NPS Form 10-900

SG-846

OMB No. 1024-0018

RECEIVED
FEB 24 2017
Natl. Reg. of Historic Places
National Park Service

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.

1. Name of Property

Historic name: Virginia Interlocking Control Tower
Other names/site number: Control Point (CP) Virginia 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: Southeast Corner of 2nd Street SW and Virginia Avenue SW
City or town: Washington State: D.C. County: SW
Not For Publication: [ ] Vicinity: [x]

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

DAVID MALONEY /DC SHPO 2/27/2017

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

DC HISTORIC PRESERVATION OFFICE

State or Federal agency/bureau or Tribal Government

Virginia Interlocking Control Tower
Name of Property

Washington, D.C.
County and State

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**

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:) _____

Patrick Andrus 4/10/2017

Signature of the Keeper Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

Private:	X
Public – Local	
Public – State	
Public – Federal	

Virginia Interlocking Control Tower | Washington, D.C.
Name of Property | County and State

Category of Property
(Check only **one** box.)

Building(s)	☐
District	☐
Site	☐
Structure	X
Object	☐

Number of Resources within Property
(Do not include previously listed resources in the count)

Contributing	Noncontributing	
1		buildings
		sites
		structures
		objects
1	0	total

Number of contributing resources previously listed in the National Register 0

---

6. Function or Use
Historic Functions
(Enter categories from instructions.)
Transportation/ Rail-Related

Current Functions
(Enter categories from instructions.)
Transportation/Rail-Related

---

7. Description

Architectural Classification
(Enter categories from instructions.)
Late Victorian

Materials: (enter categories from instructions.)
Principal exterior materials of the property:
Foundation- Concrete/Steel
Walls- Brick
Roof- Asphalt Shingle

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

The Virginia Interlocking Control Tower, now known as the Control Point Virginia Tower, is a late-Victorian-era, red brick interlocking control tower that still serves as a vital portion of the railroad infrastructure. Located at the southeast corner of 2nd Street SW and Virginia Avenue SW in Washington, DC, the two-story structure is unique because it is sited 15 feet above ground surface, adjacent to the CSX right-of-way and level with its elevated railroad tracks. It was constructed between 1904 and 1906 when the First Avenue Tunnel was built (north to south from Union Station) during a city-wide effort to eliminate at-grade railroad crossings with city streets. Distinctive architectural features include:

- a water table of two rows of red concave plinth brick separating the basement and first floor;
- red brick laid in common bond with recessed header rows on the first floor exterior;
- a flared metal or stone band course separating the first and second floors on the south elevation and a discontinuous stone band course separating the floors on the east and west elevations;
- red brick laid in common bond with no recessed elements on the second floor exterior; metal-wrapped fascia, soffit, and cornice;
- two six-over-two double-hung windows, approximately 40 inches by 84 inches, with a limestone jack arch, keystone, and sill on the first floor;
- a four-panel bay window with metal lintels, casings, and sills, four 1/3 over 2/3 double hung windows on the second floor (all approximately 40 inches by 84 inches); and
- a pyramidal roof.

The structure exhibits minor deterioration, primarily on the second floor where water infiltrates through an opening in the roof and in several other locations where broken windows result in exposure to the elements. In addition, the structure has exterior paint over its bricks and window lintels (to cover graffiti) and also dented or deteriorated metal architectural features, such as metal flashing under the roof line and metal trim around the bay window extending on the east and west sides of the structure.

Narrative Description

The Interlocking Control Tower is a late Victorian-era, two–story, red brick railroad interlocking control tower with a pyramidal roof. It is located on the north of the CSX railroad tracks on the southeast corner of 2nd Street SW and Virginia Avenue SW in Washington, DC (Figure 1). The tower is set on a steel girder grid and concrete platform, elevated 15 feet above street level so that its first floor is even with the adjacent railroad track grade (Figure 2). The steel girder grid, which supports the tower, is encompassed by stone retaining walls on the west and north sides. (The west retaining wall extends along the east side of 2nd Street SW under the elevated tracks.) The tower is free-standing on the girders and not connected to the adjacent stone retaining walls. Access to the tower is from a metal frame and concrete tread ship's ladder style stairway on the east elevation from the enclosed courtyard below (Figure 3).

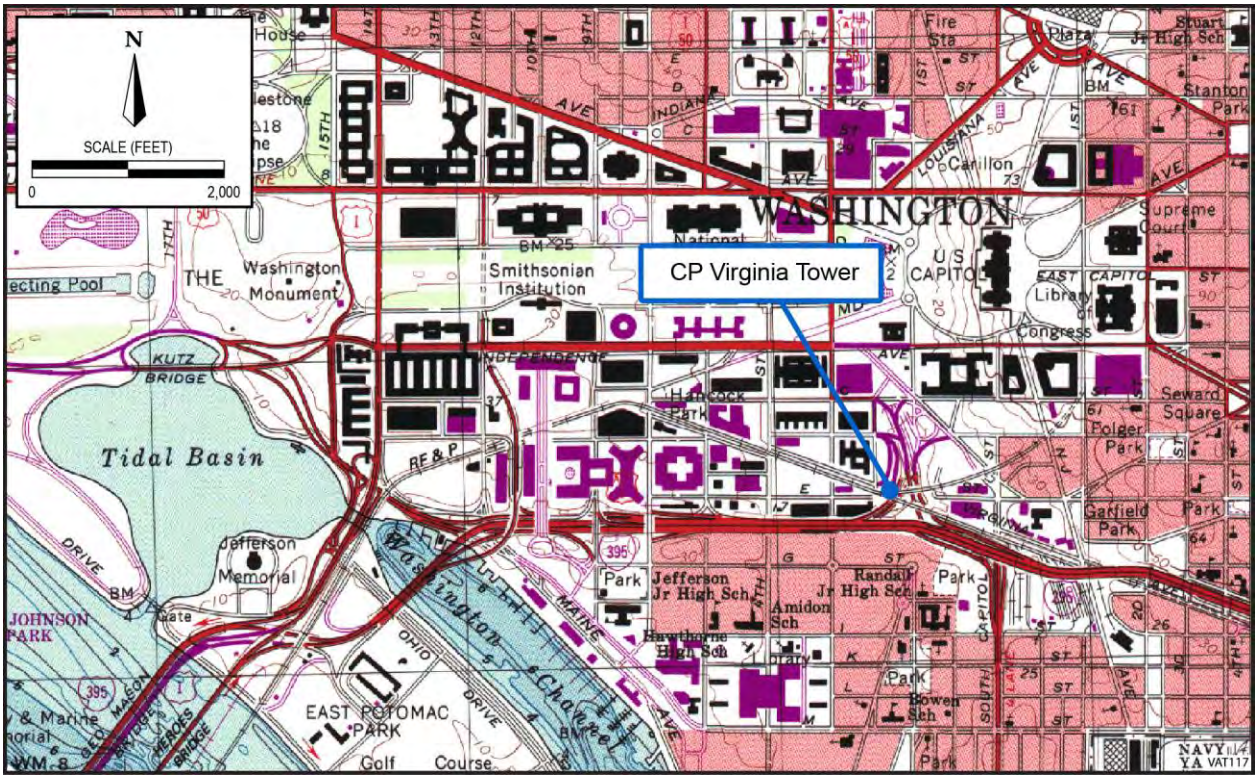


Figure 1. Location of Virginia Interlocking Control Tower, Washington, DC SW.

