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Header 3

List View

General Information Contact Default Values Discount Document Information Clarification Request

Procurement Folder: 1199702

Procurement Type: Central Contract - Fixed Amt

Vendor ID: 000000112161

Legal Name: MILLS GROUP LLC

Alias/DBA:

Total Bid: \$0.00

Response Date: 04/20/2023

Response Time: 13:29

Responded By User ID: millsgroup

First Name: Hannah

Last Name: Tarcy

Email: general@millsgrouponline.co

Phone: 304-296-1010

SO Doc Code: CEOI

SO Dept: 0211

SO Doc ID: GSD2300000008

Published Date: 4/6/23

Close Date: 4/20/23

Close Time: 13:30

Status: Closed

Solicitation Description: EOI: Building 10 Holly Grove Renovation

Total of Header Attachments: 3

Total of All Attachments: 3



Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Solicitation Response

Proc Folder: 1199702
Solicitation Description: EOI: Building 10 Holly Grove Renovation
Proc Type: Central Contract - Fixed Amt

Solicitation Closes	Solicitation Response	Version
2023-04-20 13:30	SR 0211 ESR04202300000005236	1

VENDOR
000000112161
MILLS GROUP LLC

Solicitation Number: CEOI 0211 GSD2300000008
Total Bid: 0
Response Date: 2023-04-20
Response Time: 13:29:21
Comments:

FOR INFORMATION CONTACT THE BUYER
Melissa Pettrey
(304) 558-0094
melissa.k.pettrey@wv.gov

Vendor		
Signature X	FEIN#	DATE

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	EOI: Building 10 Holly Grove Renovation				

Comm Code	Manufacturer	Specification	Model #
81101508			

Commodity Line Comments:

Extended Description:

EOI: Building 10 Holly Grove Renovation

EXPRESSION OF INTEREST

HOLLY GROVE MANSION

ARCHITECTURAL/ENGINEERING
EVALUATION AND HISTORIC
ASSESSMENT



LETTER OF INTEREST

April 20, 2023

Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

Re: RFP: Building 10 Holly Grove Renovation

Dear Ms. Pettrey,

Mills Group is pleased to submit this expression of interest as an offer of our professional services for the historic assessment and the follow on task for development of construction documents to facilitate the comprehensive renovation of the Holly Grove Mansion in Charleston, WV.

Our team has been assessing existing structures, overseeing the design, rehabilitation and coordination for a multitude of historic structure projects for over seventeen years. The caliber of talent of the Mills Group team will be an asset to your project. Historic renovation success stories include:

- Hawks Nest CCC Event Center– Ansted, WV
- Scottish Rite/Children's Museum- Parkersburg, WV
- WV Veteran's Memorial-Charleston, WV
- Oglebay Foundation Office – Wheeling, WV
- Blue Sulphur Springs Pavilion – Blue Sulphur Springs, WV

These projects are the result of effective and clear communication between the team and the client to ensure timeliness and adherence to the project budget. We have a dedicated staff ready to assist with this project who values the design process, the importance of open and frequent communication with our clients, budgetary requirements and project deadlines.

The Holly Grove Mansion is one of the WV State architectural treasures and it would be a great honor for the Mills Group to have the opportunity to be entrusted with its renovation. Over the course of the Mills Group firm's 17 year history we have been involved in over ten historic building assessments and over one hundred historic building renovations/rehabilitations that range from the 1830 Webb Blessing House in Charlestown (<https://millsgrouponline.com/projects/webb-blessing-house>), the 1834 Blue Sulphur Springs Pavilion just outside of Alderson(<https://millsgrouponline.com/projects/blue-sulphur-springs>), the 1840 Waitman T. Willey House in Morgantown (<https://millsgrouponline.com/projects/willey-mansion-conservatory>), the 1925 Kump House in Elkins, and the recent total renovation of the historic Scottish rite building in Parkersburg (<https://millsgrouponline.com/projects/parkersburg-children-s-museum>).

M I L L S G R O U P O N L I N E . C O M

88 HIGH STREET
MORGANTOWN, WV 26505
304-296-1010

53 14TH STREET, SUITE 607
WHEELING, WV 26003
304-233-0048

122 E GERMAN STREET
SHEPHERDSTOWN, WV 25443
681-240-1010

102 THIRD STREET
ELKINS, WV 26241
681-264-8045

Michael Mills, managing principal of the Mills Group, has personal experience in developing rehabilitation strategies and construction documents for similar structure during his career as a preservation architect that include the 1804 Tingey House (Chief of Naval Operations Residence) in Washington, DC and 1877 Commissary Sergeant's Quarters at Fort Myer. Additionally, Mr. Mills has served as a client representing the ownership of historic properties and has owned historic properties himself, so the decision-making factors and realities of financial burden inform design options.

It is the mission of the Mills Group to "Design on the principles of the past and preserve for the future". This project directly aligns with our passions and expertise!

Proposed Staffing Plan

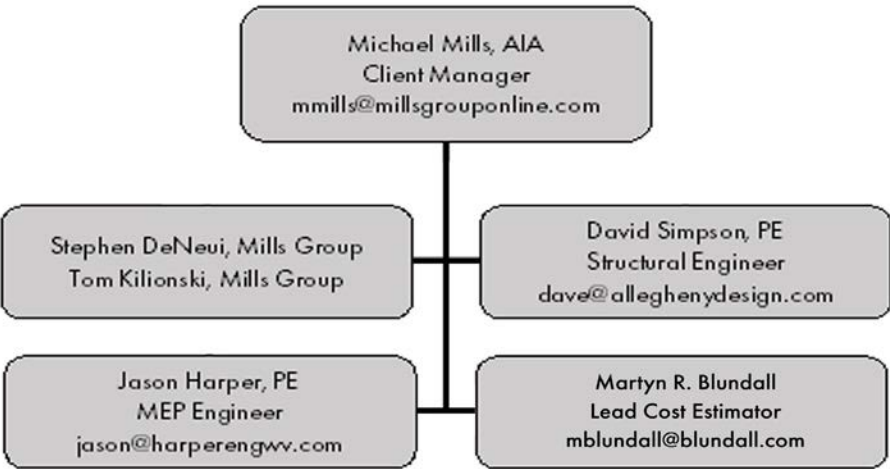
Michael Mills, AIA is the Managing Principal of the Mills Group. Michael's architecture experience ranges over three states and the District of Columbia. He will provide guidance to ensure that the projects are on time and on budget and serve as the client manager and project Principal.

Stephen DeNeui will serve as the Project Designer. Stephen's historical architectural experience includes extensive existing building assessments, code review and building renovation designs.

Tom Kilonski will serve as the Project Manager and Construction Observer. His experience includes thirty years in the field of construction and working on historic properties.

David Simpson, PE is the president and structural engineer at Allegheny Design Services. His 30 years of structural design experience includes hotels, retail facilities, shopping centers and health care facilities.

Jason Harper, PE is the owner of Harper Engineering. Jason has over a decade of experience with HVAC, electrical, plumbing, and fire alarm system design.



Project Team

Mills Group specializes in architecture with a team of talented architects and planners. Our firm's frequent and open dialogue with clients and regulatory agencies allows for streamlined project review and accurate results.

Allegheny Design Services (ADS) is a group of remarkable engineers in Morgantown who ensure their projects meet current and speculative design needs with sound solutions. This firm will be responsible for structural engineering.

Harper Engineering specializes in innovative engineering design services to architects, owners and contractors in West Virginia. This firm will be responsible for MEP services including the design of HVAC, electrical and plumbing systems.

Scope of Work

Responsive to the RFQ scope of work is understood:

Objective 1

- Review the past project plans and reports
- Execute on site assessment with entire team
- Develop a report with findings and recommendations
- Once program, scope and recommendation are agreed upon by all stakeholders as cost opinion shall be developed

Our Team has recently successfully developed the historic assessments of the Kump House, Scottish Rite building in Parkersburg, and Blue Sulphur Springs that did resulted in work products that meet the objectives outline above. We have included a copy of the Kump House Report since it most closely aligned to this project solitication. Our project approach/methodology is outlined below.

Objective 2

- Develop a conceptual approach for sensitive MEP intergration in the hstoric building for the WVSHPO office use

Our Team has recently successfully completed the adaptive reuse of the Scottish Rite building in Parkersburg into the the Children's Museum of the Ohio Valley. This project involved over 25,000 sq ft of historic interiors that we started at ground zero with mechanical, electrical, and plumbing system with 100% new. We developed a concept for concealed systems using secondary support areas such as closets and existing shafts. Where systems could not be concealed we developed exposed components that intregrated to meet the Sectrary of Interiors Standards. This project was challenged with various use requires such as exhibit spaces, maker spaces, meeting rooms, offices, and café that all had specifice MEP requirements.

Objective 3

- Have experience with GSD, WVSHPO, and familiarity with Secretary of Interior Standards
- Ability to build consencensus between the WVSHPO and WV Capitol Building Commission

Our firm held a contract with the WVSHPO for over twelve years to provide technical assistance and grant monitor for the annual Develop Grant Program which provided the firm exposure to over hundred additional historic properties across the state and established a strong working relationship the WVSHPO and the Culture and History Commission. The grants require compliance with the Secretary of Interior Standards. Additionally, the Mills Group completed the assessment and construction documents for the WV Veterans Memorial on the Capitol grounds about seven years ago and require consensus building.

Objective 4

- Have experience development of construction documents of similar projects
- Have experience working on the WV Capitol Grounds

Our team has executed similar construction document packages for the Hawk's Nest CCC Museum project with DNR and the WV Veterans Memorial. We completed assessment, construction documents, and Construction administration for the WV Veterans Memorial on the Capitol grounds about seven years ago which required close coordination with General Services Division as it related to security, site access, and general standards that pertained to the complex as a whole.

Methodology

Our team takes pride in the firm's reputation for producing quality designs on projects large and small with the end goal of a completed project that meets or exceeds the client's expectations. Mills Group architects, planners and designers will draw on our reservoir of experience – gleaned over decades and multiple states – to comprehend client needs and produce a design that we will lead to success at every step we can be relied on to keep all pertinent stakeholders abreast of developments. We pride ourselves on having open and transparent conversations with our clients to ensure they are involved throughout the entire design process. The end goal is to work with the General Services Division, The WV Department of Arts, Culture, & History, the WVSHPO, and all other stakeholders to deliver a strategic plan for improvements and renovations.

Our first step would be comprehensive conversations with all the relevant stakeholders coupled with site visits to assess conditions and develop a more defined scope of work for the initial assessment. It would be important to understand the programmatic goals, the building infrastructure goals and requirements, and the historic preservation treatment zones/components.

Once we have a defined scope and understanding of the existing conditions, we will then be able to provide a complete construction estimate for the project renovation with a recommended approach and secondary alternates that might be structured as future deductive bid alternates. This will give us the basis needed to propose a definitive timeline for major project milestones. Sustainability and preservation assessment, code, life safety and zoning evaluations will be part of the scope. Precedent and product research will lead to design concepts, construction documents, bidding and negotiations. Supervising the construction will be the culmination of all this work in later phases.

The overarching methodology to achieve the project objectives as agreed upon by the client are summarized in the following bullets points:

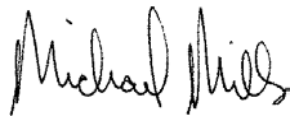
- *Research the site and its context*
- *Observe Existing Conditions*
- *Analyze and Identify Issues and Opportunities*
- *Develop Alternatives*
- *Make Recommendations and Creating a Solution*
- *Assemble Construction documents*
- *Provide assistance with bidding and execute construction observation*

For Mills Group, the ROADMAP, is a critical path to achieve the success of an existing structure project. The process outlined above is subject to change, based upon phasing of the work to be performed. Mills Group will work with the General Services Division to determine appropriate phasing of different scopes, as to not greatly disrupt the function of the Capitol facilities.

Please find attached our firm and team member resumes along with examples and samples of our work.

We would be delighted to aid the General Services Division with the renovations to the Holly Grove Mnnsion. Should you have any questions, please feel free to contact me at 304-296-1010 or email me at mmills@millsgrouponline.com. Thank you for this opportunity.

Sincerely,

A handwritten signature in black ink that reads "Michael Mills". The signature is written in a cursive, flowing style.

Michael Mills, AIA
Managing Principal



QUALIFICATIONS



“Designing on the principles of the past and preserving for the future”

LOCATIONS:

88 High Street
Morgantown, WV 26505
304.296.1010

53 14th Street, Suite 607
Wheeling, WV 26003
304.233.0048

122 E German Street
Shepherdstown, WV 25443
681.240.1010

102 Third Street
Elkins, WV 26241
681.264.8045

SITE:

millsgrouponline.com

For more than 15 years, the architects, designers, planners and historians of the Mills Group have collaborated with our clients to improve communities through the latest design techniques while preserving the rich architectural character of the past. This blend of modern technology and story-telling makes for timeless, inspired design.

We know that the most successful projects are built on collaboration with our clients, team and partners. Open and honest communication combined with a detailed site plan that accounts for all potential variables is key to success. We look to the region's architectural heritage for inspiration to celebrate the best of the past and to promote economic vitality for the future.

We specialize in both public and private projects. Our public clients include cultural agencies, development offices, municipalities, schools, and non-profits. Other architects and engineers, developers, homeowners, and business owners are among our private clients.

We are committed to designing with our clients, not for our clients. Understanding and respecting your needs, schedule and budget are of the highest priority to us. We are also committed to understanding the history of the building or place and how that plays into the design. These contextual concerns make all the difference in creating truly special places.



Mills Group maintains offices in Morgantown, Wheeling, Elkins, and Shepherdstown, West Virginia. Our new office in downtown Morgantown is a reflection of our commitment to community and the adaptive re-use of existing buildings; the team works closely together to create truly special places for our clients and their communities.

Architecture

COMMERCIAL
RESIDENTIAL
PUBLIC

Planning

ENABLE
EXTEND
ENHANCE

Preservation

REVITALIZE
REHABILITATE
CONSULT

Mills Group has a holistic focus in architecture, assisting clients with residential, commercial, public, and interior designs. We work with our clients to create structures that improve their lives and their communities. Every project is developed with an emphasis on traditional design principles, vernacular design influences, and long-term sustainability.

Our clients entrust us with creating a well-researched and detailed plan that will foster a rich and engaging environment for people to live, work, and play. We carefully consider the complex interaction of functional, economic, and social needs of our clients, while also providing the needs of the site's users.

Buildings tell the story of our past and each building provides a unique set of requirements and conditions to share that story. Sensitive and responsible preservation and restoration work must be responsive to the historic significance of the building. We perform historical research and assess existing conditions, and we compile our findings into a comprehensive feasibility study and/or historic structures report for the owner to implement planning for the next phase of use for the building.



SITE/CIVIL & STRUCTURAL ENGINEER

“Think Alpha First”

LOCATION :

535 West King Street
Martinsburg, WV 25401
P - 304.264.0051

SITE :

thinkalphafirst.com

Alpha Associates, Incorporated is a West Virginia-based architectural and engineering design firm that provides services in the areas of architectural design, interior design, construction administration, civil engineering, structural engineering, landscape design, project management, and surveying. Our clients benefit from our unique combination of extensive design and construction experience, advanced technological tools, dedicated principals and highly skilled staff members.

Since 1969, Alpha has provided architectural and engineering design services throughout the state of West Virginia. We have worked with many organizations as well as local, state and federal government entities on numerous projects of varying sizes and types. Our work is diverse and also includes clients in commercial, education and governmental facilities, developers and private organizations. In this proposal, you will find examples that showcase the Alpha Team's exceptional project experience of varying natures, sizes, and types.

Alpha has the knowledge and understanding in design and construction to complete this project seamlessly from the initial project inspections to the development of plans. The Alpha team will be your expert for this project.

Alpha's philosophy has always been to provide exemplary services for fair fees. We have always believed that the best way to succeed as a business is to go above and beyond the basic requirements of our contracts and do everything necessary to successfully complete the given project. What is best for the client is inevitably best for us too.

Alpha has thrived for over 52 years because we are a professional organization dedicated to providing superior architectural and engineering design services to our clients. While our staff is large enough to handle any size project, we are also small enough to give each and every one of our projects the individual attention to detail that will make them successful projects for our clients.



Harper Engineering, PLLC

MEP ENGINEER

**“A unique
combination of young
talent and proven
experience”**

LOCATION :

52 B Street
St. Albans, WV 25177
Ph: 304.722.3602
Fax: 304.722.3603

Harper Engineering, PLLC has the talent and resources to provide quality mechanical, electrical, and plumbing design. Our staff utilizes the latest building information modeling (BIM) software to provide the accurate system designs with minimal change orders during construction.

Our goal is to design optimized systems that meet all of our client's performance, energy use, and budgetary needs.

The staff at Harper Engineering, PLLC has over 100 years of experience working with clients in a variety of fields including, but not limited to, K-12 schools, hospitals, offices, airports, manufacturing, multi-family housing, and Design/Build.

SERVICES

HVAC Design - Heating and cooling load calculations / Ductwork sizing / Hydronic pipe sizing / Equipment selection

Electrical Design - Electrical load calculations / Panel and switch gear selection / Lighting / Fire alarm / Site utilities / Emergency generators / Security and communications

Plumbing Design - Pipe sizing / Fixtures / Sprinklers / Site Utilities

Drafting

Specifications

Project Management

Construction Documents

Level 350 Building Information Modeling (BIM) Coordination for School Building Authority Projects



SEAL ENGINEERING, INC.

**“Providing
professional
services related
to roofing,
waterproofing
and the building
envelope as a
whole”**

LOCATION :

3323 Duke Street
Alexandria, Virginia 22314
P - 703.823.6366
F - 703.823.2890

SITE :

SEAL-ENG.COM

Established in 1980, Seal Engineering's professional staff consists exclusively of civil engineers and structural engineers. Professional engineers are registered to practice in the Commonwealth of Virginia, Maryland, the District of Columbia, and West Virginia. All staff engineers are trained, experienced and licensed to operate laboratory and nondestructive materials testing equipment.

We pride ourselves on careful and thorough investigations and reports. Our recommendations and designs emphasize maintenance and repair whenever possible to maximize the service life of the building envelope. We recommend replacement only when it is clearly the most practical and economical alternative. Also, our engineering services have proven successful in the bidding process, where our sound, clear and practical designs and bid packages have obtained truly competitive bids. For special assistance beyond our capabilities, we work closely with several architectural and engineering firms, materials consultants and testing laboratories.

Seal Engineering, Inc. is a civil-structural engineering firm dedicated to providing professional engineering services in the following areas:

- Low and steep sloped roofing
- Terrace, plaza deck and below-grade waterproofing
- Building facade, concrete, masonry, window and sealant restoration
- Parking garage and balcony restoration
- Site drainage and paving system improvements

BLUNDALL ASSOCIATES, INC.



COST ESTIMATORS

**“We’re Blundall
Associates and
we’re at your
service.”**

LOCATION :

7223 Engle Road - Suite 215
Fort Wayne, IN 46804
P - 260.489.8444
E - info@blundall.com

SITE :

blundall.com

Blundall Associates, Inc., is in its 44th year of providing cost consulting and project management services for a wide range of commercial, institutional, and industrial clients. In a typical year we prepare estimates for projects in excess of 2 billion dollars in total value for clients in multiple states. We have now successfully completed projects in over 40 states - the majority of our work falling from the Midwest to the East Coast.

Our full-time staff includes eight professional estimators, one intern, and a business manager/administrative assistant. All of our senior full-time estimators have a relevant college education and at least five years of experience in the construction industry and/or the professional construction cost consulting/estimating field. We are a full-service practice; our in-house staff prepares estimates for all architectural and engineering disciplines, including mechanical, electrical and site development trades. Our estimates are prepared using state-of-the-art electronic take off software integrated with our custom designed MS Excel spreadsheets.

An independent cost analysis by Blundall Associates, Inc., provides an objective review of project costs based on the construction market in the region in which the project is located without any preconceived ideas as to the optimum project design solutions. This allows building owners and designers to objectively evaluate base designs and design alternatives and to confidently proceed with bidding or negotiating their project.

Our company was established in 1979, and we are still providing services for many of our initial clients. Since our inception our business volume and client base have increased steadily from year to year with virtually no business marketing. Our continued growth is achieved solely by client retention and referrals. We have consistently provided estimates that closely reflect the final bid results, and the successful bids are usually under our estimates. We feel that our ability to maintain long-term relationships with most of our clients is an excellent indication of the quality of our company and the services that we continue to provide.



RESUMES



Michael Mills

AIA, NCARB

MANAGING PRINCIPAL

EDUCATION

BS, BARCH / 1993 / RENSSELAER
POLYTECHNIC INSTITUTE

PROFESSIONAL REGISTRATIONS

WEST VIRGINIA
VIRGINIA
OHIO
PENNSYLVANIA
MASSACHUSETTS
NORTH CAROLINA
NEW HAMPSHIRE
VERMONT

BIOGRAPHY

Mr. Mills leads all facets of the daily operations of the Mills Group. He has over 25 years of experience in historical preservation, architectural design, and planning. Through his extensive work with historic structures, he has a detailed working knowledge of the Secretary of the Interior's Standards for Historic Preservation Projects. His work includes interior and exterior preservation, window restoration, foundation waterproofing, roof repair, integration of MEP systems in a historic structure and the design of interpretive exhibits for historic structures. The other aspects of his work include historic design guidelines, contextual design of new structures, and the issues related the revitalization of main streets across the country.

EXPERIENCE

Kump House - Elkins, WV

The city of Elkins and Jump House Trust contacted Mills Group to prepare a modified Historic Structures Report and Adaptive Reuse Plan for Kump House in Elkins, West Virginia. The purpose of the study was to assess the building condition, review functional and programmatic requirements, present concept plans and to establish a preliminary cost budget for the scope of work within recommendations with consideration for priorities and funding sources.

Hawks Nest - Fayette, WV

Mills Group was hired by the West Virginia Division of Natural resources to provide consulting services for the Civilian Conservation Corp Museum and Picnic Pavilion at Hawks Nest State Park. The scope of work was to adaptively reuse the existing residence structure and museum space into an event venue while preserving the historic qualities. Some updates included a catering kitchen, pre-function space, restrooms and dressing room, and gathering space for over 50 guests.

Blue Sulphur Springs - Greenbrier County, WV

The Greenbrier County Historical Society chose Mills Group to conduct an existing conditions assessment, describe the written and architectural history of the Blue Sulphur Springs Pavilion and offer a plan for its stabilization and reuse.

WV Veterans Memorial Restoration - Charleston, WV

Mills Group created and oversaw a plan for the restoration of the Memorial located within the State Capitol Complex in Charleston, WV for the General Services Administration. Although the memorial itself is not yet considered to be of historic age, its use of traditional materials required a sensitive and practical restoration approach in order to ensure its continued use for generations to come.



Stephen DeNeui

PRESERVATION ASSOCIATE

EDUCATION

UNIVERSITY OF KENTUCKY
COLLEGE OF DESIGN:
BA / ARCHITECTURE

UNIVERSITY OF OXFORD &
OXFORD BROOKES UNIVERSITY:
MS / DISTINCTION IN THE
HISTORIC CONSERVATION
OF ARCHITECTURE

BIOGRAPHY

Stephen is a veteran with a background in advanced troubleshooting and critical thinking. These skills in problem-solving serve him well in his research, writing, and design. He believes that architecture is the crystallization of the shared human story. Reading the forensics of historic building fabric allows him access to the wells of memory hidden in the ordinary. He is capable of consuming and processing large volumes of information and synthesizing them into tangible points of action. He has a strong understanding of the built environment and the strengths of historic building materials. His time abroad has taught him to see problems through an assortment of lenses and to think outside the immediate parameters of any project. He is a quick learner, skilled in writing, research, design software, and recording technology.

He was awarded The Stephen Levrant Prize for his work in Historic Conservation Area Planning while at Oxford Brookes University where he also received his MSc with a Distinction. He was awarded The History & Theory Award, The A4LE Research in Design Award, The Sustainability & Passive Design Award, and The CoD Studio Award while graduating Summa Cum Laude from the University of Kentucky.

EXPERIENCE

Mansion Museum - Oglebay Park – Wheeling, WV

An exterior conditions survey was completed on the entirety of the Oglebay Mansion Museum. The findings of this survey were compiled into a comprehensive document assessing each component and system of the mansion's roof and façades.

Greenbrier Historical Society Law Library – Lewisburg, WV

The buildings were scanned and surveyed to create existing building drawings. Forensic selective demolition of the structures was undertaken to discover the traces of the buildings' original configuration. Hypothesized drawings were drafted to illustrate what the findings revealed about the buildings' pasts. These were integrated into a Historic Structures Report for the society along with a proposed set of drawings on how to adapt them for a new program.

820 Market Street – Parkersburg, WV

The building was scanned and surveyed to create existing building drawings. A Historic Structures Report was created to allow the owner to assess the character-defining elements of the structure. The report further demonstrated two conceptual strategies in the adaptation of the lodge into residential flats. Renderings were created to demonstrate the concepts of the new design. Structures Report for the society along with a proposed set of drawings on how to adapt them for a new program.



Tom Kilionski

PROJECT MANAGER

EDUCATION

WEST VIRGINIA UNIVERSITY:
BA / HISTORY

BIOGRAPHY

Tom Kilionski brings to the Mills Group 35 years of experience in the building industry. Starting as a carpenter's apprentice in 1983, and advancing through various levels of labor, management and administration, Tom developed a well-rounded knowledge of residential contracting. This has allowed Tom to be principal owner of several successful building companies. Euro-Tech Kitchens in Chatsworth, CA, Pacific Coast Interiors in Simi Valley, CA, and Mountain State Interiors in Morgantown, WV have all enjoyed exceptional reputations in the various regions in which they were located.

EXPERIENCE

Blue Sulphur Springs Pavilion - *Blue Sulphur Springs, WV*

The Greenbrier County Historical Society chose Mills Group to conduct an existing conditions assessment, describe the written and architectural history of the Blue Sulphur Springs Pavilion and offer a plan for its stabilization and reuse. This project required a plaster analysis of supporting column structures which included conversations with experts in the field of plaster mixing and paint colorization along with historical research of the state of plaster use in the 1830s.

Tygart Hotel - *Elkins, WV*

Mills Group was hired by the Woodlands Development Group to design a sensitive rehabilitation of the historic Tygart Hotel in Elkins, WV. Our design of the 56-room boutique hotel will maintain the historic integrity of the building while adapting it to a modern use.

Greenbrier Historical Society Law Library – *Lewisburg, WV*

The buildings were scanned and surveyed to create existing building drawings. Forensic selective demolition of the structures was undertaken to discover the traces of the buildings' original configuration. Hypothesized drawings were drafted to illustrate what the findings revealed about the buildings' pasts. These were integrated into a Historic Structures Report for the society along with a proposed set of drawings on how to adapt them for a new program.

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Richard Colebank PE, PS



(304) 296-8216



rick.colebank@thinkalphafirst.com

ROLE: President & COO | Project Principal

Profile

Rick Colebank has been with Alpha Associates, Inc. since 1985. He began his career with Alpha as a staff engineer and progressed his way through the ranks from Project manager to his current lead position. Now President and Chief Operating Officer, Rick, has worked with diverse clients such as WVU, City of Morgantown, WVDOH, WVU Foundation, and the Morgantown Municipal Airport, as well as numerous other public and private clientele. Since 1988, Rick has been the principal-in-charge of the Civil Engineering projects developed by Alpha. He provides financial and administrative guidance for day-to-day operations of the company while managing projects.

Education

- Masters of Business Administration, West Virginia University – 1999
- Bachelors in Civil Engineering, West Virginia University – 1982

Registrations

- Registered Professional Engineer in Maryland, Pennsylvania, Virginia, and West Virginia

Responsibilities

- Project Management
- Business Operations & Financial Management
- Quality Assurance/Quality Control
- Civil Engineering Project Management and Design
- New Business Development
- Expert Testimony and Investigation

Years Experience: 40

Years with Firm: 38

Related Projects

Berkeley Springs Bath House

Berkeley Springs, WV

Cass Scenic Railroad – Clubhouse Renovation

Cass, WV

Hawks Nest State Park

Anstead, WV

- CCC Museum
- Picnic Pavilion

Elkins Cole and Coke Building

Masontown, WV

KCAD Professional Office Building

Martinsburg, WV

Women's Club of Fairmont

Fairmont, WV

WVU; Hodges Hall

Morgantown, WV





Charles Branch PE



(304) 296-8216



chuck.branch@thinkalphafirst.com

ROLE: Sr. Principal | Sr. Civil Engineer

Profile

As Chief Engineer for site development and planning projects, Mr. Branch is a vital part of the design process here at Alpha Associates, Inc. His involvement spans from strictly civil engineering projects to the design of large-scale educational projects and medical facilities. Charles acts as peer review for young engineers in our firm with issues ranging from storm water management to site design.

Education

- Bachelors in Civil Engineering, West Virginia University – 2000
- Bachelors in Architectural Engineering, Fairmont State University – 1988

Registrations

- Registered Professional Engineer in West Virginia

Responsibilities

- Municipal Engineering
- Wastewater Collection
- Storm Sewer System Design
- Site Engineering
- Project Management

Years Experience: 35

Years with Firm: 31

Related Projects

Berkeley Springs Bath House

Berkeley Springs, West Virginia

Elkins Coal and Coke Building

Masontown, West Virginia

Historic Covered Bridges

- Simpson Creek Covered Bridge
Bridgeport, WV
- Fletcher Covered Bridge
Clarksburg, WV

KCAD Professional Office Building

Martinsburg, WV

Watters Smith State Park

Lost Creek, WV

WVU; Hodges Hall

Morgantown, WV



Charles Luttrell PE, PS



(304) 296-8216



charlie.luttrell@thinkalphafirst.com

ROLE: Sr. Principal | Project Lead Structural Engineer

Profile

Mr. Luttrell has worked with Alpha Associates, Inc. since 1996. Before coming to Alpha, his graduate work resulted in several contributions to the cold-formed steel deck industry. His modern, unique method of analysis for non-uniform load on composite concrete and cold formed steel decks has been made a permanent piece of the Steel Deck Institute Design manual. Since coming to Alpha, Charlie is the Chief Structural Engineer on all projects and continues to show significant involvement in the effort to begin utilizing modern composite materials with all applications.

Education

- Bachelors in Civil Engineering, West Virginia University – 2000
- Bachelors in Architectural Engineering, Fairmont State University – 1988

Registrations

- Registered Professional Engineer in West Virginia

Responsibilities

- Project Management
- Business Operations & Financial Management
- Quality Assurance/Quality Control
- Civil Engineering Project Management and Design
- New Business Development
- Expert Testimony and Investigation

Years Experience: 33

Years with Firm: 27

Related Projects

Berkeley Spring Bath House

Berkeley Springs, WV

Cass Scenic Railroad – Clubhouse Renovation

Cass, WV

KCAD Professional Office Building

Martinsburg, WV

Women's Club of Fairmont

Fairmont, WV

Watters Smith State Park

Lost Creek, WV

Historic Cover Bridges

- Fletcher Covered Bridge
Clarksburg, WV
- Simpson Creek Covered Bridge
Bridgeport, WV



Matthew Echard PE



(304) 296-8216



matthew.echard@thinkalphafirst.com

ROLE: Sr. Principal | Project Structural Engineer

Profile

Mr. Echard joined Alpha Associates, Inc. in early 2016 with a strong belief that his clients deserve intelligent, performance-based and value-oriented solutions. Drawing on experience working internationally, Mr. Echard returned with West Virginia to provide world-class service in historically unreserved region while making positive contributions to his home state. Mr. Echard places a large value on collaborative work process, believing that a building's far form and function are derived from many contexts. Matthew's office is located in the corporate office in Morgantown, WV.

Education

- Bachelors in Civil Engineering, West Virginia University – 2000
- Bachelors in Architectural Engineering, Fairmont State University – 1988

Registrations

- Registered Professional Engineer in California and West Virginia

Responsibilities

- Structural Engineering
- Structural Forensics
- Project Management

Years Experience: 23

Years with Firm: 7

Professional Highlights

Purinton Historic House

Morgantown, WV

Elkins Coal and Coke Building

Masontown, WV

WVU; Armstrong Hall

Monongalia County, WV

WVU; Colson Hall

Morgantown, WV

Morgantown City Hall Façade Restoration

Morgantown, WV

WVU; Chitwood Hall

Morgantown, WV



Jason E. Harper

PE

**OWNER/
ENGINEER**

EDUCATION

WEST VIRGINIA INSTITUTE OF
TECHNOLOGY:
BS / MECHANICAL
ENGINEERING

PROFESSIONAL REGISTRATIONS

PROFESSIONAL ENGINEER: WV
ASHRAE
NFPA

BIOGRAPHY

Mr. Harper brings 19 years of design experience to the firm. He has expertise with HVAC, electrical, plumbing, sprinkler and fire alarm system designs. His projects include educational facilities (including colleges and universities), health care facilities, office buildings, banks, emergency services facilities, postal facilities, and government buildings.

Mr. Harper's role with the firm includes, but is not limited to, office manager, project manager, draftsman, and Building Information Modeling coordinator. He oversees projects from the early design phase through construction administration to post construction. He assists the project architect and design team with valuable mechanical, electrical, and plumbing information early in the project to ensure it is adequately designed to handle the client's needs.

EXPERIENCE

HVAC Additions to Taylor County Middle School
Poca High School Elevator Addition
Chapmanville Intermediate School
Burch PK-8 School
Lewis County Transportation Facility
HVAC Renovations to Tucker County High School
South Preston PK8 School
Arnoldsburg Elementary School
Additions and Renovation to Geary School
Tunnelton Denver Elementary School
HVAC Systems Renovations to Upshur County
Elementary Schools
Additions and Renovations to Flinn Elementary
Doddridge Annex
Wetzel Annex
Stonerise Nursing Homes (Multiple Projects)



David A.
Fyffe

PE

PRINCIPAL /
PROJECT
MANAGER

EDUCATION

BACHELOR OF SCIENCE, CIVIL
ENGINEERING, 1984
CLARKSON UNIVERSITY,
POTSDAM, NY

REGISTRATIONS

1992/Civil Engineering PE - DC
1992/Civil Engineering PE - VA
2005/Civil Engineering PE - ME
2005/Civil Engineering PE - WV

BIOGRAPHY

Mr. Fyffe is familiar with a wide variety of building envelope systems and components, and has conducted field investigations on over 500 projects for federal, state and local government agencies, school systems, universities, commercial owners, churches and condominium associations. He serves as a personnel manager and oversees the allocation of company resources. He is responsible for managing, reviewing and preparing evaluation reports, cost estimates, design drawings, plans and specifications, with a particular emphasis on programmed maintenance, repair and replacement.

EXPERIENCE

Structural Assessment, Marion County Courthouse - *Fairmont, WV*

Served as Project Manager for the roofing and waterproofing component of the assessment. Work involved surveying of interior and exterior conditions related to flat roof systems, sloped metal roof systems and flashing, and cast iron façade and roofing elements. Provided follow on design services for implementation of roof repairs recommended by study associated with stabilization of perimeter cast iron cornice, and for roofing aspect associated with structurally reinforcing of the original clay tile arch roof deck.

Façade & Window Repair, Dumbarton Courts - *Washington, D.C.*

Project Manager responsible for conducting a study for the 1909 building related to extensive moisture penetration at the masonry and stucco covered masonry walls, including wood windows in varied states of deterioration. Study found numerous deferred maintenance issues leading to the interior moisture damage. Prepared follow up on construction documents for full façade and window restoration. Window restoration scope resulted from detailed study of options ranging from full replacement to simple scraping and painting.

Cottril's Opera House - *Thomas, WV*

Project Manager for the investigation of existing roofing and façade conditions of this 1902 abandoned structure related to complete restoration and reoccupation of the building. Efforts were focused on (1) completing stabilization to protect the building from the environment, and (2) designing long term repairs and replacements to serve the building in its fully occupied state.

