



United States Department of the Interior

NATIONAL PARK SERVICE

1849 C Street, N.W.
Washington, D.C. 20240

March 15, 2011

Notice to file:

This property has been automatically entered in the National Register of Historic Places. This is due to the fact that the publication of our Federal Register Notice: "National Register of Historic Places: Pending Nominations and Other Actions" was delayed beyond our control to the point where the mandated 15 day public comment period ended after our required 45 day time frame to act on the nomination. If the 45th day falls on a weekend or Federal holiday, the property will be automatically listed the next business day. The nomination is technically adequate and meets the National Register criteria for evaluation, and thus, automatically listed in the National Register of Historic Places.

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United States Department of the Interior
National Park Service

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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 *How to Complete the National Register of Historic Places registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an 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. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name WSM Radio Transmission Complex

other names/site number WSM Tower

2. Location

street & number 8012 Concord Road

☐ N/A not for publication

city or town Brentwood

NA ☐ vicinity

state Tennessee

code TN

county Williamson

code 187

zip code 37743

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this ☒ 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 for in 36 CFR Part 60. In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. I recommend that this property be considered significant ☒ nationally ☒ statewide ☒ locally. (See continuation sheet for additional comments.)

E. Patrick McElroy, Jr.
Signature of certifying official/Title

January 21, 2011
Date

State Historic Preservation Officer, Tennessee Historical Commission

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. (☐ See Continuation sheet for additional comments.)

Signature of certifying official/Title

Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:

☒ entered in the National Register.

☐ See continuation sheet

☐ determined eligible for the
National Register.

☐ See continuation sheet

☐ determined not eligible for the
National Register

☐ removed from the National
Register.

☐ other, (explain:)

Signature of the Keeper

Date of Action

3-15-11

WSM Radio Transmission Complex

Name of Property

Williamson County, Tennessee

County and State

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

Number of Resources within Property

(Do not include previously listed resources in count)

Contributing

Noncontributing

3

6

0

9

2

2

buildings
sites
structures
objects
Total

Name of related multiple property listing

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

N/A

Number of Contributing resources previously listed in the National Register

0

6. Function or Use**Historic Functions**

(Enter categories from instructions)

INDUSTRY: communications facility

DEFENSE: military facility

Current Functions

(Enter categories from instructions)

INDUSTRY: communications facility

DEFENSE: military facility

7. Description**Architectural Classification**

(Enter categories from instructions)

COLONIAL REVIVAL

Materials

(Enter categories from instructions)

foundation Brick; Concrete

walls Brick; concrete

roof Asphalt shingle

other Metal; Glass

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

See continuation sheets

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Continuation SheetSection number 7 Page 1WSM Tower Transmission Complex, Williamson
County, TN**7. DESCRIPTION**

The WSM Tower Transmission Complex, also known simply as the WSM Tower, is located at 8012 Concord Road, Brentwood, in Williamson County, Tennessee. The complex sits on an almost thirty-acre lot; it is bordered on the south by Concord Road, by late twentieth century suburbs to the north, and on the east by a creek that runs into the Little Harpeth River. A small open parcel separates the property from I-65 along its west lot line. The 808-foot high metal tower dominates the landscape and has become a well-known landmark for travelers along Interstate I-65. The contributing resources in the complex are the Broadcasting Station, the Tower (main) Antenna and its Tuning House, the Emergency Tower Antenna and its Tuning House, two L-antenna poles, a power substation, a carport, and a storage building. There have been minimal changes to the complex and it retains a high degree of integrity.

1. The Broadcasting Station (1932) (See figures 3, 4, and 5.)

The Broadcasting Station is a one-story, seven symmetrical bay Colonial Revival-styled painted-white brick building with a full basement, exterior brick chimneys, a brick water table, and a slate shingle gable roof. The building has a T-plan, with the Colonial Revival styled entrance hiding, in effect, a large central wing, which serves as the "stem" of the T-shape. The station is located in the southwest corner of the nominated property and is sited within a small rise in order to hide the full basement and giving the building the appearance of being a one-story building that is in keeping with the nature of what was then a rural landscape in northern Williamson County. A paved circular drive (installed 1932) provides access and parking for the building. This drive connects to a paved service road (installed 1932) that provides access to the rear of the station and connects it to its associated outbuildings.

The southwest facade reflects architect Russell Hart's Colonial Revival interpretation of a Tennessee rural vernacular identified as Tennessee Federal. A projecting Greek Revival-styled one-story portico, supported by four slender stone Tuscan capital columns, defines the central entrance.

The entablature wraps inside the open-bed of the pediment onto the wall above the entrance. A Gothic-styled [brass] lamp hangs by a chain from the inside peak of the pediment. A carved round-arched stone surround encloses the single leaf door and semi-circular fanlight. In place of a keystone above the entrance is a stone console. Between the pilasters to each side of the entrance are narrow [four-light] sidelights set in carved stone surrounds placed below slightly recessed brick panels. These windows and the fanlight feature applied interior tracery attached to the muntins. In the fanlight, the central tracery forms a shield pattern, the symbol of the National Life and Accident Insurance Company. The remaining six windows are double hung nine-over-nine sashes also set into carved stone surrounds. Stone lintels cut as flat arches with projecting keystones rest atop the windows while stone sills project slightly from the bottom.¹

The northwest elevation has an exterior brick chimney, which is flanked by small decorative half-fanlights. Architectural historian Janice E. Nolen also emphasized that

¹ Janice E. Nolen, Determination of Eligibility (DOE) for the WSM Radio Transmission Complex, submitted to the Keeper of the National Register by the Tennessee Department of Transportation and determined eligible c. 1981. Copy provided by Tennessee Historical Commission. The building has not substantially changed since the DOE, so the description from the DOE is being used in the nomination.

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... under the eaves, a copper cornice crowns a decorative brick 'frieze' and 'architrave.' The frieze is created by three brick courses: the first alternates a projecting header alternating with two courses of flush paired headers. The narrow architrave is created by a single course of alternating headers and angled bricks, interrupted by the keystones in the window lintels. The brick in the chimney trim repeats the "frieze" pattern. The raking eaves and returns of the gable ends and the cornice in the wraparound entablature feature an unusual pointed dentil molding.²

The north ends of both the northwest and southeast elevations are more industrial-style in appearance, with a flat parapet roof. "The frieze and architrave brick patterns present on the façade cross the rear of the main block and wrap around this rear section" Three symmetrical bays exist on both the first floor and basement floor. "Each window is nine-over-nine double hung sash set into the brick with only a plain stone keystone and projecting sill."³

The northeast elevation has four bays, again with nine-over-nine double-hung sash windows. The water table serves as brick course that divides the first floor from the basement. At the northwest corner of the basement floor a flat-roof brick extension contains equipment designed to keep the transmitters from overheating (known as the radiator room). "In the center of the rear wall directly under the decorative brick courses is a rectangular glass panel containing two centered circular rings and tubes. These once carried the radio feed from the transmitting equipment in that room to the tuning house and the tower. That feed now travels through a conduit to the west of that panel."⁴

Hart's interior reflected a modern interpretation of the traditional central hall plan. The plastered walls are original, as is the linoleum tile flooring and the acoustical tile ceiling. Emblazoned in the tile at the central hall is the National Life and Casualty shield logo, "We Shield Millions." (See Figure 6) The floor plan is also intact.

To the west of the central hall are a staff kitchen, a small control room, and a room for tube storage (now general storage) and a closet for coats, etc. These spaces retain their original flooring and the original hardware on the doors.

To the east of the central hall is a large staff bedroom, with a bedroom closet, and a small bathroom. The bedroom has a Colonial Revival-styled wood mantel over the fireplace with built-in bookcases flanking the fireplace. A metal winding staircase in the broadcast room provides access from this side to the basement floor below. The north end of the first floor is a large open space for the broadcast facility. When the complex opened in 1932, this space was filled with the best broadcasting equipment available, large machines that filled the space. In 2010, only a fraction of the space is necessary for broadcasting equipment.

The basement floor is dominated by the north end's huge space for the "power room." At the northwest end of the power room was an equipment room and a shop space where mechanics could make necessary replacement parts for the facility. At the south end of the basement, space is divided into specific functions. Two southwest rooms are reserved for civil defense equipment and storage;

² Ibid.³ Ibid.⁴ Ibid.

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originally the larger room had no specified use while the smaller room was the battery room. A work room then separates the southwest and southeast sections. The southeast section originally had three spaces: a coal room, a boiler room, and a switchboard room; all three have been converted into storage facilities.

The broadcasting station is a contributing building. (C)

2. The Tower Antenna (1932, 1939, c. 1945) (See figures 7, 9 and 10.)

The tower antenna was designed and installed by the Blaw-Knox Steel Company of Pittsburgh, Pennsylvania, in 1932. In its design, the company devised what is known technically as dual cantilevered structure but is more generally known as a "diamond antenna" design. The following description of the WSM Tower is adapted from a published description by Watt Hairston, a former chief engineer at WSM:

Originally, the WSM tower was 878 feet tall. This included 758 feet of square structural lattice then 120 feet of tapered mast. By 1939, it was determined the tower was electrically longer due to velocity effect. This contributed to a very high angle of radiation that resulted in a groundwave/skywave cancellation (fade) over Chattanooga some 120 miles distant. This condition was alleviated by an adjustment in height to 808 feet. Fifty feet of the [mast] pole still exist[s] on the top of the tower. It was used to support a turn style antenna for the FM station that WSM operated at this location from 1939 until 1952. The original antenna was in the 45 MHz band. After World War II, the FM allocation moved up to 103.3 MHz. The antenna was replaced c. 1945, with another turn style antenna. That antenna is still there.

The WSM tower lower half is made up of larger steel members than the top section. Where the bottom taper is linear, the top is not. There is a transition at about the 680-foot level. Eight guy cables are attached at the joining section waist. The entire weight of the tower and the pull of the guy cables rest on a two-section series pivotal Lapp insulator that is designed to hold a 1,200,000 pound load. Each of the eight guy cables are stressed to 55,000 pounds and it is thought the entire weight of the structure is in excess of 300 tons on the base insulator.⁵

In the same description, Hairston explained how this design has worked so well:

Any tower structure exhibits many dynamics that result from gravity, wind and temperature cycles. These forces are constantly at work and result in movements vertically and horizontally of the structure. These movements (even slight) result in tremendous tensions where the structure attaches to a very rigid earth through its foundations. Most specifically, the horizontal twisting that results becomes a formidable "moment." To compensate for this, either the strength of the structures lower components (where the moving tower meets the non-moving foundation) must be massive enough to compensate for this "moment" or attached to the foundation through a hinge mechanism in the form of a pivot. Thus the tapered base we see on most towers of significant length.

⁵ Watt Hairston, "WSM Blaw-Knox tower details," The Broadcast Archive website, <http://www.olderadio.com>, accessed September 21, 2010.

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With all this in mind, we can reason that for a tower of the height of 808 feet, the dynamics (movements) are integral to the mass of the structure. The higher the tower, the size and strength of the lower supports must grow at an exponential rate. If this tower were not tapered, the lower supports (where this twisting moment couples to the foundation) would have to be so large as to make the project extremely costly to accomplish. In the case of AM towers that are electrically insulated from the ground, the problem is magnified because the tower has to rest on porcelain insulators that would be located at the transition to the foundation. (The point of maximum force). In a pivot attachment, the moment is not critical because the tower can rotate on its base. This is why tower manufacturers use this mechanism.⁶

The dual insulators are housed in an eight-foot high circular brick wall (1932) that safeguards access to the insulators due to the danger of electrocution. Janice Nolen continues the structure's description: "eight guy wires attached at the middle of the tower are anchored to the ground with concrete pads and massive U bolts. The guy wires themselves are broken up by insulators to prevent them acting as antennae. They describe a circle around the tower with a 460-foot radius."⁷

Original standing lights are extant at the base of each guy wire. Original power poles support lines leading from the tower to the tower tuning house.

