NPS Form 10-900
(Rev. Aug. 2002)

VLR Listed: 9/29/2006
NRHP Listed: 11/15/2006

OMB No. 1024-0018

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

1. Name of Property

historic name _Leander McCormick Observatory, Updated Nomination for National Significance_____
other names/site number _VDHR #002-1759_____

2. Location

street & number _600 McCormick Road_____ not for publication__N/A__
city or town _Charlottesville_____ vicinity _N/A__
state _Virginia_____ code _VA_ county _Albemarle_____ code _003_ zip code _22904____

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 ____ meets ____ does not meet the National Register Criteria. I recommend that this property be considered significant _X_ nationally ___ statewide ___ locally. (___See continuation sheet for additional comments.)

_____ _____
Signature of certifying official Date
___**Virginia Department of Historic Resources**_____
State or Federal Agency or Tribal government

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

_____
Signature of commenting official/Title Date

_____
State or Federal agency and bureau

4. National Park Service Certification

I, hereby certify that this property is:

____ entered in the National Register
___ See continuation sheet.
____ determined eligible for the National Register
___ See continuation sheet.
____ determined not eligible for the National Register
____ removed from the National Register
____ other (explain): _____

Signature of the Keeper_____

Date of Action_____

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5. Classification

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Ownership of Property (Check as many boxes as apply)

___ private
___ public-local
_x_ public-State
___ public-Federal

Category of Property (Check only one box)

_x_ building(s)
___ district
___ site
___ structure
___ object

Number of Resources within Property

Contributing	Noncontributing	
0	0	buildings
0	0	sites
0	0	structures
0	0	objects
0	0	Total

Number of contributing resources previously listed in the National Register all 3 resources listed at state level

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

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6. Function or Use

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Historic Functions (Enter categories from instructions)

Cat: Education Sub: Research Facility
Domestic Single Dwelling

Current Functions (Enter categories from instructions)

Cat: Education Sub: Research Facility
Vacant/Not in Use

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7. Description

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Architectural Classification (Enter categories from instructions)

Second Gothic Revival/Romanesque
Queen Anne-Eastlake

Materials (Enter categories from instructions)

foundation brick
roof metal
walls brick
other

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

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8. Statement of Significance

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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 a grave.
____ D a cemetery.
____ E a reconstructed building, object, or structure.
____ F a commemorative property.
____ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

Education
Science
Architecture

Period of Significance 1883 - 1956

Significant Dates 1883, 1885

Significant Person (Complete if Criterion B is marked above)_____

Cultural Affiliation _____

Architect/Builder Wilson Brothers & Co., architect, observatory building; Warner and Swasey, dome; Manois and Sons/Alvan Clark and Sons, telescope; George W. Spooner, builder, Observatory House #1 (Alden House)

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

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9. Major Bibliographical References

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(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS)

___ preliminary determination of individual listing (36 CFR 67) has been requested.
_X_ 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 # _____

Primary Location of Additional Data
_X_ State Historic Preservation Office
___ Other State agency
___ Federal agency
___ Local government
_X_ University
___ Other
Name of repository: __University of Virginia_____

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10. Geographical Data

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Acreage of Property ___1.27 acres (as originally listed in 2004)__

UTM References (Place additional UTM references on a continuation sheet)

Zone	Easting	Northing	Zone	Easting	Northing	Zone	Easting	Northing	Zone	Easting	Northing
1	17	717432	4212094	2	__	_____	_____	3	__	_____	_____	4	__	_____	_____

___ See continuation sheet.

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)
Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

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11. Form Prepared By

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name/title Brian E. Hogg, Senior Historic Preservation Planner, Office of the Architect for the University
organization University of Virginia_____ date_____
street & number The Rotunda, S/E Wing P.O. Box 400304____ telephone (434) 924-4356_____
city or town_Charlottesville_____ state_VA_ zip code _22904_____

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Additional Documentation

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Submit the following items with the completed form:

Continuation Sheets
Maps A USGS map (7.5 or 15 minute series) indicating the property's location.
A sketch map for historic districts and properties having large acreage or numerous resources.
Photographs Representative black and white photographs of the property.
Additional items (Check with the SHPO or FPO for any additional items)

