

Washington Monument
Located on high ground west of 15th Street
between Independence and Constitution
Avenues, NW
Washington
District of Columbia

HABS No. DC-428

HABS
DC,
WASH,
2-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Buildings Survey
National Park Service
Department of the Interior
Washington, D.C. 20240

AMERICAN
HABS

ARCHITECTURAL DATA FORM

STATE District of Columbia		COUNTY	TOWN OR VICINITY Washington
HISTORIC NAME OF STRUCTURE (INCLUDE SOURCE FOR NAME) Washington Monument			HABS NO. DC-428
SECONDARY OR COMMON NAMES OF STRUCTURE			
COMPLETE ADDRESS (DESCRIBE LOCATION FOR RURAL SITES) Located on high ground west of 15th Street between Independence and Constitution Aves., NW			
DATE OF CONSTRUCTION (INCLUDE SOURCE) 1848-1884		ARCHITECT(S) (INCLUDE SOURCE) Original design: Robert Mills Design altered by: George Perkins Marsh	
SIGNIFICANCE (ARCHITECTURAL AND HISTORICAL, INCLUDE ORIGINAL USE OF STRUCTURE) Landmark monument, dedicated to the memory of George Washington, it serves as a centerpiece in the grand vista connecting the Capitol to the Lincoln Memorial. Designed by the noted architect, Robert Mills.			
STYLE (IF APPROPRIATE)			
MATERIAL OF CONSTRUCTION (INCLUDE STRUCTURAL SYSTEMS) Maryland marble with granite backing			
SHAPE AND DIMENSIONS OF STRUCTURE (SKETCHED FLOOR PLANS ON SEPARATE PAGES ARE ACCEPTABLE) 555'-tall four sided obelisk topped by pyramidion with observation windows; 55' square at base			
EXTERIOR FEATURES OF NOTE			
INTERIOR FEATURES OF NOTE (DESCRIBE FLOOR PLANS, IF NOT SKETCHED) Open central shaft contains cast-iron stairway and passenger elevator			
MAJOR ALTERATIONS AND ADDITIONS WITH DATES Construction begun 1848 but virtually halted in 1855 when the Washington National Monument Society was taken over by the Know-Nothing political party. Work resumed under the Army Corps of Engineers in 1879. Shaft completed 1884. Elevators installed 1886 & 1901.			
PRESENT CONDITION AND USE Condition excellent; open to the public; administered by the National Park Service			
OTHER INFORMATION AS APPROPRIATE			
SOURCES OF INFORMATION (INCLUDING LISTING ON NATIONAL REGISTER, STATE REGISTERS, ETC.) Schwartz, Nancy B. <u>Historic American Buildings Survey District of Columbia Catalog, 1974.</u>			
COMPILER, AFFILIATION Druscilla J. Null, HABS			DATE 8/2/83

ADDENDUM TO
WASHINGTON MONUMENT
Reservation No. 2
Washington
District of Columbia

HABS No. DC-428

HABS
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WASH,
2-

PHOTOGRAPHS

REDUCED COPIES OF MEASURED DRAWINGS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY
National Park Service
800 N. Capitol Street, N.W. Suite 300
Washington, D.C. 20001

HISTORIC AMERICAN BUILDINGS SURVEY

WASHINGTON MONUMENT

Addendum To: HABS No. DC-428

HABS
DC,
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2 -
(p. 2)

Location: The Mall, on a lot bordered by Constitution Avenue to the north, the Tidal Basin to the south, Fourteenth and Fifteenth Street to the east, and Seventeenth Street to the west, Washington, D.C.

Present Owner: U.S. Government.

Present Use: Public monument.

Significance: Built to commemorate the first president of the United States, the monument has also become a hallowed symbol of the nation's government and the city in which it is located. Though the eminent nineteenth-century American architect Robert Mills conceived the initial design, the structure also reflects the technical knowledge and aesthetic judgement of Thomas Lincoln Casey, the Army Corps engineer charged with completing the project. Under Casey, a stagnant construction campaign emblematic of mid-century political and economic turmoil at long last produced the tallest building of its day and an enduring American icon.

Historian: Aaron V. Wunsch, HABS, summer 1994

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Date of Erection: The monument was erected in two distinct phases, the first one occurring between 1848 and 1858, the second between 1878 and 1885. The Washington National Monument Society selected Mills' design in 1836, but construction did not begin for another twelve years. An 1848 Congressional resolution permitted the Society to erect the monument on public land within the city, and the Society chose a site near the intersection of the east-west axis through the Capitol and the north-south axis through the President's House (White House). The foundation was laid in June 1848, followed on July 4th by the cornerstone. Progress slowed dramatically in 1854 and halted altogether in 1858. Work resumed under federal direction in October 1878, and a second cornerstone was laid on August 7, 1880. The capstone was set on December 6, 1884, and the monument dedicated on February 21, 1885. Important additions and modifications occurred over the next few years.

2. Architects: The architect Robert Mills and the engineer Thomas Lincoln Casey must both receive credit for the completed form of the monument. Mills had already designed the Baltimore Washington Monument when he submitted the winning entry in the Washington National Monument Society's design competition of 1836. In the same year, the federal government appointed him Architect of Public Buildings, and it was in this capacity that he carried out many of the commissions for which he is most famous: the Treasury Building, Patent Office and Post Office. However, for a variety of reasons, Mills' Washington National Monument design was never executed as he intended. After the U. S. Army Corps of Engineers took control of the project in 1876, Lieutenant Colonel Thomas Lincoln Casey became Superintending Engineer in Charge of Public Buildings and Grounds; as such, Casey was largely responsible for the monument's final appearance.

3. Original and subsequent owners: The Washington National Monument Society owned the structure from 1848 to 1877; since then it has belonged to the U.S. Government.

4. Builder, Contractor, Suppliers:

Phase I, 1848 to 1858

Superintendent: William Daugherty

Foreman: David Hepburn

Bluestone Gneiss: William Early, Washington, D.C.

Marble: Thomas Symington, Baltimore, Maryland

Memorial Stones: multiple sources

Phase II, 1878 to 1885

Chief Engineer: Thomas Lincoln Casey, Lieutenant Colonel, U.S. Army Corps of Engineers

Assistant Engineers: George W. Davis, Captain, Fourteenth U.S. Infantry, Bernard Richardson Green, Civil Engineer, U.S. Army Corps of Engineers

Master Mechanic: P. H. McLaughlin

Overseer: B. F. Navarre

Memorial Stone Installation: Dennis O'Leary, Washington, D.C.

Aluminum Apex: William Frishmuth, Philadelphia, Pennsylvania

Bluestone Gneiss: T. T. Fowler, (loc?)

Boiler House: William Bradley, Washington, D.C.

Broken Stone: Henry J. McLaughlin (loc?)

Electric Lighting System: U. S. Electric Light Company, Washington, D.C.

Elevator: Otis Brothers and Company, New York, New York
Granite (in order of quantity supplied): Davis Tillson,
Rockland, Maine; Cape Anne Granite Company, Boston
Massachusetts; Bodwell Granite Company,
Rockland, Maine; William S. White, Rockland, Maine
Gravel and Sand: R. M. Miller and Son (loc?)
Iron Work, Wrought and Cast (in order of expenditure):
Snead and Company Iron Works, Louisville,
Kentucky, Phoenix Iron Company, Phoenixville, PA,
J. B. and J. M. Cornell, New York, New
York, H. H. Ramsay and Son, Baltimore, Maryland
Lightning Rods: Ledig & Herrlein and Sons,
Philadelphia, Pennsylvania
Lumber: Willett and Libby (loc?)
Marble (in order of amount supplied): Hugh Sisson,
Baltimore, Maryland, John A. Briggs, Sheffield,
Massachusetts
Memorial Stones: multiple sources
Miscellaneous Materials: Riordan and Driscoll,
Washington, D.C.
Portland Cement: J. B. White and Brothers, New York,
New York

5. Original plans and construction: A description of the monument's "original appearance" is problematic because it changed dramatically during design and construction. Robert Mills' drawing of the design ultimately selected by the Washington National Monument Society shows a 600' marble obelisk encircled at the base by a peristylar rotunda or "pantheon."¹ Insufficient funds precluded construction of the pantheon, and Mills' 1848 working drawings depict his scheme for the obelisk by itself, to which the pantheon might later be added. The latter drawings correspond closely to initial construction below the 150' level.²

When work on the monument resumed, Thomas Lincoln Casey made substantial alterations to the Mills design.

¹Rendered plan and elevation of original design, printed signature by Robert Mills, undated [1845] National Archives RG 42, no. 16. For Mills' description of this design see "Society and Congressional Publications Concerning the Monument and the Society," National Archives RG 42, Box 33 and House Report 48, pp. 8, 37.

²Rendered plan and elevation of monument, printed signature by Robert Mills, ink, pencil and watercolor on paper, 1848, Society for the Preservation of New England Antiquities, Thomas Lincoln Casey Papers, Graphic Works Folder 4.

These included reinforcing the existing foundation, changing the shaft's proportions to better accord with American Ambassador to Italy George Perkins Marsh's measurements of ancient obelisks, installing an interior iron framework that housed an elevator and redesigning Mills' entrances. There is a massive amount of visual and textual material documenting the complex 555' structure that Casey completed.³

6. Alterations and additions: If the monument may be considered "complete" at the time of its dedication in February, 1885, the following changes fall into the category of "later modifications." In 1885, electric lights were installed, the boiler located further from the monument in its own house and the monument's lightning conduction system perfected. At the same time, the western entrance was sealed, the eastern one equipped with marble-slab doors, and the Egyptian surrounds removed from both portals. However, the stairs and ground-level flooring were not completed or the elevator converted for passenger use until the following year, and memorial stone installation continued until 1929.