SEAL ENGINEER

MARTYN R. BLUNDALL

Lead Cost Estimator



Experience

Martyn has experience in the cost estimating field that spans over 50 years, having established Blundall Associates in 1980. Martyn's education consists of 5 years of education/training in England in the field of construction management, estimating and quantity surveying. Among his many duties, Martyn performs the final quality control check of completed estimates (including confirmation that all major design elements are within historical cost ranges); consults with senior estimators during the preparation of estimates and researches project specific local labor and materials prices and market conditions.

Education

England: Five years of professional education in Construction Management, Estimating and Quantity Surveying, Value Engineering and Life Cycle Costing: 1967-68 Hall Green Tech. College, 1968-71 Birmingham Polytechnical College, 1971-72 Salford University

Professional Memberships

- American Society of Professional Estimators
- ASPE Chapter 65 "Old Fort" – Board Member
- The Association for the Advancement of Cost Engineering
- The Consulting Estimators Roundtable – Vice President
- U.S. Green Building Council

Relevant Experience

New Garfield Community Learning Center, Akron Public Schools - Akron, OH

260,278 gsf facility with an estimated construction cost of \$47.5M. New college and career academy for grades 9-12 featuring collaborative workspaces and student-centered learning concepts, 2 gyms and an auditorium. Project included air rifle range for junior ROTC students, maker spaces, 8 science labs, large workshop for engineering trades and commercial-grade culinary kitchen serving as a leaning lab. Completed: 2022

Bridgeport Indoor Sports & Recreation Center - Bridgeport, WV

160,000 gsf facility with an estimated construction cost of \$33.7M. Project included group fitness rooms, 10-lane competition pool and warm-up health and wellness pool, locker rooms/family rooms, 40,000 sf indoor field turf, gym, 6 basketball & 6 volleyball courts, elevated walking track. Completed: 2021

Pierpont C&TC, New Aviation Maintenance Technology Building - Bridgeport, WV

65,384 gsf facility with an estimated construction cost of \$21.3M. Estimate was provided for a study to determine costs of a new building to support program. Project featured two hangars and labs for sheet metal, welding, piston and turbine engines, metals, and paint.



EXPERIENCE



West Virginia Veterans Memorial Restoration

LOCATION : Charleston, WV

CLIENT : WV State Purchasing Division

SERVICES : Conditions Assessment Report,
Full Restoration, Maintenance Plan

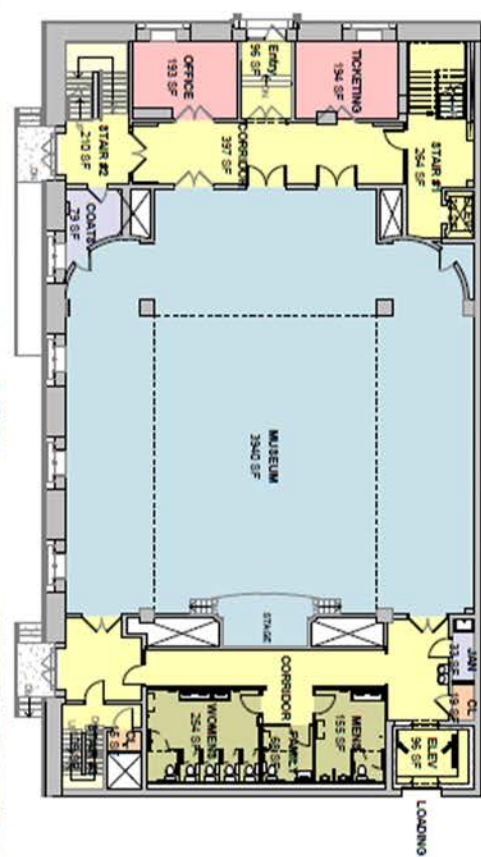
CONSTRUCTION VALUE :

\$1.5 Million

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Mills Group created and oversaw a plan for the restoration of the West Virginia Veterans Memorial located within the State Capitol Complex in Charleston, WV for the General Services Administration. Although the memorial itself is not yet considered to be of historic age, its use of traditional materials required a sensitive and practical restoration approach in order to ensure its continued use for generations to come.

The team began the project with a survey and creation of an assessment report to address the existing condition of the memorial. This report included recommendations for best practices in moving forward with restoration work. Restoration work included cleaning all limestone and granite, repointing mortar joints, and resetting misplaced stones. Additionally, all electrical systems were upgraded to LED fixtures, new plumbing was installed, and a new waterproof coating was applied within the reflecting pool.



Parkersburg Children's Museum

LOCATION : Parkersburg, WV

CLIENT : The Ross Foundation

SERVICES : Initial Building Survey, Code Analysis, Master Plan, Conceptual Design

CONSTRUCTION VALUE : N/A

Mills Group has completed the master planning and conceptual design for adaptive reuse of an existing historic building for a new Children's Museum in downtown Parkersburg, WV. Design services included an initial building survey and code analysis, master planning, and conceptual design. We have just completed construction documents and are currently providing construction administration services.

The master plan includes the addition of an accessible entrance, new restrooms, and a new elevator to provide access to all levels of the building, and upgrades to building systems as necessary to bring the building up to current standards for use as a children's museum. Interior renovations are planned take advantage of the buildings large open interior spaces and showcase the existing materials and detailing as much as possible, while transforming the spaces into fun and engaging learning spaces for children.



Oglebay Foundation Office

LOCATION : Wheeling, WV

CLIENT : Eriks Janelsons

SERVICES : Architectural Design
Development, Construction Drawings,
Construction Administration

CONSTRUCTION VALUE :
\$256,000

Mills Group has completed several projects for Oglebay, the acclaimed resort in Wheeling, WV. We oversaw the redevelopment of Burton Hall into a multi-functional space for the Oglebay Foundation. The goal of this adaptive reuse project was to maintain the historic aesthetics of Burton Hall by restoring the original fireplace and mantle, along with the oversized interior moldings.

A 1,600-square-foot build-out was renovated on the first floor to include the offices, an event space, and visitor's center. This level also included space for support staff, a kitchenette, restroom, and storage. Sleek, floor-to-ceiling glass walls defined the interior programming space and contrasted with the ultra-traditional interior to allow for high levels of natural light and dramatic sightlines.

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Hawks Nest CCC Museum

LOCATION : Ansted, WV
CLIENT/PROJECT MANAGER :
 WV DNR - Parks and Recreation
SERVICES : Conceptual through
 Construction Observation
CONSTRUCTION VALUE :
 \$1,400,000

Mills Group was hired by the West Virginia Division of Natural Resources to provide consulting services for the Civilian Conservation Corp Museum and Picnic Pavilion at Hawks Nest State Park. The scope of work was to adaptively reuse the existing residence structure and museum space into an event venue while preserving the historic qualities. Some updates included a catering kitchen, pre-function space, restrooms and dressing room, and gathering space for over 50 guests. Additionally, exterior spaces were enhanced to provide patios and event space.

The scope of the work requires complete upgrades of the heating and cooling systems, upgraded electrical systems, fire detection and alarm, ADA lifts, and site work to include parking and accessible route to the venue. Additionally, the Mills Group consulted with the WVSHPO on exterior restoration efforts including log restoration, window replacement, and the addition of ADA ramps to the building.



Blue Sulphur Springs Pavilion

LOCATION : Blue Sulphur Springs, WV

CLIENT/PROJECT MANAGER :

Greenbrier County Historical Society
Margaret Hambrick

SERVICES : Historic Structure Report
and Existing Conditions Assessment

CONSTRUCTION VALUE :

\$1 Million

The Greenbrier County Historical Society chose Mills Group to conduct an existing conditions assessment, describe the written and architectural history of the Blue Sulphur Springs Pavilion and offer a plan for its stabilization and reuse.

The Blue Sulphur Springs Pavilion was constructed in 1836 as the centerpiece of a health resort along Kitchen Creek in Greenbrier County, (West) Virginia. Although it was regarded as superior to the other springs in Western Virginia in terms of comfort and beauty, the resort was also not as fashionable as the White Sulphur Springs located 26 miles to the east. As a result of the declining popularity of the resort and nationwide economic instability, the property was transferred into the hands of gentlemen who created Allegheny College, a seminary for Baptist students in 1859. With the outbreak of the Civil War, the college lost both students and several structures, as part of the resort was destroyed by fire in 1863. All that remained of the property was the Greek Revival inspired pavilion which continued to be enjoyed by picnickers throughout the 20th century.

In 2013, the Greenbrier County Historical Society acquired the property, and with our help outlining its stabilization and reuse, a plan to restore the structure was created. We aided with multiple phases of restoration with the end goal of the restored structure to become a tourism destination.



Kump House

LOCATION : Elkins, WV

CLIENT : City of Elkins and
The Kump House Trust

SERVICES : Historic Structures Report,
Adaptive Reuse Plan

CONSTRUCTION VALUE : N/A

The City of Elkins and the Kump House Trust contracted Mills Group to prepare a modified Historic Structures Report and Adaptive Reuse Plan for the Kump House in Elkins, West Virginia. The purpose of the study was to assess the building condition, review functional and programmatic requirements, present concept plans and to establish a preliminary cost budget for the scope of work within recommendations with consideration for priorities and funding sources.

Mills Group wanted to create a facility would inspire, facilitate and promote innovation in education and cultural stewardship, while focusing on preservation and environmental sustainability.

Our team began the project by conducting background research and data collection. Mills Group then analyzed the physical evolution and condition of the property, designed a schematic development plan and lastly presented a schematic design that provided a plan to move forward with the project. The plan developed by Mills Group now serves as the map for the successful rehabilitation of this grand mansion.

The Mills Group has followed on to aid the owner with roof replacement, masonry restoration, and window replacement.





Alpha Associates, Inc.

OVERVIEW

LOCATIONS : WV

SERVICES : Civil Engineering,
Structural Engineering, Surveying,
Architectural Design, Interior Design,
Landscape Design, Construction
Administration, Project Management



Everyone at Alpha all work towards the goal of completing successful projects. Our principals are involved with projects from the earliest stages right through final completion and beyond. They will consistently update you on your project by using effective communication tools to manage the projects and all the involved parties. Our skilled staff of 21 architects, engineers, surveyors and administrative personnel all work diligently towards producing drawings and specifications that will deliver our clients successful projects, completed on time and within budget.

Jane Lew Truck Stop

Jane Lew, WV

Clarksburg State Office Building

Clarksburg, WV

WVU College of Physical Activity & Sports Sciences

Morgantown, WV

Martinsburg Little League Fields

Martinsburg, WV

Freedom Automotive Three Dealerships

Morgantown, WV

Mon General Hospital Access Road & East Parking Area

Morgantown, WV



Harper Engineering

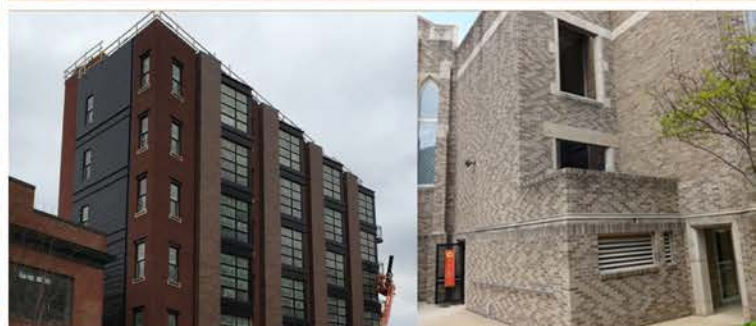
OVERVIEW

LOCATIONS : WV

SERVICES : HVAC Design, Electrical Design, Plumbing Design, Drafting, Specifications, Project Management, Construction Documents



- New Bus Garage - West Union, WV
- Point Pleasant River Museum - Point Pleasant, WV
- Miners and Merchants Bank - Thomas, WV
- West Edge Warehouse - Huntington, WV
- Hawks Nest CCC Museum and Pavilion - Hawks Nest, WV
- Taylor County Courthouse - Taylor County, WV
- Public Works Building - Romney, WV
- UCDA Innovation Center - Buckhannon, WV
- South Fairmont Retail Plaza, Fairmont WV
- Starbucks - Parkersburg, WV
- Doddridge County Annex - Doddridge County, WV



Seal Engineering, Inc.

OVERVIEW

LOCATION: VA

SERVICES: Investigation & Reports, Design Services, Design Review, Bidding Phase Services, CD Phase Services, Design-Build



▪ Roofing

Built-Up Roof / Modified Bitumen / EPDM / Hot Rubberized Asphalt / TPO / PVC / Slate / Tile / Shingles / Architectural & Structural Metal / Vegetative & "Green" Systems

▪ Waterproofing

Leak Investigations / Plazas / Floodproofing / Parking Garages / Traffic Deck Coating / Foundation Waterproofing

▪ Building Façade

Masonry / Stone / Concrete / Metal / Wood / Air Barriers / Windows / Doors / Foundation Tie-In / Flashing

▪ Additional Services

Structural Investigation and Repair Design / Paving System Repair / Drainage Analysis / Design Review / Building Purchase Due Diligence / 3rd Party Inspections / Expert Testimony



HISTORIC ASSESSMENT

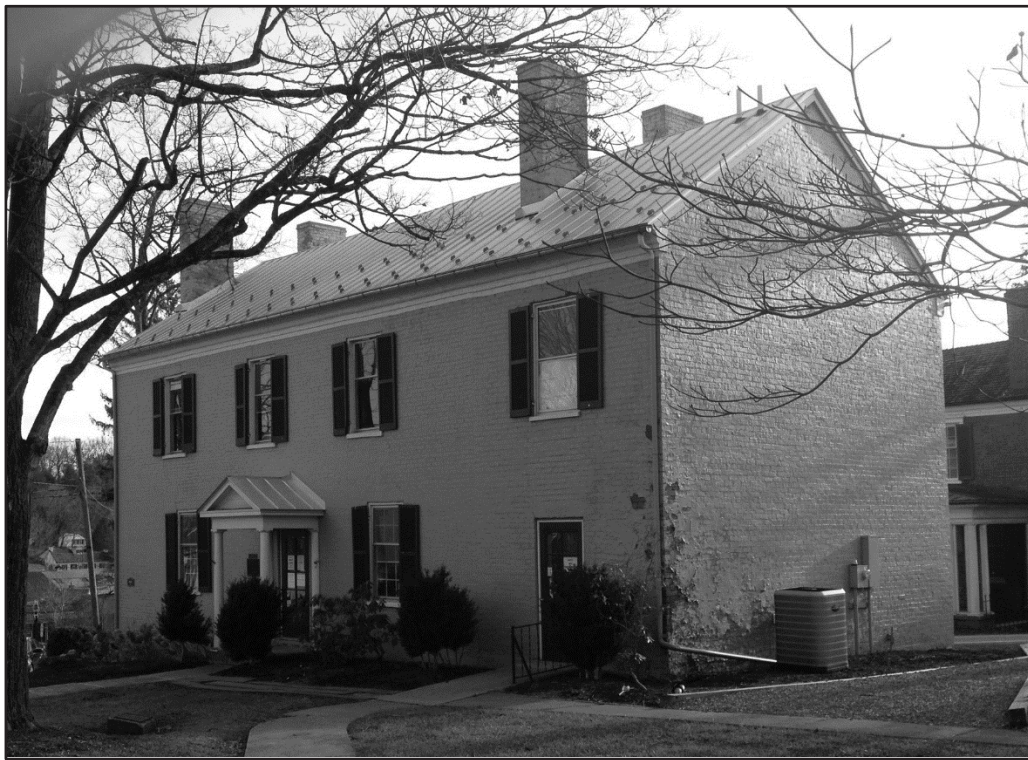
1. EXECUTIVE SUMMARY

- A. INTRODUCTION
- B. HISTORIC BACKGROUND
- C. CONDITIONS ASSESSMENT & RECOMMENDATIONS
- D. BUILDING CODE & ACCESSIBILITY ANALYSIS
- E. PLANNING RECOMMENDATIONS
- F. ENVIRONMENTAL SUSTAINABILITY RECOMMENDATIONS
- G. COST ESTIMATE
- H. RECOMMENDATIONS FOR ADDITIONAL STUDIES



*** Please see the attached full historic report ***

Historic Building Assessment of the 1834 Supreme Court of Appeals of Virginia Law Library and Study Building including The 1835 Enslaved Quarters Building



Submitted to
Greenbrier Historical Society
814 Washington St.
Lewisburg, WV 24901

*** Please see the attached full historic report ***

ih **MILLS GROUP**
ARCHITECTURE ■ PLANNING ■ PRESERVATION



REFERENCES



REFERENCES

Melissa Wiles

Executive Director

Board of Park and Recreation
Commissioners
PO Box 590
Morgantown, WV 26507
Ph: 304-296-8356 ext. 17
mwiles@boparc.org

Greg Stewart

Secretary/Treasurer

Ohio County Development
Authority
1500 Chapline Street, Room 215
Wheeling, WV 26003
Ph: 304-234-3893
ohcountystewart@aol.com

Susan Pierce

Director, WV State Historic Preservation Office

WV Division of Culture and History
The Cultural Center
1900 Kanawha Boulevard
Charleston, WV 25305
Ph: 304-558-0240
susan.m.pierce@wv.gov

John Reardon

Director of Buildings and Properties

Diocese of Wheeling-Charleston
1307 Jacob Street
PO Box 230
Wheeling, WV 26003
Ph: 304-233-0880 ext. 293
jreardon@dwc.org

Eriks Janelins

President & CEO

The Oglebay Foundation
465 Lodge Dr.
Wheeling, WV 26003
Ph: 304-243-4160

Tres Ross

Executive Director

The Ross Foundation
200 Star Avenue, Suite 212
Parkersburg, WV 26101
Ph: 304-865-5372
tres_ross@therosfoundation.org



STAFF CERTIFICATIONS

The West Virginia Board of Architects

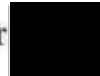
certifies that

MICHAEL MILLS

is registered and authorized to practice
Architecture in the State of West Virginia.

In testimony whereof this certificate has been issued
by the authority of this board.

Certificate Number



The registration is in good standing until June 30, 2023.

A handwritten signature in cursive script, reading "Emily Papadopoulos".

Board Administrator



Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
Architect/Engr

Proc Folder: 1199702			Reason for Modification: Addendum No.1
Doc Description: EOI: Building 10 Holly Grove Renovation			
Proc Type: Central Contract - Fixed Amt			
Date Issued	Solicitation Closes	Solicitation No	Version
2023-04-06	2023-04-20 13:30	CEOI 0211 GSD2300000008	2

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Customer Code:

Vendor Name : Mills Group LLC

Address : 88

Street : High Street

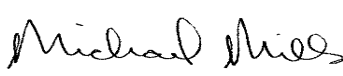
City : Morgantown

State : West Virginia **Country :** USA **Zip :** 26505

Principal Contact : Michael Mills

Vendor Contact Phone: 304-296-1010 **Extension:**

FOR INFORMATION CONTACT THE BUYER
Melissa Pettrey
(304) 558-0094
melissa.k.pettrey@wv.gov

Vendor Signature X  **FEIN#** 20-3789115 **DATE** April 20, 2023

All offers subject to all terms and conditions contained in this solicitation

Addendum Number: 1

The purpose of this addendum is to modify the solicitation identified as (“Solicitation”) to reflect the change(s) identified and described below.

Applicable Addendum Category:

- ☒ | Modify bid opening date and time
- ☐ | Modify specifications of product or service being sought
- ☒ | Attachment of vendor questions and responses
- ☐ | Attachment of pre-bid sign-in sheet
- ☐ | Correction of error
- ☒ | Other

Description of Modification to Solicitation:

1. Modifying the Bid Opening Date to April 20th, 2023 @1:30PM.
2. Attaching vendor technical questions and answers.
3. There will be a non-mandatory site visit April 12th, 2023 @11AM at the location for vendors to walk the site.

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ADDENDUM ACKNOWLEDGEMENT FORM

SOLICITATION NO.:

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification. Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

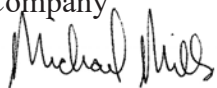
(Check the box next to each addendum received)

- | | |
|--|--|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Mills Group, LLC

Company



Authorized Signature

April 20, 2023

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

1. EXECUTIVE SUMMARY

A. INTRODUCTION

B. HISTORIC BACKGROUND

C. CONDITIONS ASSESSMENT & RECOMMENDATIONS

D. BUILDING CODE & ACCESSIBILITY ANALYSIS

E. PLANNING RECOMMENDATIONS

F. ENVIRONMENTAL SUSTAINABILITY RECOMMENDATIONS

G. COST ESTIMATE

H. RECOMMENDATIONS FOR ADDITIONAL STUDIES



A. INTRODUCTION

Mills Group, LLC was contracted by the City of Elkins and the Kump House Trust to prepare a modified Historic Structures Report and Adaptive Reuse Plan for the Kump House in Elkins, West Virginia. The purpose of the study is to assess the building condition, review functional and programmatic requirements, present concept plans, and to establish a preliminary cost budget for the scope of work within recommendations on project phase with consideration for priorities and funding sources.

A key goal for this project is to create a facility that will inspire, facilitate, and promote innovation in education and cultural stewardship; whereas cultural stewardship is focused on preservation and environmental sustainability. Gone are the days of putting a glass box over a house museums that remain mostly stagnant. This facility needs to be dynamic and innovative in order to inspire and motivate.

The design consultants and client representatives for the study consist of the following team members:

- Mills Group, LLC.
 - Hays Landscape Architectural Studio
- With assistance provided by:
- Dr. Heather Biola, Kump Education Center

The process undertaken to prepare this concept report consisted of:

- (1) Research and data collection
- (2) Assessment of the building systems, historic evaluation, programmatic and code review
- (3) Schematic Development
- (4) Schematic Design.

One of the first parts of any preservation project is a historic structure report, which analyzes the physical evolution, condition, and potential of a historic building as documented by historical and architectural and technological evidence. Historic structure reports are also key elements in responsible financial planning for preservation work (especially multi-phase efforts); and, because they identify and prioritize work items and estimated costs, they provide a basis for cash-flow and fund-raising planning as well. The HSR provides the foundation for all future work.

In general, HSRs are utilized to identify the most appropriate treatment of repair, rehabilitation, or restoration for a historic property. A well-written HSR provides the necessary data for not only significant intervention in a historic structure, but also for the on-going curatorial care of the structure. Historic structures can be viewed as very large, highly complex artifacts requiring highly skilled care.

The assessment was performed through evaluation of the building, including site visits and a review of relevant existing building documents including the original drawing and historic photos.

The report is organized so that concerns and recommendations relating to facility condition, independent of functional and programmatic needs, are presented in Section 3. Section 4 evaluates code and accessibility for both the existing building and the proposed concepts. Section 5 summarizes recommendations relating to environmental sustainability, while the functional evaluation and subsequent description of the concepts are presented in Section 6. Section 7 is a suggested implementation plan. Section 8 provides a preliminary cost estimate.

B. HISTORICAL BACKGROUND

The property represents a well preserved stately home built on a major byway, the Beverly and Fairmont Road of the 1800s, with a site that provides the total package of a cultural resource.

In 1919 Edna Scott Kump bought eleven acres from the daughters of J.H. "Jesse" Goddin. The old Goddin Inn stood on the current Kump House site during the Civil War and until it burned down in the early 1900's.

On 17 April 1923 H.G Kump had written his brother Kerr, "Mr. Harding, the architect, was here from Washington a few days ago and we went over the house question with him and I suppose we are about to start into a big undertaking."¹

The 'big undertaking' was a 2½-story, 42-foot square Neo-Federal Revival house situated in what was then a suburban corner of Elkins at the junction of two roads. (Sanborn Fire Insurance Maps from that period completely ignore the Kump family's lot.)

Kump's choice for a designer was Clarence L. Harding, a Washington, D.C. architect with a Martinsburg office who had established a solid reputation in West Virginia. His West Virginia constructions include another Elkins home on Boundary Avenue, the Administration Buildings at both Davis & Elkins College and West Virginia Wesleyan College, Charleston's Union Building and YMCA and an addition to the Davis Memorial Presbyterian Church of Elkins to name a few. According to architectural historian S. Allen Chambers, Jr., Harding was U.S. Senator Henry Gassaway Davis' favorite architect, which – apart from his evident skill – may bear out the wealth of commissions he won in the Mountain State.²

C. CONDITIONS ASSESSMENT & RECOMMENDATIONS

1. Introduction

Overall the house is in very good condition, needing only minor, albeit many repairs. The exterior envelope is in sound condition, with some instances of cracks and missing mortar joints, with the exception of the parapet masonry walls and associated end wall flashing that is deteriorated at the roof deck level allowing water infiltration. The main tiled shingle roof, associated flashing, built in and hanging gutters, and low sloped metal roofs are undergoing rehabilitation with a current WV SHPO Development Grant. There are a few surface repairs needed, including restoration of wood windows, millwork restoration, and the application of paint.

The interior of the house is in good condition, less the upgrading needed of major appliances, as well as mechanical, plumbing fixtures, and electrical systems. The floors, much of the plaster, and trim are in excellent condition.

2. Historic Assessment

The Kump House has undergone minor changes over time and exhibits some deterioration of certain materials; however, significant original fabric and original space configuration remain. The building's period of significance is defined as c. 1925-1962. This period encompasses the building's original construction and through the years Gov. H.G. Kump lived in the house.

The house is a significant historical and cultural landmark both for the city and the state. Its condition and intactness generally requires no significant structural modifications in preparation for its adaptive reuse. The site and landscaping with historic integrity provide a stately backdrop to the building. The primary historic preservation issues include the following:

Exterior

- Brick Masonry: Restoration to include routing of mortar joints and tuck pointing in a limited area. This would include the limestone capped gabled end parapet walls.
- Windows: Repair of limited wood window systems, concentration being with exterior sash restoration, repainting, and consideration for exterior or interior storm windows.

- Wooden Shutters: Restore existing wooden shutters.
- Wood Trim: Minor repair and consolidation. Prime and repaint all exposed surfaces.
- Doors: Minor repair, cleaning and repainting of existing doors is required.
- Comprehensive Roof Rehabilitation that is currently under contract.

Interior

- Walls: Minor repairs are required. Some peeling paint in high moisture areas requires attention and assessment, as do plaster areas that have sustained ongoing water damage. Otherwise, cleaning and painting is required.
- Wood work: Retain and clean molding profiles and trim.
- Finishes: Retain and restore identified historic finishes
- Flooring: Floors require minor repairs and preservation.
- Historic doors and assemblies: Minor repairs and refinishing are required.
- Windows: Moderate sash repair is required. Otherwise, minor repair and repainting is required.
- Building systems replacement as required by inefficiency and local and state building codes and regulations.

3. Conditions and System Assessment

The layout of the original structure is generally in tact. Through careful observation and research, historic development has been discerned from the rest of the building. The house has been cared for and for the most part, maintained. The following items have been altered:

- The large room on the southern side of the basement level has had wood flooring added in the 1980's.
- The lower level kitchenette and adjacent bathroom have modernized fixtures and cabinets.
- The rear porch has lattice and trim that has deteriorated and modified over the years.
- The wooden gallery rails at the roof level and wooden shutters require restoration and replication.

The existing heating plant requires replacement and the consideration for the reuse of the existing radiators will be part of the rehabilitation plan. Air conditioning shall be considered as an option in the overall plan as a central system and also as a localized system. The electrical system shall require upgrades to meet code compliance and the needs of the proposed uses. Existing fire alarm and detection shall be incorporated. The project will include sustainable heat and energy sources such as geothermal heat and on site wind power.

To better understand the performance of the historic building's envelope, an energy audit should be conducted by a certified HERS (Home Energy Rating System) rater. In such an audit, a blower door test will be performed that will reveal areas of the building that facilitate air infiltration, which contributes to poor building performance. Additionally, the energy audit will provide baseline data that will be important for post-construction and other future performance comparisons.

D. BUILDING CODE AND ACCESSIBILITY ANALYSIS

1. Introduction

The design team conducted a thorough review of the building for current and proposed code and accessibility compliance. The building is currently not occupied. This process helped to define the extent of basic repair and the subsequent impact of building occupancy, with consideration of the programmatic options.

2. Code Analysis

As of May 2006, the adopted codes for the state of West Virginia are the 2003 International Residential Code for one and two family dwellings, the 2003 International Plumbing Code, the 2003 International Mechanical Code, the 2003 Fuel Gas Code, the 2003 International Building Code, and the "2003 International Energy Conservation Code". Issues reviewed with the survey of the building include: use group and construction type, fire and life safety systems, egress requirements and occupancy load, and plumbing fixture assessment.

3. Accessibility

The intent of the Americans with Disabilities Act (ADA) is to provide persons with disabilities accommodations and access equal or similar to that available to the general public. In general, when alterations to an existing building are undertaken, each altered element must comply with the technical requirements of the ADA guidelines. The proposed spatial changes consider all ADA requirements. In general the Kump House will require a wheeling chair lift at the north entrance, ADA restrooms, modification to some doors and hardware, and equitable facilities such as meeting rooms and bedrooms.

E. PLANNING RECOMMENDATIONS

1. Introduction

In addition to facility and code reviews, this study includes an assessment of building program and function. The concept plans responded to the issues discovered in this assessment and the mission with supporting goals of the facility:

Mission Statement:

The mission of the Kump Education Center Consortium is to collaborate with local private colleges and public schools to establish and maintain Professional Development Schools in the highland region of central West Virginia and support continuing education for local public school educators.

Four Goals:

- I. **Increased Collaboration:** *The Kump Consortium will facilitate collaboration between the private colleges and the public schools in Professional Development Schools to impact student learning.*
- II. **Teacher Instructional Capacity:** *Pre-service teachers will gain excellent clinical experience, and public school teachers will develop their collaboration, inquiry, and technology skills in the local PDS program to support student learning.*
- III. **Encourage Inquiry:** *PDS Personnel will engage in continuous Formative and Summative Assessment, Action Research, and Comprehensive Data Analysis of student achievement to align instructional practices with student learning needs.*
- IV. **Develop Leadership:** *The Kump Consortium will offer continued graduate studies for local public school educators to support research on best teaching practice and develop instructional leadership to support student learning.*

2. Programming Methodology

The design team employed programming to identify potential functionality and space needs. The design team evaluated existing building conditions, and adherence to code and accessibility requirements. In addition stakeholder meetings were held to gain input and validate assumptions made in the conceptual designs.

3. Proposed Space Plans

Conceptual plans were developed based upon team and client/stakeholder discussions. These discussions are invaluable as they provide opportunities to provide feedback, and to inform and direct the energy of the design. Programmatic elements of an education center, meeting rooms, interpretive display areas, support areas, and residential room were considered while maintaining an ambiance of the grand residence. The facilities can serve as a retreat center-strategic planning center and allows for a short term residential component.

The spatial allocations of the project should include interpretive components that first explore the history of the site, the history of the house and history of the Kump family. Additionally the interpretation should include the sustainable design measures incorporated into the building rehabilitation, in the site management, and sustainable agricultural activities.

The concept as the professional education center for teachers shall be the anchor tenant. It would be the vision that comprehensive education activities provide a diversity of opportunities. The sustainability of the economic realities of the facility shall be an ongoing challenge.

The center piece of the reuse plan is the education center that will be a place where educators meet for programs to advance public schools. Teachers will collaborate with college faculty and organize Professional Development Schools, take graduate courses, prepare for National Board Certification, model best practices, learn new educational technologies, tutor students with special needs, and provide after-school or summer programs for children. College students preparing to become teachers and parents hoping to help their children will benefit from activities at a center dedicated to innovations for public education.

F. ENVIRONMENTAL SUSTAINABILITY RECOMMENDATIONS

Sustainable design and construction practices are integral to the rehabilitation of the Kump House. A holistic approach balances health and ecological concerns, strives to integrate strategies that improve energy efficiency, minimizes demolition waste, and improves indoor environmental quality.

"Historic preservation is intrinsically a form of sustainable conservation. The built environment represents the embodied energy of past civilizations...historic preservation is conservation in every sense of the word."

*Guiding Principles for Sustainable Design, [Draft],
August, 1993; NPS Denver Service Center*

Historic buildings were traditionally designed with many sustainable features that responded to climate and site. When effectively restored and reused, these features can bring about substantial energy savings. Taking into account historic buildings' original climatic adaptations, today's sustainable technology can supplement inherent sustainable features without compromising unique historic character.

The key to a successful sustainable preservation project is to find a balance between 'green' design and preservation standards. This balance point varies on every historic project, depending on the sensitivity and significance of the building, and on the sustainable design opportunities which the project may present.

The act of renovating an old structure is in itself a highly sustainable act. The approach for the house can be a divergent act with competing interests for the use of material and financial resources. Refer to Section 5 for specific components to sustainability.

G. COST ESTIMATE

A preliminary construction budget of **\$1,147,800** is proposed to implement the recommended improvements. This cost estimate does not include the current roof contracted work and the extensive site landscape restoration. This total is broken down into priority phases, located in Chapter 8, *Cost Estimate*. The purpose of this is to put a priority on completing the most pressing work, as determined by our investigation. This cost estimate assumes that all work will be completed during relatively the same time thus if the construction phases extend beyond 2010 an escalation factor of 3% annually. The estimate above is a snap shot in time and it would be recommended that construction costing be based upon detailed architectural and engineering drawings.

H. RECOMMENDATION FOR ADDITIONAL STUDIES

- **Furnishing Plan**
- **Cultural Landscape Masterplan**
- **Energy Audit**
- **Maintenance Plan**

- **Business Plan**

¹ Personal Correspondence, H.G. Kump to G.K. Kump. April 17, 1923.

² S. Allen Chambers, Jr. Buildings of West Virginia (New York: Oxford University Press, 2004), 460.

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2. HISTORIC BACKGROUND

A. OVERVIEW

B. BUILDING HISTORY

C. ELKINS' ARCHITECTURAL ROOTS

D. HISTORIC DEVELOPMENT AND CONSTRUCTION SEQUENCE

E. MATERIALS AND CONSTRUCTION TECHNOLOGY: SUPPORTING RESEARCH

A. OVERVIEW

H.G. Kump was a successful lawyer, businessman and public servant who took office as West Virginia's Governor at the height of the Great Depression. His life and his public service record bear him out as a man of intelligence who rose from humble origins to be a leader in his generation.

Born in Capon Springs, Hampshire County in 1877, Kump took his first job as schoolteacher to his peers when the previous teacher left. In 1905, Kump graduated from the University of Virginia Law School and shortly thereafter began practicing law in Elkins, WV. He married Edna Hall Scott in 1907 and the couple had seven children: Cyrus in 1908, Francis in 1911, twins Margaret and Elizabeth in 1913, Mary in 1915 and Benjamin in 1918. One daughter died at birth in 1909.

Kump's political rise began in 1908 when he was elected Randolph County prosecuting attorney, an office he was re-elected to in 1912. During World War I, he was commissioned as a captain in the U.S. Army and served in Washington, D.C., in the Judge Advocate General office in 1918. Upon returning to Elkins, Kump was elected mayor of Elkins from 1921 to 1922. He was president of Citizens National Bank from 1924 to 1950.

In 1928 Kump was elected Judge of the Upshur-Randolph Court (20th Judicial Circuit Court) and held the office until 1932 when he resigned to seek the governor's office.

As Governor, Kump inherited a \$4 million treasury deficit and the Tax Limitation Amendment of 1932 which limited the power of local government to tax property. Under Kump's leadership the state took new authority and passed new taxes and during this same period the State Road Commission added 31,000 miles of secondary roads that had previously been the realm of counties to its care. He oversaw the establishment of the county unit school system. A letter to the editor of Time Magazine dated 26 October 1936 decries the news organ's treatment of West Virginia and holds up Governor Kump as a model of executive benevolence.

In our Governor we have gone forward by leaps & bounds and have led most of the States with our school system, fair and just tax program, highway improvements, liquor handling, etc. We should be willing to put Governor H.G. Kump up for comparison with any Governor in these 48 States.¹

After his term as Governor – WV Governors were then limited to a single term – Kump returned to Elkins and his law practice. Kump also continued as President of Citizens National Bank – which he had founded in 1924 –

until 1950. Kump's political career ended in two unsuccessful bids for the U.S. Senate in 1940 and 1942. He died Feb. 14, 1962 and his wife Edna, died in 1957.

B. BUILDING HISTORY

The site on which the Kump house is built has a rich history. The Goddin Inn was constructed on the site in the late 1850's and around 1905 the Inn was destroyed by fire. The Inn was an important rest stop on the Beverly Turnpike Road. Edna Kump bought 11 acres from the descendants of J.H. Goddin 1919.