The tower, its circle brick wall, and the supporting guy wires comprise a contributing structure. (C)

3. Tower Tuning House (1932)

The tuning house is a one-story brick building with a flat roof and brick and concrete foundation. The open interior contains the transmission's complex original capacitor. The east elevation has double wood panel entrance door while the west elevation has a single six-over-six double-hung sash window. The north and south elevations have glass panels similar to that on the rear of the broadcasting station. The transmission from the broadcasting station "goes to the west wall of the tuning house, then through the glass panel to the antenna. . . . A series of slender metal poles topped by U-shaped prongs support the wires carrying" the transmission from the broadcasting station to the tuning house.⁸

The tuning house and the metal poles are a contributing structure. See Figure 8. (C)

4. Emergency Tower (1936)

According to Nolen, "This 140-foot tall tower was originally installed around 1936 as a commercial short wave antenna. . . . It is a series-fed insulated radiator with a uniform triangular cross section. Guy wires support this tower at one third intervals, with most of the guy wires concentrated at the top."⁹

Original power piles support lines leading from the tower to the tower tuning house.

The emergency tower is a contributing structure. (C)

⁶ Ibid.

⁷ Nolen.

⁸ Ibid.

⁹ Ibid.

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5. Emergency Tower Tuning House (1936)

A small one-story flat-roof concrete block tuning house sits to the southeast of the emergency tower. The transmission from the broadcasting station to this tuning house is carried on metal poles like those to main tower.

The tuning house and the metal pole constitute a contributing structure. (C)

6. "L" Antenna (1932)

"Parallel to the western property line are two vertical poles standing approximately 100 feet high and 450 feet apart. During part of the summer of 1932, while construction on the main tower proceeded, these two poles supported a horizontal wire antenna that transmitted the radio signals. This was an "L" antenna, so designated because the wire that stretched between the two poles formed an "L" when one end dropped down one pole to the tuning house [not extant] near the bottom."¹⁰ This system is currently not in broadcasting use but it is still operational.

The antenna poles that created the "L" antenna are a contributing structure. (C)

7. Satellite Dish (c. 1985)

A satellite dish was installed just west of the broadcasting station c. 1985. (NC due to date)

8. Storage Shed (c. 1940)

Near the northeast corner of the broadcasting station is a concrete block building, with metal shed roof, that originally housed a generator. It now is used for storage. (C)

9. Carport (1932, c. 1940)

Located at the rear of the broadcasting station, this one-story asphalt shingled gable roof frame building, with concrete foundation, and two bay garage doors was originally a two-car garage for employees that stood at the southwest corner of the nominated property. It was moved to its present location c. 1940 and is now used for equipment storage. It is a contributing building. (C)

10. Emergency fuel storage tanks (2001)

Three metal cylinders for fuel storage were installed at the rear of the broadcasting station to power generators for broadcasting during emergency period. The tanks are a noncontributing structure. (NC, due to date).

¹⁰ Ibid.

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11. Fence (c. 1950)

The chain link fence running along the southern boundary line of the property was constructed c. 1950 by the Rio Grande Fence Company based in Nashville, Tennessee. (C)

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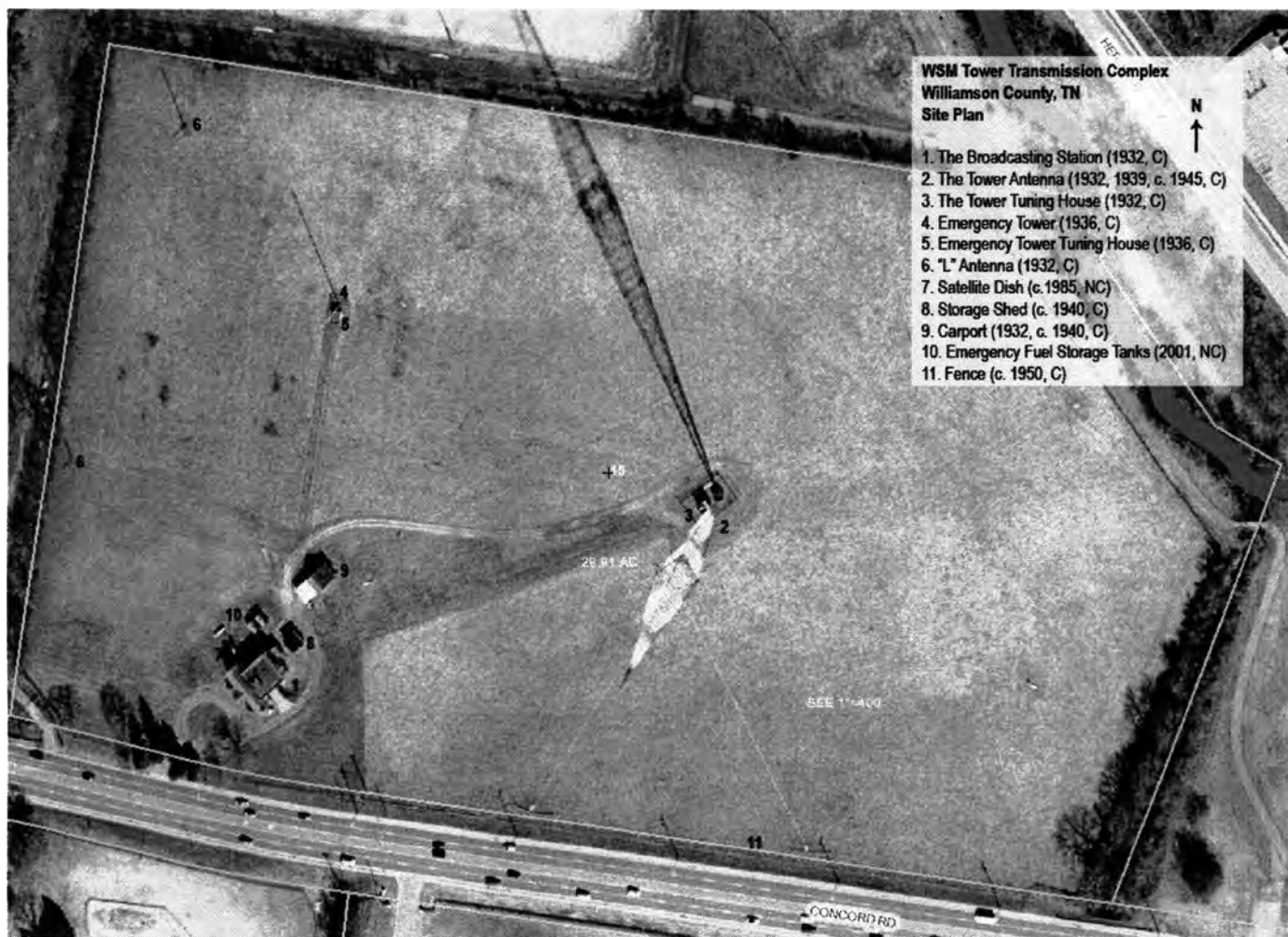


Figure 1. Site plan.

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County, TN**8. STATEMENT OF SIGNIFICANCE**

The WSM Tower Transmission Complex, at 8012 Concord Road in Brentwood, Williamson County, Tennessee, is eligible for listing in the National Register for local, state, and national significance under criteria A and C in the areas of communications, music, military, architecture, and engineering. Under criterion A the complex has state, local, and national significance in the areas of communications and music. The 1932 "diamond" tower is a unique structure with a shape that allowed the radio station as one of the nation's federally designated clear channels to broadcast to forty states a program of music, news, and public service geared to largely a rural and small town audience. Also under criterion A the complex has state and national significance in the area of the military history of the Cold War era since it was one of the original stations that served a military/civil defense role in the CONELRAD system beginning in 1951.

As an engineering structure, the complex's tower has national significance as an engineering marvel under criterion C. The WSM Tower, at 808 feet, is the tallest Blaw-Knox Diamond Radio Tower in North America and is one of several similarly designed Blaw-Knox towers to have once existed in North America. Originally constructed at 878 feet in 1932, the tower was lowered by 70 feet in 1939 to improve radio transmission and reception. According to the 1986 Determination of Eligibility for the property, the tower was the third of four of its kind in the world [the others were in New Jersey (not extant); Budapest, Hungary (not extant), Brentwood, Tennessee, and Cincinnati, Ohio. The WSM Tower is the oldest surviving intact example of this type of radio tower in the world.¹¹

Architecturally, the main building in the complex has local significance under criterion C as an excellent example of a Colonial Revival design by Russell Hart of the locally prominent architectural firm of Hart, Freeland, Roberts.

The period of significance ranges from 1932 with the initial construction of the complex to 1960.

Historical Background:

Radio broadcasting was still developing its national voice and presence at the time of the construction of the WSM Tower, which came at a time when consumers had stopped buying radio kits, which they had to put together, in favor of actual complete sets. WSM, which began broadcasting in 1925, had emerged as one of the region's leading stations. It signed with the National Broadcasting Company (NBC) in 1926 and began getting network shows out of New York City. The Grand Ole Opry broadcast name came in 1927 when broadcaster George Hay stated that "For the past hour, we have been listening to music from the grand opera; from now on, we will present the Grand Ole Opry."¹² The same year the radio station boosted its power to 5,000 watts and began to operate at 650 AM with clear channel status. The clear channel designation, meaning that only one station was authorized to broadcast at full power at night at a given frequency, was crucial to the station's future. As one of 14 stations designated as clear channels nationally,

¹¹ Internet sources report different numbers for towers similar to the nominated one, some of which have been demolished. There are differences in the size, construction, and date of construction of many of these non-traditional radio towers. The four mentioned in the Determination of Eligibility (DOE) are of the same design and timeframe as the nominated property. Information in the DOE came from John H. (Jack) Dewitt, Jr.

¹² Charles Wolfe, "The WSM Story," *Inside WSM: A Quarterly Newsletter* (Fourth Quarter, 2000), 5. Additional information on the Grand Ole Opry and its influence on country music can be found in the NHL for the Ryman Auditorium.

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WSM became classified as a Class I-A station, defined as "a dominant station, operating on a clear channel and designed to render primary and secondary service over an extended area and at relatively long distances."¹³

The tower's launch in 1932 came a year before the NBC started its famous blue and red networks and two years before the establishment of the Federal Communications Commission and the creation of the Mutual Broadcasting System. Commercial radio had been broadcast since the early 1920s but even by 1935 only 22 million Americans had radio sets; the WSM Tower brought radio not only to those customers but to the millions who would purchase sets in the next ten years.

WSM had only received clearance to expand from 5,000 to 50,000 watts of clear channel broadcasting (one of two stations in the southeast and 23 in the country) in late 1931. The station needed a capable chief engineer. WSM officials recruited Jack DeWitt, a Nashville native who had attended Vanderbilt University but largely taught himself the principles of radio engineering. In 1929, he joined the corporate think-tank of Bell Telephone Laboratories, a dream job for any young engineer. When WSM came calling, DeWitt was torn: "Should I go back to my hometown, where I would be a big frog on a little pond, or would I stay in New York and try to make my career?" He took the job, and started at WSM on April 1, 1932.¹⁴

DeWitt arrived just in time to convince the station to adopt a new radio broadcasting design, where the radio antenna would be a huge metal tower, rather than the conventional design of tall metal poles connected by radiating wires. He wrote in a 1932 trade journal: "Several years ago, independent engineers pointed out the fact that a vertical antenna, slightly greater than one-half wave length in height, would tend to concentrate the radiated energy along the ground where it would become useful, instead of radiating a large portion upward into space."¹⁵ DeWitt had learned about this potential technology during his years at Bell Laboratories, where he had been aware of a new project for a tall radio transmission tower developed by his colleague, internationally recognized electrical engineer Stuart Ballantine.¹⁶ The Ballantine-Bell Lab design was for the New York-based Columbia Broadcasting System (CBS) so it could reach large parts of the eastern United States. The Pittsburgh, PA, firm of Blaw-Knox had built the prototype (not extant) in New Jersey for use by the CBS.

