the water-bearing formation, the hole shall be lined from the bottom of the hole to the bottom of the water-tight casing with loose jointed perforated metal or other type of permeable or porous casing satisfactory to the Administrative Authority.

- a) **Length.** The porous casing shall be of sufficient length to expose all the porous area to the water-bearing formation.
- b) **Material.** All material shall be new, clean and undamaged and shall provide sufficient strength and durability to maintain the opening and withstand the loads imposed, including that of the water-tight casing. Stone, brick or concrete, cinder, terra cotta block may be used for loose jointed casings. Metal casings shall have a minimum wall thickness of $\frac{1}{4}$ inch.

4.6.6. Casing Construction. All concrete shall be composed of 1 part Portland cement, 1 $\frac{1}{2}$ parts sand and 3 parts gravel by volume of proper consistency to provide a dense, water-tight wall. Unless otherwise authorized by the Administrative Authority, the entire concrete wall shall be poured in one continuous operation and, in no case, with a construction joint less than 10 feet below the natural surface of the ground. Concrete shall be applied from the bottom upwards so as to reduce voids to a minimum. The completed wall shall be free of honey-combing.

- a) **Poured-in-place Concrete Wall.** Unless otherwise authorized by the Administrative Authority, all poured concrete wall casings should be poured against undisturbed earth and no outside form used. Where outside forms are permitted, all pieces of the outside form shall be carefully removed and the annular space between the exterior of the poured casing and the undisturbed earth shall be sealed with concrete or a 1:1 ratio cement-sand grout for the first 10 feet above the bottom of the water-tight casing and for the balance of the depth with puddled clay, concrete or other acceptable material, in a manner satisfactory to the Administrative Authority.
- b) **Metal Pipe or Other Prefabricated Lining.** Each section of the casing shall be welded or fastened with an appropriate approved type of coupling to

provide a closed, water-tight joint when installed in the well. No riveted joints shall be permitted. The casing shall be centered in the dug hole which shall provide an annular space between the exterior face of the casing and the undisturbed earth of not less than 2 inches. Where required, the annular space shall be reamed to remove and compact the loose material in the bottom of the hole and shall be filled for the entire remaining depth (not less than 10 feet) with a 1:1 ratio cement sand grout of proper consistency, carefully introduced as specified in Section 4.2.4.b so as to reduce voids to a minimum.

- c) **Concrete Pipe or Stone, Brick or Block Lining.** The exterior concrete casings shall be poured against the undisturbed earth face of the excavated hole. No outside form shall be used.
- d) **Porous Casing.** Loose jointed linings shall be constructed firmly against the undisturbed face of the hole and shall be of sufficient thickness to align the inside face with that of the water-tight lining. For perforated metal casings, the hole shall provide a close fit.

Where the bottom of the water-tight casing is terminated at the bottom of the hole, the exposed water-bearing surface shall be protected by a layer of clean gravel, 12 inches or more in thickness, as specified by the Administrative Authority.

4.6.7. Sealing

- a) **Open Casing.** For the ordinary type of dug well with the water-tight casing extending to the surface of the ground, the top of the open casing shall extend not less than 6 inches above the finished surface grading of the ground. The open casing shall be covered and sealed with a reinforced concrete slab platform 4 to 6 inches thick and shall extend at least 6 feet greater in diameter than the well excavation with a slope of at least 1 inch from the well casing to the edge of the concrete.

The joint between the slab and top of well casing shall be sealed and made water-tight. A 1-foot length of 5-inch wrought iron or steel pipe or well casing, with the upper end threaded for a cap, shall be placed in a vertical position in the center of the slab when it is cast for the drop pipe. The top of casing shall extend not less than 6 inches above finished grade of the concrete cover slab. The seal between the pump base and the cover slab shall be water-tight and all openings between the 5-inch casing

pipe and the drop pipe shall be closed with approved type of water-tight sanitary seal. Similar provisions, satisfactory to the Administrative Authority, shall be made for drop pipe connections through the side wall of the water-tight casing.

- b) **Closed Casings.** When the water-tight casing is terminated and capped below the surface of the ground, as in the case of buried dug wells, the casing shall be covered and sealed by a reinforced concrete slab, 4 to 6 inches thick, conforming to the provisions of Section 4.6.7.(a) for open type casings. The joint between the slab and the well casing shall be sealed and made water-tight by a metal strip or plastic compound. A length of 5-inch pipe or well casing placed in the slab is laid to at least 6 inches above the finished grade of the pump-room floor or concrete platform. The seal between the pump base and concrete platform slab or pump-room floor and between the drop pipe and the 5-inch casing shall conform to the provisions of Section 4.6.7(a).