Figure 2. Steel girder and concrete platform under Control Tower and its exterior basement wall.

Figure 3. Steel staircase attached to steel platform on the East Elevation

The basement exterior consists of concrete topped with common bond red brick (two series of one header row and four stretcher rows) (Figure 2). The water table (separation between the first floor and the basement) consists of two rows of red concave plinth brick (Figure 4). The first floor exterior consists of red brick laid in common bond. Recessed header rows provide ornamentation to the lower story. A flared metal or stone band course separates the first and second floors on the south elevation, and a stone band course separates the floors on the east and west elevations (it is not continuous, lacking on the north elevation). The second story exterior is clad in common bond red brick and does not contain recessed headers as found on the first story. The fascia, soffit, and cornice are wrapped metal (Figure 3). The cornice consists of three ribbons separated by relief bands of metal. Metal eaves project slightly from the pyramidal roof, which is composed of asphalt shingles. A chimney with matching brick design is located on the northwest corner of the structure, and a metal downspout and polyvinyl chloride (PVC) pipe extensions are attached on the east side of the chimney.

Figure 4. Water table consisting of two rows of red concave plinth bricks

South Elevation

The south elevation is the primary elevation and faces the rail line (Figure 5). The first floor contains two double-hung windows, approximately 40 inches wide by 84 inches tall, with limestone jack arch, keystone, and sill, located equidistant from the corners of the façade. The two windows are six-over-two and covered with protective expanded metal mesh screens. The second floor is dominated by a four-panel bay window with metal clad lintels, casings, and sills (Figure 6). The four bay windows are double-hung one-over-one with the top sash comprising one-third of the window and the bottom sash consisting of the remaining two-thirds. The windows are approximately 40 inches wide by 84 inches tall and provide views east, south, and west along the rail lines. The bay window has a cementitious soffit with metal clad trim (Figure 7).

Figure 5. West and South Elevations

Figure 6. Bay Window, South Elevation

Figure 7. Bay Window Soffit, South Elevation

East Elevation

The east elevation provides access to and from the courtyard below via a steel frame platform with concrete riser access stairway (Figure 3). The Control Point Virginia Tower access door is located near the northeast corner and is topped by a limestone jack arch and keystone. Plywood covers a rectangular transom area above the door (Figure 8). Two double-hung, one-over-one windows with top sash comprising one-third of the window and the bottom sash consisting of the remaining two-thirds of the window, are located on the second floor. These windows, approximately 40 inches wide by 84 inches tall, are oriented nearer to the south elevation to provide additional sightlines to the east rail line. The windows also have limestone jack arches, keystones, and limestone sills. The windows are covered with protective heavy expanded mesh screens.

Figure 8. East and North Elevations

North Elevation

The north elevation contains one small fixed window with a limestone jack arch, keystone, and sill on the first floor (Figure 8). The window is about 24 inches wide by 24 inches tall and is located higher on the first floor façade (identical to the height of the window on the west elevation) in the second floor stairwell. A brick chimney is located in the northwest corner; its brickwork mimics the patterning on the main building, with a series of common bond brick stretcher courses with recessed header rows on the first floor and the common bond brickwork on the second floor. A metal downspout is attached to the east side of the chimney and empties into PVC pipe just above the water table of red concave plinth brick. The stone band course is discontinuous on the north façade.

West Elevation

The west elevation contains one small fixed window with a limestone jack arch, keystone, and sill on the first floor near the northwest corner (Figure 9). The window is about 24 inches wide by 24 inches tall and is located higher on the first floor façade, providing light to the lavatory inside. Two double-hung one-over-one windows with top sash comprising one-third of the window and bottom sash comprising the remaining two-thirds pierce the second floor. These

windows, approximately 40 inches wide by 84 inches tall, are oriented nearer to the south elevation to provide additional sightlines to the west rail line. The windows have limestone jack arches, keystones, and limestone sills. The windows are covered with protective expanded metal mesh screens.

Figure 9. West Elevation

Interior

Some original interior architectural features are extant, such as:

- the rail lintel above the sliding window in the basement;
- square wood newel post and square spindles on the interior staircase;
- decorative pressed tin ceiling panels; and
- heavy plaster cove molding on the second floor.

The interlocking mechanisms and equipment associated with this structure's function as a control tower for the interlocking have been removed. Historic photographs of the interior indicate that the original interlocking mechanism was pneumatic with a model board and "pistol-grip" switch levers. Based on historic research, most likely in the 1930s, an electric switch machine was installed at the Control Tower. The electric switch machines were much smaller than the pistol grip machines, requiring less space.

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.)

- [X] 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.
- [X] 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

Areas of Significance

(Enter categories from instructions.)
Architecture
Transportation

Period of Significance

1904- 1980s

Significant Dates
1904-1906

Significant Person
(Complete only if Criterion B is marked above.)

Cultural Affiliation

Architect/Builder

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 Virginia Interlocking Control Tower (now the Control Point Virginia Tower) is one of seven interlocking towers constructed in Washington, DC between 1904 and 1906 associated with railroad improvements mandated by Congress and implemented by the Pennsylvania Railroad or its subsidiaries, and the Baltimore & Ohio Railroad. The Control Tower is unique because it is sited 15 feet above ground surface on a steel girder grid to be level with the adjacent elevated railroad tracks built to facilitate grade separation with local streets. The structure originally was a critical element of railroad infrastructure, managing train traffic and switching operations between the First Street rail line (north/south) and the main rail line of the Philadelphia, Baltimore and Washington Railroad (east/west). The control tower represents a very specific vernacular architectural style created for railroad interlocking technology in the early 20th century, and it is one of two interlocking towers still extant in Washington, DC (the other interlocking tower is "K" tower located north of Union Station).

The Virginia Interlocking Tower meets National Register Criteria A and C at the local level of significance with Transportation and Architecture as the Areas of Significance. It is eligible under Criterion A for its associations with the reorganization of the railroad facilities in the nation's capital. The control tower is one of seven interlocking towers constructed in Washington, DC in 1904-1906 and was associated with railroad improvements mandated by Congress and implemented by the Pennsylvania Railroad or its subsidiaries, and the B&O railroad. The structure was originally a critical element of the railroad infrastructure and served to manage train traffic and switching operations between the First Street rail line (north/south) and the main rail line of the Philadelphia, Baltimore and Washington Railroad (east/west). With evolving technology of interlocking control systems (from Armstrong switch machines to pneumatic switch control to CTC to SSI), the Virginia Interlocking Control Tower eventually was no longer manned, and all manual interlocking systems within the tower were removed. At that point, the tower was renamed the Control Point Virginia Tower. It is currently used by railroad security and for storage. Even though the tower no longer functions as a manned mechanized

interlocking control tower, it still represents a critical element of railroad infrastructure associated with early 20th century railroad improvements in Washington, DC.

