

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

LISTED
VLR 6/16/2016
NRHP 8/15/2016

1. Name of Property

Historic name: Manassas Water Tower

Other names/site number: Old Manassas Water Tower (DHR ID #155-0141); 1914

Manassas Water Tower

Name of related multiple property listing: N/A

(Enter "N/A" if property is not part of a multiple property listing)

2. Location

Street & number: 9000 Quarry Street

City or town: Manassas State: VA County: Independent City

Not For Publication: N/A

Vicinity: N/A

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this X nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property X meets does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

 national statewide X local

Applicable National Register Criteria:

 X A B X C D

Signature of certifying official/Title: **Date**

Virginia Department of Historic Resources

State or Federal agency/bureau or Tribal Government

In my opinion, the property meets does not meet the National Register criteria.

Signature of commenting official: **Date**

Title : **State or Federal agency/bureau or Tribal Government**

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4. National Park Service Certification

I hereby certify that this property is:

- entered in the National Register
- determined eligible for the National Register
- determined not eligible for the National Register
- removed from the National Register
- other (explain:) _____

Signature of the Keeper

Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

- Private:
- Public – Local
- Public – State
- Public – Federal

Category of Property

(Check only **one** box.)

- Building(s)
- District
- Site
- Structure
- Object

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Number of Resources within Property

(Do not include previously listed resources in the count)

| Contributing | Noncontributing | |
|--------------|-----------------|------------|
| <u>0</u> | <u>1</u> | buildings |
| <u>0</u> | <u>0</u> | sites |
| <u>1</u> | <u>0</u> | structures |
| <u>0</u> | <u>0</u> | objects |
| <u>1</u> | <u>1</u> | Total |

Number of contributing resources previously listed in the National Register 0

6. Function or Use

Historic Functions

(Enter categories from instructions.)

GOVERNMENT: Public Works: Water Tower

Current Functions

(Enter categories from instructions.)

GOVERNMENT: Public Works: Water Tower

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7. Description

Architectural Classification

(Enter categories from instructions.)

OTHER: Hemispherical Tank, Steel Water Tower

Materials: (enter categories from instructions.)

Principal exterior materials of the property: CONCRETE; METAL: Steel

Narrative Description

(Describe the historic and current physical appearance and condition of the property. Describe contributing and noncontributing resources if applicable. Begin with a **summary paragraph** that briefly describes the general characteristics of the property, such as its location, type, style, method of construction, setting, size, and significant features. Indicate whether the property has historic integrity.)

Summary Paragraph

Located on the north side of Quarry Street near the intersection with Centreville Road in the City of Manassas, Virginia, the Manassas Water Tower stands on what was the north side of the town of Manassas in 1914, near one of the town's six early wells. Built in 1914, at a total specified height of 147 feet, the Water Tower is an example of a steel, elevated tank in the hemispherical form. Supported by a steel trestle tower with four legs that are bolted onto square, beveled, poured-concrete footpads, the 75,000-gallon tank is constructed of riveted sheet metal and has a conical top, straight sides, and concave hemispherical self-supporting bottom. The Water Tower retains a generally high level of historic integrity as it relates to all seven aspects of integrity: location, setting, association, design, workmanship, materials, and feeling. In addition to the Water Tower, the .46-acre property contains one non-contributing building, a c. 1985 two-bay garage that stands a short distance northwest of the tower; this resource postdates the property's period of significance.

Narrative Description

Located on the north side of Quarry Street near its intersection with Centreville Road, the Manassas Water Tower stands on what was the north side of the town of Manassas in 1914, near one of the town's six early wells. The Tower was designed to provide water for domestic use and municipal fire protection. Since the 1930s, Manassas has experienced considerable development, due in large part to its proximity to Washington DC and to suburban federal government and military installations. In subsequent decades, ever-growing numbers of commuters have relied on

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passenger rail service to Washington DC and surrounding suburbs, making the City's historic depot an important transportation hub. The resultant population increase prompted a need for construction of housing, schools, and commercial areas, much of it moderate- to high-density in design. Thus, although the Water Tower once was located near the outskirts of Manassas, today it is in the heart of the City.

As the population mushroomed during the mid-20th century, the Town of Manassas added to its public service infrastructure by constructing a brick firehouse on a parcel adjacent to the Water Tower in 1956. In 1975, Manassas became an independent city. In c. 1985, on the Water Tower's parcel the City built a one-story, front-gabled, two-bay garage, utilized for training and storage purposes by city firefighters. This building is non-contributing because it postdates the property's period of significance; however, it is in keeping with the property's historic association with infrastructure development and fire protection in Manassas.

The Water Tower directly abuts the boundary of the Manassas Historic District (NRHP 1981; DHR #155-0161). Annaburg (DHR #155-0021), the home of prominent local resident Robert Portner, is located one block to the north. The Tower also has been designated as a contributing structure within the Manassas local historic district and is identified as a landmark in the City of Manassas Old Town Sector Plan.