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Property Owner

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(Complete this item at the request of the SHPO or FPO.)
name __The Rector and Board of Visitors of the University of Virginia
street & number P.O. 400726_____ telephone_____
city or town ___Charlottesville_____ state_VA___ zip code _22904____

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7. Description:

Summary Description:

Set on a crest of a small mountain officially named Mount Jefferson, but widely known as Observatory Hill, the Leander McCormick Observatory, completed in 1884, was the second observatory on this site. The first was largely unused and was removed in 1859. The McCormick Observatory provided a facility and equipment for a discipline which had long been a component of the curriculum at the University of Virginia. Its completion fully realized Thomas Jefferson's intentions for this property, which he had arranged for the university to purchase in part as the site for an observatory. The round brick structure with Romanesque Revival style architectural details evokes a medieval chapter house. Beneath the dome is the original Alvan Clark and Sons telescope. The dome was designed specifically for the site and is notable for its ease in rotation. The original brick structure comprised the dome room and a two bay work space to the north. Two additions were made to the Observatory, the first, circa 1930, included a classroom and two small offices. The second was constructed in 1972 at a ninety-degree angle to the original section. The additions do not detract from the original observatory design, which retains its historical context. The brick Queen Anne-Eastlake style Observatory House #1, called Alden House, which served as the home of the director of the observatory, is located just down the hill from the observatory and was completed in 1883. The simply detailed brick Small Observatory was completed in 1934, and is adjacent to the main observatory.

7. Description

Detailed Description

The original observatory consisted of the round dome room and a two-room rectangular section that held the library and a workroom. The red brick building has walls of five-course common bond featuring alternating blind and fenestrated round headed arches separated by large buttresses trimmed with stone. The entrance was on the short end of the extension with a triangular pediment over the arched doorway. Two marble panels over the door were inscribed “Leander McCormick Observatory” and “1883.” The dome is metal. Eight original double-hung arched windows serve the dome room. There is an exterior door situated directly across from the door leading into a vestibule that leads to the library.

The main access to the observatory was moved to between the library and the dome room when an addition was constructed circa 1930. When this change was made, the pediment was not replicated, but the marble panels were placed in their present position over the main entrance. The observatory itself has undergone few changes since its construction. The original canvas still covers the interior of the dome. There are three panels in the dome which open to provide a complete view of the sky. The gearing for these panels and to rotate the dome is original. The original wooden ladder and observation chair which rotates around the dome room remains. The heart pine floors have recently been exposed and restored.

The 26-inch Alvan Clark & Sons refracting telescope was the largest in the United States when it was dedicated in 1885 and it remains the tenth largest refracting telescope in the world today. The Clarks were the acknowledged masters of telescope construction in the later half of the 19th century, and they made the lenses for the largest refracting telescopes in the world five times, and still hold that record with the 40" Yerkes refractor. The McCormick telescope was essentially an improvement on the very successful U.S. Naval Observatory refractor, with improved optics, and the McCormick lens was used by the Clarks in 1877 to confirm the existence of the moons of Mars, discovered a few days earlier with the Naval Observatory refractor.

The telescope has been modified only slightly over the years, and is unique among large Alvan Clark & Sons refractors in that it still has the original Clark equatorial mount. Most of the original equipment associated with the telescope, including the lenses, tube, mount, tailpiece, as well as the gears and governor for the clock drive are still in use or preserved in the dome room.

The library has two windows and contains the original bookshelves and cabinets that held the photographic plates. The library also originally contained clocks, chronographs and seismographs. The small workroom has two windows and built-in bookcases. All portions of the observatory have original hardware including ornate brass door hinges and doorknobs. A dark room was added to the basement beneath the original observatory in 1913. The basement also held storage areas and a toilet room.

In addition to the dark room, changes to the observatory include a water line which was laid in 1914. In 1930, an addition to the library was constructed. It provided additional classrooms and two small offices. It is the same height as the original building and is also clad in brick. A collection of astronomical equipment is displayed in its basement. In 1972, a one-story addition was built at a 90-degree angle to the rest of the structure. It, too is clad in brick.