The control tower a two–story, late Victorian-era, red brick, railroad interlocking control tower, meets Criterion C as it embodies the distinctive characteristics of a type and period of construction – railroad tower construction of the 1900s to late 1930s. The structure represents a vernacular architectural style created for railroad interlocking technology in the early 20th century and is one of two interlocking towers still extant in Washington, DC. Based on a general pattern of interlocking tower construction[1], the interlocking tower is characterized by architectural elements representative of the second period of Pennsylvania Railroad tower construction (1900-late 1930s). The structure is square and made of brick with steel and concrete framing. It also has a projecting second floor trackside bay window, and an internal stairway and toilet room. The Virginia Interlocking Tower is a rare local example of a now-obsolete building type.

The two–story, late Victorian-era structure retains its integrity of location, design, setting, materials, and workmanship. Although technological advances in railroad interlocking have rendered the tower obsolete, its location alongside the tracks offers a palpable sense of its former use and necessity, and thus the building retains integrity of feeling and association.

The Period of Significance extends from 1904 until the early 1980s when control towers were replaced by electronic interlocking systems that no longer require controllers to man the towers.

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

TRANSPORTATION: Railroad History

In 1853, a group of southern Maryland plantation owners and merchants proposed a rail line to provide a reliable transportation system for moving local produce and passengers from just north of Baltimore to a southern water navigation outlet at the Potomac River in Washington, DC.[2] Even though the Baltimore and Potomac Railroad was chartered in 1853, due to lack of financial support, surveys for the proposed rail corridor were not conducted until 1859.[3] The Baltimore and Potomac Railroad was originally intended to extend from Baltimore to tobacco country in Maryland's lower Western Shore (Popes Creek, Maryland on the lower Potomac); however, a clause in the incorporation papers permitted unspecified branches up to 20 miles long elsewhere.

[1] Ibid
[2] Burgess, George and Miles Kennedy 1949, *Centennial History of the Pennsylvania Railroad Company, 1846-1946*, Prepared by the Pennsylvania Railroad Co, Philadelphia; Roberts, Charles S. and David W. Messer 2003, *Triumph VI, Philadelphia, Columbia, Harrisburg to Baltimore and Washington, DC, 1827-2003*. Barnard, Roberts and Co., Inc. Baltimore, Maryland. PP 329-371; Schotter, H.W. 1927, *The Growth and Development of the Pennsylvania Railroad Company: A Review of the Charter and Annual Reports of the Pennsylvania Railroad Company 1846 to 1926*, Inclusive. Allen, Lane & Scott, Philadelphia, Pennsylvania.
[3] Burgess and Kennedy 1949: 274.

This clause endowed the power that would later provide the means of building a line between Baltimore and Washington, DC, which the Maryland Legislature would not have sanctioned.[4]

Grading for the main line (Baltimore to Popes Creek) was completed in 1868 and the line was operational by 1873.[5] In 1867, the Pennsylvania Railroad purchased the Baltimore and Potomac Railroad and that same year, the U.S. Congress authorized construction of the 'branch' from Bowie, Maryland to the Potomac River.[6] The branch line was graded in 1869.[7] On June 21, 1870, an act of Congress authorized the Baltimore and Potomac Railroad to enter Washington, DC through a bridge across the Anacostia River and a tunnel under Virginia Avenue, SE to connect with the railroads in Virginia across 'Long Bridge.'[8] The tunnel under Virginia Avenue SE, between 7th Street SE and 11th Street SE, was designed to provide unfettered street access to the entrance to the Washington Navy Yard. This act also granted perpetual use of the bridge free of cost, provided that the Baltimore and Potomac Railroad maintain it for ordinary traffic and permit other railroads to use it. This grant ended the exclusive rights of the Baltimore and Ohio (B&O) Railroad to use Long Bridge.[9] In 1872, Congress authorized the Baltimore and Potomac Railroad to construct a passenger station at 6th and B Streets NW in Washington, DC[10] and opened to regular passenger service on July 2, 1872.[11]

Grade Crossings

Grade crossings had been a safety concern in Washington, DC with the rail lines of the B&O Railroad long before the Pennsylvania Railroad established the Baltimore and Potomac Railroad in 1872. Measures to limit danger to the general population from potential collisions were established by the DC government in coordination with the two railroads. Such measures consisted of:

- fencing tracks near busy intersections, such as along Virginia Avenue and North Capitol Street;enforcing a lower speed limit through the city (6 mph after 1871);
- constructing two bridges to carry rail lines above the streets;
- stopping trains and ringing their bells before intersections with street car tracks (enforced through a 1894 law and 1895 regulation), and;
- installing manually operated gates at the majority of the fifty-two grade crossings by the 1890s.[12]

[4] Baer, Christopher T. 2004, *PRR Chronology, 1934,* Pennsylvania Technical and Historical Society. Available on line at: http://www.prrths.com/Hagley/PRR1934%20Aug%2004.wd.pdf. Accessed February 2, 2011.
[5] Burgess and Kennedy 1949: 276.
[6] Schotter 1927:86.
[7] Burgess and Kennedy 1949
[8] Ibid: 276
[9] Ibid
[10] Schotter 1927:87
[11] Baer, Christopher T. 2005a, *PRR Chronology, 187,* Pennsylvania Technical and Historical Society. Available on line at: http://prrths.com/Hagley/PRR1872%20Feb%2005.pdf. Accessed February 2, 2011; Roberts and Messer 2003; Schotter 1927:103
[12] Wright, William 2006**,** *History of Union Station*. Available on line at: http://www.washingtonunionstation.com/history.html#1. Accessed on January 23, 2015.

Unfortunately, these measures were not entirely effective. Throughout the 1890s, an average of three grade crossing deaths occurred annually in the city and a serious accident happened about every three weeks.[13]

Grade crossings also resulted in transportation delays for pedestrians, carriage riders, and trolley passengers. The railroads' needs for new stations became connected with the population's desire to end grade crossings as both construction activities could be undertaken simultaneously.[14] A "union" station was proposed to connect both the B&O Railroad and the Pennsylvania Railroad facilities at one location. With the passage of the Union Station Act in 1902, a series of improvements were designed and constructed by the B&O Railroad and the Pennsylvania Railroad. Facilities, such as the viaduct; the Capitol Hill Tunnel (First Street Tunnel); rail yards north of Florida Avenue; an express building for small freight, milk, and mail; and a powerhouse, were developed jointly. The B&O Railroad created new freight yards, coal yards, and grade separated rights-of-way for two of their branches. The Pennsylvania Railroad replaced Long Bridge, excavated a longer tunnel along Virginia Avenue SE, developed six miles of new rights-of-way through Northeast, and eliminated grade crossings.[15] Cut-stone retaining walls were constructed at numerous locations along the main rail line of the Philadelphia, Baltimore, and Washington Railroad to facilitate grade separation with local streets.