Water Tower

At a total specified height of 147 feet, the 1914 Manassas Water Tower (the "Water Tower" or "Tower") is the most prominent structure in the Manassas skyline. The Water Tower includes a 75,000-gallon tank made of riveted sheet metal and features a tank with a conical top, straight sides, and concave hemispherical self-supporting bottom. Raised on four legs that are bolted onto square, beveled, poured-concrete footpads, the steel trestle tower includes three levels of cross beams and diagonal tie rods between each of the legs for additional stability. A narrow steel ladder that is attached to the northeast tower leg and side of the water tank and a railed walkway that is supported by steel brackets around the tank provide access to the Water Tower. The cast iron riser pipe, which is currently clad in thin, ridged aluminum sheets, enters the tank through the center of the tank bottom. An overflow pipe extends from the top of the tank down the northeast tower leg and empties into a metal waste pipe that extends about one-and-one-half feet above ground level.

Integrity

As a resource considered eligible for registration under Criterion C, the Water Tower's integrity of design and materials are of particular concern and the integrity of each of those is very high. With the exception of the contemporary paint scheme (which the community intends to restore to the original silver with black lettering), no significant alterations have been made to the Water Tower. Minor alterations known to have been made are as follows: the original ball finial at the peak of the water tank roof has been replaced with a single aircraft warning light; the riser pipe has been covered with a layer of foam insulation and clad in light-weight ridged sheet metal; and an anti-tamper metal cage has been installed over the bottom of the ladder at the base of the northeast tower leg (the community intends to reinstall the ball finial, move the aircraft warning

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light, and remove the insulation and cladding from the riser pipe). Significantly, there are no cellular antennae installed on the tower, and the “whip” antennae installed on the roof of the water tower (no longer in use) are to be removed.

Further, as a representative of a specific period in the evolution of water tower design and engineering, retention of the historic form and the various components that create it are critical to the integrity of both design and materials. In the case of the Manassas Water Tower, which is an example of a steel, elevated tank in the hemispherical form, retention of the suspended hemispherical bottom, the four-post lattice-girder trestle tower with diagonal tie rods, the 8-inch stand pipe, the balcony stiffener, and the conical roof (all being elements relating to design and materials) place it solidly within its construction period and mark it as an important example of the hemispherical form of water tower.

Integrity of workmanship, which relates to the evidence of the “artisans’ labor and skill,” is manifested in the water tower in the methods utilized to construct it. The use of riveting specifically reflects the specialized skills required of the laborer and the level of workmanship necessary to construct a functioning water tower and is a reflection of the technological practices of both the property type and the construction period. As a result, the Manassas Water Tower retains a high level of integrity as it relates to workmanship.

As a resource considered eligible for registration under Criterion A, integrity of location, setting, and association are of specific concern. The 1914 Manassas Water Tower was sited near the heart of the community and in proximity to one of the town’s six early wells. Because the water tower remains on its original site, the level of integrity as it relates to location is excellent. This is particularly significant given the strong link between location and function attached to this specific property type.

The integrity of the water tower’s association is considered high. The structure remains near the town’s historic center, which is relevant to the historical association of the structure’s functional relationship to the commercial and residential resources, the protection of which was a contributing factor in the drive to construct the water tower and associated water works system. Retention of that association is significant to the overall level of historic integrity.

The integrity of setting, although somewhat diminished by nearby residential and commercial development dating to outside the period of significance, remains good.

The Manassas Water Tower also retains a high level of integrity as it relates to feeling. The very nature of any water tower makes it a visual landmark, contributing to the identity of the community that it services. Because the water tower at Manassas retains a very high level of integrity as it relates to the previous noted qualities, it remains identifiable as a significant element of the community’s history and an important example of a rapidly disappearing property type.

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8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B. Property is associated with the lives of persons significant in our past.
- C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D. Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

- A. Owned by a religious institution or used for religious purposes
- B. Removed from its original location
- C. A birthplace or grave
- D. A cemetery
- E. A reconstructed building, object, or structure
- F. A commemorative property
- G. Less than 50 years old or achieving significance within the past 50 years

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Areas of Significance

(Enter categories from instructions.)

COMMUNITY PLANNING AND DEVELOPMENT
ENGINEERING

Period of Significance

1914

Significant Dates

N/A

Significant Person

(Complete only if Criterion B is marked above.)

N/A

Cultural Affiliation

N/A

Architect/Builder

Applegate & Son, Bradford, PA
R. D. Cole Manufacturing Co., Newnan GA
Phoenix Iron Co., Philadelphia, PA

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Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance, applicable criteria, justification for the period of significance, and any applicable criteria considerations.)

The 1914 Manassas Water Tower is locally significant under Criterion A in the area of Community Planning and Development. It was constructed to store water and to maintain water pressure in the town's first municipal water system for domestic use and fire protection. It is representative of an era in which Manassas changed from being a small town to a modern municipality that offered its citizens more sanitary, brighter, and safer surroundings. The Tower today stands as a very visible reminder of the infrastructure needed to help Manassas grow. The property also is locally significant under Criterion C in the area of Engineering. As an example of engineering practices applied to a structure that embodies the distinctive characteristics of a property type of a specific period, the Manassas Water Tower represents a specific type of water tower, the hemispherical bottom, that exemplifies the evolution of water supply systems during the period from the 1890s to about 1940. The Period of Significance for the Manassas Water Tower is 1914, marking the year the resource was placed in service and in which the water tower made its most significant impact on the community in its capacity as a component of the town's first waterworks system.

