



## Executive Director's Recommendation

Commission Meeting: July 11, 2019

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<b>PROJECT</b> <b>New Master Clock Facility and Building Rehabilitation</b> US Naval Observatory 3450 Massachusetts Avenue, NW Washington, DC	<b>NCPC FILE NUMBER</b> 7995
<b>SUBMITTED BY</b> United States Department of Defense Department of the Navy	<b>NCPC MAP FILE NUMBER</b> 71.20(38.00)44956
<b>REVIEW AUTHORITY</b> Federal Projects in the District per 40 U.S.C. § 8722(b)(1) and (d)	<b>APPLICANT'S REQUEST</b> Approval of final site and building plans
	<b>PROPOSED ACTION</b> Approve final site and building plans
	<b>ACTION ITEM TYPE</b> Staff Presentation

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### PROJECT SUMMARY

The United States Department of Defense, Department of the Navy, has submitted final site and building plans for the construction of a new Master Clock Facility and the rehabilitation of several historic buildings on the United States Naval Observatory (USNO) campus in Washington, DC. The USNO Campus is comprised of approximately 72 acres of land and is located in the northwest quadrant of the District of Columbia, approximately one-half mile west of Rock Creek, between Massachusetts Avenue and Wisconsin Avenue. It is surrounded by densely populated neighborhoods, with Woodley Park to the east, Georgetown to the south, Glover Park to the west, and the National Cathedral to the north. Four primary tenants occupy the USNO campus: United States Naval Observatory, Oceanographer of the Navy, United States Secret Service, and the Residence of the Vice President of the United States.

The Commission reviewed and approved the preliminary plans for the new Master Clock Facility and the building rehabilitations at the July 12, 2018 meeting. The Commission supported the placement of the facility and the minimalist design, and requested additional views and renderings be provided as part of the final submission. As a reminder, while the Commission approved the Master Plan for the USNO Campus in 2014, a new Master Clock facility was not identified in the Plan. However, an extensive Basic Facilities Requirements (BFR) and programming analysis was performed which identified the need for a new Master Clock Facility at USNO. The BFR also identified the need to rehabilitate Buildings 3 (old Clock House), 52, 52A, and 78 to accommodate the required functions and personnel for the project. Building 3 will continue to serve as the operations base and sleeping quarters for the astronomers.

The USNO performs an essential scientific role for the United States, the Navy, and the Department of Defense. Its mission includes determining the positions and motions of the earth, sun, moon, planets, stars and other celestial objects; providing astronomical data; maintaining precise time; determining the earth's orientation in space; and maintaining the Master Clock for

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the Department of the Defense. Observatory physicists; engineers, and technicians develop and maintain the Master Clock and its dissemination systems. This astronomical and timing data, essential for accurate navigation and the support of communications on earth and in space, is vital to the Navy and Department of Defense. It is also used extensively by other agencies of the government and the public at large.

As discussed during the preliminary review, while consolidating many functions into one building, the design of the new Master Clock Facility has many conflicting requirements and constraints. It must meet the mission and project requirements, integrate into the existing site and landscape, and be compatible with the existing buildings and spatial organization of the USNO campus.

The Department of the Navy has identified a location for the new Master Clock Facility (Building 51) that is as close to the Observatory Center, Building 3, as possible, while addressing the other operational, functional, and security constraints imposed on the new facility. The one-story new facility is comprised of 15,000 square feet, and will have a minimalist contemporary design expression, so as to not visually compete with the historic buildings on the campus.

## KEY INFORMATION

- The Commission approved the preliminary site and building plans for the project on July 12, 2018 and provided comments to be considered as part of the final review.
  - A Master Plan for the United States Naval Observatory (USNO) was approved by the Commission in March 2014; however, a new Master Clock Facility was not captured in the Master Plan, but identified in a later Basic Facilities Requirements analysis.
  - The rehabilitation of Buildings 3, 52, 52A, and 78 is consistent with the strategies for renovating existing facilities in the Master Plan.
  - The USNO campus has been determined eligible for the National Register of Historic Places, as a historic district, with buildings, structures, and landscape elements contributing to its historic significance. Buildings 3 and 78 are individually eligible for the National Register and Building 52 is a contributing building within the eligible district.
  - Architect Richard Morris Hunt designed many of the historic buildings on the campus, the only known examples of his work in Washington, DC.
  - The Department of the Navy identified many constraints imposed on the new Master Clock Facility, related to operational, functional, and security issues, that informed the proposed site and design of the new Master Clock Facility.
  - A historic landscape survey compiled by the Navy in 2017, identifying significant historic landscape elements on the USNO campus, also informed the decision for the location of the new Master Clock Facility.
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## RECOMMENDATION

The Commission:

**Approves** the Navy's final site and building plans to consolidate the Master Clock functions into one new facility and rehabilitate historic contributing buildings on the campus.

**Notes** that the Naval Observatory campus has been determined eligible for the National Register of Historic Places, and has contributing elements that include buildings, structures, and landscape design elements designed by architect Richard Morris Hunt.

**Supports** the Navy's location for the new Master Clock facility at the Naval Observatory, as the site location is lower in grade than the historic Clock House (Building 3).

**Notes** that the site location was moved from an earlier discussed location north of the Clock House (Building 3), so the new Master Clock facility would not visually compete with the historic buildings centered on the Clock House, and the axial relationship established by architect Richard Morris Hunt.

**Notes** that there are constraints for the location of the new Master Clock facility, based on the operations of the clocks contained in the facility, the functional relationship to other existing buildings, security requirements based on the proximity to the Vice President's residence, and avoidance of sensitive archaeological sites and significant historic landscape elements.

**Notes** that during the Section 106 Consultation process, the design for the new Master Clock facility evolved to reflect a minimalist contemporary architectural expression, which quiets the building, allowing it to be in the background and not competing with the historic buildings on the campus.

**Supports** the design of the new Master Clock facility as it does not compete with the architectural character of the historic contributing buildings designed by Hunt, while relating to its function as a structure to contain the "master clocks" for the Department of the Navy, similar to a computer server room.

**Notes** the applicant has provided additional views and renderings of the proposed building, consistent with the Commission's previous request.

## PROJECT REVIEW TIMELINE

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<b>Previous actions</b>	<b>March 6, 2014</b> – Commission approved Master Plan for United State Naval Observatory Campus. <b>September 2, 1010</b> – Commission approved interior fence security installation.
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	<b>July 12, 2018</b> – Commission approved preliminary site and building plans
<b>Remaining actions</b> (anticipated)	– None.

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## PROJECT ANALYSIS

### Executive Summary

The design of the new Master Clock Facility balances highly constrained and specialized operational program requirements and historic preservation considerations. The site location, design expression, massing, and material palette of the proposed new building are compatible with the character of the existing historic buildings and the historic USNO campus while avoiding visually competing with the most significant of the historic buildings. The project is consistent with the Comprehensive Plan for the National Capital, in particular the Federal Workplace, Federal Environment, and Historic Preservation Elements. The Commission previously approved the preliminary plans for the project and requested additional views of the new building. The applicant has provided additional renderings and further developed the project design. Therefore, staff recommends that the **Commission approve the Navy's final plans to consolidate the Master Clock functions into one new facility and rehabilitate historic contributing buildings on the campus.**

Since preliminary review, several elements of the project have changed or have been eliminated as part of the project scope including:

- Revisions to the roof and elevator location of Building 78 to meet program requirements;
- The removal of the fence and gates around new Building 51, which are longer required;
- The removal of the bioretention basins near Buildings 52/52A and 78, as stormwater management solutions around Buildings 3 and 51 meet the requirements for the site.

### Analysis

As stated previously, the Commission approved a Master Plan for the USNO Campus in 2014, while a new Master Clock facility was not captured in the Plan. However, an extensive Basic Facilities Requirements (BFR) and programming analysis was performed which identified the need for a new Master Clock Facility at USNO, identified as Building 51. The BFR also identified the need to rehabilitate Buildings 3 (old Clock House), 52, 52A, and 78 to accommodate the required functions and personnel for the project. Building 3 will continue to serve as the operations base and sleeping quarters for the astronomers.

The USNO performs an essential scientific role for the United States, the Navy, and the Department of Defense. Its mission includes determining the positions and motions of the earth, sun, moon, planets, stars and other celestial objects; providing astronomical data; maintaining

precise time; determining the earth's orientation in space; and maintaining the Master Clock for the Department of the Defense. Observatory physicists; engineers, and technicians develop and maintain the Master Clock and its dissemination systems. This astronomical and timing data, essential for accurate navigation and the support of communications on earth and in space, is vital to the Navy and Department of Defense. It is also used extensively by other agencies of the government and the public at large.

For mission reasons, the Master Clock Facility (Building 51) is to be located as close to the Observatory Center, Building 3, as possible, while addressing the following identified constraints:

- Providing required security setback from the Vice President's residence located on the campus.
- Avoiding site locations containing geothermal fields.
- Avoiding site locations that interfere with the existing telescope buildings (Buildings 39 and 87) to not obstruct sight lines and views.
- Negotiating the topography. The site's high point is Building 3 and slopes down steeply in all directions. The new facility must minimize steep slopes and provide an accessible route to the new facility.
- Avoiding Explosive Safety Quantity Arcs that limit the placement of the new facility.
- Avoiding identified archaeological sites that limit the placement of the new facility.
- Locating the new facility as far as possible from Building 3 to not visually compete with the original Clock Building.

### Site Selection and Description

As discussed during the preliminary review, the applicant has selected to site the new Master Clock Facility (Building 51) slightly northeast of the historic Clock House (Building 3), as this location best addresses the identified site constraints. Vehicular access to Building 51 will be provided by extending Goldsborough Avenue east between Building 3 and 51 back to Newcomb Place. This extension will eliminate the existing dead street and enhance the overall vehicular circulation on the site while maintaining the meandering character of the site's road system. This new road will provide access to drop-off equipment at the building's entrance and mechanical areas. Therefore, staff recommends the **Commission support the Department of the Navy's proposed location for the new Master Clock facility at the Naval Observatory, as the site location is lower in grade than the historic Clock House (Building 3)**. Staff notes that the site location was moved from an earlier discussed location north of the Clock House (Building 3), so the new Master Clock facility would not visually compete with the historic buildings centered on the Clock house, and the axial relationship established by architect Richard Morris Hunt.