Between 1887 and 1889, earth was brought to the site to create a terrace, and a 10'-wide pavement was laid around the monument's base. Within the structure, a storm door and steam heating were installed at the ground level in 1890. In 1898, tie rods joining the iron Phoenix columns that support the interior structure began to fail and were reinforced. The original steam-powered elevator proved slow and expensive to maintain, and was replaced by an electric one in 1900. Visitors were again accommodated at ground level by a waiting room built in 1904 of steel and concrete and adorned with a marble mosaic floor.

The monument was rewired in 1923, and gutters were mounted over the pyramidion windows in 1924. The

³For written descriptions see National Archives RG 42, and the Society for the Preservation of New England Antiquities's (SPNEA's) Thomas Lincoln Casey Papers, passim; for drawings see National Archives RG 79, in particular 74.2-1 to 74.2-208 (masonry courses), 74.3-2 (pyramidion), 74.4-1 (foundation), 74.5-11 to 74.5-19 (entrances), 74.12-7 to 74.12-25 (elevator); for photographs see the Library of Congress Prints and Photographs Lot 7468 (Washington Monument Construction Photographs) and SPNEA's Thomas Lincoln Casey Papers, Graphic Works Folder 2.

elevator was replaced again in 1926, and in the same year, two suicides committed from the pyramidion windows prompted the installation of iron bars over these portals. Similarly, three deadly falls that occurred inside the structure by 1924 lead to the construction of a third guard rail and a metal screen around the elevator shaft in 1927 and 1929, respectively.

Airplane warning beacons were located in the pyramidion windows in 1931, and in the same year floodlights, benches and an iron fence were set up around the base of the monument. Bronze gates, less cumbersome than the monument's marble doors, were installed in the entrance in 1932. The National Park Service assumed responsibility for maintaining the structure in 1933, and the following year performed a major exterior restoration that entailed surrounding the entire shaft with tubular steel scaffolding to permit workmen to clean and repair the stonework. Elevator safety improved in 1938 when metal platforms were set up every 10' (corresponding to stair landings) inside the elevator shaft to serve as emergency exits. Two years later, the heating system was renovated.

The monument underwent major modifications in 1958. These included replacing the elevator for the third time, installing new framing, floor plates, screens and railings at the 490' level, and reconstructing the existing stairway between the 490' and 500' levels out of aluminum components. Simultaneously, a second stairway was added between the same levels in the southeast corner, replacing a guard room at the 500' level. A new guard room took the place of an elevator control room in the northwest corner, again at the 500' level. Finally, a new set of airplane warning beacons was installed behind holes over the pyramidion windows, the window bars were replaced with glass enclosures, and the exterior floodlighting system was updated.

A dehumidifier placed in the base of the monument brought the longstanding problem of interior condensation to an end in 1959. Exterior cleaning and repair work were performed again in 1964, this time using rigging instead of scaffolding. Revolving glass doors were installed at the western end of the entrance corridor in 1972.

In the two years preceding the nation's bicentennial, the monument underwent another round of major

renovations. Throughout the building floor, stair and structural repairs took place and a new air temperature control system was installed. At ground level, the entrance passage and east lobby received granite flooring, the revolving doors were supplanted by standard ones, the entrance corridor's wall and ceiling paneling was replaced with marble paneling and a drop ceiling, and the ornamental plaster ceiling in the west and south lobbies was removed and replaced. The 490' level was equipped with a drop ceiling and plexiglass on the sides of the pyramidion ribs, while at the 500' level new flooring was laid down, plexiglass installed on the sides of the ribs, and glass doors placed on the elevator equipment and guard rooms. At the same time, the pyramidion windows were equipped with bullet-proof glass, their shutters removed, and the lightning rod points restored.

Air ventilation and temperature control systems were upgraded again in 1987. From 1992 to 1994, a number of firms cooperated in the restoration of the monument interior at the ground and 10' levels. As part of this project, some structural modifications occurred at and below the 20' level, the building's utilities were updated, and the elevator cab interior was renovated.

B. Historical Context:

In 1783 the Continental Congress proposed the erection of an equestrian statue of Washington in gratitude for his service during the War of Independence. This proposal was reflected in Pierre L'Enfant's plan of 1791 for the new federal city, where he accorded the statue a prominent location at the intersection of the north-south axis through the President's House and the east-west axis through the Capitol. Although a number of subsequent proposals for commemorating Washington were debated in Congress during the next several decades, in each case Congress failed to act and nothing was accomplished.

Interest in a monument to Washington was revived in 1832, the centennial of his birth. Once again, Congress debated the issue but without results. Angered by congressional inaction, a group of prominent Washington citizens convened in 1833 and formed the Washington National Monument Society, with the intent of soliciting private contributions to fund the erection of a monument to Washington. Chief Justice John Marshall was elected as the Society's first president.

In 1836, the Society held a design competition for the

monument, selecting the architect Robert Mills as the winner. Mills had previously designed the Washington Monument in Baltimore, and was responsible, as Architect of Public Buildings, for several of the most prominent buildings in Washington, including the Treasury Building, the Patent Office and the Post Office. Mills's winning entry consisted of a 600' obelisk rising from a grand circular colonnaded pantheon 250' in diameter and 100' high.

Fund raising for the monument lagged, however, and it was not until twelve years later that the Society could begin construction. Because of these financial difficulties, the Society decided to commence with the obelisk part of Mill's design, postponing the colonnade until additional funds might become available. Due to inadequate subsoil conditions at the site specified by L'Enfant, another one was chosen 351'-7" to the east and 123'-2" to the south. On July 4, 1848, Speaker of the House Robert Winthrop presided at the cornerstone-laying ceremony before an estimated crowd of 20,000 people.

In late 1854, with the monument standing 152' high, the Society's funds ran out, in part because of political problems that had beset the organization in previous months. Within the Society's ranks were members of the anti-Catholic Know-Nothing Party, and in a much publicized incident, a group of Know-Nothings seized a memorial stone donated by the Pope and tossed it into the Potomac. The scandal triggered public outrage, and when the Know-Nothings took control of the Society early the following year, its image was further tarnished. These events coupled with the country's dire economic straights, and the political turmoil leading up to the Civil War, halted contributions. The Know-Nothings maintained their grip on the Society for the next three years but managed to add only 26' of masonry, much of which later proved defective and was demolished. Thereafter, construction stopped for over two decades and the truncated monument became the subject of national derision and embarrassment.

During the Civil War, the monument grounds served as a drill field and cattle yard for Union forces. Though no work occurred on the structure during wartime, the conflict left a permanent record on the interior walls: antebellum memorial stones betray a distinct anxiety about the fragility of the union while stones donated after the war attempt to foster reconciliation between North and South.

On 5 July, 1876, one day after the nation's centennial, Congress passed a unanimous resolution authorizing the

federal government to assume control of the Washington Monument. More than \$800,000 was subsequently appropriated for the structure's completion. The U.S. Army Corps of Engineers was assigned the task of completing the monument in 1878, with Lieutenant Colonel Thomas Lincoln Casey appointed Engineer in Charge of Construction.

The public's reception of Mills's original design had been mixed from the start and turned more critical once it became clear that the pantheon would remain unexecuted. When construction on the monument resumed, the controversy flared anew and many architects or would-be architects submitted their own schemes for completing the structure. The Monument Society even accepted one such design by William Wetmore Story in 1878, but by 1880 Casey's plan for completing the monumental obelisk prevailed.

Casey began by investigating the monument's foundation, and determined it to be inadequate. From 1878 to 1880 he installed a massive concrete footing beneath the original stone foundations. While performing this work he consulted with George Perkins Marsh, the American Ambassador to Italy, who had studied and measured Egyptian obelisks Rome. From Marsh's recommendations concerning proper proportions, Casey developed a final design for the Washington Monument, consisting of a 500'-tall shaft capped by a 55'-high pyramidion. Although Casey's obelisk was 45' shorter than Mills's original design, Casey's pyramidion was much steeper than the one initially proposed by Mills.

Construction of the shaft resumed in 1880. Casey began with the erection of an interior iron framework, the components of which were produced by the Phoenix Iron Company of Phoenixville, Pennsylvania. The company's best known product was the so-called Phoenix column, an iron cylinder consisting of several flanged, curved sections riveted together. Casey employed eight such columns in the monument and as the masonry shaft rose the columns projected just above it, providing support for the stone-setting cranes. A steam hoist was installed by Otis Brothers and Company of New York City to haul the stone blocks to the top of the shaft.

Casey began work on the walls by demolishing several feet of inferior stonework that had been constructed during the Know-Nothing period, reducing the height of the monument to 150'. When construction resumed, improvements in stone-cutting and quarrying technology, as well as ample funding, allowed Casey to use much larger and more regular blocks of stone than during the 1848-58 phase. On August 9, 1884,

masons completed the walls of the shaft.

Casey subsequently began construction of the pyramidion, the design of which he devised with much assistance from Bernard Richardson Green. Working under contract with the Corps of Engineers, Green shared his technical expertise with Casey throughout the monument's construction and the two collaborated on other aspects of the design. Here they lightened the pyramidion as much as possible by reducing the thickness of its walls to little more than 6", and contrived an ingenious scheme of interlocking stone ribs for additional structural support. On December 6, 1884, the 3,3000-pound capstone was set in place. At the tip of the capstone was a 9" aluminum apex, the largest single piece of aluminum that had been cast to that date.