In 1902, the Pennsylvania Railroad consolidated the Baltimore and Potomac and the Philadelphia, Wilmington, and Baltimore railroads forming a new company - the Philadelphia, Baltimore and Washington Railroad; almost all of the capital stock was owned by the Pennsylvania Railroad.[16]

In 1903, the District granted a permit to the Philadelphia, Baltimore, and Washington Railroad to construct a twin tunnel from the intersection of Massachusetts Avenue and First Street, under Capitol Hill, to New Jersey Avenue and D Street, SE.[17] Construction of the First Street tunnel was underway in 1904 and completed in 1906. This work also included the construction of the Virginia Interlocking Tower which served to manage train traffic and switching operations between the First Street rail line (north/south) and the main rail line of the Philadelphia, Baltimore and Washington Railroad (east/west).

Interlockings

Interlockings were constructed by railroads at:

- grade crossings with other rail lines;

[13] Ibid
[14] Ibid: 43
[15] Ibid:110
[16] Baer, Christopher 2005b, *PRR Chronology, 1902*, Pennsylvania Technical and Historical Society. Available on line at: http://www.prrths.com/Hagley/PRR1902%20Mar%2005.pdf. Accessed February 8, 2011; Burgess and Kennedy 1949:498; Roberts and Messer 2003: 43: Schotter 1927: 279
[17] The New York Times 1903, Tunnel under the Capitol: Permit Granted in Washington to the Pennsylvania Railroad, but it must use Electric Power. Published September 10, 1903. Available on line at: http://query.nytimes.com/mem/archive-free/pdf?_r=1&res=9404EFD61339E333A25753C1A96F9C946297D6CF&oref=slogin Accessed on January 23, 2015.

- locations where trains would cross over from one track to another (and potentially occupy a section of track normally traveled by trains approaching in the opposite direction);
- locations where major branch lines and heavily-used sidings join the main line; and
- lift bridges.

Interlocking towers housed an interlocking machine that would align switches and signals through a series of trackside pipes. The operator or leverman would manually manipulate the various levers to realign the tracks and shift trains to the appropriate tracks to avoid conflicting routes and prevent accidents.[18]

The interlocking machine would be installed trackside, then the frame of the tower would be constructed around it. Interlocking towers were built as two-story structures because of the size and complexity of the interlocking machine and the need for visual observation by the operator. The inner workings of the machine were located on the first floor, while the operator and levers were located on the second floor.[19]

Interlocking control technology began to emerge in the 1860s on England's rail lines with the development of John Saxby's interlocking machine which combined signal and track switch control.[20] The first switch machines were mechanical and consisted of heavy-duty metal frames fastened to the second floor framing and structural elements of the tower. They contained a series of long metal levers, each controlling an individual track switch or a semaphore signal. The levers were attached to a long metal rod that dropped into the basement of the tower. Each rod took a series of 90-degree turns to exit the building trackside at grade, travel to the switch or signal it controlled, and finally to attach to the device (either horizontally for a track switch or vertically for a semaphore signal). Rods were typically ganged together and generally were supported on rollers set just above the grade. It took a strong-armed operator to be able to successfully move the switch lever - hence the term "Armstrong," which became an industry moniker.[21]

One of the first refinements in switch and signal control was the use of pneumatic operation. Compressed air was placed into hollow metal pipes, which operated the switch points and semaphores instead of the mechanical action of solid metal rods. Towers were outfitted with air compressors (usually two), air storage tanks, and compressed air drying pipes (usually located on the building exterior, attached to an exterior wall). Initially, Armstrong switch machines were simply adapted to accommodate pneumatic switches. Later, they were modified to contain a relay contact to operate a valve at the switch points or at the semaphore. This allowed a blast of high-pressure compressed air in the pipe to move the track or the signal arm accordingly. While

[18] Hoosier Valley Railroad Museum, Inc. 2010, R*ebuild Grasselli Tower: A Preservation Effort of the Hoosier Valley Railroad Museum*. Available on line at: http://www.grassellitower.com/towers.htm. Accessed 12/9/14.
[19] Ibid
[20] John Bowie Associates 2011, *Interlocking Towers on Amtrak's Right-of-Way in Pennsylvania: A Historic Architectural and Industrial Examination and Determination of Eligibility for Listing into the National Register of Historic Places of 19 Extant Towers along the former Pennsylvania Railroad between Morrisville and Marcus Hook (the Northeast Corridor) and between Philadelphia and Harrisburg (the Keystone Corridor)*. Prepared for the National Railroad Passenger Corporation (Amtrak), Philadelphia, Pennsylvania. Prepared by John Bowie Associates, Wallingford, Pennsylvania.
[21] Ibid

these new mechanisms required less brute force to operate, they retained the fundamental logic of the earlier switch machines - the lever to activate the track switch would not move until the appropriate levers for all affected signals and other switches were properly aligned in the locking bed.[22] The installation of the relays (to connect the mechanical operation of the switch machine and pneumatic compressed air operation of the various pipelines necessitated racks of shelves being placed on the first floors of each tower (beneath the switch machines, after the heavy-duty metal rods were removed). Basements (or sometimes separate outbuildings) were modified to contain air compressors and air gauges.

Another development at this time was the model board. Electrical contacts placed onto the levers in the switch machines were wired to lights placed onto overhead display boards that visually modeled the position and movement of the tracks. The model boards were usually hung from the ceiling directly above the switch machine; they were typically constructed of sheet metal and painted black with a white schematic track diagram depicting the trackage in the interlocking. Different colored lights were placed at the locations of the numbered track switches and signals, so that the operator could observe, at a glance, the position of everything within the interlocking in advance of the oncoming train's arrival. The most significant development arising from pneumatic switch control was the development of "pistol-grip" switch levers and the eventual obsolescence of the Armstrong lever. Because the control of the switches and signals were now accomplished with air and relays instead of rigid rods, levers to physically move them were no longer needed.[23] After the turn of the century, electrical contacts were integrated into the switch machine logic and placed on switch points to provide a closed circuit connection to relays located in the tower.[24]

By the 1930s, railroads began using electric controls, which provided the same prioritized sequence of checks executed by the locking beds, except with a series of relays. Relays controlled each individual track switch and signal, and they were wired to prevent any track switch from operating without all appropriate signals and related track switches being in proper alignment. Electric switch machines, sometimes called "centralized traffic control" (or CTC) machines, were dramatically smaller in size than pistol grip machines with large locking beds. The CTC machine was small enough that it could fit onto an operator's desk. It contained compact-sized switch levers and a schematic track plan stenciled onto its face. Because it was electrically-controlled, it no longer needed the bulky locking bed and ornamental wood cabinet that typically occupied so much room in the tower. Electric switch machine control also necessitated the use of large numbers of relays to control the interlockings. Consequently, first floor spaces in many towers were packed tightly with relay shelves (or racks), and often there was barely enough room for the track and signal crews to circulate throughout the rooms. Even though the model board was no longer needed, it was often adapted to graphically depict the switch settings of the CTC machine (usually for the visual benefit of the operator or the dispatcher).[25]