Pedestrian access to the Observatory Center, at Building 3, will be from the existing network of sidewalks from the various buildings to the south of Building 3. A new sidewalk is planned along the loop road to provide ADA access to the new Master Clock Facility (Building 51). A new ADA access to Building 3 is included in that building's rehabilitation. Navy will also provide a vehicle

charging station and parking spaces near Building 51 to replace the vehicle charging station and parking spaces that will be removed from Building 78.

### Master Clock Facility (Building 51) Design

The function of the facility requires the building to be linear in plan, one-story, and approximately 15,000 square feet. It is served by redundant equipment rooms located at each end. For security reasons, a single central entrance is the sole ingress and egress point for the building with emergency exits combined with equipment room accesses at each end. The building's operational program requires there be no windows and therefore, the only other openings on the exterior are those required to support the mechanical systems, including louvers, exhaust manifolds, and vent pipes.

As noted during preliminary review, the design for the new Master Clock facility (Building 51) evolved to reflect a minimalist contemporary expression, which quiets the building, allowing it to be in the background and not competing with the historic buildings on the campus. It is rectangular in form, with two wings that intersect to give way to the main entrance. The elevations are a single plane of architectural pre-cast stone panels with only necessary penetrations. The other exterior elements consist of anodized aluminum panels, louvers, gutters and doors to minimize and harmonize materials. Thus, staff **recommends the Commission notes that during the Section 106 Consultation process, the design for the new Master Clock facility evolved to reflect a minimalist contemporary architectural expression, which quiets the building, allowing it to be in the background and not competing with the historic buildings on the campus.**

The façade facing Building 3 has only three openings, the main entrance and combined emergency egress and service entrance on either side. These service entrances are recessed from the main plane of the building in a niche and read as the façade was cut and folded in to allow entry. The roof is single sloped toward north, devoid of gables or changes in pitch, rainfall drains into a continuous gutter along rear of building, downspouts group into only three location to minimize clutter and become a design feature. The roofing material consists of a gray membrane roofing with ribs, relating to the materials of the telescope domes, to provide less visual contrast with the walls than the green or copper roofs of other buildings. The exterior finishes are intended to complement the other buildings and structures on the campus, especially the telescope structures. The Commission previously requested additional views of the building, and the applicant has provided those, as well as the material selections, for the final submission. Overall, staff believes the views support the siting and design approach for the building. The material selection is also complementary to the building's minimalist nature.

As mentioned earlier, the fence and gates surrounding Building 51 in the previous review have been eliminated, as it was determined they were not required. Staff supports this change. Further, the plans have been submitted to DOEE for stormwater management review and for Erosion and sediment control review and comply with DC DOEE regulations, which means vehicle access areas are required to have at least 50% of the SWR treated or retained. The rain garden on the front of the building will treat the road runoff and the raingarden in the back is to treat the building.

Therefore, staff recommends the **Commission supports the design of the new Master Clock facility as it does not compete with the architectural character of the historic contributing buildings designed by Hunt, while relating to its function as a structure to contain the “master clocks” for the Department of the Navy, similar to a computer server room.**

### Historic Building Rehabilitations

The 2014 Master Plan outlined development strategies including renovating existing facilities that could still serve as viable facilities for similar uses (Buildings 3 and 78). The subsequent extensive Basic Facilities Requirements (BFR) and programming analysis also identified the need to rehabilitate Buildings 3, 52, 52A, and 78 to accommodate the required functions and personnel for the project. The rehabilitation component of the application is consistent with both the Master Plan and the BFR.

- Building 3 is the original Clock House designed by Richard Morris Hunt in 1893, providing a below ground vault into which the clock was moved. It will continue to serve as the operations base and sleeping quarters for the astronomers. Original historic interior elements such as crown moldings, flooring, and chair rails will be restored. The current vinyl siding on the exterior will be removed and wood siding will be installed with trim, based original construction documents. The cut stone on the center portion of the building will be restored, through repair, repointing, and cleaning. The existing standing seam copper roof will be retained. A new ADA access lift will be included by removing existing elevated concrete walkways, and replacing with stoops similar to those originally designed for Building 3.
- The foundations for the historic Transit Houses (Buildings 6 and 7) will be stabilized once the existing elevated concrete walkways are removed.
- Buildings 52 and 52A will be rehabilitated and is considered a major substantial improvement project per the 2013 DDOE stormwater rules. However, the previously proposed bioretention basins near Buildings 52/52A and 78 have been removed from the project as stormwater management solutions around Buildings 3 and 51 meet the requirements for the site. The buildings existing non-original windows and exterior doors will be replaced to meet current antiterrorism protection requirements. The existing EFIS exterior will be patched and repaired where needed. New roofing will be provided.
- Building 78 consists of the original one-story Astrographic Laboratory, built in 1932, with a two-story addition completed in 1961, forming a T-shaped footprint. Exterior rehabilitation will consist of stone repairs, repointing, and cleaning. The existing non-original windows will be replaced with new ant-terrorism and force protection windows in the original window configuration. One door will be slightly modified for ADA purposes. The elevator location has been revised to extend to the roof, due to structural concerns with previous location and to meet the requirements of the program.

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### Landscape Plan

Landscape plantings will support bioretention areas and bioswales while maintaining sensitivity to the historic landscape. Plant materials will be selected from the USNO native plant palette. Shallow bioretention basins lined with turf grass will blend with the open lawn character. Native trees and herbaceous cover will be incorporated within the deeper basins, as appropriate.

The rehabilitations of Buildings 3, 52, 52A, and 78 are all considered major substantial improvements projects per the 2013 DDOE stormwater rule. Building 51 is new construction, and stormwater management will be provided for this location as well as the others.

## **CONFORMANCE TO EXISTING PLANS, POLICIES AND RELATED GUIDANCE**

### **Comprehensive Plan for the National Capital**

As noted above, the project is consistent with the policies in the *Federal Elements of the Comprehensive Plan for the National Capital*. In particular, the project meets the objectives of the *Historic Preservation and Workplace Elements*. The policies included in the Historic Preservation Element promote the adaptive reuse of historic properties; encourage additions to be compatible with the qualities and character of historic buildings and their settings, in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. The project is also consistent with policies in the Federal Workplace Element, which encourages the government to rehabilitate existing facilities before constructing new facilities and also locating offices within the District of Columbia. It promotes making primary pedestrian entrances at federal workplaces readily ADA accessible.

### **National Historic Preservation Act**

All of the proposed work will take place within the Naval Observatory Historic District, a National Register of Historic Places-eligible district. In addition, Buildings 3 and 78 are National Register-eligible buildings, and Building 52 is a contributing building within the district. Many of the historic buildings and landscape elements were designed by renowned architect Richard Morris Hunt, and are the only examples of his work in Washington, DC.

The Department of the Navy and NCPC each have an independent responsibility to fulfill the requirements of Section 106 of the National Historic Preservation Act (NHPA). The Department of the Navy initiated the Section 106 consultation process with the District of Columbia State Historic Preservation Office (DCSHPO) and NCPC on April 4, 2017. The applicant, in consultation with the DCSHPO, NCPC, and other consulting parties, determined that the undertaking would cause adverse effects on historic resources. The Section 106 consultation concluded with an executed Memorandum of Agreement (MOA), which includes mitigation for the adverse effects to historic resources.

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## **National Environmental Policy Act**

The Department of the Navy and NCPC each have an independent responsibility to fulfill the requirements of the National Environmental Policy Act (NEPA). The Department of the Navy is preparing an Environmental Assessment (EA) for the project. NCPC served as a cooperating agency in the NEPA process. The final document was completed with FONSI's prepared by both the Navy and NCPC.

The EA is analyzing the following environmental impact topic areas: 1) air quality; 2) water resources; 3) cultural resources; 4) biological resources; 5) noise; 6) infrastructure; 7) public health and safety; 8) hazardous materials and wastes. There are no significant impacts to air quality, water resources, biological resources, noise, infrastructure, public health and safety, or hazardous materials and waste.

## **CONSULTATION**

### **Coordinating Committee**

Without objection, the Committee forwarded the proposed final site and building plans to the Commission with the statement that the proposal has been coordinated with all participating agencies. DOEE recommends that the applicant meet with a stormwater reviewer to discuss program requirements and ensure that the project complies with the 2013 Stormwater Rule. SHPO's coordination is subject to the Section 106 Memorandum of Agreement that has been executed for the project.

### **U.S. Commission of Fine Arts**

The U.S. Commission of Fine Arts approved the final design for the new Master Clock Facility and the building rehabilitations at the Naval Observatory on its June 20, 2019 Consent Agenda.

## **ONLINE REFERENCE**

The following supporting documents for this project are available online at [www.ncpc.gov](http://www.ncpc.gov):

- Submission Package
- Major NEPA/106 Documents or Letters, FONSI's

Prepared by Lee Webb  
06/18/2019

## **POWERPOINT (ATTACHED)**

# US Naval Observatory New Master Clock Facility and Building Rehabilitations

3450 Massachusetts Avenue, NW, Washington DC

Approval of Final Site and Building Plans

United States Department of Defense

# Project Summary

**Commission Meeting Date:** July 11, 2019

**NCPC Review Authority:** 40 U.S.C. § 8722(b)(1) and (d)

**Applicant Request:** Approval of Final Site and Building Plans

**Session:** Open

**NCPC Review Officer:** Lee Webb

**NCPC File Number:** 7995

## Project Summary:

The Department of the Navy is requesting approval of final site and building plans for the construction of a new master clocks facility and renovation of buildings at the U.S. Naval Observatory in Washington, DC.

The new Master Clock building will be Building 51, and will be a one-story building with 15,000 square feet. The Navy has been working with agencies including the DCSHPO, CFA, and NCPC to develop a proposal that is appropriate for this National Register listed Historic District, with buildings designed by Richard Morris Hunt.

Other buildings at the Naval Observatory will be restored and rehabilitated, including, Buildings 3, 52, 52 A, and 78.

# Project Summary

The goals for the project at the final review include the following:

Provide a new Master Clock Facility (Building 51) near the Naval Observatory Center

- Integrate both new and original Master Clock Facilities into the Historic District & Landscape while maintaining the project mission
- Rehabilitate Original Clock Facility (Building 3) and Foundations of Buildings 6 & 7 to meet *Secretary of the Interior's Standards* and enhance the space for mission use
- Upgrade Time Service & Operations Facilities to meet technical and staffing requirements
- Ensure reliability and redundancy of systems
- Incorporate C4ISR infrastructure and components
- Meet AT/FP & security requirements
- Update aging facilities and systems
- Meet strict environmental control requirements for Master Clock Facility
- Reduce stormwater runoff rate from site to Dumbarton Run
- Design program within schedule and budget constraints

Changes to the project since the preliminary review include: removed Building 51 fence and gates, as no longer required, revised Building 78 elevator location and extended to roof, due to structural concerns with previous location and to meet the requirements of the program, removed bioretention basins near Buildings 52/52A and 78, as stormwater management solutions around Buildings 3 and 51 meet the requirements for the site.