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

Criterion C - Engineering

The Manassas Water Tower is individually eligible for listing in the National Register of Historic Places under Criterion C. The water tower is locally significant as an example of engineering practices applied to a structure that embodies the distinctive characteristics of a property type of a specific period: the Manassas Water Tower represents a specific type of water tower, the hemispherical bottom, that exemplifies the evolution of water supply systems during the period from the 1890s to about 1940. The elevated steel water tank was developed in the 1890s and by the early twentieth century was the typical type utilized in communities across the nation. Once a common landmark on the Virginia landscape, this particular form of water tower is quickly vanishing as the requirements of communities grow beyond the capacity of the early towers and they are thus replaced by larger-capacity structures. The Manassas Water Tower is an excellent representative of the type that featured distinctive characteristics including all steel materials, a conical roof, a riveted tank with a suspended, hemispherical bottom, and a tower of four lattice-channel posts with diagonal tie rods. The retention of a high degree of historic integrity marks the Manassas Water Tower as a well-preserved example of an increasingly rare, representative form.

All of Virginia's National Register-listed water towers are listed as contributing resources to an historic district; the case for significance based solely on their historic association (Criterion A) relevant to the context of the specific district. A typical example is the case of the towers associated with the Ben Dover Farm in Goochland County (DHR ID: 037-0078), with the

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structures counted as contributing resources to a historic district. The Virginia Department of Historic Resources (“VDHR”) database of historic resources, VCRIS, lists some 160+ water towers, most of which are or were associated with rural or military resources. Little additional information about the towers appears in the database, so we are limited in our understanding of the towers, including their type. Therefore, in connection with the preparation of this nomination and seeking to determine the rarity of pre-World War II hemispherical bottom water towers like the 1914 water tower at Manassas, a comprehensive survey of municipally-owned finished water storage facilities was undertaken at the behest of VDHR in late 2015. The geographic scope of the survey was the VDHR Northern Region, which comprises 79 localities: 22 counties, 47 towns, and 10 independent cities; together constituting 41% of the state by population (3.4 million residents) and 22% of the state by land area (8,721 square miles). The survey identified a total of 294 extant facilities, including 110 water towers and 184 surface tanks. Out of the total number of 110 water towers, six hemispherical bottom type towers are extant. The 1914 Manassas Water Tower is the oldest extant finished water storage facility of any kind in the region, it is the oldest water tower in the region, and it is the only extant hemispherical bottom type water tower in the region built before World War II.¹ The survey revealed that the hemispherical bottom water tower, once common, is a vanishing historical resource.

| VDHR Northern Region – Hemispherical Bottom Water Towers Extant as of March 1, 2016² | | | | | | |
|--|------------------|-------------------|-----------|---------------------------|------------------|----------------|
| Resource Name | Locality | Build Date | | Capacity (Gallons) | Condition | Setting |
| Manassas Water Tower | Manassas City | 1914 | Pre-WW II | 75,000 | Excellent | Urban |
| Midway Water Tower | Stafford County | 1942 | | 200,000 | Good | Rural |
| Wirth Water Tower | Fauquier County | 1943 | | 100,000 | Excellent | Town |
| W. Main St. Water Tower | Town of Luray | 1946 | | 150,000 | Excellent | Town |
| S. Rogers St. Water Tower | Town of Hamilton | 1949 | | 60,000 | Excellent | Town |
| Nutley St. Water Tower | Town of Vienna | 1950 | | 200,000 | Excellent | Urban |

As a property type that was once commonplace and always utilitarian, the water tower (particularly those lacking artistic design such as the Washburn Water Tower in Minneapolis, MN [NRHP 1983]) is often overlooked as a resource with significance bearing the level of importance warranting individual listing.³ It is important to consider that the all-steel, hemispherical tank is representative of the evolution of the water tower as a property type, with specific engineering design features worthy of recognition separate from the resources that it was constructed to serve.

Criterion A – Community Planning and Development

The Manassas Water Tower is individually eligible for listing in the National Register of Historic Places under Criterion A. The tower is locally significant in its association with the history of community planning and development in Manassas. Without adequate fire protection until the 1914 installation of the city waterworks that included the water tower, property in Manassas was

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lost to fire with dramatic effect; thirty of the town's historic wood frame buildings (residential and commercial) were damaged or destroyed by a large fire on December 4, 1905. Historical news accounts published in the years that followed the fire reveal the debate surrounding the town's lack of public utilities, including a waterworks system. Despite the fact that neighboring communities, including Warrenton and Culpeper, had developed water, sewer, and electric service, Manassas did not take a firm step toward constructing those systems until late in 1912. The 1914 Manassas Water Tower marks that significant development in community history.

Development of Manassas

In 1865, William Fewell laid out and sold town lots on his land at Manassas Junction, which was located where the Orange & Alexandria and the Manassas Gap Railroads intersected. In 1873, the Virginia General Assembly incorporated the Town of Manassas.⁴ Along with Manassas's growth and its incorporation came a major concern for fire protection. That year, the town created a cistern, and, one year later, dug a town well on East Center Street. By 1884, the town had added two more wells that increased the town's public water supply and fire protection capacity.