[22] Ibid
[23] Ibid
[24] Ibid
[25] Ibid

By the 1980s, interlockings were controlled electronically (also called solid-state interlocking - or SSI) using a system of custom-designed software to replace the relays altogether.[26] The principal advantage of SSI is that interlockings could be controlled from remote locations. Operators were no longer required to be physically located at the interlocking, and numerous interlockings could be controlled from one central remote location.[27]

ARCHITECTIRE: Interlocking Towers in Washington, DC

Seven interlocking towers were constructed in Washington, DC at the turn of the century: "A", "C", "F", "K", "QN", Anacostia, and Virginia towers. "A" tower was built below Massachusetts Avenue, where the tracks serving the lower level platforms of Union Station fed into the First Street Tunnel. "C" tower sat near New York Avenue, at the point where both branches of the B&O Railroad, the Pennsylvania Railroad main line, and the leads from the rail yards came together. "F" tower was located east of where the Pennsylvania Railroad main line and Capital Subdivision lines met. "K" tower, located just south of the street from which it took its name, stood at the "throat" or point where the eight tracks leading into the Union Station terminal widened into the approaches to the gates.[28] "QN" tower was located just north of where the B&O main line and the Metropolitan Sub-Division lines met. Anacostia Tower, located on the east side of the Anacostia River, controlled the merging of several rail lines before crossing over the swing bridge to M Street SE. Virginia Tower managed train traffic and provided switching operations between the First Street rail line and the main rail line of the Philadelphia, Baltimore, and Washington Railroad (part of the Pennsylvania Railroad). Only "K" and Virginia towers are extant; the other five interlocking towers have been demolished.

Tower Architecture

Based on a small study of nineteen Pennsylvania Railroad interlocking towers in Pennsylvania[29], three general periods of tower architecture were defined: 1870s-1900, 1900-late 1930s, and late-1930s-1940s. The first period of tower design (1870s-1900) was characterized by vernacular architectural forms with massing and detailing of the Victorian, Queen Anne, and other eclectic architectural styles. The towers were mostly two stories, set on brick or stone foundations, and constructed of brick or wood. Some towers contained projecting bay windows facing trackside. The roofs were typically hipped in shape with a center cupola. Most towers from this period had exterior stairways.[30]

The second period of tower design (1900-late 1930s) represents a shift from the wood framing and wood cladding techniques of the Revival era to more substantial, completely fireproof construction. Steel, concrete and concrete-clad steel framing was combined with solid masonry walls (either brick, concrete or terra-cotta with or without stucco finishes), and slate or tile roofs. The Pennsylvania Railroad towers in the early years of this second period were still built from individual rather than standardized designs. In the later second period, another distinct

[26] Ibid
[27] Ibid
[28] Wright 2006
[29] John Bowie Associates 2011
[30] Ibid

characteristic was use of a more conservative and less-ornamented design - constructed completely of masonry (concrete or brick foundations/first floors) and brick second floors. Like many built earlier in this period, these towers were two stories in height, square or rectangular in plan, constructed with steel and concrete framing, and containing internal stairways and second floor toilet rooms. Each tower also had a projecting second floor trackside bay window.[31]

The third period of tower design (late 1930s-1940s) was more consistent in character. Towers were generally two-stories in height and constructed with steel and concrete framing systems and load-bearing brick exterior walls. They all contained broad, overhanging hipped roofs with fireproof slate, tile or standing seam metal coverings. The projecting second floor bay windows were eliminated entirely. In place of the bay window, designers substituted corner-window configurations on the second floor. These towers continued to use electro-pneumatic switch machines until the interlocking technology evolved, allowing them to be replaced by all- electric CTC machines.[32]

INTEGRITY

The Virginia Interlocking Control Tower retains its integrity of location (located at the southeast corner of 2nd Street SW and Virginia Avenue SW), design (two-story square tower with track visibility from eight windows on the second floor), setting (located at the still active rail interlocking west of the First Street tunnel), materials (original steel girders, original brick, original stone lintels and sills), and workmanship (recessed brick header rows on the first floor and common bond brick rows on the second floor with no recessed rows).

Although technological advances in railroad interlocking have rendered the tower obsolete, its location alongside the tracks offers a palpable sense of its former use and necessity, and thus the building retains integrity of feeling and association.

[31] Ibid
[32] Ibid

9. Major Bibliographical References

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

Baer, Christopher T.
2004 PRR Chronology, 1934. Pennsylvania Technical and Historical Society. Available on line at: http://www.prrths.com/Hagley/PRR1934%20Aug%2004.wd.pdf. Accessed February 2, 2011.

2005a PRR Chronology, 1872. Pennsylvania Technical and Historical Society. Available on line at: http://prrths.com/Hagley/PRR1872%20Feb%2005.pdf. Accessed February 2, 2011.

2005b PRR Chronology, 1902. Pennsylvania Technical and Historical Society. Available on line at: http://www.prrths.com/Hagley/PRR1902%20Mar%2005.pdf. Accessed February 8, 2011.

Burgess, George and Miles Kennedy
1949 Centennial History of the Pennsylvania Railroad Company, 1846-1946. Prepared by the Pennsylvania Railroad Co, Philadelphia.

Hoosier Valley Railroad Museum, Inc.
2010 *Rebuild Grasselli Tower: A Preservation Effort of the Hoosier Valley Railroad Museum*. Available on line at: http://www.grassellitower.com/towers.htm. Accessed December 9, 2014.

John Bowie Associates
2011 Interlocking Towers on Amtrak's Right-of-Way in Pennsylvania: A Historic Architectural and Industrial Examination and Determination of Eligibility for Listing into the National Register of Historic Places of 19 Extant Towers along the former Pennsylvania Railroad between Morrisville and Marcus Hook (the Northeast Corridor) and between Philadelphia and Harrisburg (the Keystone Corridor). Prepared for the National Railroad Passenger Corporation (Amtrak), Philadelphia, Pennsylvania. Prepared by John Bowie Associates, Wallingford, Pennsylvania.

Roberts, Charles S. and David W. Messer
2003 Triumph VI, Philadelphia, Columbia, Harrisburg to Baltimore and Washington, DC, 1827-2003. Barnard, Roberts and Co., Inc. Baltimore, Maryland. PP 329-371.

Schotter, H.W.
1927 The Growth and Development of the Pennsylvania Railroad Company: A Review of the Charter and Annual Reports of the Pennsylvania Railroad Company 1846 to 1926, Inclusive. Allen, Lane & Scott, Philadelphia, Pennsylvania.

The New York Times
1903 Tunnel under the Capitol: Permit Granted in Washington to the Pennsylvania Railroad, but it must use Electric Power. Published September 10, 1903. Available on line at: http://query.nytimes.com/mem/archive-free/pdf?_r=1&res=9404EFD61339E333A25753C1A96F9C946297D6CF&oref=slogin Accessed January 23, 2015.

Wright, William
2006 *History of Union Station*. Available on line at: http://www.washingtonunionstation.com/history.html#1. Accessed January 23, 2015.