DeWitt convinced his new bosses that that was exactly the direction WSM needed to go. He contacted Blaw-Knox and Bell Labs about constructing such a tower for his station. The wavelength of WSM's signal was 462 meters, which DeWitt initially believed meant a tower of 878 feet in height. In the November 12, 1932 edition of *Broadcasting News*, DeWitt explained "The Engineer's Problems—How They Were Solved." First was the location. DeWitt bought farming acres outside of Nashville, in neighboring Williamson County, because this type of broadcast antenna would otherwise "make it difficult to tune in stations on adjacent channels without an expensive receiving set." DeWitt wanted the transmission complex to be at a "moderate distance" from the heart of Nashville. He also wanted good land: "WSM's new 50-kilowatt transmitter is so located that the first consideration of a uniform signal in Nashville is met almost ideally.

¹³ "The Case for Clear Channels and High Power," A Statement to the Federal Communications Commission, September 6, 1938, 4.

¹⁴ Craig Havighurst, *Air Castle of the South: WSM and the Making of Music City* (Urbana: University of Illinois Press, 2007), 53.

¹⁵ "WSM, The Beginning," Typescript internal history, WSM Radio Files, Gaylord Entertainment Company, Nashville.

¹⁶ Summary of Oral History with John H. DeWitt, Jr., 1986, conducted by John W. Rumble, Gaylord Entertainment Company Files, Nashville, TN; John H. DeWitt, Jr., "Autobiography," unpublished typescript, WSM Radio files, pp. 13-14.

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The soil around the station [Harpeth River bottomland] is undoubtedly the best that can be found in this section when viewed from the standpoint of attenuation of radio signals. This means that the signal will get off to a good start for distant coverage."¹⁷

Second, DeWitt wanted to be sure on a consistent electrical power source for what was then considered a remote location. The Tennessee Electric Power Company provided power from two independent sources. Its hydroelectric dam at Rock Island, TN, provided power through Nashville. Another line from Franklin tapped hydroelectric facilities at Muscle Shoals, AL. Third, the WSM chief engineer had to address good telephone connections since the transmission complex was miles away from the radio station's studio, where music was played by disk jockeys or in live performance. His solution was to have three lines coming to the station: one was for telephone calls, the other two were for transferring radio content from the studio to the transmission complex. Because of the vital importance of consistent communications between the studio and the tower complex, staff stayed at the complex 24 hours at a time, and could stay and prepare meals at the complex. Until the Nashville flood disaster of May 2010, which brought considerable damage to the station's broadcasting facilities at Opryland, disk jockeys did not operate from the transmission complex.

Finally, the engineer needed an appropriate and efficient radiating system, or antenna. For DeWitt, the Blaw-Knox/Bell Labs design approached "as nearly as possible the ideal structure visualized by the electrical engineer." It provided for a structure "completely insulated from [the] ground so that the structure itself could be used as the antenna." Its "form of a huge cigar" also meant that "no great amount of" the tower would be near the ground and its "porcelain insulator at the base serves to isolate the tower from ground electrically."¹⁸

DeWitt closed his analysis with a description of the tower:

150 tons of galvanized structural steel will be used in the tower. The eight guy wires, which are two inches in diameter, are fastened to the tower at its widest point. Each guy wire is broken up into short lengths by means of porcelain insulators of the compression type so that their presence will have no effect on the radiating characteristics of the tower. Eight 54-ton concrete guy anchors make it possible for the tower to withstand winds on cyclone velocity. The anchors as well as the tower footing are doweled into solid rock. The structural sections of the tower, in following the general cigar shape, taper from a width of 2 ½ feet at the bottom to 38 feet at the 370-foot level, where the guys are fastened. From this point it tapers in to a width of 2.5 feet at the 758-foot level. A hollowed telescoped steel pole completes the height of 878 feet.¹⁹

Dewitt called the tower "the tallest structure ever built in Tennessee, the tallest radio tower in North America, and a striking symbol for National Life."²⁰ He also observed in 1932: "in point of equipment, WSM is ready to take its place among America's foremost broadcasting stations. When all factors are reviewed, such as frequency, location and power, WSM is undoubtedly better equipped than any other station to give national coverage."²¹

¹⁷ J. H. DeWitt, Jr., "The Engineer's Problems—How They Were Solved," *Broadcast News*, November 12, 1932, p. 11.

¹⁸ *Ibid.*, 12, 14.

¹⁹ *Ibid.*, 15.

²⁰ Havighurst., 54.

²¹ DeWitt, "The Engineer's Problems," 24.

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November 12, 1932 was also when the radio station "made its quantum leap into the national radio scene."²² The station celebrated the awarding of the 50,000-watt license, with an evening program that included a hour-long celebratory link on the national NBC network. A station official bragged: "WSM really is 'grown up' with its super-power and magnificent equipment" so "its friendly visits will be extended to new territory and the name of its great sponsor will become more famous."²³ The new station "cost some \$243,000 – and these were 1932 dollars."²⁴ With their expanding market, the radio station's talent budget grew and the WSM Artist Service Bureau began.

A 1970 internal history of WSM engineering added this observation of what the tower meant to radio engineering. "In 1932 when most of the other existing radio stations were content to use inverted L antennas and very inefficient counter poise ground systems," WSM adopted the tower design, with its "0.58 wavelength vertical radiator, raising 878 feet above the ground and the entire antenna structure resting on a 9 inch porcelain insulator at its base. The tremendous improvement in ground wave signal was a boon to all the rural listeners" of WSM.²⁵ As stated in "WSM, The Beginning . . .," another internal history, "when, on October 5, 1932, WSM moved its transmitter to a colonial brick building twelve miles south of Nashville [the nominated property] off Franklin Road and signed on with fifty thousand watts, she joined a small, elite group of maximum power, one-A, clear-channel broadcasters. This new status, coupled with the low 650 kilocycle frequency, made WSM a nation-spanning giant."²⁶

DeWitt's key role in bringing this new technology to the radio industry spurred interest from stations from throughout the South. DeWitt recalled: "I developed a consulting practice in which I designed antennas, measured field strength patterns, designed radio transmitting equipment and so for some forty or fifty other broadcasting stations in the South."²⁷ In 1935, the tower was so prominent in the image of WSM that it took on the title of the "Air Castle of the South," a slogan attributed to Ed Kirby, who directed promotional efforts for National Life and the radio station.²⁸ The tower's distinctive look, however, had everything to do with broadcasting engineering, not aesthetics. As DeWitt explained, he wanted a system where the "tower would be the antenna, rather than have two towers with a wire between them."²⁹

The WSM Tower is also significantly associated with the beginnings of commercial FM broadcasting. In June 1934, radio pioneer Edwin Armstrong in New York City successfully demonstrated the potential for possible FM broadcasts. WSM's Jack DeWitt knew and had worked with Armstrong. Within months of Armstrong's success, DeWitt was exploring how the new technology could work in Nashville. The first experimental broadcasts with a faint signal took place in 1939. He installed four large dipole FM transmitter antennas on the tower in December 1940. Commercial FM radio began in March 1941, under the call letters W47NV. *Broadcasting* magazine, on March 10, 1941, announced: "becoming the first FM station to start operating on a regular schedule under full-commercial authorization by the FCC, W47NV, Nashville, FM

²² Wolfe, 6.

²³ C.S. Smith, "WSM of Yesterday and Today," *Broadcast News*, November 12, 1932, p. 21.

²⁴ Wolfe, 6.

²⁵ Sunday Supplement, 10-4-70, WSM History Files, Gaylord Entertainment Company, Nashville.

²⁶ "WSM, The Beginning . . .," WSM Radio Files, Gaylord Entertainment Company, Nashville.

²⁷ John H. DeWitt, Jr., "Autobiography," unpublished typescript, WSM Radio files, p. 14.

²⁸ Havighurst, 83-84.

²⁹ John H. DeWitt, Jr., oral history interview, 1994-1995, Gaylord Entertainment Company, typescript, p. 41.

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Adjunct of WSM, on March 1 started a weekly schedule totaling 70 hours of FM broadcasting.³⁰ The magazine added details on how the new FM transmitting antenna was arranged within the tower transmission complex:

The four-element FM turnstile array on the WSM tower, connected by coaxial cable to the transmitter house, is located just below the flagpole topping the tower. The coaxial line from the transmitter terminates at the base of the tower in a matching section which feeds the open wire line on the tower, an arrangement claimed to operate not only as an effective filter separating the AM signals of WSM and the FM signals of W47NV but also as a lightning ground for the entire structure. The FM signal is generated in a single relay rack unit in the control room of the transmitter house, coupled successively to a three-stage 1,000 watt amplifier and a 20,000-watt amplifier. The main rectifier and other power supply equipment are located in the basement of the transmitter house.³¹

The station ended its initial experiments in FM broadcasting in 1951 as it concentrated more on television technology.

Circa 1940, engineers chose to lower the height of the tower by 70 feet, largely to solve a technical glitch in radio reception in the Chattanooga/North Georgia area. The tower structure was not affected, but the 120-foot metal pole was reduced by 70 feet. The tower has remained at 808 feet in height ever since.

Communication and Music

The construction and history of the WSM Tower is significantly associated with the national story of radio broadcasting, especially the development of the "clear channel" concept in the 1930s. When the transmission complex went on the air in November 1932, it did so as a 50,000 watt "clear channel" station broadcasting at 650 AM (a low frequency contributed to a larger national audience). In 1931, the Federal Radio Commission had designated the first clear channels as part of an attempt to bring sanity to what had become a chaotic radio system in North America. Stations across the country aggressively vied for the clear channel designation; in the southeast only two were chosen: WSB in Atlanta and WSM in Nashville. Obtaining the clear channel license directly led to the corporate decision to broadcast at 50,000 watts and to build the new tower. It gave the station a distinct competitive advantage over any other Mid-South station. But in return for the competitive advantage, the federal government received assurances from WSM officials that the station would be much more than a mere entertainment network; rather it would devote considerable resources and air time to public service. Edwin W. Craig, the vice-president of National Life and Casualty, promised: "as we join the ranks of America's radio giants, we realize not only our increased opportunities, but also our heavily increased obligation to the public service."³²

One of the early public service efforts was conducting remote broadcasts from events and places that defined southern identity and promoted southern agriculture. Station employees covered by remote broadcast such events as Mule Day in Columbia, Tennessee (it was a major southern livestock event), a coon hunt in Bowling Green, Kentucky, and state fairs from across the Mid-South. The effort turned more educational in early 1938 when the station combined with its clear channel allies to produce a

³⁰ "New FM Station of WSM, Nashville, Starts Operation with 70 Hours Weekly," *Broadcasting*, March 10, 1941.

³¹ Ibid.

³² George D. Hay, "WSM Goes on High Power," *Broadcast News*, January 1933, 2. Copy in WSM Radio Files.

