



Smithsonian Institution

Revitalization of the Historic Core (RoHC)

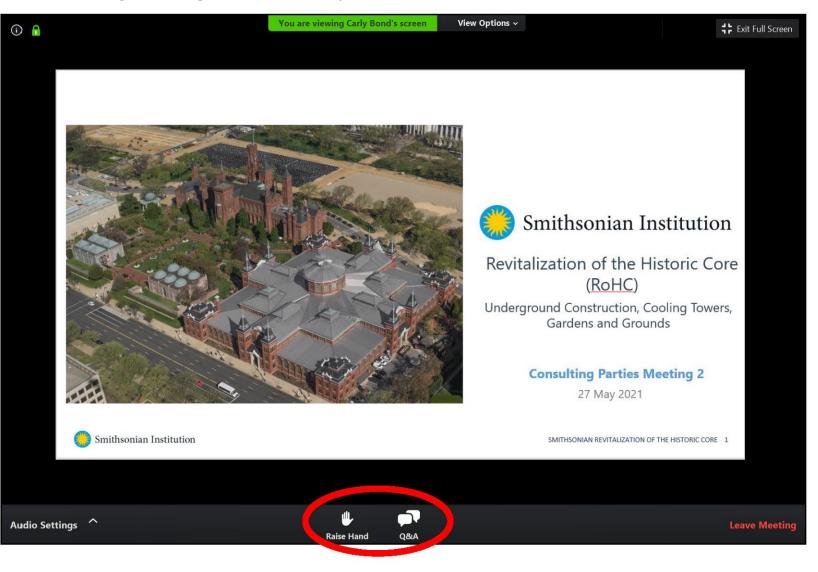
Underground Construction, Cooling Towers, Gardens and Grounds

Consulting Parties Meeting 2

27 May 2021

Welcome!

The meeting will begin momentarily.



How to Use Zoom Webinar:

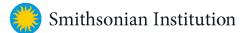
- Zoom webinar will not permit access to your camera.
- Please submit comments/questions in writing through the Q&A function.
- Written comments/questions can be submitted at any time and will be answered or discussed at designated points during the meeting by the panelists.
- Click "Raise Hand" if you would like to speak your comments/questions at designated points with the panelists. A moderator will grant temporary access to your device's microphone.

MODERATOR

Carly Bond, Historic Preservation Specialist, Smithsonian Facilities

PRESENTERS / PANELISTS

Sharon Park, FAIA, Assoc. Director of Historic Preservation, Smithsonian Facilities
Ann Trowbridge, AIA, Associate Director for Planning, Smithsonian Facilities
Brenda Sanchez, FAIA, Sr. Design Manager, Smithsonian Facilities
Christopher Lethbridge, Architect/Program Manager, Smithsonian Facilities
Marisa Scalera, Landscape Architect, Smithsonian Gardens
Anthony Bochicchio, AIA, Architect/Sen. Project Director, EYP-Loring, LLC
Faye Harwell, FASLA, Director/Landscape Architect, RHI (Rhodeside-Harwell)
Kirk Mettam, PE, Senior Principal, Silman
Hallah Abodaff, PE, MEP Project Manager, EYP-Loring, LLC
Michael Galway, PE, Sr. Mechanical Engineer, EYP-Loring, LLC



PROJECT OVERVIEW



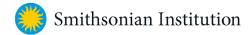
GOALS PROJECT AREA PROJECT SITE SOUTH MALL CAMPUS PROJECTS RoHC OVERALL SCOPE PROGRAM



PROJECT OVERVIEW GOALS

The goals of the Revitalization of the Historic Core (RoHC):

- 1. To revitalize the Smithsonian Institution Building (SIB, "The Castle") to provide efficient and accessible space for visitors and staff and restore the building and its principal interior spaces to their period of significance
- 2. To revitalize the Arts and Industries Building (AIB) as a non-collecting venue for public exhibitions, programs, and events
- 3. To construct a new below grade Central Utilities Plant to serve the buildings of the South Mall Campus



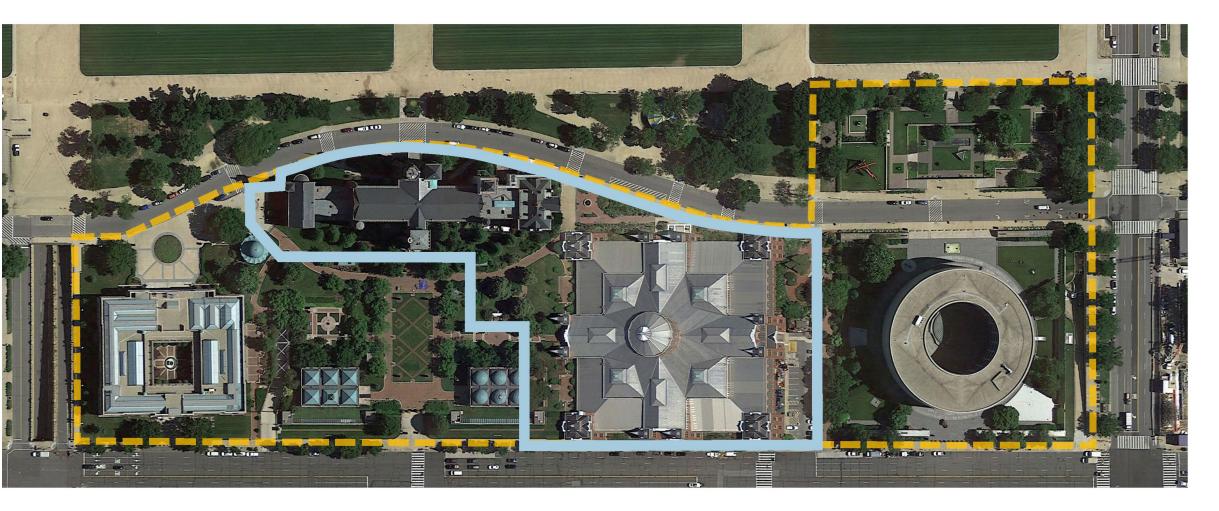
PROJECT OVERVIEW PROJECT AREA







PROJECT OVERVIEW PROJECT SITE



The "Historic Core" is comprised of the Smithsonian Institution Building (the "Castle") and the Arts and Industries Building. These buildings are the two oldest in the Smithsonian portfolio located on the National Mall.



Smithsonian Institution

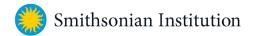
PROJECT OVERVIEW SOUTH MALL CAMPUS PROJECTS



Projects Underway or in Current SI Capital Plan

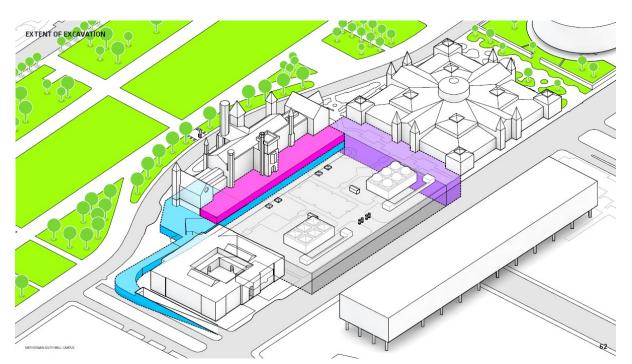
- 1. Hirshhorn Sculpture Garden Revitalization
- 2. Hirshhorn Museum Envelope Repair Project
- 3. Revitalization of the Historic Core
- 4. Freer Gallery of Art Improve Accessibility
- 5. Haupt Garden Roof In-Kind Replacement
- 6. Hirshhorn Museum Major Revitalization





PROJECT OVERVIEW RoHC OVERALL SCOPE

COMPARISON TO THE SOUTH MALL MASTER PLAN – WHATS DIFFERENT?



South Mall Master Plan

- Blue- New service ramp at the west side of the Freer and new below ground loading dock at the west end of the Castle.
- Pink- Below ground Visitor Center.
- Purple- Central Utility Plant (CUP).

RoHC Project

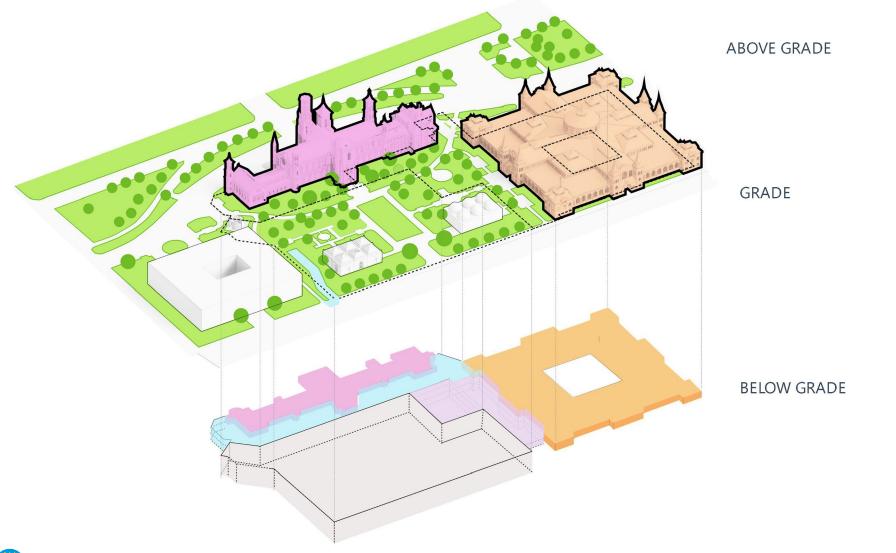
- Existing service ramp remains. Expanded loading dock at west end of the Castle.
- Pink- Lowering of basement floor, Visitor Center in the SIB.
- Orange- Basement under AIB for mechanical systems and support spaces.
- Purple- CUP infills notch of Quad Building.
- CUP layout is still pending, likely will be 2-3 stories below grade.
- Possibility of a public connection from the SIB to the Quad on the B2 level.