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
____ 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: _____

Historic Resources Survey Number (if assigned): _____

---

10. Geographical Data

Acreage of Property ____0.014 (611.7 square feet)_____

Use either the UTM system or latitude/longitude coordinates

Latitude/Longitude Coordinates (decimal degrees)
Datum if other than WGS84:_____
(enter coordinates to 6 decimal places)
1. Latitude: 38°53'00.77"N Longitude: 77°00'48.65"W

Or
UTM References
Datum (indicated on USGS map):

☐ NAD 1927 or ☐ NAD 1983

1. Zone: Easting: Northing:

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

The boundaries of the Virginia Interlocking Control Tower are defined as the inside face of the stone retaining wall on the west and north faces, the east edge of the steel grate platform to the metal hand rail trackside on the south face, and the inside face of the stone retaining wall to the metal hand rail trackside on the southwest corner.

Boundary Justification (Explain why the boundaries were selected.)

The Virginia Interlocking Control Tower is located within and 15 feet above the historically defined Virginia Avenue SW right-of-way as shown on record plats located at the District of Columbia Surveyor's Office. The structure, like much of the other CSX infrastructure within the city, is located on or above land designated through grants or Acts of Congress dating to 1903, and fee simple property boundaries or discrete parcel subdivisions do not exist in real property records.

The area directly beneath the control tower is owned by the District of Columbia Department of Transportation (DDOT) as the right-of-way from Virginia Avenue SW but controlled by CSX. Areas adjacent to Control Point Virginia Tower are owned or controlled by the DDOT rights-of-way for 2nd Street SW, E Street SW, and I-395 2nd Street off-ramp); CSX Transportation, Inc. (Square 583-N Lot 801 and Square 582, Lot 856 originally assigned to the Philadelphia, Baltimore and Washington Railroad Company); and the Federal Government (Square 582 Lot 49 [parking lot] and Square 581 Lot 844 [commercial office building]).

The boundary includes the footprint of the structure itself (approximately 16 feet 6 inches by 18 feet 6 inches); the steel grate platforms on the east and south sides of the tower that serve

as the access catwalk to the entry door; and the platform that protected the historic interlocking cables running between the tower and the rail connections on the main line to the south.

The metes and bounds are as follows:

Commencing at a point at the intersection of the easterly line of 2nd Street SW and the northerly line of Virginia Avenue SW being the southwest corner of the original Square 582, and crossing through Virginia Avenue SW the following two courses and distances: south, a distance of 19.04 feet to a point and east, a distance of 2.16 feet to the point of beginning.

1. South 70° 18' 20" East, parallel with said north line of Virginia Avenue, a distance of 23.0 feet to a point;

2. South 19° 41' 40" West, perpendicular with said north line of Virginia Avenue, a distance of 25.0 feet to the point on the northerly edge of an existing railroad bridge;

3. North 77° 44' 13" West, along said northerly edge of railroad bridge, a distance of 23.19 feet to a point;

4. North 19° 41" 40" East, perpendicular with said north line of Virginia Avenue, a distance of 28.0 feet to the point of beginning.

11. Form Prepared By

Name/Title: Susan L. Bupp, Senior Cultural Resources Specialist; Seth Wilcher, Architectural Historian; Rachael Mangum, Cultural Resources Specialist
Organization: Parsons
Street & Number: 100 M Street SE
City or Town: Washington State: DC Zip Code: 20003
E-mail: susan.bupp@parsons.com
Telephone: 202-775-3480
Date: April 25, 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 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: Virginia Interlocking Control Tower
City or Vicinity: Washington (Southwest)
County: N/A State: District of Columbia

Photographer: Rachael Mangum
Date Photographed: September 12, 2013

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

Steel girder and concrete platform under the Tower and exterior wall of basement, looking west.
1 of 8

Steel frame staircase with concrete treads attached to steel platform on the East Elevation looking west.
2 of 8

Photographer: Susan Bupp
Date Photographed: December 18, 2014

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

Water table consisting of two rows of red concave plinth bricks, looking north.
3 of 8

Photographer: Phil Sheridan
Date Photographed: December 11, 2014

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

West and South Elevations, looking northeast.
4 of 8

Photographer: Susan Bupp
Date Photographed: December 18, 2014

Description of Photograph(s) and number, include description of view indicating direction of camera: Bay Window, South Elevation, looking north.
5 of 8

Photographer: Rachael Mangum
Date Photographed: September 12, 2013

Description of Photograph(s) and number, include description of view indicating direction of camera: Bay Window Soffit, South Elevation, looking west.
6 of 8

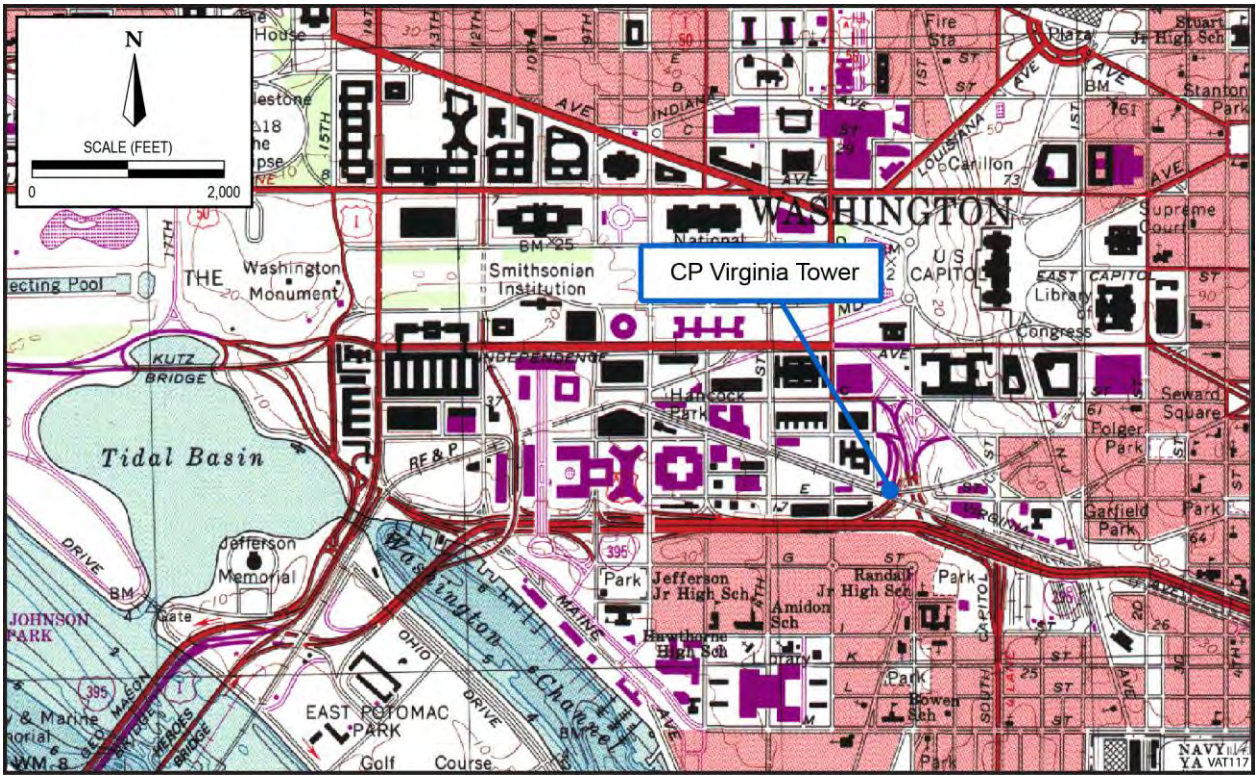
Photographer: Rachael Mangum
Date Photographed: September 12, 2013