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consumer/listener magazine titled *Rural Radio*. WSM's Ed Kirby developed the series but employees from fourteen clear channel stations from across the nation known as the Clear Channel Group (CCG) wrote the program's segments. The CCG formed at a 1934 meeting in Chicago, hosted and organized by Edwin Craig of WSM's parent company, National Life. Craig served as the CCG chair and Jack DeWitt was its chief engineering consultant. *Rural Radio* was broadcast to a national audience of 50 million listeners. It "offered a bit of technical know-how, recipes, and tidbits for the kids."³³ The program was a flashy complement to the steady diet of farm programming that the station provided in the 1930s. For mid-South listeners, WSM had broadcast farm market reports, Monday through Friday, since 1927, broadcasting directly from the offices of the state department of agriculture. The tower and clear channel status meant that the station could go broader with such programming and it worked with the University of Tennessee in Knoxville, where the state's College of Extension was located, to produce weekly farm and homemaker programs at the Knoxville campus, with extension staff and faculty participating. In 1937, the station sponsored two shows a week for presentations by extension service staff as "free" programs, without commercials.³⁴ Such programming as "Bug Bombing with DDT" was not Tennessee-specific and it found a rural audience wherever the tower's signal reached, which included 202 counties in multiple southern states during the daytime.³⁵ As one historian noted

For many rural families, radio's real attraction during the Depression years was its promise of a better life—a modern new age to come. While other technologies made life physically easier or more convenient, radio touched the imagination by opening a window on the outside world. News and information programs kept rural listeners in touch with current events and issues, while entertainment and advertising presented images of a modern urban consumer lifestyle that many rural families found compelling. It was this ability to supply daily contact with the rest of the world that was radio's most important feature for rural America.³⁶

Serving rural audiences was important to station officials because WSM's clear channel status rested, in larger part, to its commitment to public service programming. In 1938 FCC hearings, WSM leaders defended vigorously the clear channel concept. In a document titled "The Case for Clear Channels and High Power," the CCG argued that clear channels served a distinctive national interest because they embodied "the benefits of a great agency of instantaneous mass-communication to the people of the entire country. This is a *national* as distinguished from a local interest. It is far more important that the President of the United States have at hand an agency through which he may reach the entire public, and that the entire public have at hand a means for receiving the best that the important centres [sic] of culture, entertainment and information have to offer, than that a few more individuals in communities of population below 25,000 or 10,000 be licensed to operate stations, particularly since most communities of that size cannot be provided with stations in any event."³⁷

In the spring of 1938, as a new part of its commitment to public service, WSM gave Marjorie Cooney a mid-afternoon radio program titled "A Woman Looks at the News," which continued on the station for the next

³³ Havighurst, 92, 97.

³⁴ John C. Barker, *Farm Broadcasting: The First Sixty Years* (Ames: Iowa State University Press, 1981), 252.

³⁵ *Ibid.*, 130-31.

³⁶ Steve Craig, "The More They Listen, the More They Buy' Radio and the Modernizing of Rural America, 1930-1939," *Agricultural History* 80 (Winter 2006): 3.

³⁷ "The Case for Clear Channels and High Power," A Statement to the Federal Communications Commission, September 6, 1938, p. 195.

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fifteen years. The first female radio broadcaster in the United States, Kathryn Cravens' "News Through a Woman's Eyes," had appeared on the CBS network less than 18 months earlier. Cooney took the radio name of Ann Ford and while she read the afternoon headlines to start each program, she quickly branched into programming aimed at middle-class women. Cooney recalled: "I imagined myself as a busy [housewife], sitting down with the newspaper and looking through it." She also conducted remote broadcasts and covered events of interest to her selected audience. Craig Havighurst concluded that Cooney's program "represented a play for the midday female listener, seen by the station, without much fear of contradiction, as a housewife at home with babies, a sewing basket, and a duster."³⁸ Cooney also broadcast a program called "The Man I Married," where she interviewed the wives of prominent political and business leaders.

Even before the United States entered World War II, WSM radio prepared its listeners for the possibility of war through its patriotic program "Our America." It promised to send copies of the Constitution to all who asked and by 1939, the station estimated it had mailed 10,000 copies.³⁹ During World War II, WSM fulfilled its self-proclaimed role as a national messenger by full coverage of the war effort at home and abroad. "When Nashville's Vultee aircraft company converted to making A-35 Vengeance dive bombers and P-38 Lightning attack planes," for instance, "WSM interviewed its women working for the first time in pants and coveralls on assembly lines." *Variety* magazine praised the station in 1942 and 1943 for its programming and "contributions to military and civilian understanding." *Variety* editors even noted in one story that "Nashville was never known as a show town before WSM. Radio did that for Nashville, via WSM."⁴⁰ The station broadcast the surrender ceremonies in the Pacific Theater on the *U.S.S. Missouri* through the efforts of Irving Waugh, who covered several key events in the Pacific War from late 1944 to the end of fighting in 1945.

After the war, the station turned more attention to rural public service programming. NBC network ended its daily hour-long farm program in 1945. WSM chose to replace it with its own programming, hiring John McDonald, an experienced agricultural educator and extension official with an agriculture degree from the University of Tennessee. McDonald became nationally recognized as an agricultural reformer and expert through his Monday through Friday program lunchtime program, "Noontime Neighbors," which was designed to catch farm families at lunch. Originally 25 minutes in length, it expanded to 55 minutes in 1960.⁴¹ Within three years of his appointment to WSM, McDonald was testifying before Congress against a proposal to limit the power of the clear channel stations. He pointed to the success, and the audience reach, of the program and how it was improving agriculture in the mid-South.⁴² That same year, the program won second-place nationally in a contest sponsored by *Billboard* magazine for radio farm programming. *Billboard* noted: "Using a studio audience, orchestra and vocalists, the show manages while accenting [sic] entertainment to include the essential elements of a farm show, including an interview with a soil conservation specialist and a four-State weather forecast."⁴³

³⁸ Havighurst, 96.

³⁹ Evelyn C. Roat, "Current Trends in Public Relations," *Public Opinion Quarterly*, 3(July 1939): 510.

⁴⁰ Havighurst, 120.

⁴¹ *Billboard*, February 1, 1960, p. 18.

⁴² "Hearings: Limit Power of Radio Stations," U.S. Senate Committee on Interstate and Foreign Commerce (Washington, D.C.: Government Printing Office, 1948), pp. 363-64.

⁴³ *Billboard*, November 20, 1948, p. 17.

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Historian Craig Havighurst emphasizes that McDonald's "Noontime Neighbors" "mingled country and pop more aggressively than perhaps any WSM show" to that time. Owen Bradley, the future legendary producer, led a 26-piece orchestra. Milton Estes organized a country music band, the Musical Millers, to also perform regularly. Such stars as Ernest Tubb and Roy Acuff performed on the program. The program was broadcast live to a studio audience, except for when McDonald took it on the road to such venues as the Tennessee State Fair. The station put significant resources into a program that remained free of advertising until 1954.⁴⁴

McDonald and WSM's farm programming gained national and international fame in the 1950s. In 1952, McDonald was a leader for the American Farm Bureau Federation's Rural Youth Tour to Europe, one of many overseas visits he made during the broadcast life of the radio show.⁴⁵ He also formed and headed the National Association of Radio and Television Farm Directors. In 1953, as association president, McDonald stressed how positions like his were crucial to the betterment of farm life in America.⁴⁶ In 1960, the association had 350 active members with 300 associate members and its goal was "try to help farmers make a better living."⁴⁷ A 1954 count claimed that McDonald logged 80,000 miles of travel to attend farm meetings and gather material for his program. McDonald also continued his international travel representing rural radio programming to Mexico, Canada, Cuba, Guatemala and the Soviet Union (1962). In a list compiled by WSM, McDonald in 1963 traveled throughout Tennessee, as well as D. C., Iowa, Virginia, North Carolina, Kansas, and Illinois. During these years and travels, "Noontime Neighbors" grew to be almost one hour in length and became known as the "Farmer's Bible."⁴⁸

In a 1965 submission to the FCC, WSM noted that "Noontime Neighbors" served as "a day to day extension of the activities of the Tennessee Department of Agriculture. Regular participation in this program is scheduled as follows:

Monday: Tennessee Department of Agriculture, Farmers Home Administration, Soil Conservation Service

Tuesday: Tennessee Farm Bureau

Wednesday: Vocational Agriculture, Future Farmers of American

Thursday: State Agricultural Stabilization and Conservation Department, UT Food Specialist

Friday: County Agents, 4-H Club, Extension Specialists, Game and Fish Commission.⁴⁹

A 1967 WSM story bragged: "few broadcast operations have done as much as WSM to cultivate the farm listener than WSM. Newscasts, weather reports, and programs are often tailored to the taste of the rural listener. Under the direction of nationally known Farm Director John McDonald, all programs are designed to give the farmer related authoritative information . . . and feature LIVE as well as record 'in the field' interviews."⁵⁰ A history of farm broadcasting by historian John Baker found McDonald and his programming as one of the nation's most influential and important, as he regularly integrated agricultural experts in the show. "Within a hundred miles of Nashville you can't find a county agent, vo-ag teacher, soil

⁴⁴ Havighurst, 132.

⁴⁵ *American Farmer*, Volumes 27-29 (1952), p. 74.

⁴⁶ "Farm Director—No 8-hour Man," *N.A.C. News and Pesticide Review* (1953): 91.

⁴⁷ *Media/scope* 4(1960): 4.

⁴⁸ "WSM Farm Programming," [1967], WSM Radio Files.

⁴⁹ "Exhibit 4," [1965] WSM Inc., Form 309, Section II, Par. 17, p. 10, WSM Radio Archives.

⁵⁰ "WSM Farm Programming," [1967], WSM Radio Files.

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conservationist, FHA or ASCS official who hasn't been on a WSM program" McDonald bragged. McDonald claimed that during the years of "Noontime Neighbors," from 1945 to 1972, he received one million cards and letters. McDonald and WSM worked with fellow clear channel stations to create and broadcast a series of farm programs in Des Moines, Chicago, Minneapolis, and Salt Lake City. Craig Havighurst in his study of WSM radio found that "for decades," McDonald "had the respect and admiration of nearly everyone of consequence in the farming business. When he celebrated his twenty-fifth anniversary with WSM [in 1970], the secretary of agriculture [Clifford Hardin] came from Washington for the gala dinner."⁵¹

The communications provided by the tower shaped other, less known aspects of American life in the 1930s. In late 1933, for instance, WSM began a radio series about collegiate life, where broadcasts were tied to homecoming weekends at such schools as Texas A&M University and Tulane University. Universities would plan events around these special broadcasts. The Ohio State University arranged for 150 simultaneous alumni banquets, for example.⁵² WSM's news programs also served a national audience. Launched in 1937, the station's dedicated news operation brought national news to its audience immediately (or what seemed like immediately in those years). News director Jack Harris bragged that WSM listeners knew about the *Hindenburg* crash within minutes and about the Supreme Court's decision in the Wagner case (a key test of New Deal labor law) 40 seconds after it was announced. When a terrible Ohio River flood hit Louisville in 1937, a local station there arranged to transmit vital news over the WSM Tower Transmission system since the signal could reach everywhere in the Kentucky city.⁵³ The *New York Times* of January 26, 1937, reported: Radio short-wave broadcasting played a tremendous role yesterday in the battle of the Ohio Valley against the worst flood in its history."

The news program expanded considerably after World War II. A 1954 internal report, for instance, recorded that the station carried special events in Seattle; Crystal City, KY; Vicksburg, MS; Fort Bragg, NC, and Boca Raton, FL. WSM "presented ten daily comprehensive newscasts written by WSM's news staff to fit the station's own personality and style of news presentation."⁵⁴

The signal reach of the WSM tower signal at late night--as it reached not only every corner of the south but a total of 40 states, Canada and the Caribbean--has been justly acknowledged for making the Grand Ole Opry broadcast a truly national phenomenon. Audiences for the program grew quickly. National Life added a large auditorium capable of seating hundreds, Studio C, to its downtown offices in early 1934. The crowds soon overwhelmed that, and the Opry moved to the Hillsboro Theater and later the downtown War Memorial Building and the Fatherland Street Tabernacle. Still the crowds grew and in 1943 the Opry began broadcasting from the Ryman Auditorium (NHL 1/3/01). The Opry also went national on the NBC radio network with a 30-minute show on October 14, 1939.