In 1892, Manassas was named the county seat of Prince William County due in great part to its convenient location as the railroad junction. The Town Council then issued bonds to build a courthouse and jail.⁵ By this time, Manassas had grown to a population of five hundred thirty.

In the late 1880s and through the 1890s, Manassas's growth led its citizens to press for amenities that were being developed by other towns of its size. As part of the town's development, the Town Council appointed various standing committees including one responsible for public wells.⁶ The Town Council encouraged residents to maintain their properties and appointed a Street Committee to oversee the maintenance of streets and sidewalks. Street lamps were added in 1889, and a telephone service was established in 1895. As early as 1898, some citizens urged the installation of light and water systems in Manassas. Fire protection became a central issue when, on December 4, 1905, fire damaged or destroyed 30 residences and businesses.⁷

Manassas recovered quickly from the fire's destruction. Its business district grew with the addition of stores, a post office, and a hotel—all were constructed with brick to replace the frame buildings destroyed in the fire. Completed in 1908, the four-story, brick Hopkins Candy Factory added an industrial element to the town.⁸ By 1910, Manassas' population had grown to twelve hundred.⁹

Creation of the Water and Sewer System

The Town Council was initially reluctant to significantly raise taxes or incur public debt that would be required to finance new utility systems. In 1900, the Council requested that the Virginia General Assembly amend the town's charter to allow it to contract loans and issue bonds; however, it was not until July 1912 that the Council finally took the first step toward new utilities by appointing a special committee to get information on water, sewer, and electrical systems.¹⁰ In November 1912, *The Manassas Democrat* opined that

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Manassas is behind the times in this one respect. All other towns, even within hailing distance almost, have water, light and sewerage installed. Warrenton, Culpeper and all those towns that are about the same size, have these advantages, and why should not Manassas not go in for the same thing, when it would greatly improve sanitary conditions, and benefit the public in many ways...¹¹

On November 25, 1912, the town council accepted Harry Stephens' (Stevens) proposal to lay out water, sewer and electrical systems.¹² In April 1913, Stephens presented his plan to the council; four months later, a \$75,000 bond issue for the construction of the three systems was approved by the citizens.¹³ In September 1913, N. Wilson Davis of Harrisonburg, Virginia, contracted with the town to prepare the plans and specifications for and to supervise the construction of the utilities.¹⁴ In December, the town council awarded a contract for the water system in the amount of \$27,638.15 to Applegate, Son & Bunce of Bradford, Pennsylvania.¹⁵ In January 1914, a separate contract for \$4,575 was awarded to R.D. Cole Manufacturing Company of Newnan, Georgia to construct the system's water tower and tank.¹⁶

Manassas' location on a rail line was advantageous for the installation of the utility systems. The boilers for the powerhouse, pumps for the water works, and the water tank and tower all arrived by rail in May 1914. By mid-June, the water pipes were in the ground, the water tank was in place on the tower, and the water system machinery was in operation.¹⁷ Located on the north side of Quarry Road near the intersection with Centreville Road, the water tower stood on the north side of the town of Manassas near one of the town's six early wells.¹⁸ Annaburg Park was located adjacent to the water tower on the north, and an unidentified building stood adjacent to the tower on the east.¹⁹

At a total specified height of 147 feet, the water tower includes a 75,000-gallon tank made of riveted sheet metal; the tank features a conical top, straight sides, and concave bottom. Raised on four legs that are bolted onto square, beveled, poured-concrete footpads, the steel trestle tower includes three levels of cross beams and diagonal tie rods between each of the legs for additional stability. A narrow steel ladder that is attached to the northeast tower leg and side of the water tank and a railed walkway that is supported by steel brackets around the tank provide access to the water tower. The riser pipe, which is currently clad in thin, ridged aluminum sheets, enters the tank through the center of the tank bottom. An overflow pipe extends from the top of the tank down the northeast tower leg and empties into a metal waste pipe that extends about one-and-one-half feet above ground level.

Where earlier water towers in the United States used windmills to generate the power to pump water up into the tank, by the 1910s it became common to build a separate building close to the water tower that contained electric pumps. The utility system being installed in Manassas at the time included the construction of a power station at the east end of Church Street. Above-ground wires conveyed the generated electric power to the small pump house that was constructed on the west side of the water tower. The rectangular, one-story, front-gable building faced Quarry Street.²⁰

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1915 to the Present

Within ten years, the town grew in the number of buildings and businesses. However, a 1924 Sanborn Insurance Company map shows little development in the area around the Water Tower. The building that was adjacent on the east was either replaced or expanded for the purposes of selling or servicing automobiles.²¹ In the 1920s and 1930s, the Town of Manassas enhanced the water and sewer system by extending sewer service and by adding two more wells to improve the water supply.²² The considerable development that took place after 1945 caused the town to expand the water capacity by adding a fifth well; sixth and seventh wells were drilled in 1950 and 1953.²³

In 1956, the town constructed a two-story, brick firehouse on the property adjacent to the water tower on the east.²⁴ By 1970, an 85-foot-high dam and filtration plant were completed on Bull Run to meet the growing town's increasing water needs. Water was channeled to a 2.5 million gallon storage tank and from there dispersed to customers. The water tower and Manassas's by then eight wells were retained as a backup system.²⁵ By 1995, the pump house was demolished, and the fire department constructed a one-story, frame building now used as an exercise facility at a location on the west side of the tower.