# Project Summary

For the design of the new Master Clock Facility, also known as Building 51, the applicant used the following for the design approach:

Function requires building to be linear, one-story and approx. 15,000 SF

Single central entrance is sole ingress and egress

Emergency exits combined with equipment room accesses at each end

Avoiding false ornament

- Minimalist in detail, allowing the building to be in the background not competing for attention
- Rectangular, bent in half to give way to main entrance
- Only 3 openings –main entrance and a combined emergency egress and service entrance to either side Service entrances are recessed from main plane of building in a niche and read as if the façade was cut and folded in to allow entry
- Façade –single plane of architectural precast panels with only necessary penetrations
- No windows (because of program) –only other exterior openings are for mechanical systems, openings concealed by a continuous louver enclosure that extend down either side and wrap around to rear elevation, Provides unified appearance to what would otherwise be a random array of multiple openings of differing size, shape and height
- Roof is single sloped toward north, devoid of gables or changes in pitch, rainfall drains into a continuous gutter along rear of building, downspouts group into only three location to minimize clutter and become a design feature

# Project Summary

Building 51 materials include the following to complement other structures on the site, but distinguish Building 51 as instrument, not building

- Materials relate to telescopes, not buildings
- Architectural precast panel used for wall to mimic stone cladding on other buildings
- Gray membrane roofing with ribs, relates to materials of telescope domes, less visual contrast with the walls than the green or copper roofs of other buildings
- Anodized aluminum panel, louvers, gutters and doors to minimize and harmonize materials
- Materials support minimalist design aesthetic

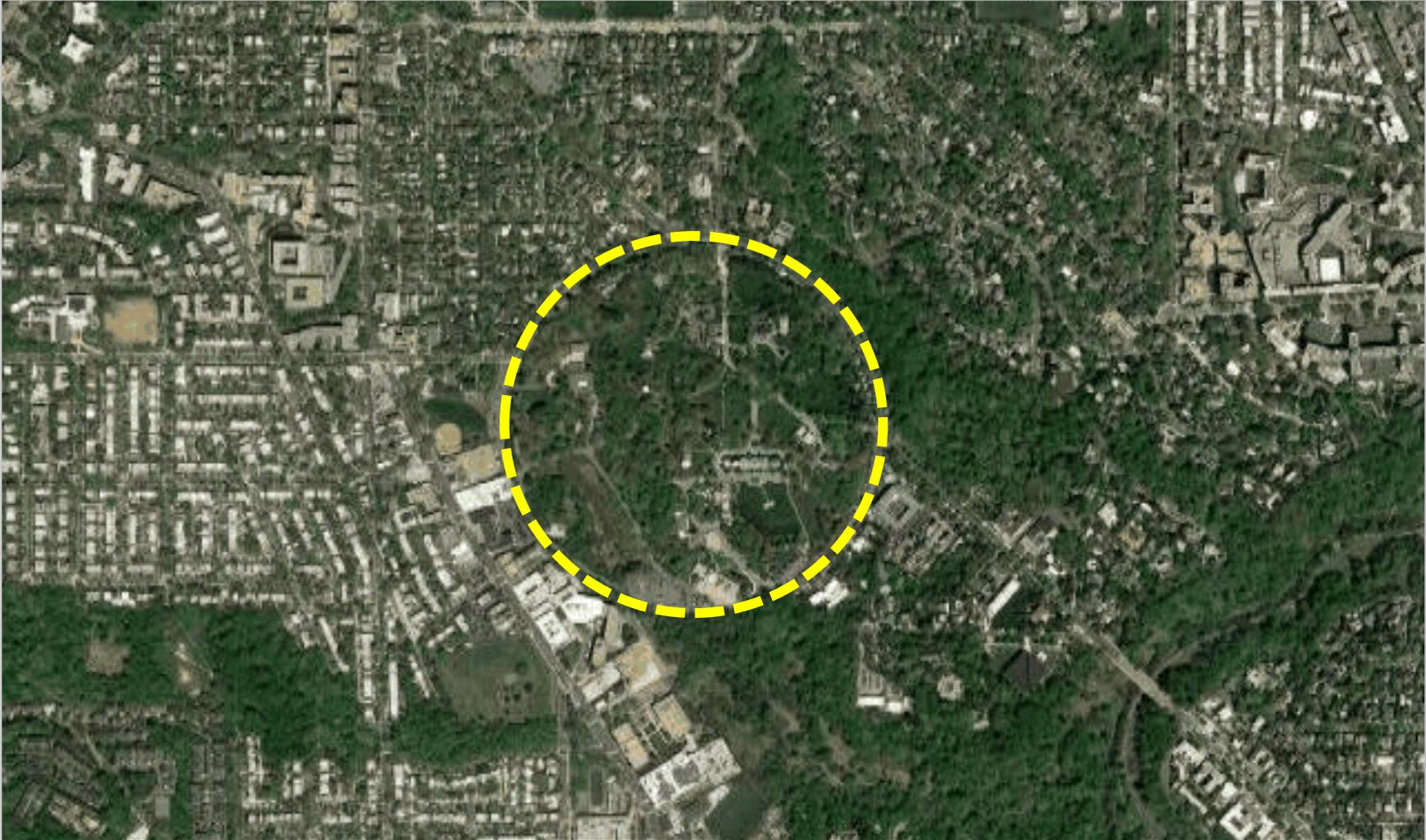
For the building rehabilitation component of the application, the applicant intends to :

For Building 3, remove elevated concrete walkways and replicate stoops with similar design to those originally on Building 3 and on the transit houses. Current codes require handrails and steps turned 90 degrees to mask chair lift. Most of original interior trim and woodwork so original elements will be restored to the extent possible, and renovated to meet current codes.

For Building 52/52A, existing windows will be replaced with laminated glazing to meet UFC requirements and energy standards, existing EFIS exterior will be patched, repaired and cleaned, and new roofing provided for both buildings.

For Building 78, the work includes Stone restoration –repair of damaged stone, repointing, cleaning; replace existing non-original windows with laminating glazed windows per UFC requirements with the same configuration as the building’s original windows; provide accessible entrance by making minor modifications to an existing door; and provide new elevator/stairwell at the connector portion of the building.

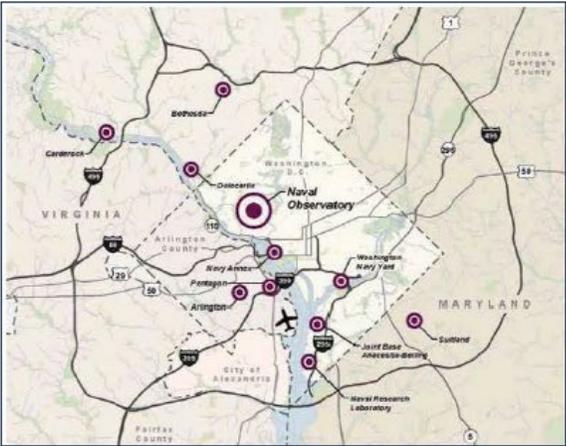
# Site Location



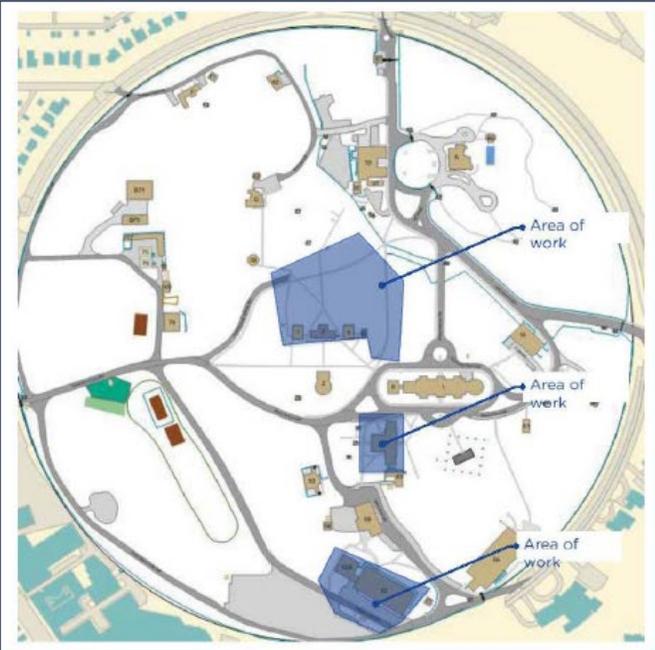
Location Map

# Location Map

## U.S. Naval Observatory



USNO Location



Site Map

# Naval Observatory History

## History of U.S. Naval Observatory



- **Richard Morris Hunt of NYC selected as the architect for the initial buildings**
- **His buildings at the USNO are his only designs in Washington, DC**
- **Hunt buildings remaining at USNO**
  - Administration Building and attached South Transit Building (Building 1)
  - The Clock House (Building 3)
  - The foundations of the East and West Transit Houses (Buildings 6 & 7)
  - The Boiler House, now part of Building 16
- **Of these buildings, Building 3 and the foundations of Buildings 6 & 7 (all National Register-eligible structures) are part of this project**
- **All of Observatory Circle is a National Register-eligible Historic District**



A drawing showing the Administration Building on the left and the Clock House and Transit Houses on the right.



The Clock House (Building 3) under construction. The Barber Estate residence can be seen in the background.



The Clock House flanked by the two Transit Houses is on the right with the Great Equatorial Building on the left.