But the signal strength provided by the tower also shaped American pop music through shows from Dinah Shore, Snooky Lanson, and Francis Craig. WSM was never a hillbilly broadcaster solely; its FM station in its early years featured classical music almost exclusively until it ceased operations on March 15, 1951. Classical music programming was a regular feature of the AM station. For many years, WSM on Saturdays broadcast performances from the Metropolitan Opera House in New York during the afternoon and the Grand Ole Opry at night. A jazz music program by sports broadcaster Larry Munson was one of the Mid-

⁵¹ Baker, 252; Havighurst, 212.

⁵² Havighurst, 68.

⁵³ Ibid., 91-94; also see "WSM . . . Nashville," unpublished typescript, c. 1970, WSM Radio Files.

⁵⁴ "54 Facts About WSM," [1954], WSM Radio Files.

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South's most informed programs of that genre, giving such musicians as Count Basie and Dizzy Gillespie a place in the Air Castle of the South. The most influential pop program was "Sunday Down South," which began in the 1940s. Regular performers included Kitty Kallen, Snooky Lanson, Anita Kerr Singers, Rosemary Clooney, the Ames Brothers, and Margaret Whiting all backed by an orchestra led first by Beasley Smith and later by Owen Bradley.⁵⁵

But in the mid-1930s, as the signal strength of the tower combined with the growth of radio ownership across the country, the station also was willing to carry out music programming that would later disappear from its airwaves. In 1935, WSM began to sponsor the music program at Fisk University, providing \$33,000 over a six-year period. Station manager Harry Stone claimed that WSM wanted to "promote the study of Negro spiritual music." In 1936, at a quarter past noon on Easter Sunday, a broadcast planned and arranged by WSM and Fisk was nationally broadcast through the NBC network and internationally through a relay to the British Broadcasting Corporation. The program featured the Fisk Jubilee Singers along with a history of the school and singers, along with part of a poem, read by famed African American writer, and Fisk professor, James Weldon Johnson.⁵⁶

African American programming disappeared from the station in the 1950s and 1960s. But WSM remained strongly committed to local programming. 54.1% of its programs, according to a 1954 internal report, were local live talent shows; the Grand Ole Opry reached 41 states and Canada.

The power of the tower signal at night later served as a tool shaping contemporary country music through a nightly show from Ralph Emery, which began in 1959. "No WSM personality of the era came close to having the national impact of Ralph Emery. Between 1960 and 1972, Emery was an emperor of the night, commanding the fifty clear channel kilowatts with a low-key but almost evangelical dedication to country music." Emery spotlighted Opry artists but he also introduced new artists and broadened the music to the Bakersfield sounds of Buck Owens in 1960.⁵⁷ Emery's influence with the late night show relied on the huge pull of the station's signal at night, and especially proved popular with a generation of truckers. His influence, however, was most significant in that he presented programming that showcased the diverse voices of country music at a time when the genre was losing popularity and the number of rock-n-roll format stations came to dominate the airways. His program also became the only national radio program with a talk format for country music performers.⁵⁸

Military - Civil Defense

Another part of the tower transmission complex's public service mission is its role in national civil defense. This role began 1951 when the WSM Transmission Tower Complex became part of the CONELRAD system, part of the nation's Cold War defense system. President Harry S. Truman established CONELRAD, which meant "Control of Electromagnetic Radiation," to protect the nation's communications system in case of a Soviet Union bomber attack. CONELRAD allowed for presidential broadcasts even after a disastrous attack that would eliminate commercial electric power. WSM was a designated relay station, since its signal could reach such a large audience, especially at night. The federal government later replaced CONELRAD with a national Emergency Alert System in 1963. The WSM Tower Transmission

⁵⁵ "Charles Wolfe, "The WSM Story," *Inside WSM, the First 75 Years, 1925-2000*, 11.

⁵⁶ *Ibid.*, 82-83.

⁵⁷ Havighurst, 217.

⁵⁸ Ralph Emery and Tom Carter, *Memories: The Autobiography of Ralph Emery* (New York, 1991), 83-93.

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Complex was designated as a Primary Entry Point (PEP), which means that the station has been designated to provide public information following national or local emergencies where there is no commercial electric power. It is one of 34 PEP stations in the country. The WSM Tower Transmission complex has dedicated, protected government-funded circuits that connects the tower to emergency command centers (thus the large exterior tanks for diesel fuels for the necessary generators). The station is designated to distribute presidential messages during a national emergency (this has never been activated) as part of the Emergency Alert System.⁵⁹

Architecture

The transmission station building, designed by Russell E. Hart of the firm Hart, Freeland, and Roberts of Nashville, is locally significant to Williamson County architecture. Historian Janice Nolen noted in her 1983 Determination of Eligibility of the property

This brick building displays many characteristics of the classical styles: a formal, symmetrical façade; pedimented portico, a full entablature; and a rusticated basement. The details are both well-constructed and well-composed. All of the window and door surrounds, the pilasters, and the columns are made from cut stonework. Multi-colored slate tiles cover the gable roof. The cornice, the raking edges of the pediment, the guttering, and downspouts are copper. The four slender columns that support the pediment are proportioned well for the portico. In addition, the design is consistent both around the building and in the oldest of the associated buildings.⁶⁰

Although Williamson County and adjacent Davidson County have many classically designed residences, commercial, civic, and educational buildings, there are no other known commercial radio-related buildings like the WSM building. It retains a high degree of integrity and is a good example of a classically styled commercial building.

Architect Russell E. Hart was one of the best-regarded classical revivalists working in Nashville and the Mid-South during the first half of the twentieth century. Best known for his work in leading the recreation of the Parthenon (NR 2/23/72) at Nashville's Centennial Park (NR 7/15/08), Hart also designed homes, public buildings, and offices in different variations of classical revival in Nashville and surrounding counties. Hart first came to Nashville in 1910 as the resident architect of the Beaux-Arts styled Hermitage Hotel. He had earlier trained in architecture with a Richmond firm and with the notable New York City firm of Cram, Goodhue, and Ferguson. He also trained in Paris at the influential Ecole de Beaux Arts. The Hart-Freeland-Roberts firm formed in the late 1910s; Hart's most notable commission in the following decade was the design for the reconstruction of the Parthenon in Centennial Park. After the tower project, Hart designed a Colonial Revival-styled mansion for National Life and Casualty executive W. Ridley Willis in Nashville.⁶¹

⁵⁹ Alan Axelrod, *The Real History of the Cold War: A New Look at the Past* (New York: Sterling, 2009), 165; "CONELRAD," *Encyclopedia of Radio* (New York: Fitzroy Dearborn, 2004), 605-607; Tracy C. Davis, *Stages of Emergency: Cold War Nuclear Civil Defense* (Durham: Duke University Press, 2007), 183.

⁶⁰ Nolen, National Register draft nomination, significance statement.

⁶¹ Irene R. Tyler, "Replicating the John J. Earley Concrete Mix to Restore the Nashville Parthenon," *APT Bulletin* 35(#2/3, 2004), 43; Frank Orr, et. al., eds., *Notable Nashville Architecture, 1930-1980* (Nashville: Middle Tennessee Chapter of AIA, 1989), 12, 71, 75.

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WSM Tower Transmission Complex

Name of Property

Williamson County, Tennessee

County and State

10. Geographical DataAcreage of Property 29.91 acres

Franklin 63 NE

UTM References

(place additional UTM references on a continuation sheet.)

| | | | |
|---|-----------|---------------|----------------|
| 1 | <u>16</u> | <u>519111</u> | <u>3983852</u> |
| | Zone | Easting | Northing |
| 2 | <u>16</u> | <u>519003</u> | <u>3983611</u> |

| | | | |
|---|-----------|---------------|----------------|
| 3 | <u>16</u> | <u>518587</u> | <u>3983673</u> |
| | Zone | Easting | Northing |
| 4 | <u>16</u> | <u>518666</u> | <u>3983957</u> |

☐ See continuation sheet**Verbal Boundary Description**

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared Byname/title Carroll Van WestOrganization Center for Historic Preservation date November 30, 2010street & number Middle Tennessee State University, Box 80 telephone 615-898-2947city or town Murfreesboro state TN zip code 37132**Additional Documentation**

submit the following items with the completed form:

Continuation Sheets**Maps**A **USGS map** (7.5 Or 15 minute series) indicating the property's locationA **Sketch map** for historic districts and properties having large acreage or numerous resources.**Photographs**Representative **black and white photographs** of the property.**Additional items**

(Check with the SHPO) or FPO for any additional items

Property Owner

(Complete this item at the request of SHPO or FPO.)

name WSM Inc. c/o Mike Ford, General Managerstreet & number 2802 Opryland Drive telephone (615) 316-6000city or town Nashville state TN zip code 37214

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 listing. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 *et seq.*)

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 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 Chief, Administrative Services Division, National Park Service, P. O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20303.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number 10 Page 21

WSM Tower Transmission Complex, Williamson
County, TN

10. GEOGRAPHICAL DATA

Verbal Boundary Description

The WSM Tower Transmission Complex consists of 29.91 acres identified as parcel 01500 on the attached Williamson County Tax Map 029.

The nominated property is bounded on the south by Concord Rd; on the west by a small open parcel that separates the property from I-65; on the north by a tree line that separates the parcel from adjacent residential parcels; and on the east by a creek running into the Little Harpeth River.

Verbal Boundary Justification

The nominated property includes all of the extant acreage associated with the property and contains all extant resources associated with the WSM Tower Transmission Complex.