Section 5

SPRINGS, CISTERNS AND SURFACE SUPPLIES

5.1 SPRINGS.

5.1.1 Construction. Springs shall be enclosed by walls and covers constructed of impervious concrete or other relatively water-tight material and installed so as not to restrict the flow of water into the basin.

- a) The walls of the spring encasement shall be extended above the elevation of the surrounding ground to prevent the entrance of surface water. Diversion ditches on the uphill side shall be installed if necessary. An overflow drain shall be placed near the top of the casement.
- b) The discharge or pump intake pipe shall be installed so that the lowering of the water level within the casement will not permit the entrance of surface water.
- c) The cover shall be movable or in case of a large encasement of water-tight covered manhole shall be provided so that the interior can be serviced.

5.2 CISTERNS.

5.2.1 **Limitation.** Cisterns may be permitted where ground water is unavailable.

5.2.2 **Construction.** Cisterns shall be enclosed by walls and covers constructed of metal or impervious brick, stone or concrete, and may be constructed above or below ground level, depending upon local conditions governing such a decision. Manholes shall be provided for all cisterns to permit cleaning.

5.2.3 **Supply Line.** The supply line to the cistern shall contain a switch so that the first washings of the roof can be wasted.

5.2.4 **Overflows.** The overflow pipe shall be screened with 16-mesh copper cloth. The inside end of the overflow pipe shall extend to the bottom of the cistern.

5.2.5 **Filters.** Filters employing coarse gravel shall be provided between the supply line and the cistern to prevent the entrance of insects and other matter, not removed from the roof and gutters by the first washing, from entering the cistern.

5.2.6 **Discharge Line.** The discharge or pump suction line shall be installed so that the opening through which it passes can be provided with a water-tight seal.

5.2.7 **Disinfection.** Disinfection of cistern water may be required by the Administrative Authority if in their opinion the catchment area can not be washed and wasted properly.

5.3. SURFACE WATER SUPPLY

5.3.1 **Limitations.** A surface water supply for a realty improvement is not recommended and may only be permitted when the supply is not subject to direct pollution from sewage, industrial waste or other sources of contamination and when adequate continuous operating treatment facilities are to be employed.

5.3.2 **Treatment.** Treatment of surface water shall consist of filtration and chlorination.

5.3.3 **Treatment Plant Design.** The treatment plant shall be designed to provide the quantity of water as determined in the table in Section 2.2 of these standards, and generally consist of the following principal units:

1. Raw water intake line.
2. Raw water pump if required.
3. Filter.
4. Filtered water storage basin.

5. Chlorinator.
6. Filtered water pump.
7. Pressure or gravity tank.

5.3.4. Chlorine Residual Testing Kit. A chlorine residual testing kit shall be provided employing the chemical "orthotolidine" and permanent color standard having the range of 0.05 to 1.0 parts per million.

5.3.5. Chlorine Residual Required. The proper amount of chlorine shall be added to the filtered water to produce a safe water. This amount should be determined through bacteriological samples containing varying amounts of chlorine as determined by the chlorine residual test. Generally the filtered water leaving the filtered water storage basin should contain a chlorine residual of from 0.3 p.p.m. to 0.5 p.p.m.

Section 6

PUMPS AND EQUIPMENT

6.1 Type and Capacity. Type and capacity of the pump and equipment (motor, drop pipes, foot valve, cylinder, storage tank, etc.) used shall be selected to meet the condition of the well and the requirements of the property served.

- a) The equipment used with the pump shall be in accordance with the pump manufacturers' recommendations as to type, size and kind.
- b) Suction or shallow-well pumps shall not be used where the maximum suction head exceeds 22 feet.

6.2 Location. Location of the pump and all equipment shall be such as will permit convenient access and removal for maintenance and repair.

- a) Where a shallow-well is placed in the basement or where a deep-well pump for a drilled or driven well is in an offset-basement pump room, the pumping equipment and the top of the drilled or driven-well casing shall be located not less than 18 inches above the basement floor.
- b) When possible the pump shall be located and designed as to make the use of a pump pit unnecessary; however, if used the pit shall be provided with either a 4-inch gravity drain to the ground surface or a sump pump.

6.3 Installation. Installation of the pump and equipment shall be satisfactory.

to the Administrative Authority and shall conform with the following:

- a) The pump and equipment shall be designed and installed to assure a pollution-proof and, where necessary, a frost-proof installation.
- b) The pump base shall be constructed so as to permit installation of a water-tight mounting.