The Hemispherical Bottom Within the Scheme of Water Tower Evolution

The concept of storing water at a raised elevation for the purpose of creating sufficient pressure to distribute it to a population has existed in various forms since antiquity. With the advancements of the Industrial Age and the requirements that came with the development of the railway system in America, the concept of water distribution that began with the aqueducts of Rome was transformed into the design of elevated water tanks (a.k.a., water towers). The earliest examples of water towers appeared in the U.S. in the 1880s to supply the boilers of steam engines and, when towns and cities grew up along a railroad line, water tower engineering was refined to provide fire protection and to pipe water to the growing communities. Water tower forms and scale changed through time, a reflection of technological advancements as well as an indication of increased demand resulting from an ever-growing population.

The hemispherical bottom water tower was considered the standard of the industry from the late 1890s to about 1940. The hemispherical form had the significant advantage of reducing stresses. Further, the tank's shape made securing it to the tower easier and provided ready access for ongoing maintenance. The form was also thought to be more pleasing to the eye. Hemispherical tanks with a capacity of over 50,000 gallons (a 100,000-gallon elevated tank being considered large through ca.1910) typically had a conical roof of light, steel-plate and a projecting eave. A flagstaff was often used both as ornamentation and to provide rigidity to the roof. Ladders were recommended to run along one of the legs beginning near the ground and extending to the roof. Such ladders required steel clip connections at regular intervals. The balcony provided access to the tank but, just as importantly, acted as a support girder (often referred to as a stiffener) around the perimeter of the tank. Design guidelines recommended that plate steel with drain holes be utilized for the balcony deck rather than wood.²⁶

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The task of painting the water tower required considerable effort; the proper finish reduced maintenance and assured the longevity of the structure. Beginning with a clean surface was paramount, followed by a primer and a finish coat. Red lead oxide, lampblack, and linseed oil were the primary elements of the paint primer with asphaltic varnish used as the finish coat.²⁷ Most water towers of the period sported a silver tower and tank, black lettering, and a red roof.

The earliest examples of the hemispherical bottom were constructed of riveted plates, with the use of welding technology coming into play with the advent of World War II. The major companies active in water tower construction developed variations on the hemispherical form. In the mid-1920s, the Pittsburgh-Des Moines Steel Company (PDM) began using what they termed an elliptical bottom; by diminishing the elongation of the tank form, the overall height of the tower could be lessened. The structure was otherwise the same as a hemispherical tower, utilizing laced channel columns and a cone roof.

The Manassas Water Tower retains all of the hallmark elements of a pre-World War II, hemispherical bottom type, including a riveted tank, conical roof, a four-post lattice tower with cross bracing and a balcony stiffener.

Overview of Water Tower Design

The use of the hemispherical bottom water tower falls within a continuum of the development of the municipal water system; while dominating the industry for nearly fifty years, the hemispherical bottom form was neither the first nor the last in the evolution of the water tower.

The *Flat Bottom* is the earliest American form utilized for elevated water tanks. Such tanks, commonly associated with railroad lines, were generally wood construction – both tank and tower.

The *Hemispherical Bottom* was considered the standard of the industry from the late 1890s to about 1940; the 1914 Manassas Water Tower is an example of the hemispherical bottom. The hemispherical form had the significant advantage of reducing stresses. Further, the tank's shape made securing it to the tower easier and provided ready access for ongoing maintenance. The earliest examples of the hemispherical bottom were constructed of riveted plates, with the use of welding technology coming into play with the advent of World War II. The form was also thought to be more pleasing to the eye. Hemispherical tanks with a capacity of over 50,000 gallons (a 100,000-gallon elevated tank being considered large through ca.1910) typically had a conical roof of light, steel-plate and a projecting eave. A flagstaff was often used both as ornamentation and to provide rigidity to the roof. Ladders were recommended to run along one of the legs beginning near the ground and extending to the roof. Such ladders required steel clip connections at regular intervals. The balcony provided access to the tank but, just as importantly, acted as a support girder (often referred to as a stiffener) around the perimeter of the tank.²⁸

The *Elliptical Bottom*, patented in 1907, was an improvement upon the hemispherical bottom in that hemispherical bottom tanks had a tendency to leak from the expansion joint required where the tank riser pipe met the rigid hemispherical tank bottom. The flatness of the bottom of the

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elliptical tank at its center allowed for the tank riser pipe to be riveted directly to the tank bottom, the bottom plates acting as a diaphragm to accommodate expansion and contraction at the connection between the riser pipe and the tank, thereby doing away with the leakage problem common with the older hemispherical bottom design.

The *Double Ellipsoidal* was introduced in the 1930s in response to the demand for larger capacity tanks. Like the hemispherical type, double ellipsoidal water tanks were first constructed using rivets. Beginning during the World War II era, double ellipsoidal tanks more commonly utilized welded construction. The variation in appearance of the double ellipsoidal tank, reflecting the tanks wide capacity range (50,000 to 500,000 gallons). The type is the most widely seen of those constructed in the postwar era. The 1958 Manassas water tower (located on Prince William Street) is of the double-ellipsoidal type with a 300,000-gallon capacity.