The Washington Monument was dedicated February 21, 1885, with President Chester A. Arthur concluding the ceremony. Subsequent work on the monument included the completion of stairs, platforms, and railings, the installation of lighting and lightning protection systems, and the conversion of the hoist to a passenger elevator. The placement of the numerous memorial stones was to take several decades. Casey also blocked the west entrance and reduced the size of the east one, removing the Egyptian door surrounds from both. The Washington Monument was opened to the public on October 9, 1888.

Though the structure and its grounds soon proved to be one of the city's greatest attractions, the sense that the site demanded a more monumental treatment persisted in many circles. In 1901, Senator James McMillan of Michigan promoted a scheme to redesign the Mall. Conceived by such aesthetic luminaries as Daniel H. Burnham, Charles F. McKim, Frederick Law Olmsted, Jr., and Augustus St. Gaudens, the McMillan Plan sought, in part, to aggrandize the monument grounds and visually realign the monument with the White House/Capitol axes's intersection. Certain aspects of the plan were eventually realized, but efforts to implement the proposed modifications to the monument grounds were finally abandoned in the 1930s after test boring showed conclusively that the work would de-stabilize the structure's foundation.

PART II. ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural character: The monument represents a partially-executed and subsequently stripped version of a design inspired by the Greek and Egyptian Revivals.

Because the colonnaded pantheon called for by Robert Mills was not built, no Greek Revival influence is apparent on the existing structure; the completed obelisk is a product of the Egyptian Revival, and its Egyptian character was originally enhanced by winged-globe entrance surrounds. The monument is also significant as an engineering feat: it was the tallest building of its day, made use of the famous column produced by the Phoenix Iron Company, and incorporated an early Otis Brothers elevator.

2. Condition of the Fabric: The overall condition of the monument is excellent.

B. Description of Exterior:

1. Overall dimensions: The structure is an obelisk 555' 5-1/8" high, 55' 1-1/2" at the base of the shaft, and 34' 5-1/2" at the top of the shaft (below pyramidion). Each side of the pyramidion is punctuated by two windows. The only entrance is at the center of the east wall.
2. Foundations: The original foundation was built of locally quarried bluestone gneiss in the form of a stepped pyramid, 80' square at the bottom and 24' deep. Thomas Lincoln Casey demolished some of this work, then elaborately reinforced it. Thus, the remains of the original foundation are presently encased in poured concrete and supported by a poured concrete sub-foundation. The encased pyramid is 63' 9" square at the top and 100' square at the base. The sub-foundation is 13' 6" thick and 126' 5-1/2" square at top and base.
3. Walls: The walls attenuate from a thickness of 15' at the base to 18" at the top, and are sheathed in 2' high, 12"-20" thick courses of white marble, each course sloping in 1/2." Below the 150' level, wall construction is of bluestone gneiss rubble, faced on the interior with fitted pieces of the same material. Starting at 150,' the wall thickness shrinks dramatically and the interior corners are rounded for added structural stability, while the exterior stonework assumes a pattern similar to that of flemish bond brickwork. Though both Mills and Casey obtained their marble from quarries near Baltimore, Casey's stone was extracted from a different stratum than Mills,' resulting in a slight color change at the 150' level. Between the 150' and 452' levels the walls are

made of ashlar granite from New England.⁴ Above the 452' level the walls attenuate to a single block in thickness, and these marble blocks are joined by galvanized iron clamps.

4. **Structural System:** The walls of the shaft are load-bearing, and above the 470' three interlocking stone ribs spring from each wall to support the pyramidion. Within the shaft rises an iron framework that rests primarily upon eight columns produced by the Phoenix Iron Company of Phoenixville, Pennsylvania. These columns, rolled in 20' sections, are joined to each other and the walls by a system of I-beams and channels. When viewed in plan, the Phoenix columns form two concentric squares; the outer one supports the stairs and landings while the inner one upholds the elevator and constitutes its shaft.
5. **Openings:**
 - a. **Doorways and doors:** The entrance to the monument is located at the center of the east wall and measures 6' x 8'. Here massive marble-slab doors on bronze hinges are fixed in the open position, their purpose served by bronze gates installed in 1932. West of these, glass doors dating from c. 1993 separate the entrance hall from the elevator waiting area. Traces of the sealed west entrance survive in the form of interior entrance surround fragments along the west wall.
 - b. **Windows:** Two rectangular windows pierce each of the pyramidion's four sides. The openings are 3' wide and 18" high except on the east side where they are 24" high. Originally, the windows could be closed by means of marble slab shutters held in bronze frames and pivoting on bronze hinges. Now the portals are filled with panes of bullet-proof glass, installed in 1975.
8. **Pyramidion:** A 55' high, hollow stone pyramid or

⁴The sources contradict each other on the subject of marble and granite supply. On the possibility that some of both types of stone came from Massachusetts quarries, compare George J. Olszewski, A History of the Washington Monument, 1844-1968, 1971, pp. 30-2, 39, Louis Torres, "To the Immortal Name and Memory of George Washington"..., 1984, pp.63-4, 77, and D. L. Weart, "Erection of the Washington Monument," 1923, p. 102.

"pyramidion" caps the monument. Twelve marble ribs support the pyramidion's sides, which are made of 7" thick marble slabs. At the top of the pyramidion rests a marble capstone surmounted, in turn, by a cast aluminum tip.

C. Description of the Interior:

1. Floor plans: The HABS floor plans are attached. The ground floor is entered from the east through a passage that leads to a square room. The latter contains a small lobby along the south and west sides, the elevator in the center, the entrance to the staircase in the northeast corner, and an office in the southeast corner. The former west entrance passage forms a deep niche in the west wall.

Between the ground floor and the 490' level, staircases run along the north and south sides of the shaft, joining landings located on the east and west sides. Iron framing and the elevator shaft occupy the center of the space.

The elevator re-boarding level is located at 490.' The northwest corner contains a bookstore and the southwest corner a mechanical room, while small staircases leading to the 500' level are situated in the north- and southeast corners. The 500' observation level plan is similar to the 490' one, but its northwest corner is occupied by a storage room.

2. Stairways: An iron framing system supports the stairs and landings. Handrails, platform coverings and treads are of iron and steel. The two small stairways between the 490' and 500' levels are made of aluminum components.
3. Flooring: At ground level, the floor consists of bluestone gneiss flagging. This is concealed by granite flooring in the entrance passage and east lobby, and by a mosaic made of marble tesserae in the south and west lobbies. Aluminum plates constitute the flooring at the 490' and 500' levels.
4. Wall finish: The only finishing features on the interior walls are 198 ornamental memorial stones donated to the building project by cities, states foreign countries, and societies. These plaques are embedded in the wall fabric.

5. Hardware: The two marble doors at the entrance are supported by bronze frames, swing from massive bronze hinges, and rest upon steel friction rollers. Before they were removed in 1975, the marble pyramidion window shutters had a similar hinge and frame arrangement.
6. Mechanical equipment:
 - a. Heating: The earliest heating system, installed in 1890, consisted of steam pipes located along the walls of the ground floor. A more comprehensive heating system that used electrical blowers to circulate hot air was implemented in 1940. Since then, the air temperature control system has been upgraded repeatedly, most recently in 1987.
 - b. Lighting: Electric lighting was first installed in the monument in 1885 and consisted of a 2,000 candle-power dynamo and seventy five incandescent lamps affixed to the landing platforms. This system was supplemented two years later and replaced in 1923. Parts of the present system were installed as recently as 1994.
 - c. Elevator: The original 1880 elevator was designed by Otis Brothers and Company of New York City according to Thomas Lincoln Casey's specifications. It was initially set up as a hoist to transport building materials while the monument was under construction. As such, a platform hung from pulleys and cables that were supported by the four inner Phoenix columns. The cables were gathered and released by a winding drum located in a concrete-walled pit beneath the ground floor of the monument. A shaft linked the drum to a subterranean steam engine situated just outside the west wall, not far from its boiler. This system could raise a 10-ton load at 50' per minute. In 1886 the hoist was converted into a passenger elevator and the engine moved further west on the site along with new boilers, the latter housed in a separate building. An electric elevator was first installed in 1900; the present one, again manufactured by Otis, dates from 1958, though the cab's interior was renovated in 1993.
 - d. Lightning conduction system: To protect the monument from lightning, copper rods connect the

aluminum apex to the four inner Phoenix columns which, in turn, were grounded to soil beneath the elevator drum pit. This work was completed in 1885 and supplemented in the same year by running copper rods down the exterior corners of the monument, connecting them to the aluminum apex at the top and then to the Phoenix columns at the bottom. In 1934 and 1975 the system was refurbished and is still in use today.

D. Site:

1. Historic landscape design: The obelisk's pyramidal foundation was covered with dirt and rubble in 1880-81, forming a steep embankment around the monument. Approximately 250,000 cubic yards of earth were brought to the site in 1887-8, filling in a nearby body of water known as Babcock lake and creating a terrace that was graded so as to blend in with the surrounding landscape. In 1888-9 a 10' "granolithic" pavement was laid around the monument's base, accompanied by various plantings and pathways radiating outward to the extremities of the site.

The monument was encircled by benches, floodlights and a fence in c. 1931 and by forty eight wooden flagpoles in 1937. The latter were replaced in 1959 with fifty aluminum poles, each standing 24' high and anchored in concrete. Around 1966, information kiosks were constructed at various locations on the grounds. Ten years later, the architecture, engineering and planning firm of Skidmore, Owings and Merrill carried out a number of landscape modifications in time for the nation's bicentennial. Fill and grading work was performed on the grounds as recently as 1984.