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National Park Service

National Register of Historic Places Continuation Sheet

Section number 10 Page 22

WSM Tower Transmission Complex, Williamson
County, TN

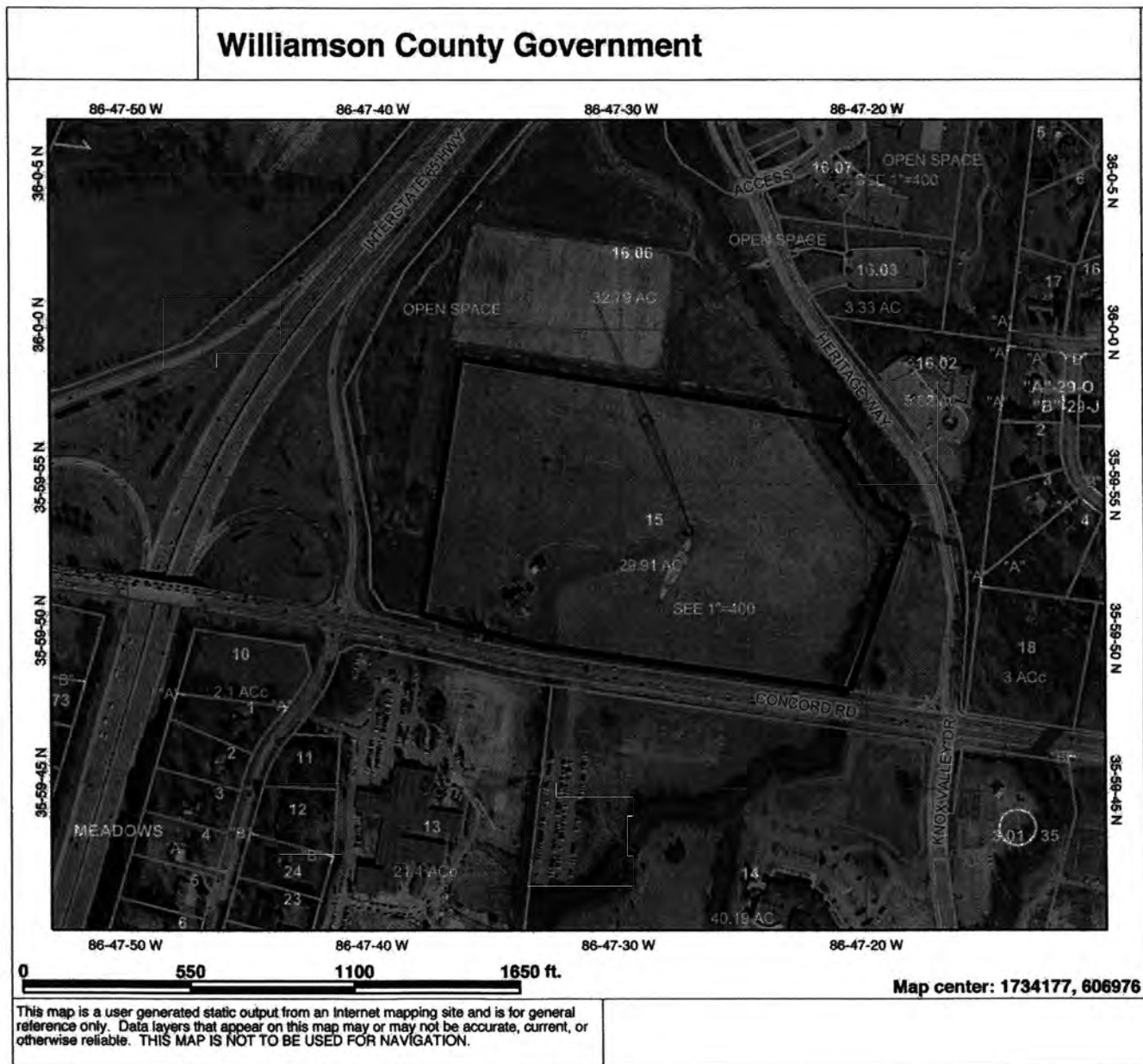
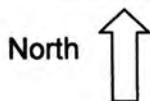


Figure 2. Tax map.



United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number photos Page 23

WSM Tower Transmission Complex, Williamson
County, TN

PHOTOGRAPHS

Photographer: Elizabeth Moore
Middle Tennessee State University, Center for Historic Preservation
Murfreesboro, TN 37132
Date: December 2010
Digital Files: Tennessee Historical Commission
2941 Lebanon Rd.
Nashville, TN 37243-0442

- 1 of 27 Broadcasting Station (#1), southwest façade and site, photographer facing northeast.
- 2 of 27 Broadcasting Station, southwest façade, detail of entrance, photographer facing northeast.
- 3 of 27 Broadcasting Station, northwest elevation, photographer facing southeast.
- 4 of 27 Broadcasting Station, northeast elevation, photographer facing southwest.
- 5 of 27 Broadcasting Station, southeast elevation, photographer facing east.
- 6 of 27 Broadcasting Station, Central Hall, photographer facing southwest.
- 7 of 27 Broadcasting Station, Central Hall, detail of shield.
- 8 of 27 Broadcasting Station, Kitchen, photographer facing north.
- 9 of 27 Broadcasting Station, Central Hall toward Bedroom, photographer facing southeast.
- 10 of 27 Broadcasting Station, Central Hall toward Broadcast Room, photographer facing northeast.
- 11 of 27 Broadcasting Station, Broadcast Room, photographer facing northeast.
- 12 of 27 Broadcasting Station, Broadcast Room, detail of stair, photographer facing west.
- 13 of 27 Broadcasting Station, Broadcast Room, detail of stair.
- 14 of 27 Broadcasting Station, Power Room, photographer facing northwest.
- 15 of 27 Broadcasting Station, Equipment Room, photographer facing north.
- 16 of 27 Broadcasting Station, Boiler Room, photographer facing southeast.
- 17 of 27 Tower Antenna (#2), photographer facing northeast.

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National Register of Historic Places Continuation Sheet

Section number PHOTOS Page 24 WSM Tower Transmission Complex, Williamson
County, TN

- 18 of 27 Tower Antenna, detail of Lapp Insulators.
- 19 of 27 Tower Antenna, detail of guy wire base with lightpole.
- 20 of 27 Tower Tuning House (#3), photographer facing northwest.
- 21 of 27 Emergency Tower (#4), photographer facing north.
- 22 of 27 Emergency Tower Tuning House (#5), photographer facing northwest.
- 23 of 27 "L" Antenna (#6), photographer facing north.
- 24 of 27 Storage Shed (#8), photographer facing east.
- 25 of 27 Carport (#9), photographer facing northeast.
- 26 of 27 Emergency Fuel Storage Tanks (#10) and Satellite Dish (#7), photographer facing east.
- 27 of 27 Fence (#11), photographer facing west.

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National Park Service

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Section number figures Page 25

WSM Tower Transmission Complex, Williamson
County, TN

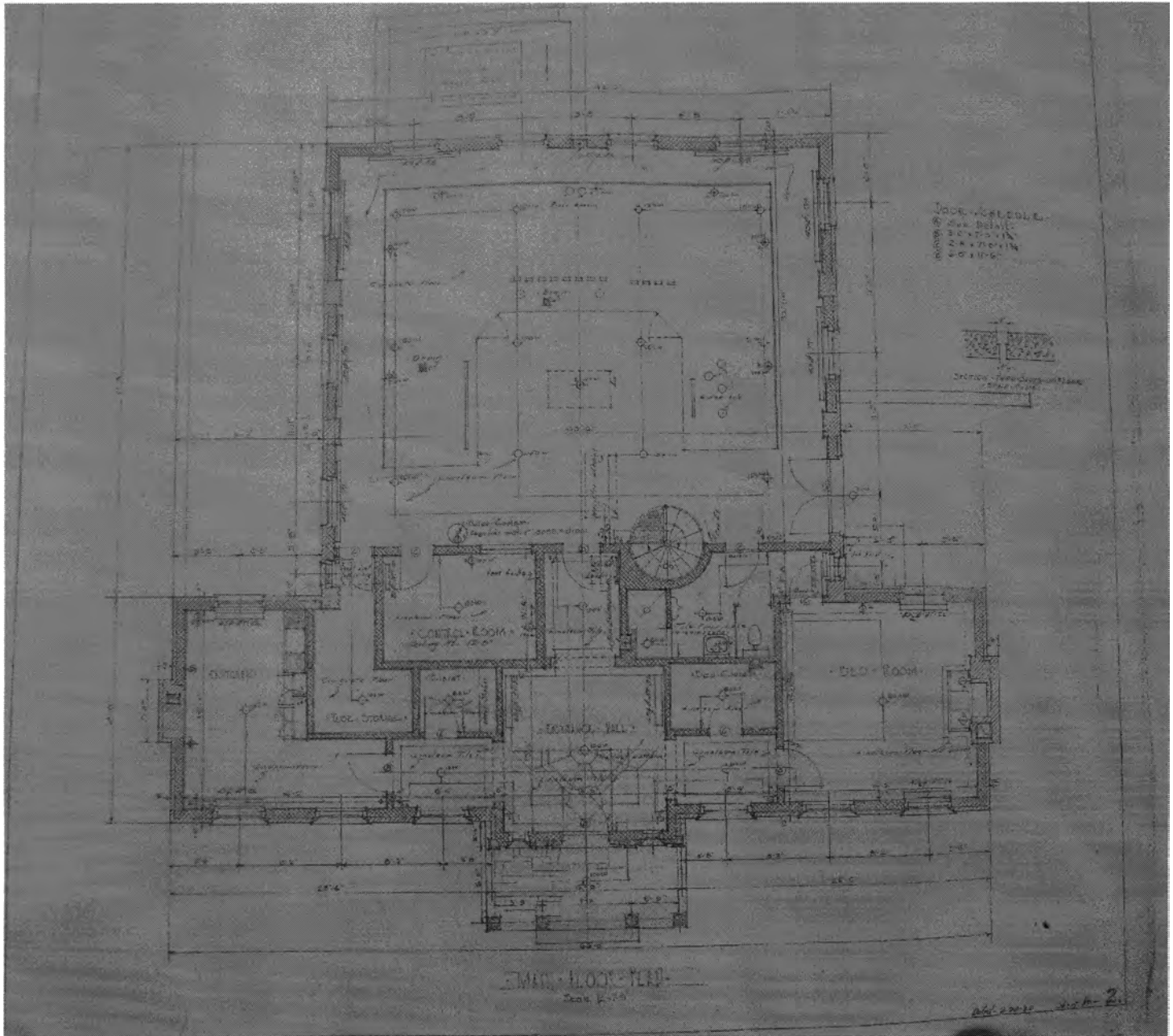


Figure 3. First floor plan, WSM Broadcasting Station.

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National Park Service

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Section number figures Page 26

WSM Tower Transmission Complex, Williamson
County, TN

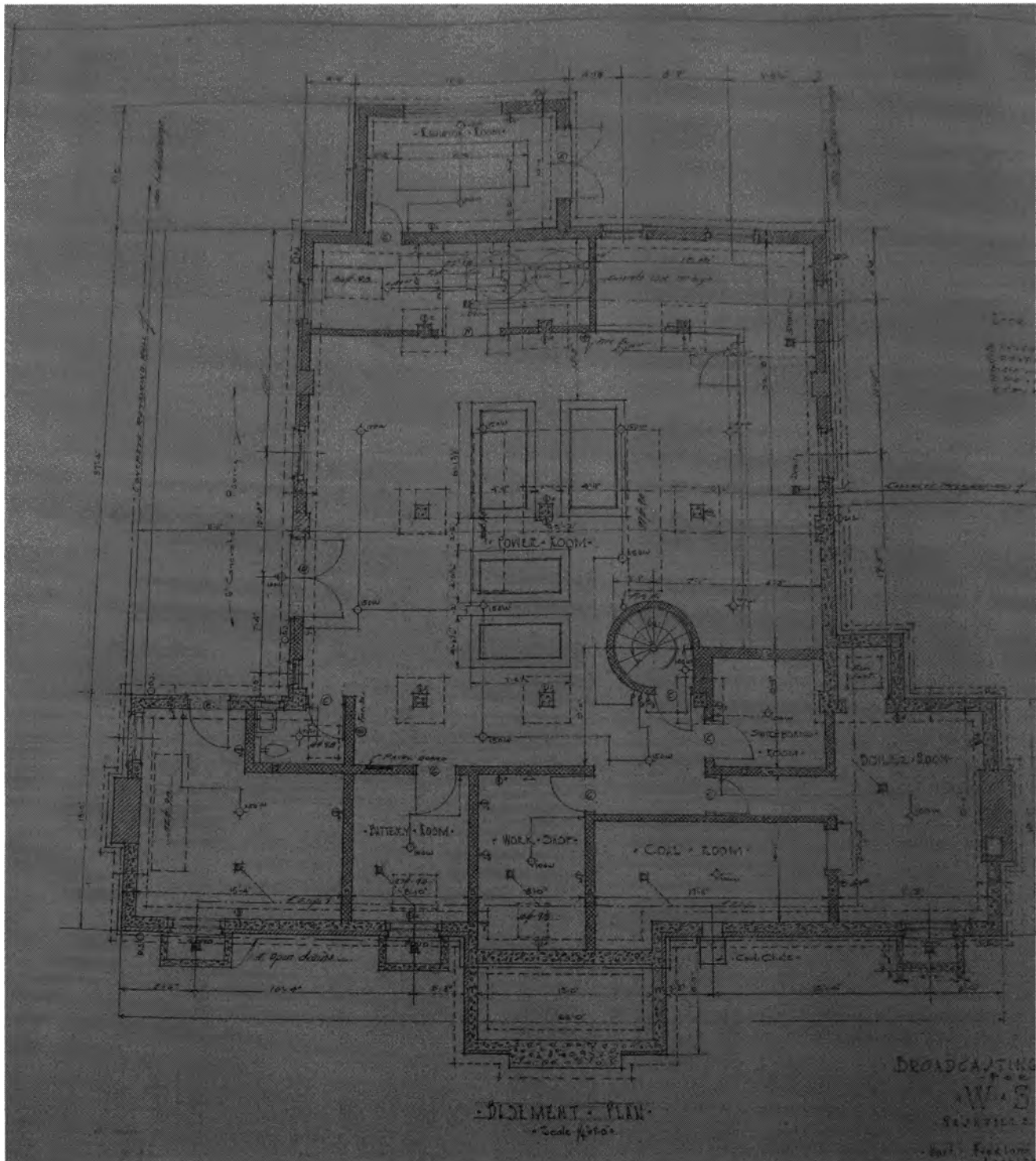


Figure 4. Basement floor plan, WSM Broadcasting Station.