The *Spheroid* elevated water tank (a sub-type of which is the *Torospherical*) was introduced after World War II and, given its large capacity (2,000,000 gallons), is common in large communities and urban areas. A Spheroid tank is comprised of plates of variable curvature with no vertical shell, with plates in tension requiring two sets of supports. As a result, the form can be identified by the use of a large center standpipe with slender outer columns and wind bracing.

The *Pedestal Sphere* came into use with the development of welded technology. The welded design allowed for considerable variation in the shape of the tank. The pedestal sphere, along with the more economical water ball, replaced the previously dominant hemispherical and elliptical bottom forms. The 1990 Manassas water tower (located on Quarry Road) is a pedestal sphere with a 1-million-gallon capacity.

Like the Pedestal Sphere, the *Water Ball* was a postwar development. The small tank set on slender posts was more economical than the pedestal sphere, but its small capacity limited its use to small communities.

The *Hydropillar* was developed and patented by the Pittsburgh-Des Moines Steel Co. in 1962. The hydropillar has a large diameter fluted base supporting a tank with a vertical shell and ellipsoidal bottom and top. The form allows for a wide range of tank capacities and creates a base that doubles as an enclosed space commonly utilized for storage. A large door at the base provides access to the interior.

ENDNOTES

¹ Manassas Historic Landmarks Preservation Corp., VDHR Northern Region 2015 Water Tower/Tank Survey, 1-2.

² Ibid., 4.

³ Minnesota Historical Society, National Register Property Search.

<http://nrhp.mnhs.org/NRDetails.cfm?NPSNum=83003663>. Last accessed 04/24/2015.

⁴ Catherine T. Simmons, *Manassas, Virginia 1873-1973* (Manassas, VA: The Manassas Museum, 1986), 18, 23.

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⁵ Ibid., 54.

⁶ Ibid., 26-30.

⁷ Ibid., 29, 55-56.

⁸ Ibid., 58.

⁹ Ibid., 87.

¹⁰ Ibid., 61-62.

¹¹ *The Manassas Democrat*, 14 November 1912.

¹² *The Manassas Democrat*, 28 November 1912.

¹³ *The Manassas Democrat*, 17 April and 14 August 1913.

¹⁴ *The Manassas Democrat*, 2 October 1913.

¹⁵ *The Manassas Democrat*, 11 December 1913.

¹⁶ *The Manassas Democrat*, 8 January 1914. By the end of the 19th century, the R.D. Cole Manufacturing Company manufactured steel, aluminum, and alloy and produced boilers and engines; in addition, the firm was the second largest water tower manufacturer in the U.S. (Finding Aid, R.D. Cole Manufacturing Company Records, 1886-1900, Manuscript Collection No. 569, Emory University Manuscript, Archives, and Rare Book Library, Atlanta GA.)

¹⁷ *The Manassas Democrat*, 7 May 1914, 21 May 1914, 28 May 1914, 18 June 1914; *The Manassas Journal*, 8 May 1914, 29 May 1914.

¹⁸ Old Manassas Water Tower Virginia Historic Landmarks Commission Survey Form, June 1980. DHR # 155-0141.

¹⁹ 1912 Sanborn Insurance Company Map of Manassas, Virginia.

²⁰ Photographs of the building taken in the 1980s show a concrete block building with rock-faced concrete-block quoins, a standing-seam metal roof, and gable ends clad in wood weatherboard. The door on the north elevation and the window on the west elevation were both blocked; while the building's Quarry Street entrance featured a five panel, wood door. Old Manassas Water Tower Virginia Historic Landmarks Commission Survey Form, June 1980. DHR # 155-0141.

²¹ 1924 Sanborn Insurance Company Map of Manassas, Virginia.

²² Simmons, 80-81.

²³ Ibid., 90, 94.

²⁴ Ibid., 94. The firehouse was expanded three times - in the 1960s, 1977, and 1995 (History Matters' staff discussion with fire personnel at the station on August 7, 2012).

²⁵ Ibid., 101-102.

²⁶ J.N. Hazlehurst, *Towers and Tanks for Waterworks. The Theory and Practice of Their Design and Construction* (New York: John Wiley & Sons, 1904), 181-184, 200.

²⁷ Ibid., 256.

²⁸ Ibid., 178.

Manassas Water Tower
Name of Property

City of Manassas, VA
County and State

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form.)

Claypool, Julia. *Manassas Water Tower Analysis*. Washington, DC: History Matters, LLC, 2012.

Finding Aid, R.D. *Cole Manufacturing Company Records, 1886-1900*, Manuscript Collection No. 569, Emory University Manuscript, Archives, and Rare Book Library, Atlanta GA.

Hazlehurst, J.N. *Towers and Tanks for Waterworks. The Theory and Practice of Their Design and Construction*. New York: John Wiley & Sons, 1904.

The Manassas Democrat, Manassas, Virginia: 1912-1914.

Manassas Historic Landmarks Preservation Corp., VDHR Northern Region 2015 Water Tower/Tank Survey . On file at the Department of Historic Resources, Richmond, VA.

The Manassas Journal, Manassas, Virginia: 1914.

Minnesota Historical Society, National Register Property Search.
<http://nrhp.mnhs.org/NRDetails.cfm?NPSNum=83003663>. Last accessed 04/24/2015.