Mr. and Mrs. Kump shared with the family the relative importance of the agricultural plot of land along with the house and barn. He said "the Barn keeps the House," and she thought "the House keeps the Barn." Since the Kump house is so much bigger than the barn, you can see who won out in that debate. Mr. Kump grew up on a farm and believed that farmers elected him as governor.

Governor Kump's Neo-Federalist house was completed in 1925 the eleven-acre farm at the edge of Elkins. In 1939 the expansion of Route 33 bisected the property and left a little more than six acres to surround the house. Today the house is located at the intersections of U.S. Routes 33, 219, 92, and 250. The home hosted many notable guests over the years including President and Mrs. Franklin Delano Roosevelt. The home stands with its architectural grandeur and detailing in place and ready for a deserving preservation effort.

In a type-written letter dated 2 May 1923, future WV Governor and recent Elkins Mayor H.G. Kump explained to his brother Kerr:

The stern facts which confront me are these: Our house is too small for the family. It is imperative to have more space. If the children are to enjoy a new home I must build it now although it will cramp me terribly to do so and I do not believe it can be done under \$35,000.00 and the costs will probably reach \$40,000.00.²

Less than a month earlier on 17 April H.G had written Kerr, "Mr. Harding, the architect, was here from Washington a few days ago and we went over the house question with him and I suppose we are about to start into a big undertaking."³

The 'big undertaking' was a 2½-story, 42-foot square Neo-Federal Revival house situated in what was then a suburban corner of Elkins at the

junction of two roads. (Sanborn Fire Insurance Maps from that period completely ignore the Kump family's lot.)

Kump's choice for a designer was Clarence L. Harding, a Washington, D.C. architect with a Martinsburg office who had established a solid reputation in West Virginia.

Harding was born in Binghamton, New York, and moved to Washington in his youth. After graduating from Washington and Central High School in 1890, Harding embarked upon a career in architecture, apparently without any formal training, designing small projects for his father, a local builder.

His West Virginia constructions include another Elkins home on Boundary Avenue, the Administration Buildings at both Davis & Elkins College and West Virginia Wesleyan College, Charleston's Union Building and YMCA and an addition to the Davis Memorial Presbyterian Church of Elkins to name a few. According to architectural historian S. Allen Chambers, Jr., Harding was U.S. Senator Henry Gassaway Davis' favorite architect, which – apart from his evident skill – may bear out the wealth of commissions he won in the Mountain State.⁴

By July 1923, Kump was seeking contractors to build a "...residence at Elkins about 42 x 42, three full stories and basement complete. We expect this to be a brick structure finished in hardwood."⁵

Despite his persistence – H.G. told Kerr he was anxious to combine his resources and begin construction "...as we must be about our building if it is to be done this year [1923]"⁶ – construction of H.G. Kump's new residence would not begin until Spring 1924. In a letter to the Secretary of the State Road Commission dated 10 April 1924, Kump requested a license to operate a truck. In the letter he notes, "Last Fall I bought an old second-hand truck to use in hauling material for a residence but did not begin the work of building at that time. I am now starting to build and want a license for the truck."⁷

Although Kump would order coal delivered at the new house in Elkins in December 1924, the structure was a long way from finished. His frustration with the building grew and was most evident in a letter of 15 May 1925. "...I am completing a house that has drained me dry personally," he began. "The rest of us are well and hope to get into the new house about the middle of July, after eighteen months struggle with architects, contractors and scoundrels."⁸

Despite his optimistic predictions, Kump would be continually frustrated in his family's attempt to leave their temporary residence in Beverly and

move back to Elkins. Subsequent letters keep pushing the anticipated move-in date further and further back until early October when correspondence notes that the family had settled into their new home.

All things considered, the Kump House cost between \$40,000 and \$50,000. H.G. Kump's earliest estimate figured the building might run up to \$40,000. In November 1924, Kump wrote to the Conservative Life Insurance Company of Wheeling seeking a loan of \$10,000 to finish the building, the costs of which were now estimated at about \$50,000.⁹ While the terms under which Conservative would lend did not suit Kump, the Drovers and Mechanics National Bank of Baltimore released \$5,000 to him in June 1925 on the security of 100 stock shares in ventures as diverse as the Citizen's National Bank of Elkins and the Three Forks Lumber Company.¹⁰

The lead contractor of the Kump House was one T.R. Whiteman. Whiteman is remembered as the city's premier builder. The 1983 National Register of Historic Places nomination for the Kump House included Whiteman as a significant factor for making the case under Criterion C.

The Kump house has always belonged to the same family. The list below reflects the occupants that reside in the home during the complete history of its existence:

Herman Guy Kump	November 1925 - until his death February 1962 (Except his years as Governor for the 1933-1937)
Edna Scott Kump	November 1925 - until her death January 1957 (Except when HGK was Governor 1933-1937)
Cyrus Scott Kump	November 1925 - until he left for college at VMI. He and wife, Hazel, lived in the house with their first two children, Hazel and Bill while H.G. K. was serving as governor 1934-1937.
Frances Irvine Kump	November 1925 - until she went to Mount De-Chantel, a Catholic high school for girls in Wheeling, WV. She married Holt Wooddell in the Davis Memorial Presbyterian Church in 1934 and their wedding reception was held at the Kump House.
Margaret Rudolph Kump	November 1925 - until she went to Agnes Scott College at Decatur, Georgia c. 1930. Peggy lived at the house in the summers while she was in medical school during World War II with her three girls: Betsy, Margaret, and Scottie. After the war she and husband, Dr. Donald Roberts, had three more children, Heather, Peter, and Samuel. The whole family lived at the house April – November 1955 because their rental home had been destroyed by fire.

Elizabeth Logan Kump	November 1925 - until she went to Agnes Scott College in with her twin C. 1930. After they learned Elizabeth had cancer, her parents decide she should finish at Hollins College where she could be closer to them. She died in Charleston in January 1937 just before her father completed his term as Governor.
Mary Gamble Kump	November 1925 - until she went to West Virginia University in 1935. She lived at home and went to Davis and Elkins College for her first two years. She lived in the house once again in the late 1930's and early 1940's when she taught at Elkins High School and Beverly High School. She lived in Washington, DC while she was in George Washington University Law School 1949-1952. She returned to live in the family home for six weeks every summer while she was teaching in military dependent schools all over the world from 1951-1990. She lived alone in the house without heat after she retired from teaching in military dependent schools until she had a car accident in October 1999 and broke her neck. She lived her last nine years at Valentines Personal Care Home.
Benjamin Franklin Kump	November 1925 - until he went to Charleston with his parents in 1933. Ben also went to VMI where he met his future wife Betty. Their first daughter Betty Scott Kump held her wedding reception at the Kump House August 19, 1961 when she married Francis Breazeale.
Philip Harness	c. 1926 -1932 while he was in high school and college. Phil Harness was a nephew of H.G. Kump who lived with his uncle's family after his mother died. Several of his brothers stayed in the house for shorter periods of time.
Julia Millar Ellis	1939 -1943 while she attended Davis and Elkins College. Julia was a niece of H.G. Kump and a comfort to Edna Kump after Elizabeth's death.
Frances Bailey Wilson	c. 1942-1954 -while she served as a cook and kindly care giver. Frances lived in a private room on the third floor of the house. She did not know how to read, but she remembered recipes that Peggy Kump Roberts read to her. Her birthday cakes were great favorites of the 18 Kump grandchildren. She collected eggs in the hen house, milked the cows and churned butter.

C. ELKINS' ARCHITECTURAL ROOTS

Elkins traces its founding to 1889 although settlers had been in the Tygart Valley from the mid-1700s onwards. Much of the town was destroyed by fire in 1897 resulting in new building codes and a clean slate for builders of the early twentieth century.

Jesse Goddin, the owner of the Goddin Inn, was a community leader and county commissioner during the heated Beverly-Elkins courthouse debate during the late 1890s. It was said that Goddin along with John Davis were instrumental in secure Elkins as the county seat and thus paving the way for economic development centered around the county government.

US Senator Henry Gassaway Davis planned the city of Elkins as a center for the railroad to export natural resources. This was not uncommon at the time. A related town would be Gassaway in Braxton County, WV. It is related both by the circumstances of its formation and Clarence Harding's design of some of Gassaway's key structures.

While Elkins' early development is strongly linked to the coal and lumber interests that spurred its early growth, the story of local building is largely its own. Understanding of the early built legacy has suffered largely as the result of fading memory. What is known is that local designers and builders – usually embodied in the same person – often acted on local initiative to construct the town. This combined with the 1897 fire allowed a freer development perhaps than was envisioned in the original city plan.

Analysis of the remaining structures of early Elkins reveals an extremely skilled set of builders and designers. Materials and building styles are diverse, from wood frame and brick to concrete. The greatest testament to the builders' skill is the persistence of the structures.

D. HISTORIC DEVELOPMENT AND CONSTRUCTION SEQUENCE

The outlined hypothesis and description below, along with the supporting graphic documentation, is solely based upon professional experience, site analysis, as well as material and construction technologies research. Further research and site study may be required to confirm the assumptions and data that lead to the following historic construction sequences outline below.

Phase 1: 1922-1925

According to the Kump House's National Register of Historic Places Nomination, Clarence Harding developed the house plans in 1922. They were certainly finished by July 1923 as H.G. Kump was seeking contractors with a basic description of the structure to be built.

Other evidence indicates construction starting in the Spring of 1924. The new residence was well enough completed by October 1925 for the Kump family to move in. However, the interior decoration and details reportedly took five years to complete.

The design is on the Neo-Federal Revival style. Typical to the neoclassical design the structure has an entry elevation of a five bay rhythm with a central entrance. The entrance is nestled in a shallow single story three bay portico supported by fluted Doric columns and pilasters of corrugated metal construction fabricated by Union Metal. The portico has an entablature with architrave, simple frieze containing circles simulating paterae (medallions) and diamonds symbolizing centaurs.

The entrance door is flanked by leaded glass lites and arched transom of leaded glass. The rectangular 6 over 6 double hung windows are capped with splayed limestone lintels of a key stone pattern and flanked by wooden shutters. Additionally Neo Classical detailing and design elements are found in the roof-line balustrade, the balanced front elevation of porte ccchere to the North and sun porch to the South. A signature design elements of the architectural style is the presences of the oval oculus window in the central pavilion gable on the front elevation and the circular oculus window on the North and South gables. Flanking the central gable on the front elevation are limestone urns on the coping and inset limestone medallions of classical pattern in the brick work at the third level.

General architectural detailing includes a built-in gutter system on the West and East eaves of the main gabled roof behind a millwork entablature. The original drawings annotate them as to be copper, but it appears the as built conditions appear to be formed steel that has been painted several times over the years. The brick coursing is a simple running bond of modular size with recessed tuck pointing, a limestone belt course between the first and second floors, as well as a limestone water table at first floor level. The front door has a border of soldier coursed brick around the front door and side lites. (In reviewing the original architectural drawings the border was to be Compo ornament as the door case.) The sun porch on the south side is enclosed with "Hoffman Casements" as noted on the architectural drawings.

There is some controversy about the roof. The National Register nomination actually claims slate as the roof type. However, asbestos shingles which closely simulate the shape/size/color of slate currently cover the roof and, according to some, are the original. The physical evidence within the attic does not lead us to believe that there is an earlier roof assembly. Research into the asbestos tile indicates that it is

feasible that the line span of the material could push 100 years. Additionally the architectural drawings found within the house in February of 2010 clearly annotate the shingles to be "Color Blende" asbestos shingles on 2X8-20" rafters.

The main pitched roof pitch terminates with masonry pediments on the gable ends and contain central gable of a lower pitched roof and acting as a wall dormer or pavilion on the front elevation. The exterior of gables is completed in brick of a running bond pattern with limestone coping on parapets

The interior is finished with different hardwoods throughout. The first floor and stairway are finished in quarter-sawn white oak. The music room/den and dining room displays cherry. A second floor room has walnut, and bird's eye maple is located on the third floor. All the wood received five coats of varnish rubbed down with pumice and oil on a felt pad. The wood is thought to have been harvested off land owned by the family and milled as a local sawmill.

The kitchen, breakfast room, and pantry have "Battleship" linoleum flooring and wall base. The trim in the rooms on the east side of the first floor is painted white. The kitchen has built-in painted cupboards of a simple stile and rail door design with single lite glass on the upper wall cabinets and inset panels on the lower cabinets with a wooden counter top. The pantry has a matching wall cabinet unit on the north wall. On the south wall is a lead coated wash board and counter with sink basin. On the east wall is an automatic refrigerator with remote compressor located in the basement that appears to be original to the house. The doors to the service areas of the house all have dual action "bommer" hinges on the top and bottom rails.

Local craftsmen contracted the majority of the jobs with T.R. Whiteman, a carpenter, being the lead. Mr. Whiteman was a respected builder of his time and worked in his field for over forty years. The interior details, while high-quality, are quite simple. The quality of construction was superb with great attention to detail being taken by the craftsmen involved and evidenced by the fine structural condition that it remains in today.

It is know that T.R. Whiteman had an extensive cabinet shop in Elkins and it is likely that he fabricated the cabinets and built-ins found in the house. Mr. Whiteman's son Ernest Whiteman later became an accomplished woodworker with the full shop at his disposal.

The National Register nomination notes that Mr. Boyd Simpson of Elkins applied the finishes to the interior. All woodwork surfaces were finished in

five coats of varnish which were rubbed down by hand with pumice stone and oil, wiped clean with a felt pad. The finishing took four years.

The archives of the West Virginia Collection at WVU have provided information regarding the companies that supplied materials during the construction of the house. A brief listing of the companies, all based in Elkins, and the general items supplied are listed below.

Beverly Hardware Company in 1924

Paint
Nails
Hinges
Tools

Bishop Planning Mill – Elkins- in 1924

Sheathing
2X4's

Elkins Furniture and Hardware Company in 1924

Bolts
Nails
Hardware Cloth
2 Box Spring and Mattresses
2 Rugs
Paint

Elkins Monumental Works – December 8, 1923

Coping Stone
Galvanized Pipe

H.N. Barnard – May 1924 Armory Building Third Street- Elkins

Pipe Fitting
Hot water repairs

C.H. Lloyd Contract Painters – May 1924

Labor for painting

Elkins Builder Supply Company – April 10, 1924

2 sacks wood fiber plaster
20lb plaster paris

The Darden Company- Elkins June 7, 1924

50lb lawn grass seed

F.B. Smith – May 6, 1924

Installation of electrical pump and outlets
Light switches
Outlets
Light fixtures

We were fortunate to have found set of the original architectural drawings in the house. The drawings represent several submissions dated May 8, 1923; August 18, 1923; August 25, 1923 and heating plans dated September 20, 1923. After the opportunity to review the latest set of drawings dated August 25, 1923 drawings show evidence of minor as built changes come to the surface. The drawings show copper roofs and built-in gutter at low sloped metal roofs, the compo ornament around entrance door, a wrought iron railing above entrance to portico. On the north elevation the wood railing with two equal segments and an orthogonal sunburst in center. The rear porch had wood lattice with arched opening. And the rear sleeping porch had only a center bay and the north and south areas had open air roof decks.

The other milestones of changes are listed below in chronological order since they do not constitute true phases of changes.

1. The first major change to the property came in 1939 when route 33 bisected the property and left WV State Route 250 going east.
2. During the 1950's the coal fired boiler was changed to natural gas. It is surmised that the two gas fired wall furnaces in the two southern bedrooms on the second floor were added at this same time.
3. Between 1962 and 1964 a tornado touched down on the property and destroyed the hipped roof on the barn and the adjacent chicken coop to the east of the house. The barn roof was reconstructed with a gabled roof with the pitches sloping toward the north and south.
4. Between 1984 and 1989 Mary Gamble Kump made upgrades to the lower level by replacing hard wood flooring over the concrete slab in the hallway at the base of the western stair case and within the large room to the south. During this period the shower and bathroom finishes and fixtures were upgraded. A new wood burning pellet stove was also added at this time connected to the fire box of the fire place.
5. During the 1980's an electrical subpanel was installed for the exterior security lighting.
6. In the 1990's new sanitary lines with clean outs were added to connect to the city system.

Over the years maintenance items necessitated changes: on the first floor drywall repairs were made to the plaster ceiling in Dining Room ceiling and newer kitchen appliances replaced the originals. On the second floor bathroom and bedroom ceilings have had plaster repairs and the sleeping porch has sustained plaster and millwork damage from roof leaks. On the third floor the four corner bedrooms have sustained severe plaster damage on the ceilings and adjacent walls due to roof

flashing failures. The water damage on the third floor has also left some stain on the wood flooring.

On the exterior it was noted that the cheek walls of the entrance steps have been partially reconstructed at some time with techniques and mortar that does not seamlessly match the original. The screens from a majority of the wood windows have been removed and stored in the lower level garage. Additionally the landscape and associated feature have changed over the years.

E. MATERIALS AND CONSTRUCTION TECHNOLOGY: SUPPORTING RESEARCH

1. Plaster

Until the end of the 19th century plaster required water, lime, aggregate [such as sand], and a fibrous material, generally composed of horse or hog/boar hair. As gypsum replaced lime around 1902, there was no longer a need for the fiber material, as the new plaster required drastically reduced drying time, and provided enough "bulk" for a successful wall covering.

Regardless of the ingredients in the scratch and brown coats, the finish coat took on many forms. The most common was a basic fiber free plaster mixture. At times, however, additives were utilized in the mixture to create texture, depth and variety. For example, sand or marble were added in the final coat to achieve a rough or hard, smooth surface, respectively.¹

The Kump House initially used some sort of animal hair plaster, applied historically directly to the interior face of the brick, while non-masonry surfaces were in all probability, wood lathe.

2. Nails

There are five general phases of nails in American building materials technology. Initially nails were hand wrought from iron. Hand operated nail machines were in use in New England as early as 1780. Ezekiel Reed invented one such machine.² These first machines created Type A Nails. Subsequent modifications to the nail machine eventually led to a model that produced Type B nails. The next version of the nail, the *Modern Machine Cut* nail, produced mainly during the mid to late nineteenth century, was replaced by Steel Wire nails just before 1900.

A structure that exclusively used non-machined, wrought iron nails, likely dates pre-1800. However, during the early 1800's, buildings used smaller cut nails, in combination with larger wrought nails in floors and hinges, even though larger cut nails were being produced.³

The Kump House, according to its time of construction, likely used a steel wire nail in its construction, which can be seen in the attic with the exposed framing.

¹ Mary Lee McDonald; NPS. *Repairing of Historic Flat Plaster: Walls and Ceilings*. (Urbana: University of Illinois, 1989)

² Phillips, Maureen K. Mechanic "Geniuses and Duckies: A Revision of New England's Cut Nail Chronology before 1820." *APT Bulletin*, Vol 25 No ¾ (1993) 5.

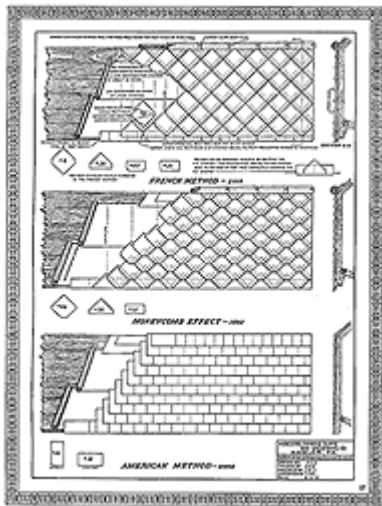
³ Phillips, 13.

3. Asbestos Shingle Roofs⁴

As taken from the National Park Service:

In the United States, mechanized production of asbestos-cement shingles began in the first decades of the 20th century, following Austrian Ludwig Hatschek's invention of a process in 1900 to manufacture rolled and pressed asbestos-cement sheets. Hatschek's patent, reissued in United States in 1907, led to a rapid proliferation of the new shingles. One early American manufacturer, Eternit, took their company name from the title Hatschek had given his process.

Made from asbestos, an inorganic, fibrous mineral, and Portland or hydraulic cement, asbestos shingles were lightweight, economical, and fireproof. Manufacturers promoted their shingles as substitutes for traditional roofing materials such as slate, wood, and clay.



The Asbestos Shingle, Slate and Sheathing Company proclaimed in 1910: " ...these Asbestos Singles or Slates are so immeasurably superior in point of practical merit to that of any natural slating that nothing remains to be said."

A variety of shingle colors could be created by adding pigments to the wet mix before pressing or by rolling pigments onto the surfaces of shingles. Colors imitating slates, including Indian Red and Newport Gray, were common, but many other colors were available. Manufacturers assured potential customers that their shingles were colorfast. Unfortunately, many early asbestos-cement shingles faded over time, causing Columbia professor H. Vandervoort Walsh to exclaim in 1922: "For this reason we see on every hand red asbestos-shingle roofs which have bleached to sickly and thirsty pinks."

Manufacturers of asbestos-cement shingles and other asbestos building products appealed to architects and builders directly with extensive advertising campaigns. These drawings accompanied Architects's Specification included in a publication of the Asbestos Shingle, Slate & Sheathing Company.

⁴ Information derived from Preservation Brief 19 published by the National Park Service and: Stevens, John. "Early Roofing Materials." *APT Bulletin*, Vol. II No. 1-2 (1970), 74-75.

The hydraulic pressing process enabled the shingles to be given a texture, such as a rough rustic surface or one imitating weathered wood. The many styles and sizes of asbestos-cement shingles available made possible roofs laid in various methods including American, Dutch Lap, and French (known in several variants as hexagonal, honeycomb or diamond). The French method was particularly popular for asbestos roofing, capitalizing on the economy of the material itself by laying it in an efficient manner requiring minimal overlap. Installation of asbestos shingles was similar to slate. Shingles could be punched, filed, or trimmed to size in the field by roofing contractors. Companies such as behemoth Johns-Manville and The Asbestos Shingle, Slate, and Sheathing in Ambler in Pennsylvania promoted asbestos shingles not only for new construction but also for roofing over existing roofs.

In addition to shingles, corrugated asbestos-cement sheathing, sometimes called asbestos building lumber, was produced by many manufacturers as a substitute for corrugated iron roofing. Used principally for industrial applications, corrugated asbestos could be laid directly on steel roof purlins. Industrial buildings in particular benefited from the fireproofing qualities of asbestos-cement.

Both asbestos-cement shingles and siding were produced into the 1980s, testimony to their popularity and affordability. The countless buildings with this roofing material also attest to the durability of the product.

An additional resource is:

<http://www.customtileroofing.com/AsbestosShinglesTransite.asp>



Johns-Manville promoted the direct application of their asbestos-cement shingles over worn roofing in this 1936 catalog. The Dutch Lap roof being applied here was easy to install and utilized a metal "clinker" to anchor exposed corners. (*Home Owners' Catalogue, A Guide to the Selection of Building Materials Equipment and Furnishings*, F. W. Dodge Corporation, 1936. Courtesy of The Sweet's Group-The McGraw-Hill Companies, Inc.)

4. Masonry⁵

Masonry, particularly clay bricks have been widely used in the construction of buildings for centuries. Popular in Europe for its “stately” appearance and outward display of wealth, the building blocks were quickly adopted by colonists in the erection of some of their most important buildings. The use of wood over brick, however, was extensive. Trees were abundant, and clay required a more involved process. Traditionally clay was extracted [loamed] from an open pit [won from the ground], and left to “temper” for months.

The earliest forms of brick were soft, irregular shaped, and hand-pressed. Hand-pressing clay into wooden molds was a long and tiresome process, contributing to its lack in popularity. As in Europe, wealthier families could afford to hire [or have slaves] do the work, which ultimately displayed their wealth and prestige. Because of its denseness and weight, it was necessary to produce brick locally, and commonly by hand before the last quarter of the 19th century.

The earliest patent for a brick-making machine was in 1792. These “pug mills” were key in increasing the popularity of the building material, although the Appalachian region, as well as much of the interior east coast, was years from the heavy manufacture of brick.

The Kump House appears to be a locally machine hard brick of consistent size, shape and color. T. R. Whiteman, the building's contractor, built several other masonry structures in the 1920's.

¹ Letters, Lyle B. Watterson, *Time Magazine*, October 1936, 2.

² Personal Correspondence, H.G. Kump to G.K. Kump. May 2, 1923.

³ Personal Correspondence, H.G. Kump to G.K. Kump. April 17, 1923.

⁴ S. Allen Chambers, Jr. *Buildings of West Virginia* (New York: Oxford University Press, 2004), 460.

⁵ Personal Correspondence, H.G. Kump to Owen Gerlack. July 11, 1923.

⁶ Personal Correspondence, H.G. Kump to G.K. Kump. May 25, 1923.

⁷ Personal Correspondence, H.G. Kump to E.B. Karskadon. April 10, 1924.

⁸ Personal Correspondence, H.G. Kump to R.J. McCandlish. May 18, 1925.

⁹ Personal Correspondence, H.G. Kump to Clem E. Peters. November 18, 1924.

¹⁰ Personal Correspondence, Heyward E. Boyce to H.G. Kump. June 4, 1925.

⁵ McKee, 41-43.

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3. CONDITIONS ASSESSMENT AND RECOMMENDATIONS

A. METHODOLOGY

B. HISTORIC PRESERVATION ISSUES AND OPPORTUNITIES

C. EXISTING CONDITIONS ASSESSMENT

A. METHODOLOGY

The exterior and interior of the building was intensively surveyed by The Mills Group on July 2 and August 7, 2009. The general overview involved the visual condition assessment of the building's exterior cladding/building envelope, exterior doors and windows, as well as all interior spaces and finishes. The comprehensive methodology that Mills Group uses for this type of building assessment with issues of rehabilitation, restoration, preservation and adaptive re-use can be summarized by the following dictum:

Sensitive and accountable preservation and restoration work must be responsive to the category of historical significance of the building. Each building provides a unique set of requirements and conditions. So too, each solution is unique. Regardless of the building's significance, we apply the physician's dictum, "do no harm." This basic philosophy guides us through all phases of a project. Moreover, this philosophy instills respect for the fabric of the structure and encourages judicious use of the latest preservation techniques and remedies, guided by past experience and on-going research on preservation techniques both from academia and the preservation trades.

For the over arching project this report represents the beginning of a larger preservation project process, the **ROADMAP** that results in a building that is completely rehabilitated and sustainable. The **ROADMAP** process can be summarized in the following bullet points:

- Research the building
- Observe Existing Conditions
- Analyze Issues and Opportunities
- Develop Alternatives
- Make Recommendation
- Assemble Construction Documents
- Provide Construction Administration Services

Beyond the technical aspects of the **ROADMAP** process every preservation project must strive to be a continuum of **education** and **maintenance**.

1. Design Criteria

The following list of reference materials and publications represent the basis of design as well as provides procedural and technical guidelines with respect to various aspects of this project's scope of work.

- IBC International Building Code] 2006
- NFPA 101-2000 and WV State Fire Code Title 87
- Americans with Disabilities Act Architectural Guidelines (ADAAG)
 - (Assessment of code deficiencies and accessibility by the disabled is based upon the IBC 2006 and on the Americans with Disabilities Act Architectural Guidelines (ADAAG). It should be noted that the IBC and ADAAG contain both scope and technical provisions for accessibility. The building code requirements only apply when work (alterations, repairs or conversion) requiring a building permit is undertaken. ADA, however, is a Civil Rights Law and its provisions apply to all new and existing public accommodations. If renovation work is undertaken in order to comply with ADA, the work, itself, must also meet IBC requirements. Where scope or technical requirements in the IBC exceed those of ADA, this is noted in the report).
- The Secretary of the Interior's Standards for the Treatment of Historic Properties, 1994.
- The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines for the Rehabilitating Historic Buildings.

B. HISTORIC PRESERVATION ISSUES AND OPPORTUNITIES

1. Overview

It should be noted that the major component of any rehabilitation project begins with the identification of materials and features that are important in defining the building's historic character. The second step is the protection and maintenance of the existing building fabric so that a project's preservation goals can be fully realized. Only after the first two steps can repair of historic components and replacement in kind of the severely damaged or deteriorated historic materials and features be considered. The identification of historic preservation issues and opportunities starts with the development of floor plans that identify the Historic Treatment Zones and provide a framework for the project approach.

The Kump House has undergone minor changes over time and exhibits some deterioration of certain materials; however, significant original fabric and original space configuration remain. The building's period of significance is defined as c. 1925-1962. This period encompasses the

building's original construction and through the years Gov. H.G. Kump lived in the house.

The overall goal for historic preservation is to “preserve and enhance the unique cultural heritage, beauty, and identity of the Kump House and adjoining property by respecting the enduring value of its historic structures and places, recognizing their importance to the citizens of Elkins, Randolph County, the State of West Virginia and the nation, and sharing the mutual responsibilities for their protection and stewardship.” Specific policies in support of this goal include:

- Sustain exemplary standards of stewardship for historic properties under City of Elkins and the Kump House Endowment Trust ownership or control. Use historic properties to the maximum extent feasible for programmatic mission, promote innovative reuse concepts, and ensure that rehabilitation adheres to the highest preservation standards. Properly maintain both designated historic properties and protect them from deterioration and inappropriate alteration;
- Protect and enhance the views and vistas, both natural and designed, which are integral parts of Elkins' historic image.
- Protect the generous open space and reciprocal views at the corners of RT 33, 92, 250 and 219. Reinforce the spatial definition of the street network by encouraging property owners to align primary building facades along the historic building lines. Support public and private efforts to provide and maintain street trees to help frame axial views and reinforce the city's historic landscape character;
- Encourage appropriate adaptive uses consistent with the character of the property;
- Preserve the continuous and open green quality of landscaped front and side yards in public space. Take special care at historic landmarks and in historic districts to protect this public environment from intrusions, whether from excessive paving, vehicular access and parking, high walls and fencing, or undue disruption of the natural contours or bermed terraces.

It is important that this property is not an isolated cultural resource within Elkins, the property has the potential to educate and inspire thus it needs to be connected with other venues to get the full exposure.

2. Historic Treatment Zones

The historic treatment zones illustrate the preservation philosophy for the structure and create a hierarchy of spaces and associated treatments that will define a higher level of preservation finishes and materials in public spaces, while permitting the greater level change in office and support spaces required keeping the building viable as sustainable economic venture.

The areas of the Kump House have been categorized here according to historic authenticity, intactness, and potential for varying degrees of preservation, restoration, rehabilitation and renovation. The terminology has been adopted directly from the *Secretary of the Interiors Standards for the Treatment of Historic Properties* where applicable.

- **Preservation 1-** Spaces determined to be historically significant and require little repair and/or alterations to facilitate their new proposed use. These spaces require the highest level of preservation. These spaces are the pristine spaces presented to the public as the essence of the Kump House. They illustrate the significance of his life and the architecture of the building. These spaces will undergo little rehabilitation.
- **Preservation 2-** Spaces deemed historically significant and require little repair and/or alterations to facilitate their new proposed use, but do not require the same level of conservation as Preservation 1 zones. These spaces may incur more renovations in terms of making the house accessible to the public and facilitating code and regulatory requirements, but sensitivity to major alterations is vital.
- **Rehabilitation-** Spaces having historical integrity with new systems introduced, such as restrooms and vertical shafts. This zone allows for the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.

The Treatment Zones of Restoration and Reconstruction are not used on this property. The descriptions for both unused zones are included below for reference:

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features

from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Reconstruction is defined as the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

3. Overarching West Virginia State Historic Preservation Laws

The state preservation laws are listed below a point of reference and provide the framework within which this project fits.

♦ **§29-1-8 – Historic Preservation Section of West Virginia Code** creates the State Historic Preservation Office within the Division of Culture and History and grants to it a number of duties, including the ability to locate, survey, investigate, register, identify, preserve and protect historic, architectural, archaeological and cultural sites, structures and objects worthy of preservation. It also gives the section the ability to review all undertakings permitted, funded, licensed or otherwise assisted by the state in order to protect historic resources.

♦ **§20-7A-5 – Archaeology, Permits for Excavation** requires a person to obtain a permit from the Director of Natural Resources in order to excavate or remove a historic or prehistoric ruin, burial ground, archaeological or paleontological site, including saltpeter workings, relics or inscriptions, fossilized footprints, bones or other such features that may be found in a cave.

♦ **§20-12-1 through §20-12-8 – Conservation and Preservation Easements** authorize any governmental body or qualified charitable, tax exempt organization to hold a conservation easement or a preservation easement. A conservation easement is a nonpossessory interest in real property for the purpose of retaining or protecting for public benefit the natural, scenic or open-space value of the property, including the preservation of its historical, architectural, archaeological or cultural aspects.

♦ **§29-1-8b – Protection of Historic and Prehistoric Sites** prohibits the disturbance or destruction, unless permitted by the State Historic Preservation Office, of historic and prehistoric landmarks, sites and

districts on lands owned or leased by the state, or on private lands where the development rights have been acquired by the state.

◆ **§11-12-8a through §11-21-8f – Personal Income Tax: Credit for Qualified Rehabilitated Buildings Investment** allows a taxpayer to claim a credit against the state personal income tax equal to 10 percent of the money spent on qualified rehabilitations to income producing historic structures. This law also allows a taxpayer to claim a credit against the state personal income tax equal to 20 percent of the money spent on qualified rehabilitations to residential historic buildings. Non profits can sell these credits to investors.

◆ **§11-24-23a through §11-24-23f – Corporate Income Tax: Credit for Qualified Rehabilitated Buildings Investment** allows a taxpayer to claim a credit against the state corporation income tax equal to 10 percent of money spent on qualified rehabilitations to income producing historic buildings. Non profits can sell these credits to investors.

4. Exterior Issues and Opportunities

The exterior envelope of the building is in sound condition. Major issues include water infiltration through the masonry and roof flashing; subsequent biological growth on limited areas; mortar deterioration at several points. Displaced brick, bulging out from the exterior wall, is evident at the gable parapet wall on the North and South ends of the house. Several instances of leaching on the exterior brick at gable ends and upper corners are evident. Cracks in the brick were noted in several areas, and from the visual inspection do not indicate major structural failure but localized from the failures at the limestone coping joints and end wall flashings on the roof.

The remainder of exterior envelope is painted wood shingles at the rear porch and upper dormer with wood trim. The major focus of the exterior restoration is the windows and the exterior doors require some wood repair and repainting. Additional wood trim and millwork is found at the cornices, soffits, window/door trim, and wood columns enclosures. Cosmetic issues necessitate attention before serious deterioration occurs. Exterior wood trim and millwork are deteriorated and peeling paint along the eaves and north portico. Closer investigation may reveal that the wood beneath needs to be replaced. In addition to the wooden columns at the rear the entrance portico is supported by fluted round moulded metal columns and pilasters painted white. The porte-cochere is all supported by fluted round moulded metal columns painted white. The metal columns and pilasters require some restoration.

The existing roof is composed of two different assemblies, the main gable of the house and side walls of the front dormers are asbestos containing shingles with copper flashings and built-in box gutters. The second roof assembly is a painted standing seam metal roof with built-in guttering on the low sloped porches, dormers, and porte-cochere. The copper down spouts and box collectors require restoration. Concurrent to this report being written the owner is executing a roof restoration project that is being funded by a West Virginia SHPO Development Grant.

The exterior and interior architectural and historical characteristics of the building are intact and maintain their historical integrity, providing many opportunities for restoration and preservation.

5. Interior Issues and Opportunities

We have identified architectural features and finishes that are part of the interior's history and character. Fortunately, much of the interior's main components remain intact. Trim around windows and doors, the entry hall staircase, as well as the fireplaces are all in excellent condition. The service stairway and lower level show less normal wear and tear, such as layers of paint, nicking and some minor disturbances.

Some interior spaces have been altered within the lower level, through bathroom installations, heating and electrical systems installation, kitchenette renovation, and wood flooring additions. Two spaces require major construction.

The proposed concept design will be executed in such a way to highlight the identified Historic Treatment Zones, as defined previously. The existing "character-defining" architectural materials and detailing will remain. Within the identified Historic Preservation Treatment Zones [see figure 1], we have identified contributing elements that will be retained and integrated into the proposed concept design.