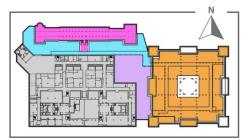
BELOW GRADE

PROJECT OVERVIEW RoHC OVERALL SCOPE

MODIFICATIONS TO THE SMITHSONIAN INSTITUTION BUILDING AND ARTS & INDUSTRIES BUILDING, BASEMENT LEVEL EXPANSION AND CENTRAL UTILITY PLANT



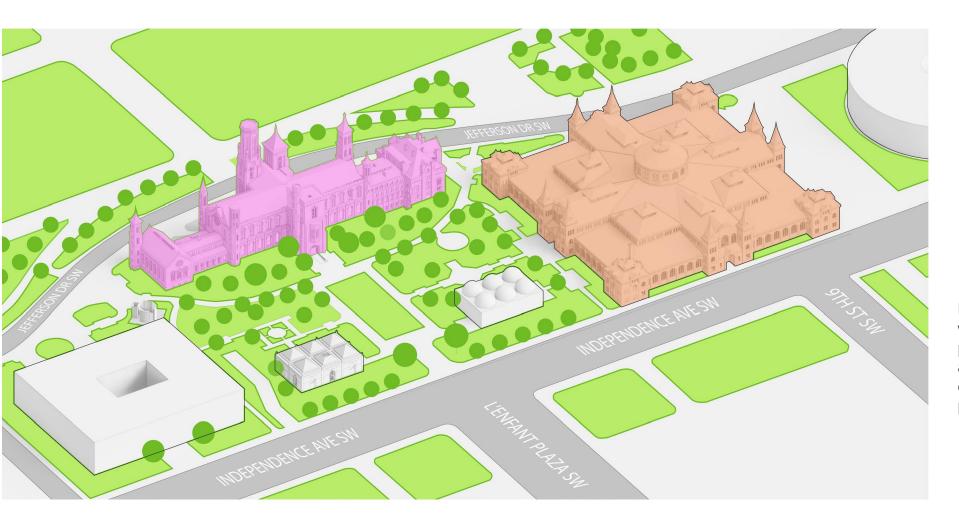
- The below grade construction will create areas for building systems and support spaces that will free up areas in the historic buildings for public uses.
- The Central Utility Plant will initially serve the Historic Core but is sized to eventually serve all buildings in the South Mall Campus.
- CUP layout is still pending, likely will be 2-3 stories below grade.
- Possibility of a public connection from the SIB to the Quad on the B2 level.





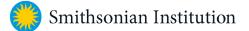
PROJECT OVERVIEW RoHC OVERALL SCOPE

REHABILITATION OF THE HISTORIC SMITHSONIAN INSTITUTION BUILDING AND ARTS & INDUSTRIES BUILDING

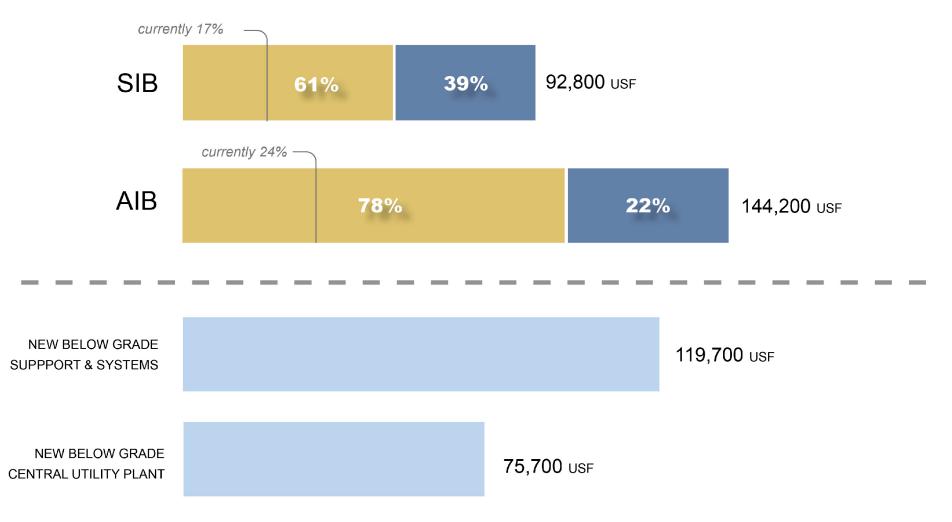


Rehabilitation of the historic buildings will address historic preservation issues, provide increased visitor access and use, and create interior environmental conditions that are appropriate for the programmed uses.





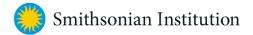
PROJECT OVERVIEW PROGRAM



- A primary objective of the RoHC project is to utilize the buildings as much as possible for public activities.
- The new below grade construction is critical to "freeing up" space in the historic buildings

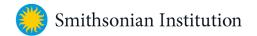


UNDERGROUND CONSTRUCTION



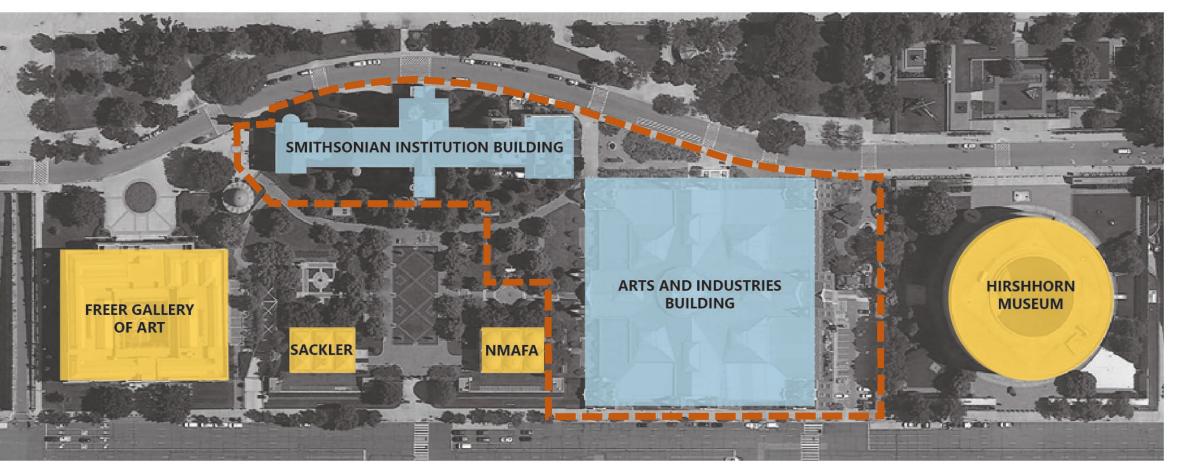
EXISTING CONDITIONS FUTURE PROGRAM

Underground Construction



UNDERGROUND CONSTRUCTION EXISTING CONDITIONS

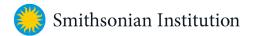
SITE ADJACENCY DIAGRAM



SMITHSONIAN INSTITUTION HISTORIC CORE

OTHER SI SOUTH MALL CAMPUS BUILDINGS

ROHC PROJECT SITE BOUNDARY



SMITHSONIAN REVITALIZATION OF THE HISTORIC CORE 16

UNDERGROUND CONSTRUCTION - CONCEPT

Design Objectives

- Preservation- Maximize the use of historic spaces for public and SI staff.
- Design- Locate mechanical spaces and equipment to meet current codes, provide energy efficiency, and support building operations and maintenance.

Background

 Excavation beneath the Castle will be limited to the consolidated loading facility..., to increase the ceiling height of the Castle basement level, and excavation below the basement level to accommodate utility distribution, footings, and seismic measures – Programmatic Agreement, Stipulation 5.A.

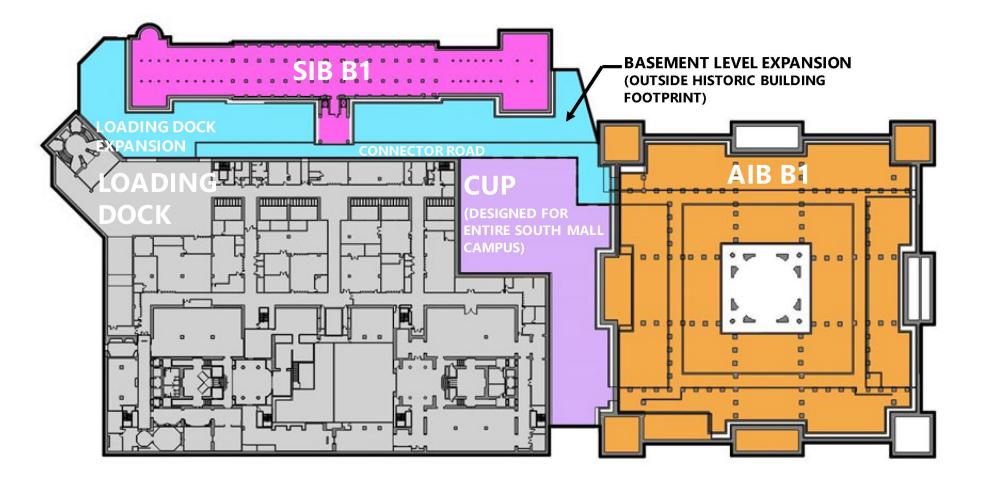
Past Studies

- Prior studies showed equipment and program space below the water table, requiring enhanced waterproofing.
- Some level of risk is inherent when placing mechanical, plumbing and life safety equipment below the water table.

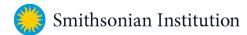
Concept Design

- Locates all the equipment and program areas except the cistern/thermal storage above the water table.
- Reduces slurry wall construction at AIB connection.
- AIB basement is a double-sided corridor leaving more program space for AIB mechanical rooms.
- Consolidating new construction below levels already being impacted.
- Provides additional support for the SIB base isolators adjacent to the SIB extension on the B2 level.
- Accommodates additional program that was required once the independent SIB and AIB planning studies were merged.