6.4 Seal.

6.4.1 **Below Grade.** When the top of well casing is below grade the seal shall be so constructed and installed as to maintain its water-tight feature.

6.4.2 **Air Vent.** An air vent shall not be permitted in a below grade installation, and only in an above grade installation where required by the Administrative Authority.

6.4.3 **Suction Lines.** Suction lines installed through the well casing or where otherwise required, shall be constructed with a wrought iron pipe sleeve set water-tight into the casing. The suction line shall be caulked into the sleeve providing a water-tight joint which will permit easy removal. The suction line shall slope upward toward the pump.

Section 7

REQUIREMENTS FOR CERTIFICATION

7.1 Individual Water Supply and System.

7.1.1 **Basic Information Required.** Applications for certifications of individual water supplies and systems for one to ten realty improvements fronting on an existing "street," as defined in Section 2 of the Municipal Planning Enabling Act (1953), shall be made in writing, and upon a formal application form when provided by the Administrative Authority, and contain the following information:

- a) A description of the proposed water supply and system covering the following items:
 - 1) Type of well or source of water supply (drilled, driven, spring, surface, etc.).
 - 2) Estimated depth of well.

- 3) Method of sealing.
 - 4) Pumping equipment.
 - 5) Storage facilities.
 - 6) Purification facilities if required.
- b) A sketch of the property to be served by the individual water supply showing the following:
- 1) Size of lot.
 - 2) Location of all buildings.
 - 3) Location of the proposed individual water supply.
 - 4) Location of the sewerage facilities.

7.1.2 Additional Information Required. Applications for certification of individual water supplies and systems for realty improvements not covered in 7.1.1 and 7.2.1 shall submit the following information in addition to that required in 7.1.1:

- a) A plan of the subdivision showing the following: *
- 1) Lots with their dimensions.
 - 2) Contours of original grades.
 - 3) Proposed elevations of the final grading shown at lot corners or any contemplated change of slope.
 - 4) Location of all test wells drilled to investigate water supply potentialities.
 - 5) Location of all natural streams, and storm water drainage channels on or abutting the subdivision and of any contemplated relocation of same.
 - 6) Location when less than $\frac{1}{2}$ mile from the high water line along the coast and all salt water estuaries and elevation of maximum high water where available.
 - 7) Location of storm and sanitary sewers.
 - 8) Location of all private and public water supplies within 1,000 feet of the subdivision.

* The plan of the subdivision to be submitted for certification of sewerage facilities may be used for this purpose.

7.2 Semipublic Water Supply and System.

7.2.1 Information Required. An application for certification of a water supply and system to serve less than 20 realty improvements and for any other realty improvements included under the definition of a Semipublic Water Supply System

shall be made in writing and upon a formal application from when provided by the Administrative Authority, and contain the following information:

A) For a semipublic water supply and system to serve less than 20 realty improvements:

1) A description of the proposed water supply system covering the following items:

- a) Type of well or source of water supply (drilled, driven, dug, surface, etc.).
- b) Estimated depth of well.
- c) Method of sealing.
- d) Pumping equipment.
- e) Storage equipment.
- f) Purification facilities if required.
- g) Number of realty improvements to be served.
- h) Size of water main proposed.
- i) Estimated water demand in gallons per day and basis for estimate.

2) A sketch of the property upon which the water supply is located showing:

- a) Location of water supply.
- b) Location of sewerage facilities within 50 feet of the water supply.
- c) Location of buildings.

B) For a semipublic water supply and system to serve all other realty improvements in this classification:

1) A description of the proposed water supply and system covering the following items:

- a) Type of realty improvement to be served.
- b) Type of well or source of water supply (drilled, driven, dug, surface, etc.).
- c) Estimated water demand in gallons per day and basis for estimate.
- d) Estimated depth of well.
- e) Method of sealing.
- f) Pumping equipment.

- g) Storage facilities.
 - h) Purification facilities if required.
- 2) A sketch of property to be served by the water supply and sewerage system showing the following:
- a) Size of lot.
 - b) Location of buildings.
 - c) Location of proposed water supply.
 - d) Location of sewerage facilities.

7.3 Fifty or More Realty Improvements.

7.3.1 Copies of all applications and accompanying engineering and other information herein required for certification of water supply systems for 50 or more realty improvements shall be filed with or mailed to the District State Health Officer serving the county in which the subdivision and realty improvements are located by the applicant on the date the application is made to the board of health.