

WEST AND SOUTH
Water Supply District
OF ACTON, MASS.

Incorporated by the Acts of Legislature of 1912
Chapter 326, and Accepted by the District
April 16, 1912

The Centre District Accepted Section 13
of said Act

REPORT TO APRIL 1, 1916

AYER, MASS.
HUNTLEY S. TURNER, PRINTER

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ORGANIZATION 1915-1916

Clerk

Charles H. Mead

Water Commissioners

Edgar H. Hall, Chairman

William Rawitser

Waldo E. Whitcomb

Howard L. Jones, Clerk

Treasurer

Frank W. Hoit

Collector

William F. Stevens

Auditor

Eugene L. Hall

Superintendent

James Fitzgerald

REPORT OF
WEST AND SOUTH WATER SUPPLY
DISTRICT OF ACTON, MASS.

(CHAP. 326)

AN ACT TO ESTABLISH THE WEST AND SOUTH WATER
SUPPLY DISTRICT OF ACTON AND TO PROVIDE FOR
SUPPLYING SAID DISTRICT WITH WATER

Be it enacted, etc., as follows:

Section 1. The inhabitants of the westerly and southerly part of the town of Acton, liable to taxation in that town and residing within the territory enclosed by the following boundary lines, to wit:—Beginning at a stone monument, said monument marking the corner of the towns of Littleton, Boxborough and Acton; thence south twenty-six degrees fifty-eight minutes west, on the boundary line between Boxborough and Acton, about fourteen thousand eight hundred and fifty-five feet to a stone monument marking the corner of the towns of Boxborough, Stow and Acton; thence south sixty-two degrees one minute east on the boundary line between Stow and Acton, ten thousand four hundred and fifty-six feet to a stone monument marking the corner of the towns of Stow, Maynard and Acton; thence south sixty-one degrees fifty-seven minutes east on the boundary line between Maynard and Acton about three thousand and forty-eight feet to a stone monument on said boundary line and on the westerly side of the highway leading from South Acton to Maynard, known as Maynard street; thence

north fifty-six degrees fifteen minutes east about five thousand nine hundred and eighty-four feet to a stone monument on the highway leading from the Edwin Barker place, so-called, to the Old Stow road, now known as the Sudbury road, said monument being near the point where said Sudbury road crosses the Fitchburg division of the Boston and Maine Railroad, known as Parker's crossing; thence north thirty degrees forty-five minutes west about eighteen thousand eight hundred and fifty feet to the bound first mentioned,—shall constitute a water supply district, and are hereby made a body corporate by the name of the West and South Water Supply District of Acton, for the purpose of supplying themselves with water for the extinguishment of fires and for domestic and other purposes, with power to establish fountains and hydrants, and to relocate and discontinue the same, to regulate the use of such water and to fix and collect rates to be paid therefor, and to take, or acquire by lease, purchase or otherwise, and to hold property, lands, rights of way and other easements for the purposes mentioned in this act, and to prosecute and defend all actions relating to the property and affairs of the district.

Section 2. Said water supply district, for the purposes aforesaid, may take, or acquire by purchase or otherwise, and hold, the waters of any pond or stream or of any ground sources of supply by means of driven, artesian or other wells within the town of Acton or in the town of Boxborough, and the water rights connected with any such water sources. Said district may also take, or acquire by purchase or otherwise, and hold, all lands, rights of way and other easements necessary for collecting, storing, holding, purifying and preserving the purity of the water and for conveying the same to any part

of said district: *provided, however*, that no source of water supply and no lands necessary for preserving the quality of the water, shall be taken or used without first obtaining the advice and approval of the state board of health, and that the location of all dams, reservoirs and wells to be used as sources of water supply under this act shall be subject to the approval of said board. Said district may construct on the lands acquired and held under the provisions of this act, proper dams, reservoirs, standpipes, tanks, buildings, fixtures and other structures, and may make excavations, procure and operate machinery and provide such other means and appliances, and do such other things as may be necessary for the establishment and maintenance of complete and effective water works; and for that purpose may construct wells and reservoirs and establish pumping works, and may construct, lay and maintain aqueducts, conduits, pipes and other works under or over any land, water courses, railroads, railways and public or other ways, and along such ways in Acton and Boxborough, in such manner as not unnecessarily to obstruct the same; and for the purpose of constructing, laying, maintaining, operating and repairing such conduits, pipes and other works, and for all proper purposes of this act, said district may dig up or raise and embark any such lands, highways or other ways in such manner as to cause the least hindrance to public travel on such ways in Acton and Boxborough; and all things done upon any such way shall be subject to the direction of the selectmen of the towns of Acton and Boxborough, respectively.

Section 3. Said water supply district shall, within ninety days after the taking of any lands, water rights, water sources, rights of way, or other easements under the provisions of this act, file and

cause to be recorded in the registry of deeds for the county or district in which the same are situated a description thereof sufficiently accurate for identification, with a statement of the purpose for which the same were taken, signed by the water commissioners hereinafter provided for. The title to all land taken, purchased or acquired in any way under the provisions of this act shall vest in said West and South Water Supply District of Acton, and the land so acquired may be managed, improved and controlled by the board of water commissioners hereinafter provided for, in such manner as they shall deem for the best interest of said district.

Section 4. Said district shall pay all damages to property sustained by any person or corporation by the taking of any land, water, water source, water right, right of way, or other easement, or by anything done by said district under authority of this act. Any person or corporation sustaining damages as aforesaid, and failing to agree with the district as to the amount thereof, may have the same determined in the manner provided by law in the case of land taken for the laying out of highways, on application at any time within two years after the taking of such land or other property or the doing of other injury under authority of this act; but no such application shall be made after the expiration of said two years; and no application for assessment of damages shall be made for the taking of any water, water right, or for any injury thereto, until the water is actually withdrawn or diverted by the district under authority of this act. Said district may by vote, from time to time, determine what amount or quantity of water it proposes to take and appropriate under this act; in which case any damages caused by such taking shall be based upon such

amount or quantity until the same shall be increased by vote or otherwise, and in that event said district shall be liable further only for the additional damage caused by such additional taking.

Section 5. Said district, for the purpose of paying the necessary expenses and liabilities incurred under the provisions of this act, may issue from time to time bonds, notes or scrip to an amount not exceeding one hundred thousand dollars. Such bonds, notes or scrip shall bear on their face the words, West and South Water Supply District of Acton Water Loan; shall be payable at the expiration of periods not exceeding thirty years from their respective dates of issue; shall bear interest, payable semi-annually, at a rate not exceeding four and one half per cent per annum; and shall be signed by the treasurer of the district and countersigned by the water commissioners hereinafter provided for. Said district may sell such securities at public or private sale, upon such terms and conditions as it may deem proper: *provided*, that they shall not be sold for less than their par value. The town of Acton may, at its annual town meeting or at a legal meeting called for the purpose, guarantee the payment of such bonds, notes or scrip.

Section 6. Said district shall, at the time of authorizing said loan, provide for the payment thereof in such annual proportionate payments, beginning not more than one year after the first issue of the said securities, as will extinguish the same within the time prescribed by this act; and when a vote to that effect has been passed a sum which, with the income derived from water rates, will be sufficient to pay the annual expense of operating its water works and the interest as it accrues on the

securities, issued as aforesaid by said district, and to make such payments on the principal as may be required under the provisions of this act, shall without further vote be raised annually by taxation in the manner hereinafter provided.

Section 7. Whenever a tax is duly voted by said district for the purposes of this act, the clerk shall send a certified copy of the vote to the assessors of the town of Acton, who shall proceed within thirty days thereafter to assess the same in the same manner in which town taxes are required by law to be assessed. The assessment shall be committed to the town collector, who shall collect said tax in the manner provided by law for the collection of town taxes, and shall deposit the proceeds thereof with the district treasurer for the use and benefit of said district. Said district may collect interest on overdue taxes in the manner in which interest is authorized to be collected on town taxes; *provided*, that the district at the time of voting to raise the tax shall so determine and shall also fix a time for payment thereof.

Section 8. The first meeting of said district shall be called on petition of ten or more legal voters therein, by a warrant from the selectmen of the town of Acton, or from a justice of the peace, directed to one of the petitioners, requiring him to give notice of the meeting by posting copies of the warrant in two or more public places in the district seven days at least before the time of the meeting. The said justice of the peace, or one of the selectmen, shall preside at the meeting until a clerk is chosen and sworn, and the clerk shall preside until a moderator is chosen. After the choice of a moderator for the meeting the question of the acceptance of this act

shall be submitted to the voters, and if it is accepted by a majority of the voters present and voting thereon it shall take effect, and the meeting may then proceed to act on the other articles contained in the warrant.

Section 9. The West and South Water Supply District of Acton shall, after the acceptance of this act, as aforesaid, elect by ballot three persons to hold office, one until the expiration of three years, one until the expiration of two years and one until the expiration of one year from the next succeeding annual district meeting, to constitute a board of water commissioners; and at every annual meeting thereafter one such commissioner shall be elected by ballot for the term of three years. All the authority granted to said district by this act, and not otherwise specifically provided for, shall be vested in said board of water commissioners, who shall be subject, however, to such instructions, rules and regulations as the district may by vote impose. Said commissioners shall appoint a treasurer of said district, who may be one of their number, who shall give bonds to the district in such an amount and with such sureties as may be approved by the commissioners. A majority of the commissioners shall constitute a quorum for the transaction of business. Any vacancy occurring in said board from any cause may be filled for the remainder of the unexpired term by said water supply district at any legal meeting called for the purpose. No money shall be drawn from the district treasury on account of the water works except upon a written order of said commissioners or a majority of them.