# Naval Observatory Landscape Survey Summary

## USNO Historic Landscape Survey Summary



- **Development Timeframes**

- Hunt Plan (1881 – 1897) era in Central Campus
- Early 20<sup>th</sup> Century – Interwar Period (1898 – 1939)
- World War II – Cold War Era (1940 – 1989)
- Modern Period (1990 – 2016)

- **USNO Historic District Period of Significance: 1881 – 1954**



Contributing Roads



Contributing Paths



Contributing Trees



Contributing Views

# Project Scope

## Project Scope



- Provide a new Master Clock Facility (Building 51) to support Time Service Mission
- Renovate/Rehabilitate Building 3
- Renovate Existing Buildings 52, 52A & 78
- Rehabilitate Buildings 6 & 7 foundations, walls, and concrete piers
- Demolish Existing Building 82
- Tie building, roadways, and sidewalks into existing site and accommodate accessibility requirements
- Provide redundant, reliable, upgraded utilities, for the new and renovated facilities
- Update stormwater management for new and existing facilities and site work
- Provide phasing and temporary facilities for existing building occupants and equipment during construction

# Project Goals and Objectives

## Project Goals & Objectives



- Provide a new Master Clock Facility (Building 51) near the Naval Observatory Center
- Integrate both new and original Master Clock Facilities into the Historic District & Landscape while maintaining the project mission
- Rehabilitate Original Clock Facility (Building 3) and Foundations of Buildings 6 & 7 to meet *Secretary of the Interior's Standards* and enhance the space for mission use
- Upgrade Time Service & Operations Facilities to meet technical and staffing requirements
- Ensure reliability and redundancy of systems
- Incorporate C4ISR infrastructure and components
- Meet AT/FP & security requirements
- Update aging facilities and systems
- Meet strict environmental control requirements for Master Clock Facility
- Reduce stormwater runoff rate from site to Dumbarton Run
- Design program within schedule and budget constraints

# Project Changes Since Concept Submittal

## Project Changes Since Concept Submittal



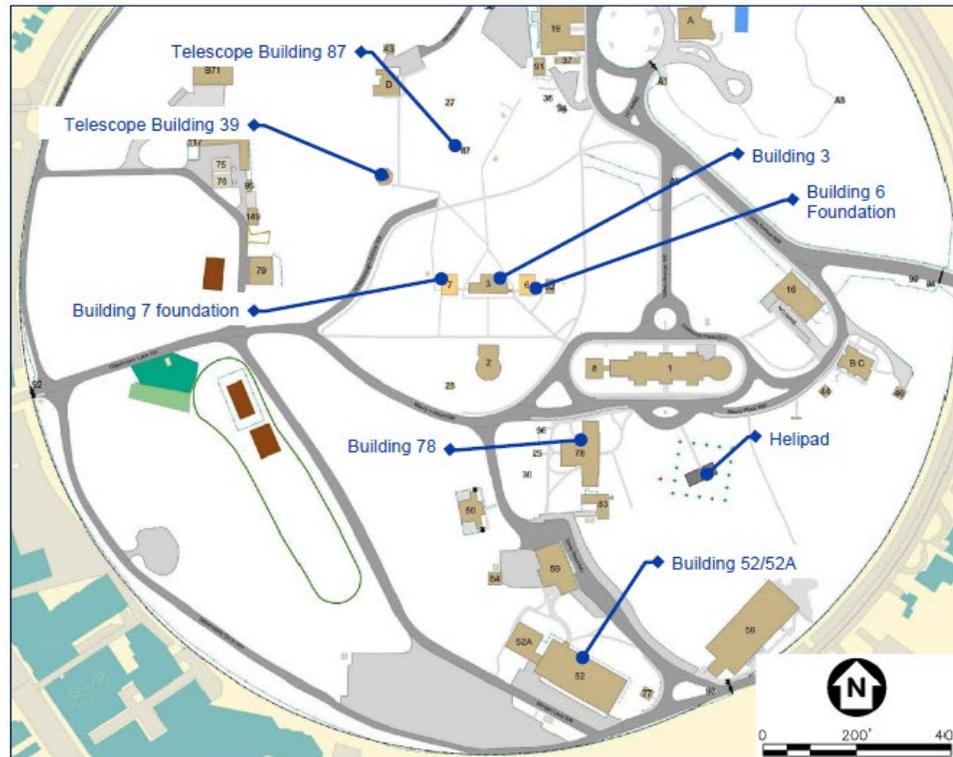
- **Removed Building 51 fence and gates, as no longer required**
- **Revised Building 78 elevator location and extended to roof, due to structural concerns with previous location and to meet the requirements of the program**
- **Removed bioretention basins near Buildings 52/52A and 78, as stormwater management solutions around Buildings 3 and 51 meet the requirements for the site**

# Naval Observatory Existing Conditions

## Existing Conditions



- USNO campus is a circular plan with the original Clock House at its geographic center
- Various telescope, administrative buildings, support buildings, and residences populate the remainder of the site
- The site remains very open with a variety of lawn and native landscape areas
- Entire site surrounded by a secure perimeter
- Pedestrian access is via a network of existing concrete sidewalks

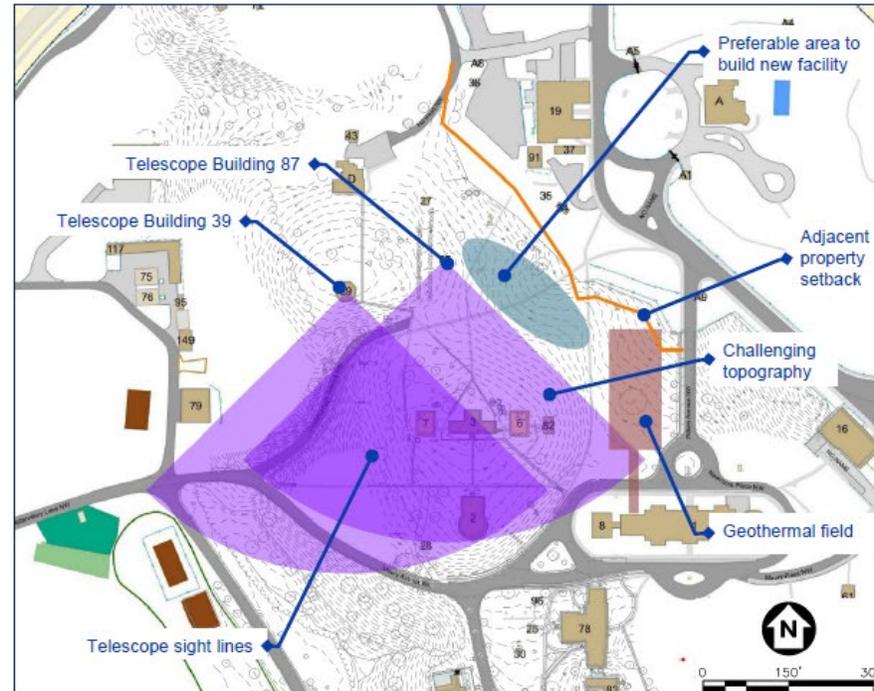


# Naval Observatory Site Constraints

## Site Constraints



- **Primary impact is the construction of the New Master Clock Facility**
- **Building 51 must be close to Observatory Center**
- **Constraints**
  - Orange line - setback from adjacent residence per AT/FP & other security requirements
  - Place Building 51 as far from Building 3 as possible so it doesn't overshadow original clock building
  - Geothermal field
  - New bldg. must avoid sight lines of telescope facilities (Buildings 39 & 87)
  - New work must minimize steep slopes and provide access to building
  - Explosive Safety Quantity Distance (ESQD) arcs

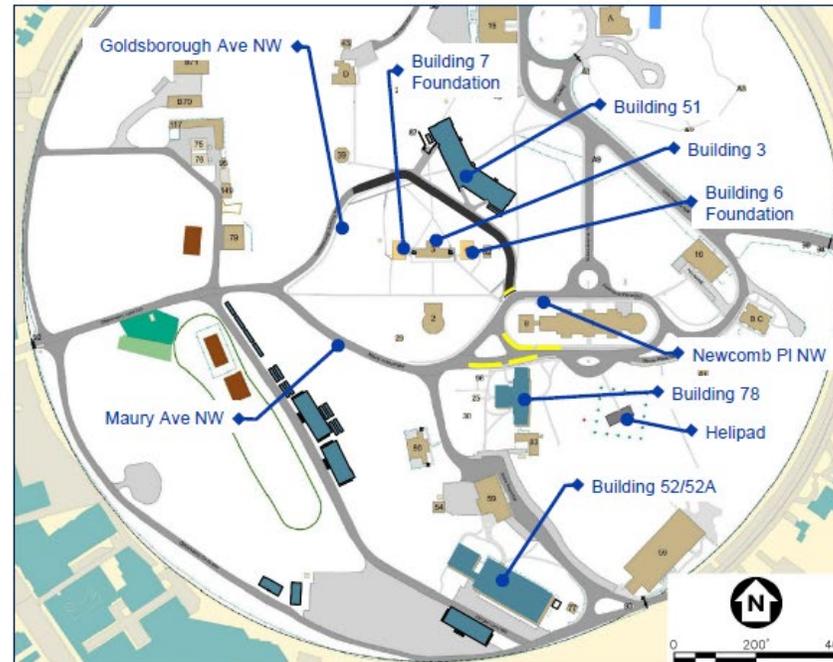


# Naval Observatory Site Plan

## Site Plan



- Overall approach is to minimize disturbance to historic district and landscape
- Primary area of site development is construction of **Building 51** and renovation of **Building 3** (combined and referred to as **Observatory Center**)
  - Vehicular access to Building 51 provided by extending Goldsborough Ave east between Building 3 and 51 and back to Newcomb PI
  - Extension will eliminate existing dead end and enhance vehicular circulation
  - Pedestrian access to Observatory Center from existing network of sidewalks; new sidewalk along loop road to provide ABA access to Building 51
- Work in **Building 52/52A & 78** does not require additional parking or roadway
- Through the use of bioretention, bioswales, and manufactured treatment devices, the runoff rate from the site to Dumbarton Run has been reduced. These features serve as a model for runoff reduction for future projects at USNO.