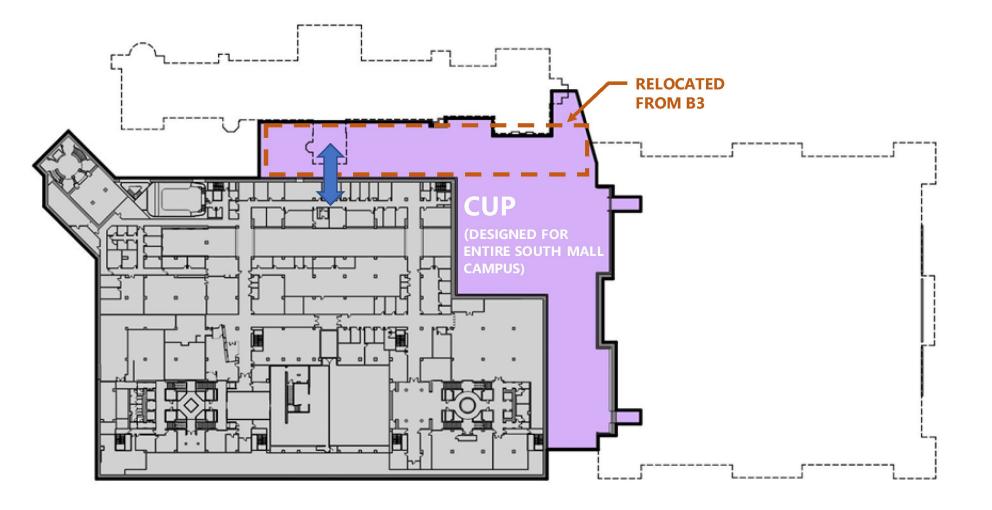
UNDERGROUND CONSTRUCTION – OVERALL B1 PLAN

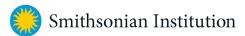




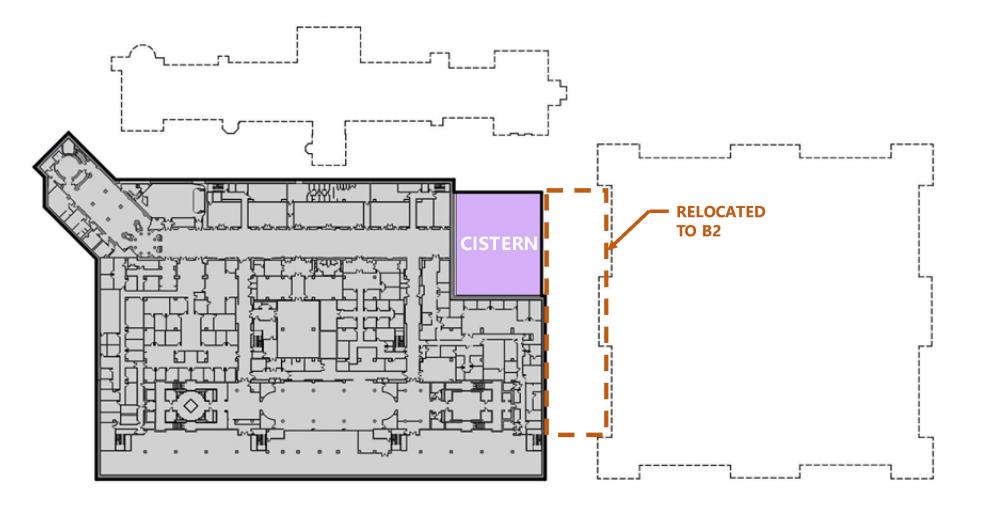


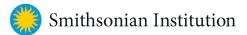
UNDERGROUND CONSTRUCTION - OVERALL B2 PLAN





UNDERGROUND CONSTRUCTION - OVERALL B3 PLAN



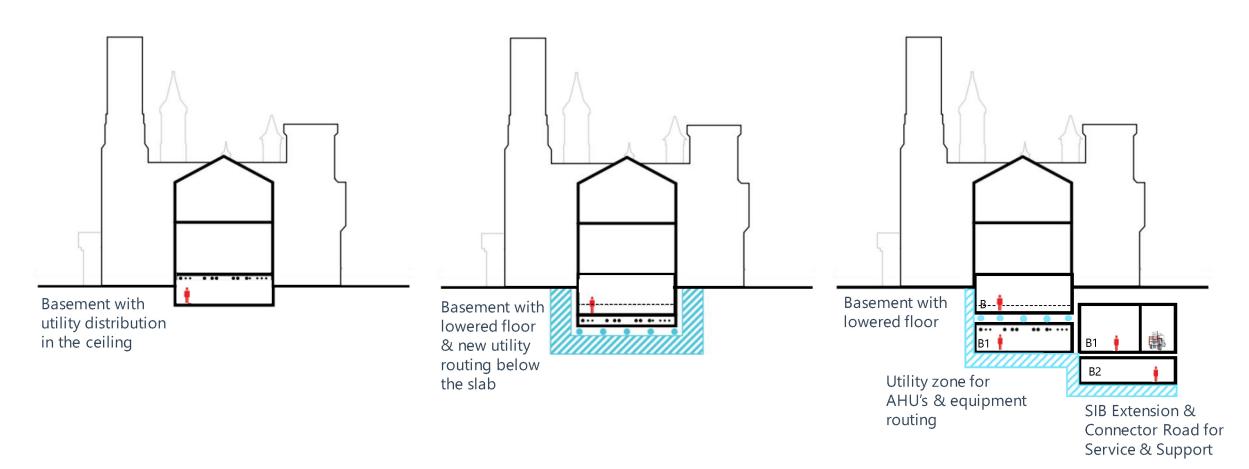


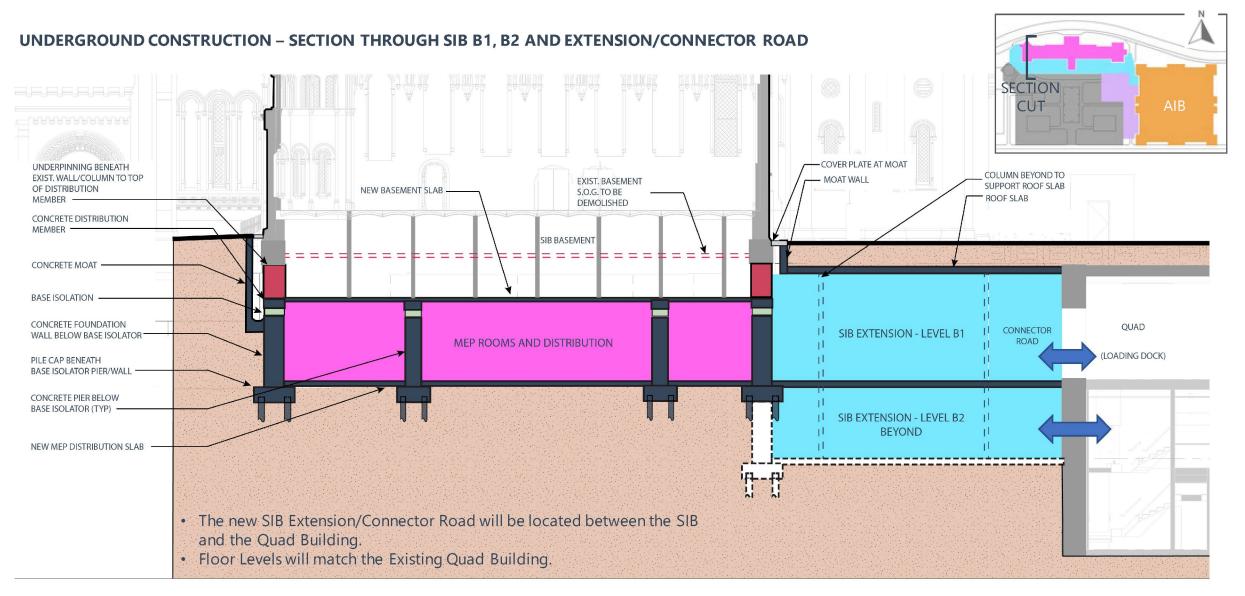
UNDERGROUND CONSTRUCTION - BASEMENT AND B1 FLOOR LEVELS



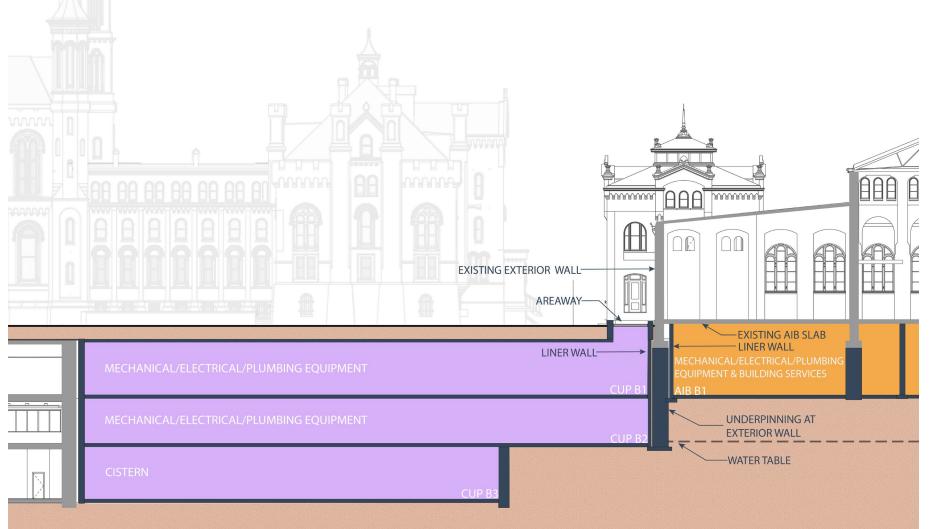
SOUTH MALL MASTER PLAN PROPOSED

RoHC PROJECT

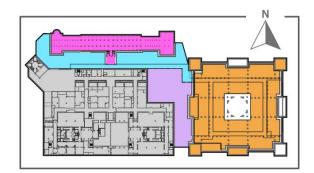




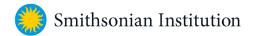
UNDERGROUND CONSTRUCTION – SECTION THROUGH CUP



- The new Central Utility Plant (CUP) will be located between the AIB and the Quad Building.
- The CUP will initially serve the SIB and AIB but is designed to serve all the buildings in the South Mall Campus.
- Floor Levels will match the Existing Quad Building.
- The lowest level of the CUP will be no lower than the Quad Building.