Section 10. Said commissioners shall fix just and equitable prices and rates for the use of water,

and shall prescribe the time and manner of payment. The income of the water works shall be applied to defraying all operating expenses, interest charges and payments on the principal as they accrue upon any bonds, notes or scrip issued under authority of this act. If there should be a net surplus remaining after providing for the aforesaid charges, it may be used for such new construction as the water commissioners may determine upon, and in case a surplus should remain after payment for such new construction the water rates shall be reduced proportionately. No money shall be expended in new construction by the water commissioners except from the net surplus aforesaid, unless the district appropriates and provides money therefor. Said commissioners shall annually, and as often as the district may require, render a report upon the condition of the works under their charge, and an account of their doings, including an account of receipts and expenditures.

Section 11. Said district may adopt by-laws prescribing by whom and how meetings may be called, notified and conducted; and, upon the application of ten or more legal voters in the district, meetings may also be called by warrant as provided in section eight. Said district may also establish rules and regulations for the management of its water works, nor inconsistent with this act or with the laws of the commonwealth, and may choose such other officers not provided for in this act as it may deem necessary or proper.

Section 12. Whoever wilfully or wantonly corrupts, pollutes or diverts any water obtained or supplied under this act, or wilfully or wantonly injures any reservoir, standpipe, aqueduct, pipe or other

property owned or used by said district for the purposes of this act, shall forfeit and pay to the district three times the amount of damages assessed therefor, to be recovered in an action of tort, and upon conviction of any of the above acts shall be punished by a fine not exceeding one hundred dollars or by imprisonment in jail for a term not exceeding six months.

Section 13. The inhabitants of the central part of the town of Acton liable to taxation in that town and residing within the territory enclosed by the following boundary lines, to wit:—Beginning at a stone monument marking the corner of said towns of Littleton, Boxborough, and Acton; thence south seventy-five degrees east about twelve thousand eight hundred and eighteen feet to a stone monument on the northerly side of the Lowell road, so called between the residences of Henry H. Hawley, Jr., and Luther Conant; thence south eleven degrees fifty minutes west about thirteen thousand one hundred and ninety-five feet to a stone monument near the point where the Fitchburg Division of the Boston and Maine Railroad crosses the Sudbury road, so called, being the northeasterly corner of the West and South Water Supply District of Acton as described in this act; thence north thirty degrees forty-five minutes west along the northerly line of said West and South Water Supply District of Acton about eighteen thousand eight hundred and fifty feet to the place of beginning,—shall be added to and become a part of the body corporate of the West and South Water Supply District of Acton. The territory hereby annexed to said district and the inhabitants residing therein shall have all the rights, powers, and privileges, and be subject to all the liabilities and duties pertaining to said district according to

the provisions of this act, except as hereinafter provided. Upon the acceptance of this act by the voters of that part of the district described in this section, as provided for in section fifteen of this act, the water system shall, within a period of two years thereafter, be extended into and the water distributed therein, and thereupon that part of the district shall be bound to return an income which, for a period of ten years, will yield annually equal to six per cent of the cost and expense incurred or sustained in making such extension, and in the event that such income proves insufficient therefor, then a sum sufficient to make up the deficit shall be added to the amount of the tax to be annually assessed upon that part of the district. The treasurer of said district shall keep a separate account showing in detail the cost and expense incurred in making the said extension, and in the event of any dispute, difference, or question arising as to the amount of such cost and expense said commissioners shall have full power and authority to determine and fix the amount thereof.

Section 14. Sections one to twelve, inclusive, of this act shall take effect upon their acceptance by a majority vote of the voters of said district described in section one, present and voting thereon at a district meeting called in accordance with the provisions of section eight, within two years after the passage of this act; but the said sections shall become void unless the said district shall begin to distribute water to consumers within two years after the date of the acceptance of said sections as aforesaid.

Section 15. Section thirteen of this act shall take effect upon its acceptance by a majority of the voters of that part of the district described therein, present

and voting thereon at a district meeting called in accordance with the provisions of section eight within two years after the acceptance of said sections one to twelve as provided in section fourteen of this act. [*Approved March 27, 1912.*]

ACT OF INCORPORATION

Chapter 326 of the Acts of Legislature 1912 was accepted by the legal voters residing in the West and South District, so called and defined by Section 1 of the Act, by a vote of 57 yes and 1 no at a meeting called for that purpose April 16th, 1912, in accordance with Section 14 of said Act.

Section 13 of said Act was accepted by the legal voters of the Centre District, so called and defined by said Section, by a vote of 40 to 3 at a meeting called for that purpose in accordance with Section 15 of said Act.

The District was organized April 16, 1912, by the choice of Charles H. Mead, clerk, term one year; Board of Water Commissioners, Edgar H. Hall, term 3 years; Charles H. Fairbanks, term 2 years; Waldo E. Whitcomb, term 1 year.

BY-LAWS

I. The annual meeting of the Water Supply District shall be held on the first Tuesday in April of each year for the election of officers, and for the transaction of other necessary business connected with the District.

II. All meetings may be called by a majority of the Board of Water Commissioners, directed to the Clerk, or as specified in Chapter 326 of the Acts of 1912, Section 8.

III. All Warrants shall be posted at least seven days before the time of meeting.

IV. The Clerk shall preside at each meeting until a Moderator is chosen. No business shall be transacted until after the election of a Moderator.

V. At each annual meeting there shall be elected by ballot, one Commissioner for a term of three years; a Clerk, Treasurer and Auditor for a term of one year.

VI. If a vacancy should occur for any cause in the office of Clerk, Treasurer, or any other officer of this District, except the Board of Water Commissioners, it may be filled for any such unexpired term by the Water Commissioners.

REPORT OF WATER COMMISSIONERS

April 26th, 1912, Board was organized with Edgar H. Hall, Chairman; Waldo E. Whitcomb, Clerk; Frank W. Hoit, appointed District Treasurer.

In May, Frank L. Fuller was engaged as Engineer for the sum of \$2,000.00, to superintend the construction and installation of the water system for the West and South District.

June 1st, voted to contract with Fred A. Houdlette & Son, Inc., of Boston, to install a complete water works system covering the villages of West and South Acton for the sum of sixty-five thousand

dollars, the system to be complete in every detail from driven wells to standpipe, and operated for one month.

AGREEMENT

THIS AGREEMENT made this first day of July, 1912, between the West and South Water Supply District of Acton, a District organized under Chapter 326, of the laws of the State of Massachusetts, in the year 1912, hereinafter called the District, through its Board of Water Commissioners, Edgar H. Hall, Charles H. Fairbanks, and Waldo E. Whitcomb, and F. A. Houdlette & Son, incorporated under the laws of the State of Massachusetts, hereinafter called the contractors, Witnesseth:

The contractor will furnish all materials and perform all labor necessary in the construction of a system of water works of the District described in detail in accompanying specifications and shown upon plan accompanying same.

In consideration of the faithful performance of the contract the District shall pay to the contractors, F. A. Houdlette & Son, Incorporated, the sum of sixty-five thousand dollars, (\$65,000.00). This shall be paid in monthly installments of eighty-five per cent (85%) of the amount due for materials furnished and work done in each month, on or before the tenth of the following month.

Estimates of material furnished and work done shall be made by Mr. F. L. Fuller, Engineer for the Commissioners.

The remaining fifteen per cent (15%) shall be paid to the contractors thirty (30) days after the completion and acceptance by the said District of the work of this contract, after having been furnish-

ed satisfactory evidence by the contractors that all claims as hereinafter specified against the contractors, for which the said District would in any way be holden, have been satisfied.

IN WITNESS WHEREOF the parties hereto have set their hands and seals on the date first mentioned in this agreement.

WEST AND SOUTH WATER
SUPPLY DISTRICT OF ACTON,

By its Board of Water Commissioners,

<i>Witnesses</i>	EDGAR H. HALL,
ALBERT L. SAUNDERS	CHARLES H. FAIRBANKS,
To all three	WALDO E. WHITCOMB.

FRED A. HOUDLETTE & SON, INC.

<i>Witnesses</i>	
HENRY A. SYMONDS	FRED A. HOUDLETTE, <i>President.</i>
HENRY A. SYMONDS	M. R. HOUDLETTE, <i>Treasurer.</i>

ACTON WATER WORKS

ACTON, MASS.

1912.

SPECIFICATIONS FOR CONSTRUCTION OF
COMPLETE SYSTEM.

These specifications cover the supplying of all material and performing of all labor necessary to install, in complete running order, a system of water

works for the West and South Water Supply District of Acton, to consist substantially of the parts as are set forth in detail in the following:

First. A standpipe of mild steel with foundation erected at South Acton.

Second. A system of driven wells.

Third. A duplicate pumping plant consisting of two 32 H. P. fuel oil engines, two power pumps each capable of raising 300 gallons per minute from the wells to the standpipe with all necessary connections.