2. Outbuildings: In 1885, contractor William Bradley of Washington, D.C. was hired to erect a permanent stone boiler house on a site approximately 750' southwest of the monument. Built of marble and granite cast off during the monument's construction, the one-story structure is roughly square in plan and has a gable roof. It contained two boilers and a 90-ton capacity coal vault; 800' of piping carried steam from the boilers to the engine. By 1900 steam ceased to power the elevator, but it was not until 1940 that the boiler house was converted to a water chlorinating plant. The building underwent a major renovation in 1988, and the office space created now houses the National Park Service Headquarters for Mall Operations.

The Washington National Monument Society perceived the need for a lodge to accommodate its offices and those of the monument custodian, archives of the monument's construction, and a public bathroom. Thomas Lincoln Casey selected a design by the firm of William M. Poindexter and Company, and it was constructed 480' east of the monument in 1888. The lodge took the form of a one-story Greek temple, square in plan, flat-roofed and made of marble. The center of the facade is marked by a Doric entrance porch, and a polygonal bay protrudes from the west wall. Major renovations were performed on the building in 1931, 1942 and 1963, the latter concealing much of the west wall with a cinder block addition in the form of a lean-to.

The Sylvan Theater, consisting of a platform and rows of uncovered seats, was erected 150 yards south-east of the monument in 1917. The existing stage, built in 1944, is 4' high, rectangular in plan and supported by iron girders. Surrounding the theater are outbuildings which house dressing rooms, bathrooms and utilities; all were constructed after 1966.

PART III. SOURCES OF INFORMATION

- A. Architectural Drawings: There are nearly 1,000 drawings pertaining to the construction and modification of the Washington National Monument. The following is an annotated index to the contents of major drawing collections relating to the monument. The index focuses on material associated with the monument's construction rather than its design. Where possible, a general description of a group or subgroup of drawings is supplied, followed by references to especially informative or representative drawings within that group.

Boston, Massachusetts. Society for the Preservation of New England Antiquities (SPNEA) archives.

Thomas Lincoln Casey Papers on the Washington Monument. Though culled from the personal papers of Thomas Lincoln Casey, this collection contains both working and finished drawings, the latter sometimes part of sets held by the National Archives. Also located here are drawings unassociated with Casey's work, including a few by Robert Mills, that found their way into Casey's hands while he was in charge of the project.

Graphio Works Folder 1.

- Plan and section of unexecuted design for reinforcing foundation; accompanied by written instructions on how to carry out the work, signed Benjamin Severson, ink on paper, 1" = 20', 1878.
- Highly detailed plan of monument at height of 156' 4"; shows existing conditions discovered and remedied by T. L. Casey, unsigned, ink on paper, 3/16" = 1', undated.

Graphic Works Folder 3.

- Plan of original foundation as built under Robert Mills; annotated with T. L. Casey's measurements, signed T. L. Casey, ink on paper, 1/8" = 1', undated.
- Plan of reinforced foundation showing subsoil conditions, signed T. L. Casey, ink on paper, 1/8" = 1', undated.
- Plans, sections and elevations of an early foundation reinforcement scheme and design for completing the monument prior to Ambassador George P. Marsh's reports, printed signature by Gustav Friebus, delineator, signed T. L. Casey, ink and watercolor on linen, 1/16" = 1', undated.
- Elevation of monument built to a height of 174', showing unexecuted completion scheme and relative heights of tallest buildings in world at time, unsigned, lithograph on paper, no scale, undated [post-1859].
- Section of monument; annotated with wind force calculations, signed Bernard R. Green and T. L. Casey, ink on paper, 1" = 20', 1880.
- Section of pyramidion; annotated with wind force calculations, printed signature by Bernard R. Green, delineator, signed T. L. Casey, ink on cloth-backed paper, 1/4" = 1 ton, 1884.
- Plans, sections, elevations and details of pyramidion; annotated with wind force calculations (similar to National Archives 74.3-1 but lacks elevator machinery), printed signature by Bernard R. Green, delineator, signed T. L. Casey, ink on cloth-backed paper, multiple scales, 1884.
- Section of pyramidion and details of window shutter

design; annotated with wind force calculations, printed signature by Bernard R. Green, delineator, signed T. L. Casey, ink on cloth-backed paper, multiple scales, 1884.

Graphio Works Folder 4.

- Plan, section and elevation of monument; plan shows wall composition in detail, printed signature by Robert Mills, ink, pencil and watercolor on paper, no scale, 1848.
- Plan and section of foundation; shows vaulted basement room the function of which is unclear, printed signature by Robert Mills, ink, pencil and watercolor on cloth-backed paper, no scale, 1848.
- Section and details of apparatus used to construct sub-foundation, signed T. L. Casey, ink and pencil on paper, 1/2" = 1', undated.
- Plan of foundation apparently showing order in which "continuous foundation" buttress sections poured, signed T. L. Casey, ink on graph paper, 1/4" = 1', 1879-1880.

Box 3.

- Folder 29. Section of monument and plan at 500' showing progress of the work, printed signature by Gustav Friebus, delineator, signed T. L. Casey, ink on paper, no scale, 1884.

College Park, Maryland. National Archives and Records Service, Cartographic and Architectural Division.

Record Group 42. Records of the Office of Public Buildings and Grounds and Records of the Washington National Monument Society, 1833-1951. Mostly design-related drawings submitted to the Washington National Monument Society by E. Barabius (?), J. Goldsborough Bruff, Colonel Lewis Cruger, C. Seymour Dutton, Col. Denis Eriger (?), Gen. Montgomery C. Meigs, Robert Mills and L. Stegagnini (?). Note: Because of their delicate condition, many of the most important drawings in this record group have been placed in the archives's security file and cannot be accessed. Copies of a number of these drawings are included in the record group but negatives lack catalog numbers. Several manuscripts, some of which relate to the above drawings, are also found here.

16. Frequently-reproduced plan and elevation of Robert Mills's design for the monument, printed signature by Robert Mills, ink and watercolor on paper, multiple scales, undated [1845].

20. Site plan of monument with annotation explaining which temporary outbuildings should be removed or rebuilt prior to resumption of work, signed Fred D. Stuart, ink on paper, no scale, 1875.

Record Group 66. Records of the Commission of Fine Arts. Small amount of miscellaneous graphic and textual material pertaining mostly to design history of monument and grounds; contains several design proposals related to McMillan Plan of 1901.

Record Group 79. Records of the National Park Service. The largest body of monument drawings, the dates of which range from the 1840s to the 1970s.

Files 44, 44.1, 44.2, 44.3. Existing conditions and proposed treatment of monument grounds, highlighting certain outbuildings and Propagating Gardens. See also files 74, 74.15, 74.16, 74.20, 74.21, 807.

44-5, 44-7, 44-8. Plans for original Sylvan Theater, 44-5 unsigned, 44-7 printed signature by Charles H. Diggs, designer, 44-8 printed signature by Frederick D. Owen, delineator, all bear printed signatures by Office of Public Buildings and Grounds staff, ink on linen, multiple scales, 1916-17.

44-39. Unbuilt scheme for grounds; less formal than Mcmillan plan and apparently not associated with it, unsigned, ink and watercolor on linen, no scale, post-1901.

44-45. Highly detailed plan of grounds, apparently depicting existing conditions, unsigned, ink on paper, 1" = 100', 1898 according to index but potentially a decade earlier.

44-51. Early proposal for treatment of grounds, showing locations of outbuildings, signed T. L. Casey, ink on linen, 1" = 30', 1886.

44-138. Highly detailed plan of grounds, printed signature by Office of Public Buildings and Grounds staff, ink on linen, 1" = 60', 1917, revised 1930.

44.1-13. Proposed scheme for greenhouses and nursery in Propagating Gardens south of monument, printed signature by Frederick D. Owen, signed Theo. A. Bingham, designer, and Office of Public Buildings and Grounds staff, ink and watercolor on cloth-backed paper, 1" = 300", 1901.

File 74. 1960s renovations to monument and monument lodge. See file 807 copies.

74-174, see 807-80081 copy. Plan, section and detail drawings for exterior restoration of monument, printed signature by D. B. Myer, brown line, 1/16' = 1", 1964.

74-176, see 807-80083 copy. Details of new bullet-proof glass windows in pyramidion, initialed C. W. L., delineator, S. R. G., designer, pencil on trace, multiple scales, 1965.

File 74.1. Reinforcement of monument foundation and design for elevator drum pit. See also SPNEA Casey Collection Graphic Works Folders 1, 3, 4.

74.1-1, see 807-80020 copy. Plan and section of T. L. Casey's 12-buttress design for reinforcing foundation, signed T. L. Casey, photostat, 1/8" = 1', 1878.

74.1-2, see 807-80021 copy. T. L. Casey's conception of monument's completion prior to Ambassador George P. Marsh's reports, signed T. L. Casey, photostat, 1/16" = 1', 1878.

74.1-3. Detailed plan and section of sub-foundation, signed T. L. Casey, ink on paper, 1/8" = 1', 1879.

74.1-5, see 807-80023 copy. Plan and section of T. L. Casey's 8-buttress design for reinforcing foundation, signed T. L. Casey, photostat, 1/8" = 1', 1879.

74.1-8. Plan and section working drawings of sub-foundation, apparently showing chronological order in which sub-foundation sections poured, unsigned, ink on linen, 1/8" = 1', undated.

74.1-9, see 807-80025 copy. Plan and section of completed foundation showing "continuous buttress" around original foundation; also shows locations of engine room, boiler room and winding drum, signed T. L. Casey, photostat, 1/8" = 1', 1880.