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National Park Service

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Section number figures Page 27

WSM Tower Transmission Complex, Williamson
County, TN

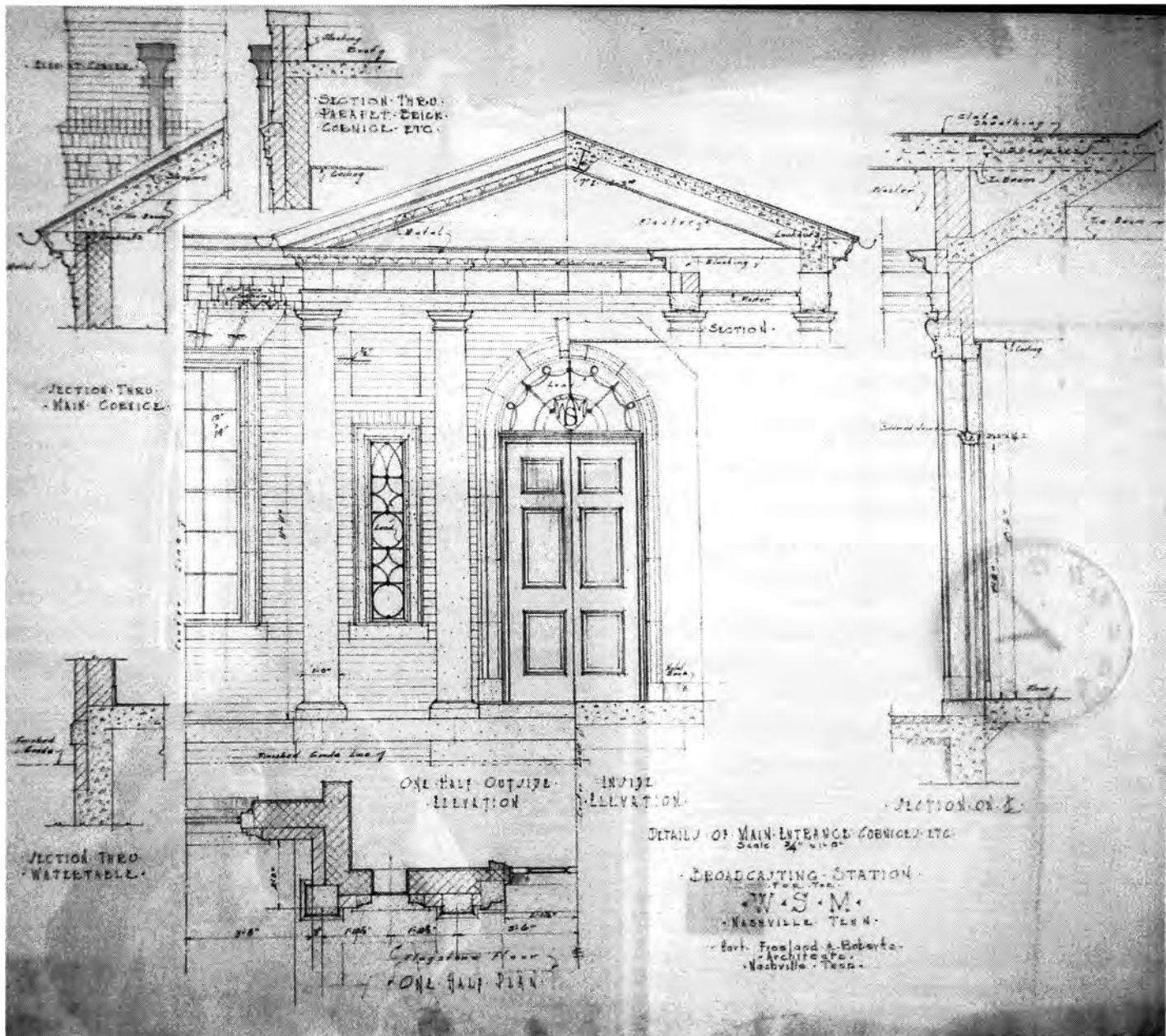


Figure 5. Entrance.

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National Park Service

National Register of Historic Places Continuation Sheet

Section number figures Page 28

WSM Tower Transmission Complex, Williamson
County, TN



Figure 6. Life and Casualty logo.

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National Park Service

National Register of Historic Places Continuation Sheet

Section number figures Page 29

WSM Tower Transmission Complex, Williamson
County, TN

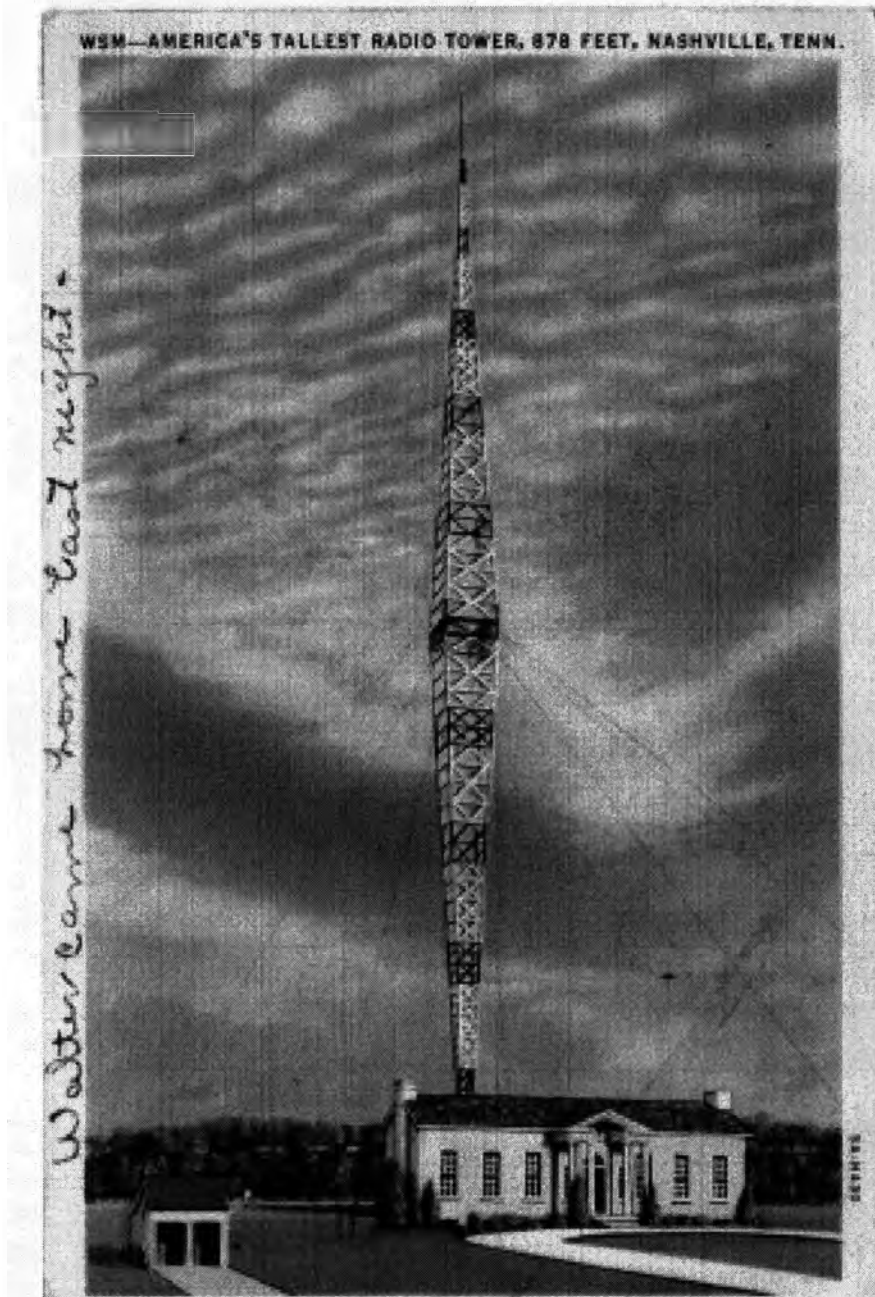


Figure 7. WSM Tower Antenna. Tennessee State Library and Archives online collections. 1935 postcard. Back reads: Known as Shield Station, WSM is the broadcasting station of the National Life and Accident Insurance Company, Inc., whose Home Offices are located in Nashville. WSM is found at 650 on the radio dial, and broadcasts 18 hours daily with a power of 50,000 watts. Its 225 radio artists receive well over 50,000 letters a week.

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WSM Tower Transmission Complex, Williamson
County, TN



Figure 8. Tower turning poles (inventory #3)

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WSM Tower Transmission Complex, Williamson
County, TN



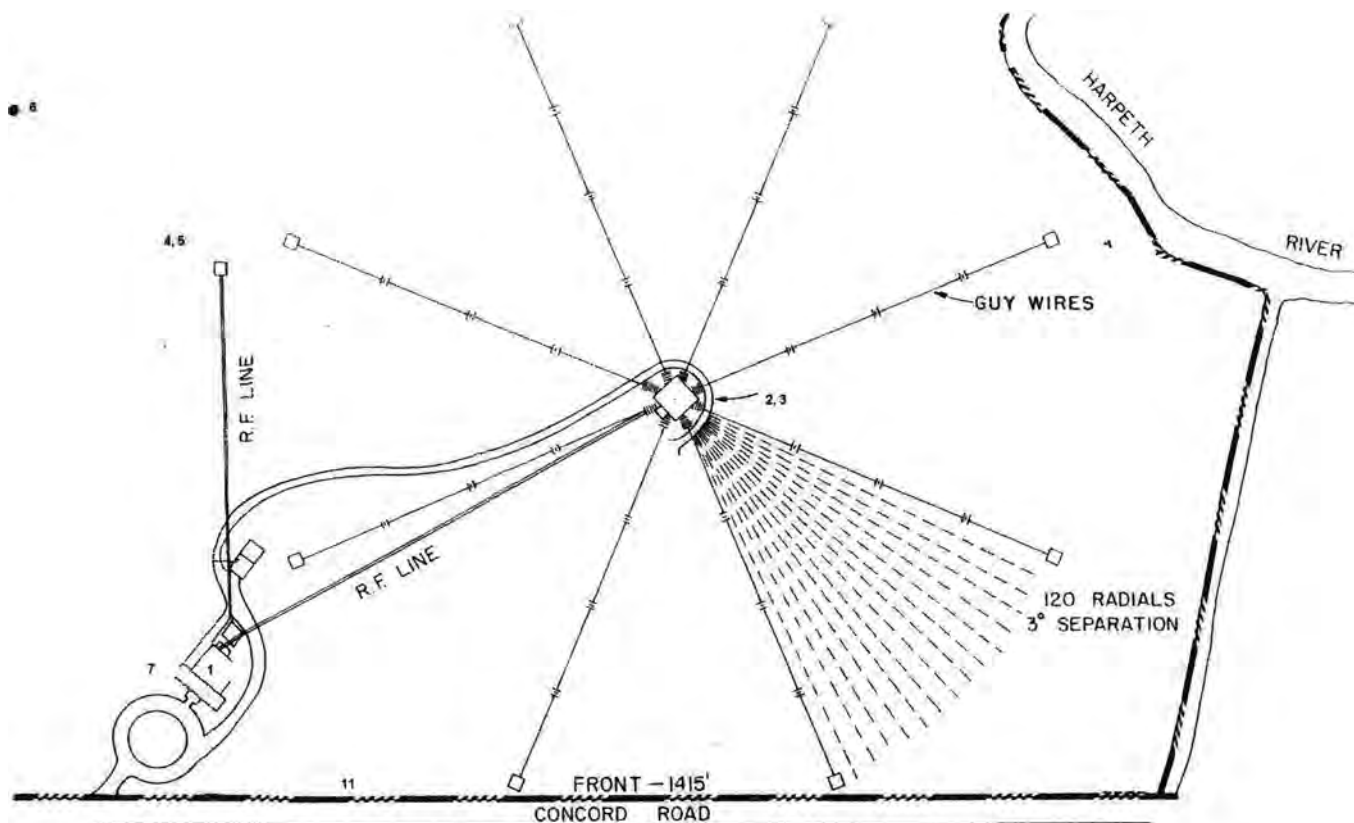
Figure 9. The two Lapp insulators on which the entire tower antenna rests.