Fourth. A pumping station of suitable size and design to contain the pumping plant.

Fifth. A system of force and distribution mains of cast iron about seven and seven-tenths (7.7) miles in extent as indicated on accompanying plan, which is hereby made a part of this contract, the sizes to be from 12 inches to 6 inches in diameter, with necessary gates and hydrants.

Sixth. Certain services and plans in connection with the locating and designing of the system, and engineering work.

The details of the work as above outlined are to be in accordance with the following specifications:

Driven Wells

Test—The contractors shall drive a series of wells, 2½" in diameter, on land known as Reed's Meadow to the West of Massachusetts Avenue and approximately 3000' from Central Street in West Acton. The necessary rights shall be acquired by the Board of Commissioners for said well driving or other necessary work.

If a favorable source is found 6 or 8 wells to be connected above ground into a common pipe, said pipe to be connected with a power pump and the plant operated for a period of time as directed by the Board of Health of Massachusetts, provided, however, that said power pump test shall not exceed three weeks for any one test.

The contractor shall give the Water Commissioners, or their representative, and State Board of Health, all possible assistance in determining the quantity and quality of the water in the area being tested.

Upon receiving the approval of the State Board of Health as to the supply being sufficient in quantity and quality for the supply of the Town the contractors shall drive a series of two and one-half inch ($2\frac{1}{2}$ ") wells, making a total of not less than twenty (20) in number, so arranged as to be readily piped into a common suction main which is carried to the pumps.

The main suction pipe shall be partly ten (10) and partly eight (8) inch cast iron, with Ys set at proper points to properly connect all of the wells. The connection between the main suction pipe and the wells shall be of six inch (6") or four inch (4") cast iron pipe, and two and one-half inch ($2\frac{1}{2}$ ") wrought iron pipe.

Each well shall have upon its branch a two and one-half inch ($2\frac{1}{2}$ ") gate valve and union and shall be connected to well pipe with a two and one-half inch ($2\frac{1}{2}$ ") lead goose neck, 15" to 18" long.

Open end strainer sections shall be used as far as practicable on all wells, but where sand is encountered, long well strainer points shall be driven.

Suction pipe and laterals to slope upwards to pump.

Pipes shall be left covered at all points with sufficient material to prevent freezing, and grounds neatly graded.

Pumping Plant

The pumping plant to be furnished under these specifications shall consist of two direct connected units composed each of a triplex power pump capable of forcing not less than 300 gallons of water per minute from the driven well system to the top of the standpipe, with a speed not to exceed forty-three (43) revolutions per minute. Each pump to be driven by an engine using fuel oil as motive power capable of driving pump at its full capacity when performing the work above mentioned at the specified speed. The H. P. of this engine shall be ample to perform the required work, but in no case less than 30 H. P.

Pumps and Engines: The pumps and engines shall be so arranged that either pump may be driven with either engine, and pumps shall be connected so as to draw from a common suction pipe connected to sand chamber and discharge into a common force main. There shall be installed in the station all necessary accessories, including an eight inch (8'') nickel plated vacuum gauge. Also, an eight inch (8'') nickel plated combination gauge suitably graduated for the pressure under which it is to operate. Above gauges shall be mounted upon a neat gauge board and connected to the suction pipe and force main respectively.

Gate valves to be set in suction and discharge mains on both sides of each pump.

Pumps: The pumps shall be Smith Vale 8½x10 vertical triplex, single acting. Each pump shall be equipped with a suitable positive acting revolution

counter, bi-pass, discharge air chamber, relief valve, and all necessary parts for its satisfactory and perfect operation.

Pumps shall be operated by single reduction gear.

Suction opening 6'', discharge opening 6''.

Valve chambers shall be constructed of best quality of hard close grained cast iron, and shall permit liberal valve areas to enable the pump to operate without undue shock or jar.

The supporting columns shall be four in number giving to each crank two bearings and supports. Crank shaft will be of steel of the three throw type in once piece and each crank will be set at an angle of 120°, resulting in a uniform movement of the column of water.

Each crank is to be supported by ample bearings, and the bearings will be provided with anti-friction metal.

The pinion shaft will be of polished steel and will run in ring oil bearings. Connecting rod will be of steel, provided with strap heads fitted with heavy phosphor bronze boxes.

Cross heads of the engine type will be provided. They will operate in bored guides, each cross head being provided with bronze shoes with special device for adjustment of wear.

Plungers shall be of a special grade of iron cast on end and turned true. Each plunger is to be outside packed.

Gears shall be made of charcoal iron cast with solid rim, and machine cut.

Pinion will be provided with metal guard.

The suction and discharge valve will be of the best composition rubber, placed in separate chambers. Valve seats will be of bronze and will screw

into valve decks on a taper thread. Valve stems will be of bronze.

Lubricators shall be of the compression type of grease cup.

Engines

Engines shall be of Meitz & Weiss 32 H. P. horizontal type and shall be capable of performing the duty required as set forth in the above specifications.

Cylinder shall be 12 inch bore with 15" stroke. Normal speed of engines shall be 265 R. P. M. Engines shall be bolted to adequate foundations.

Two 58" fly wheels with 5" faces shall be keyed to the main shaft.

Engines shall be fed with fuel oil from a 12 gallon, drawn steel, oil feed tank, with strainer, screwed to tank case. Proper piping to be installed to draw oil from barrels into tank or into measures for filling tank.

The crank shaft shall be of steel forging $4\frac{1}{2}$ " diameter by $8\frac{3}{8}$ " long in the main bearing and $4\frac{1}{2}$ " diameter by 5" long in the crank pin; the end being turned down to $3\frac{1}{2}$ " for the fly wheel. The main bearings shall be high grade bearing metal bushings set in strong cast iron side heads which are bored and turned to fit the crank case to which they are bolted.

The connecting rod is to be a steel casting, five times the length of crank and of the I beam pattern.

The cylinder is to be close grained cast iron, bored and reamed to 12" diameter. Piston is also of close grained cast iron $21\frac{3}{4}$ " long, fitted with four cast iron spring rings. The wrist pin to be ground and hardened to $3\frac{1}{2}$ " diameter by 6" bearing length.

The ignitor is to be of the hot ball type screwed to the cylinder head. Oil blow torch is to be furnished for the preliminary heating of the ball.

Governor is to be of the centrifugal balanced type carried by a steel spud in one of the spokes of the fly wheel, and is in direct control of the oil injection pump.

The oil injection pump has a bronze body and tool steel plunger.

A force feed lubricator is to be attached to the case and driven from the shaft, forcing the oil under pressure to the cylinder, piston, connecting rod and main bearing.

Exhaust pipe is to be carried from the engine to pot muffler set on outside of station, to which is to be connected an adequate vent pipe carried above the eaves.

Engines and pumps shall be connected upon the main shaft by 2 friction clutches. Engines shall deliver their full rated H. P. on a fuel consumption not exceeding 1 lb., per H. P., per hour, of fuel oil such as the solar oil, running about 30° Baume.

The engines shall have all necessary accessories and tools and be of first class workmanship and material.

Air Starter

An air pressure water tank shall be installed for starting engines and shall be equipped with necessary gauge, piping, etc.

Sand and Air Chamber

A suitable sand and air chamber of standard make, properly designated to prevent passage of sand or air into the pumps, shall be installed in suction line directly back of pumps.

Concrete Floor

A four inch (4'') concrete floor shall be laid around foundations in the pumping station. Said floor shall be so built as to pitch towards one or more openings into drains, so that entire floor of station and foundations may be washed down with hose and drained immediately. Top of floor shall be dressed to a granolithic finish. Concrete slabs to match the rest of floor shall be set over pipes, valves or fittings which it is desired to make accessible.

Pumping Station

A suitable pumping station shall be built of concrete blocks, or other equally satisfactory fire proof material, sufficient in size to give all necessary room around machines, and of such height as to give a good appearance to the building.

Roof: A hip roof shall be provided for the station and shall be constructed of spruce rafters covered with matched southern pine, and which in turn shall be covered with first quality asbestos shingles of a color approved by the Commissioners.

All exposed wood work shall be planed and painted, or stained, to present a neat and satisfactory appearance.

A sufficient number of windows to thoroughly light all parts of interior of station shall be set.

A large double door shall be placed in front of building and a single door in rear or end.

Building shall set upon foundation of concrete masonry 18'' wide carried to a sufficient depth to rest on solid material, and below frost.

All necessary openings for drains, pipes, etc., shall be left in the foundations.

Tile drains, suitably located to carry away all drip from pumps, and wash from the floor of the station, shall be carried well away from the station.

An adequate chimney shall be built in a corner of the station, of brick or tile.

Station shall be finally finished up to present a neat appearance, all joints being dressed, and inside walls treated, in a manner to give a good appearance.

Grounds around station shall be graded and left in a neat and satisfactory condition.

All refuse shall be disposed of.

Distribution Lines

The contractors shall furnish and lay in five foot (5') trench system of cast iron pipes and specials as shown upon accompanying plan. Pipes shall conform with New England Water Works Standard specifications and weight shall be as follows:

12" pipe 75 lbs. per foot
10" pipe 60 lbs. per foot
8" pipe 45 lbs. per foot
6" pipe 30 lbs. per foot

The extent of the lines shall be as shown upon accompanying plan.