COOLING TOWERS



STRATEGIES FOR REDUCING COOLING TOWER LOADS

SOUTH CAMPUS INVESTIGATION

PROPOSED LOCATION

- NMNH Site
- Connection Options- Direct Bore and Existing Tunnel



COOLING TOWERS

Design Objectives

- Preservation- Locate the cooling towers to minimize the negative effects on the buildings and gardens. Screen the new towers as much as possible.
- Design- Improve energy efficiency and reliability for the building systems on the South Mall Campus.
- Utilize alternative heat discharge opportunities to minimize the number of cooling tower cells.
- Design the system to supply the entire South Mall Campus.

Background

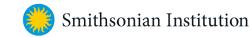
 The South Mall Campus is currently connected to the GSA steam plant. This supply is not energy efficient and can go off-line unannounced, placing the South Mall Campus buildings and collections at risk.

Past Studies

 Program Studies (2019, 2020) anticipated equipment either inside the Central Utility Plant or to the east of the AIB.

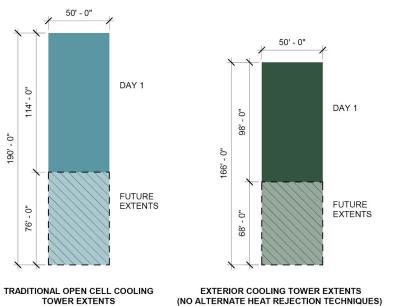
Concept Design

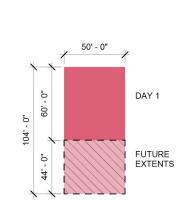
- The cooling towers proposed location is the SW corner of the National Museum of Natural History Site, mirroring an existing cooling tower at the SE corner of the site.
- The new cooling towers will be screened with construction that matches the existing cooling towers.
- The new cooling towers will need to be connected to the South Mall Campus Central Utility Plant (CUP). Two options are being studied- reuse of the existing steam pipe tunnel that crosses the Mall or direct boring below grade.



COOLING TOWERS STRATEGIES FOR REDUCING COOLING TOWER LOADS



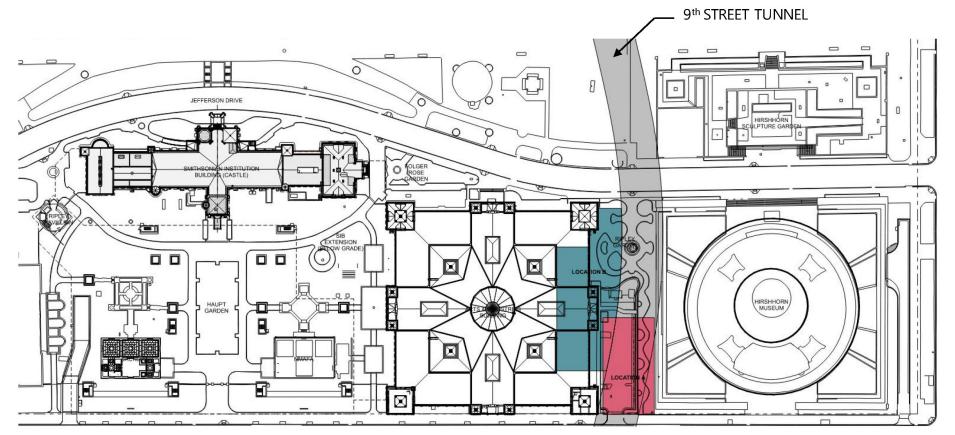




EXTERIOR COOLING TOWER EXTENTS WITH ALTERNATE HEAT REJECTION TECHNIQUES

	Enclosure	Enclosure	Enclosure	Percent of
Cooling Tower Enclosure Size (Nominal Tons)	Length	Width	Area	Total
Only Cooling Towers (5000 - 0)	166	50	8300	100%
Towers with SS Heat Reject. (5000 - 500)	144	50	7200	87%
Towers with Thermal Ice Storage (5000 - 1000)	125	50	6250	75%
Towers with SS and Ice (5000 - 1500)	104	50	5200	63%
Towers with 750 Wells (5000 - 1500)	104	50	5200	63%
Towers with SS, Ice, and 250 Wells (5000 - 2000)	83	50	4150	50%
Towers with SS, Ice, and 750 Wells (5000 - 3000)	59	50	2950	36%
Towers with 100% Geothermal	0	0	0	0%

COOLING TOWERS SOUTH CAMPUS INVESTIGATION



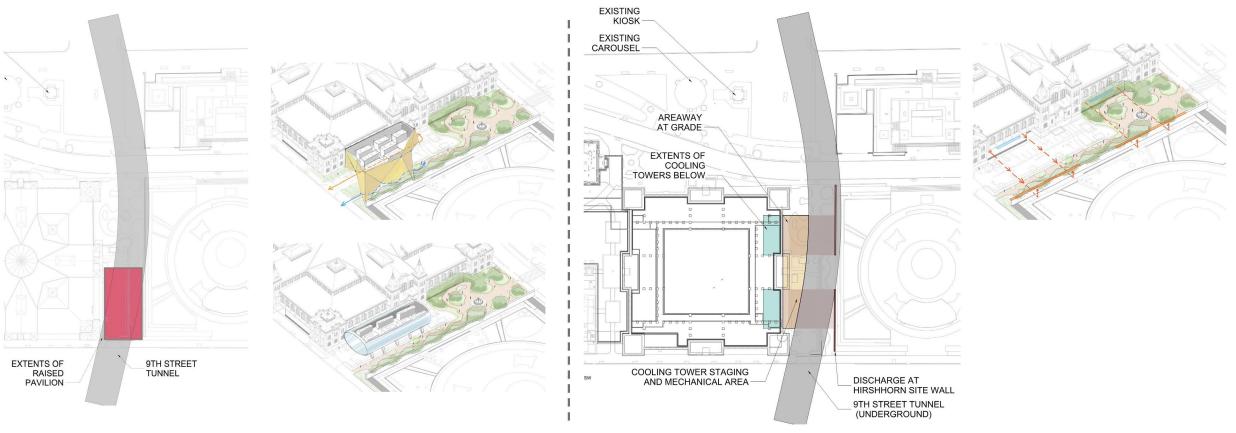
South Campus Cooling Tower Locations Investigated

Design Objectives

- Minimize the visual impact of the cooling towers.
- Multiple locations within the South Mall Campus were evaluated.



COOLING TOWERS SOUTH CAMPUS INVESTIGATION



Above Grade Option on East Side of AIB



Design Objectives

- Potential above grade and below grade locations on South Campus were studied.
- Both would have a negative effect to the Ripley Garden.
- The above grade option would have a negative effect on the adjacent buildings would be constructed over the 9th Street tunnel.
- The below grade option would place the equipment under the AIB.



COOLING TOWERS PROPOSED LOCATION



National Museum of Natural History Site Showing Potential Cooling Tower Location

Design Objectives

- Building cooling towers across the National Mall at Southwest corner of NMNH site.
- Location resolves difficult site constraints on South Campus.
- Reduces visual and noise negative impacts to Haupt Garden, Ripley Garden, and the historic buildings.
- Design of the new cooling tower enclosure would mimic the existing enclosure at the southeast corner of the site.



Existing Custom NMNH Cooling Tower



SW Corner of NMNH – Looking East

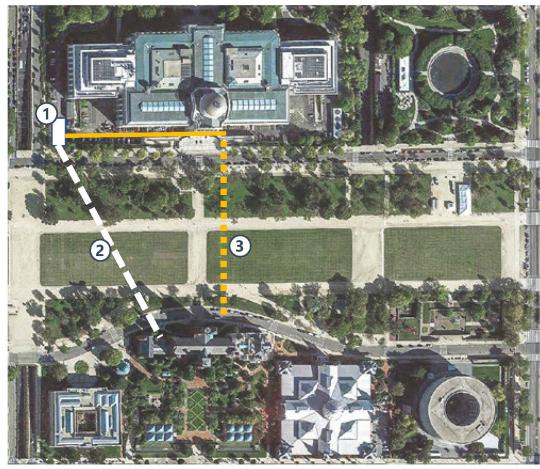


SW Corner of NMNH – Looking West SMITHSONIAN REVITALIZATION OF THE HISTORIC CORE 30



COOLING TOWERS PROPOSED LOCATION

CONNECTION OPTIONS DIRECT BORE AND EXISTING TUNNEL



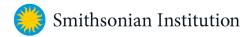
Options for Utility Routing

- 1. New cooling tower plant to serve South Campus
- 2. Direct bore for condenser water routing from Cooling Towers to SIB
- 3. Existing steam tunnel. Potential route for condenser water piping Cooling Towers to SIB

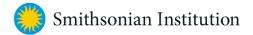
Design Objectives

• Connect to the South Campus CUP under the National Mall. This can be done in an existing steam tunnel or with a new direct bore.

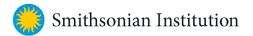




BREAK FOR QUESTIONS



GARDENS AND GROUNDS

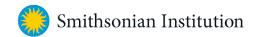


HISTORY EXISTING CONDITIONS KEY DESIGN ISSUES

- Area of Potential Disturbance
- Goals and Drivers Rehabilitation
- Perimeter Security
- Accessibility Improvements
- New Egress

SOUTH OF SMITHSONIAN INSTITUTION BUILDING

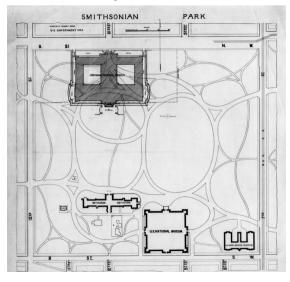
- Evolution
- Rehabilitation of Character Defining Features of the Haupt Garden
- Vegetation
- African Art Museum Pavilion Fountain Garden



GARDENS AND GROUNDS HISTORY

Landscape Evolution

 The landscape of the Smithsonian Institution Historic Core is one that has evolved dramatically since it was first established in the 19th Century.