74.1-10 to 74.1-15. Plans, sections and elevations of pit for elevator hoisting drum, signed T. L. Casey, ink on paper and ink on linen, $3/4" = 1'$, 1879.

File 74.2. Masonry courses of monument walls; designs for twentieth-century modifications to monument; miscellaneous. See also SPNEA Casey Collection Graphic Works Folders 1, 4.

74.2-1 to 74.2-175. Plans showing exact size and location of masonry blocks in even "courses" 152-500 (Note: "course" numbers = height in feet; actual courses are 2' high. Thus a drawing of "course 152" actually shows block configuration at 152' or course 76), courses 152-262 signed T. L. Casey, ink and watercolor on paper, $1/2" = 1'$, undated, courses 264-500 unsigned, pencil on paper, $1/2"=1'$, undated.

74.2-200 to 74.2-201. Plans of facing courses up to and including 150' level (Note: plans below 150' level may be partially speculative because all surfaces but the exterior would have been concealed when T. L. Casey started work), signed T. L. Casey, ink on paper and linen, $3/8" = 1'$, undated.

74.2-203. Detailed plan of 150' level masonry, i.e. the point where T. L. Casey's construction began; contrasts pre-Casey rubble infill configuration with Casey's ashlar construction; annotation explains modifications Casey made to this level before adding to it, signed T. L. Casey, ink and watercolor on paper, $1/2" = 1'$, c. 1881.

74.2-204 to 74.2-207. Packets of T. L. Casey-era working drawings and miscellaneous materials, some disintegrated beyond legibility, generally unsigned, multiple media, no scale, undated.

74.2-208. Interior and exterior elevations of masonry between 150' and 200' levels, with measurements of individual blocks, unsigned, ink and pencil on paper, no scale, undated.

74.2-209 to 74.2-211. Designs for enclosure of radio apparatus in southwest corner of 500' level, 74.2-210 initialed W. M. H., others unsigned, pencil on trace, multiple scales, 1934.

74.2-212. Elevations emphasizing condition of facing stones; based on data from a 1934 report by A. D.

Curradi, signed E. O'Brien, pencil on graph trace, 1" = 20', 1946.

74.2-213-1 to 74.2-213-2. Two proposed methods of re-facing monument with a granite veneer, unsigned, ink on linen, no scale, undated (1946 according to index).

File 74.3. Pyramidion design and construction; lightning conduction system. See also SPNEA Casey Collection Graphic Works Folder 3.

74.3-1. Highly detailed plan, section and elevation of pyramidion; includes some elements of elevator mechanism and much illustrated wind force calculation, printed signature by Bernard R. Green, delineator, signed T. L. Casey, ink on paper, multiple scales, 1884.

74.3-3 to 74.3-10. Plans of pyramidion courses, unsigned, pencil on paper, no scale, undated.

74.3-14. Plan, section and elevation of unbuilt design for an iron and glass pyramidion unsigned, pencil on paper, no scale, undated.

74.3-15. Section of unbuilt design for a copper-sheathed brick pyramidion, unsigned, pencil on paper, no scale, undated.

74.3-17. Elevation and details of exterior addition to lightning rod system, signed T. L. Casey, ink on linen, no scale, 1885.

File 74.4. Interior framework design, construction, and modification; repair and resurfacing of flooring and stairway. See also files 74.12 and 74.18.

74.4-3 to 74.4-5, 74.4-26. Detailed plans, sections and elevations of platform, stair and 500'-level floor framework, printed signature by Gustav Friebus, delineator, signed T. L. Casey, ink and watercolor on paper, multiple scales, 1881-1884.

74.4-16. Sections and specifications of columns available from Phoenix Iron Company, initialed I. R. W., ink and watercolor on linen, full size, 1879.

74.4-38. Perspective showing 1898 reinforcement of Phoenix column tie rods, signed E. P. Goodrich, blueprint, no scale, 1899.

74.4-44. Design for elevator shaft screen, signed Office of Public Buildings and Grounds staff, ink on linen, multiple scales, 1929.

74.4-45. Proposed addition of third stairway safety rail, signed Gruber (?), designer, and Office of public Buildings and Grounds staff, ink on linen, multiple scales, 1927.

74.4-48 to 74.4-50. Plans of metal floor plate configuration at 440,' 450,' 470,' and 500' levels; related to contemporary flooring renovations, initialed W. L. N. and J. B. R., blueprints, 3/4" = 1,' 1933.

File 74.5. Construction and modification of windows and doors. See also file 74.18 and SPNEA Casey Collection Graphic Works Folder 3.

74.5-7. Details of pyramidion windows and shutters, printed signature by Bernard R. Green, delineator, signed by T. L. Casey, ink on linen, multiple scales, 1884.

74.5-9. Section and elevation of gutter over pyramidion windows, initialed E. W. R., delineator, C. A. P., designer, signed Office of Public Buildings and Grounds staff, ink on linen, full size, 1924.

74.5-11. Plans, sections and elevations of masonry sealing west doorway and reducing east doorway's height, signed T. L. Casey, ink on paper, 1/2" = 1', undated.

74.5-15, 74.5-19. Plans, sections, elevations and details of marble entrance doors, door frames and hardware, 74.5-15 signed T. L. Casey, 75.5-19 unsigned, ink on paper, multiple scales, undated.

74.5-22. Section, elevation and details of grills for pyramidion windows, initialed J. C. K., delineator, signed J C. Knee, designer, and Office of Public Buildings and Grounds staff, ink on linen, multiple scales, 1926.

74.5-24. Elevation and details of bronze gates for monument entrance, printed signature by Lorenzo S. Winslow, designer, signed Office of Public Buildings and Grounds staff, pencil on trace, multiple scales, 1932.

File 74.6. Location and dimension of memorial stones on interior walls.

74.6-9. Elevations of east and west interior walls up to approximately 150'; donor of each memorial stone indicated, unsigned, ink on linen, no scale, undated.

File 74.7. Construction and modification of ground floor. See also files 74.11, 74.14 and 74.20.

74.7-3, 74.7-5 to 74.7-7. Plans, sections and details of Charles S. Brownell's waiting room design, 74.7-7 printed signature by F. D. Owen, delineator, and signed by C. S. Brownell, others unsigned, ink and pencil on linen, multiple scales, 1904.

74.7-4. Details of waiting room iron work, printed signature by Office of Public Buildings and Grounds staff, ink and pencil on linen, 1" = 1', 1913.

File 74.8. Annual progress of work on monument in 1880s. See also SPNEA Casey Collection Box 3, Folder 29.

74.8-1. Plans and section of foundation reinforcement, erection of shaft up to 176', and installation of iron framework, signed T. L. Casey, ink on paper, multiple scales, 1880.

74.8-2, see 807-80046 copy. Plan and section of monument up to 250', showing 1881 engine and boiler room locations, signed T. L. Casey, photostat, 1/16" = 1', 1881.

74.8-3. Plans and section of monument up to 340'; note: pencil drawing of pyramidion with elevator pulley appears to be a later addition, signed T. L. Casey, ink and pencil on linen, no scale, 1882.

File 74.9. Settlement of monument, 1879-1885.

File 74.10. Monument plummet instruments and their measurements. See also SPNEA Casey Collection Graphic Works Folders 1, 3, 4 (entries not listed above).

File 74.11. Subjects relating to monument's power sources.

74.11-1 Plans, sections and details of engine room without machinery, signed T. L. Casey, ink on linen,

multiple scales, 1886.

74.11-2. Plan, section and details of ground floor, showing dimensions of iron floor plates, signed T. L. Casey, ink on linen, multiple scales, 1886.

74.11-3. General plan and elevation showing relationship of boiler room, engine room and monument; machinery omitted, unsigned, ink and watercolor on linen, $1/4" = 1'$, undated.

74.11-3a. Same as above, but omits boiler room and shows engine.

74.11-6. Proposed modifications of boiler room to accommodate electric motors, printed signature by Office of Public Buildings and Grounds staff, blueprint, no scale, 1898.

74.11-10a to 74.11-10b. Sections and elevations of Otis Brothers and Company's design for steam boiler, unsigned, brownline, $1\ 1/2" = 1'$, 1879.

74.11-13. Preliminary drawings of Westinghouse generator used to power monument's lights, unsigned, blueprint, no scale, undated.

74.11-15. Plan and section of monument and engine/boiler room; note: in contrast to 74.11-3, boiler and engine rooms here housed in single building, unsigned, $1/8" = 1'$, undated.

File 74.12. Elevator and related building features.
See also files 74.13, 74.14 and 74.22.

74.12-8. Detailed plan and section of monument equipped with Otis Brothers hoist; shows engine/boiler room and cart/track arrangement used to haul stone to monument, unsigned, ink on linen, $1/8" = 1'$, 1879.

74.12-11. Detailed elevations of Otis Brothers engine and winding drum, unsigned, ink and watercolor on linen, no scale, $3/4" = 1'$, 1879.

74.12-13, 74.12-14. Plans, sections and elevations of Otis Brothers's proposed design for elevator passenger car, unsigned, blueprints, multiple scales, 1886.

74.12-25. Details of elevator guides, ratchets and chairs, and Phoenix column splicing hubs, signed T. L.

Casey, ink on paper, multiple scales, 1881.

74.12-26. Plan of elevator winding drum pit floor, unsigned, ink on graph paper, $3/4" = 1'$, undated.

74.12-34. Detailed plans, sections and elevations of elevator supports and overhead stays, signed T. L. Casey, ink on paper, multiple scales, undated.

File 74.13. Later modifications to elevator.

74.13-1, 74.13-2. Drawings showing conversion from steam-powered to electric-powered elevator, unsigned, blueprints, multiple scales, 1899, 1900.