Description of Photograph(s) and number, include description of view indicating direction of camera: East and North Elevations, looking southwest.
7 of 8

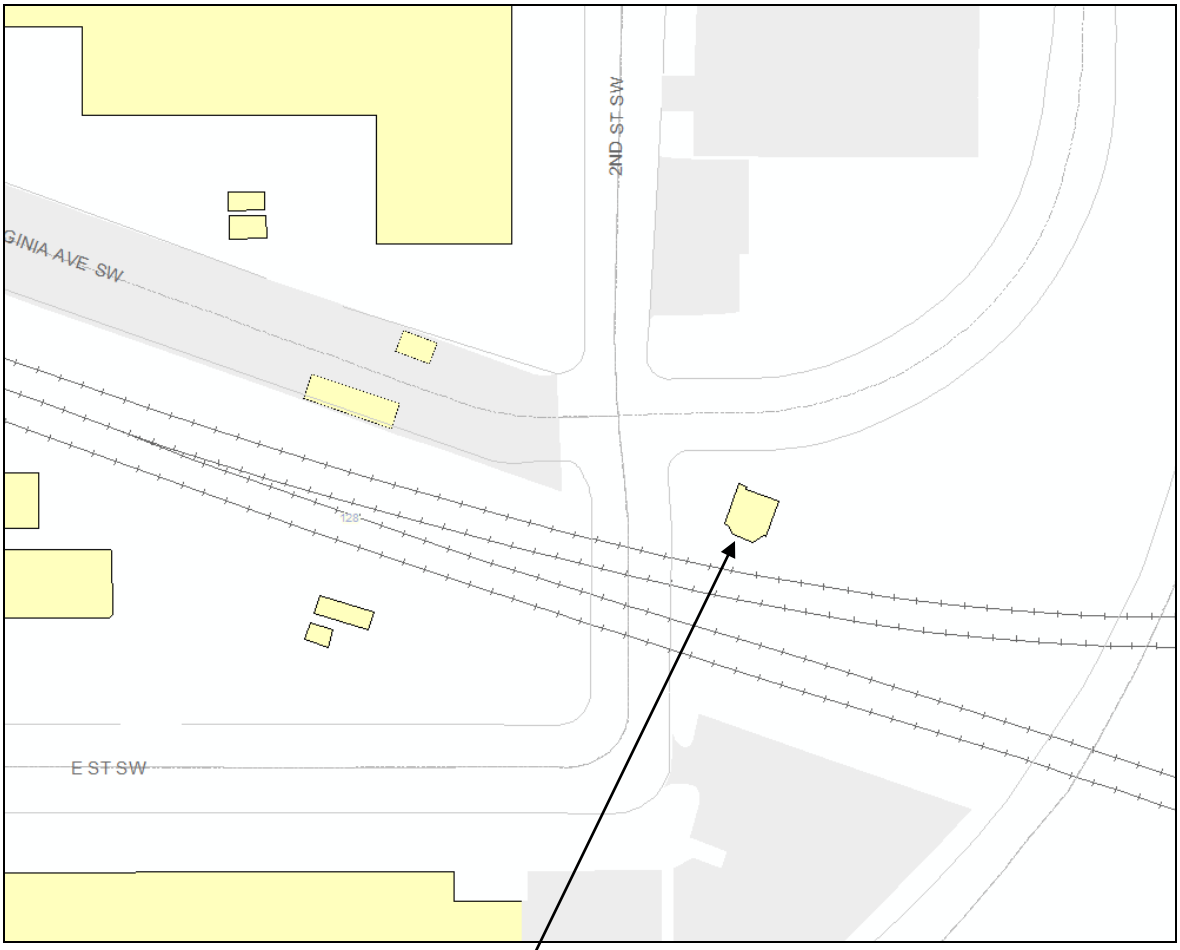
Photographer: Susan Bupp
Date Photographed: December 18, 2014

Description of Photograph(s) and number, include description of view indicating direction of camera: West Elevation, looking east.
8 of 8

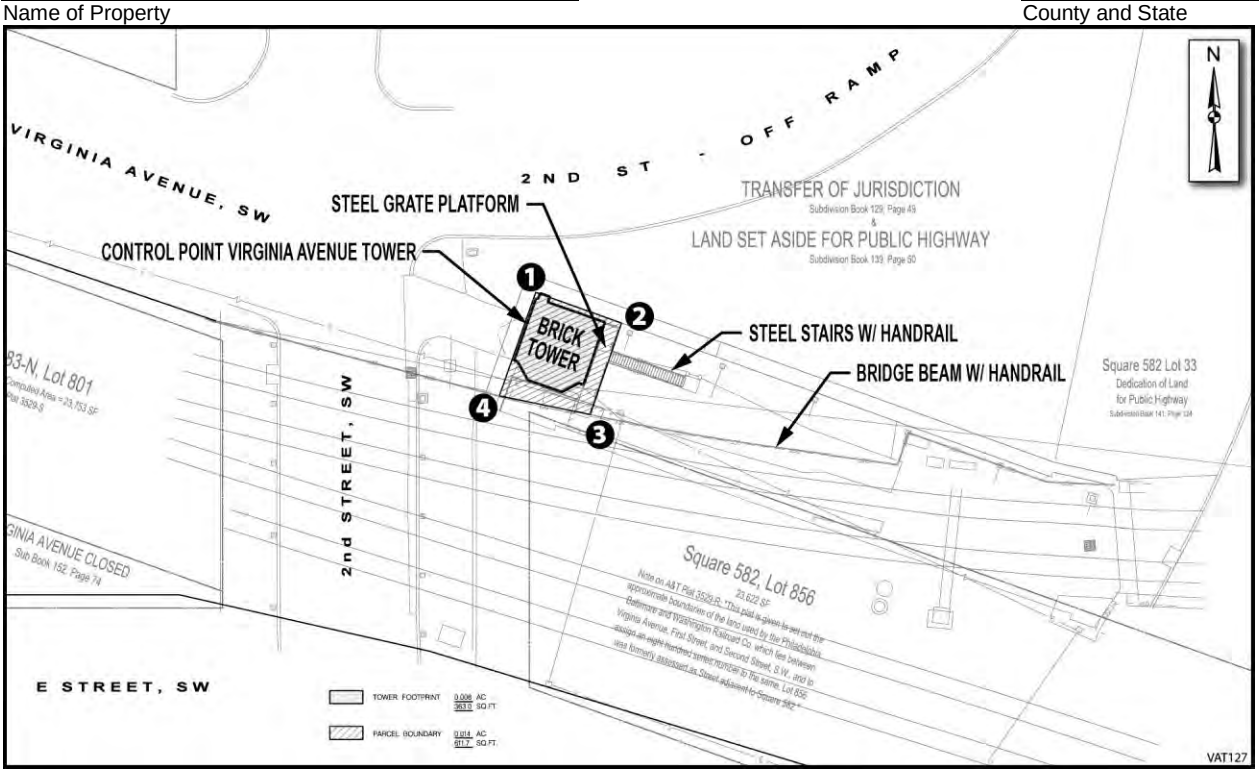
Virginia Interlocking Control Tower | Washington, D.C.
Name of Property | County and State