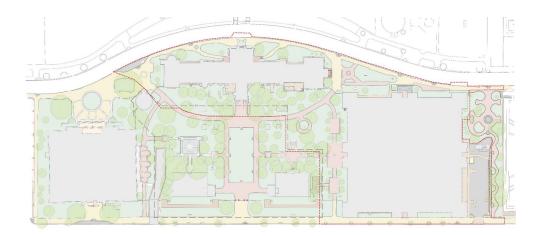


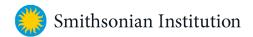
Historic Designations

- Although the Smithsonian Institution Building, the Arts and Industries Building, and the Freer Gallery of Art are all individually listed in the National Register of Historic Places, the accompanying gardens are not so-designated and do not fall within the period of significance attributed to the listed buildings.
- For the National Mall Historic District, the gardens of the Smithsonian Institution Historic Core are documented as part of the landscape setting of the buildings and objects, they are not counted as contributing resources.
- The Smithsonian Quadrangle Historic District was added to the DC Inventory of Historic Sites in 2017. The Quadrangle was determined individually ineligible by the US Department of the Interior.

Concept Design

• Anticipated changes to the landscape to support the RoHC project are proposed to be minimal with an emphasis on rehabilitation of site character and accommodating new program and improvements.





GARDENS AND GROUNDS HISTORY

LANDSCAPE EVOLUTION



Castle and South Yard, Facing Northwest (circa1885)



National Museum, Facing East from South Yard (1880)



AIB South Elevation (1975)



East Garden and AIB with the Downing Urn (1975) Smithsonian Institution



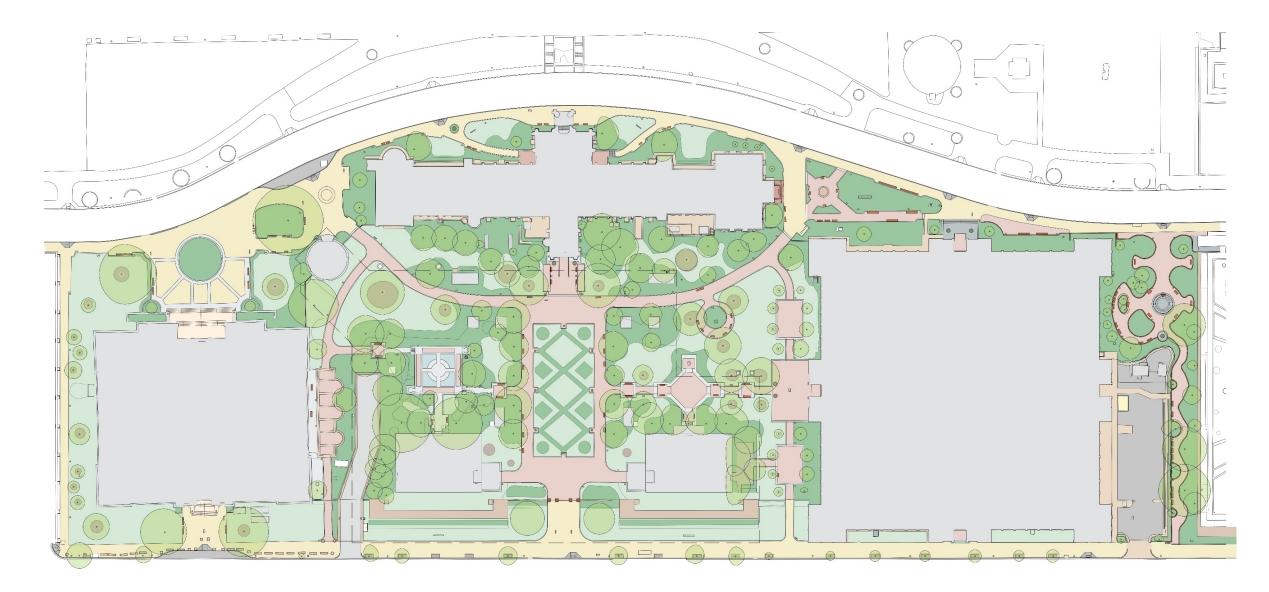
Victorian Garden and AIB, Facing Southeast (1980)

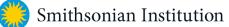


Smithsonian Castle, Facing West (1975)



GARDENS AND GROUNDS EXISTING CONDITIONS





GARDENS AND GROUNDS EXISTING CONDITIONS



Castle and Haupt Garden, Facing Northeast



Downing Urn in the Haupt Garden, Facing South



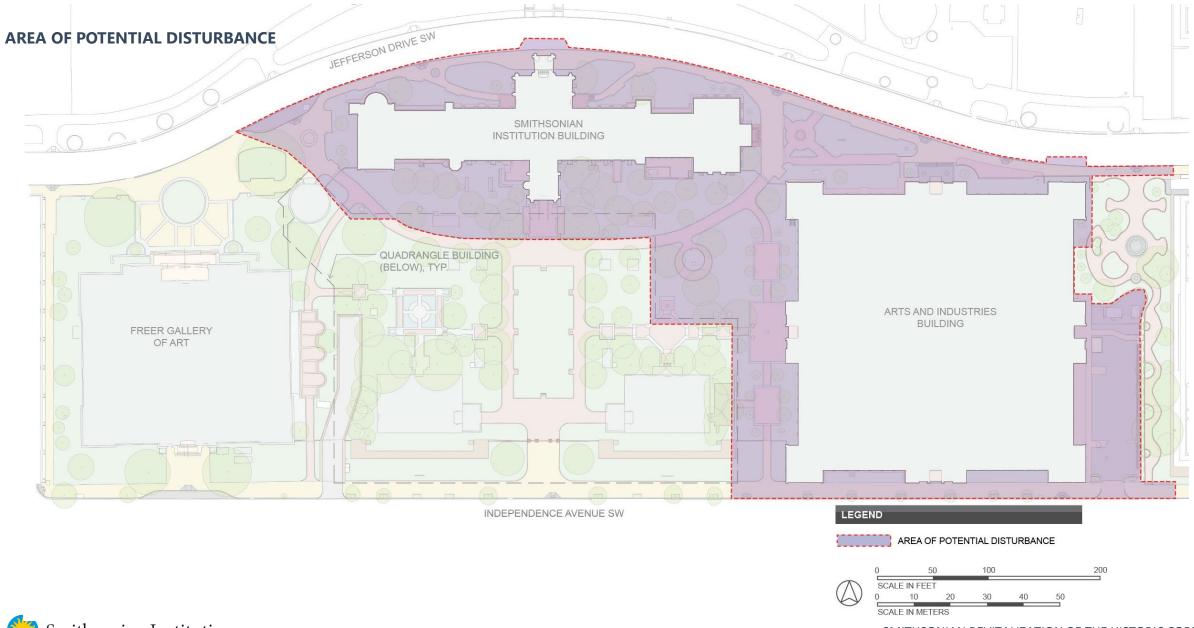
AIB and Ripley Garden, Facing Southwest



Haupt Garden and AIB, Facing Southeast

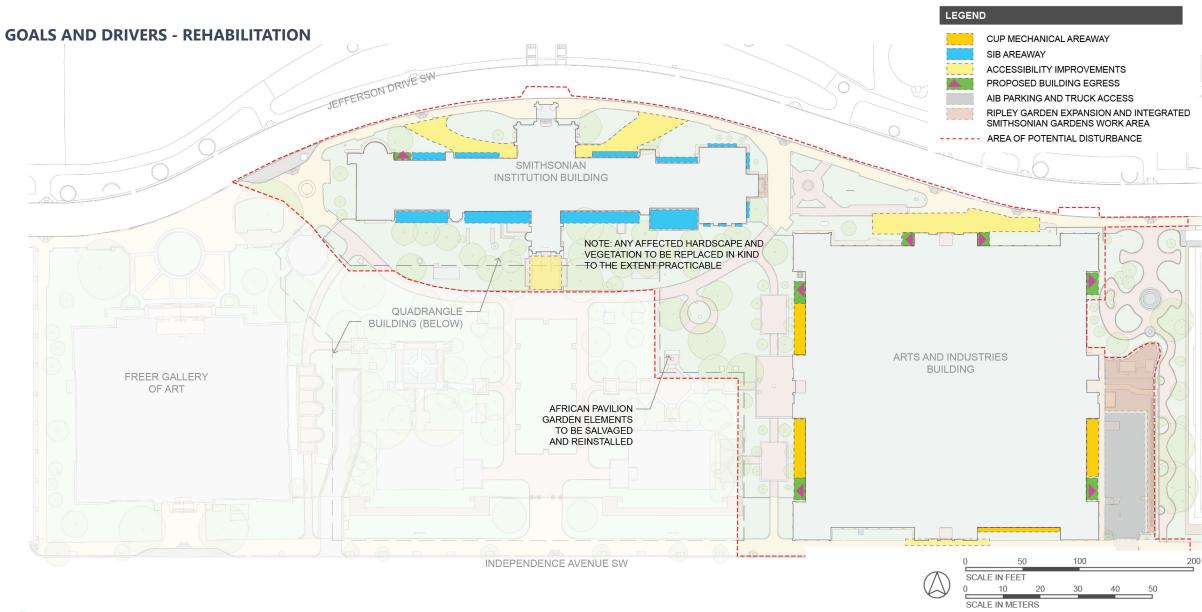


Smithsonian Castle, Facing West



Smithsonian Institution

SMITHSONIAN REVITALIZATION OF THE HISTORIC CORE 39





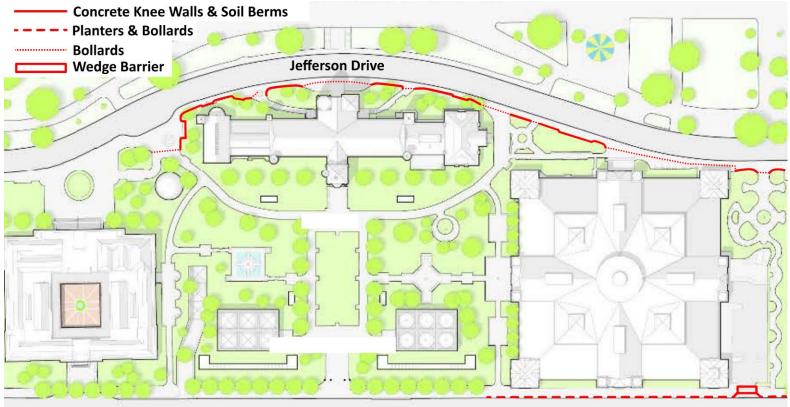
PERIMETER SECURITY

Background

- 2004 Mall-Wide Perimeter Security Concept Design developed by Beyer Blinder Belle.
- 2018 South Mall Campus Master Plan recommended following guidance from 2004.
- Smithsonian Institution and A/E Team collaborating to establish requirements and scope of perimeter security for the RoHC project.