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Section number figures Page 32

WSM Tower Transmission Complex, Williamson
County, TN



R. F. RADIO FEED

Figure 10. Radio tower showing guy wires.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: NOMINATION

PROPERTY WSM Radio Transmission Complex
NAME:

MULTIPLE
NAME:

STATE & COUNTY: TENNESSEE, Williamson

DATE RECEIVED: 1/28/11 DATE OF PENDING LIST: 3/02/11
DATE OF 16TH DAY: 3/17/11 DATE OF 45TH DAY: 3/15/11
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 11000087

REASONS FOR REVIEW:

APPEAL: N DATA PROBLEM: N LANDSCAPE: N LESS THAN 50 YEARS: N
OTHER: N PDIL: N PERIOD: N PROGRAM UNAPPROVED: N
REQUEST: Y SAMPLE: N SLR DRAFT: N NATIONAL: Y

COMMENT WAIVER: N

___ACCEPT ___RETURN ___REJECT ___DATE

ABSTRACT/SUMMARY COMMENTS:

Automatic Listing
Is nationally significant - Criterion A - Communications / military / music
Criterion C - Engineering
Is locally significant - Critic C - Architecture

RECOM./CRITERIA Accept A & C

REVIEWER J. Lubert

DISCIPLINE _____

TELEPHONE _____

DATE 3/14/11

DOCUMENTATION see attached comments Y/N see attached SLR Y/N

If a nomination is returned to the nominating authority, the nomination is no longer under consideration by the NPS.



WSM Radio Transmission Complex
Williamson Co.

W5M Radio Transmission Complex
Williamson Co. TN

20427





WSM Radio Transmission Complex
Williamson Co. TN



WSM Radio Transmission Complex
Williamson Co. TN

4 of 27



WSM Radio Transmission Complex
Williamson Co. TN



WSM Radio Transmission Complex
Williamson Co. TN



WSM Radio Transmission Complex
Williamson Co. TN

WSM Radio Transmission Complex
Williamson Co. TN



8 of 27

WSM Radio Transmission Complex
Williamson Co. TN



WSM Radio Transmission Complex
Williamson Co. TN

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W5M Radio Transmission Complex
Williamson Co. TN

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WSM Radio Transmission Complex
Williamson Co. TN



WSM Radio Transmission Complex
Williamson Co. TN



WSM Radio Transmission Complex
Williamson Co. TN



WSM Radio Transmission Complex
Williamson Co. TN



WSM Radio Transmission Complex
Williamson Co. TN

16 Oct 27

NSM Radio Transmission Complex
Williamson Co. TN

17 Oct 27



WSM Radio Transmission Complex
Williamson Co. TN



180f27



WSM Radio Transmission Complex
Williams Co. TN



WSM Radio Transmission Complex
Williamson Co. TN

200827

WSM Radio Transmission Complex
Williamson Co. TN
21 of 27



WSM Radio Transmission Comp 1 &
Williamson Co. TN

22 Oct 27



Williamson Co. TN
WSM Radio Transmission Complex

23 of 27





WSM Radio Transmission Complex
Williamson Co. TN

24 of 27



WSM Radio Transmission Complex
Williamson Co. TN

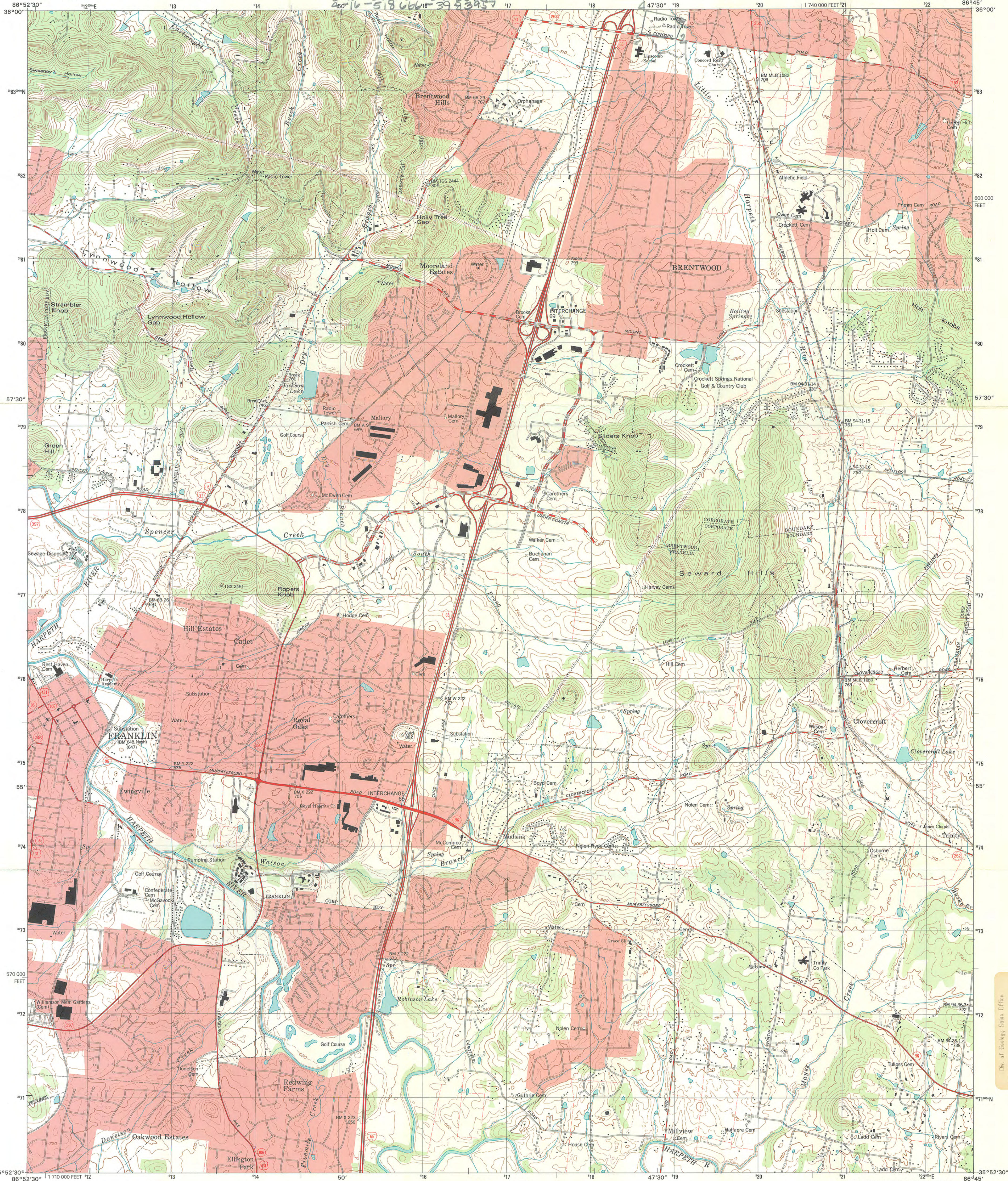
250f27



WSM Radio Transmission Complex
Williamson Co., TN



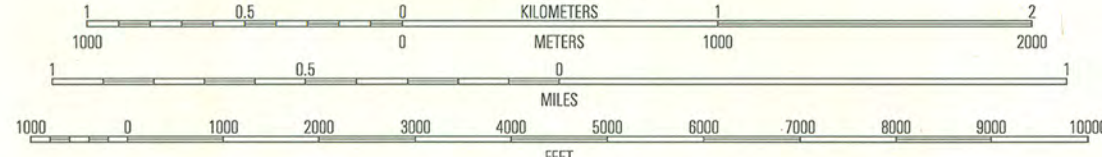
WSM Radio Transmission Complex
Williamson Co. TN



Produced by the United States Geological Survey

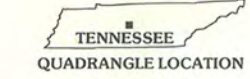
Topography compiled 1976. Planimetry derived from imagery taken 1997 and other sources. Survey control current as of 1979. Boundaries current as of 2001. North American Datum of 1983 (NAD 83). Projection and 10 000-foot ticks: Universal Transverse Mercator, zone 16. North American Datum of 1927 (NAD 27) is shown by dashed corner ticks. The values of the shift between NAD 83 and NAD 27 for 7.5-minute intersections are obtainable from National Geodetic Survey NADCON software. Houses of worship, schools, and other labeled buildings verified 1979.

UTM GRID AND 2001 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET



CONTOUR INTERVAL 20 FEET
SUPPLEMENTARY CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO CONVERT FROM FEET TO METERS, MULTIPLY BY 0.3048

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, P.O. BOX 25286, DENVER, COLORADO 80225
AND TENNESSEE DEPARTMENT OF CONSERVATION, DIVISION OF GEOLOGY,
NASHVILLE, TENNESSEE 37243
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



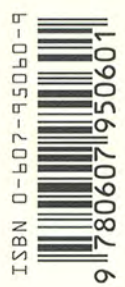
| | | | |
|---|---|---------------------|-----------|
| 1 | 2 | 3 | 1 Bellows |
| 4 | 5 | 4 Leipers Fork | |
| 6 | 7 | 5 Nolensville | |
| | | 6 Spring Hill 63-SW | |
| | | 7 Bethesda 63-SE | |
| | | 8 College Grove | |

ROAD CLASSIFICATION
Primary highway
Secondary highway
Light-duty road, hard or
improved surface
Unimproved road

FRANKLIN, TN
1997

NIMA 3655 IV NE-SERIES V841

Div. of Geology Sales Office
FRANKLIN, TN
\$6.00





TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550



January 21, 2011

Carol Shull
Keeper of the National Register
National Park Service
National Register Branch
1201 Eye Street NW
8th floor
Washington, DC 20005

Dear Ms. Shull:

Enclosed please find the documentation to nominate the *WSM Radio Transmission Complex* to the National Register of Historic Places.

If you have any questions or if more information is needed, contact Claudette Stager at 615/532-1550, extension 105 or Claudette.stager@tn.gov.

Sincerely,

E. Patrick McIntyre, Jr.
State Historic Preservation Officer

EPM:cs

Enclosures