74.13-9 to 74.13-18. Marine Engine and Machine Company's proposed design for an electric elevator, initialed O. A. S. and H. L. M., delineators, blueprints, multiple scales, 1900.

74.13-22 to 74.13-24. Plans and sections of existing elevator conditions associated with 1926 elevator replacement, initialed H. B. H. and L. W. R., delineators, signed Office of Public Buildings and Grounds staff, ink on linen, multiple scales, 1925.

File 74.14. Later modifications to elevator and ground floor lobby; early airplane warning beacon systems.

74.14-2 to 74.14-3. Detailed plan and section of 1926 Otis elevator, unsigned, blueprints, $1" = 1'$, 1926.

74.14-25 to 74.14-30. Preliminary and final plans and sections of 500' level elevator shaft enclosure screens furnished by The Tyler Company, signed Jockers, delineator, and Office of Public Buildings and Grounds staff, blueprints, multiple scales, 1926.

74.14-31. Interior elevation and ceiling plan of The Tyler Company's (proposed?) elevator car, unsigned ink and watercolor on paper, $1" = 1'$, undated.

74.14-35 to 74.14-38. Proposed and implemented electrical alterations; includes specifications for airplane warning beacons the exact location of which is unclear, initialed A. M. L., delineator, W. J. R., designer, signed National Park Service Staff, ink on linen, no scale, 1937.

74.14-39. Design for supplemental emergency exits

located every 10' inside elevator shaft, initialed P. B. D., delineator and designer, signed National Park Service Staff, pencil on trace, multiple scales, 1937.

74.14-40 to 74.14-41. Elevations of proposed wall treatment for first floor lobby, initialed A. M. H. delineator and designer, pencil on trace, multiple scales, undated.

74.14-47. Design for proposed aviation warning lights to be located on outside of pyramidion walls between windows, printed signature by Andrae, designer, pencil on trace, multiple scales, 1947.

74.14-50 on, see 807-80049 on.

74.14-52 to 74.14-54, see copies 807-80051 to 807-80053. Details of 1958 elevator furnished by Otis Brothers and Company, 74.14-51 initialed R. G. R., others unsigned, blueprints, multiple scales, 1958.

File 74.15. Equipment used or considered for use in monument construction; existing conditions and modifications of monument grounds. See also SPNEA Casey Collection Graphic Works Folder 4.

74.15-21. Details of crane used to construct pyramidion, printed signature by Gustav Friebus, delineator, signed T. L. Casey, ink and watercolor on paper, multiple scales, undated.

74.15-26. Plan of monument encircled by "granolithic pavement," printed signature by J. Stewart, delineator, ink and watercolor on paper, 1" = 10', 1889.

74.15-34. Apparently a plan and section of construction site during T. L. Casey era; shows early engine/boiler system above ground and positions of outbuildings, unsigned, pencil and ink on paper, 1/16" = 1', undated.

74.15-47. Sections and elevations of traveller for stone setting cranes, printed signature by Gustav Friebus, delineator, signed T. L. Casey, ink and watercolor on paper, multiple scales, undated.

74.15-48. Plans, sections and elevations of stone setting cranes and their supports, printed signature by Gustav Friebus, signed T. L. Casey, ink and watercolor on paper, multiple scales, 1880.

File 74.16. Miscellaneous temporary and permanent site features.

74.16-4, 74.16-4a. Annotated map and graph relating to construction of temporary railroad track supplying materials to monument site, signed Geo. D., i.e. George W. Davis (?), ink on paper and graph paper, no scale, 1880.

74.16-7. Plan, section and elevation of blacksmith shop / tool room building, unsigned, pencil on paper, no scale, undated.

74.16-8. Plans and sections of boiler house, unsigned, pencil on paper, no scale, 1885.

File 74.17. Proposed design for completion of monument.

74.17-2. Section of William W. Story's design for completing monument, printed signature by Gustav Friebus, delineator, signed T. L. Casey, ink and watercolor on paper, no scale, 1879.

File 74.18. Miscellaneous drawings and manuscript photostats.

74.18. Sections and elevation of partially filled-in east entrance, unsigned, ink and pencil on trace, no scale, undated.

74.18-1 (2 sheets). Details of Phoenix column terminal, signed Geo. D., i.e. George W. Davis (?), ink on linen and ink on heavy paper, multiple scales, 1880.

File 74.20. Original design and later modification of monument lodge and surrounding landscape; modification of monument ground floor lobby; boiler house design.

74.20-1, 74.20-3, 74.20-9 to 74.20-12. Plans, sections, elevations and details of William M. Poindexter and Company's lodge design, unsigned but stamped by Poindexter firm, ink and watercolor on linen, multiple scales, 1887-1888.

74.20-18. Plans and sections of lobby addition, Colonel Spencer Cosby, designer, ink and watercolor on linen, multiple scales, 1913.

74.20-24 to 74.20-26, see 807-80063 to 807-80065

copies. Various renovations to lodge, initialed F. S. H., delineator and designer, signed Office of Public Buildings and Grounds staff, blueprints, multiple scales, 1931.

74.20-29 to 74.20-31 (originally a single drawing). Sections and elevation of boiler house roof, printed signature by F. F. Gillen, delineator and signed by Office of Public Buildings and Grounds staff, ink on linen, multiple scales, undated.

74.20-33 on, see 807-80066 on.

File 74.21. Boiler House.

74.21-7 to 74.21-8. Plans, sections, elevations and details, signed T. L. Casey, ink on linen, multiple scales, 1886.

74.21-10 to 74.21-11. Plans and sections of boiler house converted to water chlorinating plant, 74.21-10 initialed P. B. D., delineator, H. S. and P. B. D., designers, 74.21-11 initialed P. A. and D. G., delineators, H. S., R. H. G., and T. B. designers, both signed by National Park Service staff, blueprints, multiple scales, 1940.

File 74.22. Later elevator modifications.

File 74.22-2. Plan and elevation of elevator penthouse, delineator illegible, signed Office of Public Buildings and Grounds staff, ink on linen, 1/2" = 1', 1925.

File 74.23. 1934 renovations to monument. See file 807 copies; see also file 74.2.

74.23-1 to 74.23-27, see 807-80077 copies. Mostly drawings furnished by contractor Alexander Howie relating to cleaning and repair of monument, initialed C. P. S., delineator, blueprints, multiple scales, 1934.

74.23-25, see 807-80077-25 copy. Details of repairs and additions to lightning rods and points, printed signature by C. E. Reed, delineator, signed National Park Service staff, ink on linen, multiple scales, 1935.

File 74.25. 1940 heating system. See File 807 copies.

74.25-1 to 74.25-4, see 807-80078-1 to 807-80078-4 copies. Detailed, technical drawings of heating system design; note: former engine room here referred to as guard room, initialed R. H. G. and A. M. L., delineators, R. H. G., designer, signed National Park Service staff, ink on linen, multiple scales, 1940.

File 807. The National Park Service's Denver Service Center assigns 807 numbers to all material relating to the monument, providing no numerical distinction between monument subjects. Other government agencies have begun to accept the new system, but there is still much overlap with the earlier ones. Thus, the 807 "file" contains miscellaneous material, including duplicates and reproductions of drawings found in or missing from other files; modifications proposed and implemented in the late twentieth century.

807-80011. Elevation of Alaska memorial stone, unsigned, brownline, no scale, 1973.

807-80040. Plan, section and elevation of glass doors at west end of entrance corridor, printed signature by J. L. Barrel, signed National Park Service staff, delineator and designer, pencil on trace, 1/4" = 1', 1972.

807-80050 (5 sheets). Plans and sections of major interior renovations carried out by the engineering firm of Kluckhuhn, Cobb and McDavid in 1958; sheet 1 specifies supplemental protective screening around elevator at ground and 500' levels; sheet 2 specifies new framing, floor plates, screens and railings at 490' level; sheet 3 specifies rehabilitation of elevator safety exits, rebuilding of northeast 490'-500' stair with aluminum components and construction of southeast 490'-500' stair out of same; sheet 4 specifies removal of southeast corner guard room (replaced by stair) and removal of northwest corner elevator control room (replaced by new guard room) at 500' level, and rehabilitation of machine room at 518' level; sheet 5 shows new elevator cab in plan and elevation, initialed J. G. W., delineator, F. J. F., designer, signed National Park Service staff, pencil on linen and trace, multiple scales, 1958.

Washington, D.C.. National Park Service, National Capital Region branch. The National Capital Region's collection has two major strengths: 1) it contains drawings documenting

twentieth-century modifications to the monument and 2) it covers the evolution of the monument's outbuildings and grounds extensively. Many copies of drawings held by the National Archives and the National Park Service's Denver Service Center are also located here. The file numbering system is the same as that used by the National Archives.

File 44. For file description, see National Archives entry on same number.

44-26. Plan of grounds showing location of public bathing and pool buildings northwest of monument, unsigned, blueprint, 1' = 50', 1914.

44-58. Plan of McMillan Plan for monument grounds, signed Herman Jacobsson, blueprint, 1" = 60', 1911.

44-59. Plan of grounds showing location of tennis courts northwest of monument, initialed MBS, delineator, signed Office of Public Buildings and Grounds staff, blueprint, 1" = 60', 1927.

44-79. Plan of revised McMillan Plan for monument grounds, printed signatures by William Adams Delano and Frederick Law Olmsted, charcoal pencil on trace, 1" = 60', 1931.

44-87. Plan of Sylvan Theater grounds, unsigned, ink on linen, 1' = 20", 1931.