Design Objectives

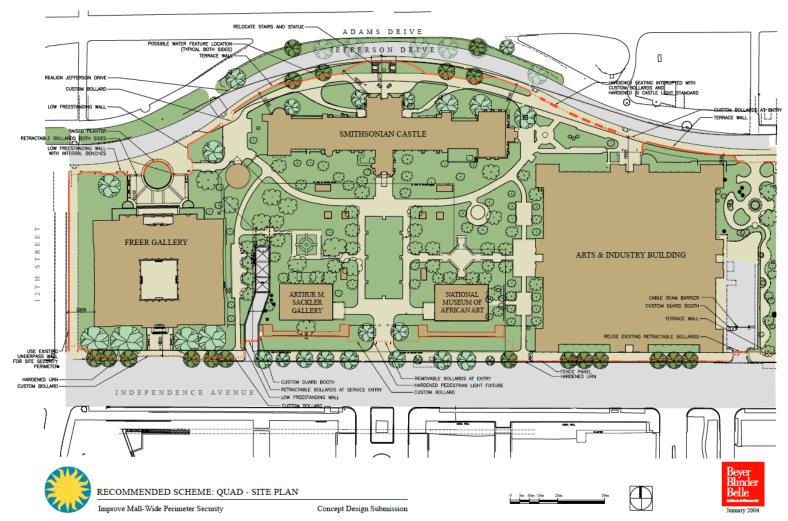
- Enhance Perimeter Security along Jefferson Drive and Independence Ave within RoHC project area.
- Follow Contextual and Unified Approach as recommended by the 2004 Mall-Wide Perimeter Security Concept Design.
- Integrate and conceal perimeter security measures within the site's existing features and landscape to the extent possible.
- Envision design approach as an extension applied Mall-Wide.



Independence Avenue

RoHC Perimeter Security Concept

PERIMETER SECURITY









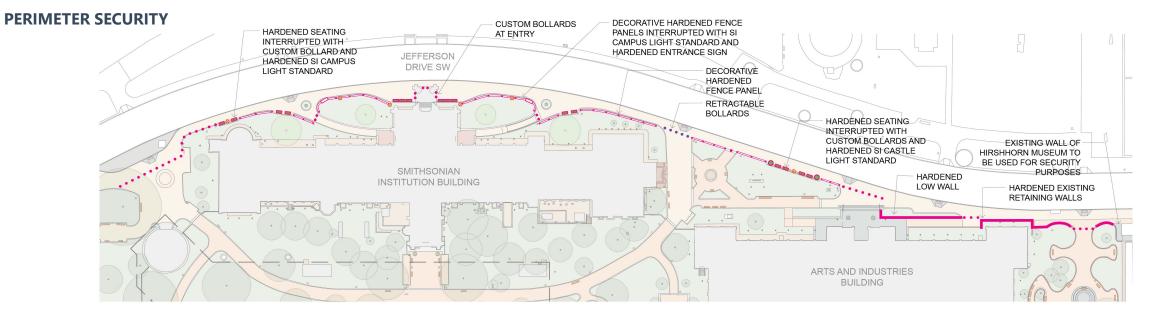
PROPOSED TREE PANEL FENCES : QUAD
Improve Mall-Wide Perimeter Security
Concept Design Submission



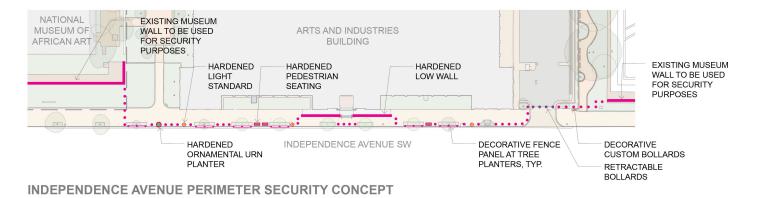
PROPOSED PERIMETER AT ARTS AND INDUSTRIES ON INDEPENDENCE AVENUE

2004 Perimeter Security Concept Study





JEFFERSON DRIVE PERIMETER SECURITY CONCEPT



LEGE	ND													
	0	5	0	100			200							
\bigcirc	0	E IN FEE 10 E IN MET	20	30	40	50								

ACCESSIBILITY IMPROVEMENTS

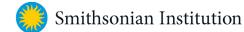


Background

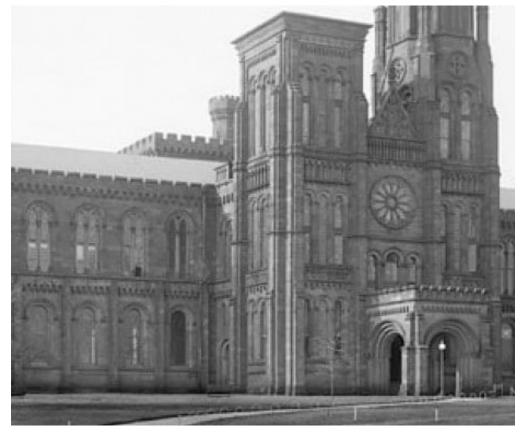
- Since the 1970s, the Smithsonian Institution has made updates and additions to their facilities to comply with modern accessibility standards.
- In the 1980s, a ramp to the Castle North Tower's west side was installed to improve accessibility. More recently, an accessible ramp was added to the South Tower entrance.
- In the early 1990s, modifications to the North and West Entrances of the AIB were made for accessibility; at the North Entrance, this included the addition of a concrete ramp and handrails.

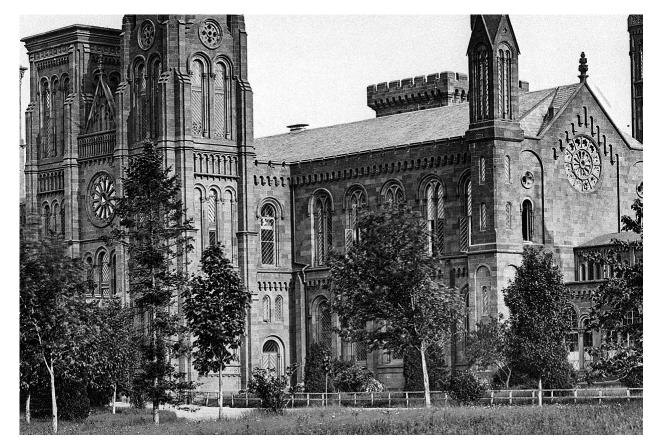
Design Objectives

- Enhance accessibility at the SIB and AIB to provide universal access to the buildings.
- Retain the historic fabric to the extent practicable and integrate accessibility improvements into the landscape and buildings.



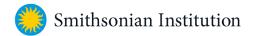
ACCESSIBILITY IMPROVEMENTS - SIB NORTH TOWER EAST ENTRANCE EVOLUTION





East Entrance (1920)

West Entrance (1867)