Observatory House #1, called Alden House, is a two-story Queen Anne-Eastlake style red brick house. It has a T-shaped plan with steep gable and hipped roofs retaining their original standing seam metal cladding. The roof has both gable- and shed-roofed dormers. Construction of the house began in 1882, concurrent with that of the observatory, and was completed in 1883. Charlottesville architect/builder George Spooner built the house, perhaps based on plans by Wilson Brothers, the Philadelphia firm who designed the observatory. It is constructed of five-course common bond with a Flemish header course and has a three-course projecting brick water table. There is an arched window in each gable end and wooden tracery work in the gabled dormer pediments. The house is entered from a large Eastlake style porch through double doors into a central passage. There are four principal rooms and a large hall on each floor. The building served as the home of the observatory director until the 1970s when it was divided into two apartments, one per floor. The main stair was originally located off the main hall, but was replaced when the apartments were created. The new stair is entered by a side door, and provides direct access to the second floor apartment. The two largest rooms on the ground floor have pocket doors at the entrances from the main hall. Each room, including the hall, had a coal fireplace; many coal grates remain in place. The cellar was never finished. The louvered wooden shutters have all been removed and stored in the cellar. The attic is accessible by a stair and is lit by the dormers and arched pediment windows.

In 1934, the Small Observatory, a simple brick building with large recessed panels on each side, a single entrance door and a corbelled brick cornice encircling the entire building, was constructed adjacent to the main observatory to house a second telescope. The gabled metal roof retracts on runners to allow operation of the telescope.

8. Statement of Significance

Summary

The Leander McCormick Observatory was built in 1883-84 on the summit of Observatory Mountain (renamed Mount Jefferson), selected in 1825 by Thomas Jefferson as the site for an observatory. The gift of the observatory and telescope by the industrialist and philanthropist Leander J. McCormick of Virginia and Chicago, along with the use of such a ponderous Romanesque Revival design for the observatory, is illustrative of the serious enthusiasm for advanced scientific study in the late nineteenth century. The rotating dome is of a unique design (patented by Worcester Warner and Ambrose Swasey of Cleveland, OH), and the largest in the world when constructed. This dome serves the 26-inch refracting telescope, then the largest in the United States, and second largest in the world. The telescope was created by Alvan Clark & Sons of Cambridgeport, Massachusetts. The flint and crown glass lenses were cast in France by Manois & Sons, and ground by Alvan Clark & Sons. It is still considered to be one of the finest large refractors in the world, and while it has been in continuous use, it is maintained in near original condition.

The observatory is best known for the direct determination of stellar distances, and was a leader in the field of astrometry; by 1990, Leander McCormick Observatory had determined the distances for 25% of all stars with known distances. Other important work includes a catalog of nearby red dwarf stars, which represented the first unbiased sample of stars in the vicinity of the Sun. This and other work at Leander McCormick Observatory contributed to scientific knowledge of the Earth's place in the Milky Way Galaxy.

The Leander McCormick Observatory was first listed under Criteria A and C at a statewide level of significance on March 17, 2004, in the Virginia Landmarks Register and on November 19, 2004, in the National Register of Historic Places. This updated nomination recommends a national level of significance along with a slightly extended period of significance from 1883 through 1956, due to the Observatory’s international benefits as recent as the 1990s.

Historical Background

Thomas Jefferson's original plan for the curriculum at the University of Virginia included astronomical study and it was his desire to have an observatory on the university's grounds. He suggested at one point painting the interior of the Rotunda dome blue with gilded stars and also considered renovating Monroe Hill House to serve as an observatory. In 1825, he prepared plans for an observatory which would have been sited on the crest of a small mountain to the west of the central grounds. Officially Mount Jefferson, this site is popularly known now as Observatory Hill. In 1828 an observatory was constructed on this site, but it was little used and eventually demolished in 1859. The Leander McCormick Observatory was completed here in 1884.

Leander James McCormick of Rockbridge County conceived of the idea to give the world's largest refracting telescope to a university in his home state while living in Chicago. McCormick had developed the reaper with his brother Cyrus McCormick and eventually assumed responsibility for the manufacturing department of the McCormick Harvesting Machine Company. McCormick initially offered the telescope to Washington College (now Washington and Lee University), but then-president of the college, Robert E. Lee, declined the gift. Colonel Charles Scott Venable, aide-de-camp to Lee and a Mathematics professor at the university, played an essential role in redirecting the gift from Washington College to the University of Virginia, and was instrumental in establishing the Astronomy Department's independence from the Department of Natural Philosophy. The observatory was completed in late 1884, with its official dedication on Founder's Day, April 13, 1885. It was named after its donor.