Gates

Gates shall be installed as shown upon accompanying plan.

Gates shall be iron body, inside screw gate valves, tested to 300 lbs. to the square inch. They shall be bronze mounted and of standard pattern, furnished with 2" square nut upon top of spindle to receive gate wrench.

Hydrants

Hydrants shall be Pratt & Cady type with six inch (6'') bell connections. Hydrant gate to have four and one-quarter inch ($4\frac{1}{4}$ '') opening. All hydrants shall have two two and one-half inch ($2\frac{1}{2}$ ') hose nozzle; shall be readily accessible so that all interior parts may be removed without digging up hydrant.

Hydrants shall be 70 in number and shall be installed at such points as designated by the Water Commissioners.

All branches between main and hydrant shall be six inch (6'').

Joints shall be of lead poured and calked by competent workmen, presenting a neat appearance, and being absolutely water tight.

Depth of joints shall be as follows:

12'' pipe, $2\frac{1}{2}$ ''
10'' pipe, $2\frac{1}{4}$ ''
8'' pipe, $2\frac{1}{4}$ ''
6'' pipe, 2''

Pipes shall be laid to true lines and grades, and where rock is encountered, sufficient rock shall be excavated to give clearance on sides and bottom of the pipe. No stones greater than two (2) cubic feet in volume shall be returned to the trench and all stone in backfill shall be thoroughly mixed with fine material. Pipes shall be covered to the depth of one foot (1') with fine material.

Work upon streets shall be conducted in a manner to cause the least annoyance to travel, and as far as possible backfilling shall be kept close behind finished work.

All top surfacing upon streets which is removed in trenching shall be kept separate from rest of exca-

vated material and returned to top of trench. After due time has been allowed for settlement, all trenches shall be rolled or puddled and finally smoothed up to meet the requirements of the Board of Selectmen of Acton or the Massachusetts Highway Commission. All trenches shall be properly guarded and lighted and every necessary precaution taken to insure the safety of the public.

Any leaks which may occur upon turning on the water shall be promptly repaired.

Standpipe

The contractors shall furnish a steel standpipe of dimensions 35' in diameter by 70' high, upon foundation located upon Great Hill upon plot furnished by the Water Commissioners. Foundation shall be of rubble or concrete masonry, all joints being filled in a workmanlike manner to insure the greatest stability.

A culvert shall extend from the outside of foundation to an inner well to enable ready access to cast iron connection.

12" gate shall be installed at foot of standpipe and a suitable brick or concrete chamber built around it with a proper iron frame and cover. The dimensions of the foundation shall be 37' in diameter at top, 39' at bottom, and approximately 6' in depth with one foot showing above finished grade. The top and sides above finished grade shall be dressed to a granolithic finish.

A suitable man-hole shall be installed near the bottom of tank and a suitable ladder run from 10' above top of foundation to top of tank. The standpipe shall be built with bottom plates $\frac{3}{8}$ ".

Shell will be made in rings, each measuring 7' wide, approximately as follows:

Two (2) rings $9/16''$
Two (2) rings $1/2''$
One (1) ring $7/16''$
One (1) ring $3/8''$
One (1) ring $5/16''$
Three (3) rings $1/4''$

All seams of bottom will be single lap riveted. Also, all horizontal seams in $5/16''$ and $1/4''$ plate will be single riveted. Horizontal joints in $9/16''$, $1/2''$, $7/16''$, and $3/8''$ shall be double riveted. Vertical seams in lower ring shall be triple riveted with double butt joints. Next two rings triple riveted lap joints. Next five rings double riveted lap joints. Remaining two rings single riveted lap joints.

A $6 \times 6 \times 1/2$ angle will connect bottom to sides, to be placed on inside of tank.

A $4 \times 3 \times 3/8$ angle will be placed around top on outside.

Rivets in $9/16$ and $1/2$ inch plates shall be $1''$.

Rivets in $7/16$ and $3/8$ inch side plates shall be $7/8''$.

Rivets in $5/16$ and $1/4$ inch plates shall be $3/4''$.

Rivets in bottom plates shall be $3/4''$.

All material shall be mild open-hearth steel.

Rivet steel shall have an ultimate tensile strength not less than 48,000 nor more than 58,000 lbs. per square inch and shall withstand a bending test through an angle of 180 degrees flat on itself when cold or hot.

All other steel shall have an ultimate tensile strength not less than 55,000 nor more than 64,000 lbs. per square inch and shall withstand a bending test of 180 degrees to a diameter equal to thickness of piece tested.

All steel shall have an elastic limit not less than one-half of ultimate strength. Percentage of elongation $1,400,000/\text{ultimate strength}$.

All steel used in this standpipe shall be manufactured by the basic open hearth process, by rolling mills of established reputation, and shall not contain more than 0.05 per cent of phosphorous.

The Engineer of the West and South Water Supply District of Acton shall be furnished by the Contractors with certified copies of all tests provided for under the rules of the manufacturers' standard specifications referred to above.

The diameter of the punch used for rivet or bolt holes shall not be more than 1/16 inch larger than the specified diameter of the rivet or bolt and the diameter of the die shall not be more than 1/16 inch larger than that of the punch.

Rivet holes shall fit accurately over one another, so as to allow the rivets to be put in place without the violent use of the drift-pin and without enlargement by means of any tool, except a suitable reamer. If any rivet hole is appreciably enlarged by reaming, a rivet of sufficient diameter and length to completely fill the enlarged hole shall be driven in it.

Rivet heads shall be of standard dimensions. Rivets shall be carefully heated to a uniform heat, and driven before cooling; to be upset straight so as to entirely fill the holes, and thoroughly and neatly cupped with full heads concentric with the body of the rivet.

All loose and imperfect rivets shall be cut out and replaced by tight and sound rivets.

All double rivetted laps to be not less than 4 inches wide and all single rivetted laps not less than 2 3/4 inches.

All seams to be planed, neatly finished and thoroughly caulked to prevent leakage, and are to be tight after the tank has been filled.

A steel ladder shall be placed on the outside of the tank to extend from a point about ten (10) feet above the bottom of the tank to the top. The sides or uprights of the ladder shall be two (2) inches by three-eighths ($\frac{3}{8}$) inch bar, to be securely fastened to the tank at a distance of eight (8) inches in the clear from the side thereof, and eighteen (18) inches from each other. The steps or rungs shall be three-quarters ($\frac{3}{4}$) inch round, to be placed twelve (12) inches from centre to centre, passing through the uprights and to be securely headed down upon each end.

All material and workmanship to be first class in every particular, and to the acceptance of the Water Commissioners, and their Engineer.

All work must be executed by competent and skilled men in its several portions respectively; and the Contractors shall employ a skilled and experienced superintendent or foreman, who shall be present upon the work during working hours to intelligently direct the construction of the Standpipe.

Bottom of tank shall be caulked on inside and all joints in vertical plates caulked on outside, making the tank perfectly water tight. After tank is erected it shall be pumped full of water and tested, and all leaks promptly repaired.

After erection, and testing, standpipe, including roof, shall receive two coats, both inside and out, of a paint approved by the Commissioners.

Roof

A conical roof of number ten steel plate, supported upon rafters, shall be provided, and properly fastened to standpipe. Necessary space for ventilation to be left at eaves. The roof shall have an overhang of not less than one foot (1'). An adequate trap door in roof shall be provided at the head of the lad-

der. The arrangement and design of the roof to be made satisfactory to the Water Commissioners.

The grounds around foundation shall be graded to a neat and satisfactory grade and refuse material removed.

Engineering

The contractors shall do all engineering work required in the construction of the above described plant. Said work to include complete design of all parts of plant, establishment of all grades, writing of specifications, drawing of all necessary plans, any general engineering pertaining to construction, also the final test of all parts of the plant in conjunction with the Water Commissioners after completion.

The contractors shall also lay out and furnish plans for such land taking as may be required for the standpipe and connecting piping, also the pumping station, wells, and such lands as it is necessary to acquire for the purpose of protecting the source of supply. Also any private rights of way, or takings, which may be made for pipe lines.

The contractors shall furnish location book of all gates, plugged branches and dead ends, in the system, at the end of the work.

General Requirements

Where the term Water Commissioners is used it refers to the Board of Water Commissioners of the West and South Water Supply District of Acton, or their duly authorized agents. Where the word contractors is used it refers to the firm of F. A. Houdlette & Son, Incorporated, the general contractors for the above described work.

In case of dispute regarding the meaning of any part of these specifications, or of the prosecution of

the work in accordance with the contract, regarding which the Water Commissioners and the contractors cannot agree, such questions shall be settled by a commission of three, one to be appointed by the Water Commissioners, one by the contractors, and the third by the two first appointed, and their decision with regard to any question of this contract shall be final and binding upon both parties.

The contractors shall, in all cases, save the Town harmless from any and all claims for damages to persons or property due to, or arising from, any acts, negligence or carelessness on the part of the contractors, their agents or employees, or for any cause growing out of this contract for which said contractors may be held liable and in all such cases finally defend any action or suit which may be brought against the Town by reason of such acts, and pay and satisfy any judgment that may be rendered therein.