44-90, 44-90A. Plan and details of designs for iron fence, benches, and drainage, water, and floodlighting systems around monument; furnished by Lorenzo S. Winslow architectural firm, initialed L. S. W., delineator, signed Office of Public Buildings and Grounds Staff, ink on linen, multiple scales, 1931.

44-91. Plan of new pavement, benches and floodlights around monument; furnished by Lorenzo S. Winslow architectural firm, initialed L. S. W. and F. S. H., delineators, signed Office of Public Buildings and Grounds staff, ink on linen, multiple scales, 1931.

44-92. Plans, sections and elevations showing renovation of subterranean guard room (former engine room), initialed L. M. E. and F. S. H., delineators and designers, signed Office of Public Buildings and Grounds Staff, ink on linen, multiple scales, 1931.

44-100. Plan and section of unexecuted design for

underpinning monument with steel cylinders; associated with contemporary studies for implementing McMillan Plan, signed Lyman White, blueprint, $1/8" = 1'$, 1931.

44-279-1 to 44-279-3. Plan, elevation and detail of proposed flagpole arrangement, unsigned, pencil on trace, multiple scales, 1957.

44-283-1 to 44-283-3. Plans and sections of proposed design for floodlighting monument exterior; furnished by Kluckhuhn, Cobb and McDavid engineering firm, unsigned, blueprints, multiple scales, undated (1957 according to index).

44-285-1 to 44-285-5. Plans, sections, elevations and details of various proposed modifications to monument and grounds, including installation of floodlight vaults, airplane warning beacons located in holes above pyramidion windows, and addition to subterranean guard room (former engine room); furnished by Kluckhuhn, Cobb and McDavid engineering firm, unsigned, blueprints, multiple scales, 1957.

44-292. Plan of proposed monument plaza development, printed signature by A. H. Hanson, designer, pencil on linen, $1" = 16'$, 1957.

44-334. Plan and sections showing modifications to elevator; furnished by Otis Elevator Company, initialed L. J. Z., delineator, blueprint, multiple scales, 1958. Note: others in series on aperture cards.

44-335. Sections, elevations and isometric of design for observation windows; furnished by Kluckhuhn, Cobb and McDavid engineering firm, initialed K. W. C., delineator, E. E. H., designer, blueprint, no scale, 1958.

44-338. Plans of modifications to monument grounds roadways, printed signature by W. M. Belden, delineator, J. Howe, designer, pencil on linen, multiple scales, 1958.

44-374. Plan of west side of monument grounds showing kiosk locations, printed signature by Neal, delineator, Neal and Simons, designers, pencil on linen, pencil on linen, $1" = 10'$, 1966.

44-376. Plan of existing conditions at Sylvan Theater and grounds, printed signature by National Park Service

staff, pencil on trace, 1/8" = 1', 1966.

44-382. Plans, elevation and section of new Sylvan Theater dressing rooms, printed signature by K. H. Goslin, signed National Park Service staff, pencil on linen, multiple scales, 1967.

44-440. Plans and details of landscaping work at monument grounds carried out by Skidmore, Owings and Merrill architecture, engineering and planning firm, initialed WW, PL, SG, delineators, signed National Park Service staff, aperture card copies, multiple scales, 1975.

44-451. Plans, sections and elevations of Sylvan Theater, printed signature by P. B. Moyer, pencil on trace, multiple scales, 1977-1978.

44-478. Plans of Survey Lodge (former Boiler House) grounds renovation, printed signatures by D. Neal, delineator, J. L. Benjamin, designer, National Park Service staff, blueprints, 1" = 20', 1991.

File 74.7-10. For file description, see National Archives entry on same number.

74.7-10. Plans, elevations, sections and details showing restoration of monument interior at ground and 10' levels, structural modifications at and below 20' level, and various plumbing, electrical, and mechanical work; furnished by multiple firms (a cooperative project), unsigned, diazo mylar copies, multiple scales, 1992.

File 74.14. For file description, see National Archives entry on same number.

74.14-62. Plans, sections and elevations showing renovation of elevator cab interior, unsigned, ink on paper, 1993.

File 74.21. For file description, see National Archives entry on same number.

74.21-14. Plans showing basement and first floor renovations to Survey Lodge (former Boiler House), printed signature by Long, signed National Park Service staff, pencil on mylar, no scale, 1988.

74.21-15. Plans, sections and elevations of existing

conditions at Survey Lodge (former Boiler House), initialed SL, DP, delineators, DHL, LL, KK designers, ink on mylar, multiple scales, 1988.

File 807. For file description, see National Archives entry on same number.

807-41001. A set of 55 drawings, listed below; show three private firms's specifications for major renovations to the monument in 1974. All are aperture card copies.

807-41001-2. Section of monument with extensive annotation on floor, stair and structural repairs carried out by the Cyrus D. Robinson engineering firm, initialed K. W., delineator, C. D. R., designer, no scale, 1974.

807-41001-3. Plans showing Robinson firm's work at 480', 490' and 500' levels; note new recessed platform at 480', initialed C. D. R., delineator and designer, 3/8" = 1', 1974.

807-41001-12. Plan, section and elevation of bullet-proof windows with vandal-proof screws installed by Robinson firm in pyramidion, initialed C. D. R., delineator and designer, 1-1/2" = 1', 1974.

807-41001-13. Plan, section and elevation of pyramidion showing lightning rod point repairs carried out by Robinson firm, initialed C. D. R., designer, multiple scales, 1974.

807-41001-15 and 870-41001-16. Plans, sections and elevations of new underground mechanical room (housing air conditioner) built by Robinson firm 150' northwest of monument, initialed K. W., delineator, C. D. R., designer, multiple scales, 1974. See also 807-41001-40, 807-41001-41, 807-41001-45.

807-41001-19. Air temperature control system renovations in guard room (former engine room) carried out by Myers and Hinds engineering consulting firm, initialed D. E. J., delineator, G. E. M., designer, 1/4" = 1', 1974.

807-41001-20. Air temperature control system renovation in monument carried out by Myers and Hinds firm, initialed D. E. J. delineator, G. E. M. designer, 1/4" = 1', 1974.

807-41001-29 to 807-41001-34. Plans and sections of new electrical work in monument carried out by Myers and Hinds firm, initialed S. P. D., delineator, D. A. H. designer, 1/4" = 1', 1974. See also 807-41001-46, 807-41001-55.

807-410001-35. Plans and details of renovations carried out by Hilleary-Miller architectural firm, including installation of granite flooring in entrance passage and east lobby, replacement of revolving entrance passage doors with standard doors, removal of wall and ceiling paneling in entrance corridor, replacement of former with marble and latter with drop ceiling, removal and replacement of ornamental plaster ceiling in west and south lobbies, initialed T. L. P., delineator, J. F. H., designer, multiple scales, 1974.

807-41001-37. Plans, elevations and details of Hilleary-Miller firm's 490' level renovations, including installation of acoustic tile drop ceiling, and glass on pyramidion ribs, initialed T. L. P., delineator, J. F. H., designer, multiple scales, 1974.

807-41001-38. Plans, elevation, and details of Hilleary-Miller firm's 500' level renovations, including installation of new flooring, and glass doors on elevator equipment and guard rooms, initialed T. L. P., delineator, J. F. H., designer, multiple scales, 1974.

807-80017. Plans and sections of fill and grading modifications to monument grounds, printed signatures by Neal, delineator, Brouse and Humphreys, designers, and National Park Service staff, diazo mylar copies, multiple scales, 1984.

807-80087. Plans, sections and diagrams showing heating, ventilation and air conditioning renovations to monument, initialed L. F. G., C. P. K., delineators, K. N., M. C. designers, signed National Park Service staff, blueprints, multiple scales, 1987.

Likely Sources of Drawings Not Yet Investigated:

Washington, D. C. Library of Congress, Prints and Photographs Division. All drawings except a few placed on the library's Video Index remain unindexed. Thus it is unclear whether the Library constitutes an important repository of monument drawings.

Denver, Colorado. National Park Service Center. The Service Center holds many drawings of late twentieth century modifications to the monument; copies of these drawings are typically available for viewing at the Park Service's National Capital Region offices.

- B. **Early Views:** Collections of photographs, lithographs and other reproduced graphic media receive less detailed coverage than drawings in this report. The following descriptions are intended to serve as a general guide to these collections.

Boston, Massachusetts. Society for the Preservation of New England Antiquities (SPNEA) archives.

Thomas Lincoln Casey Papers.

Graphic Works Folder 2. Largest single group of early monument photographs; much overlap with National Archives RG 121-BD and Library of Congress Lot 7468. Twenty-one images of subjects including original foundation, foundation buttressing, earthen "mound" over foundation, original entrance surrounds, exterior walls, elevator engine, construction equipment, cap stone, photographs, 1879-c.1884.

Graphic Works Folder 3. Mills's original design, cap stone being set, lithographs, 1885 and undated.

Box 3. Folder 29. Incomplete monument decorated with flags, shows stone setting equipment, photograph, 1881.

College Park, Maryland. National Archives and Records Service, Still Picture Division.

Record Group 42. Records of the Office of Public Buildings and Grounds.

File 42-M. Miscellaneous images of monument.

42-M-J-3 to 42-M-J-19. Top of monument during installation of cap stone and aluminum tip, reproductions of lithographs and newspaper illustrations, 1884-1885; original foundation, foundation buttressing, exterior walls, pyramidion pointing, cap stone, New Mexico memorial stone, 1934 restoration, general views, photographs, 1879-c.1940 and undated.

File 42-MS. Miscellaneous images of monument.

42-MS-186, 42-MS-217, 42-MS-261 to 42-MS-265.
Lithograph of Mills's original design, monument during construction hiatus, foundation buttressing, installation of cap stone, general view, glass slides, undated.