# Existing Condition Photographs of Building 3 and 6 and 7

## Observatory Center: Buildings 3 and Foundations 6 & 7



Building 3 front south elevation



Building 7's stone foundation



Building 7's foundation, overgrown



Building 3, hidden from view by overgrown plants

# Existing Condition Photographs of Site for Building 51

## Observatory Center: Future Building 51 Site



Looking northeast



Looking northwest towards allee of evergreens and Observatory

# Observatory Center Site Plan

## Observatory Center: Site Plan



- **Location of Building 51 within the USNO is purposeful**

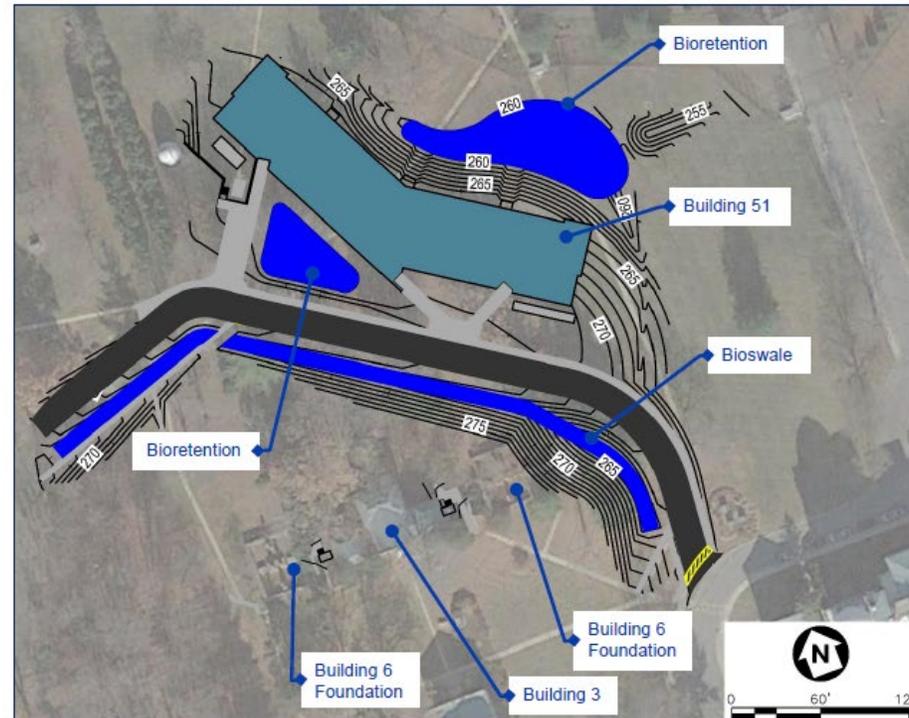
- As close to the center of the USNO as possible to minimize influences from surrounding urban activities
- Area and height requirements of new building are much greater than original building (Building 3)

- **Early design schemes placed building on axis with Building 3**

- Overwhelmed the historic structure and would destroy greater number of historic landscape elements

- **Preferred location**

- Impacted fewer historic landscape elements
- Eliminates the axial relationship between the old and new
- Comparison in scale with Building 3 is diminished
- Down slope of Building 3, allowing floor level to be lower and visually lessening building's mass
- Linear building plan broken in the center to follow existing contours and fit the building within the site constraints



# Landscape Concept for Buildings 3,6, and 7

## Observatory Center: Landscape Concept – Buildings 3, 6, & 7



- Remove noncontributing shrubs and trees between sidewalk and building wall
- Clear and remove debris and plant growth from Buildings 6 & 7 foundations
- Maintain functional, pedestrian-oriented landscape
- Add path segments to the existing pedestrian circulation system to eliminate dead-end paths
- Provide ABA accessible pathway to Building 3
- Maintain AT/FP and other site security requirements



*Asclepias tuberosa*,  
Common Butterfly-weed



*Elymus virginicus*,  
Virginia Wild Rye



*Eragrostis spectabilis*,  
Purple Lovegrass



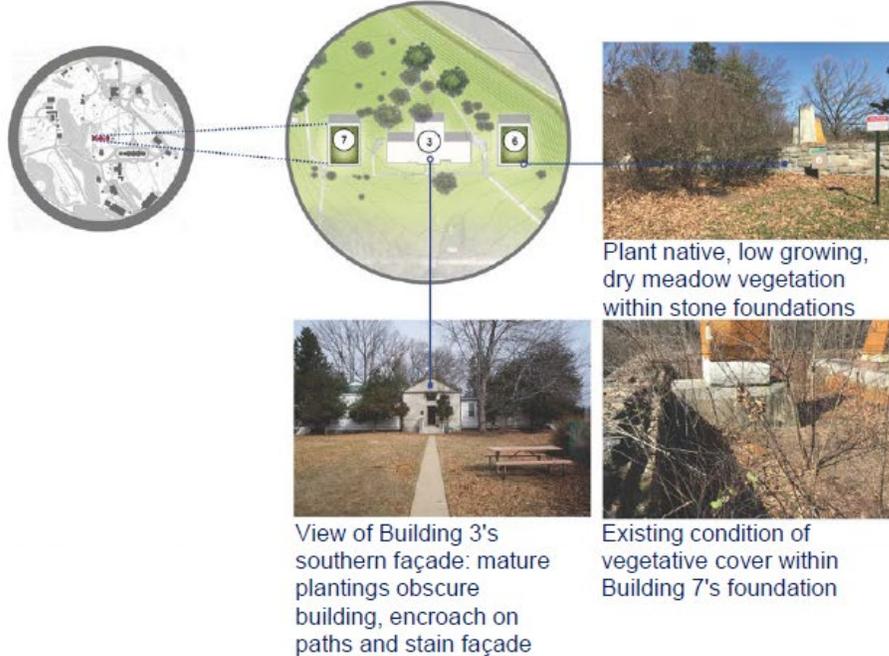
*Helianthus annuus*,  
Smooth Oxeye



*Schizachyrium scoparium*,  
Little Bluestem



*Solidago nemoralis*,  
Grey Goldenrod



# Landscape Concept for Building 51

## Observatory Center: Landscape Concept – Building 51



- **Building 3 at highpoint of USNO**

- Site runoff drains in all directions

- **Integrated landscape and stormwater system**

- New driveway on south face of Building 51 slopes away from building, draining to bioswale
- Building 51's roof drains into northeastern bioretention basin
- Emergency overflow provided to prevent building flooding (100-year storm)
- Maintain sensitivity to historic landscape

- **Respond to formal geometric structure of existing historic landscape fabric on the building's southern face**

- Extend canopy tree plantings along one side of the paths
- Add through infill to the formal street tree plantings

- **Respond to informal landscape on the building's northern face**

- Extend extensive lawns and informal groves of deciduous trees to visually connect the landscapes on both sides of the perimeter fence



*Acer rubrum*,  
Red Maple



*Magnolia virginiana*,  
Sweetbay Magnolia



*Juniperus virginiana*,  
Eastern Red Cedar



*Quercus rubra*,  
Red Oak



*Quercus phellos*,  
Willow Oak



*Cornus florida*,  
Flowering Dogwood



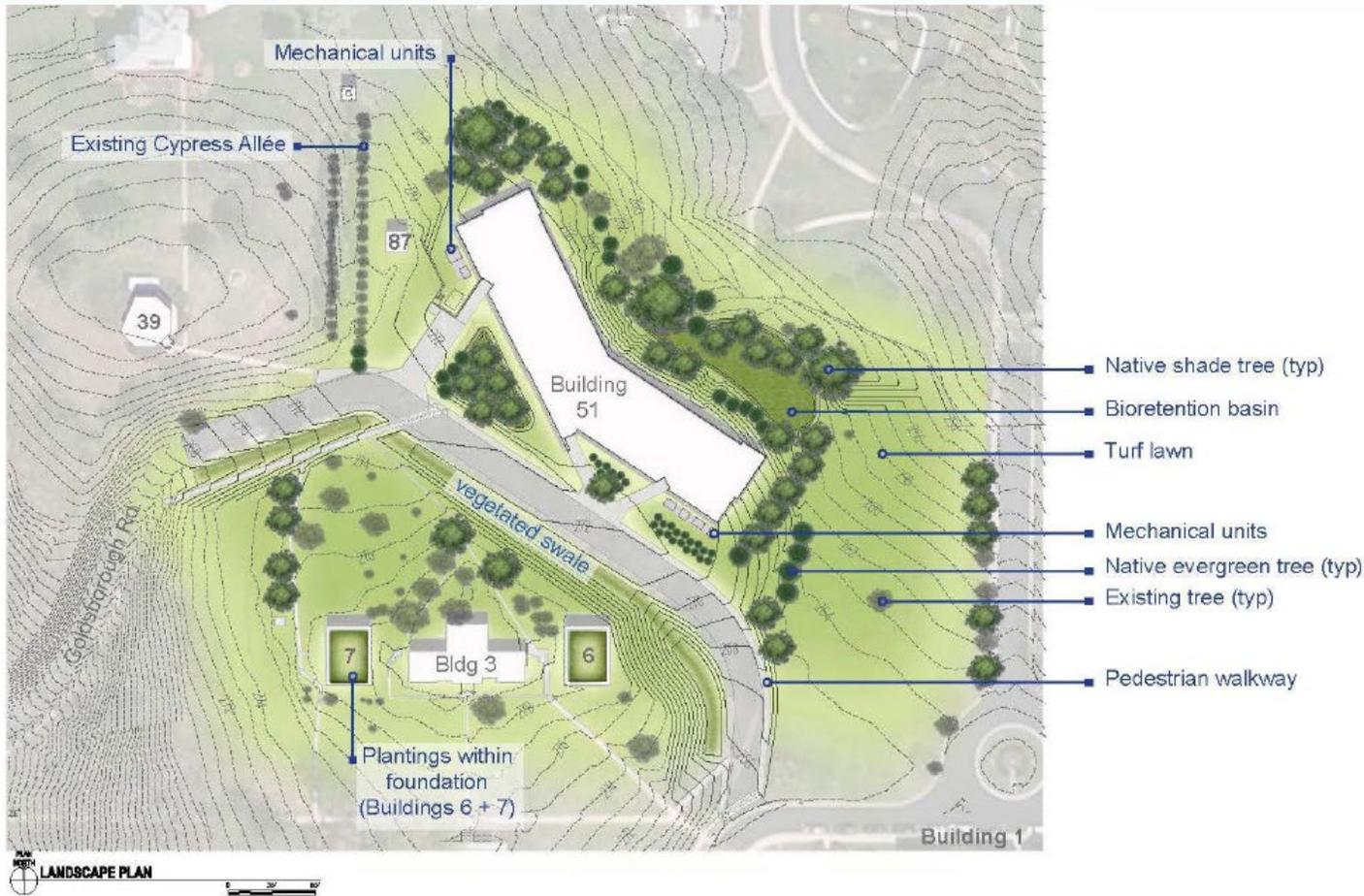
*Thuja occidentalis*,  
American Arborvitae