Site Map showing location of the Virginia Interlocking Control Tower, Washington, DC SW (USGS 7.5" Quad Washington West, DC-MD-VA 2014)



Site Map showing Virginia Control Point Virginia Tower
(D.C. Office of Planning, GIS map, 2016)



Map showing National Register Boundaries of the Virginia Interlocking Control Tower (611.7 sq. ft.) and Structure Footprint (363.0 sq. ft.), Washington, DC SW

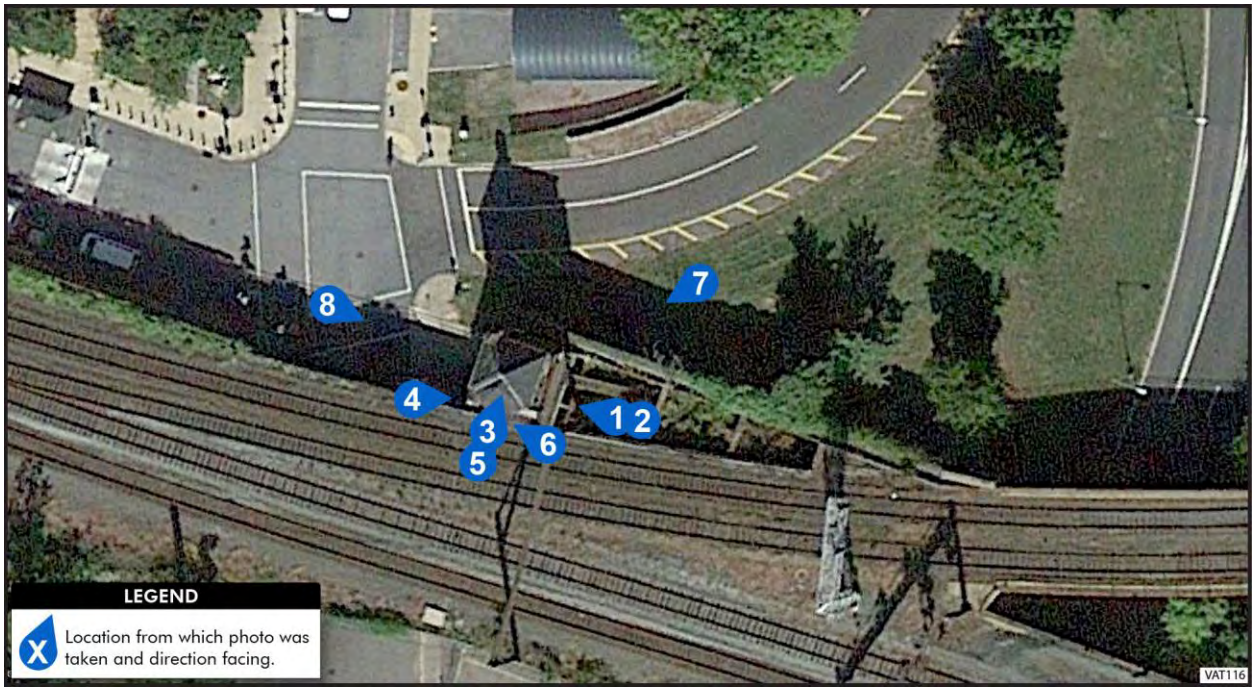
Boundary Points:

1. South 70° 18’ 20” East, parallel with said north line of Virginia Avenue, a distance of 23.0 feet to a point;

2. South 19° 41’ 40” West, perpendicular with said north line of Virginia Avenue, a distance of 25.0 feet to the point on the northerly edge of an existing railroad bridge;

3. North 77° 44’ 13” West, along said northerly edge of railroad bridge, a distance of 23.19 feet to a point;

4. North 19° 41” 40” East, perpendicular with said north line of Virginia Avenue, a distance of 28.0 feet to the point of beginning.



Photograph Location Key for Virginia Interlocking Control Tower.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

Requested Action: Nomination

Property Name: Virginia Interlocking Control Tower

Multiple Name:

State & County: DISTRICT OF COLUMBIA, District of Columbia

Date Received:	Date of Pending List:	Date of 16th Day:	Date of 45th Day:	Date of Weekly List:
2/24/2017			4/10/2017	

Reference number: SG100000846

Nominator: State

Reason For Review:

__ Appeal	__ PDIL	X Text/Data Issue
__ SHPO Request	__ Landscape	__ Photo
__ Waiver	__ National	__ Map/Boundary
__ Resubmission	__ Mobile Resource	__ Period
__ Other	__ TCP	X Less than 50 years
	__ CLG	

__X__ Accept _____ Return _____ Reject __4/10/2017__ Date

Abstract/Summary Comments:

Recommendation/ Criteria: Accept, National Register Criteria A and C

Reviewer: Patrick Andrus Patrick Andrus Discipline: Historian

Telephone: (202)354-2218 Date: 4/10/2017

DOCUMENTATION: see attached comments : No see attached SLR : No

If a nomination is returned to the nomination authority, the nomination is no longer under consideration by the National Park Service.

GOVERNMENT OF THE DISTRICT OF COLUMBIA
HISTORIC PRESERVATION OFFICE

MEMO

DATE: February 24, 2017

TO: Patrick Andrus

FROM: Kim Williams

RE: Transmittal Letter for the Virginia Interlocking Control Tower

Please find enclosed two disks for the Virginia Interlocking Control Tower National Register nomination

The enclosed disk, Disk 1 (of 2) contains the true and correct copy of the nomination for the Virginia Interlocking Control Tower and the enclosed Disk 2 (of 2) contains photographs as per the NR photo requirements of the tower.

D.C. Office of Planning, 1100 4th Street SW, Suite 650, Washington, D.C. 20024 (202) 442-8800 fax (202) 442-7638

GOVERNMENT OF THE DISTRICT OF COLUMBIA
HISTORIC PRESERVATION OFFICE

MEMO

DATE: March 3, 2017

TO: Patrick Andrus

FROM: Kim Williams

RE: Revised disks for Holzbeierlein Bakery and Virginia Interlocking Control Tower

Please find enclosed two replacement disks for the Holzbeierlein Bakery National Register nomination and the Virginia Interlocking Control Tower, previously submitted on February 24, 2017. The previously submitted disks contained the files as Word documents. These revised disks (1 of 2) contain the true and correct copies of the nominations in pdf format. The previously submitted disks (2 of 2) for both nominations remain valid.