Many of the light fixtures are original to the period of significance yet are not the most effective for the light requirements of the reuse concept nor are they the most energy efficient. Those light fixtures in disrepair or deemed unsafe will require replacement. Those that do have historical characteristics should be restored. Further detailed study on the existing fixtures is required to determine approach. New lighting should be added where necessary as per the proposed future use of the building in a very sensitive fashion.

In our survey, suspected asbestos containing material was identified in the basement areas, in the form of plaster and gasketing at boiler. A full investigation has been completed and provided insights.

Executed by Firth Environmental, LLC
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2122 Suds Run Road
Mt. Clare, WV 26408
Frederick D. Goff
WV License # AI005567
Completed 12/22/09

Asbestos Findings:

- Cementitious Roof Shingles
- Tar Flashing
- Window caulking on all windows of third floor
- Insulation material in wall heaters in bedrooms located in SE and SW
- Plaster wall patch under kitchen sink at first floor
- Gasket material on coal furnace
- Insulation material on coal furnace

6. Priority List of Issues and Opportunities

1. Safety / Code Compliance

- Structural repairs to barn
- Hazmat abatement
- Clean up basement (hardwood floor, coal)
- House hold Goods to storage – pose a safety hazard
- Limestone coping - parapet restoration
- Site access road
- Exterior handrail
- First floor ADA Bathroom
- Lower level ADA Bathroom
- Exterior lighting
- Basement foundation – Waterproofing and drainage
- Insulation
- Waterproofing
- Footer drains and rain leader lines
- Trench drain at existing garage entrance
- Drains at area walkway
- ADA lift for entrance
- Entrance modifications
- Rear Sleep porch restoration

2. Deterioration

- Concrete structural knee wall at north side of porte-cochere
- Metal fluted columns
- Exterior repointing – Brick and limestone
- Millwork – Trim Soffit
- Shutters
- Windows
- Doors
- Exterior shingle siding at East
- Interior plaster restoration
- Bathrooms upgrades
- Electrical
- Plumbing
- Wood floor cleaning and restoration

3. Comfort

- Mechanical system upgrades
- Window treatments
- Storm windows

C. EXISTING CONDITIONS ASSESSMENT

1. Substructure

a. Foundation

The entire structure rests on reinforced concrete spread footers. There is no visual evidence of problems with the foundations or of any subsurface drainage problems. No conclusive condition assessment can be made at this time.

b. Basements

There is a basement room beneath the entire structure which rests on a concrete and brick masonry foundation that has been plastered on several of the interior walls. It has a head clearance of approximately 9'-0" and is entered by way of the central stair, the rear service stair, and three exterior entrances (two off the North East areaway and the garage on the South side). The walls that support the structure are reinforced concrete construction and appear to be in very sound condition. The floors in the basement areas have concrete slabs with floor drains. The serviceability of the drains is unknown and it is recommended that they be cleaned and snaked.

2. Superstructure

a. Floor Construction

The exposed floor framing in the basement revealed 2x12 floor joists that bear on the masonry exterior walls and interior bearing walls. The portion of the floor construction that is visible appears to be in good condition. Further investigation is required to inspect the floor framing not easily accessed on the date of initial inspection.

b. Roof Construction

The roof construction for the main structure appears to be a 2" x 8" rough sawn framing wood with wooden sheathing. The portion of the roof construction that is visible appears to be in good condition. A view of the roof surfaces and ridgeline indicates no major sign of deterioration or failure. Further investigation is required to inspect the roof framing that was not easily accessed on the date of initial inspection. Structural calculation should be performed to ensure that the existing supports are properly configured and sized.

3. Exterior Wall Assembly

a. Building Envelope

There are a number of areas where the mortar joints have deteriorated and require routing and repointing. The original mortar must be matched in order to maintain the current appearance compatibility with the brick and structural performance. Samples of the original mortar must be analyzed in a qualified laboratory to determine the appropriate mortar to use for repairs.

Structurally, the brick is in good condition, few cracks and instances of settlement have been noted. The failure of the head joints and the gable end wall flashings have caused serious damage to the north and south parapet walls and subsequently the interior plaster.

All abandoned anchors and shields embedded in the masonry walls should be removed because their corrosion will cause delimitation in the metal. The expansion caused by the rust will ultimately lead to spalling or cracking. The ferric stains currently found in these areas could be removed with chemicals specifically formulated to remove ferrous discolorations from brick. The work must be done in strict conformance with the chemical manufacturer's instructions and must include neutralizing and water washing the surfaces after cleaning.

The exterior elevations contain biological matter, caused by adjacent vegetation and a failing gutter system and/or lack of maintenance to the roof area at this section of the structure. Moss is forming over the wet areas. Addressing the source of the water

will terminate the further growth of any moss, mold, and/or mildew.

b. Other Issues

Some small, random issues require attention. Exterior sealants should be applied to the brick at gaps between millwork and masonry.

4. Exterior Doors

Most doors are in fair to good condition, needing few repairs. All doors require secure locking mechanisms and, potentially, ADA hardware upgrades. The door hardware is generally in good condition and may require cleaning and lubrication. The existing weather stripping generally appears to be in serviceable condition but could benefit from replacement. Accessible exit routes, depending on the determined use for the building, will be required according to the Americans with Disabilities Act [ADA]. This would necessitate modifications to both the door sash and door in order to accommodate any code requirements.

5. Windows

The windows consist typically of wooden 6 over 6 double hung sash. The size of the sash ranges, as does the pattern of lites. The typical existing windows are true divided lights with 1/4" single glazed float glass. The windows are generally in good condition with the exception of some missing or broken hardware, cracked glass, paint failure, general lack of effective weatherproofing, and deterioration of wood components. *The historic wood windows should be preserved, in some cases restored, and the deteriorated sash and frame members replaced. This should include paint removal, the installation of weather-stripping, the restoration or replication of the existing hardware, and the replacement of the parting bead if required.*

Given the climatic conditions of the building's location and the proposed uses, it is recommended that future consideration be given to the installation of an interior insulating panel along with the restoration of the existing units. The weatherization that we propose as part of the window restoration would include the following: the addition of new integral locking weather stripping, the restoration of the windows to fit squarely and true within the window pockets, new locking hardware to insure a locking seal, and glazing panes secured with proper seal at muntins. It is our experience that lifecycle energy costs are achieved over a long period given the installation cost of storm units.

6. Roofing

The main section of the existing roof is in fair to good condition. It is a asbestos shingles with copper flashing and guttering. Several ACTs (asbestos contain tile) are broken or missing and will require replacement. The low slope roofs on the porches, portico, and dormers are painted standing seam which require restoration. Also of concern are the built-in gutters on the east and west sides of the portico, which have failed, causing biological growth on the brick wall. These, along with the portico roof trim, box beams, and gable, should be investigated and repaired as necessary.

7. Interior Construction

Nearly all of the interior finishes are original. The kitchen, living area, entry hall, and several bathrooms have tile patterns in the plaster at the tub surround, which require restoration.

a. Interior Doors

The doors in the house have raised panels and are in good condition. Some minor nicking and scratching have been noted. The hardware is generally in good working order and varies in style and age.

b. Ceilings

The ceilings in the mansion consist of flat plaster in good to excellent condition with the exception of the corner bedroom ceilings on the upper two levels. There are a few instances of peeling paint, mostly in high moisture areas such as bathrooms, which require repair.

8. Mechanical

Existing MEP Conditions: The general commentary on the building systems is that they appear to be in serviceable condition yet require upgrades given the desired reuse. It is apparent that a few code deficiencies exist but do not appear to involve major rework of the systems. Given the proposed mixed use configuration and a public use we are recommending a central AC system and updated heating system that can generally reuse the existing radiators as a source. The electrical system shall require some upgrades and may require an increased service size depending on the ultimate use.

a. Plumbing

The plumbing infrastructure and fixtures appear to be mostly original to the 1925 period with updates having been made to keep the fixtures operating. The fixtures are dated, but in fair condition. Given the likely future public use of the space, it is recommended that all fixtures be replaced to coordinate with the

proposed plan layouts and to facilitate the building systems upgrades. It is likely that additional ADA compliant bathroom facility will have to be created by way of a retrofit of the existing space or an addition.

Recommendations:

- **Domestic Water Service:** Plumbing contractor shall furnish and install a connection to the domestic water service outside of building in accordance with state and local codes.
- **Sanitary Sewer:** Plumbing contractor shall investigate the reuse of the existing lines or furnish and install a sanitary sewer connection to city service outside of building.
- **Storm Water Sewer:** Plumbing contractor shall investigate the reuse of the existing lines or furnish and storm sewer connections to city service outside of building.
- **Domestic Hot Water System:** Plumbing contractor shall furnish and install a gas storage water heater with a circulating pump system to serve the toilet rooms and service sinks. On demand instant hot water units may be considered in locations close to the demand.
- **Plumbing Fixtures:** Plumbing contractor shall furnish and install water economizers floor mounted water closets. The lavatory will utilize manual operated faucets, the water closets will have manual operated flush valves.

b. HVAC

There is currently no ventilation system and heating system was installed over fifty years ago with much of the infrastructure being original to the construction. It is not efficient for the building, and requires replacement by localized heating/air conditioning units, according to the building's proposed concept design.

Proposed HVAC Recommendations:

- **Geothermal wells and ground source loops** shall be considered in the overall strategy.
- **Supply Air Systems:** The system will utilize self-contained vertical and self-contained horizontal water-cooled units. The units serving the proposed educational center space will be constant volume and the units serving the proposed sleeping quarters shall be variable-air-volume unit. The units

could range in size from three tons up to five tons based on the load requirement for the specific space served. The air handling units will be provided with water-cooled compressors, DX cooling coil, economizer coil, filters and supply fan with variable frequency drives for the size ranges made available by the manufacturer.

Upper level air will be supplied to all perimeter spaces and interior spaces and will be served by series, fan powered Variable Air Volume terminal units. Perimeter units will be provided with electric heating coils. Air will be returned to the mechanical room through a ducted return air system.

- **Ventilation Air System:** Ventilation air will be provided through a rooftop intake vent and a supply air fan which will deliver ventilation air via vertical shafts through the building. An automatic control damper will be provided at each connection to the floor by floor units to allow isolation of each unit.
- **Controls:** The building will utilize an all-electric DDC control system. This will allow remote troubleshooting and adjustment of set points as well as programmed start stop and system optimization.

9. Code And Design Parameters

Applicable Codes:

- Uniform Mechanical Code 1997 (UMC)
- ASHRAE/IESNA 100-1995 with Addendum 100a, Energy Efficiency in Existing Buildings

Design Parameters:

- ASHRAE 1997 Handbook Fundamentals
- ASHRAE 1999 Handbook HVAC Applications
- ASHRAE Standard 62-1989, Ventilation for Acceptable Air Quality

Inside Design Criteria:

- 100 SF per Person
- 2.0 W/SF Lighting Load
- 4.0 W/SF Equipment Load
- 20 CFM per Person Outside Air (ASHRAE Standard 62)

Occupied Areas:

- Summer: 78 degrees F. +/- 1 degrees F. 50 % maximum relative humidity
- Winter: 70 degrees F. +/- 1 degrees F.

Outside Design Criteria:

- Summer: 91 degrees F. dry bulb 78 degrees F. wet bulb (2.5% column, ASHRAE Handbook of Fundamentals).
- Winter: 14 degrees F. (1% column, ASHRAE Handbook of Fundamentals).

a. Fire Protection

Upon review of the codes requirements associated with this building it was determined that a fire suppression system is not needed for the building given the proposed use and occupancy level. Fire suppression is a recommended life safety provision that require careful integration into the historic structure. However, a fire alarm system would be required for the building with any proposed reuse of the building. The alarm devices should be concealed and integrated in the finishes of the historic structure.

A walkthrough of the building with the fire marshal is going to be required to confirm our code interpretations.

10. Electrical

The electrical systems appear to be original to the house. They require major upgrades to bring them up to code for the proposed future use of the building, given that no grounds are currently a part of the electrical infrastructure. Power is currently supplied to the house on the west side, and feeds a main entrance service and meters located a room in the North West corner of the lower level. The main panel is not labeled as to the total size but it is assumed that the size is 400 Amp. The main service feeds to several 100 Amp electric panels located within the house.

In the proposed concept it is likely that the electrical system will require an upgrade. A 600 Amperes, 480 Volts, 2 Phase, 3 Wire group mounted circuit breaker, Main Distribution Board based on current load data will serve the building. The Main Distribution Board will consist of three sections; a CT and ahead of main switch connection for life safety section, a main section with drawout main circuit breaker and a distribution section utilizing group mounted fixed circuit breakers.

- **Electrical Distribution System:** The main switchboard will serve the building electrical load requirements for lighting and power.

Each circuit breaker will feed a 277/480 Volt distribution panel, which shall be sized per NEC requirement, for tenant electrical load requirements. The 277/480 Volt distribution panel will feed a 75 KVA 480-208/120 Volt transformer. The 75 KVA transformer will provide power to a 200 Amp 120/208 Volt panel to serve tenant electrical loads. Lighting loads will be served from the 277/480 Volt distribution panel. HVAC loads will be served from a 277/480 Volt distribution panel powered from a breaker from the main switchboard. Electrical panels will be provided at the electrical closets based on 2.5 VA/SF for lighting and 3.0 VA/SF for receptacles and additional 1.5 VA/SF for future expansion.

- **Emergency Distribution Power System:** No emergency distribution system will be provided unless a fire pump is required by the Authority having jurisdiction.
- **Lighting:** Emergency lights and exit lights for the core and public area shall be provided utilizing emergency ballasts. One emergency lighting circuit per floor will serve from a 480/277 Volt emergency panel.

Site lighting will be a combination of pole mounted and landscape lighting fixtures. The pole mounted fixture will be mounted on a 25 foot pole and utilize a metal halide lamp. The landscape fixture will be a combination of bollards with metal halide lamp and floodlights with a metal halide lamp. The location of poles, bollards and floodlights will be as required by the landscape designer and architect.

- **Fire Alarm System:** A fire alarm system will be provided as per the national regulations codes.
- **Communication System:** Telephone backboard 3'x4'x 3/4" thick, 3-3" sleeves, and two duplex receptacles will be provided in each communication closets. One 4" PVC schedule 40 conduit will run from the main communication room to the site property line and stub-up capped for connection by the telephone/cable company.
- **Building Grounding System:** A building grounding system will be provided per NEC Article 250.
- **Lightning Protection:** A U.L. Listed and Certified protection system will be provided per NFPA 78, if required.

11. Site Work

Initial observations by Gabe Hays of Hays Landscape Architecture Studio, Ltd. from November 18th, 2009 visit.

The Kump House property is unique when analyzed as a cultural landscape due to the fact that much of it survives with no major disruptions. What does not remain can be easily determined via photos and interviews with family with memory of the site. To prepare a Cultural Landscape report as outlined in NPS Preservation Brief #36 (<http://www.nps.gov/hps/tps/briefs/brief36.htm>) for vernacular landscapes should definitely be attainable. The report will also provide ample direction for the restoration of the landscape/ site design in addition to integrating modern needs such as bus/visitor traffic.

In the initial visit to the Kump House and property several observations were made by Hays Landscape Architecture Studio, Ltd. They are as follows in no particular order of importance:

- **Orchard:** The orchard seems to have been a part of the farm for many years. In historic photographs, it may have originally been further in the back than where it is now and was not a kept lawn. The trees as they exist could easily be cloned for the next generation in addition to other traditional apples of West Virginia. Also, the steps that seem to oddly stop in the middle of the yard were likely installed to pass through the unkempt orchard field as indicated by photos.
- **Parking and vehicular circulation:** the biggest challenge to the future use of the property is storage of vehicles outside of the core property. The house drive was not designed for consistent use by groups. Therefore an alternate location should be provided with the least financial, visual and environmental impact. An initial thought was to utilize an area directly adjacent to the road above the property with a walk down to the existing drive. However, this would need to be studied further for adherence to the American with Disabilities Act (ADA) requirements. If the upper road is to be used for busses, it is of paramount importance to get the state of WV to provide wide turning radii at its entrance to the main road when the road widening project happens.
- **Outbuildings:** The collections of outbuildings are a key component to a vernacular landscape and should be identified, repaired and reconstructed for a complete cultural landscape project. Specifically, the chicken house combined with the barn and gate created a wonderful framed view into the fields beyond.
- **Water:** Addressing the blessings and curses of water on the property should also be part of the planning process. The creek provides a

beautiful natural setting for the pasture, but should be protected from grazing and planted with natural bank-side plantings for stabilization and ultimately view screening. The added benefit could be wetland restoration which would provide guests a wonderful environmental educational component to their visit. The fundability of a wetland scenario increases due to the availability to benefit from developer's fees into wetland banks.

Ground water continues to be a problem afflicting all buildings and site walls on the property and should be comprehensively addressed at each building foundation with sub-surface drainage.

- **Fences:** Each fence and gate seems to be original to the property and should be restored and retained in the proposed cultural landscape plan.
- **Site Walls:** The columns on the site retaining wall need to be addressed for corrosion but also for the site wall stability. Other site walls need to be assessed as well to determine if preservation, restoration or reconstruction is the best course of action.
- **Signage:** the need for way-finding, interpretive, and welcoming signage will all need to be sensitively integrated into the landscape as well as working with the state on how to incorporate signage for and on the property.
- **Landscape:** The hollies, vegetable garden, trees, and ornamental plantings are all an important part of the history of the property. No additional removals should be undertaken until the Cultural Landscape Report is complete. Fortunately, the historic photos can accurately provide a basis for landscape design rehabilitation, and in some instances restoration.
- **Views:** The aesthetic of the original farmstead has been significantly compromised by the commercial development that now surrounds the property. The modern road across the creek can effectively be screened in conjunction with the bank stabilization. Desired views into the property from the front and visitor approach should also be considered within the context of the original cultural landscape.
- **Use/Funding:** As a teacher's center, a model farm, a retreat, a community garden, and a place for civic groups to congregate for their purposes, the property already has a great outlook. However, it is important to keep revenue in mind for the long term care of such a facility. Therefore, consideration of a fee for use should be given thought, especially for private uses not unlike a public park charging fees for shelter rental. Furthermore, if an endowment fund is not

already established, it certainly should be so that bequests, memorial gifts and corporate gifts might help sustain the Kump House into perpetuity.

Additionally, funding for the cultural landscapes should be sought from sources such as the Land and Water Conservation Fund, transportation enhancement funds, wetland banks, the state historic preservation office, and scenic byway funding as a contributing resource to the Staunton-Parkersburg Scenic Byway.

Other site issues identified:

- a. Currently there are drainage issues in the North East area way and at the lower level garage door. Diversion of water away from the house is required. The installation of proper drainage accompanied by an adequate drainage system is recommended. Additional investigation of the problem may be required to determine any further work needed. The entire existing drainage systems required cleaning of all obstructions and put back in work order.
- b. There is a concrete retaining wall which requires proper drainage behind and general cleaning.
- c. A storm water management system should be implemented for the current rain leaders, as detailed in on page 3.9.

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4. BUILDING CODE AND ACCESSIBILITY ANALYSIS

A. SUMMARY

B. CODE ANALYSIS – EXISTING CONDITIONS

C. CODE ANALYSIS – PROPOSED CONDITIONS

D. ADA ACCESSIBILITY GUIDELINES ANALYSIS-EXISTING BUILDING

A. SUMMARY

The Building Code and Accessibility Analysis is a review of current compliance with building codes, various fire and life safety issues, and features related to the Americans with Disabilities Act (ADA). The design team conducted a thorough review of existing conditions and made recommendations to bring the building to compliance with code and accessibility requirements based upon the limited programmatic knowledge of the desired future uses.

Understanding that the existing building is largely not compliant and the program for the building upon rehabilitation is to have a public function on the first level and lower level along with residential space on the upper two levels, this document makes specific recommendation based upon our current understanding of the project. This document does not address the proposed approach to code and ADA compliance in regards to the new building. It is generally understood that the regulatory officials in the city would mandate the compliance.

B. CODE ANALYSIS – EXISTING CONDITIONS

1. Applicable Codes:

- International Existing Building Code 2003,
 - International Building Code 2006 (IBC)
 - Life Safety Code -NFPA 101-2000 and WV State Fire Code Title 87
- All references are directly to IBC unless stated otherwise.

2. Components:

- Use Groups: currently residential.
- Construction Type: 2B.
- Fire and Life Safety System: Smoke Alarm hard wired to monitored system.
- Egress Requirements and Occupancy Loads:
- Occupancy Load Calculations: The building is currently unoccupied and calculations for the proposed rehabilitation are outlined in Section C, Proposed Conditions.
- Egress Width Calculations: The building is currently unoccupied and calculations for the proposed renovation are outlined in Section C, Proposed Conditions.
- Egress Width Calculations: The building is currently unoccupied. Egress calculations should be closely reviewed with a final design solution.
- Fixture Count: Calculations for the proposed renovation are outlined in Section C, Proposed Conditions.

C. CODE ANALYSIS – PROPOSED CONDITIONS

1. Applicable Codes:

- International Existing Building Code 2003,
- International Building Code 2006 (IBC)
- Life Safety Code -NFPA 101-2003 and WV State Fire Code Title 87
- Accessibility Code – 2003 ICC/ANSI A117.1

All references are directly to IBC unless stated otherwise.

2. Use and Occupancy Classification

- i. As found in section 303.1 in IBC 2006, an area having or serving as worship, recreation or other assembly area shall be classified as Assembly type occupancy, Group 'A-3'. The Kump House will be designed using this classification, for the exception of those spaces utilized as sleeping quarters.
- ii. As found in section 310.1 in IBC 2006, an area or building being utilized for sleeping purposes shall be classified Residential. The "bedroom" being utilized as non-permanent, non-transient sleeping quarters will utilize the Residential type, Group R-3 classification for design and construction purposes.

3. Construction Classification

- i. As found in section 602.3, a structure built utilizing exterior non-combustible materials, and the interior building elements are of any permitted material, the construction classification is Type-3. The Kump House, primarily constructed of exterior brick, exterior bearing construction, classifies as Type-3 construction, under this definition.

4. Means of Egress and Occupancy Requirements

- i. As per table 1004.1.2, the maximum allowable occupancy based upon the existing square footage and occupancy classes listed below.
 - i. The basement level and first floor = 303 people
 - ii. The second floor and third floor = 24 people
 - iii. Total Estimated Occupancy = 327 people
- i. As per table 1019.1, the required means of egress for new construction would be 2. However, as found in section 3407.1 the historic designation of this building negates the requirement for two means of egress.
 - a. Use of an approved automatic sprinkler system, in addition to Section 3407.1

should negate the requirement for 2 means of egress.

5. Fire Resistance Rating Requirements

- i. As per table 601, a structure with Type-3 construction utilizing an approved automatic sprinkler system is required to have fire resistance as listed below
 - a. Structural Frame – 0 hr. fire rated construction
 - b. Exterior Bearing walls – 2 hr. fire rated construction
 - c. Interior Bearing walls – 0 hr. fire rated construction
 - d. Floor Construction – 0 hr. fire rated construction
 - e. Roof Construction – 0 hr. fire rated construction
- ii. As stated in 3407.1 it is not a requirement to have a fire separation between the assembly and residential occupancies. However, a smoke barrier should be installed to enclose both stairs.
- iii. Any new construction such as an elevator shafts and mechanical are required to have a 2-hour fire rating.

6. Plumbing fixtures

- i. As per table 2902.1 the existing plumbing fixtures are sufficient except for the items listed below
 - a. Urinals – 1
 - b. Drinking fountains – 1
 - c. Service sinks – 1

7. Accessibility Requirements

- i. All public/main use areas of the building should meet accessibility requirements as found in (ADAAG) ADA Accessibility Guidelines for Buildings and Facilities.
 - a. Shower/bathroom is required for the ADA residential unit to meet accessibility guidelines. As planned the bathroom/shower and sleeping room shall be located on the lower level which is accessible to grade.
 - b. As an alternate, an internal elevator was explored but due to cost and impact to historic structure this was not included in the concept design. The location would general be in the kitchen area and only access 3 of the 4 floors.
- ii. Public restroom is required to meet accessibility guidelines.
- iii. Office/bedroom is required to meet accessibility guidelines.

- iv. Exit/entrance to the building is required to meet accessibility guidelines.
 - i. A minimum of (1) accessible parking space is required and will be located near the building main entrance.

D. ADA ACCESSIBILITY GUIDELINES ANALYSIS: EXISTING BUILDING

The ADA is a civil rights act passed in 1990 to ensure that persons with disabilities are not discriminated against at work (Title I), by state or local governments (Title II), by private businesses (Title III), or in communication (Title IV). Titles II and III have the most impact on historic structures, because compliance often involves altering buildings physically. The intent of the law is to allow people with disabilities to engage in everyday activities such as eating at a restaurant, registering their car or buying an item at the store; ADA provides guidance for accommodations and access equal or similar to that available to the general public. Because the ADA is a civil rights law, it is enforced through civil court cases rather than police action. In addition to the regulations of the act, there are design guidelines to help with compliance. These are the Standards for Accessible Design, often known as the ADA Accessibility Guidelines (ADAAG)* and the Uniform Federal Accessibility Standards (UFAS).

The ADA gives qualified historic buildings more options for compliance and special provisions in some cases. Depending on the use of the building, the standards for compliance vary slightly. Qualified historic structures are not exempt and must comply with the ADA. If it is determined that full compliance will threaten or destroy the historic significance of the structure, then minimum standards may be used. This decision must be made in conjunction with the State Historic Preservation Office (SHPO). If even the minimum standards will threaten or destroy the historic significance of the structure, then alternate methods of access may be used. This option is considered a last resort and is only applicable in rare situations. When alterations are involved, all structures must comply with the ADA design guidelines. For projects using federal money or licensing, then a Section 106 Review must occur. For sensitive repair solutions and help rating accessibility solutions The Secretary of the Interior's Standards for Rehabilitation must be referenced.

In general, when alterations to an existing building are undertaken, each altered element must comply with the technical requirements of the ADA guidelines. Many of the proposed spatial changes are a direct result of ADA deficiencies. Because this project will result partly in rehabilitation and there is a possibility of public funding for the future work, the building

will need to be compliant when completed.

The current building requires a complete and comprehensive approach, if the building is to be converted to accommodate public use. Non-compliant elements include entrances, interior routes, bathrooms, doors, hardware, and fixtures.

The compliance statement below is taken directly from the **1992 Americans with Disabilities Act Accessibility Guidelines (ADAAG) Checklist for Buildings and Facilities.**

Historic Preservation

Alterations to a qualified historic building or facility must comply with ADAAG unless it is determined in accordance with procedures described in ADAAG 4.1.7(2) that compliance with certain requirements would threaten or destroy the historic significance of the building or facility. In such a case, alternative requirements may be used. The alternative requirements are discussed in 28 CFR 36.405 and ADAAG 4.1.7(3) and on the Minimum Requirements Summary Sheet J: Accessible Buildings - Historic Preservation.

ACCESSIBLE BUILDINGS -- HISTORIC PRESERVATION

Alterations to a qualified historic building or facility must comply with the minimum requirements for alterations in 4.1.6. Use the applicable survey forms for new construction for each altered element or space.

If it is determined, in accordance with the required procedures in 4.1.7(2), that the proposed alterations would threaten or destroy the historic significance of the building or facility, the following alternative requirements in 4.1.7(3) may be utilized:

- **Site Accessible Route** - Minimum Number: At least one accessible route complying with 4.3 must be provided from a site access point to an accessible entrance.
- **Ramps** - Slope and Rise: A ramp with a slope no steeper than 1:6 may be used as part of an accessible route to an entrance but the run must not exceed 2 feet.
- **Entrances** - Minimum Number and Primary Entrance: At least one accessible entrance complying with 4.14 and which is used by the public must be provided. If no public entrance can be made accessible, then access may be provided at any entrance which is open (unlocked) when directional signage is provided at the primary public entrance. The alternative accessible entrance must have a notification system, and

where security is a concern, remote monitoring may be used.
Building Accessible Route - Access to Other Floors: Accessible routes from an accessible entrance to all publicly used spaces must be provided at least on the accessible entrance level. Access must be provided in compliance with 4.1 to all levels of a building and facility whenever practicable.

- **Toilet Rooms** - Unisex: If toilets are provided, then at least one toilet facility, which may be unisex in design, complying with 4.22 and 4.1.6, must be provided on an accessible route.
- **Displays**: Displays and written information should be located so as to be seen by a seated person.

If it is determined, in accordance with the required procedures in 4.1.7(2), that it is not feasible to provide physical access to a qualified historic building or facility using the alternative requirements in 4.1.7(3) without threatening or destroying the historic significance of the building or facility, alternative methods of access must be provided. See 36 CFR _36.405(b).

ADAAG Section	Technical Requirements	Existing Deficiencies
Site:		
Entrances Element 4 4.1.7(3) (b)	Historic preservation: At least one accessible entrance complying with this section shall be provided.	Lack of accessible entry. Lift required at front portico to enter. Addition of handrails at entrance steps is required.
Entrances Element 4 4.1.3(8) (a) (ii)	The number of accessible entrances shall be equivalent to the number of exits required by code.	Lack of accessible entry. Additional entries require ramps or other means.
Interior:		
Elevators Element 8 4.1.3(5) 4.1.6(l) (k) (i)	One passenger elevator complying with all sections of Element 8 shall serve each level. This would be generally located in the kitchen at the rear and serve 3 of the 4 floors within the existing building envelop. Service to the fourth floor would require an exterior addition.	Lack of passenger elevator Required for proposed use if public access shall be granted to the Upper Levels or alternant equal accommodations are provided
Accessible Route – Interior	Where not continuous, handrail extensions shall be provided as	No handrail extensions.

Element 7 4.9.4(2) 4.1.6(3)(b)	follows: Top of stair flights: parallel to floor, 12" min. beyond top riser nosing. Bottom of stair flights: continue sloping for one tread width beyond bottom riser, plus 12" min. parallel to floor. Alterations/Existing Conditions Full extensions are not required where they would be hazardous or impossible due to plan configuration.	
Accessible Route – Interior Element 7 4.9.4(5) 4.9.4(3) 4.26.2	Handrails: Height: 34"-38" measured from nosing. Clear floor space bet. rail and wall shall be ½". Diameter of gripping surface shall be 1 ¼"-1 ½", or equivalent.	Non compliant rail clearances and profiles.
Accessible Route – Interior Element 10 4.13.5 4.3.3 4.1.6(3)(d)(i)	Doorways shall provide a clear opening of 32" min. Alterations/Existing Conditions Where it is technically infeasible to comply with clear opening requirements, a maximum projection of 5/8" shall be permitted for the latch side stop (reducing opening to 31-3/8" minimum)	Modifications to existing doorways with alternant hinges or actual widening of openings may be required.
Accessible Route – Interior Element 10 4.13.6	Maneuvering clearances at doorways: Approach to pull side: 18" Approach to push side: 12"	Not compliant in all areas
Accessible Route – Interior Element 10 4.13.8 4.1.6(3)(d)(ii)	Maximum threshold height: ½" Alterations/Existing Conditions If existing thresholds are ¾" high maximum, and have (or are modified to have) a beveled edge on each side, they may remain.	Modifications may be required
Accessible Route – Interior Element 10 4.13.8	Door hardware: lever operated mechanisms, push type, and U shaped handles are acceptable designs. Mounting height shall	Existing hardware is not compliant

	be a maximum of 48" above finished floor.	
Lavatories and Mirrors Element 12.4 4.19.4	Hot water and drain pipes under lavatories shall be insulated or otherwise configured to protect against contact	None existing
Lavatories and Mirrors Element 12.4 4.19.5 4.27.4	Controls shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. Lever-operated, push-type, and electronically controlled mechanisms are examples of acceptable designs	None existing

ADA compliance at the Kump House could be funded by A Community Development Block Grant through HUD. There are many challenges involved in using and reusing historic buildings; satisfying current codes and laws is one of them. The goal is to achieve the highest level of accessibility with the lowest amount of impact on the historic structure. The bottom line is to understand how the reuse of the building is going to drive the requirement of ADA.

ADA modifications to existing buildings can come in many forms. As an example, installing an elevator in a historic house museum to provide access to the second floor bedrooms could destroy architectural features of historic significance on the first floor. Providing an audio-visual display of the contents of the upstairs rooms in an accessible location on the first floor would be an alternative way of achieving program accessibility.

In any case, although the historic preservation exception to the ADA relaxes accessibility requirements, it does not eliminate all requirements. The exception cannot be used as a loophole to deny access to people with disabilities. Every building must meet at least the minimum requirements or create "innovative alternatives" to provide access.

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5. ENVIRONMENTAL SUSTAINABILITY RECOMMENDATIONS

A. SUMMARY

B. KEY PRINCIPLES

C. KEY COMPONENTS

D. SUSTAINABILITY IMPLEMENTATION PROCESS ISSUES

A. SUMMARY

Sustainable design and construction practices are integral components comprising the rehabilitation of the Kump House. The holistic approach – balancing health and ecological concerns – strives to integrate strategies that improve energy efficiency, minimize water usage, conserve resources and materials, minimize demolition waste, and improve indoor environmental quality. These practices will improve the conditions of the built environment consistent with the owner's budget and program. Many sustainable practices can be implemented with strong benefits and little cost to the project.

Sustainable design embraces a broader perspective of the design process as well as the implications for the environment. The financial consequences concerning life cycle costing are significant. Studies have shown that over the thirty-year life of a building, design and construction represented only two percent of the total cost. Operations and maintenance constitute an additional six percent. The remaining ninety-two percent is comprised of occupant's salaries. The message is two-fold. First, improvement to the efficiency of the building design and operations are a rather insignificant cost over the long term. Second, improving environmental quality for workers can have a dramatic result on their performance.

The act of rehabilitating an old structure for a new use is a highly sustainable act. The approach for the Kump House balances the often divergent and competing interests of a project by capitalizing on the interdependencies and integration of the various elements comprising the process and product. The plan, outlined below, strikes a balance between sustainability strategies, user objectives, budget, and schedule.

The sustainable design plan will be implemented in a number of ways and requires participation of all members of the building team: owner, developer, product manufacturer, architect, engineer, builder, and facilities manager. The rehabilitation and restoration design will be based on the strategies recommended here. All recommendations cannot be carried out, but this analysis demonstrates the possibilities for success and the design team will work with the owner to insure that a majority of the strategies recommended are accomplished. Note that these strategies relate primarily to the construction period of the life of the building. The analysis adds maintenance issues and suggestions when possible. Together, the recommendations of the plan serve as a guide to keep the building within the set goals during and after construction.

The method in which a site is developed has great impact on sustainability. There are opportunities with the Kump House site that will

contribute to the overall well-being of the property, as well as the community. In the proposed concept design, the new commercial building has the potential to utilize not only energy efficiency and environmentally friendly materials and methods, but also can utilize its exterior construction.

B. KEY PRINCIPLES

In general, our sustainability plan for the Kump House will:

1. Improve Energy Efficiency
2. Minimize Water Usage
3. Conserve Materials and Resources
4. Enhance Indoor Environmental Quality
5. Minimize Construction Waste
6. Reduce Solid Waste by Composting

Specific components of the plan fall within these broad objectives. Key process questions related to implementation of these strategies include:

- When are specific components implemented?
- Who is responsible for each component?

C. KEY COMPONENTS

The specific components of the plan are delineated below. These components are described in further detail in paragraph descriptions following each component.

1. Improve Energy Efficiency

- a. Use high efficiency electronic fluorescent lamp ballasts with automatic dimming capabilities.
- b. Lower assessment of electrical loads.
- c. Use high efficiency mechanical equipment and variable speed motors.
- d. Maximize natural ventilation and passive airflow design into the building.
- e. Increase thermal performance of glazing units, restored or new.
- f. Optimize natural day lighting by maximizing exposure of the existing windows.
- g. Reassess and improve R-value of building envelope.
- h. Improve infiltration value of exterior doors and windows.
- i. During construction and installation, keep insulation dry.
- j. Provide for improved individual climate control by occupants and building management.

- k. Where possible, install appliances with Energy Star efficient appliances, vending machines, copiers, fax machines, and office equipment.
- l. Incorporate renewable energy sources.