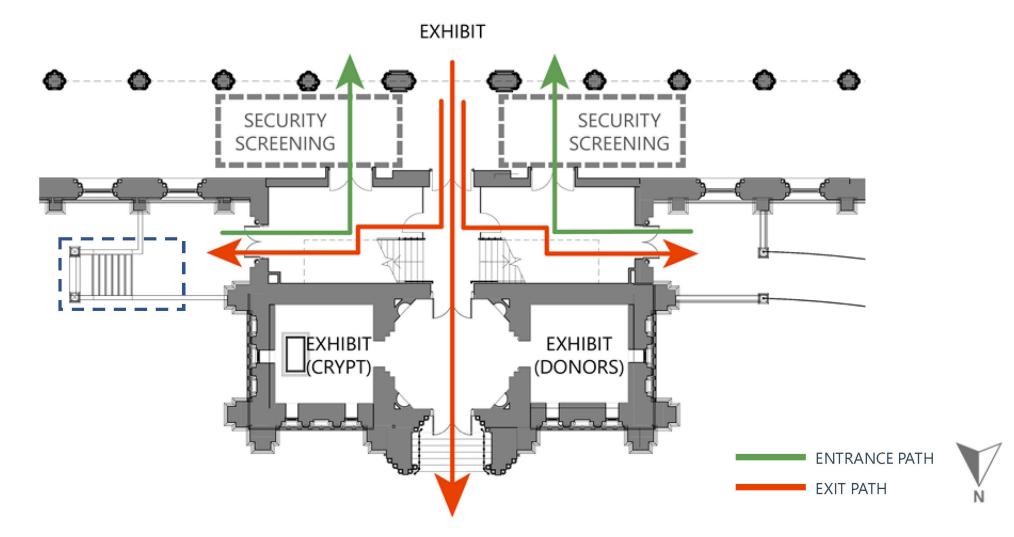


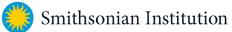
ACCESSIBILITY IMPROVEMENTS - SIB NORTH ENTRANCE EXISTING CONDITIONS



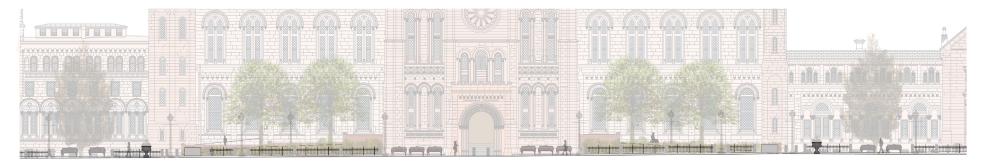
Smithsonian Institution

ACCESSIBILITY IMPROVEMENTS - SIB NORTH ENTRANCE ENTRY/EXIT SEQUENCE

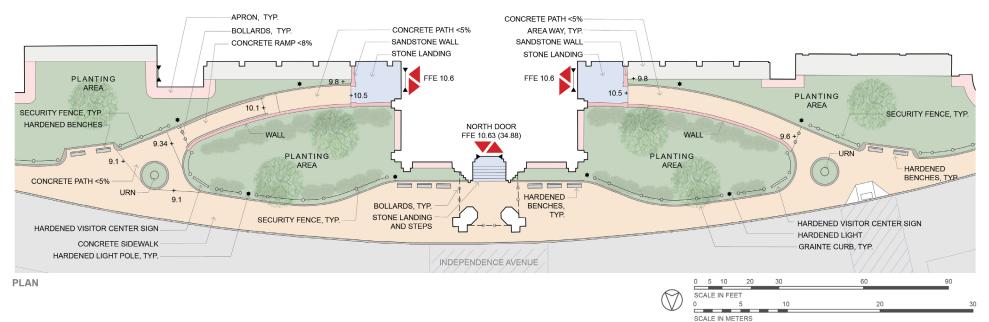


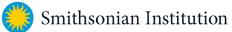


ACCESSIBILITY IMPROVEMENTS - SIB NORTH ENTRANCE PROPOSED CONCEPT

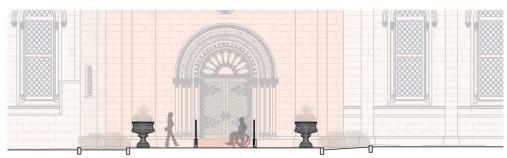


ELEVATION

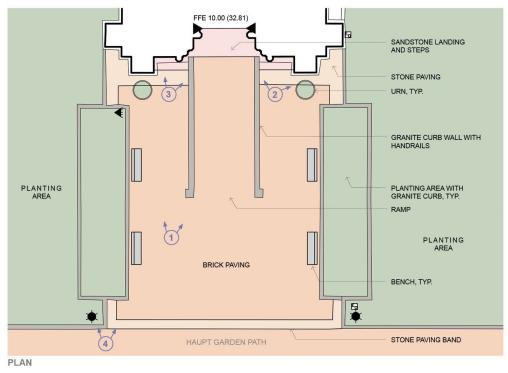




ACCESSIBILITY IMPROVEMENTS - SIB SOUTH ENTRANCE EXISTING CONDITIONS



ELEVATION LOOKING NORTH



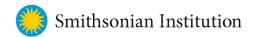








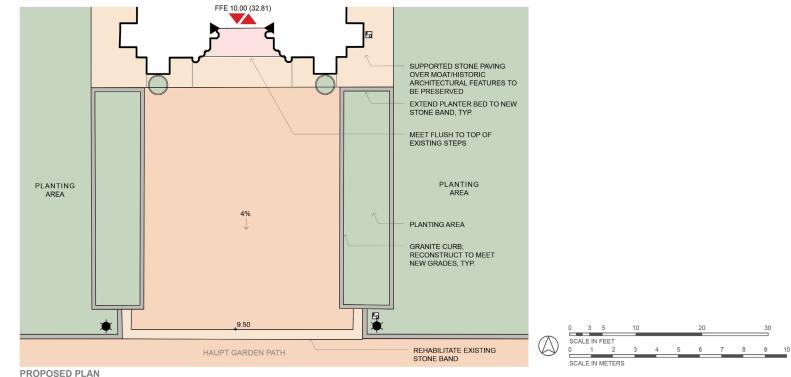


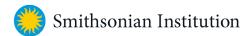


ACCESSIBILITY IMPROVEMENTS - SIB SOUTH ENTRANCE PROPOSED CONCEPT

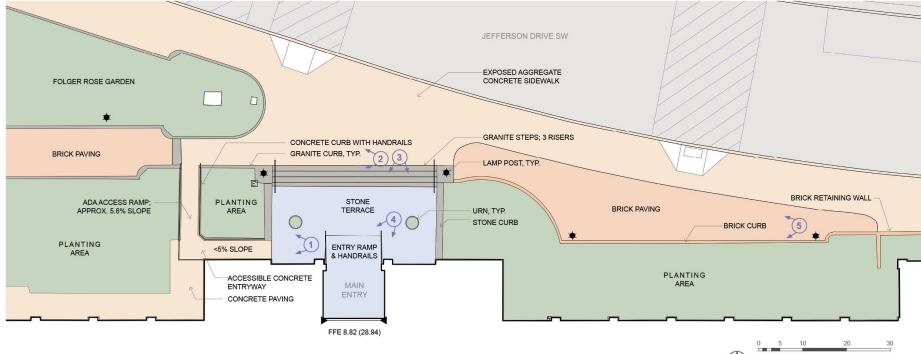


PROPOSED ELEVATION LOOKING NORTH



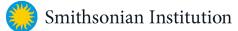


ACCESSIBILITY IMPROVEMENTS - AIB NORTH ENTRANCE EXISTING CONDITIONS

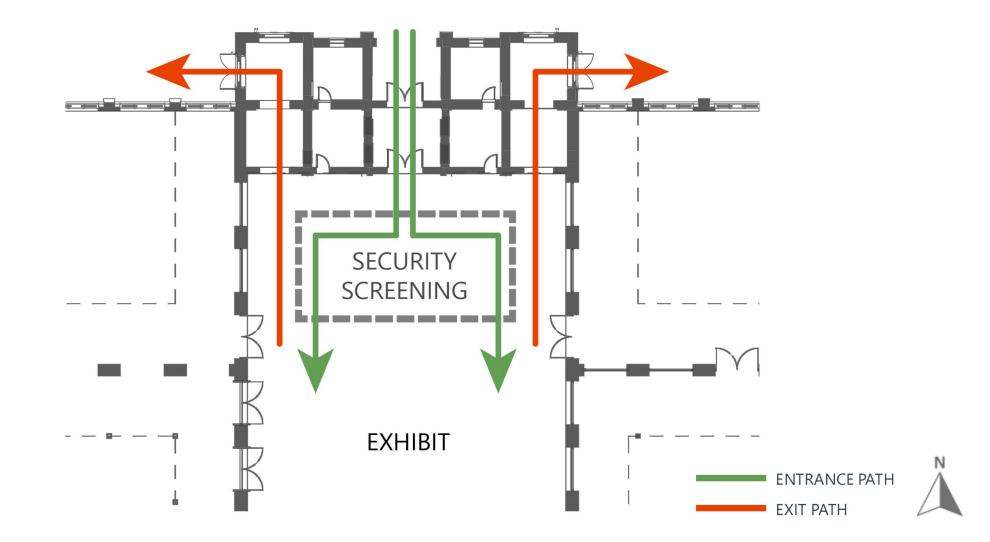


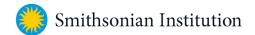




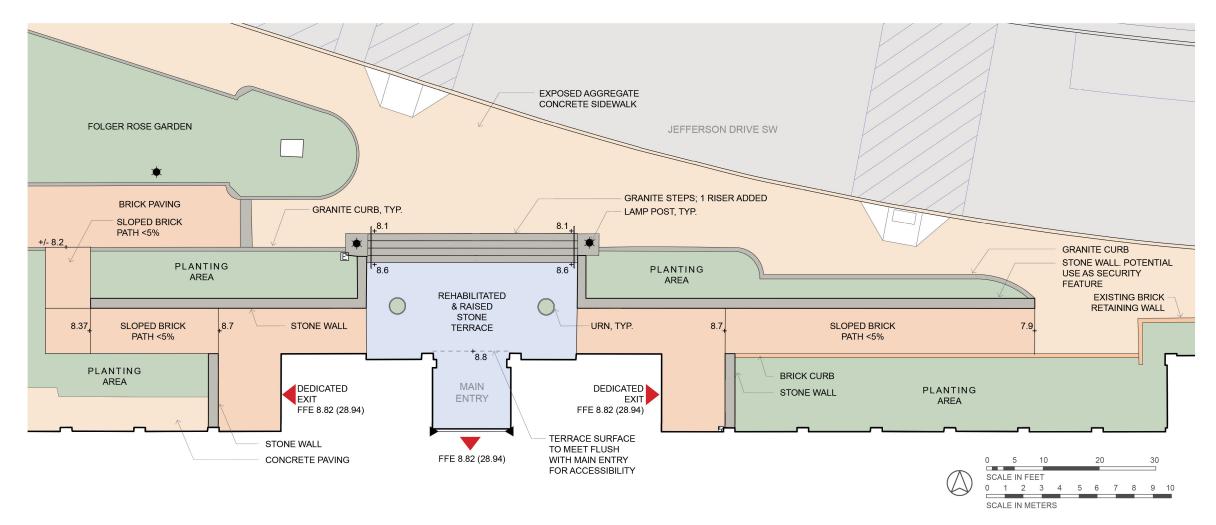


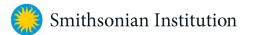
ACCESSIBILITY IMPROVEMENTS - AIB NORTH ENTRANCE ENTRY/EXIT SEQUENCE



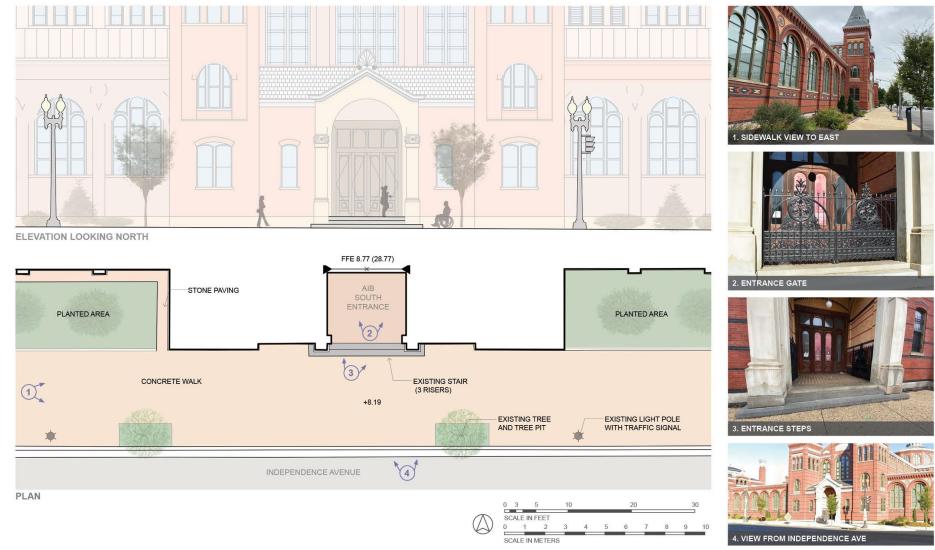


ACCESSIBILITY IMPROVEMENTS - AIB NORTH ENTRANCE PROPOSED CONCEPT

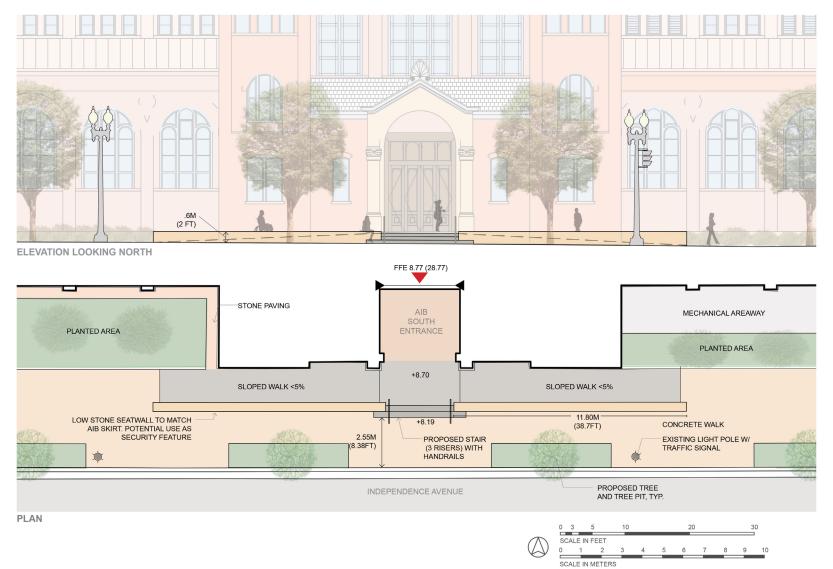


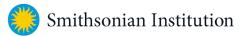


ACCESSIBILITY IMPROVEMENTS - AIB SOUTH ENTRANCE EXISTING CONDITIONS



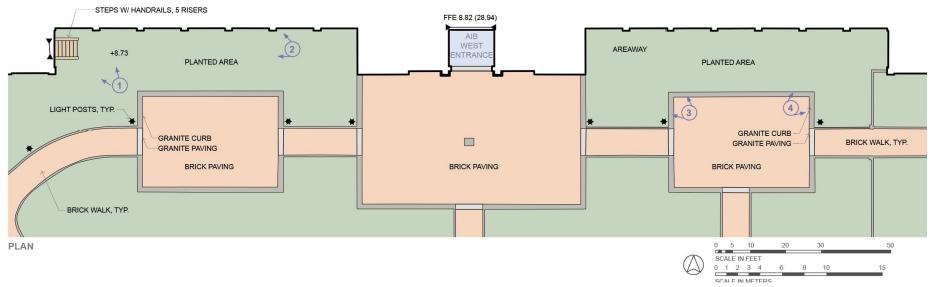
ACCESSIBILITY IMPROVEMENTS - AIB SOUTH ENTRANCE PROPOSED CONCEPT





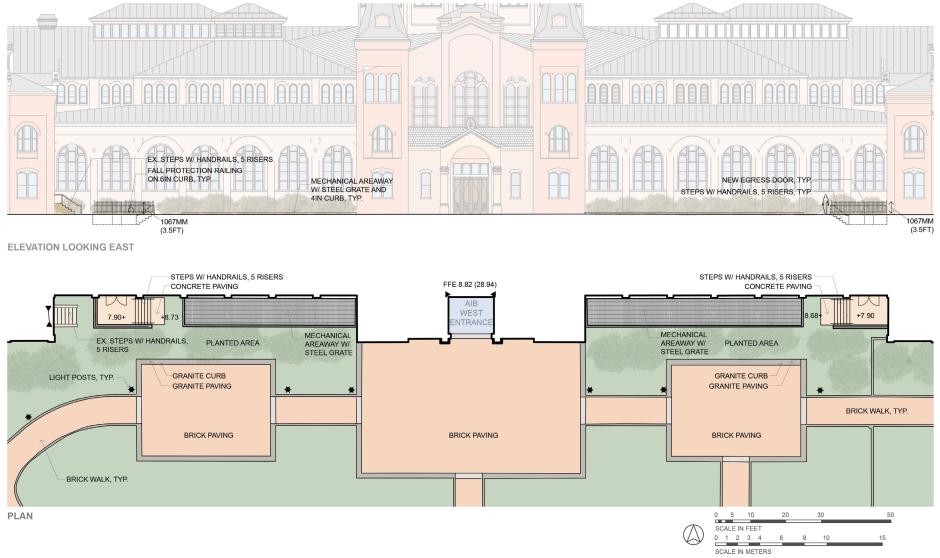
NEW EGRESS - AIB WEST EXISTING CONDITIONS

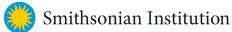




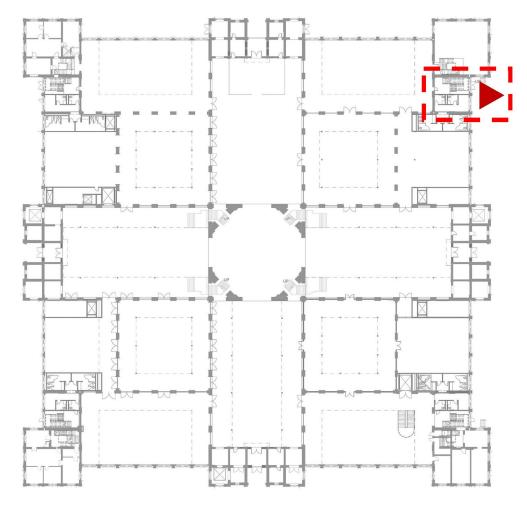
🌕 Smithsonian Institution

NEW EGRESS - AIB WEST PROPOSED CONCEPT





NEW EGRESS - AIB EAST EXISTING CONDITIONS

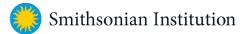


Key Plan of New Egress Door