The Water Commissioners shall secure all necessary rights to land upon which work is to be done under this contract, including such temporary rights as may be required for delivering materials during construction, such rights or takings to be purchased by the Water Commissioners, so that no delay shall be occasioned the contractors in the prosecution of the work.

Time

The contractors agree to complete the work of this contract on or before December 1, 1912, provided, however, that it is understood that this agreement is contingent upon normal conditions of labor and other influences which are beyond the control of said contractors, also that approval of water shall be obtained from the State Board of Health on or before July 15, 1912.

Bonds

The contractors agree to furnish a bond for the faithful performance of this contract to the amount of \$20,000.00. Said bond to be furnished by a surety company of good standing.

The contractors further agree to furnish a bond to the amount of \$5,000.00 for the faithful carrying out of the guarantee hereinafter mentioned.

It is agreed between the Commissioners and the contractors that the cost of said two bonds shall be added to the total contract price of \$65,000.00, and shall be paid the contractors in the next monthly estimate after the bond has been furnished in due form.

Guarantee

The contractors shall guarantee their work and materials for the period of one year from the date of its final completion and acceptance by the Board of Water Commissioners.

Payments

The West and South Water Supply District of Acton shall pay to the contractors for the installation complete, and the faithful carrying out and completion of the above described work, the sum of sixty-five thousand dollars (\$65,000.00).

Payments on account of the total contract shall be made monthly, and shall amount to 85% of the value of the work done and materials furnished in each month. Said payments shall be made to the contractor on or before the tenth day of the month following that covered by the estimate, except the August payment which shall be made on or before August 25th., and the balance of 15% shall be paid to the contractors within thirty (30) days of the com-

pletion and acceptance of the work of this contract and upon a properly executed guarantee being filed by the contractors with the Board of Water Commissioners. Provided, however, that the said contractors shall satisfy the said Board that there are no claims or liens outstanding against them for which the Fire District may become liable.

A verbal agreement was made with Mr. Robert G. Reed to drive wells in his meadow land, north side of the State Highway, to make a test for a water supply, and if water in sufficient quantity and quality to meet the requirements of the State Board of Health, to purchase of him five acres at the price of one hundred dollars per acre. It being the same agreement, acknowledged by him in a public meeting of the Village Improvement Society held in Firemen's Hall.

June 25th. Voted to purchase land of W. B. Franklin for a standpipe situated on "Great Hill," so-called, in South Acton, containing about five acres, for the sum of five hundred dollars.

July 1st. Voted to accept offer of the Old Colony Trust Company of Boston to furnish legal advice, engrave and provide the bond, certify as to their validity, advertise them for sale, and carry the proceeds of sale on deposit, subject to drafts by the District.

WEST AND SOUTH WATER SUPPLY DISTRICT
OF ACTON, MASSACHUSETTS

\$100,000 4% WATER LOAN BONDS

Office of the Chairman of Board
of Water Commissioners

August 17, 1912

The West and South Water Supply District, Acton, Massachusetts, will receive proposals until 6 P. M., Thursday, August 22, 1912, for the purchase of \$100,000 par value Water Loan Bonds, bearing interest at the rate of 4% per annum, payable semi-annually, on the fifteenth days of February and August, upon presentation of the proper coupons at the Old Colony Trust Company, Boston, Massachusetts.

Said bonds are to be dated August 15, 1912, and are payable \$3,500 on the fifteenth day of August in each of the years 1913 to 1940, and \$1,000 on the fifteenth day of August in each of the years 1941 and 1942 at the office of the Old Colony Trust Company, Boston, Massachusetts.

These bonds will be engraved under the supervision of and certified as to their genuineness by the Old Colony Trust Company, of Boston, Massachusetts.

This Trust Company will further certify that the legality of this issue has been approved by Messrs. Ropes, Gray & Gorham, of Boston, Massachusetts, a copy of whose opinion will accompany the bonds when delivered without charge to the purchasers.

All legal papers incident to this issue, together with an affidavit certifying to the proper execution of the bonds, will be filed with the Old Colony Trust Company, where they may be referred to at a moment's notice.

All bids should be sealed and marked "Proposals for Bonds," and addressed Edgar H. Hall, Chairman of the Board of Water Commissioners, Acton Massachusetts.

The right to reject any or all bids is reserved.

EDGAR H. HALL,
Chairman Board of Water Commissioners.

The West and South Water Supply District of Acton, Massachusetts, comprises about three-quarters of the Town of Acton. It is newly incorporated and has a population of about 1800 people. The assessed valuation of the real estate alone is \$1,072,180, and these bonds are the only indebtedness.

BIDS FOR BONDS

Blodget & Co., Boston and New York.

100.43 and accrued interest.

Adams & Company, Boston and New York.

100.577 and accrued interest.

N. W. Harris & Company, Boston.

101. and accrued interest.

Award was made to N. W. Harris & Company, they being the highest bidder.

Bonds were delivered September 9th, 1912, the District receiving in return the sum of \$101,266.67, deposited with the Old Colony Trust Co.

PUMPING TEST

Pumping test made June 24th to July 1st, 1912, continuously, with a temporary plant consisting of a 300 gal. per minute pump taking water from 15 wells.

The record shows a total of 2,772,000 gals. pumped, averaging 272 gals. per minute.

The observation record shows the water lowered in the wells:

First 6 hours	2' 1"
Next 18 hours	5"
Next 24 hours	9"
Next 24 hours	5"
Next 24 hours	2½"
Next 24 hours	2½"
Next 24 hours	2½"
Next 17 hours	½"
<hr/>	
Totals 161 hours	4' 4"
Recovery of wells, 3' 4" in 4 days.	

LETTER OF STATE BOARD OF HEALTH
APPROVING LOCATION OF WELLS FOR A SOURCE OF
WATER SUPPLY

The Commonwealth of Massachusetts

Office of the State Board of Health
State House, Boston

July 23, 1912.

To the Board of Water Commissioners of West and
South Water Supply District of Acton, Acton,
Massachusetts:

Gentlemen—The State Board of Health has considered your application of July 10th for its advice and approval of the use of water from tubular wells located in Reed's Meadow, so called, about one-half a mile west of West Acton village and a few hundred feet north of Massachusetts Avenue, as a source of water supply for the West and South Water Supply

District of Acton, and has caused the locality to be examined by its engineer and samples of water from test wells in this locality to be analyzed.

The results of the analyses of samples of water collected daily during a pumping test from June 24 to July 1, 1912, show that the quantity of iron present diminished during the test and at the end became insignificant, and that the hardness of the water is about the same as that of other ground waters in this section of the State. The quality of the water as shown by this test is, in the opinion of the Board, satisfactory for domestic purposes.

The quantity of water pumped during the test was much in excess of the quantity that will be required for the supply of Acton under present conditions. The recovery of the wells was somewhat slow, but, considering the extremely dry weather that prevailed before, during and after the test, the indications are favorable for obtaining from wells in this region an adequate quantity of water for all reasonable requirements of the district, unless the use of water shall become much greater than is required for all purposes at the present time.

The Board, acting under the provisions of Chapter 326, of the Acts of the year 1912, advises the taking of water for the supply of Acton from the region in which the recent test was made, and approves the location of wells as sources of water supply for the town in the neighborhood of the wells used during the test. It is advisable that in putting in additional wells they be located at the edge of the upland and the location of wells in considerable deposits of peaty material should be avoided.

By order of the Board,

MARK W. RICHARDSON,

Secretary.

COMMONWEALTH OF MASSACHUSETTS.

STATE DEPARTMENT OF HEALTH. ACTON.

Subject to Correction.

WATER ANALYSIS.

1914

PARTS IN 100,000.

No.	DATE OF COLLEC- TION	APPEARANCE.			RESIDUE ON EVAPORATION.			AMMONIA.			Chlorine.	NITRO- GEN AS		Hardness.	Iron.	REMARKS.	
		Turbi- dity.	Sedi- ment.	Color.	Total	Loss on Ig- nition.	Fix d	Free.	Albuminoid.			Nitrates.	Nitrites.				
									Total	In Solu- tion.							In Sus- pen- sion.
118941	Sept. 10	None	None	.00	9.20			.0002	.0020			.53	.1800	.0000	3.4	.007	Tap in P. S.

August 17th. Voted to instruct the chairman to sign the agreement with the Boston & Maine R. R. for the laying of a 6'' water main under the tracks at the bridge, South Acton. The rental price \$10.80 per annum, to be paid quarterly.

September 16th. Voted to contract with Mr. John S. Hoar for a workshop 18'x30' to be built on the grounds near the pumping station, according to specification, for the sum of \$614.00.

October 4th. Voted to contract with F. A. Houdlette & Son for the laying of house service pipe at 25 cents per linear foot, and \$5.00 per cubic yard of rock excavation.