Professor Ormond Stone supervised the construction of the observatory and served as its director from 1882 to 1912.

Wilson Brothers & Company, civil engineers and architects from Philadelphia, designed the observatory. The firm was established in 1876 by Joseph Wilson, his brother John Wilson, and Frederick Thorn to supervise construction and design buildings for the Centennial Exhibition in Philadelphia. The firm grew to be among the most prominent in late-19th century Philadelphia with a practice serving both public and private clients in a wide range of building types. Thomas U. Walter joined the firm after several years in private practice following his work on the Capitol in Washington.

Wilson Brothers' practice concentrated on buildings which combined modern engineering technology with fashionable architectural design, making the firm particularly suited for the design of an observatory. Railways were always significant clients, and Wilson Brothers designed the Reading Terminal Station, now renovated as a hotel and the Reading Terminal Market, the Pennsylvania Railroad Station (demolished) in Philadelphia, and smaller stations and bridges across much of the northeastern United States. Institutional commissions included the Main Building at Drexel University (1891), which features a monumental central court with a skylight, and an astronomical observatory for the United States Military Academy (ca. 1883 – demolished).

Worcester Warner and Ambrose Swasey of Cleveland, Ohio, designed and manufactured the dome. With its three apertures and circular track providing for easy rotation, the dome was the first of its kind, and its design was eventually patented by Warner and Swasey. Warner & Swasey Company was founded in 1880 as a manufacturer of machine tools, especially lathes, and telescopes. The company fabricated housings and mounts for Alvan Clark & Sons objectives starting in the late 1880s; they also supplied telescopes, mounts and domes for a number of observatories, among them the Otto Struve Telescope at the McDonald Observatory in Austin, TX; the University of Washington campus observatory in Seattle; and the Dominion Astrophysical Observatory in Victoria, British Columbia.

The McCormick Observatory's 45-foot diameter dome contains a 26-inch refracting telescope. Manois and Sons cast the glass for the lenses in France. The glass was shipped to Alvan Clark & Sons of Cambridgeport, Massachusetts, who ground the lenses and fabricated the telescope.

Alvan Clark began manufacturing telescopes as a hobby in the late 1840s. By the 1850s, his sons had joined him to create Alvan Clark and Sons, a firm which produced both entire telescopes and optics for telescopes manufactured by others. The firm was the preeminent American manufacturer of lenses through the end of the 19th century and early 20th century, and in five instances produced the objectives for the largest refracting telescopes in the world; their work for the Yerkes Observatory in Wisconsin retains that title. By the 1880s, when the McCormick Observatory's telescope was produced, Alvan Clark and Sons recognized that the firm's strength lay in its skill as lens grinders, and began to contract the mounts for many of their objectives to other firms, notably Warner & Swasey. This was especially true for their medium and large lenses, making the firm's fabrication of this telescope and mount particularly notable.

The 26-inch telescope was initially used for visual observations of southern nebulae and double stars, as well as determining precise positions of southern stars, but in 1914, the recently appointed director Samuel Alfred Mitchell began a program to photograph nearby stars and determine their distances through the technique of trigonometric parallax. This work continued for 80 years at McCormick Observatory, and over this time the telescope was responsible for directly measuring the distances to 25% of all of the stars with measured distances. The collection of over 140,000 photographic plates is housed in the 1972 addition to the observatory.

In 1934, Alexander Vyssotsky began to work with the newly acquired 10-inch astrograph housed in the Small Observatory. The astrograph was a gift of the Carnegie Institute of Washington, and the Cooke triplet lens was refurbished by J.W. Fecker of Pittsburgh. With this telescope he started a program to identify nearby red dwarf stars spectroscopically, and over the next two decades he and collaborators assembled the first unbiased catalog of stars in the solar neighborhood, which is still used today. Many of these stars had their distances subsequently determined using the 26-inch telescope, and this work helped to give a more complete picture of the types of stars in the Milky Way Galaxy.

In addition to the direct scientific contributions made by McCormick Observatory, it has also been the starting point for the careers of a number of important astrophysicists, astronauts, and academics. Among them are Frank Leavenworth, director, Haverford Observatory; Charles Olivier, founder, American Meteor Society and director, Flower & Cook Observatory; Heber D. Curtis, director, Lick and Allegheny Observatories, Peter (Piet) van de Kamp, director, Sproul Observatory; Frank Bash, director, McDonald Observatory; Karl G. Heinize, astronaut; Edgar O. Lovett, first president of Rice University; Harry Y. Benedict, 10th president of the University of Texas; and J. Park McCallie, founder of the McCallie School.