*Morella cerifera*,  
Southern Wax Myrtle

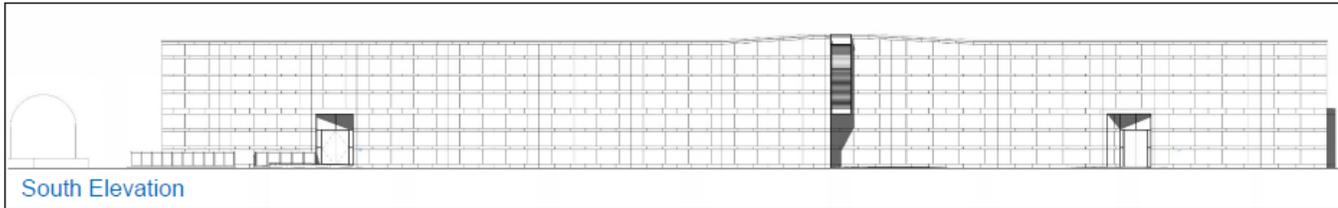
# Landscape Plan for Building 51

## Observatory Center: Landscape Concept Plan – Building 51



# Building 51 Design Intent

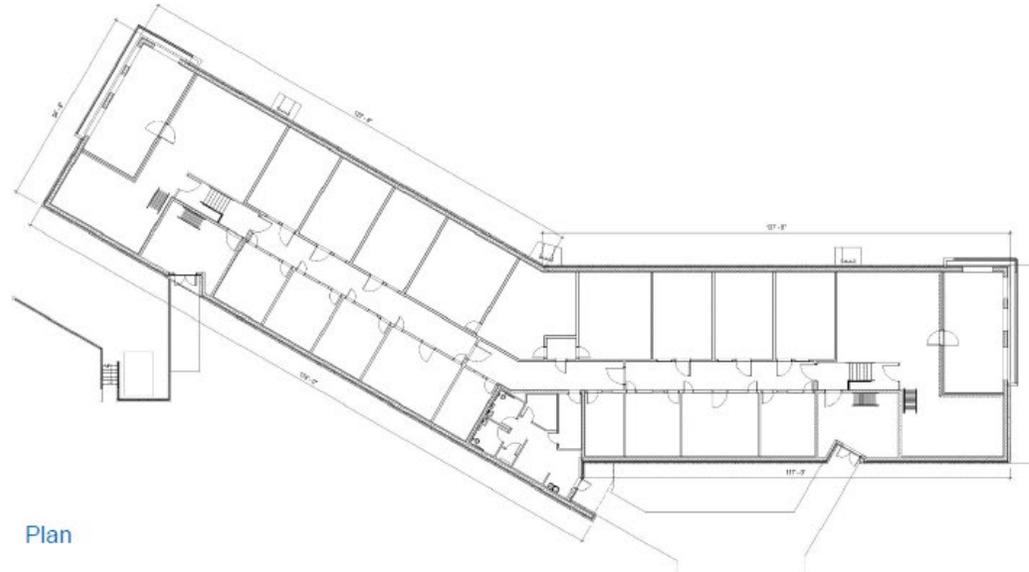
## Building 51: Design



- **Avoiding false ornament**
- **Minimalist in detail, allowing the building to be in the background not competing for attention**
- **Rectangular, bent in half to give way to main entrance**
- **Only 3 openings – main entrance and a combined emergency egress and service entrance to either side**
  - Service entrances are recessed from main plane of building in a niche and read as if the façade was cut and folded in to allow entry
- **Façade – single plane of architectural precast panels with only necessary penetrations**
- **No windows (because of program) – only other exterior openings are for mechanical systems**
  - Openings concealed by a continuous louver enclosure that extend down either side and wrap around to rear elevation
  - Provides unified appearance to what would otherwise be a random array of multiple openings of differing size, shape and height
- **Roof is single sloped toward north, devoid of gables or changes in pitch**
  - Rainfall drains into a continuous gutter along rear of building
  - Downspouts group into only three location to minimize clutter and become a design feature

# Building 51

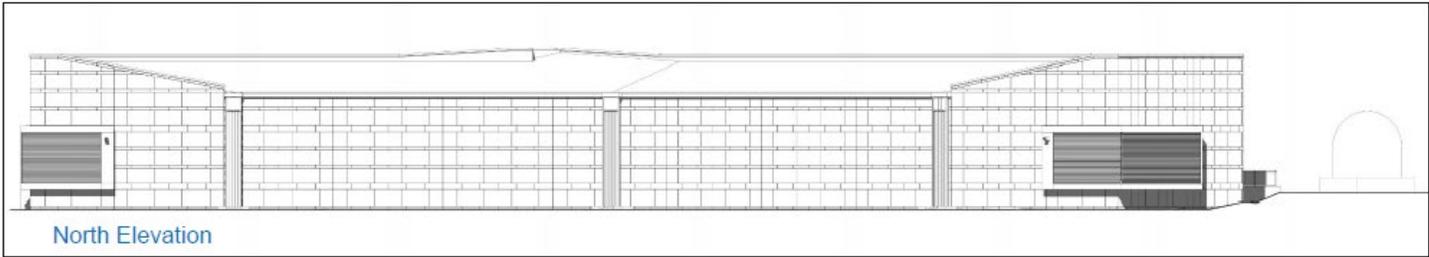
## Building 51



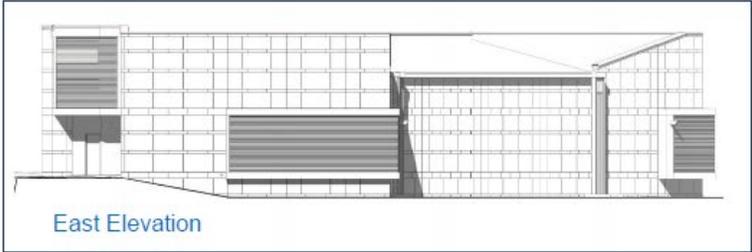
- **Function requires building to be linear, one-story and approx. 15,000 SF**
- **Single central entrance is sole ingress and egress**
- **Emergency exits combined with equipment room accesses at each end**

# Building 51 Elevations

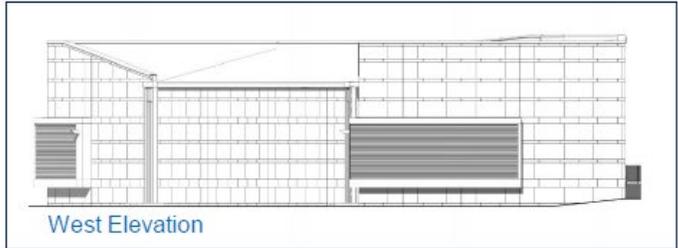
## Building 51: Elevations



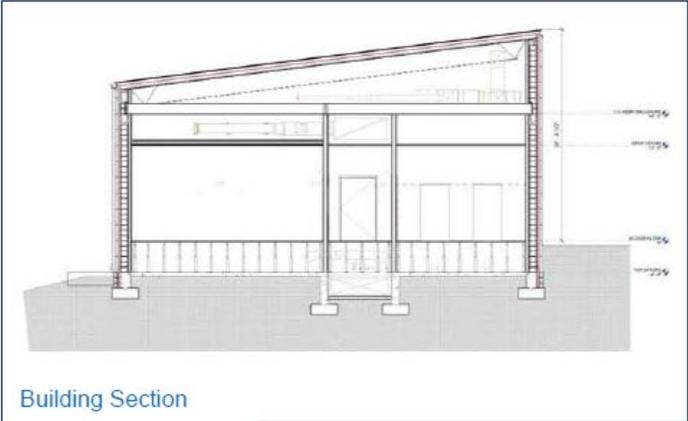
North Elevation



East Elevation



West Elevation



Building Section

# Building 51 Exterior Materials



## Building 51: Exterior Materials

- Complement other structures on the site, but distinguish Building 51 as instrument, not building
- Materials relate to telescopes, not buildings
- Architectural precast panel used for wall to mimic stone cladding on other buildings
- Gray membrane roofing with ribs
  - Relates to materials of telescope domes
  - Less visual contrast with the walls than the green or copper roofs of other buildings
- Anodized aluminum panel, louvers, gutters and doors to minimize and harmonize materials
- Materials support minimalist design aesthetic

Aluminum Composite Panel – clear anodized finish



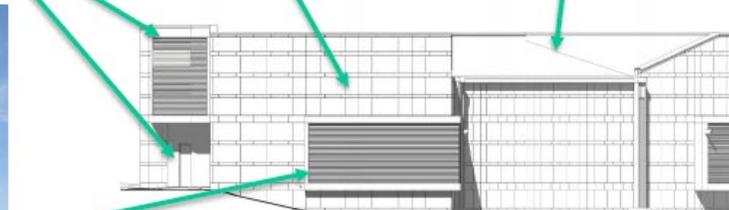
Architectural Pre-cast Panel – buff color with mortar joints



Membrane roofing with applied ribs – gray



Aluminum louver with concealed mullions – clear anodized finish



# Key Plan for Building 51 Renderings

## Building 51 Rendering Key Plan



A. Aerial view from the north

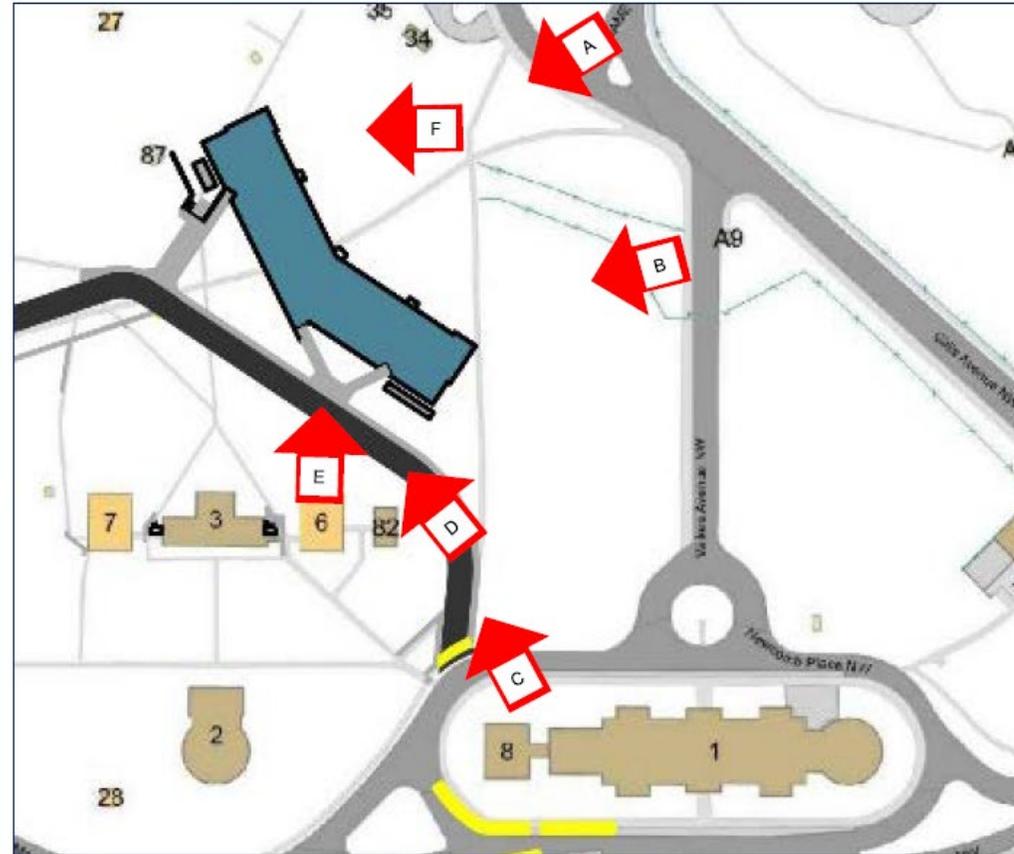
B. View from driveway approach to Building 1 (requested by NCPC)