As a point of reference, the annual energy cost in Federal buildings is approximately \$1.23 per square foot. Given the large number of Federal and DOD buildings, reducing this number even marginally has significant impacts to reducing energy costs and waste.

There are many opportunities for the project and the community of Elkins to take advantage of government incentives to conserve energy. The U.S. Department of Energy has a program in place called **Rebuild America** that can be found on the World Wide Web at <http://www.eren.doe.gov/buildings/rebuild/>. The advantage of Rebuild America is that it expands beyond the building to encompass a variety of issues such as transportation, economic and community development, urban sprawl, and sustainability. Rebuild America promotes a network of partnerships that can assist a community to be more environmentally and economically sound through smarter energy use in buildings.

The State of West Virginia sponsors the program **Rebuild West Virginia** which promotes the **National Rebuild America Program** through its own Main Street Program (serving Main Street communities). The Main Street program is based on establishing community partnerships to improve and revitalize downtown districts. Through this program, projects are identified to retain and/or attract businesses and people to downtown locations.

The design team will work to utilize high efficiency equipment and recommends the use of variable speed motors for the HVAC and electrical equipment. Further, the design team will work to provide a lighting plan that incorporates both task lighting and indirect lighting to achieve required lighting levels. In turn, this will also reduce overall electrical loads. Another approach to sustainability maintains that too much redundancy is built into overall electrical assessments for many projects. The rehabilitation allows for some potential increase in window and door performance, glazing improvements, and potential day lighting improvements. Any appliances and equipment to be installed should have an Energy Star rating. The microclimate in which a building exists can have a large impact on heating and cooling loads.

Geothermal energy is a clean renewable energy that is accessed by drilling water or steam wells into the earth's subsurface, where

temperatures are maintained at somewhat constant temperatures throughout the year. Such a source is highly reliable, as the US Department of Energy estimates 95% availability). Implementation of geothermal heat pumps (ground source heat pumps) can be used for space heating and water heating. These systems work by transferring heat from the subsurface to the occupied space, or from the occupied space to the earth's subsurface; the conditioned air can be distributed throughout space with conventional ductwork. The DOE shows that ground source heat pumps use 25-50% less electricity than conventional heating and cooling systems. Additionally, the EPA states that ground source heat pumps can reduce energy consumption—and emissions—up to 44% compared to air source heat pumps and 72% compared to electric resistance heating.

Advantages of such technology in the Kump House range beyond energy savings. Geothermal energy systems traditionally have fewer moving parts and have less hardware requirements and space requirements than conventional HVAC, freeing up space for productive use.

Other forms of technology allow for additional renewable energy sources to be accessed. Solar roof shingles store energy from the sun and provide pollution-free power while lowering the cost of energy. As they assume the pattern of traditional asphalt shingles, they easily blend in with the architectural style of buildings and homes. Solar roof shingles are suitable for renovation and for new construction; they do not require support structures. Given the solar orientation of the roof surfaces and the changing technology related to solar panels, the option of individual panels on an array would be a better investment of resources and allow for phased installation.

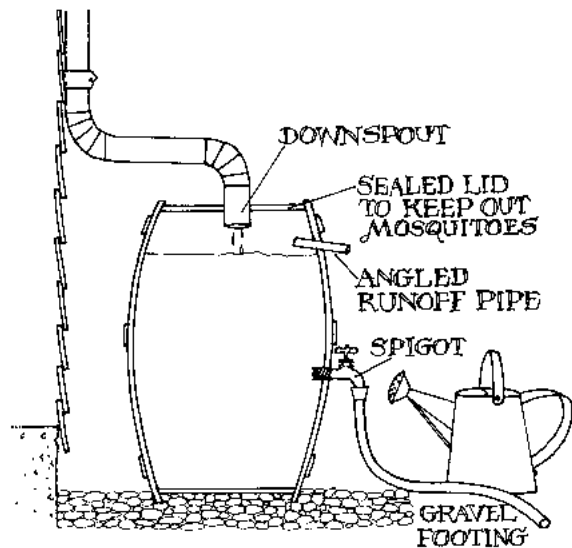
Green roof systems can be added to existing roofs to lower the cost of energy by helping to maintain temperatures within buildings. Once established, the extensive green roof system grows successfully with minimal care. It consists of several light layers: High quality water proofing and root repellant system, a drainage system, filter cloth, a lightweight growing medium and low-maintenance vegetation. The design of an extensive green roof helps to absorb rainwater and provide insulation to a building, while creating a habitat for wildlife and helping combat the harmful effects of air pollution. Incorporating green roof systems into the design of structurally-sound, future additions of the Kump House would benefit not only the historical home, but also the Elkins environment as a whole. The existing roofs are not suitable for retrofitting of the green roof system.

2. Minimize Water Usage

- a. Install low water and low-flush plumbing fixtures.
- b. Insulate water pipes to retain temperature values of water supply.
- c. Design building to use treated wastewater for non-potable uses.
- d. Make use of gray water recovery systems when feasible.
- e. Educate building management and occupants about water conservation.
- f. Install waste heat recovery system.

Water usage in the United States has been taken for granted over the past forty years. Americans have become accustomed to a luxurious supply of clean treated water. There are huge savings to be found in reduced water consumption within any facility, especially when a large restroom facility serves an assembly component. Care will be given to provide a proper plumbing system to handle the load of this facility. This care will pay off with significant impacts on costs and waste. The design build team should install water-conserving fixtures that in aggregate use twenty percent less water than the water usage requirements in the *Energy Policy Act of 1992*.

Water can be conserved by building management and occupants through the installation of one or more rain barrels on the Kump House property. Rain barrels would minimize water usage as they would collect and store rainwater from the roof and downspouts of the house. The water could then be designated for future uses such as watering the property's lawn and gardens.



3. Conserve Materials and Resources:

- a.** Provide properly sized recycling areas and services in new facility program.
- b.** Use salvage and refurbished materials where possible.
- c.** Use recycled content materials where possible.
- d.** Use sustainable wood products.
- e.** Use local materials.
- f.** Do not use products with CFCs and HCFCs.
- g.** Use low maintenance materials and systems.

Almost seventy percent of the total energy invested in the construction of a building is embodied in the materials themselves. Embodied energy is the energy required to extract, transport, process, install, and dispose or to recycle the materials that make up the building. Working with the proposed budget, the design team will seek to minimize the amount of embodied energy required for this project. The design team shall investigate the retrofitting

In addition, how the building is operated can reduce the consumption of resources through facilitation of recycling for building occupants. The design team will work with the owner to develop an appropriate plan for occupant recycling by defining recycling areas on the plans that are convenient and appropriately placed. The design/build team will also strive to designate and provide a centralized basement location for collection and storage of materials separated from each other for recycling. This program should include proper disposal of newspapers, glass, metals, plastics, organic waste, and dry waste.

The design team will also specify building products that meet definable recycled content. The design team will target a minimum of twenty percent of materials (as calculated by total materials cost, exclusive of costs for mechanical, electrical, plumbing systems, labor, overhead fees, etc.) that contain at least a minimum of twenty percent post-consumer recycled content or a minimum of forty percent post-industrial recycled content. Specific building products that should be specified to meet these objectives include ceiling tiles, gypsum board products, and carpeting.

The design team will specify that at least five percent of total building materials will be salvaged or refurbished, and that a minimum of twenty percent of building materials be manufactured within three hundred air miles or the building site. The design team will also specify that wood products be procured from sustainable forests.

4. Enhance Indoor Environmental Quality:

- a.** Follow a construction indoor air quality management plan.
- b.** Use Low or no VOC materials.
- c.** Install a permanent air monitoring system.
- d.** Follow filtration requirements of ASHRAE 62.
- e.** Work to keep building relative humidity below sixty percent.
- f.** Design ductwork to allow easy access for cleaning.
- g.** Provide special envelope and mechanical detailing for spaces with high-moisture sources.
- h.** Design entry to facilitate removal of dirt before entering building.
- i.** Utilize external duct insulation rather than internal.
- j.** Minimize sound transmission between rooms with appropriate detailing and material densities.
- k.** Encourage and enforce construction crew safety concerning indoor air quality.

The cornerstone to improved environmental quality is the successful implementation of an Indoor Air Quality (IAQ) Assurance Plan. Broadly, this plan will address IAQ during construction, start-up/ commissioning, and operation and maintenance. The Construction IAQ Plan shall conform to the Sheet Metal and Air conditioning Contractors National Association (SMACNA) *IAC Guidelines for Occupied Building under Construction*. In doing so, the following practices will be implemented during construction to ensure indoor air quality is not compromised:

- The project site shall be kept as clean as possible at all times. Materials and waste for recycling, re-use, and disposal shall be removed to the temporary holding areas routinely throughout the day. Dust control measures shall be employed in the building at all times. Regular mopping and sweeping; cart and shoe cleaning station.
- Inspection of equipment, filters, ducts, and conduits for debris prior to their entry into the building; storage of materials off the ground and covered; temporary exhaust and ventilation, are all measures to be employed during construction.
- The floors and/or areas being rehabilitated shall be kept isolated from those areas that are occupied or connected. Plastic sheeting will be installed at all accessible locations between occupied and rehabilitated spaces.
- Newly installed ductwork shall be cleaned and sealed after the installation of each successive duct run. Where new ductwork is incorporated into the temporary ventilation system during construction regularly changed high efficiency filters shall be

temporarily installed to keep contaminants from entering the duct systems and air handling equipment. Branches of new ductwork not needed for temporary ventilation shall be isolated.

- After construction, but prior to occupancy, all ventilation system components, including ductwork, louvers, intakes, plenums, and equipment that have been exposed to potential contaminants shall be purged and cleaned.
- During construction, building openings shall be sealed with temporary plastic coverings and temporary ventilation fans and louvers shall be installed to continually exhaust building spaces, to provide fresh air intake, and to prevent water infiltration that can lead to damaging mold growth.
- A minimum of 85 percent filtration, as determined by ASHRAE Standard 52.1-1992, shall be provided on the return sides of temporary and permanent ventilation systems and equipment used during construction and commissioning.
- All filters shall be replaced prior to occupancy.
- Temporary positive/negative air pressure zones shall be created in the building rooms and corridors to protect finished spaces from contaminant infiltration should the HVAC system not be in full operation upon completion of building finishes.

Equally important to construction and related to IAQ practices are those related to commissioning and facility operation. Commissioning the building with full system trials to verify that the HVAC systems are operating according to design intent is critical to air quality. Related to this issue, premature occupancy of new facilities is one of the most common causes of poor IAQ.

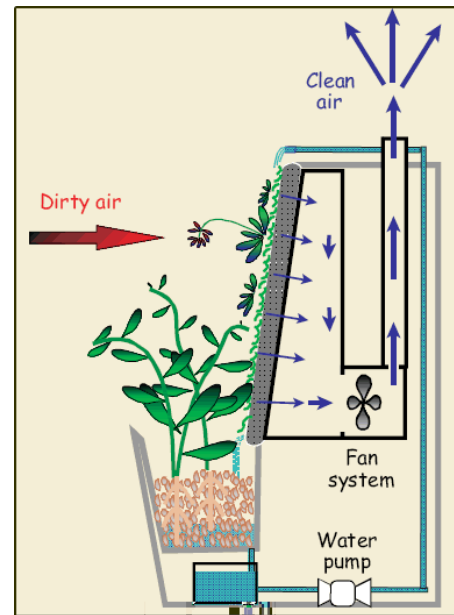
The systems commissioning plan should be developed in conjunction with the owner's operational and maintenance personnel. Operations and Maintenance manuals (OMSI manuals) should include the commissioning plan, testing and trial reports, and acceptance documentation.

After commissioning and during building occupancy, air quality should be monitored over time. It is recommended that a permanent air monitoring system be installed which will have the capability to monitor supply air, return air, and ambient air at the fresh air intake for carbon monoxide, carbon dioxide, total volatile organic compounds (TVOCs), and particulate.

A green wall system could help maintain the supply of fresh air entering and circulating through the Kump House.

Active living walls, a type of green wall, work to purify indoor air quality as they draw air through the root system of green walls in which beneficial microbes actively degrade pollutants. Fresh air is then released into the interior of a building.

The installation of one or more active green walls in the Kump House would help enhance the indoor environmental quality of the home through a sustainable approach.



Another critical component to IAQ is the reduction and elimination of volatile organic compounds (VOCs). These carbon-based chemicals that evaporate easily and emit vapors cause irritation of the skin, upper airway, eye, nose, and throat; and cause headache and erythema.

Consistent with Green Building Council criteria, the design-build team will comply with the following as they relate to the reduction of VOCs:

- Adhesives: Rule 1168, South Coast Air Quality Management District
- Sealant: Regulation 8, Rule 51, Bay area Air Resources Board
- Paints and Coatings: Title 7, Chapter 27, Subchapter 23, New Jersey State Department of Environmental Protection.

5. Minimize Construction Waste

- a. Require a construction waste management plan from contractor.
- b. Require subcontractors to keep their wastes separate for easy disposal.
- c. Keep materials dry during construction and prior to installation.
- d. Reuse existing materials where possible.
- e. Avoid composite materials in new products to be installed where possible.
- f. Ensure proper site management of soil disturbance.

In addition to design-oriented green building practices, it is also important to implement a sustainable approach during the

construction process. The contractor should prepare a Construction and Demolition Waste Management Plan that will mandate waste recycling. The goal of the plan is two-fold. First, minimize negative impacts to the immediate environment during construction. Secondly, to cost-effectively minimize construction and demolition waste sent to landfills and incinerators.

The design team will require a Waste Management Plan predicated on a "waste management hierarchy" that prioritizes in descending order the action to be considered: (1) reduce; (2) reuse; (3) recycle; (4) composting; (5) burning; and (6) landfill. The construction Waste Management Plan shall include the following requirements:

- Assign staff responsible for waste reduction and management.
- Perform a waste audit.
- Establish contacts and relationships with recycling companies.
- Define locations of recycling bins and define who will claim waste.
- Separate waste at site for recycling.
- Educate employees and subcontractors about recycling.
- Establish defined area of operations of each trade.

Preparing for new construction in this project necessitates a significant selective demolition of the existing facility. Therefore, the project offers abundant opportunities for recycling and reuse of demolished building components. Some potential materials resulting from demolition include:

- Metals, including ductwork, conduit, rebar, and piping.
- Gypsum board
- Dimensional lumber
- Brick
- Carpet and padding
- Plastics
- Copper wiring
- Mechanical and electrical products and equipment
- Miscellaneous packaging materials

The contractor should separate as much debris for recycling at the project site as possible to reduce multiple-handling operations. A secured and contained temporary holding area should be established for clearly marked recycling containers, dumpsters, etc. A Quality Control Manager should, on a daily basis, monitor the accumulated material. In turn, the material that cannot be recycled should be effectively separated, classified as trash, and taken to a construction debris landfill or incinerator.

During design, the design team should study uses for anticipated demolished and construction waste materials for incorporation into new construction as re-used materials. The design team's demolition construction documents should broadly designate materials for recycling and will serve as guidance for the demolition process.

During the construction process, all stormwater drains should be properly protected to prevent any site run-off. Efforts to keep the construction site properly enclosed should be routinely enforced by the staff members who oversee the Waste Management Plan.

6. Reduce Solid Waste by Composting

- a. Define separation of biodegradable organic materials from waste and recyclables
- b. Define and provide location of properly sized composting areas
- c. Educate employees, owners, and occupants of composting benefits
- d. Designate an individual to administer the separation, placement, and monitoring of the compost areas.
- e. Use decomposed materials to enrich soil of local vegetation on site

Additionally, the Kump House should take advantage of unused plant, animal, and other organic materials that can be decomposed into a rich fertile additive to soil. Furthermore, such salvation of biodegradable organic materials also serves as solid waste management. This composting area shall be located in the site master planning.

Effective materials used for composting include:

- chicken, horse, goat, and sheep manure
- food materials (fruits, vegetables, coffee grounds, seafood, eggshells, and other shells) and
- garden materials (leaves, grass clipping, etc.).

Such soil can then be used to support on site planting, vegetation, and ground cover. It could also add an educational component to the establishment of an on-site community garden and/or restored orchard as those involved in the planting would learn more about the compost process. This process can be best initiated by using readily degradable materials first that will oxidize more quickly, however, given time, all biodegradable materials will oxidize to compost.

The United States Department of Agriculture shows that composting speeds the process of organic decomposition by providing an ideal environment for bacteria and other decomposing microorganisms, leaving behind vital nutrients that help plants grow and look better. Such an environment serves as an alternative to a clustered, emitting landfill.

In the compost process, it is advisable to leave out pet droppings, meat scrap, and dairy products because most small composting systems are not kept at proper temperatures to eliminate pathogens, disease vectors, and vermin. For best results, the USDA recommends mixing a good supply of materials high in nitrogen (grass clippings, horse manure, etc.) with materials high in carbon (dried leaves and twigs) and maintaining a damp environment (that naturally occurs with rainfall).

D. SUSTAINABILITY IMPLEMENTATION PROCESS ISSUES

Key process issues related to successful execution and integration of a sustainability plan are a concern when the components of the plan are implemented. Equally as important is who will be responsible for those components. These process issues are an important component to integrated sustainability in the design and construction process. Tracking sustainability measures in this regard ensures their timely execution and commissioning for operation of the facility.

The matrix below delineates the specific sustainability measures for this project. It also defines when, during the design process, each element is implemented. It also defines who on the design-build team or owner is responsible for the specification (S) and implementation (I) of each component. This approach will serve as a guideline and framework throughout the design-build process.

Sustainability Components	When Implemented?					Who is Responsible?				
	Schematics	CDs (Design)	Construction	Commissioning	Operation	Manufacturer	Architect	Engineers	Builder	Facility Mgmt
A. Improve Energy Efficiency										
1. Use High Efficiency Flour. Fixtures	S	S	I			I		S	I	
2. Lower Assessments of Electrical Loads	S	SI						SI		
3. High Efficiency Mechanical Equipment	S	SI				I		SI	I	
4. Maximize Natural Ventilation	S	SI						SI	I	
5. Increase Thermal Performance of Glazing	S	SI				I	SI		I	
6. Optimize Daylighting	SI	SI					SI			
7. Improve Building Envelope R-Values	SI	SI					SI		I	
8. Improve Building Envelope Infiltration Value	S	SI			I		SI		I	I
9. Keep Insulation Dry			I						I	
10. Provide Individual Control of Mechanical	SI	SI						SI	I	
11. Use Energy Efficient Appliances	SI	SI	I	I	I	I	S	S	I	I
B. Minimize Water Usage										
1. Use Water Conserving Fixtures		S	I			I	S	S	I	
2. Insulate Water Pipes	S	S	I					S	I	
3. Use Waste Water for non-potable Uses	I	I					I	I		I
4. Investigate Gray Water Recovery System	I	I					I	I		I
5. Educate Staff on Water Conservation				I	I					I
6. Install waste Heat Recovery	S	SI		I	I			SI	I	I
C. Conserve Materials and Resources										
1. Provide Recycling Areas	SI	SI			I		SI		I	I
2. Use Salvaged and Refurbished Materials		S	I			I	S	S	I	
3. Use Recycled Content Materials		S	I			I	S	S	I	
4. Use Sustainable Wood products		S	I			I	S		I	
5. Use Local Materials	SI	SI	I			I	SI	SI	I	
6. Don't Use Products with CFCs or HCFCs	SI	SI	I		I	I	SI	SI	I	I
7. Use Low Maintenance Materials	S	S	I			I	SI	SI	I	I

D. Enhance Indoor Environmental Quality										
1. Implement Const. IAQ Management Plan		S	SI	I	I		S	S	SI	I
2. Use Low or no VOC Materials		S	I				S		I	I
3. Install Permanent Air Monitoring System		S	I	I	I			S	I	I
4. Maintain Filtration Levels: ASHRAE 62		S	I	I				S	I	I
5. Keep Build. Relative Humidity Below 60%		S		I	I			SI	I	I
6. Easy Access to Maintain Clean Ductwork		S				I		SI	I	I
7. Provide Mechanical for High Moisture Areas	S	S	I		I			SI	I	I
8. Design Entry for Proper Dirt Removal	SI	SI	I				SI		I	
9. Utilize External Duct Insulation		SI						SI	I	
10. Minimize Sound Transmission	S	SI					SI		I	
11. Encourage Construction Safety IAQ	S	S	I				S		I	
Sustainability Components	When Implemented?					Who is Responsible?				
	Schematics	CDs (Design)	Construction	Commissioning	Operation	Manufacturer	Architect	Engineers	Builder	Facility Mgmt
E. Minimize Construction Waste										
1. Implement Const. Waste Management Plan		S	SI	I					SI	I
2. Require Subcontractor to Separate Waste	S	S					S	S	SI	I
3. Keep Materials Dry During Installation	S	S					S	S	I	I
4. Reuse Existing Materials	S	S	I				S	S	I	I
5. Avoid New Composite Materials	S	S	SI	I		I	S	S	I	I
F. Reduce Solid Waste by Composting										
1. Define separation of biodegradable organic materials	S				SI		S			I
2. Provide location of properly sized compost areas	S				SI		S			I
3. Educate employees, owners, and occupants of composting benefits	S				SI		S			I
4. Designate individual to administer compost activities	S				SI		S			I
5. Use decomposed materials to enrich soil	S				SI		S			I

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6. PLANNING RECOMMENDATIONS

A. SUMMARY

B. PROGRAMMING METHODOLOGY

C. REUSE ALTERNATIVES

D. PROPOSED SPACE PLAN

A. SUMMARY

1. Introduction

In addition to facility and code reviews, this study includes an assessment of building program and function. The purpose of this review and assessment is to provide background information that will help to determine future and current facility needs from a spatial perspective.

2. Programming Methodology

Through several meetings, the design team was able to assess the building functionality and space needs, as envisioned by the client. Concurrent with this process, was the evaluation of compliance with current and applicable codes (Located in Chapter 4). The coordinated effort of programming, code review, and historic treatment zones identification, guided the recommendations for conceptual design.

3. Meeting Findings

From the meetings and assessments, the following list of issues surfaced:

- Identify historic treatment zones.
- Identify facility space uses and possible tenants.
- Maximize lease space with sensitive development and reuse the building as a cultural resource for the state and city.

4. Programming Opportunities and Constraints

In response to the assessed functional, code, and facility challenges, the design team developed the concept plan. The plan is based upon the best current information with respect to:

- Code and regulatory conformance including ADA.
- Sensitive development respective of context.
- Preservation of key historic spaces and components.
- Compliance with *The Secretary of the Interior's Standards*.

Proposed space plans were developed based upon team discussions and meetings. The resulting concepts were incorporated where possible. Some initial items were discarded after code review. The following concepts are based upon general design principles and best practices but do not represent refined design solutions. Components of the design solutions contain:

- Educational Center
- Community Reception Space
- Meeting Rooms
- Non-Profit Headquarters/Office
- Transient sleeping quarters
- Exhibit Areas

This reuse for this property has unique opportunities and constraints as dictated by the Will of the late Mary Gable Kump. Mary Gamble Kump, the last surviving child of West Virginia's 19th governor, H.G. Kump, died April 11, 1962 at the age of 92. In her will, she gives the city of Elkins the option of first refusal and the Randolph County Commission second refusal. If both decline to take the property, would be sold.

The will also stipulates how the property may be used: A residence hall for those who promote educational purposes; or as a camping and recreational area for the youth of Randolph County.

According to Kump's will, the house and about 6.5 acres have been left to the city of Elkins. The city had 120 days from the date of her death to accept the trust, at which time the offer goes to the Randolph County Commission, who had 180 days to accept or refuse the property. If neither the city nor county had accepted the trust, the Kump house and property will be sold for full fair market value at a public or private sale and the proceeds will be divided to those named in the will.

The will also sets up the Kump House Trust, which would provide funding for maintenance and repairs to the house. Co-trustees named in the will are the mayor of Elkins; Randolph County prosecuting attorney; judge of the 20th Circuit Court of West Virginia; president of Davis & Elkins College; and the pastor of Davis Memorial Presbyterian Church. If any of the co-trustees are unable or unwilling to serve, the remaining trustees may appoint a pastor of a church located in the city of Elkins as a successor.

According to Kump's last will and testament, it was her desire to promote educational purposes for the benefit of Randolph County teachers and youth.

"I desire that the Kump House itself be used as a residence hall for such teachers and professors to promote educational purposes," the will states. "My co-trustees may, as they deem necessary in their sole discretion, require teachers and professors to pay the minimum amount necessary to defray expenses involved in using the Kump House as such a residence hall for said teachers and professors."

Also, the will states, "it is my desire that every child in Randolph County have a nice, safe place to go to enjoy activities that promote good citizenry development; thus, I desire the environs of the Kump House and other improvements thereon, excluding the Kump House itself, be used as facilities for camping and other recreational purposes for such groups as the Boy Scouts of America, Girls Scouts of America, 4-H clubs and other youth groups properly chaperoned, whether those groups be for religious,

educational or for other good citizenry development purposes for every child of Randolph County during his or her minority." Although the house may not become a residence hall for educators, it will be used to promote educational purposes.

B. PROGRAMMING METHODOLOGY

Meetings were utilized to define the extent and scope of work necessary. It is important to identify the components required to provide the project direction and ultimate programming elements that can be tested in concept designs. The following components were identified:

1. Cost and Potential for Revenues

In order to maximize the potential for future public and private funding, it is important to demonstrate that projects such as the Kump House reuse and rehabilitation can be done in a cost-effective and financially responsible way. If state and federal tax credits and grants are desired, any work on the building must comply with the appropriate sections of *The Secretary of the Interior's Standards* relevant to the work and would require a private partner to be the recipient of the credits..

Regardless of the type and method of funding, grants, bonds, private fundraising, tourism, tax incentives, endowments, the possibility of phasing the project over time could prove to be effective, but will increase the construction cost and would not account for the lost opportunity costs. Phasing of the project could yield additional benefits of growing the stakeholder base and user groups that would benefit from the completed project.

Covering the operational costs for the Kump House will be a challenge and be highly dependent on its future use. The building infrastructure, staff, and ongoing general maintenance, are costs that are necessary just for the day-to-day operation of the building. Beyond this are costs that are reliant on its use, such as varying insurance costs dependent on the service provided, exhibit space maintenance and security, specialized climate controls, additional infrastructure such as high grade kitchen appliances, and event or office furnishings.


A residential unit for a caretaker could be rented for a minimal amount and provide ongoing oversight for the property. The transient residential rooms can be rented as part of the programmatic use. Teacher conference and retreat center or home for student teachers. Other rentals may be possible when teacher groups are not there. Revenues from the potential use of the building will cover some of these costs, but it is necessary to first perform a market study that will help to isolate the best and most economically viable and sustainable solution, dependent on

the needs of the people of Elkins and its surrounding areas. This study would also involve a building performance and business plan to understand the cost centers associated with the facility.

An example of a non-profit monthly cash flow spreadsheet is below that would be part of the overall business plan and performance for the project.

**NONPROFIT
PROJECTED MONTHLY CASHFLOW**

This form is meant to serve as a guide. We need this information for our credit evaluation but you may use whatever format works for you. Feel free to write over the months to make it fit your fiscal year or some other relevant time frame. If you prefer to fill this out on your computer, you can download it in Excel from the Applications page at www.self-help.org.



NAME OF ORGANIZATION _____

Money Received per Month	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
1 Grants Anticipated (please sort by month expected and indicate with an * which grants are committed):													
2 Beginning Cash Balance		0	0	0	0	0	0	0	0	0	0	0	0
3													0
4													0
5													0
6													0
7													0
8													0
9 Individual donor contributions													0
10 Special events													0
11 Service/fee revenue													0
12 Other revenue (list):													0
13													0
14													0
15													0
16 TOTAL REVENUES:	0	0	0	0	0	0	0	0	0	0	0	0	0
Money Spent per Month													
17 Grants and allocations (made by your organization)													0
18 Staff salaries/benefits													0
19 Payroll taxes													0
20 Professional fundraising fees													0
21 Accounting and legal													0
22 Supplies (office, cleaning, food, program)													0
23 Telephone													0
24 Postage and shipping													0
25 Mortgage or rent (please circle which one)													0
26 Utilities													0
27 Property taxes													0
28 Insurance (hazard, liability, vehicle, D&O, other)													0
29 Equipment rental and maintenance													0
30 Printing and publications													0
31 Travel													0
32 Conferences, conventions, and meetings													0
33 Advertising													0
34 Staff development and training													0
35 Non-Self-Help loan payments													0
36 Self-Help loan payment (if not included in line 34)													0
37 Other expenses (please list)													0
38													0
39													0
40 TOTAL EXPENSES	0	0	0	0	0	0	0	0	0	0	0	0	0
41 Total cash flow (line 16 minus line 40)	0	0	0	0	0	0	0	0	0	0	0	0	0
End Cash Balance	0	0	0	0	0	0	0	0	0	0	0	0	0

This example comes from www.self-help.org/

2. Funding Resources

This section describes various funding sources that may be available for the projects outlined in the plan. This is not a comprehensive list of sources and additional sources may be available. Additional research will be required to determine which sources are appropriate and available for a particular element of the plan.

Historic Tax Credit – The Federal Historic Preservation Tax Incentive program is one of the most successful community revitalization programs. The Preservation Tax Incentive promotes private investment in rehabilitating historic properties such as offices, rental housing, and retail stores. The program allows a 20% tax credit for certified rehabilitation of certified historic structures. The 20% rehabilitation tax credit equals 20% of the amount spent in rehabilitation. The rehabilitated property must be

income producing (although the State of West Virginia has a historic tax credit program for personal residences) and requires the involvement of an entity that has a tax liability.

Funding Available through the National Trust Preservation Fund

The National Trust Preservation Fund includes funds that provide two types of assistance to nonprofit organizations and public agencies: 1) matching grants from \$500 to \$5,000 for preservation planning and educational efforts, and 2) intervention funds for preservation emergencies. Matching grant funds may be used to obtain professional expertise in areas such as architecture, archeology, engineering, preservation planning, land-use planning, fund raising, organizational development and law as well as to provide preservation education activities to educate the public.

The National Trust Loan Fund (NTLF) has more than 35 years of experience in supporting preservation-based community development projects across the country. As a certified Community Development Financial Institution, it has a mission of providing financial and technical resources to organizations that use historic preservation to support the revitalization of underserved and distressed communities.

The National Trust Community Investment Corporation (NTCIC), makes equity investments in the rehabilitation of historic properties eligible for the 20% federal historic rehabilitation tax credit, and where available, state historic tax credits and the New Markets Tax Credit (NMTC). NTCIC invests in projects that have at least \$6.0 million in total development costs and that generate at least \$1.5 million in historic tax credit equity. Smaller deals will be referred to the Small Deal Fund for equity investment consideration. Tax-exempt nonprofit organizations and public-sector developers may be eligible for an NTCIC equity investment by creating a limited liability partnership. NTCIC has a special interest in those projects with a high community benefit.

Save America's Treasures The Kump House Trust has submitted an application through the offices of the second congressional office for an earmarked Save America's Treasures Grant. This earmark has not been fulfilled to date and a competitive approach is an option if national significance of the property can be documented.

Established by Executive Order in 1998, Save America's Treasures (SAT) is a public-private partnership that includes the National Trust for Historic Preservation, the National Park Service, the President's Committee on the Arts and Humanities and the federal cultural agencies. The program celebrates America's great historic and cultural legacy by identifying and raising resources to preserve historically significant sites and collections. Each year, Save America's Treasures federal challenge grants are awarded to eligible historic resources for approved preservation activities.

These grants help fund preservation and/or conservation work on nationally significant intellectual and cultural artifacts and nationally significant historic structures and sites. Eligible applicants include non-profit, tax-exempt 501(c), U.S. organizations, units of state or local government, and federally recognized Indian tribes. Grants are awarded through a competitive process and require a dollar-for-dollar, non-federal match. The minimum grant request for collections projects is \$25,000 federal share; the minimum grant request for historic property projects is \$125,000 federal share. The maximum grant request for all projects is \$700,000 federal share.

Small Cities Block Grant – The SCBG program provides federal Department of Housing and Urban Development funds for community and economic development projects through the West Virginia Development Office. This is a primary source of funding for downtown revitalization projects that benefit low to moderate income citizens and/or eliminates conditions of slum and blight.

Transportation Enhancement Program – The program provides Federal Transportation Funds through the West Virginia Division of Transportation for a variety of projects including, beautification projects, streetscape improvements, trail development, and historic preservation if there is a specific transportation link, i.e. railroad stations.

Governor's Community Development Partnership Grant - This grant provides supplemental assistance for public facilities and community development projects for which other funding is not available. The governor has very broad discretion on use of the funds. Available funding varies from year to year depending on legislative action as does the grant amounts however; grants generally range from \$20,000.00 - \$50,000.00.

West Virginia Division of Culture and History Historic Preservation Grants - Development grants are available for restoration, rehabilitation, repair of historic properties that are listed or eligible for listing on the National Register of Historic Places. These are generally smaller grants, \$10,000 - \$50,000. A 50% match is required. Available due early spring. Survey and Planning Grants cover a wide variety of historic preservation issues, but are only available to members of the Certified Local Government (CLG) Program. Projects fall into several categories: Archaeological Development, Archaeology, Comprehensive Planning, Heritage Education, National Register, Predevelopment and Survey. Eligibility, match requirements and funding priorities vary for each category. Availability of applications are due October 31, 2010.

USDA – Rural Development USDA-RD has a range of loan and loan guarantees and some grant funds for community facilities and private

developments. The USDA-RD has community facilities loan programs; limited grant funds are sometimes available for government and community-based organizations at favorable terms. USDA-RD also has a loan guarantee program for private sector projects. Population limits for the availability of the funds varies with the programs however most have a maximum population limit for the community of 20,000.

Economic Development Administration and Appalachian Regional Commission – These federally funded programs are primarily designed to assist economic development projects. However, if a significant job creation element with a firm commitment can be identified, they can be utilized in downtown revitalization efforts. Appalachian Regional Commission funds generally have a broader perspective on economic development and sometimes can be used for more general preservation projects that are in support of economic development.

Small Business Administration (SBA)– SBA has several financial assistance programs for small business, particularly loan guarantee programs. In addition, Parsons is eligible for designation as an SBA HUBZone. The HUBZone Program stimulates economic development and creates jobs in urban and rural communities by providing Federal contracting preferences to small businesses. These preferences go to small businesses that obtain HUBZone (Historically Underutilized Business Zone) certification in part by employing staff who live in a HUBZone. The company must also maintain a "principal office" in one of these specially designated areas.

AMERICANS WITH DISABILITIES ACT AND TAX INCENTIVES

With the passage of the American's with Disabilities Act (ADA) in 1990 (PL 101-336), access to properties open to the public is a civil right. Most historical buildings were not designed to be readily accessible for people with disabilities, yet accommodating people with disabilities could jeopardize the significance and integrity of the historic nature of the property. In 1997, this Act was amended to balance accessibility and historic preservation.

The Americans with Disabilities Act requires equal opportunity for persons with disabilities in employment, government programs, telecommunications, transportation, and places of public accommodations, and can be assumed to be all buildings within a downtown commercial district. To the greatest extent possible, historic properties must be made as accessible as non-historic properties. Two tax incentives are available to businesses to help cover the cost of making access improvements:

DISABLED ACCESS TAX CREDIT (26 USC 44)

- This credit was created in 1990 specifically to help small businesses cover ADA related eligible access expenditures

- This credit cannot be used for new construction. Use is limited for adaptations to existing facilities that are required to comply with ADA
- The amount of the credit is equal to 50% of the eligible access expenditures in a year, up to a maximum expenditure of \$10,250. There is no credit for the first \$250 of expenditures. The maximum tax credit, therefore, is \$5,000.

EXPENDITURES TO REMOVE ARCHITECTURAL AND TRANSPORTATION BARRIERS TO THE HANDICAPPED AND ELDERLY (26 USC 190)

- This deduction was established under Section 190 to help businesses of any size with the removal of architectural or transportation barriers.
- The renovations under Section 190 must comply with applicable accessibility standards (Architectural and Transportation Barriers Compliance Board)
- The amount of the deduction is a maximum of \$15,000 per year.