The observatory has been expanded twice to meet increased use and provide broadened programs, circa 1930 and in 1972.

The original complex included a small wooden transit house and dome to the southwest, a wooden cottage to the northwest, and a large brick residence for the director of the observatory to the northeast. While the frame buildings have been demolished, the residence, called Observatory House #1 or Alden House, remains largely unaltered.

Alden House, named for the third director of the observatory, Harold Alden, was completed the year before the observatory itself. The large Queen Anne-Eastlake style house was begun in 1882, following a $5000 appropriation by the University's Board of Visitors. Constructed by Charlottesville architect/builder George Spooner, there is some suggestion in the university's records that he may have worked from plans prepared by Wilson Brothers, architects of the observatory. The house remained in use as the director's residence until the 1970s, when it was modified to accommodate two apartments. This was the only significant alteration to the building, and resulted in the removal of the main stair. The building is otherwise very intact. It was closed as a residence in 2004, and is currently mothballed in anticipation of restoration.

The Small Observatory was constructed to the west of the original observatory in 1934 to house the 10-inch Cooke astrograph, for use by Alexander Vyssotsky.

In the mid-1960s, a new observatory was constructed on Fan Mountain, 19 miles south, because of the increase of night light in Charlottesville. While scientific research continued at McCormick Observatory into the early 1990's, thereafter the bulk of the research was carried out at Fan Mountain, and McCormick is now used as a training instrument for undergraduate and graduate students. The Astronomy Department hosts popular public nights at the observatory twice a month.

9. Major Bibliographical References

Dabney, Virginius. *Mr. Jefferson's University: A History*, Charlottesville: University Press of Virginia, 1981.

Lakadat, Adrienne and Elizabeth Hughes. *Leander McCormick Observatory*, Charlottesville: University of Virginia, School of Architecture, 1990.

Olivier, Charles F. "History of the Leander McCormick Observatory Circa 1883 to 1928" *Publications of the Leander McCormick Observatory of the University of Virginia, Vol. XI, Part XXVI*, Charlottesville, 1967.

Warner, Deborah Jean and Robert B. Ariail. *Alvan Clark & Sons: artists in optics*, 2nd edition, Richmond: Willman-Bell, Inc. in association with National Museum of American History, Smithsonian Institution, 1995.

Wilson, Richard Guy and Sara A. Butler. *The Campus Guide: University of Virginia*. New York: Princeton University Press, 1999.

10. Geographical Data

Verbal Boundary Description

The listed property (a 1.27-acre parcel) is identified as parcel #07600-00400 on the tax maps of Albemarle County.

Boundary Justification

The land described in the nomination includes all of the historic features directly associated with the Leander McCormick Observatory and maintains the originally listed 1.27-acre parcel #07600-00400 in Albemarle County.

The following information is the same for all photographs:
Name of Property: Leander McCormick Observatory
Location of Property: Albemarle County, VA
Date of Photographs: July 2004; June 22, 2006
Negative Number: N/A
Photographer: University of Virginia; Alison Snow
Digital Photographs Filed at the Department of Historic Resources, Richmond, VA