C. View from Building 1 (requested by NCPC)

D. View of approach to entry-emphasizing the screening for electrical service equipment

E. View of main entry

F. Detail view of louver enclosure and downspout



# Building 51 Rendering

## Building 51: Renderings



Aerial view from the north

# Building 51 Rendering

## Building 51: Renderings



View from driveway approach to Building 1 (requested by NCPC)

# Building 51 Rendering

## Building 51: Renderings



A. View from Building 1 (requested by NCPC)

# Building 51 Rendering

## Building 51: Renderings



View of approach to entry- emphasizing the screening for electrical service equipment

# Building 51 Rendering

## Building 51: Renderings



View of main entry

# Building 51 Rendering

## Building 51: Renderings



Detail view of louver enclosure and downspout

# Photographs of Building 3 Existing Conditions

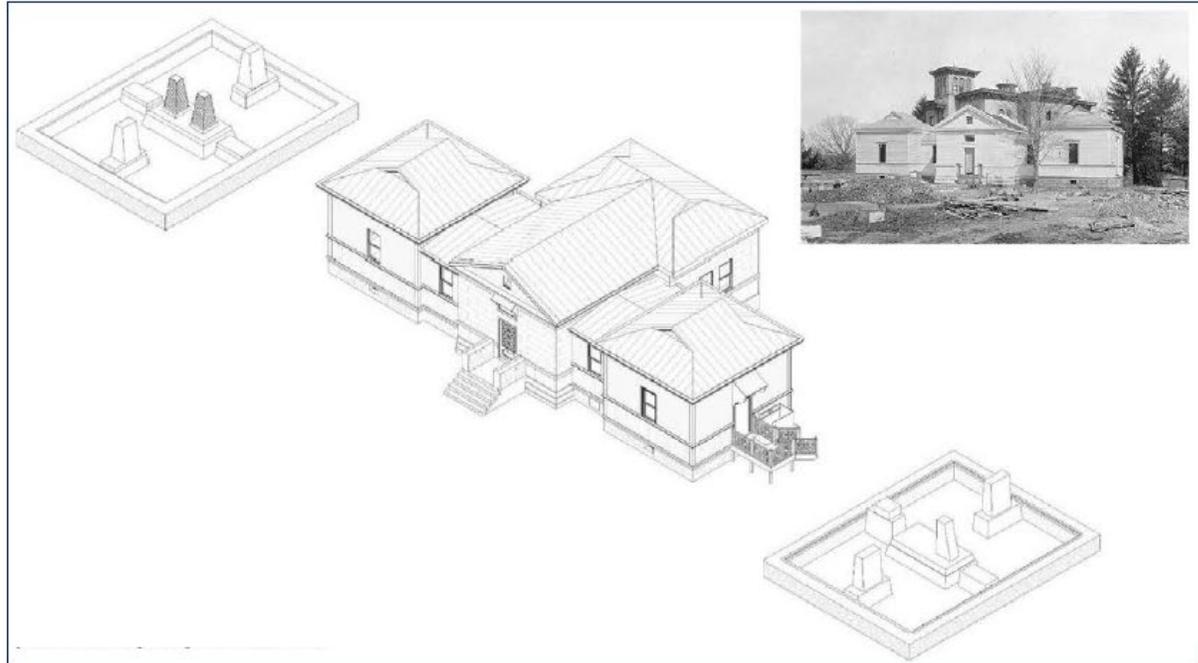
## Building 3 Existing Conditions



- Built in 1893, the Clock House is one of the original buildings designed by Richard Morris Hunt
- Addition in 1932 which provided a below-ground vault into which the clock was moved
- National Register eligible structure

# Building 3 Exterior Restoration

## Building 3: Exterior Restoration

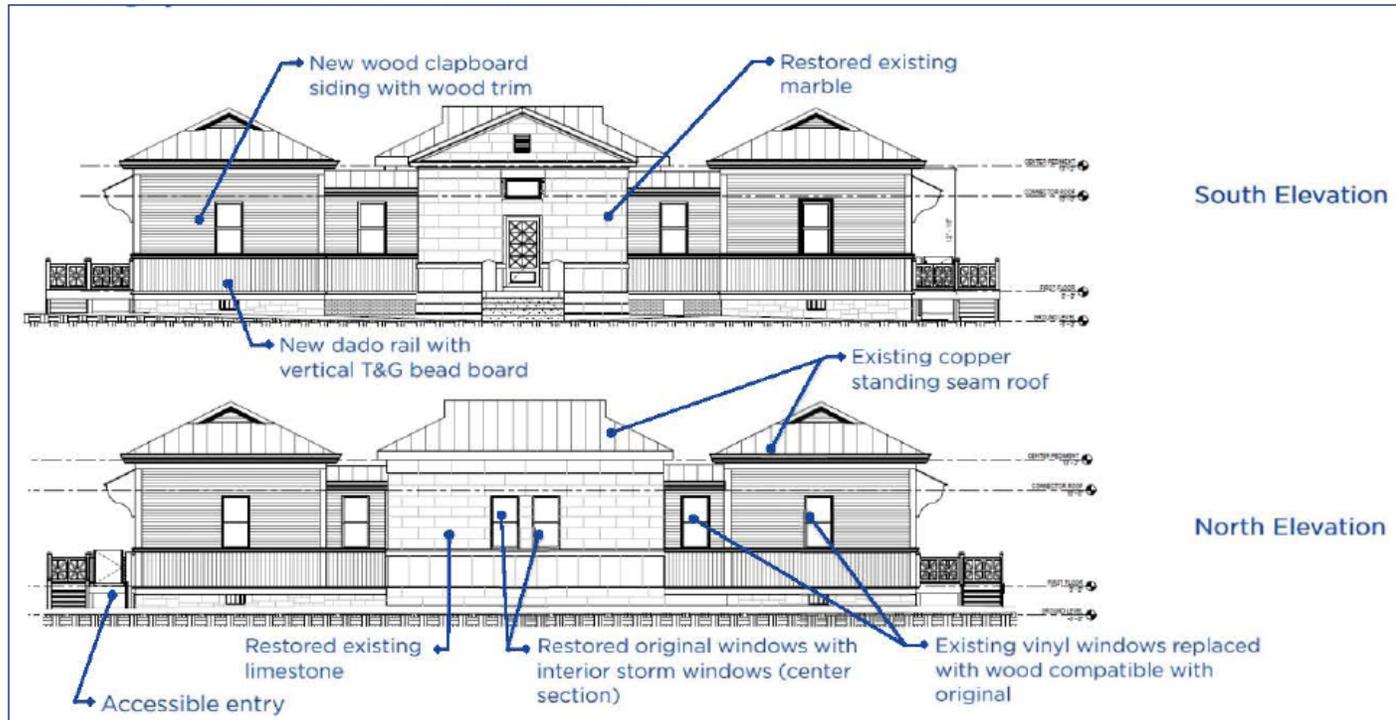


- **Restoration of the Clock House and stabilization of adjacent masonry foundations for historic Transit Houses**

- Removal of elevated concrete walkways that joined the Clock House to the Transit Houses (added during the period of the second generation of transit houses)
  - Removal allows for construction of stoops at either end to replicate the original stoops
  - One stoop will provide an accessible entry to the building using a wheelchair lift

# Building 3 Exterior Renovation

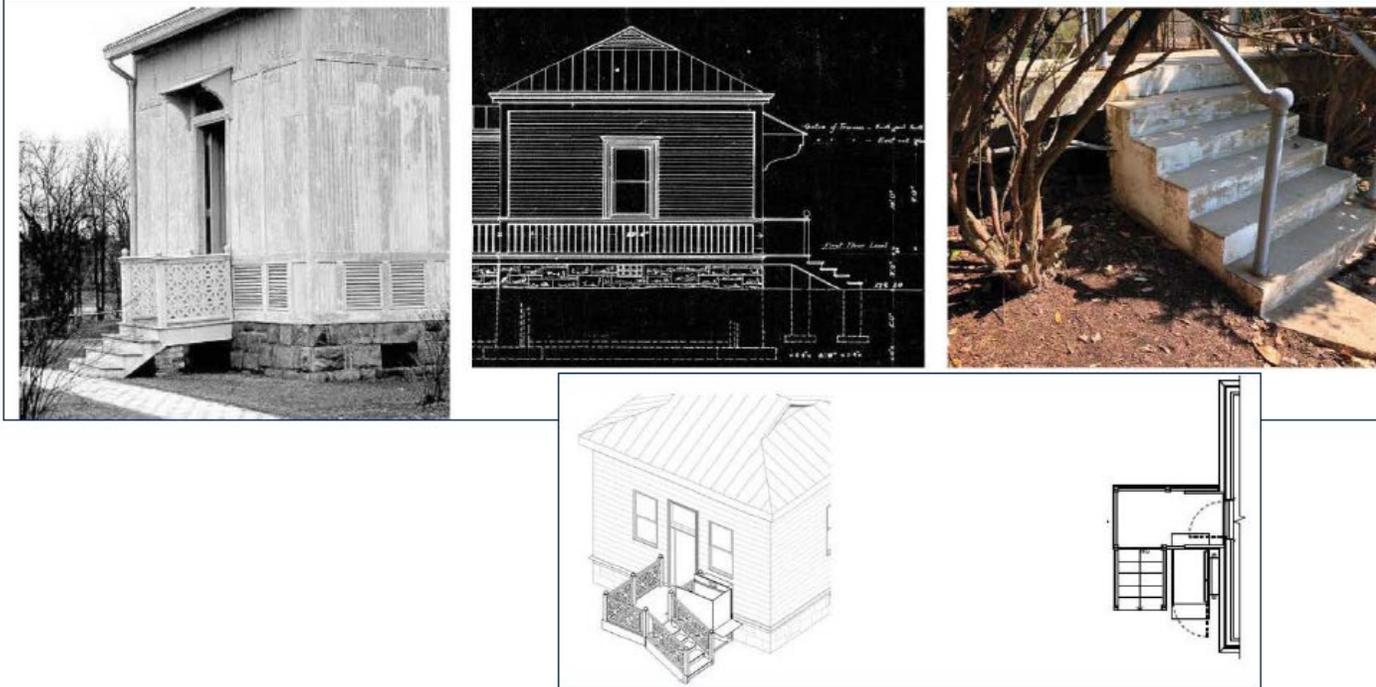
## Building 3: Exterior Renovation



- Remove vinyl siding
- Install wood siding and trim based on original construction documents
- Cut stone of center portion of building will be repaired, repointed, and cleaned
- Standing seam copper roof will be left in place as it should have approx. 50 years left in lifecycle