It was moved, seconded, and voted that, acting under the authority of a vote of the West and South Water Supply District of Acton, passed at a meeting held on the 16th day of April last passed, and of every other power hereto enabling the Board of Water Commissioners to take the following described piece or parcel of land, to wit, and situated in said Acton:

Beginning at a stone bound in the Northerly line of the State Highway leading from West Acton to Boxborough, called Massachusetts Avenue, and distant about four hundred forty three and eight-tenths feet easterly on said line of said Massachusetts Avenue from the line dividing the Towns of Acton and Boxborough, thence running North thirty eight degrees and forty nine minutes East, in part along the line of an old ditch, seven hundred and fifty feet to a cement block in the center of said ditch, thence turning and running South fifty one degrees and eleven minutes East, three hundred and five feet to a stone bound, thence turning and running South thirty eight degrees and forty nine minutes West, six hundred and seventy eight feet to a

stone bound in the Northerly line of said Massachusetts Avenue, and all bounded upon land supposed to belong to Robert G. Reed, thence North sixty-four degrees and thirty minutes West, along the Northerly line of said Massachusetts Avenue, three hundred twelve and eight-tenths feet, to the point of beginning, containing by estimation five acres, be the same more or less, together with all the privileges and appurtenances thereto belonging, said premises being situated in the Town of Acton.

Also all the waters of any and all ground sources of supply under and beneath the surface of said above described premises together with any and all water rights connected therewith that said land and rights be taken for the use of said District.

Voted to adopt the following rules, regulations and rates:

1. All applications for the use of the water shall be made in writing to the Water Commissioners by the owner or agent of the property for which the same is desired. No person will connect, or cause to be connected, any service pipe with the main or any distributing pipes, except by order of the Water Commissioners, made on such application.

2. The district will furnish and lay the service pipe from the street main to the cellar, and provide a stop and waste valve, the owner of the property to pay for that portion of the pipe laid on his premises, with cost of laying same and of the stop and waste valve, at rates to be determined by the Water Commissioners; excepting when buildings are located on the street line, the owner of the property must pay for the pipe and cost of laying the same from the curbstone or edge of the sidewalk into the cellar.

3. The district will provide at its own expense, a meter with each domestic service, and keep the same in repair from ordinary derangements.

Water must be shut off from the meter in cold weather; or the meter be otherwise protected from frost. Persons allowing their meter to be damaged by frost or otherwise, will be held responsible therefor.

4. All apparatus and all places supplied with water must be accessible, at all reasonable times, to the inspection of the Commissioners or their agents.

5. The Water Commissioners reserve the right to shut off water for the purpose of making alterations or repairs; and they may shut off the water from any taker for disregard of the Rules and Regulations and for non-payment of water rates when due. When water has been shut off because of disregard of rules or non-payment of rates, it will be let on again when the Commissioners are satisfied that there will be no further cause of complaint and on the payment of one dollar. The Commissioners reserve the right to restrict the use of water, if necessary.

6. The Fire Department will have control of the hydrants in case of fires and for necessary practice. In no other case will any person be allowed to handle hydrants or other water apparatus, without permission of the Water Commissioners.

7. No water taker will be allowed to supply water to others, except by special permit from the Board of Water Commissioners, and if found doing so without a permit, the supply will be stopped and the water rent already paid forfeited.

8. If any house or tenement becomes vacant, the superintendent's office shall be notified. He will at once cause the water to be shut off, until the house or tenement is again occupied, and on application from the owner will let it on again, without expense to the owner. Otherwise full rates will be charged and no rebate will be allowed.

9. All bills for new services, repairing old services, supplies, and labor, must be paid within *thirty days* from date of bill.

10. The water may be turned off without notice when bills for *water* remain unpaid for *fifteen* days after they become due, and if they remain unpaid more than fifteen days, *six per cent.* will be added. Owners of premises will be held responsible for the water rents of their tenants.

11. Any person wishing to discontinue the use of water, must give written notice thereof at the office of the Water Commissioners previous to the time for which payment has been made, otherwise he will be liable for the rent for the ensuing six months.

12. Any person who shall remove, change, alter or wilfully damage or injure any meter, shall forfeit not less than three nor more than twenty dollars for each offence. Any change in any meter in its position will be attended to under the direction of the superintendent.

13. No person other than a regular water taker shall use water for *Building Purposes* without a written permit from the Water Commissioners, under a penalty of \$10.00. There will be a charge of 5 cents for each barrel of Lime or Cement used. The applicant shall make a deposit of \$5.00 before commencing to use water, and the unexpended balance will be returned after the work is completed.

14. The minimum price at which water will be furnished, including use of meter, will be Six DOLLARS semi-annually, payable in advance, January first and July first. This will allow the use of 12,500 gallons each six months.

Larger quantities are graded as follows for each six months:

	Gallons	Rate per 1,000 Gals.	Costs	Total Gals.	Total Cost
First	12,500	.48	\$6.00	12,500	\$6.00
Next	7,500	.40	3.00	20,000	9.00
Next	5,000	.30	1.50	25,000	10.50
Next	25,000	.20	5.00	50,000	15.50
Next	50,000	.19	9.50	100,000	25.00

A special rate is made for manufacturing and agricultural purposes of 10 cents per 1000 gals. on quantities in excess of 40,000 gals. per year.

15. If a meter gets out of order and fails to register, the consumer will be charged at the average daily consumption as shown by the meter when in order.

16. Any and all penalties for violations of these regulations or arrearages for non-payment of water rents or charges, may be sued for and collected by the Board of Water Commissioners.

17. The Water Commissioners reserve the right to change the water rates and rules.

May 22nd, 1914. Voted to accept the contract with the Town of Acton of \$25.00 per annum for each hydrant that may be in service up to 100 for a period of ten years.

Voted to issue \$9,000.00 in bonds of the \$15,000.00 as voted by the District May 12th, 1914.

Voted that all water used by the Moth and Highway Departments of the Town shall be free, under the direction of the superintendent. Any damage incurred by such use shall be settled for by the Town.

Voted to pay Mr. William F. Stevens for collecting 1% for District tax and 2% for water rates.

REED *vs.* WEST AND SOUTH WATER SUPPLY
DISTRICT OF ACTON

Your Board not being able to come to any terms with Mr. Reed for the land taken for a source of water supply procured the services of Mr. A. Brooks Parker as legal adviser, and to make out papers for the taking of the land as provided for in Section 3 of Act of Incorporation and to file and cause the same to be recorded in the registry of deeds at Cambridge.

Under date March 23rd, 1914, a letter was received from Ralph E. Joslin on behalf of Mr. Reed, saying that "After a careful investigation by competent engineers, whose reports are now in hand, I suggest that a fair price for the property taken and the damages done to the remainder of Mr. Reed's estate would be \$2,500.00. I am authorized to name this figure, but do so as a matter of compromise and without prejudice to my client's rights to seek and to expect a larger assessment at the hands of a jury."

As this was not accepted by your Board a conference was held October 5th, 1914, with Mr. Reed and Mr. Joslin, together with the Board and officers of the District. The matter was discussed extensive-

ly, and resulted, in order to avoid a trial, in a vote to notify Mr. Joslin to offer Mr. Reed \$1,000.00 to settle his claim in full.

At a meeting of the Board January 6th, 1915, a letter from Mr. Joslin was read, stating that Mr. Reed would settle his claim for \$1,500.00. His offer was rejected, and it was thought best to bring the matter before the District for advice and instructions.

A meeting of the District was held January 19th, 1915, for this purpose, and the matter fully discussed under Article 2, to see if the District would approve of the action of the Board offering Mr. Reed \$1,000.00. The action of the Board not being approved, it was voted under Article 3 to appropriate the sum of \$1,000.00 for the purpose of defending the suit.

February 1st, 1915, the Board instructed the chairman to employ Mr. Ralph A. Stewart of the firm of Choate, Hall & Stewart, to defend the suit.

Without entering into further details, the case was tried before a jury, resulting in a verdict of \$630.00, with interest at 6% per annum from the time of taking, making a total of \$806.00. Mr. Joslin appealed the case.

A communication was received from Mr. Joslin stating that with costs of court, witness fees, and verdict together we would have to pay \$936.00. They would settle the case and give a clear title to the land for \$1,100.00.

On advice of Mr. Stewart and with the expression of confidence in the Board by the District, we again offered \$1,000.00 for a settlement in full, which was accepted and a deed duly executed by Mr. Reed has been handed the District.

COST OF REED LAND

Mr. A. Brooks Parker, legal advice and taking land	\$50 00
Mr. R. G. Reed, land, interest and cost of court	1,000 00
Choate, Hall & Stewart, legal services	600 00
Witness fees and expenses	32 50
Expense of jury dinner	9 86
Total	\$1,692 36

CENTRE DISTRICT EXTENSION

As this District must return 6% annually on the cost of all work in the District, bids were asked for work and all materials. Awards were made as follows, each being the lowest bidder.

STANDARD CAST IRON PIPE AND FOUNDRY CO.

9,450 feet 10-inch pipe, 60 lbs. per foot, \$23.20 per ton
 1,150 feet 8-inch pipe, 43 lbs. per foot, 23.20 per ton
 3,350 feet 6-inch pipe, 30 lbs. per foot, 23.70 per ton

THE PRATT & CADY CO.