Mulvaney, Kathleen (The Manassas Museum System). *Manassas: A Place of Passages*. Chicago: Arcadia Publishing, 1990.

Old Manassas Water Tower Virginia Historic Landmarks Commission Survey Form, June 1980. DHR #155-0141.

Sanborn Map of Manassas, Virginia: 1912.

Sanborn Map of Manassas, Virginia: 1924.

Simmons, Catherine T. *Manassas, Virginia 1873-1973*. Manassas, VA: The Manassas City Museum, 1986.

Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark

Manassas Water Tower
Name of Property

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___ recorded by Historic American Buildings Survey # _____
___ recorded by Historic American Engineering Record # _____
___ recorded by Historic American Landscape Survey # _____

Primary location of additional data:

- State Historic Preservation Office
- ___ Other State agency
- ___ Federal agency
- ___ Local government
- ___ University
- ___ Other

Name of repository: Department of Historic Resources, Richmond, VA

Historic Resources Survey Number (if assigned): DHR No. 155-0141

10. Geographical Data

Acreeage of Property .46 acre

Use either the UTM system or latitude/longitude coordinates

Latitude/Longitude Coordinates

Datum if other than WGS84: _____

(enter coordinates to 6 decimal places)

- | | |
|------------------------|-----------------------|
| 1. Latitude: 38.752760 | Longitude: -77.469450 |
| 2. Latitude: | Longitude: |
| 3. Latitude: | Longitude: |
| 4. Latitude: | Longitude: |

Or

UTM References

Datum (indicated on USGS map):

NAD 1927 or NAD 1983

- | | | |
|----------|----------|-----------|
| 1. Zone: | Easting: | Northing: |
| 2. Zone: | Easting: | Northing: |

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3. Zone: Easting: Northing:

4. Zone: Easting : Northing:

Verbal Boundary Description (Describe the boundaries of the property.)

The 1914 Manassas Water Tower is located northwest of the intersection of Quarry Street and Centreville Road, in the independent city of Manassas, Virginia. The structure is sited on a .46-acre parcel, recorded by the City of Manassas as tax parcel #101-01-00-458, officially described as map #101, sub-map #01, block #00, lot #458 (Source: Office of the Commissioner of the Revenue, City of Manassas). The true and correct historic boundaries are shown on the attached Tax Parcel Map and Location Map.

Boundary Justification (Explain why the boundaries were selected.)

The boundary encompasses the water tower itself and the .46-acre parcel upon which it stands and with which it has been historically associated since its construction.

11. Form Prepared By

name/title: Stephen Hersch, Director
organization: Manassas Historic Landmarks Preservation Corp.
street & number: 9312 Mathis Avenue
city or town: Manassas state: Virginia zip code: 20110
e-mail: stephen.hersch@gmail.com
telephone: (704) 281-6885
date: 3/30/2016

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A **USGS map** or equivalent (7.5 or 15 minute series) indicating the property's location.
- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
- **Additional items:** (Check with the SHPO, TPO, or FPO for any additional items.)

Photographs

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo

Manassas Water Tower
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date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

Photo Log

Name of Property: Manassas Water Tower

City or Vicinity: Manassas

State: Virginia

Photographer: Stephen Hersch, Manassas Historic Landmarks Preservation Corp.

Date Photographed: February 26, 2016

Description of Photograph(s) and number, include description of view indicating direction of camera:

0001. Manassas Water Tower

Context View: Looking east from adjacent parcel, showing non-contributing building next to tower

VA_ManassasCity_ManassasWaterTower_0001.tif

1 of 9

0002. Manassas Water Tower

View: Looking north across Quarry Street

VA_ManassasCity_ManassasWaterTower_0002.tif

2 of 9

0003. Manassas Water Tower

View: Looking west from adjacent parcel

VA_ManassasCity_ManassasWaterTower_0003.tif

3 of 9

0004. Manassas Water Tower

View: Detail view of water tank, looking northeast

VA_ManassasCity_ManassasWaterTower_0004.tif

4 of 9

0005. Manassas Water Tower

View: Detail view of water tank, looking south

VA_ManassasCity_ManassasWaterTower_0005.tif

5 of 9

0006. Manassas Water Tower

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View: Detail view of tower legs and bases, looking northwest
VA_ManassasCity_ManassasWaterTower_0006.tif
6 of 9

0007. Manassas Water Tower
View: Detail view of riser pipe and tank bottom, looking northwest
VA_ManassasCity_ManassasWaterTower_0007.tif
7 of 9

0008. Manassas Water Tower
View: Detail view of southwest leg and concrete footpad, looking northeast
VA_ManassasCity_ManassasWaterTower_0008.tif
8 of 9

0009. Manassas Water Tower
View: Detail view of non-contributing building located adjacent to water tower,
looking east
VA_ManassasCity_ManassasWaterTower_0009.tif
9 of 9

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 100 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management, U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

LOCATION MAP

Manassas Water Tower

City of Manassas, VA

DHR No. 155-0141

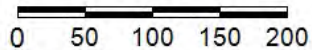
Latitude/Longitude Coordinates

1. Latitude: 38.752760

Longitude: -77.469450



Feet



1:2,257 / 1"=188 Feet

Title: Manassas Water Tower

Date: 4/15/2016

DISCLAIMER: Records of the Virginia Department of Historic Resources (DHR) have been gathered over many years from a variety of sources and the representation depicted is a cumulative view of field observations over time and may not reflect current ground conditions. The map is for general information purposes and is not intended for engineering, legal or other site-specific uses. Map may contain errors and is provided "as-is". More information is available in the DHR Archives located at DHR's Richmond office.