ELIGIBLE PROJECTS

- The Disabled Access Credit can be used for architectural adaptations, equipment acquisitions, and services such as sign language interpreters. Other eligible expenditures include:
 - provision of readers for customers or employees with visual disabilities
 - provision of sign language interpreters
 - purchase of adaptive equipment
 - production of accessible formats of printed materials (i.e., Braille, large print, audio tape, computer diskette)

Alternative Incentives - 2 -

- removal of architectural barriers in facilities or vehicles (alterations must comply with applicable accessibility standards)
- fees for consulting services (under certain circumstances)
- The Expenditures deduction can be used for architectural or transportation adaptations and include:
 - provisions to make any facility or public transportation vehicle owned or leased by the taxpayer for use in connection with his trade or business more accessible to, and usable by, handicapped and elderly individuals

NATIONAL ENDOWMENT FOR THE HUMANITIES (NEH) GRANTS

The National Endowment for the Humanities (NEH) Challenge Grants help institutions and organizations secure long-term improvements in and support for their humanities programs and resources. Eligible entities include any U.S. non-profit such as historical societies and historic sites, museums, public libraries, research institutions, scholarly associations, state humanities

councils, colleges and universities, public television, radio stations, and other non-profit organizations. Grants may require significant matching funds. Grants are most commonly used to establish endowments for ongoing humanities activities such as education, public programming, scholarly research, and preservation programs. Types of activities include faculty and staff positions, lectures or exhibition series, visiting scholars, publishing subventions, consultants, maintenance of facilities, acquisitions and preservation/conservation programs.

Consultation Grants for Museums, Libraries, and Special Projects;
This grant program is designed to help groups such as historical organizations, community organizations, museums, and libraries create a new project or develop a new interpretive direction for an institution. Grants are up to \$10,000.

Projects should convey significant humanities ideas to the public, use creative formats to engage an audience, examine ideas and topics within a regional or national context and expand their impact and mission by involving new audiences or by serving as models to other organizations.

ELIGIBLE ACTIVITIES

- Historical organizations and museums projects that create interpretive exhibitions, interpret a historic site, and produce catalogs, public symposia and web sites to support the interpretation program.
- Libraries and archives projects that make collections accessible through reading or film discussion series, traveling exhibits, lectures, and public symposia. Curriculum materials, brochures, and websites are permissible support items for funding.

Special projects that are usually sponsored by other groups than the above organizations. These are envisioned to be broad, interdisciplinary formats to reach a regional or national audience at diverse venues and locales. Components may include a discussion series, lectures, or symposia, as well as related exhibits, publications, brochures or websites.

Implementation Grants for Museums and Historical Organizations

Similar to the consultation grants, this program supports the realization of long-term exhibits, historic site interpretation, and supporting materials such as symposia, publications, websites, and related programming. Grants are up to \$350,000.

Projects include final consultation with scholars or professional experts, final exhibit design, exhibit fabrication, crating and shipping, website development, publicity costs, public program presentation costs, and audience evaluation.

Preservation Assistance Grants

This grant program assists small and mid-sized institutions such as historical societies, museums, libraries, archival repositories, town and county records offices, smaller departments within colleges and universities, and other similar organizations, to improve their capability to care for their humanity-related collections. Such collections may consist of architectural and cartographic records, archeological and ethnographic artifacts, historical objects, decorative and fine arts, furniture, textiles, archives and manuscripts, books and journals, prints and photographs, moving images, and sound recordings.

Applicants must consult with specialists whose preservation and conservation skills and experiences are related to the types of collections and activities that are the focus of their projects.

ELIGIBLE ACTIVITIES

- Assessment and recommendations reports for management and collection needs.
- Disaster preparedness and response plans.
- Environmental monitoring programs, pest management, security or fire protection.
- Lighting and storage studies.
- Assessing conservation treatments for selected collection items and materials.
- Permanent storage furniture and supplies, and monitoring equipment.

We the People Challenge Grants in United States History, Institutions and Culture

To help Americans make sense of their history and the world around them, NEH has created an initiative "We the People," which encourages exploration of significant events and themes in our Nation's history and culture and which advances knowledge of the underlying principles that define America in their full historical and institutional context.

Support may be provided for strategic planning to improve a program by items for:

- Construction, renovation, and maintenance
- Preservation and conservation programs
- Acquisition of materials and equipment
- Direct expenditures through long-term depleting or bridging funds
- Establishing endowments which generate expendable earnings for program activities

THE 1772 FOUNDATION

Stewart B. Kean Foundation

The 1772 Foundation is named for its initial project, which was to restore the 23-acre Livingston/Kean Family estate as a museum in Union, New Jersey. Its Mission is to preserve and enhance American historical structures for generations to enjoy, with particular interest in farming, industrial development, transportation, and unusual historical buildings.

ELIGIBILITY

- Applications from anywhere in the United States will be accepted.
- Strong local support is a prerequisite for funding, and those organizations that have obtained matching funds are most favorably considered.
- No grants will be made to schools or churches, or for operating expenses, management fees, or professional fees.

SELECTION CRITERIA

In the interest of providing a prompt feedback on projects, the 1772 Foundation requires submission of a one-page letter of inquiry e-mailed from their web-site. www.1772foundation.org

The letter should include:

- A synopsis of the proposed project,
- A brief history of the site,
- A clear statement of funding needs.

3. Contribution to Community

This project has the potential to provide a great service to the public by providing a community reception place, a memorial hall for the late Governor Kump, as well as a sense of pride and acknowledgment of one of the most influential men in the state's history. The proposed use has the potential to influence rural education. The property is individually listed on the National Register of Historic Places, and the public use of the facility may prevent damage to its historic integrity.

4. Preservation Zones

The Kump House is listed on the National Register as a significant structure in its connection to the late Governor, and its architectural contribution to the neighborhood and Elkins in general. To protect the viability of this project it was important to identify the following historic treatment zones (for zone definitions refer to Section 3). Within the house, these treatment zones provide the guiding framework that informs future rehabilitation in a sensitive manner.

5. Leasable Areas

The costs associated with a project such as this are high. In contrast to this expenditure, due to the house being limited in its leasable space, its potential revenue is relatively low.

As a result of meetings with the Dr. Heather Biola of the Kump House Trust and member of the Kump Educational Center Advisory Board, a consensus has been reached that proposes the Kump House be developed into a educational center with supporting exhibit space to celebrate the buildings historic significance and the accomplishments of

Governor Kump.¹ Within this concept, the possibility of renting part of the space for meetings and other reception events could lead to a source of revenue. It is, however, important to perform a market study to assess the need for such a facility in the community, and to determine whether or not this use is sustainable.

C. REUSE ALTERNATIVES

The concept plan presented the following challenges:

- Function
- Life safety, code and ADA issues
- Existing Building conditions
- Programming Sustainability

The design team responded to these issues in the development of the concept plans, which gives an overall view of building use. Conceptual plans were developed based upon team and client/stakeholder discussions. These discussions are invaluable as they provide opportunities to provide feedback, and to inform and direct the energy of the design. Programmatic elements of an education center, meeting rooms, interpretive display areas, support areas, and residential room were considered while maintaining a feel of the grand residence. The facilities can serve as a retreat center-strategic planning center and allows for a short term residential component.

The vision for the building's reuse is to fulfill Mary Gamble Kump's vision "that every child in Randolph County have a nice, safe place to go and enjoy activities that promote good citizenship development... camping, and other recreational purposes for such groups as the Boy Scouts of America, 4-H Clubs, and other groups properly chaperoned..." The mission is to use the house "to promote educational purposes" and to use the yard for kids.

Review of the site and spatial program leads to several conclusions about development opportunities for the Kump House. Important conclusions about the site and space program include:

- The existing building is not suited for large exhibits. There are large windows in the main rooms, which bring up issues of light and climate control. Space is of most concern, as the floor plan is largely segregated.
- Exhibit, meeting areas, and general public functions are limited to the first level and basement level due to the lack of an elevator.

¹ See meeting notes in the appendix

- The house can be a showcase and demonstration project for "Sustainable Practices". Highlights could be geothermal system for heating and cooling, solar collection for power and domestic water, wind farm for power, water conservation methods for irrigation, and community gardening for locally grown agricultural crops.
- The house is located on a very easy to find and recognizable corner lot in central West Virginia and on the edge of the commercial district of Elkins, WV.
- The home is a recognized icon with the historic resources of its region and is known by the residents of the area to have importance to the state for its architectural attributes but also for the events and people that it is associated with.
- The site has potential to share the story of the importance of the supporting agriculture to our life styles.

D. PROPOSED SPACE PLAN

If the building is to be thought of as a place maker in history, it must also be considered as a stimulus for the future. There are many opportunities to contribute to this place making and space planning is an integral part of the mechanism.

The spatial allocations of the project should include interpretive components that first explore the history of the site, the history of the house and history of the Kump family. Additionally the interpretation should include New Deal History, Scenic Byways, rural education, rural living/agriculture, the sustainable design measures incorporated into the building rehabilitation, in the site management, and sustainable agricultural activities. The majority of the interpretation would be on the first floor with the Music Room being a dedicated space but the walls of the hallways, Living Room, and Dining Room being used as support areas for interpretive panels and supporting documentations for the selected story lines. The main level would be furnished with period elements and augmented with new components that are compatible and functional for use during events and meetings. The Den would house the administration area for the facility with convenient access to the entrance and the supporting spaces on the first floor. The breakfast room and sun porch would support areas for break out and meeting areas. The kitchen and pantry would provide areas for small food preparation or catering staging. Additionally the reuse plan would incorporate an ADA bathroom on the first level.

The concept as the Professional Education Center for teachers shall be the anchor tenant on the basement level. It would be the vision that comprehensive education activities provide a diversity of opportunities.

The education center that will be a place where educators meet for programs to advance public schools. Teachers will collaborate with college faculty and organize Professional Development Schools, take graduate courses, prepare for National Board Certification, model best practices, learn new educational technologies, tutor students with special needs, and provide after-school or summer programs for children. College students preparing to become teachers and parents hoping to help their children will benefit from activities at a center dedicated to innovations for public education.

On the basement level additional spatial allocation will be made for an accessible residential space and building systems for the overall facility. The existing garage will be turned into a vestibule and reception entrance area for the educational center. Other specific areas would include supporting office space, testing areas, and multi-purpose room.

The upper two floors, the second and third, would house eight sleeping quarters with four jack & jill bathrooms with a ninth bedroom with a on suite bathroom on the eastern side of the third floor. Additional supports space of reading rooms and sitting rooms would be provided in the remaining spaces of the sleep porch on the second floor, the office area at the western end of the stair hall on the second level, and the one small bedroom on the third floor at the western end.

In summary, the vertical organization of the building also supports these uses with the lower level identified as the Educational Center. The house could provide adequate office areas, while still offering limited historic tours, providing a exhibit center, and public meeting/event space. With the house's broken main level floor plan, many of the rooms could be meeting rooms, while the larger dining and living areas could host conference meetings and community gatherings. The kitchen area could be used by both employees and volunteers, as well as for catering. The upper levels are ideal for transient residential quarters.

The user group has a unique opportunity to develop a facility that would convey to the public the life and career of one of West Virginia's most influential men. The property as a whole has the potential to be a living cultural resource management site open to the public. The H.G. Kump archives, as well as restoring his office space could allow visitors to step back into the life of the great orator.

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7. IMPLEMENTATION PLAN

A. GENERAL APPROACH

B. PROJECT APPROACH AND PHASING

C. NEXT STEPS

A. GENERAL APPROACH

As previously stated in this report this building is a cultural resource for the city, state, and nation. The reality of the building and the comprehensive site is that it is a "Landmark Structure" from the perspective of most deserving of preservation for future generations.

Across North Central West Virginia we are challenged with structures that are, or certainly once were community icons yet today require restoration and preservation efforts. These buildings contributed to the Social-Economical-Physical dynamics of their respective downtowns and with their stature often bring many memories from the local community of the yesteryears. These structures all have stories as to why they are in the state of disrepair that they are in; whether it be bank foreclosure, absentee ownership, obsolete infrastructure, hazardous materials, or a number of other situations.

Whether it is the 1500 square foot Stump Hotel in Grantsville, the 100,000 square foot Waldo Hotel in Clarksburg, or the Kump House, their commonality is that the respective communities have been shaped around these structures and the Landmarks play an important role in the legacy of place. None of the above mentioned communities can afford to lose these historic structures; it takes some thought and careful planning to "Attack these Landmarks".

To be effective these projects it often requires a public-private partnership. The public entity, whether it is the city, county, state or federal government can bring capital that is usually for site infrastructure improvement or a loan to seed the project. The private investment can secure the balance of the needed capital for the project and work to utilize the available tax credits.

The start of the Plan: *a successful project relies on a clear vision of the end goals and how to get there.* A vision is needed that outlines common goals, expectations, and desired results within a set schedule and for a given budget. In dealing with an existing building one of the largest challenges is to develop a winning building program with the understanding that some uses are more evasive than others. The building configuration and typology is an issue. The conversion of a train station to market rate housing is not necessarily the best fit. In planning for the best results look at precedents both locally and nationally, what worked and what did not. It is our hope that this report provides the client the basis for this plan.

How should clients **equip themselves for the challenge?** The right team members and partners are crucial with a composition of technical experts, financial experts, and members with the local knowledge. The technical experts will guide the configuration, the infrastructure, the adaptability, the constructability, and the regulatory/approvals process for the project. The financial experts will guide the market studies, cash flow analysis, and capital investments all centered around the return on investment. It is not any one of these team members that make this

project successful, but the consolidated efforts of the team that creates a winning solution.

The first step is the **strategic approach**: *identify the economic and social incentives to what otherwise may seem a hopeless project.* The common incentives are State Tax Credit, Federal Tax Credit, and Tax Abatement. It can often be proven to local, state, and federal officials that these projects can be the pivotal projects for larger scale revitalization. Additionally, when executed using the established standards, the Secretary of The Interior's Standards for Rehabilitation as one, the projects can be models bringing a community and its leadership together (both the business community and citizen groups) with pride and a sense of accomplishment.

The second move could be the **funding**: *identify potential funding sources and partnerships for a successful project.* Some mechanisms and sources that have been used in the past: TIFF Financing, State Wide Preservation Grant, Community Development Block Grants, Bank Consortium Funding, HUD funds, Transportation Enhancement Funding (ISTEA and TEA-21), Save America's Treasures Grant, Bank Reinvestment Acts Requirement, special bonds or levies and private foundation funding. Additionally, work with your local banking community to leverage financing for the project based upon future income from federal, private, and corporate user groups.

The third step would be the **professional study**: *pull together all the historical documentation on the structure, assess the existing conditions and start the creative process to conceptualize an end result.* Sensitive and responsible preservation and restoration work must be responsive to the category of historical significance of the building. Each building provides a unique set of requirements and conditions; so too, each solution is unique. Realize that the approach for the Stump Hotel will be much different than that of the Waldo based on several factors such as size, location, historical significance, available documentation, current and desired uses, existing conditions and project budget to name a few. Again, the work provided in this study should provide the client with the basis for this step in the process.

The fourth step could be to **identify partners**: *projects with consensus amongst the community and project members have greater possibilities for success.* Each project can benefit from a developer or facilitator that has work with these issues before. Some projects warrant a phased approach and multiple partners/investors to develop a winning solution. With a team actively facilitating the process, garnering leadership from the local community and conveying the vision consensus on all sides shall be reached.

Note that the order of the strategies can vary slightly depending on the project's constraints and opportunities. Generally speaking, the approach for the reuse of a Landmark is not your typical real estate development exercise, you have no option to turn away from the endeavor and failure is not an option. It is important to understand that it is a different approach each time and no one solution fits all. This

battle has been won on many fronts in the past and the challenge is out there awaiting you.

This "Landmark Structure" project is different from most in that you have an existing historical asset and an undeveloped commercial asset. As discussed in the *Planning Recommendations* section [Section 6] of this report, the entity that shall own and operate the property with multi-use programmatic elements has a large challenge on their hands.

B. PROJECT APPROACH and PHASING

The Board of the Kump House Trust has worked hard to develop goals to tackle this project:

Year	Activity	Funding Source
2010	New roof with consideration for solar	WVSHPO Preservation Grant
	Window and Shutter renovation	AmeriCorps/Volunteers
	4-H Garden Planted	D&E Sustainable Studies
	Apple Orchard Planted	WV Extension Services
2011	All hazardous materials removed	HUD/Private Funding
	Safe access from Seneca Road	TEA Grant
	Permeable rear parking lot and drive	TEA Grant
	Root cellar/smoke house reconstruction	D&E Sustainable Studies
2012	Geothermal heating system	Green Energy Grants
	Sustainable electrical system	HUD/Private Funding
	Plumbing renovations/ADA bathroom	HUD/Private Funding
	Paint exterior and repair bricks	HUD/Private Funding
2013	Paint interior on the 1 st Floor	HUD/Private Funding
	Rehab rugs, curtains, and furniture on 1 st floor	Volunteers
	Open office of Kump Consortium	Foundation Funding
	Begin tours of the first floor with RCDA daily bus tours	
2014	Paint 2 nd and 3 rd floor interior	Save America's Treasures
	Rehab rugs, curtains, and furniture on 2 nd and 3 rd floors	Volunteers
	Open Teacher Residential Retreat Center	Foundation Funding
	Develop 4-H model farm demonstrations	D&E & WV Extension

In addition to the items listed above we have provided a cost break out in an order of project priority for the building in Section 8 of this report.

C. FOLLOW UP NEXT STEPS

a. Execute a Building Maintenance Plan

Building maintenance may be defined as the preservation of a building so that it can serve its intended purpose and a combination of any actions carried out to retain an item in, or restore it to an acceptable condition. The maintenance of historic buildings is the first line of defense, yet requires an offensive stance. Maintenance is significant not only in regards to the physical components of a building, but also to the health, safety, and welfare of those who inhabit it.

As integral as maintenance is to the overall well-being and life span of a building, its implementation is often plagued by poor, incomplete or inadequate survey work, non-existent records, and complicated directions. A major problem in historic preservation is a lack of consistency.

Local non-profit groups and historical societies, for example, should be aware of and have access to these technological methods, but they should not be so complicated that they sit unused. In other words, while consistent recording and survey tools should be determined, but their affordability should be considered as well. Certain technology may provide more accuracy, per se, but in the end, having everyone, including those without significant financial backing, such as local groups and government agencies, maintain a common language and method will go further in providing the most complete information.

The reality of dealing with any historic building is that change happens over time and sometimes in catastrophic events leaving the stewards of the building to react. Over the history of any building many events take place that directly affects the components that constitute the whole. The events start with the design documents, the construction, the routine maintenance, the modifications, and the deferred maintenance. Each one of these events has documentation that is associated and provides invaluable data. The reality of folks associated with any given building is that they change over time; the day to day supervisors, the cleaning crews, the maintenance works, the repair people, the building contractors, and the building owners can change hands many times over the course of a buildings life span.

With any one building, it is often the case that assessments are performed and reports are written to memorialize and document an event or snapshot in time. The documents too often become part of the buildings dead files (archives), or worse yet, the circular files. This documentation is often done with different personnel, in different formats, and with different scopes of work

thus challenges the building stewards to establish the baseline data and document the change over time. The data collected on the building needs to inform the personnel with qualitative and quantitative information to allow for conscientious decision making.

b. Execute a Cultural Landscape Report

Taken from the NPS Preservation Brief #36: <http://www.nps.gov/hps/tps/briefs/brief36.htm>

A Cultural Landscape Report (CLR) is the primary report that documents the history, significance and treatment of a cultural landscape. A CLR evaluates the history and integrity of the landscape including any changes to its geographical context, features, materials, and use.

CLRs are often prepared when a change (e.g. a new visitor's center or parking area to a landscape) is proposed. In such instances, a CLR can be a useful tool to protect the landscape's character-defining features from undue wear, alteration or loss. A CLR can provide managers, curators and others with information needed to make management decisions.

A CLR will often yield new information about a landscape's historic significance and integrity, even for those already listed on the National Register. Where appropriate, National Register files should be amended to reflect the new findings.

c. Develop Business Plan

It is recommended that a comprehensive business plan for the facility be developed in order to sustain the long term viability of the project. This plan would look at the sources and uses as well as the capital and operational cost centers of the project.

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8. CONCEPTUAL PROJECT COST

A. SCOPE OVERVIEW AND COST ESTIMATE

B. SPACE ALLOCATION

A. SCOPE OVERVIEW AND COST ESTIMATE

1. EXTERIOR AND INTERIOR WORK SCOPE

EXTERIOR COST ESTIMATE SUMMARY SHEET
Kump House

Item No.	Location	Architectural Components	Condition/Action Required	Quantity	Unit	Estimated cost per unit	Estimated Cost of Recommendations
1	General	Basement waterproofing and drainage	Exterior wall waterproofing, insulation, foundation drainage	1	EA	\$ 12,000.00	\$12,000
1	West Elevation	Existing Gallery railings with turned wood balusters	The SW section remains and shall serve as the template for the replication effort. <u>The existing SW components require restoration.</u>	1	EA	\$ 750.00	\$750
1	West Elevation	Missing Gallery railings with turned wood balusters	Missing from the NW, NE, and SE locations. The SW section remains and shall serve as the template for the replication effort. <u>The missing NW component to be replicated in an appropriate material to match existing.</u>	1	EA	\$ 1,500.00	\$1,500
1	West Elevation	Six over six double hung windows with exterior screens	Existing units are in good condition. <u>Existing sash to be restored, painted, and weather-stripped. Options of double pane glazing, interior storm, or exterior storm. Existing screens on the lower sash appear to be a later addition and should be stored. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	10	EA	\$ 1,200.00	\$12,000
1	West Elevation	Exterior storm windows units	Aluminum triple track one over one pre-finished exterior storm units. Design to ensure that the meeting rails align	10	EA	\$ 350.00	\$3,500
1	West Elevation	Center six over six double hung units with two over two side units	Existing units are in good condition. <u>Existing sash to be restored, painted, and weather-stripped. Options of double pane glazing, interior storm, or exterior storm. Existing screens on the lower sash appear to be a later addition and should be stored. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	2	EA	\$ 1,500.00	\$3,000
1	West Elevation	Wood panel Entrance door with Palladian leaded glass transom	Existing units are in good condition. <u>Existing sash to be restored, painted, and weather-stripped. Lead coming to be restored as required. Interior storm units could be needed.</u>	1	LS	\$ 1,800.00	\$1,800
1	West Elevation	Wooden screen door on entrance door	Existing units are in good condition. <u>Interior storm units could be applied. Existing wood screen door to be restored and hardware to be assessed for replacement.</u>	1		\$ 250.00	\$250
1	West Elevation	Hankling leaded glass portal windows.	Existing units are in good condition. <u>Existing sash to be restored, painted, and weather-stripped. Lead coming to be restored as required. Interior storm units could be needed.</u>	2		\$ 300.00	\$600
1	West Elevation	3 pane basement sash in lower level	Existing units are in good condition. <u>Existing sash to be restored, painted, and weather-stripped. Options of double pane glazing, interior storm, or exterior storm. Existing screens on the lower sash appear to be a later addition and should be stored. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	3		\$ 300.00	\$900
1	West Elevation	Fluted round metal columns and rectangular fluted metal pilasters	Existing components show signs of rust at bases and capitals where the rain and snow had sat on the non sloping profiles. <u>All metal surfaces are to be wire brushed of loose paint and rust. Prime all bare metal and apply two coats of rust inhibiting paint.</u>	4		\$ 300.00	\$1,200
1	West Elevation	Limestone headers, waterable, coping, and sills	Existing stone is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All limestone surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	220		\$ 6.00	\$1,320
1	West Elevation	Missing Lower shutters stile and rails with solid panel containing cut in upper section.	Three shutters are missing from the SW side. <u>The missing SW shutters to be replicated in an appropriate material with hardware to match existing.</u>	3		\$ 250.00	\$750
1	West Elevation	Existing Lower shutters stile and rails with solid panel containing cut in upper section.	Existing units are in good condition. <u>The existing shutters and hardware are to be restored.</u>	5		\$ 200.00	\$1,000
1	West Elevation	Upper shutters with louvers	Shutters are missing. Existing units on the South Elevation shall provide the template. <u>The missing shutters to be replicated in an appropriate material with hardware to match existing. The existing shutters and hardware are to be restored.</u>	8		\$ 200.00	\$1,600
1	West Elevation	Entry porch with architectural wood entablature and ceiling.	All components seem to be in good condition. <u>All painted surfaces require repainting.</u>	8		\$ 200.00	\$1,600

EXTERIOR COST ESTIMATE SUMMARY SHEET
Kump House

Item No.	Location	Architectural Components	Condition/Action Required	Quantity	Unit	Estimated cost per unit	Estimated Cost of Recommendations
1	West Elevation	Entry porch flat seamed metal roof with end wall flashing counter flashed into the brick	All components seem to be in good condition. <u>All painted surfaces require repainting. The existing metal roof and flashing requires stripping to bare metal and painting with two coats of a rust inhibiting paint.</u>	26		\$ 12.00	\$336
1	West Elevation	Ceiling hung light fixture		4	1	\$ 350.00	\$350
1	West Elevation	Brick exterior envelope with recessed grout joints	Existing brick is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All brick surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	1140		\$ 6.50	\$7,410
1	West Elevation	Limestone cap stones	Existing stone is covered in air borne particles and exhibits signs of organic growth. <u>The existing limestone slabs require removal to allow for thorough wall flashing and masonry restoration. All limestone surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	1	LS	\$ 4,500.00	\$4,500
1	West Elevation	Two Limestone urns on parapet of third floor wall dormer	Existing stone is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All limestone surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	2	EA	\$ 100.00	\$200
1	West Elevation	Limestone carved shields in the wall of the third floor wall dormer	Existing stone is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All limestone surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	2	EA	\$ 100.00	\$200
1	West Elevation	Oval attic window framed with a brick soldier coursing around the perimeter and limestone keystones in demarking the quadrants	Existing units are in good condition. <u>Existing sash to be restored and painted. Interior storm units could be applied.</u>	1	EA	\$ 350.00	\$350
1	West Elevation	Wood entablature with brackets, cornice trim and built in box gutter.	All components seem to be in good condition. <u>Restore deteriorated wood detailing and all painted surfaces require repainting.</u>	1	EA	\$ 350.00	\$350
1	North Elevation	Porse Cochere Built in Gutter	All components seem to be in good condition. <u>All painted surfaces require repainting. The existing metal roof and flashing requires stripping to bare metal and painting with two coats of a rust inhibiting paint.</u>	16	LF FT	\$ 25.00	\$400
1	West Elevation	Copper down leaders with box collectors	All component seem to be in restorable condition. <u>Solder joints as required, resecure straps and secure at foot contact.</u>	53	LF	\$ 7.00	\$371
1	West Elevation	Porse Cochere	Address on North Elevation	1	LS		\$0
1	West Elevation	Sun Porch Window Units	Existing units are in good condition. <u>Existing sash to be restored, painted and weather-stripped. Options of double pane glazing, interior storms, or exterior storms. Existing screens on the lower sash appear to be a later addition and should be store. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	1	LS	\$ 1,500.00	\$1,500
1	West Elevation	Sun Porch Wood Trim and Cornice	All components seem to be in good condition. <u>Restore deteriorated wood detailing and all painted surfaces require repainting.</u>	1	LS	\$ 2,000.00	\$2,000
	West Elevation	Brick steps and entry stoop	Existing brick is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All brick surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	1	LS	\$ 800.00	\$800
	West Elevation	Grade and drainage	Existing grade allows for some ponding and collection of storm water in lawn. <u>Ensure positive drainage and install down drainage.</u>	1	LS	\$ 1,400.00	\$1,400
1	West Elevation	Wrought iron railing above entry portico	From the architect's perspective sketch looking toward the SE this is the one feature missing and from the early photos appear as if was never installed.	1	LS		\$0

Item No.	Location	Architectural Components	Condition/Action Required	Quantity	Unit	Estimated cost per unit	Estimated Cost of Recommendations
1		Six over six double hung windows with exterior screens	Existing units are in good condition. <u>Existing sash to be restored painted and weather-stripped. Options of double pane glazing, interior storms, or exterior storms. Existing screens on the lower sash appear to be a later addition and should be store. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	11	EA	\$ 1,200.00	\$13,200
1	North Elevation	Exterior storm windows units	Aluminum triple track one over one pre-finished exterior storm units. Design to ensure that the meeting rails align	11	EA	\$ 350.00	\$3,850
1	North Elevation	Six pane window with exterior screens	Existing units are in good condition. <u>Existing sash to be restored painted and weather-stripped. Options of double pane glazing, interior storms, or exterior storms. Existing screens on the lower sash appear to be a later addition and should be store. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	1	EA	\$ 800.00	\$800
1	North Elevation	Oval attic window framed with a brick soldier coursing around the perimeter and limestone keystones in demarking the quadrants	Existing units are in good condition. <u>Existing sash to be restored and painted. Interior storm units could be installed.</u>	1	EA	\$ 350.00	\$350
1	North Elevation	Existing Lower shutters stile and rails with solid panel containing cut in upper section.	Existing units are in good condition. <u>The existing shutters and hardware are to be restored.</u>	8		\$ 200.00	\$1,600
1	North Elevation	Upper shutters with louvers	Existing units are in good condition. <u>The existing shutters and hardware are to be restored.</u>	14		\$ 200.00	\$2,800
1	North Elevation	Wood panel Entrance door with transom and wooden screen door	Existing units are in good condition. <u>Existing doors to be restored painted and weather-stripped. Screen door could be modified to accept storm panels.</u>	1		\$ 1,200.00	\$1,200
1	North Elevation	Brick exterior envelope with recessed grout joints	Existing brick is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All brick surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	1500	SQ FT	\$ 6.50	\$9,750
1	North Elevation	Limestone headers, watertable, coping, and sills	Existing stone is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All limestone surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	140	SQ FT	\$ 6.00	\$840
1	North Elevation	Rear Porch shingle siding	All components seem to be in good condition. <u>Restore deteriorated wood detailing and all exterior surfaces require repainting.</u>	200	SQ FT	\$ 10.00	\$2,000
1	North Elevation	Brick steps and entry stoop	Existing brick is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All brick surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	1	LS	\$ 800.00	\$800
1	North Elevation	Fluted round metal columns	Existing components show signs of rust at bases and capitals where the rain and snow had sat on the non sloping profiles. <u>All metal surfaces are to be wire brushed of loose paint and rust. Prime all bare metal and apply two coats of rust inhibiting paint.</u>	4	EA	\$ 400.00	\$1,600
1	North Elevation	Terra Cotta Entry platform	Existing terra cotta is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All brick surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	1	LS	\$ 800.00	\$800
1	North Elevation	Entry Handrails at North Steps	No handrail exists at the main entry. <u>Install wrought iron type steel handrail to meet National Building Codes and ADA requirements on both sides of entry steps.</u>	4	LS	\$ 2,200.00	\$8,800

Item No.	Location	Architectural Components	Condition/Action Required	Quantity	Unit	Estimated cost per unit	Estimated Cost of Recommendation
1	North Elevation	Entry Handrails at West Steps	No handrail exists at the main entry. <u>Install wrought iron type steel handrail to meet National Building Codes and ADA requirements on both sides of entry steps.</u>	1	LS	\$ 2,200.00	\$2,200
1	North Elevation	ADA access to entry	No ADA access exists at the main entry. <u>Install wheel chair lift adjacent to entry platform and add additional platform riser to facilitate zero barrier entry.</u>	1	LS	\$ 15,000.00	\$15,000
1	North Elevation	Additional lighting at areaway	The main entry is minimally lit. <u>Install additional lighting fixtures that are concealed and secondary to historic fixture.</u>	1	LS	\$ 4,000.00	\$4,000
1	North Elevation	Ceiling hung light fixture	Light fixture is working order and shows sign of tarnishing. <u>Existing fixture to be restored and retrofitted with energy efficient light source.</u>	1	EA	\$ 350.00	\$350
	North Elevation	Grade and drainage	Existing grade allows for some ponding and collection of storm water in lawn. <u>Ensure positive drainage and install down drainage.</u>	1	LS	\$ 2,200.00	\$2,200
1	North Elevation	Porte cochere with architectural wood entablature and ceiling	All components seem to be in good condition. <u>All painted surfaces require repainting.</u>	1	LS	\$ 2,200.00	\$2,200
1	North Elevation	Porte cochere flat seamed metal roof with end wall flashing counter flashed into the brick	All components seem to be in good condition. <u>All painted surfaces require repainting. The existing metal roof and flashing requires stripping to bare metal and painting with two coats of a rust inhibiting paint.</u>	540	SQ FT	\$ 6.00	\$3,240
1	North Elevation	Porte cochere built in gutter	All components seem to be in good condition. <u>All painted surfaces require repainting. The existing metal roof and flashing requires stripping to bare metal and painting with two coats of a rust inhibiting paint.</u>	68	LF FT	\$ 25.00	\$1,700
1	North Elevation	Areaway	Drainage is a problem in the existing areaway and the existing railings require work. <u>Clean dirt and debris out of areaway. Seal out existing drain line. Install drain cover/filter to drain. Refabricate the rails to be code compliant.</u>	1	LS	\$ 2,600.00	\$2,600
1	North Elevation	Additional lighting at Entry	The area way entry is minimally lit. <u>Install additional lighting fixtures that are concealed and secondary to historic fixture.</u>	1	LS	\$ 1,000.00	\$1,000
1	North Elevation	Entry door in Areaway	Existing unit is in good condition. <u>Existing door to be restored, painted and weather-stripped. Options of double pane glazing, interior storms, or exterior storms. Existing screens on the lower sash appear to be a later addition and should be store. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	1	LS	\$ 1,800.00	\$1,800
1	North Elevation	Double hung window in Areaway	Existing unit is in good condition. <u>Existing sash to be restored, painted and weather-stripped. Options of double pane glazing, interior storms, or exterior storms. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	1	EA	\$ 1,200.00	\$1,200
1	East Elevation	Missing Gallery railings with turned wood balusters	Missing from the NW, NE, and SE locations. The SW section remains and shall serve as the template for the replication effort. <u>The missing NW component to be replicated in an appropriate material to match existing.</u>	2	EA	\$ 1,500.00	\$3,000
1	East Elevation	Six over six double hung windows with exterior screens	Existing units are in good condition. <u>Existing sash to be restored, painted and weather-stripped. Options of double pane glazing, interior storms, or exterior storms. Existing screens on the lower sash appear to be a later addition and should be store. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	15	EA	\$ 1,200.00	\$18,000
1	East Elevation	Exterior storms windows units	Aluminum triple track one over one pre-finished exterior storm units. Design to ensure that the meeting rails align	11	EA	\$ 350.00	\$3,850
1	East Elevation	Center six over six double hung units with two over two side units	Existing units are in good condition. <u>Existing sash to be restored, painted and weather-stripped. Options of double pane glazing, interior storms, or exterior storms. Existing screens on the lower sash appear to be a later addition and should be store. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	2	EA	\$ 1,500.00	\$3,000