Record Group 64. Records of the National Archives and Records Administration.

File 64-AC. Images copied from the holdings of the Office of the Architect of the Capital.

64-AC-1 to 64-AC-3. General views of monument showing original entrance surrounds and earthen "mound" around foundation, photographs, c.1885.

Record Group 66. Records of the Commission of Fine Arts.

File 66-G. Miscellaneous views of monument.

66-G-23YW-1 to 66-G-23YW-8, 66-G-23YW-14 to 66-G-23YW-19, 66-G-23YW-51 to 66-G-23YW-58, 66-G-23YW-70 to 66-G-23YW-72, 66-G-23YW-80 to 66-G-23YW-82. Foundation buttressing, construction equipment, floodlighting, general and aerial views of monument and grounds, microfilm, nineteenth and twentieth centuries.

File 66-M. Miscellaneous views of monument.

66-M-39 to 66-M-41. McMillan plan drawing and general views of monument, photographs, undated.

Record Group 69. Records of the Work Projects Administration.

File 69-PWA. Restoration of monument.

69-PWA-1413 to 64-PWA-1431. General and detailed views of monument undergoing restoration, photographs, undated [1934].

Record Group 80. General Records of the Department of the Navy, 1798-1847.

File 80-G. Monument and grounds.

80-G-417252. Aerial view of monument and grounds, photograph, 1923.

Record Group 111. Records of the Office of the Chief Signal Officer.

File 111-SC. Incomplete monument.

111-SC-90238 to 111-SC-90239, 111-SC-106655. General views of monument during construction hiatus and Casey construction phase, photographs, c.1860-c.1884.

Record Group 121. Records of the Public Buildings Service.

File 121-BD. Monument under construction during Casey phase. Much overlap with SPNEA's Thomas Lincoln Casey Papers, Graphic Works Folder 2 and Library of Congress Lot 7468; the surviving original glass plate negatives from which this series was made are located at the Archives.

121-BD-54A to 121-BD-54T. Original foundation, foundation buttressing, exterior walls, original entrance surrounds, construction equipment, general views, photographs, 1879-1880.

File 121-BF. Monument nearing completion.

121-BF-5 to 121-BF-5A. Incomplete monument and grounds, pyramidion scaffolded in preparation for completion, photographs, 1884.

Record Group 328. Records of the National Capital Planning Commission.

File 328-S. Miscellaneous views of monument.

328-S-107 to 328-S-116. Lithograph of Mills's design, original foundation, section drawing of reinforced foundation, construction equipment, general and aerial views of monument and grounds, glass slides, nineteenth and twentieth centuries.

Washington, D.C. Library of Congress, Prints and Photographs Division. The Library has a substantial collection of monument photographs and images found in popular media such as newspaper illustrations, certificates, commemorative cards, etc.. Kathleen Collins's Washingtoniana: Photographs: Collections in the Prints and Photographs Division of the Library of Congress, (Washington, D.C.: Library of Congress, 1989) provides a thorough index to the Library's Washington Monument

photographs. On microfiche at the Library is The Architecture of Washington, D.C., volume I, edited by Bates Lowry, (Washington, D.C.: Dunlap Society, 1976-1979), which contains an annotated pictorial history of the monument compiled from multiple sources. This includes two important sets of images: 1) Richard Cheek's 1976 photographs of the monument and grounds, showing Skidmore, Owings and Merrill's contemporary changes to the latter, and 2) a number of unusual twentieth century photographs of the monument's interior.

Lot 4149. C. M. Bell Studio Collection.

4149-11. Incomplete monument and grounds, stereograph, 1867.

Lot 7468. Washington Monument Construction Photographs.

Much overlap with SPNEA's Thomas Lincoln Casey Papers, Graphic Works Folder 2, and National Archives RG 121-BD. Original foundation, foundation buttressing, original entrance surrounds, exterior walls, elevator engine, construction equipment, photographs, 1879-1880.

Lot 9072. Detroit Publishing Company Collection.

Folders G and H. Monument and grounds, McMillan Plan drawings, photographs by William Henry Jackson, 1890s-1920s.

Lot 12101. Theodor Horydczak Collection.

Monument scaffolded during 1934 restoration, apex of monument at same time, early floodlighting scheme, photographs, c.1920-1950.

U.S. News and World Report Collection.

Monument and grounds, including a series focusing on 1964 restoration, photographs, 1960-1970.

Washingtoniana File.

Folder 4386-33. Miscellaneous reproduced images of or relating to monument, including lithographs of Mills's original design, completion proposals by John Frazer, N.P. Hapgood, Vinnie Ream Hoxie, Paul Schulze, H.R. Searle, and William Wetmore Story, and periodical illustrations of monument under construction, c.1850-20th century.

Likely Sources of Pictorial Material Other Than Drawings Not Yet Investigated:

Washington, D.C.. The Kiplinger Foundation. The Foundation has an extensive collection of graphic material relating to the monument, notably lithographs of Mills's original design.

- C. Bibliography: This report does not focus on textual sources of information about the Washington Monument. The works listed below by George W. Olszewski, Pamela Scott and Louis Torres provide extensive bibliographies on the subject, and researchers seeking further references should use these as a starting point.

Books:

Gallagher, H. M. Pierce. Robert Mills, Architect of the Washington Monument, 1781-1855. New York: Columbia University Press, 1935.

Harvey, Frederick L. History of the Washington National Monument and the Washington National Monument Society. Washington, D.C.: U.S. Government Printing Office, 1903.

Olszewski, George J. A History of the Washington Monument, 1844-1968. Washington, D.C.: U.S. Department of the Interior, 1971.

Scott, Pamela. "Robert Mills and American Monuments" in John M. Bryan, ed., Robert Mills. Washington, D.C.: American Institute of Architects Press, 1989.

_____. "'This Vast Empire': the Iconography of the Mall, 1791-1848" in Richard Longstreth, ed., The Mall in Washington, 1791-1991. Hanover, [NH]: University Press of New England, 1991.

Torres, Louis. "To the Immortal Name and Memory of George Washington": The United States Army Corps of Engineers and the Construction of the Washington Monument. Washington, D.C.: U.S. Government Printing Office, 1984.

Articles:

Savage, Kirk. "The Self-Made Monument: George Washington and the Fight to Erect a National

Monument." Winterthur Portfolio 22, 4 (Winter 1987): 223-42.

Weart, D.L.. "The Erection of the Washington Monument." Military Engineer 15, 80 (March-April 1923): 99-102.

Likely Sources of Textual Material Not Yet Investigated:

Boston, Massachusetts. Society for the Preservation of New England Antiquities. The Thomas Lincoln Casey Papers include important manuscripts from both the Mills and Casey construction phases, and have become accessible to researchers only recently.

San Marino, California. Henry E. Huntington Library and Art Gallery. The Brock Collection, 1833-67, contains materials relating in particular to the Washington National Monument Society's involvement with the monument.

Washington, D.C.. The Library of Congress. The Robert Mills Collection, 1804-62 is a limited collection of manuscripts generated during the Mills construction phase.

Washington, D.C.. National Archives and Records Service. Record Group 42 (Records of the Office of Public Buildings and Grounds Records of the Washington National Monument Society, 1833-1951) is the largest collection of monument-related manuscripts and government documents; Mary-Jane Dowd has inventoried these well in Records of the Office of Public Buildings and Public Parks of the National Capital: Record Group 42, Inventory No. 16, Washington, D.C.: National Archives and Records Administration, 1992. Record Group 77 (Records of the Corps of Engineers) is also a valuable source of post-1876 information on the monument.

PART IV. PROJECT INFORMATION

Documentation of the Washington Monument was undertaken from August 1993 to May 1994 by the National Park Service, National Capital Region (NCR), Robert Stanton, Director; National Capital Parks-Central, Arnold Goldstein, Superintendent, and Vikki McGraw, Assistant Superintendent; and the Historic American Buildings Survey/Historic American

Engineering Record (HABS/HAER), Robert J. Kapsch, Chief. Project planning was coordinated by Paul D. Dolinsky, Chief, HABS; Rebecca Stevens, Regional Historical Architect, NCR; Joseph D. Balachowski, HABS Architect; Alison K. Hoagland, HABS Senior Historian; and Mark Schara, HABS CAD Studio Architectural Supervisor. The drawings were produced by HABS Architects Mark Schara, Robert R. Arzola, Dana L. Lockett, and Jose Raul Vazquez, using computer-aided drafting with dimensions derived from historic drawings, traditional hand measuring, and photogrammetry. Large-format photography was undertaken by HABS photographer Jack E. Boucher. Assistance with aerial photography and photogrammetry was provided by the National Park Police. The historical report and annotated bibliography of historical architectural drawings, photographs and other documents pertaining to the construction history of the Washington Monument was written by Aaron V. Wunsch, HABS summer historian.

ADDENDUM TO
WASHINGTON MONUMENT
Fifteenth Street between Independence
and Constitution Avenues, NW
Washington
District of Columbia

HABS NO. DC-428

HABS
DC
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2-

PHOTOGRAPHS

HISTORIC AMERICAN BUILDINGS SURVEY
National Park Service
U.S. Department of Interior
1849 C Street, NW
Washington, D.C. 20240

ADDENDUM TO:
WASHINGTON MONUMENT
Washington Monument
High ground West of Fifteenth Street, Northwest, between
Independence & Constitution Avenues
Washington
District of Columbia

HABS DC-428
HABS DC, WASH, 2-

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PHOTOGRAPHS

COLOR TRANSPARENCIES

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