Notice if AE sites: Locations of archaeological sites may be sensitive to the National Historic Preservation Act (NHPA), and the Archaeological Resources Protection Act (ARPA) and Code of Virginia §2.2-3705.7 (10). Release of precise locations may threaten archaeological sites and historic resources.

SKETCH MAP/PHOTO KEY
Manassas Water Tower
City of Manassas, VA
DHR No. 155-0141



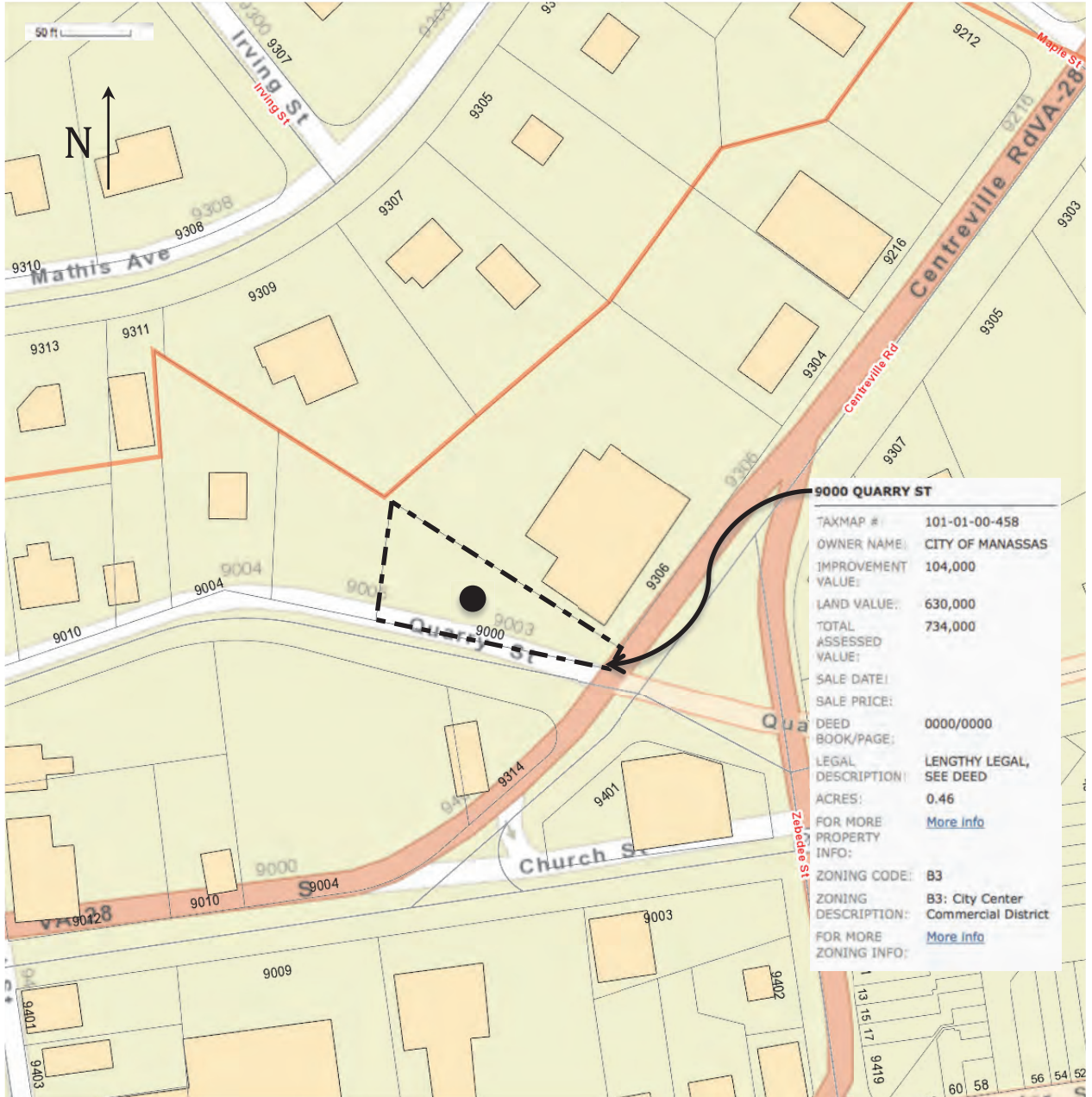
A. Manassas Water Tower – contributing structure

B. Ca. 1985 garage – non-contributing building

1 ↗

Photo Locations

Tax Map
Manassas Water Tower
Manassas, Virginia
VDHR ID #155-0141



Source: City of Manassas Parcel and Assessment Finder (GIS)
(<http://cityofmanassas.maps.arcgis.com/apps/Solutions/s2.html?appid=7c7b06bcbe694b0a8e4924fe409acb9a>)
Accessed 2/19/2016.