Item No.	Location	Architectural Components	Condition/Action Required	Quantity	Unit	Estimated cost per unit	Estimated Cost of Recommendations
1	East Elevation	Entry door in Atrium and rear porch	Existing unit is in good condition. <u>Existing door to be restored, painted, and weather-stripped. Options of double pane glassing, interior storms, or exterior storms. Existing screens on the lower sash appear to be a later addition and should be stored. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	2	LS	\$ 1,800.00	\$3,600
1	East Elevation	Wooden screen door on entrance door	Existing units are in good condition. <u>Interior storm units could be applied. Existing wood screen door to be restored and hardware to be assessed for replacement.</u>	2		\$ 250.00	\$500
1	East Elevation	Limestone headers, waterable, coping, and sills	Existing stone is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All limestone surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	35		\$ 6.00	\$210
1	East Elevation	Existing Lower shutters stile and rails with solid panel containing cut in upper section.	Existing units are in good condition. <u>The existing shutters and hardware are to be restored.</u>	4		\$ 200.00	\$800
1	East Elevation	Rear Porch shingle siding	All components seem to be in good condition. <u>Existing deteriorated wood detailing and all painted surfaces require repainting.</u>	400	SQ FT	\$ 10.00	\$4,000
1	East Elevation	Rear porch with architectural wood entablature and ceiling.	All components seem to be in good condition. <u>All painted surfaces require repainting.</u>	1	LS	\$ 1,200.00	\$1,200
1	East Elevation	Rear porch flat seemed metal roof with end wall flashing counter flashed into the brick	All components seem to be in good condition. <u>All painted surfaces require repainting. The existing metal roof and flashing requires stripping to bare metal and painting with two coats of a rust inhibiting paint.</u>	176		\$ 12.00	\$2,112
1	East Elevation	Ceiling hung light fixture	Light fixture is working order and shows sign of tarnishing. <u>Existing fixture to be restored and retrofitted with energy efficient light source.</u>	1		\$ 350.00	\$350
1	East Elevation	Brick exterior envelope with recessed grout joints	Existing brick is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All brick surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	950		\$ 6.50	\$6,175
1	East Elevation	Limestone cap stones	Existing stone is covered in air borne particles and exhibits signs of organic growth. <u>The existing limestone sills require removal to allow for through wall flashing and masonry restoration. All limestone surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	1	LS	\$ 4,500.00	\$4,500
1	East Elevation	Limestone carved shields in the wall of the third floor wall dormer	Existing stone is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All limestone surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	2	EA	\$ 100.00	\$200
1	East Elevation	Oval attic window framed with a brick soldier coursing around the perimeter and limestone keystones in demarking the quadrants	Existing units are in good condition. <u>Existing sash to be restored and painted. Interior storm units could be applied.</u>	1	EA	\$ 350.00	\$350
1	East Elevation	Wood entablature with brackets, cornice trim and built in box gutter.	All components seem to be in good condition. <u>Existing deteriorated wood detailing and all painted surfaces require repainting.</u>	1	EA	\$ 900.00	\$900
1	East Elevation	Upper built in Gutter	All components seem to be in good condition. <u>All painted surfaces require repainting. The existing metal roof and flashing requires stripping to bare metal and painting with two coats of a rust inhibiting paint.</u>	16	LF FT	\$ 25.00	\$400
1	East Elevation	Copper down leaders with box collectors	All component seem to be in restorable condition. <u>Solder joints as required, resecure straps, and secure at boot contact.</u>	53	LF	\$ 7.00	\$371
1	East Elevation	Rear Porch Window Units	Existing units are in good condition. <u>Existing sash to be restored, painted, and weather-stripped. Options of double pane glassing, interior storms, or exterior storms. Existing screens on the lower sash appear to be a later addition and should be stored. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	1	LS	\$ 1,500.00	\$1,500

Item No.	Location	Architectural Components	Condition/Action Required	Quantity	Unit	Estimated cost per unit	Estimated Cost of Recommendation
1	East Elevation	Rear Porch Wood Trim and Cornice	All components seem to be in good condition. <u>Restore deteriorated wood detailing and all painted surfaces require repainting.</u>	1	LS	\$ 4,000.00	\$4,000
1	East Elevation	Upper shutters with louvers	Shutters are missing. Existing units on the South Elevation shall provide the template. <u>The missing shutters to be replicated in an appropriate material with hardware to match existing. The existing shutters and hardware are to be restored.</u>	2		\$ 200.00	\$400
1	East Elevation	Wooden steps and entry stoop	All components seem to be in good condition. <u>Restore deteriorated wood detailing and all painted surfaces require repainting. Add additional handrail.</u>	1	LS	\$ 800.00	\$800
	East Elevation	Grade and drainage	Existing grade allows for some ponding and collection of storm water in lawn. <u>Ensure positive drainage and install lawn drainage.</u>	1	LS	\$ 1,400.00	\$1,400
1	East Elevation	Sun Porch Window Units	Existing units are in good condition. <u>Existing sash to be restored, painted, and weather-stripped. Options of double pane glazing, interior storms, or exterior storms. Existing screens on the lower sash appear to be a later addition and should be store. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	1	LS	\$ 1,500.00	\$1,500
1	East Elevation	Sun Porch Wood Trim and Cornice	All components seem to be in good condition. <u>Restore deteriorated wood detailing and all painted surfaces require repainting.</u>	1	LS	\$ 2,000.00	\$2,000
1	East Elevation	Roll up Garage door	All components seem to be in good condition. <u>Restore deteriorated wood detailing and all painted surfaces require repainting.</u>	1	LS	\$ 1,600.00	\$1,600
1	South Elevation	Six over six double hung windows with exterior screens	Existing units are in good condition. <u>Existing sash to be restored, painted, and weather-stripped. Options of double pane glazing, interior storms, or exterior storms. Existing screens on the lower sash appear to be a later addition and should be store. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	11	EA	\$ 1,200.00	\$13,200
1	South Elevation	Exterior storms windows units	Aluminum triple track one over one pre-finished exterior storm units. Design to ensure that the meeting rails align	11	EA	\$ 350.00	\$3,850
1	South Elevation	3 pane basement sash in lower level	Existing units are in good condition. <u>Existing sash to be restored, painted, and weather-stripped. Options of double pane glazing, interior storms, or exterior storms. Existing screens on the lower sash appear to be a later addition and should be store. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	2		\$ 300.00	\$600
1	South Elevation	Limestone headers, waterable, coping, and sills	Existing stone is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All limestone surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	150		\$ 6.00	\$900
1	South Elevation	Rear Porch shingle siding	All components seem to be in good condition. <u>Restore deteriorated wood detailing and all painted surfaces require repainting.</u>	130	SQ FT	\$ 10.00	\$1,300
1	South Elevation	Missing Lower shutters stile and rails with solid panel containing cut in upper section.	Three shutters are missing from the SW side. <u>The missing SW shutters to be replicated in an appropriate material with hardware to match existing.</u>	3		\$ 250.00	\$750
1	South Elevation	Existing Lower shutters stile and rails with solid panel containing cut in upper section.	Existing units are in good condition. <u>The existing shutters and hardware are to be restored.</u>	5		\$ 200.00	\$1,000
1	South Elevation	Upper shutters with louvers	Shutters are missing. Existing units on the South Elevation shall provide the template. <u>The missing shutters to be replicated in an appropriate material with hardware to match existing. The existing shutters and hardware are to be restored.</u>	8		\$ 200.00	\$1,600

Item No.	Location	Architectural Components	Condition/Action Required	Quantity	Unit	Estimated cost per unit	Estimated Cost of Recommendations
1	South Elevation	Brick exterior envelope with recessed groud joints	Existing brick is covered in air borne particles and exhibits signs of organic growth. The lime mortar joints seem sound but require close up inspection. <u>All brick surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	1600		\$ 6.50	\$10,400
1	South Elevation	Oval attic window framed with a brick soldier coursing around the perimeter and limestone keystones in demarking the quadrants	Existing units are in good condition. <u>Existing sash to be restored and painted. Interior storm units could be supplied.</u>	1	EA	\$ 350.00	\$350
1	South Elevation	Wood entablature with brackets, cornice trim and built in box gutter.	All components seem to be in good condition. <u>Restore deteriorated wood detailing and all painted surfaces require repainting.</u>	1	EA	\$ 350.00	\$350
1	South Elevation	Sun Porch porch flat seemed metal roof with end wall flashing counter flashed into the brick	All components seem to be in good condition. <u>All painted surfaces require repainting. The existing metal roof and flashing requires stripping to bare metal and painting with two coats of a rust inhibiting paint.</u>	500		\$ 12.00	\$6,000
1	South Elevation	Sun porch Built in Gutter	All components seem to be in good condition. <u>All painted surfaces require repainting. The existing metal roof and flashing requires stripping to bare metal and painting with two coats of a rust inhibiting paint.</u>	64	LF FT	\$ 25.00	\$1,600
1	South Elevation	Copper down leaders	All component seem to be in restorable condition. <u>Solder joints as required, resecure straps, and secure at boot connect.</u>	16	LF	\$ 7.00	\$112
1	South Elevation	Sun Porch Window Units	Existing units are in good condition. <u>Existing sash to be restored, painted, and weather-stripped. Options of double pane glazing, interior storms, or exterior storms. Existing screens on the lower sash appear to be a later addition and should be store. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	1	LS	\$ 3,000.00	\$3,000
1	South Elevation	Sun Porch Wood Trim and Cornice	All components seem to be in good condition. <u>Restore deteriorated wood detailing and all painted surfaces require repainting.</u>	1	LS	\$ 2,000.00	\$2,000
	South Elevation	Grade and drainage	Existing grade allows for some ponding and collection of storm water in lawn. <u>Ensure positive drainage and install lawn drainage.</u>	1	LS	\$ 1,400.00	\$1,400

Sub total \$264,947
\$39,742.05
\$304,689
\$45,708.36
\$33,287.28
\$383,680

INTERIOR COST ESTIMATE SUMMARY SHEET
Kump House

Item No.	Location	Architectural Components	Condition/Action Required	Quantity	Unit	Estimated cost per unit	Estimated Cost of Recommendations
1	General Interior	Remove HAZMAT -ASBESTOS	Existing asbestos as per report	1	LS	\$ 15,000.00	\$15,000
	Building System	Electrical system	Upgrade electrical service and bring building up to code	7200	SQ FT	\$ 8.00	\$57,600
	Building System	Plumbing system	Water efficient fixtures and new piping as required, clean out drain lines	7200	SQ FT	\$ 4.50	\$32,400
	Building System	Mechanical system	Remove existing boiler. Install split system for zoned heating and cooling. Retrofit radiators for new heating systems.	7200	SQ FT	\$ 12.00	\$86,400
	Building System	Geothermal Wells		4	SQ FT	\$ 4,000.00	\$16,000
	Building System	Fire Alarm and Emergency lighting	New fire alarm and detection system with emergency lighting.	7200	SQ FT	\$ 5.00	\$36,000
	Building System	Sprinkler System		7200	SQ FT	\$ 3.00	\$21,600
	General Interior	Plaster restoration		2000	SQ FT	\$ 15.00	\$30,000
	General Interior	Wood floor restoration		1	SQ FT	\$ 4,500.00	\$4,500
	General Interior	Wood Millwork and trim cleaning		1	SQ FT	\$ 2,000.00	\$2,000
	General Interior	Paint Ceilings		7200	SQ FT	\$ 1.00	\$7,200
	General Interior	Paint Wall Surfaces		12000	SQ FT	\$ 2.00	\$24,000
	Lower Level	Lower level build out		2400	SQ FT	\$ 50.00	\$120,000
	Lower Level	New Entry and Vesibule		1	LS	\$ 12,000.00	\$12,000
	Main Level	Main level kitchen	New appliances, clean and paint cabinets, restore flooring	1	LS	\$ 18,000.00	\$18,000
	Main Level	Main Level ADA bathroom		1	LS	\$ 15,000.00	\$15,000
	Upper Levels	Upper level Bathroom upgrades		6	LS	\$ 5,000.00	\$30,000
					EA		

\$527,700
\$79,155.00
\$606,855
\$91,028.25
\$66,298.91
\$744,182

B. SPACE ALLOCATION

The charts below reflect a distribution of uses with square footage allocations by level. This documentation is derived from the concept drawings and is the basis for the cost estimate to follow.

KUMP EDUCATIONAL CENTER Proposed Building Spatial Requirements-							
Proposed Room Use	Existing Room Use	Historic Treatment Zone	Existing Room #	Proposed Room #	Existing Sq Footage	Proposed Sq Footage	Notes
Support Space/Hall	Hall	Rehabilitation	B01	B01	105	105	Support for Educational Center
Hall/Circulation	Hall	Rehabilitation	B02	B02	174	174	Support for Educational Center
Office	Storage	Rehabilitation	B03	B03	221	221	Support for Educational Center
Storage	Coal Storage	Rehabilitation	B04	B04	142	142	
Mechanical Room	Mechanical Room	Rehabilitation	B05	B05	253	253	
Office/Residential unit	Storage	Rehabilitation	B06	B06	320	320	Support for Educational Center
Closet	Closet	Rehabilitation	B06A	B06A	12	12	
ADA Restroom/Shower	Half Bath	Rehabilitation	B07	B07	29	29	Combine two rooms
	Full Bath	Rehabilitation	B08	B08	102	102	
Education Center	Recreation Room	Rehabilitation	B09	B09	649	649	Flexible room
Entry/Reception	Garage	Rehabilitation	B10	B10	341	341	New ADA/Main entry for Ed Ctr
Subtotals					2350		
<div> <div>LOWER LEVEL</div> </div>							

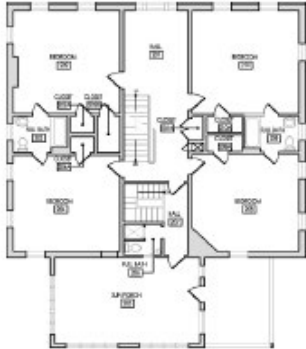
KUMP EDUCATIONAL CENTER

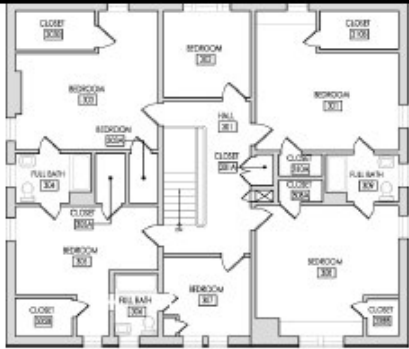
Proposed Building Spatial Requirements-

Proposed Room Use	Existing Room Use	Historic Treatment Zone	Existing Room #	Proposed Room #	Existing Sq Footage	Proposed Sq Footage	Notes
Entry Hall/Exhibit	Entry Hall	Preservation #1	101	101	84	84	
Half Bath	Half Bath	Rehabilitation	102	102	26	26	
Closet/Mechical Chase	Closet	Rehabilitation	103	103	19	19	
Main Hall/Exhibit	Main Hall	Preservation #1	104	104	211	211	
Closet/Storage	Coat Closet	Rehabilitation	104A	104A	9	9	
Closet/Storage	Coat Closet	Rehabilitation	104B	104B	9	9	
Meeting/Exhibit	Music Room	Preservation #1	105	105	228	228	
Entry Vestibule	Entry Vestibule	Preservation #1	106	106	22	22	
Meeting/Exhibit	Living Room	Preservation #1	107	107	360	360	
Meeting/Exhibit	Sun Porch	Preservation #2	108	108	360	360	
Meeting/Exhibit	Dinning Room	Preservation #1	109	109	290	290	
Pantry/Storage	Pantry	Preservation #2	110	110	107	107	
Hall/Circulation	Hall	Preservation #2	111	111	44	44	
Service area/storage	Butler Pantry	Preservation #2	112	112	24	24	
Kitchen	Kitchen	Rehabilitation	113	113	195	195	
Dining/meeting	Breakfast Room	Preservation #2	114	114	143	143	
Meeting/Exhibit	Den	Preservation #2	115	115	253	253	
Subtotals					2384		

FIRST LEVEL



KUMP EDUCATIONAL CENTER							
Proposed Building Spatial Requirements							
Proposed Room Use	Existing Room Use	Historic Treatment Zone	Existing Room #	Proposed Room #	Existing Sq Footage	Proposed Sq Footage	Notes
Stair Hall	Stair Hall	Preservation #1	201	201	233	233	
Linen Closet/MEP Chase	Linen Closet	Rehabilitation	201B	201B	6.5	6.5	
Bedroom	Bedroom	Preservation #2	202	202	284	284	
Closet/Storage	Closet	Rehabilitation	202A	202A	10	10	
Closet/Storage	Closet	Rehabilitation	202B	202B	19	19	
Full Bathroom	Full Bath	Rehabilitation	203	203	49	49	Jack and Jill Bathroom
Bedroom	Bedroom	Preservation #2	204	204	264	264	
Closet/Storage	Closet	Rehabilitation	204A	204A	10	10	
Residential Unit	Sun Porch	Preservation #2	205	205	328	328	
Full Bathroom	Full Bath	Rehabilitation	206	206	30	30	
Stair Hall	Hall	Preservation #2	207	207	46	46	
Bedroom	Bedroom	Preservation #2	208	208	259	259	
Closet/Storage	Closet	Rehabilitation	208A	208A	15	15	
Full Bathroom	Full Bath	Rehabilitation	209	209	49	49	Jack and Jill Bathroom
Bedroom	Bedroom	Preservation #2	210	210	285	285	
Closet/Storage	Closet	Rehabilitation	210A	210A	15	15	
Subtotals					1899.5		
							

KUMP EDUCATIONAL CENTER							
Proposed Building Spatial Requirements-							
Proposed Room Use	Existing Room Use	Historic Treatment Zone	Existing Room #	Proposed Room #	Existing Sq Footage	Proposed Sq Footage	Notes
Stair Hall	Stair Hall	Preservation #1	301	301	132	132	
Linen Closet/MEP Chase	Linen Closet	Rehabilitation	301A	301A	8	8	
Bedroom	Bedroom	Preservation #2	302	302	108	108	
Bedroom	Bedroom	Preservation #2	303	303	232	232	
Closet/Storage	Closet	Rehabilitation	303A	303A	21	21	
Closet/Storage	Closet	Rehabilitation	303B	303B	45	45	
Full Bathroom	Full Bath	Rehabilitation	304	304	50	50	Jack and Jill Bathroom
Bedroom	Bedroom	Preservation #2	305	305	182	182	
Closet/Storage	Closet	Rehabilitation	305A	305A	21	21	
Closet/Storage	Closet	Rehabilitation	305B	305B	31	31	
Full Bathroom	Full Bath	Rehabilitation	306	306	39	39	
Bedroom	Bedroom	Preservation #2	307	307	94	94	
Bedroom	Bedroom	Preservation #2	308	308	240	240	
Closet/Storage	Closet	Rehabilitation	308A	308A	14	14	
Closet/Storage	Closet	Rehabilitation	308B	308B	17	17	
Full Bathroom	Full Bath	Rehabilitation	309	309	47	47	Jack and Jill Bathroom
Bedroom	Bedroom	Preservation #2	310	310	235	235	
Closet/Storage	Closet	Rehabilitation	310A	310A	14	14	
Closet/Storage	Closet	Rehabilitation	310B	310B	43	43	
Subtotals					1573		
							

ERROR: undefined
OFFENDING COMMAND:

STACK:

9. APPENDIX

1. EXISTING CONDITIONS DRAWINGS

- A. SHEET 1 - BASEMENT FLOOR PLAN
- B. SHEET 2- FIRST FLOOR
- C. SHEET 3- SECOND FLOOR
- D. SHEET 4- THIRD FLOOR
- E. SHEET 5- ROOF PLAN
- F. SHEET 6- NORTH ELEVATION
- G. SHEET 7- SOUTH ELEVATION
- H. SHEET 8- EAST ELEVATION
- I. SHEET 9- WEST ELEVATION

2. HISTORIC PHOTOS

- A. SHEET 1- KUMP PROPERTY
- B. SHEET 2- EXTERIOR
- C. SHEET 3- INTERIOR

3. HISTORIC DRAWINGS

- A. SHEET 1- BASEMENT FLOOR PLAN
- B. SHEET 2- FIRST FLOOR
- C. SHEET 3- SECOND FLOOR
- D. SHEET 4- THIRD FLOOR
- E. SHEET 5- LONGITUDINAL SECTION
- F. SHEET 6- NORTH ELEVATION
- G. SHEET 7- SOUTH ELEVATION
- H. SHEET 8- EAST ELEVATION
- I. SHEET 9- WEST ELEVATION
- J. SHEET 10- CROSS SECTION

4. KEYED PHOTOS

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- B. SHEET 2- BASEMENT
- C. SHEET 3- FIRST FLOOR
- D. SHEET 4- SECOND FLOOR
- E. SHEET 5- THIRD FLOOR

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- D. SHEET 4- THIRD FLOOR

6. CONCEPTUAL DESIGN DRAWINGS

- A. SHEET 1- BASEMENT
- B. SHEET 2- FIRST FLOOR- OPTION 1, OPTION 2

7. ROOM DATA SHEETS

8. MEETING MINUTES

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Historic Building Assessment of the 1834 Supreme Court of Appeals of Virginia Law Library and Study Building including The 1835 Enslaved Quarters Building



Submitted to
Greenbrier Historical Society
814 Washington St.
Lewisburg, WV 24901

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1. EXECUTIVE SUMMARY

- A. INTRODUCTION
- B. HISTORIC BACKGROUND
- C. CONDITIONS, ASSESSMENT, AND RECOMMENDATIONS
- D. COST ESTIMATE

A. INTRODUCTION

The Greenbrier Historical Society (GHS) contracted the Mills Group to conduct a Historic Building Assessment of the 1834 Supreme Court of Appeals of Virginia Law Library and Study Building and the so-called Enslaved Quarters in Lewisburg, West Virginia. The purpose of this study is to achieve a comprehensive historic preservation approach for the restorations of these buildings by determining the architectural and engineering conditions, both past and present.

The goal of this report is to identify building conditions from two perspectives. The first would be to determine the as-built condition of the buildings. This would include but is not limited to original space and wall layout as they pertain to the intended use. Also, materials and finishes would be a part of this investigative process. The second perspective would be to determine structural, environmental, and mechanical existing conditions and make recommendations to GHS as to the best course of action to satisfy modern code and energy criteria. The goal of these recommendations would first and foremost be to bring the buildings to a safe and enjoyable condition for public use. Second, some recommendations may be included to satisfy GHS's possible use of the library's second level as an archival storage area and how that usage impacts current structural integrity.

This document provides documentation of physical changes to the buildings over time, a description and condition assessment of their existing structure, and a prioritized list of recommendations for the preservation of the structures for future use.

The methodology used to prepare this report consisted of multiple approaches. A site visit was conducted to inspect, photograph, and 3D scan both structures. Existing research obtained from GHS along with that of MG's research was gathered and archived. That research along with MG consultant findings from their site visits and reports was then used to construct a prioritized list of recommendations to satisfy the Greenbrier Historical Society's currently projected needs for use of these buildings.

B. HISTORIC BACKGROUND

In 1831, several events took place that culminated in the building of the structure that became known as the Supreme Court of Appeals of Virginia Law Library and Study Building. The building was completed in 1834 and the law library was housed within its walls. The building also provided office and study space for five judges and the clerk. The builder, James Frazer, owned and leased the building to the state of Virginia until 1858. At that time, a masonic lodge bought and leased the building to the state of Virginia until 1864. The building was used as a military hospital during the Civil War period. The Masonic lodge continued to own the building until 1917 when it was sold as a residential home. It then changed hands again in 1922 and the Lewisburg Female Seminary and Greenbrier College owned the building from 1922 to 1939. The town of Lewisburg bought the building, restored it, and reopened it in 1941 as the Greenbrier Public Library and Museum. In 2007, the building was vacated and remained that way until

2010. It was then leased to the New River Community and Technical College until 2022. It most recently was leased to the GHS and reopened in August 2022. In 1972, the Law Library building was listed on the National Register of Historic Places as a contributing building to the sociopolitical influence in the functioning of the governmental institution of the state of Virginia.¹ 1976 saw the addition of the Johnson Reynolds family Enslaved Quarters, relocated to the west of the Law Library structure.

C. CONDITIONS ASSESSMENT AND RECOMMENDATIONS

1. INTRODUCTION

The Law Library and the Enslaved Quarters are situated on a parcel of land surrounded by two streets. Route 60- (known as the Midland Trail) runs to the northwest of the property in a straight line, while Courtney Drive starts at Washington at the east end of the property, runs in a northerly direction then bends ninety degrees to the left and runs west where it meets Washington street on the west side of the property. This arrangement forms somewhat of a triangular lot.

2. HISTORIC SIGNIFICANCE

As a contributing building to the Lewisburg Historic District and as a means to ensure the contributing status of this building to the National Register, pursuant work on this structure may be reviewed and coordinated by the West Virginia State Historic Preservation Office (SHPO) in the future.

3. CONDITIONS ASSESSMENT AND RECOMMENDATIONS

The primary historic preservation issues and opportunities for the Supreme Court of Appeals of Virginia Law Library and Study include the following:

EXTERIOR

- Site/Overall:
 - HAZMAT testing
 - Overall Site Grade Drainage Control
- Stone and Brick Masonry:
 - Remove paint applied over brick cladding on both structures
 - Remove, repair, and replace as needed brick cladding at the northwest corner of the Law Library caused by a deficient and/or defective gutter system
 - Repoint the entirety of the Law Library and approximately 20% of the Enslaved Quarters buildings
 - Replace the missing chimney cap of the Law Library building
- Roofing and Drainage:
 - Evaluate the Enslaved Quarters' cedar shake roof and its condition

¹ National Park Service. (2022, November 4). *National Register of Historic Places Inventory Nomination Form*. <https://npgallery.nps.gov/AssetDetail/NRIS/72001287>.

- Remove, repair, or replace the deficient gutter system, specifically at the northwest corner of the Law Library
 - Regrade drainage from the buildings as needed
 - Evaluate drainage at the basement door as well as the stone pathway to the door of the Law Library
 - Investigate the feasibility of implementing below-grade drainage to all downspouts
- Windows:
 - Evaluate, repair, and paint shutters at window locations
 - There are various profiles of window muntin in use. Determine the as-built profile. Re-muntin where needed or desired
 - Continue the process of refurbishing period windows and reinstalling
- Building Access and Entrance: Law Library
 - Assess what is now the front door, its location, and its relevance to the historical narrative of the main building
 - ADA entrance has evidence of left-side handrail and right-side extension. Remove broken post bases, repair or replace left-side railing as well as right-side holes in concrete

INTERIOR

- Walls and Ceilings:
 - Plaster restoration: both crack repair and ceiling removal
 - Paint: Determine as-built colors and repaint surfaces as desired
- Facilities:
 - Bathroom upgrades on level 2 of Law Library
 - New ADA-compliant bathroom on level 1 of Law Library
 - Install a public assessable drinking fountain
- Stair Assembly:
 - Build a stairway to second level of Law Library
 - Revise stairs for code compliance: handrails if retained
 - Lift for possible 2nd-floor public access in the main building

- Building Systems:
 - Plumbing: Galvanized supply piping leaking: replace
 - Electrical: Satisfactory
 - HVAC: Raise the basement unit in Law Library 18" above the floor

In conjunction with research, the assessment of the existing conditions helps to determine the historic integrity of the structure. The Law Library and Study Building and Enslaved Quarters have undergone several alterations to meet the community's changing needs. Some of these changes, outlined in the historic background, may have affected how the buildings comply with modern building and safety codes.

D. COST ESTIMATE

A preliminary construction budget of \$863,341.00 is proposed to implement the recommended work items. This cost estimate assumes that all work will be completed at relatively the same time and does not take into consideration phasing opportunities. This cost estimate does not account for unknown items that may require additional assessment.

NOTE: This cost estimate is based on an extensive demolition and restructuring of the interior first floor of the Law Library building; specifically, the first-floor plaster ceiling and interior partition wall. The purpose of this is to determine as definitively as possible what the as-built layout on the first floor could have been and substantially duplicate that configuration while at the same time meeting current building and ADA guidelines per the GHS's request.

Preliminary investigative demolition to select areas indicates construction evidence to support the need to remove the complete first-floor ceiling plaster. Once existing nailing patterns and lumber shading are revealed, determining the desired direction of progress will be more evident.

Also, as proposed, there is no need for fire sprinkler suppression to be installed in the buildings as long as the upper floor is designated archival storage. Exposing the first-floor beams and trusses would not require a 1-hour fire rating if the building is used for that purpose. But if the upper floor will become museum or event space, then one of two options are available. The first option would be to install a fire suppression sprinkler system at an additional cost of \$25,000.00. Performing this option now would mean just having to open up the second floor to visitors as an extension of the museum display area in the future. Option two would be to not install the suppression system and if the second level needed to be opened to visitors, then the ceiling on the first floor could be closed up with a 1 hour rated cladding. These options should be considered now and decided upon after the existing plaster demolition reveals the extent of its secrets.

2. HISTORIC BACKGROUND

- A. HISTORIC DEVELOPMENT AND CONSTRUCTION SEQUENCE
- B. HISTORIC PHOTOGRAPHS
- C. PHASED DEVELOPMENT FLOOR PLANS

A. HISTORIC DEVELOPMENT AND CONSTRUCTION SEQUENCE

The 1834 Supreme Court of Appeals of Virginia Law Library and Study Building and Enslaved Quarters have undertaken several major alterations to their structure configuration or geographical location to each other. Entry to the Law library has been moved to the rear elevation of the building in a possible solution to the structure's proximity to Washington Street and automobile traffic passing relatively close to the building. At the time of that alteration, a main interior wall from the front to the rear wall was removed. Another major alteration occurred when a twelve-foot wide, two-story tall addition was added to the north side of the original structure. It included a staircase as well as a restroom. Interior alterations included the addition of bookshelf racks and shelving on both floors to accommodate the building's use as a public and then a college library.

To the north of the Law Library building is located the Enslaved Quarters which was relocated from the Johnson-Reynolds property in 1976. It was built circa 1835 and also possibly served as a summer kitchen to the Reynolds family after the Civil War.

Phase 1: 1834 to 1864 | Under Virginia Control

The counties west of the Blue Ridge Mountains became increasingly frustrated by the lack of response to their needs by the state government in Richmond, Virginia. One of the points of contention was access to judicial services. Traveling from the west to Richmond was made difficult by the presence of a single turnpike that traversed the separating mountain range. In 1831, the Virginia Assembly passed a statute stipulating a yearly session to be conducted west of the Blue Ridge Mountains annually at Lewisburg in the county of Greenbrier, "beginning on the first Monday of July and to continue ninety days unless the business should be sooner dispatched . . . for the hearing and determining of all causes brought to the court by appeal . . . from the counties lying on the western side of the Blue Ridge of mountains."² A second statute in 1832 provided for the transfer of reports and books of which there were copies from Richmond to Lewisburg for use by the Supreme Court's judges. In 1833, a third statute required two identical law libraries to be kept in Richmond and Lewisburg. By the end of 1833, the Supreme Court of Appeals in Lewisburg, after spending almost \$1200, had a substantial law library. But the court still needed a location to house it. The solution to that situation was provided by the proprietor of the tavern the judges stayed at while the court was in session.

² Hening, VIRGINIA STATUTES 1830-31, pp. 37-38.

Along with a place to house the ever-growing library, the judges found the need for a location to conduct research as well as write decisions and review precedents. James Frazer owned the tavern the judges of the Supreme Court of Appeals lodged at when holding sessions in Lewisburg. As the proprietor of the tavern, the judges had conversations with Frazer about the idea of building a structure that could serve multiple purposes suited to the court. In 1834 Frazer completed the building and the library was housed within its walls. An additional note to the historic narrative of the Law Library building is the developing accommodations provided to the court in the form of the North house. Located only yards away from the Law Library, the home of John North was purchased by Frazer, expanded, and reopened as the Star Hotel in 1836.³ Thus a nexus was created between neighboring facilities that allowed the court to operate efficiently and carry out its tasks. The Law Library building was leased to the state of Virginia by Frazer from 1834 till 1858 when it was purchased by the Masonic Lodge #42. The lodge continued the lease to the state of Virginia until 1864, at which time the state of Virginia vacated the building due to the formation of West Virginia the year before. Although Greenbrier joined the counties which made up the new state of West Virginia, the county remained fiercely Confederate in its loyalty to the Civil War cause and this is one reason the Law Library building was used as a military hospital after the battle of Lewisburg which took place on May 23, 1862. Although the Union army won the battle, the Confederate army, led by General Henry Heth, treated many of their wounded in the Law Library building. Preserved behind glass on a first-floor wall is Confederate graffiti depicting battle notes and sketches of ships by Confederate soldiers.

Phase 2: 1864 to 1917

As referenced before, the Masons purchased the Law Library in 1858. With the formation of the new state of West Virginia in 1863, the contents of the Law Library and its future were considered sometime after the Battle of White Sulphur Springs or, as it later became known, the Battle of the Law Books. The library's books were entrusted to Henry Mason Mathews. Mathews held the books until Sylvanus W. Hall, the first clerk for the Supreme Court of Appeals of West Virginia, contacted Mathews and arranged to move the books remaining from the library to Wheeling, WV.⁴ So it came to pass that the building's sole occupant during this period is thought to be the Masons. It is also thought, based on the layout of the floor plans, that the Masons sponsored the addition to the north side of the original structure as well as alterations to the floor plan on the second floor.

Based on conversations with modern day Masons, there is a strong possibility that subletting of the lower floor either wholly or in part to non-Mason tenants occurred during the Masons ownership of the building. A second entry door in the ground floor Masonic addition also supports the notion that the original lower floor area was intended to be separated from the rest of the building.

³ Emch, A.L. LEWISBURG, HOME OF THE SUPREME COURT OF APPEALS OF WEST VIRGINIA, 1831-1864. *West Virginia Lawyer*. Page 5. September 2022.

⁴ Emch, A.L. HOW VIRGINIA'S HIGHEST COURT LEFT A LIBRARY IN WEAS VIRGINIA. *Virginia Lawyer*. Page 2. December 2022.

Phase 3: 1917 to 1922

The home came under private ownership. The new owner's name was E.W. Sydenstricker. Both the land that the building sat on (footprint) and the small area between the front of the building and the turnpike were included.

Phase 4: 1920 to 1939

Over the next seventeen years, the building as well as the land it sat on were owned and used by Lewisburg Female Seminary/Greenbrier College. The acquisition of the property by the Seminary was not accomplished in one transaction but was acquired over several years. This was because more than one party owned the land and buildings that had previously been owned by the Frazer family. Eventually, a single trustee, E.B. Moore, was named, and when the time came to sell the properties, Mr. Moore acted as trustee in those matters and completed the sale to the Town of Lewisburg.

Phase 5: 1939 to 2010

Purchased by the Town (now City) of Lewisburg in 1939, The Law Library building was in a dilapidated state. According to Harry L. Van Sickler, the building needed a new roof, all the interior walls to be replastered, and the floor structure to be replaced. Once these and many other items were replaced the building opened as the Greenbrier Public Library and Museum in 1941 and continued as such until 2007 when the county of Greenbrier opened a modern library nearby. The building continues to be owned by the City. The building was vacant the years of 2007 to 2010.

Phase 6: 2010 to 2022

The Law Library building was leased to New River Community and Technical College and used as its physical Library from 2010 until 1 July 2022. The college has its roots back to 1895 when New River was a part of the emerging "normal schools" developing in West Virginia. As former elements of Bluefield State and Glenville State colleges, it became a formal accredited college when West Virginia passed legislation in 2003 that mandated a state-funded community college system. New River was charged with seeing that this new form of higher education was available to the residents of nine counties. Greenbrier county was among those counties and was selected as the site for its Greenbrier Valley campus. As such, a library building was needed, and the Law Library building had been vacated by the public library three years earlier. According to records, renovations by the College included, among many items addressed, a new roof, ADA access, accessible lavatory facilities, and updated electrical systems. For their efforts, the College was the recipient of the Preservation Alliance of West Virginia's 2013 Most Significant Save of an Endangered Site Award. Their adaptive reuse of the Law Library building also exhibited the College's dedication to historic preservation according to the Secretary of Interior's Standards for Rehabilitation.⁵

⁵ Perkins, David et al, Navigating a True Course: A History of the Creation and First Decade of the New River Community and Technical College, (Beaver, New River Community and Technical College, pgs. 1-3, 127)
https://www.newriver.edu/wp-content/uploads/2018/09/Navigating_A_True_Course.pdf

Phase 7: July 1, 2022, to present.

The Law Library building, the Enslaved Quarters, and the surrounding property was leased to the GHS in 2022. The Society took possession on July 1 of 2022 and rededicated the buildings as museums on August 1, 2022. The GHS is presently evaluating options from the historical preservation and modern public museum perspectives in order to determine the exact extent to which they will return the buildings to their as-built configurations.

B. HISTORIC PHOTOGRAPHS



Northside façade. Notice new entry door locations and portico.



South facing façade from pre-1941 photo. Notice the Centered main entry door that is currently a window and the west side addition along with its entry door that is currently a window.



East side of Law Library Building. Circa 1941.