6 6" water gates	\$8 50 each
3 8" water gates	13 85 each
11 10" water gates	22 70 each
21 4½"x6' hydrants	22 20 each

FRED A. HOUDLETTE & SON

For Hauling and Laying Pipe, Setting Gates and Hydrants

10" pipe per linear foot	\$0 38
8" pipe per linear foot	35
6" pipe per linear foot	30
Rock excavation, per cubic yard	4 00

Cost of extension to date	\$22,829 72
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Pipe has been laid in the West and South Water District under contract as follows:

	Feet	Feet
12-inch pipe from standpipe to Acton Street	560	
12-inch pipe in Acton Street to junction with Central Street	2,400	
		2,960
10-inch pipe in Acton and Central Streets from South Acton to Willow Street, West Acton	8,160	
10-inch pipe in private land to Windsor Avenue	350	
10-inch pipe in Windsor Avenue to Massachusetts Avenue	1,246	
		9,756
8-inch pipe in Massachusetts Avenue, pumping station to Windsor Avenue	3,090	
8-inch pipe in School, Merriam and River Streets	5,070	
8-inch pipe in private way from School Street to River Street	200	
		8,360
6-inch pipe in Arlington Street from Massachusetts Avenue to Jewett house	700	
6-inch pipe in Arlington Street to Stevens house	2,453	
6-inch pipe in Central Street from Massachusetts Avenue to Teele house	973	

6-inch pipe in School Street from Arlington Street to Durkee house	581	
6-inch pipe in Willow Street from Central Street to Joy house	2,173	
6-inch pipe in Summer Street from Willow Street to Blanchard house	1,667	
6-inch pipe in Homestead Street from Willow Street	548	
6-inch pipe in Massachusetts Avenue from end of old pipe line to Knowlton Lane	1,533	
6-inch pipe in Maynard Street, from Square to culvert	1,350	
6-inch pipe in Prospect Street from Central Street to Taylor house	911	
6-inch pipe in Railroad Street from Square to hydrant	484	
6-inch pipe in South Street from School Street to Fullerton house	570	
6-inch pipe in Martin Street from Central Street to Stow Street	1,863	
6-inch pipe in Maple Street from Martin Street to railroad yard	1,989	
Hydrant branches	600	
		18,395

Centre District

10-inch pipe in Acton Street from standpipe line to Tuttle Road	9,401	
8-inch pipe in Acton Street from Tut- tle Road to Poor Farm Road	881	
6-inch pipe in Acton Street from Poor Farm Road to last hydrant	222	
6-inch pipe in Concord Street from Acton Street to last hydrant	1,304	
6-inch pipe in Gravel Pit Road from Acton Street to last hydrant	1,062	

6-inch pipe in Maple Avenue from Gravel Pit Road to last hydrant	445	
6-inch pipe in Poor Farm Road from Acton Street to last hydrant	413	
6-inch pipe in Tuttle Road from Acton Street to last hydrant	842	
Hydrant branches	129	
		<hr/> 4,417

Additional Extensions

6-inch pipe in Massachusetts Avenue from end of pipe line to Kelley Corner	3,281	
6-inch pipe in Prospect Street from Massachusetts Avenue to hydrant	341	
6-inch pipe in Dudley Street from Massachusetts Avenue to hydrant	275	
6-inch pipe in Arlington Street from end of pipe line to hydrant	700	
6-inch pipe in Whitcomb Street from Summer Street to hydrant	696	
6-inch pipe in Summer Street from end of pipe line to hydrant	740	
6-inch pipe in Kingsley Street from Massachusetts Avenue	530	
6-inch pipe in Knowlton Street from Arlington Street to hydrant	650	
6-inch pipe in Maynard Street from culvert to Case house	1,475	
6-inch pipe in Martin Street from Stow Street to Samsel house	693	
		<hr/> 9,381
6-inch pipe laid previously in Massa- chusetts Avenue and Central Street		1,920

Total Length of Pipe in the District

12-inch pipe	2,960 feet
10-inch pipe	19,157 feet
8-inch pipe	9,241 feet
6-inch pipe	34,113 feet
Total	65,471 feet
12.40 miles of mains	
2-inch cement-lined pipe extensions	7,008 feet

TABLE OF ELEVATIONS AND WATER
PRESSURE

	Elevations above sea level	Heads in ft.	Heads in lbs.
High water in standpipe, Great Hill	431	0	0
Top of Great Hill	361	70	30
Pumping station, West Acton	210	221	96
Top of Wright's Hill, West Acton	314	117	51
Intersection Massachusetts Avenue and Central Street, West Acton	230	201	87
Exchange Square, South Acton	204	227	98
River Street at Chadwick Street, South Acton	165	266	115
Intersection Acton Street and Gravel Pit Road, Acton Centre	263	168	73
Intersection Acton Street and Poor Farm Road, Acton Centre	242	189	82

NUMBER OF WATER TAKERS

Year	WEST DIST.	SOUTH DIST.	CENTRE DIST.	TOTALS
1913	141	91	43	275
1914	165	104	49	318
1915	166	116	56	338

METERED WATER

YEAR	WEST DIST.	SOUTH DIST.	CENTRE DIST.	TOTALS
1913		(Not metered full year)		
1914	3,848,587 gals.	1,853,327 gals.	727,282 gals.	6,429,196 gals
1915	4,105,732 gals.	2,365,275 gals.	778,642 gals.	7,249,649 gals

AVERAGE PER TAKER

YEAR	WEST DIST.	SOUTH DIST.	CENTRE DIST.
1914	23,385 gals.	17,820 gals.	14,842 gals.
1915	24,733 gals.	20,390 gals.	13,904 gals.

REVENUE FROM WATER TAKERS

YEAR	WEST DIST.	SOUTH DIST.	CENTRE DIST.	TOTALS
1913	\$1,716.00	\$1,049.00	\$491.08	\$3,256.00
1914	2,042.07	1,312.31	547.84	3,902.22
1915	2,384.86	1,448.18	610.35	4,440.39

VALUATION

YEAR	WEST AND SOUTH DIST.	CENTRE DIST.	TOTALS
1913	\$1,172,330.00	\$200,325.00	\$1,372,655.00
1914	1,182,155.00	202,185.00	1,384,340.00
1915	1,232,310.00	218,380.00	1,450,690.00

DISTRICT TAX

YEAR	
1913	\$4,022.00
1914	3,947.00
1915	3,974.00

PUMPING RECORD BY MONTHS

	Gallons 1914	Gallons 1915
January	825,000	1,321,000
February	571,500	1,081,000
March	763,900	1,100,000
April	908,900	1,179,000
May	1,080,000	1,143,000
June	1,629,000	1,368,000
July	1,187,500	1,422,000
August	1,377,000	1,485,000
September	1,467,000	1,735,000
October	1,282,500	1,674,000
November	1,216,000	1,314,000
December	1,323,000	1,431,000
Totals	13,631,300	16,253,000

CONCLUSION

The system has been in operation for over three years, and the fact that during this time only one pipe—a 10-inch main—has burst, gives fair evidence that the District has a safe and dependable layout. As the break occurred during the year of guarantee it was repaired without expense to the District. The size of pipe used for mains gives ample fire protection, as the test given it by the fire in West Acton in July, 1913, when thirteen hydrants and numerous garden hose streams were playing at one time without appreciable loss of pressure has proven, and further, the fact that when the fire was under control after burning several hours, the standpipe was full, gave proof of the abundance of water, and a

pumping plant of sufficient capacity to meet any demand that may be placed upon it. The arrangement of the power plant is such that either pump may be driven by either engine, thus guarding against the failure to deliver water by the disabling of either a pump or engine, or both, at the same time. Also, the standpipe is of sufficient capacity that in the event of both units being out of commission water would be furnished for a period of seven days for domestic use, besides caring for any ordinary fire.

The seven-day pumping test made in a dry season, and after a succession of dry years, has proven that the source of supply is not only sufficient for our present needs, but would take care of a town several times larger than Acton.

The analysis of the water made frequently shows no material change from the one printed in this report.

The detailed report of the Treasurer, as printed, will show how the funds have been used. And the annual report of Collector and Treasurer show the finances to be in good condition, with a steady increase in revenue from water rates.

Respectfully submitted,

EDGAR H. HALL,
WILLIAM RAWITSER,
WALDO E. WHITCOMB,

Water Commissioners.