# Building 3 ABA Access Drawings

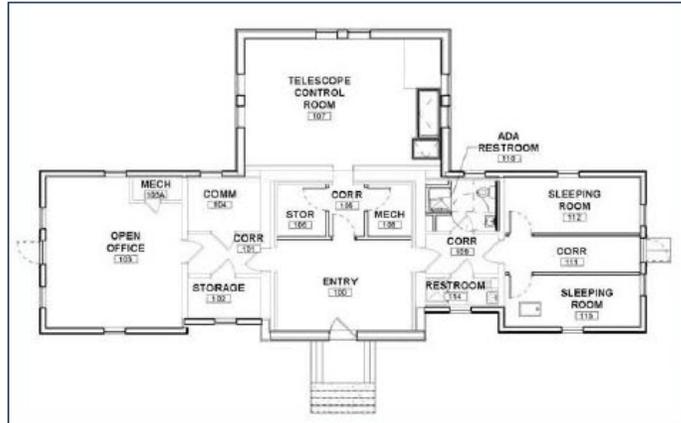
## Building 3: ABA Access



- **Remove elevated concrete walkways (upper right)**
- **Replicate stoops with similar design to those originally on Building 3 and on the transit houses**
  - Current codes require handrails
  - Steps turned 90 degrees to mask chair lift

# Building 3 Interiors Renovations

## Building 3: Interior Renovations



- **Most of original interior trim and woodwork intact**

- Crown moldings
- Door casings
- Window and transom window casings
- Baseboards
- Sills
- Chair rails
- Wood floors

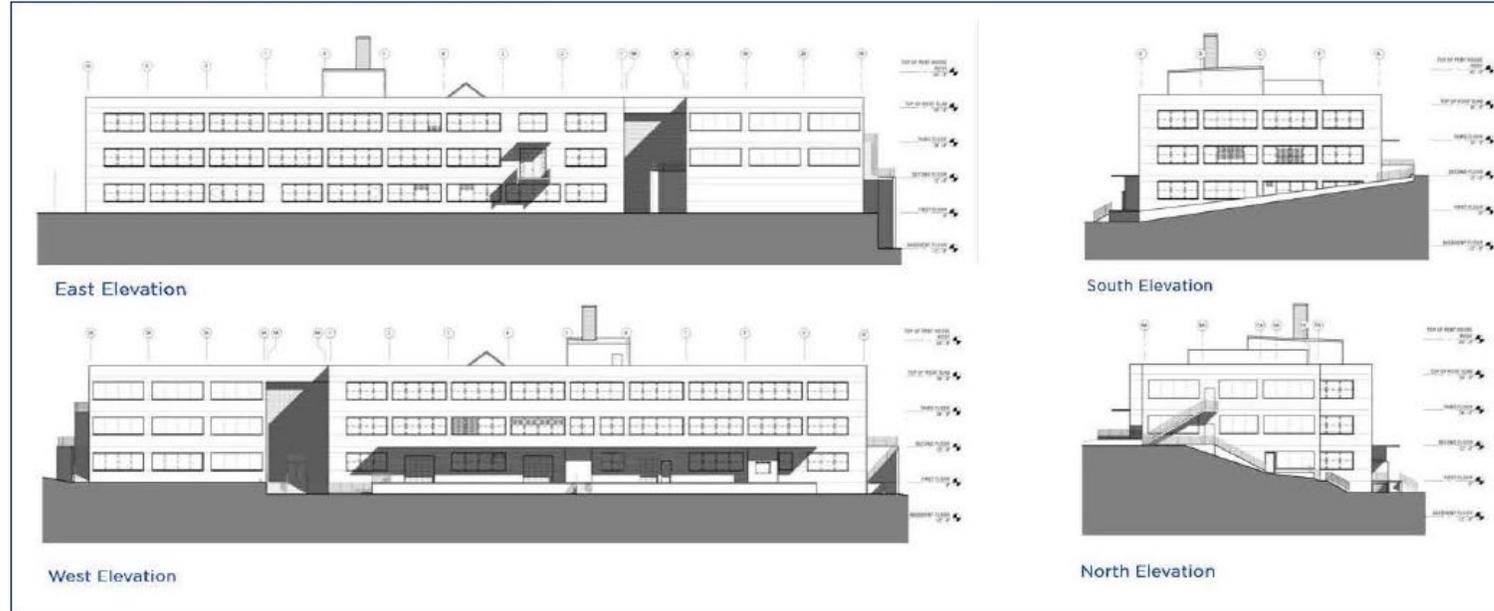
- **Original elements will be restored to the extent possible, and renovated to meet current codes**

- **Historic basement contains high levels of radon**

- Will be remediated and sealed off from first floor with floor doors (retain railing)

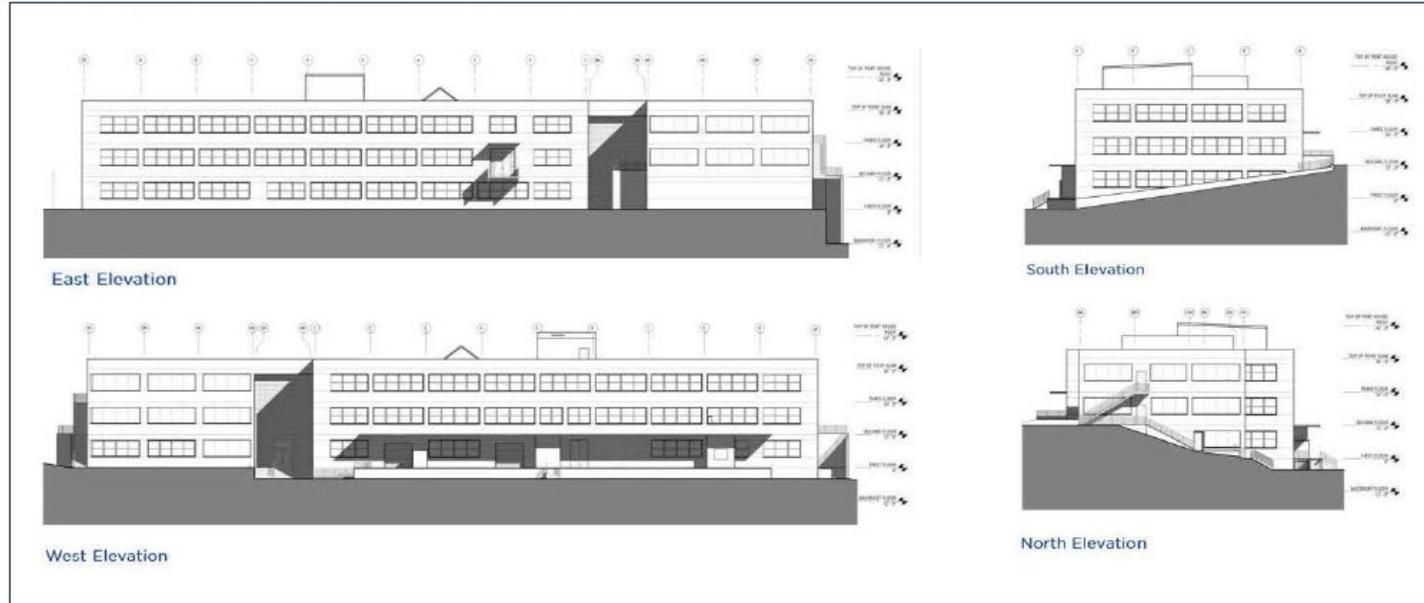
# Building 52 and 52A Existing Elevation Conditions

## Building 52 & 52A: Existing Elevations



# Building 52 and 52A Renovations

## Building 52 & 52A: Renovations



- **Building 52 is a contributing structure to the Naval Observatory Historic District**

- **Exterior Renovation**

- Existing windows will be replaced with laminated glazing to meet UFC requirements and energy standards
- Existing EFIS exterior will be patched, repaired and cleaned
- New roofing provided for both buildings

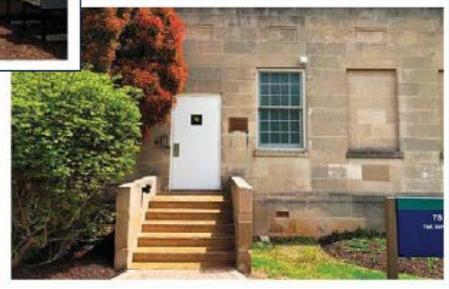
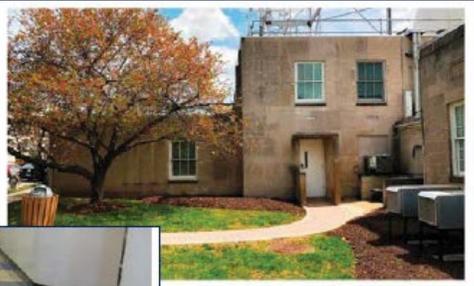
# Photographs of Building 78

## Building 78



• **Building 78**

- Original Astrographic Laboratory, a one-story structure designed by the Bureau of Yards and Docks and built in 1932
- Two-story addition (1961) forming a T-shaped building



# Building 78 Restoration

## Building 78 Restoration



### • Exterior restoration

- Stone restoration – repair of damaged stone, repointing, cleaning
- Replace existing non-original windows with laminating glazed windows per UFC requirements with the same configuration as the building's original windows
- Provide accessible entrance by making minor modifications to an existing door
- Provide new elevator/stairwell at the connector portion of the building