Photograph 1 of 10
View: McCormick Observatory

Photograph 2 of 10
View: McCormick Observatory and extension

Photograph 3 of 10
View: McCormick Observatory main entrance

Photograph 4 of 10
View: Detail of main entrance

Photograph 5 of 10
View: Telescope and interior of dome room

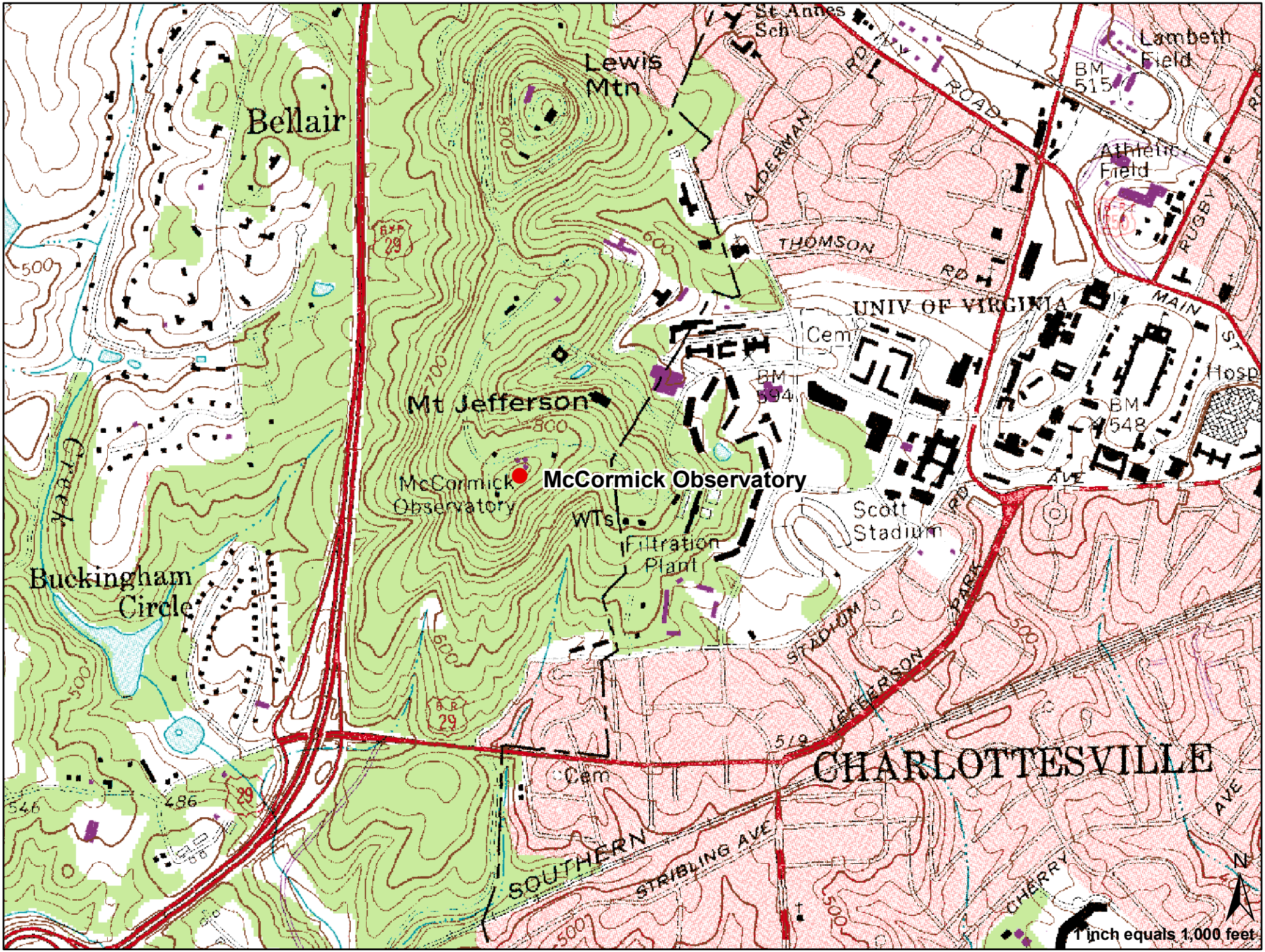
Photograph 6 of 10
View: Small Observatory

Photograph 7 of 10
View: Small Observatory with roof retracted

Photograph 8 of 10
View: Observatory House #1 from northeast (approach to main entrance)

Photograph 9 of 10
View: Observatory House #1 from west (rear elevation)

Photograph 10 of 10
View: Observatory House #1 detail of main entrance


McCormick Observatory
Bellair
Lewis Mtn
Mt Jefferson
McCormick Observatory
WTs
Filtration Plant
Buckingham Circle
Creek
St Annes Sch
ALDERMAN ROAD
Lambeth Field
BM 515
Athletic Field
RUGBY
THOMSON RD
UNIV OF VIRGINIA
Cem
MAIN ST
Hosp
BM 504
BM 548
Scott Stadium
STADIUM
PARK
JEFFERSON
CHARLOTTESVILLE
Cem
SOUTHERN
STRIBLING AVE
CHERRY AVE
546
486
519
500
600
700
800
29
N
1 inch equals 1,000 feet