EVOLUTION



South Yard (circa1885)



South Yard (1960s)



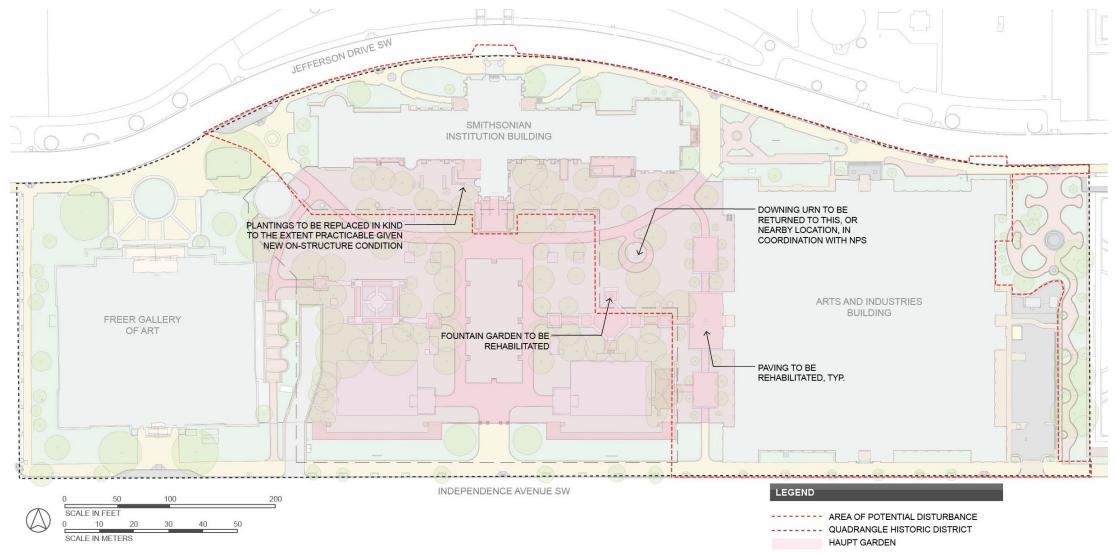
Quadrangle Construction (1986)

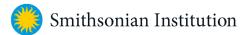


Victorian Garden (1977)



REHABILITATION OF CHARACTER DEFINING FEATURES OF THE HAUPT GARDEN



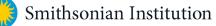


VEGETATION - HAUPT GARDEN



Design Objectives

- Replace existing vegetation in the spirit of the existing character while accommodating new below-grade improvements
- Coordinate tree plantings adjacent to the Castle for improved façade maintenance.
- Coordinate with NPS on the eventual siting of the Downing Urn



AFRICAN ART MUSEUM PAVILION FOUNTAIN GARDEN



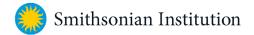


Design Objectives

- Carefully document Fountain Garden hardscape and water features; salvage and rehabilitate after insertion of CUP
- Replace existing vegetation in the spirit of the existing character while accommodating new below-grade improvements

Smithsonian Institution

SCHEDULE AND NEXT STEPS



SCHEDULE AND COST ESTIMATE PROJECT TIMELINE

Written comments are welcome through June 28, 2021 to BondC@si.edu.

Section 106 Initiation - October 2020 Section 106 Consulting Parties Meeting #1 - January 2021 Section 106 Consulting Parties Meeting #2 - May/June 2021 Concept Design Review- CFA & NCPC - June/July 2021 Continued Consultation with External Stakeholders - July 2021- 2022 AIB Futures Exhibit - November 2021- July 2022 Consulting Parties Meeting #3 - Winter 2021- 2022 SIB Move-Out - Summer 2022

	Initiate the Process		Identify Historic Properties		Assess Adverse Effects		Resolve Adverse Effects
• Initi • Ider	ine the Undertaking ate Section 106 ntify Consulting Parties plve the Public	•	Define Area of Potential Effects (APE) Identify Historic/Cultural Resources	•	Assess Effects on Historic Resources Apply Criteria of Adverse Effect	•	Avoid, Minimize, and/or Mitigate Adverse Effects Notify ACHP of Adverse Effects Create Resolution Document (MOA/PA)