TREASURER'S REPORT

RECEIPTS

SEPTEMBER, 1912, TO APRIL 1, 1914

N. W. Harris Co., sale of		
bonds	\$100,000	00
Premium on bonds	1,000	00
Accrued interest on		
bonds	266	67
Taxes, West and South		
district	3,105	44
Taxes, Centre district	873	92
Installing service pipe,		
West and South district	3,603	75
Installing service pipe,		
Centre district	707	28
Acton Associates, Maynard		
Street extension	940	73
Hydrant service	2,250	00
Interest	216	72
Revenue from service,		
West and South district	4,288	74
Revenue from service,		
Centre district	722	42
		<hr/>
	\$117,975	67
Paid Commissioners' orders	116,813	13
		<hr/>
Balance on hand	\$1,162	54

APRIL 1, 1914, TO APRIL 1, 1915

Taxes, West and South		
district	\$2,840	32
Taxes, Centre district	753	34
Installing service pipes,		
West and South district	629	70
Supplies and repairs	14	09

Installing service pipe,		
Centre district	117 98	
Hydrant service	2,354 16	
Old Colony Trust Co., loan	8,000 00	
Old Colony Trust Co., loan	5,000 00	
Interest	30 11	
Additional bonds sold	9,000 00	
Old auto sold	50 00	
Revenue from service,		
West and South district	3,453 72	
Revenue from service,		
Centre district	540 80	
		<hr/>
		\$33,946 76
Paid Commissioners' orders		30,868 09
		<hr/>
Balance on hand		\$3,078 67

APRIL 1, 1915, TO APRIL 1, 1916

Taxes, West and South		
district	\$2,976 50	
Taxes, Centre district	883 13	
Installing service pipe,		
West and South district	333 83	
Installing service pipe,		
Centre district	109 76	
Hydrant service	2,500 00	
Rebate on Ford auto	50 00	
Supplies sold	8 40	
Supplies returned	23 85	
Revenue from service,		
West and South district	3,940 26	
Revenue from service,		
Centre district	667 17	
		<hr/>
		\$14,571 57
Paid Commissioners' orders		13,185 66
		<hr/>
Balance on hand		\$1,385 91

EXPENDITURES

SEPTEMBER, 1912, TO APRIL 1, 1916

Construction Account

F. A. Houdlette & Son	\$83,736 29
F. L. Fuller, Engineer	2,800 00
Pratt & Cady	1,001 23
H. Mueller Mfg. Co.	1,805 06
Walworth Mfg. Co.	328 82
Builders' Iron Foundry	258 45
Warren Foundry	2,239 53
Hanscom Construction Co.	3,434 29
National Meter Co.	3,391 45
Waldo Bros.	55 41
Bingham & Taylor	93 28
Union Meter Co.	42 75
South Acton Coal & Lum- ber Co.	42 65
Acton Associates	940 73
Boston & Maine, freight	1,156 54
Service boxes	63 78
A. H. Perkins	1,826 23
Standard Cast Iron & Foundry Co.	7,762 24
Richards & Co.	44 22
Prescott & Co.	9 00
Davis, King Co.	12 00
William H. Kingsley	47 50
H. L. Bond Co.	2 61
Hall Bros.	31 11
A. Merriam Co.	35 10
Chapman Valve Co.	9 42
L. E. Tracy & Co.	35 14
J. T. McNiff	92 55
G. E. Greenough	17 60

C. H. Mead & Co.	40 13
B. F. Townsend	1 08
E. T. Rice	67 02
N. E. Whitcomb	42 42
E. L. Spinney	5 00
W. C. Robinson & Co.	18 20
Clark Durkee	73 75
W. E. Whitcomb	134 10
D. C. Harris	6 00
Martin Baker	14 88
F. C. Greenier	4 00
Tuttle & Newton	9 22
Finney & Hoit	7 50
Braman, Dow & Co.	21 55
J. S. Hoar	660 03
W. W. Charter	9 00
Express Co.	2 80
Union Stamp Works	2 00
Sumner & Gereald	2 66
W. B. Holt	360 46
H. S. Turner	77 75
N. H. Tenney	75 34
A. M. Whitcomb, bonds	300 00
W. B. Franklin, land	500 00
A. B. Parker, legal services	77 75
James B. Tuttle	5 00
W. F. Kelley	5 00
Barry & Beale Co.	25 75
H. F. Tuttle, surveying	105 00
F. E. Hall	10 75
H. F. Tuttle, witness	13 50
E. L. Hayward, witness	7 50
W. C. Robbins, witness	3 00
James Kingsley, witness	4 00
E. R. Teele, witness	4 00
W. Tyler, witness	4 00

William Kingsley, witness	4 00	
Choate, Hall & Stewart,		
land damage	1,000 00	
Choate, Hall & Stewart,		
legal services	616 48	
		<hr/>
		\$115,635 60

Maintenance Account

Walworth Mfg. Co.	\$34 51
Pratt & Cady	19 79
Walworth Mfg. Co.	3 10
Jenney Mfg. Co.	664 30
Eagle Oil Co.	107 21
Jenkins Bros.	23 76
National Meter Co.	27 45
H. L. Bond	18 75
W. S. Greenough	9 65
G. W. Collins	185 00
N. E. Whitcomb	167 33
Braman, Dow & Co.	24 76
Sherwin & Williams Co.	29 33
Union Water Meter Co.	3 06
Eagle Oil Co.	29 70
F. E. Davis	222 88
Davis, King Co.	11 25
J. T. McNiff	78 40
W. C. Robinson Co.	30 28
Boston & Maine, freight	33 54
Boston & Maine, pipe privi- lege	37 80
Express Co.	10 39
W. S. Greenough Co.	9 65
E. F. Jewett	3 50
F. Oelschlegel	1 85
A. Mietz Foundry & Ma- chine Co.	16 22

Builders' Iron Foundry	21 06
Martin Baker, labor	137 71
E. T. Rice	36 13
L. E. Tracy Co.	40 00
W. Costello, painting	3 00
Richards & Co.	24 24
W. E. Whitcomb	45 34
H. S. Turner, printing	30 35
James Berry	1 00
C. H. Mead & Co., supplies	56 92
George H. Reed, supplies	119 72
Hall Bros.	30 65
F. W. Hoit, postage and expenses	21 13
South Acton Coal & Lum- ber Co.	1 58
S. R. Burroughs	2 50
Tuttle & Newton	29
William Sargent, printing	2 00
William Holt, labor	431 50
F. Pierce, labor	10 10
J. P. Brown	1 89
News Publishing Co.	19 50
Library Bureau	8 51
E. W. Ford, auto repairs	79 15
Lowell Road Garage, auto repairs	2 95
James Fitzgerald, repairs	10 60
Wesley Hall	13 25
E. B. Caiger, legal	5 00
A. M. Whitcomb, bonds	60 00
Stanley Hall	1 00
Webster Blanchard, tires	42 24
American Motor Equip- ment Co., tires	28 20
George Weaver, 2 rims	2 00

Bureau of Statistics, certifying note	2 00	
William Rawitser, supplies	35 06	
William Rawitser, repairs	39 63	
Baxter Tire Co.	1 50	
Continental Asbestos Co.	1 20	
F. A. Houdlette & Son	17 56	
H. L. Jones, salary and expenses	17 50	
Enterprise Co.	1 20	
Louis Leveroni, labor	10 00	
D. S. Kennedy, labor	16 55	
N. H. Tenney, repairs and supplies	50 41	
Finney & Hoit, supplies	3 24	
E. L. Burke, reading meters	6 00	
Ford Motor Co., auto	459 50	
William F. Stevens, collecting and supplies	324 86	
E. H. Hall, supplies	42 33	
New England Telephone & Telegraph Co.	84 95	
James Fitzgerald, superintendent	2,985 00	
James Fitzgerald, supplies	16 59	
		\$7,208 05

Bond and Note Account

Bond No. 1, Series No. 1	\$3,500 00
Bond No. 2, Series No. 1	3,500 00
Bond No. 3, Series No. 1	3,500 00
Bond No. 1, Series No. 2	300 00
Old Colony Trust Co., preparing and transferring \$100,000.00 bonds	200 00

Old Colony Trust Co., preparing and transferring \$9,000.00 bonds	90 00	
Interest on bonds, first series	13,370 00	
Interest on bonds, second series	354 00	
Interest on temporary loan	38 89	
Old Colony Trust Co., note	8,000 00	
Old Colony Trust Co., interest on note	118 67	
Old Colony Trust Co., note	5,000 00	
Old Colony Trust Co., interest on note	51 67	
	<hr/>	\$38,023 23

TOTAL EXPENDITURES

Construction account, West and South District	\$93,368 41
Construction account, Centre District	22,267 19
Maintenance account	7,208 05
Bond and Note account	38,023 23
	<hr/>
September, 1912, to April 1, 1916	\$160,866 88

BONDS

Series No. 1	\$100,000 00
Paid Bonds Nos. 1, 2, 3	10,500 00
	<hr/>
Outstanding	\$89,500 00
Series No. 2	\$9,000 00
Paid Bond No. 1	300 00
	<hr/>
Outstanding	\$8,700 00

NET COST OF CONSTRUCTION

West and South District	\$93,368 41
Less amounts received for service pipe	4,567 28
	<hr/>
Net cost of construction	\$88,801 13
Centre District	\$22,267 19
Less amounts received for service pipe	935 02
	<hr/>
Net cost of construction	\$21,332 17

FRANK W. HOIT, Treasurer,

West and South Water Supply District of Acton.

COLLECTOR'S REPORT

1915		Dr.
Total tax committed to		
Collector	\$3,974 10	
Interest collected	5 60	
	<hr/>	\$3,979 70
	Cr.	
Paid Treasurer		3,520 15
		<hr/>
Uncollected April 1, 1916		\$459 55
1914		Dr.
Total tax committed to		
Collector	\$3,947 01	
Interest collected	15 75	
	<hr/>	\$3,962 76
	Cr.	
Paid Treasurer	\$3,937 67	
Abatements	9 88	
	<hr/>	3,947 55
		<hr/>
Uncollected April 1, 1916		\$15 21

UNCOLLECTED WATER RATES, MARCH 21, 1916

January 1, 1915, rates, South		\$9 24
July 1, 1915, rates, South		16 36
January 1, 1916, rates, West	\$82 04	
Rates, South	111 41	
Rates, Centre	40 26	
	<hr/>	233 71
		<hr/>
		\$259 31

WILLIAM F. STEVENS,
Collector.