Photo of sketch published in *Greenbriar Pioneers and Their Homes*, by Ruth Woods Dayton, 1942. The sketch depicts possible Enslaved Quarters/kitchen moved to Law Library Building property in 1976.

C. PHASED DEVELOPMENT FLOOR PLANS, ELEVATIONS & SECTIONS

1. H100 Law Library First Phase Basements Plan
2. H101 Law Library First Phase Floor Plans
3. H201 Law Library First Phase Elevations
4. H202 Law Library First Phase Elevations
5. H300 Law Library First Phase Sections
6. H102 Law Library Second Phase Basement Plan
7. H103 Law Library Second Phase Floor Plans
8. H203 Law Library Second Phase Elevations
9. H204 Law Library Second Phase Elevations
10. H301 Law Library Second Phase Sections
11. EX101 Law Library Basement Floor Plan
12. EX102 Law Library First Level Floor Plan
13. EX103 Law Library Second Level Floor Plan
14. EX200 Law Library Exterior Elevations
15. EX201 Law Library Exterior Elevations
16. EX300 Building Sections
17. H104 Enslaved Quarters Floor Plan First Phase
18. H205 Enslaved Quarters First Phase Elevations
19. H302 Enslaved Quarters First Phase Sections
20. H105 Enslaved Quarters Floor Plan Second Phase
21. H206 Enslaved Quarters Second Phase Elevations
22. H303 Enslaved Quarters Second Phase Sections
23. EX104 Enslaved Quarters Floor Plans
24. EX202 Enslaved Quarters Exterior Elevations
25. EX301 Building Sections
26. EX100 Site
27. EX105 Roof Plans
28. A101 Law Library Basement Floor Plan Proposed Work
29. A102 Law Library First Level Floor Plan Proposed Work
30. A103 Law Library Second Floor Plan Proposed Work
31. A200 Law Library Proposed Work Elevations
32. A201 Law Library Proposed Work Elevations
33. A300 Law Library Sections Work Elevations
34. A104 Enslaved Quarters Floor Plans Proposed Work
35. A202 Enslaved Quarters Proposed Work Elevations
36. A301 Enslaved Quarters Proposed Work Sections
37. A100 Site Proposed Work
38. M101 Law Library Basement Floor Plan Modified Proposed Work
39. M102 Law Library First Level Floor Plan Modified Proposed Work
40. M103 Law Library Second Level Floor Plan Modified Proposed Work
41. M200 Law Library Modified Proposed Work Elevations
42. M201 Law Library Modified Proposed Work Elevations

- 43. M300 Law Library Modified Proposed Work Sections
- 44. M100 Site Modified Proposed Work

4/6/2023 10:58:49 AM

2 LAW LIBRARY EAST ELEVATION PHASE 1
1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

LAW LIBRARY FIRST PHASE ELEVATIONS

Revision Schedule

No.	Revision Description	Date
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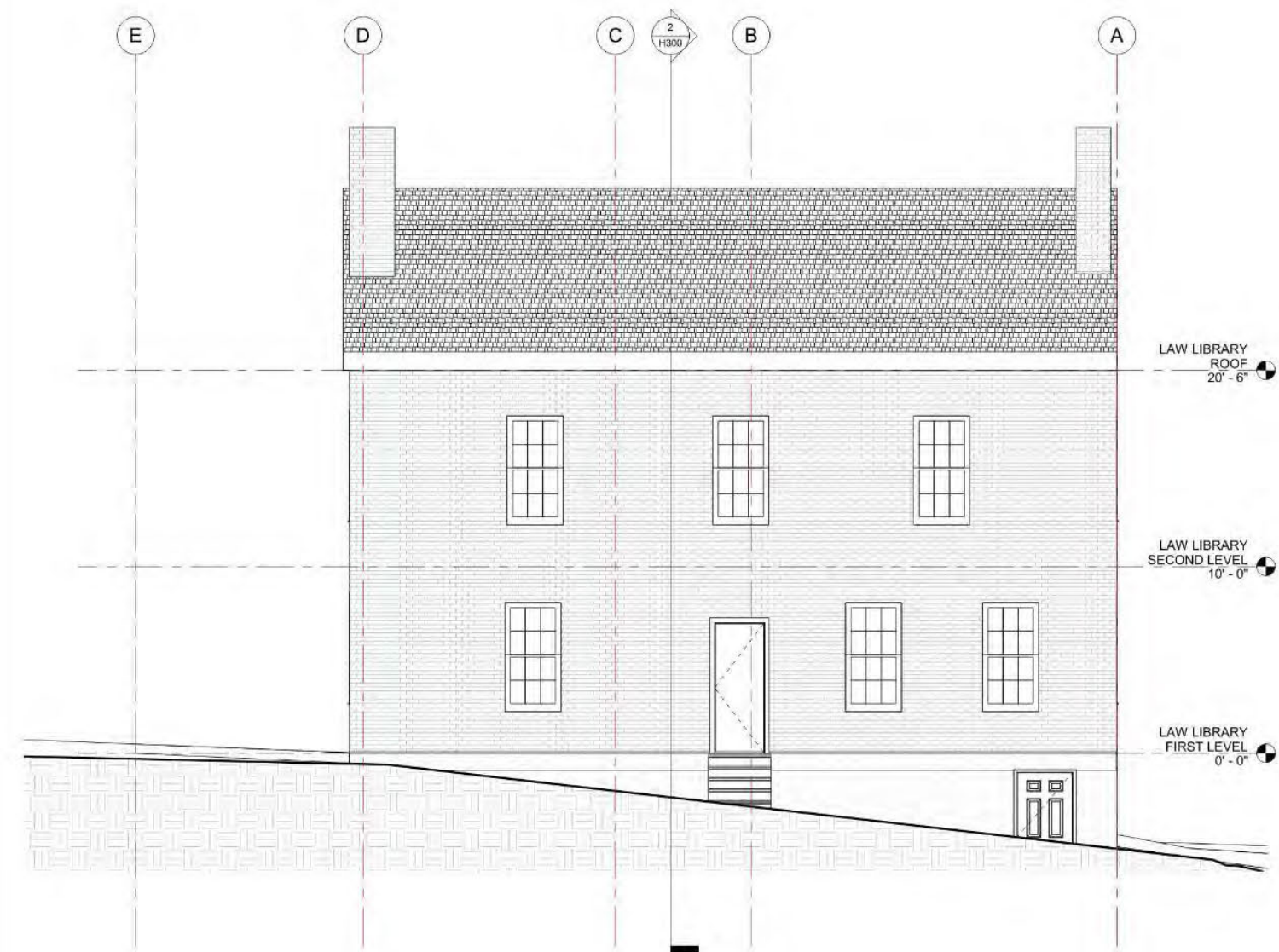
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Date	3/22/2023
Drawn by	SPD
Checked by	MJM

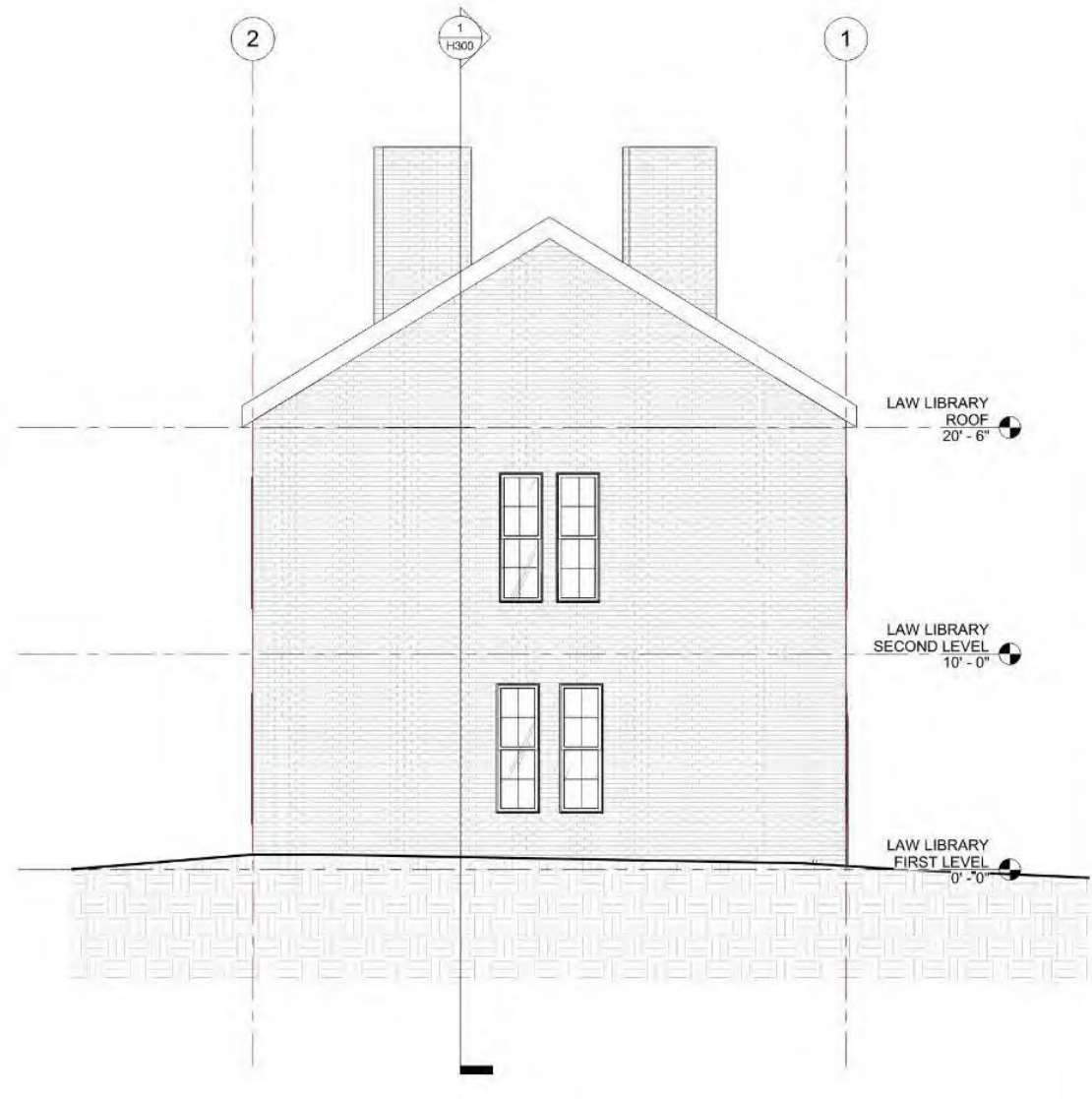
H202

Scale 1/4" = 1'-0"

SCALE REFERS TO 24" X 36" PAPER SIZE



1 LAW LIBRARY SOUTH ELEVATION PHASE 1
1/4" = 1'-0"



2 LAW LIBRARY WEST ELEVATION PHASE 1
1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

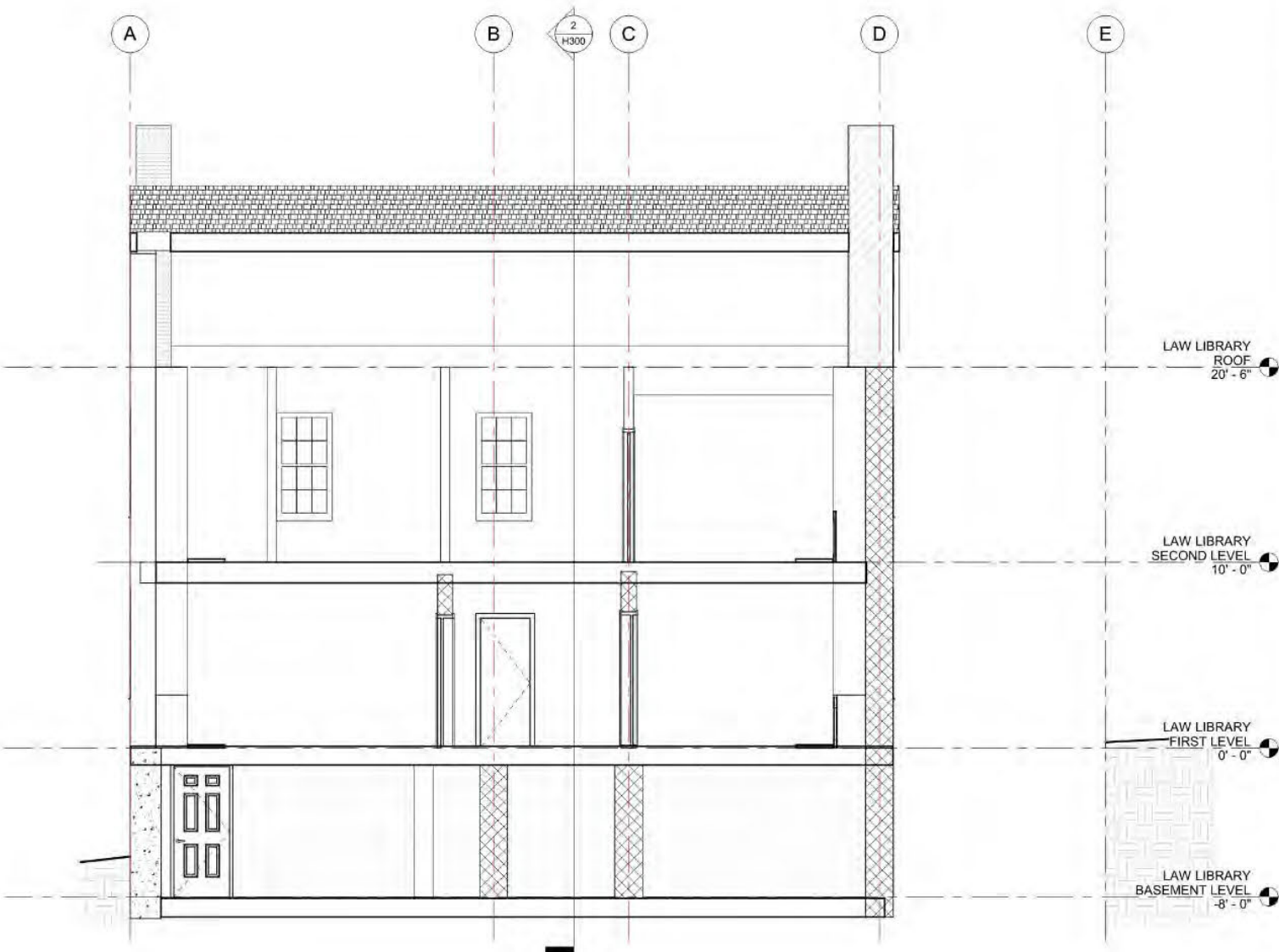
200 COURTNEY DRIVE
Greenbrier Historical Society

LAW LIBRARY FIRST PHASE SECTIONS

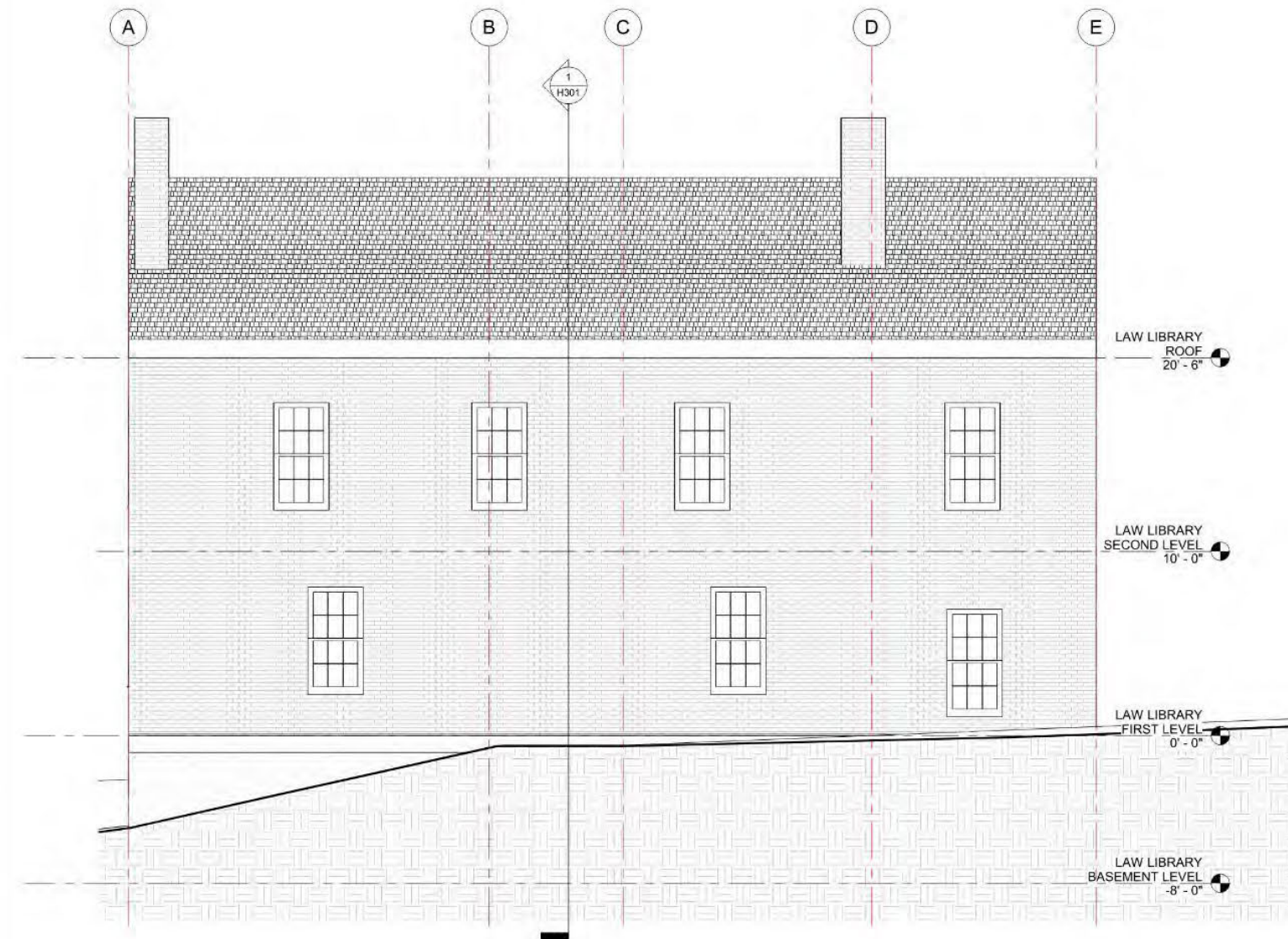
Revision Schedule		
No.	Revision Description	Date
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Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
H300		
Scale	1/4" = 1'-0"	
SCALE REFERS TO 24" X 36" PAPER SIZE		



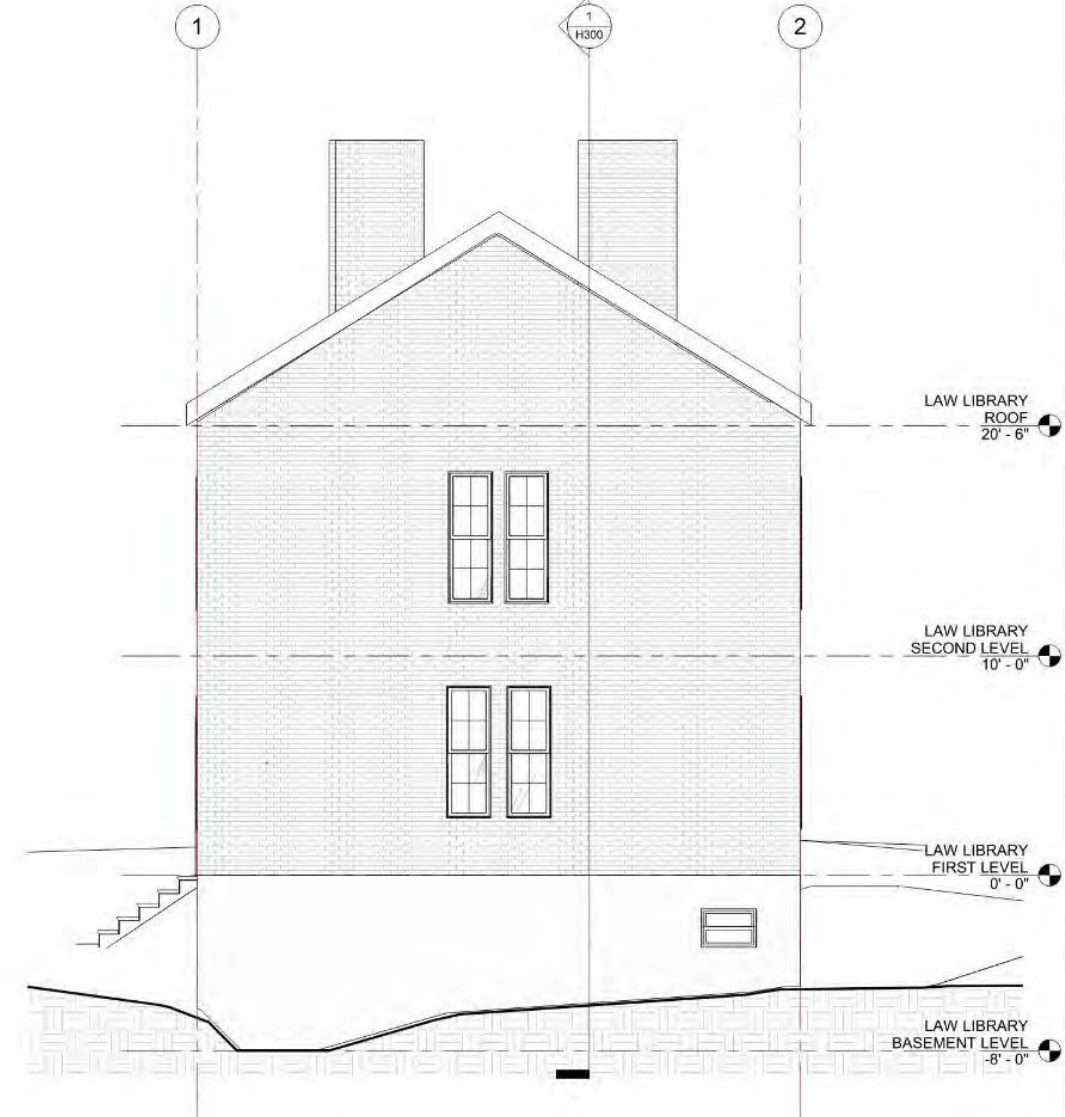
2 LAW LIBRARY TRAVERSE SECTION PHASE 1
1/4" = 1'-0"



1 LAW LIBRARY LONGITUDINAL SECTION PHASE 1
1/4" = 1'-0"



1 LAW LIBRARY NORTH ELEVATION PHASE 2
1/4" = 1'-0"



2 LAW LIBRARY EAST ELEVATION PHASE 2
1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

LAW LIBRARY SECOND PHASE ELEVATIONS

Revision Schedule		
No.	Revision Description	Date
INTENDED DRAWING USE:		
ILLUSTRATION		
Project number	22115	
Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
H203		
Scale 1/4" = 1'-0"		
SCALE REFERS TO 24" X 36" PAPER SIZE		

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

LAW LIBRARY SECOND PHASE ELEVATIONS

Revision Schedule		
No.	Revision Description	Date

INTENDED DRAWING USE:

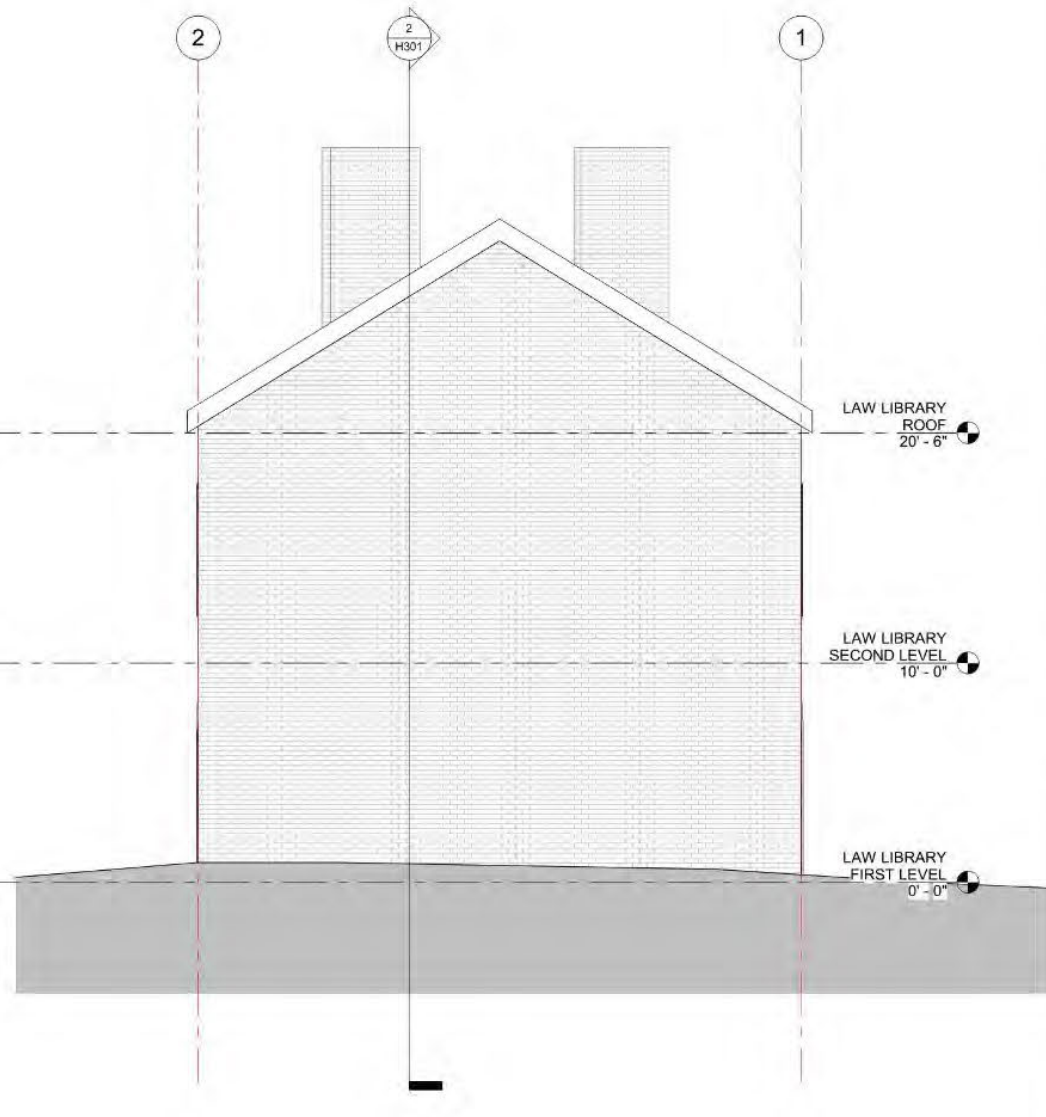
ILLUSTRATION

Project number	22115
Date	3/22/2023
Drawn by	SPD
Checked by	MJM

H204
Scale 1/4" = 1'-0"
SCALE REFERS TO 24" X 36" PAPER SIZE



1 LAW LIBRARY SOUTH ELEVATION PHASE 2
1/4" = 1'-0"



2 LAW LIBRARY WEST ELEVATION PHASE 2
1/4" = 1'-0"

Revision Schedule		
No.	Revision Description	Date
INTENDED DRAWING USE:		
ILLUSTRATION		
Project number	22115	
Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
H301		
Scale		1/4" = 1'-0"
SCALE REFERS TO 24" X 36" PAPER SIZE		



PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

LAW LIBRARY BASEMENT FLOOR PLAN

Revision Schedule

No.	Revision Description	Date
-----	----------------------	------

INTENDED DRAWING USE:

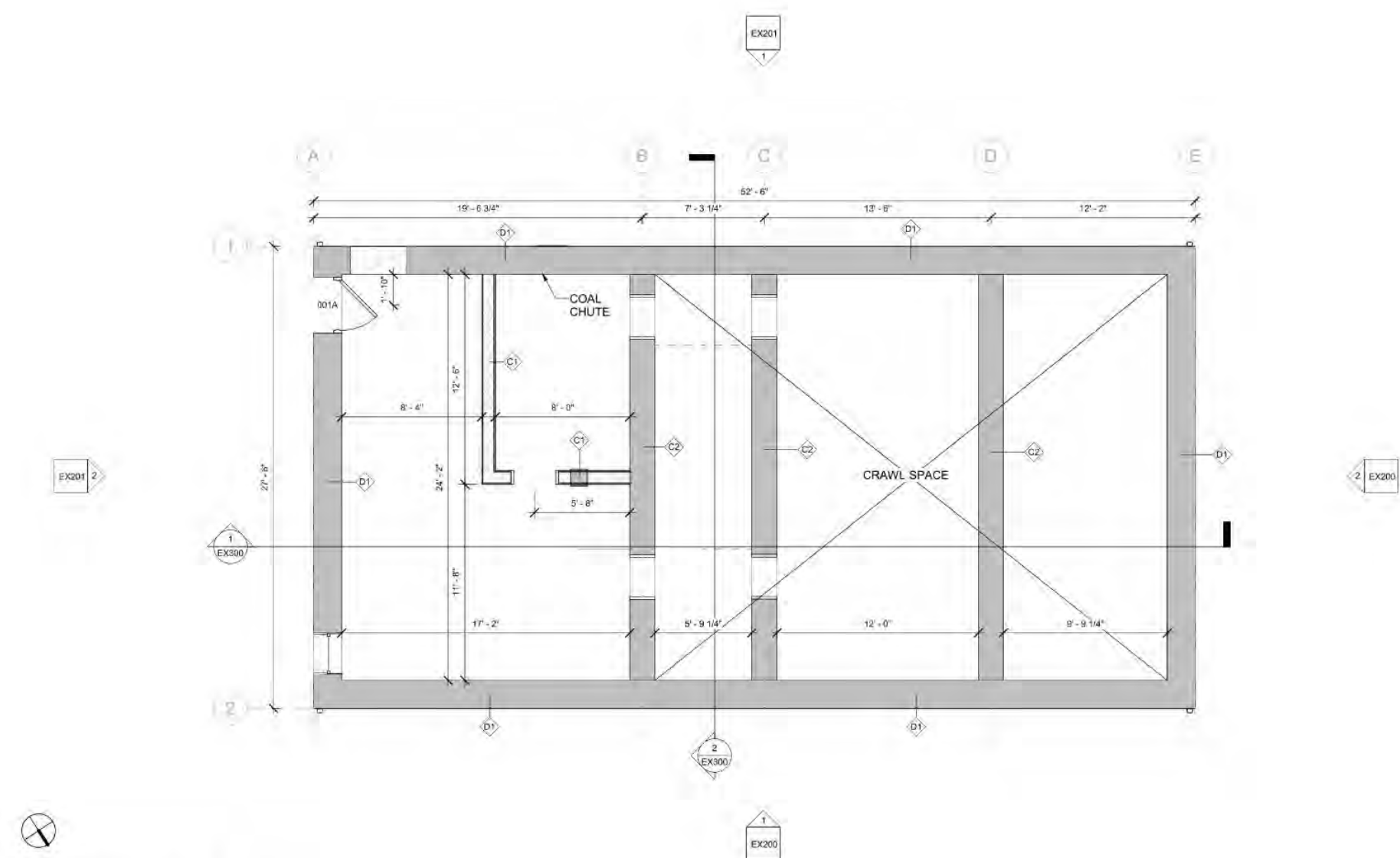
ILLUSTRATION

Project number	22115
Date	3/22/2023
Drawn by	SPD
Checked by	MJM

EX101

Scale 1/4" = 1'-0"

SCALE REFERS TO 24" X 36" PAPER SIZE



1 LAW LIBRARY BASEMENT LEVEL

1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

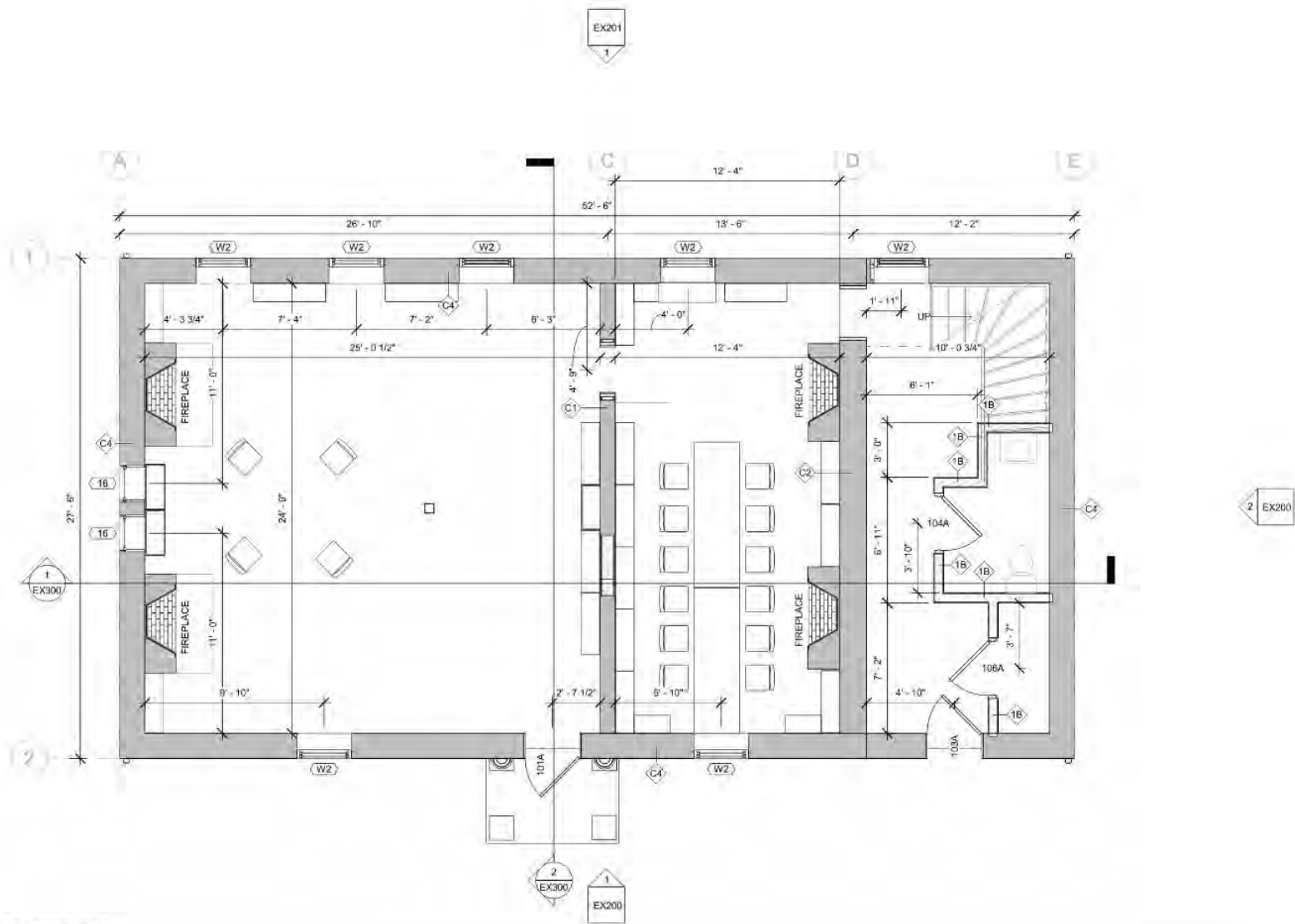
Greenbrier Historical Society

LAW LIBRARY FIRST LEVEL FLOOR PLAN

Revision Schedule

No.	Revision Description	Date
INTENDED DRAWING USE:..		
ILLUSTRATION		
Project number	22115	
Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
EX102		
Scale	1/4" = 1'-0"	
SCALE REFERS TO 24" X 36" PAPER SIZE		

1 LAW LIBRARY FIRST LEVEL
1/4" = 1'-0"



PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

LAW LIBRARY SECOND LEVEL FLOOR PLAN

Revision Schedule

No.	Revision Description	Date
-----	----------------------	------

INTENDED DRAWING USE:

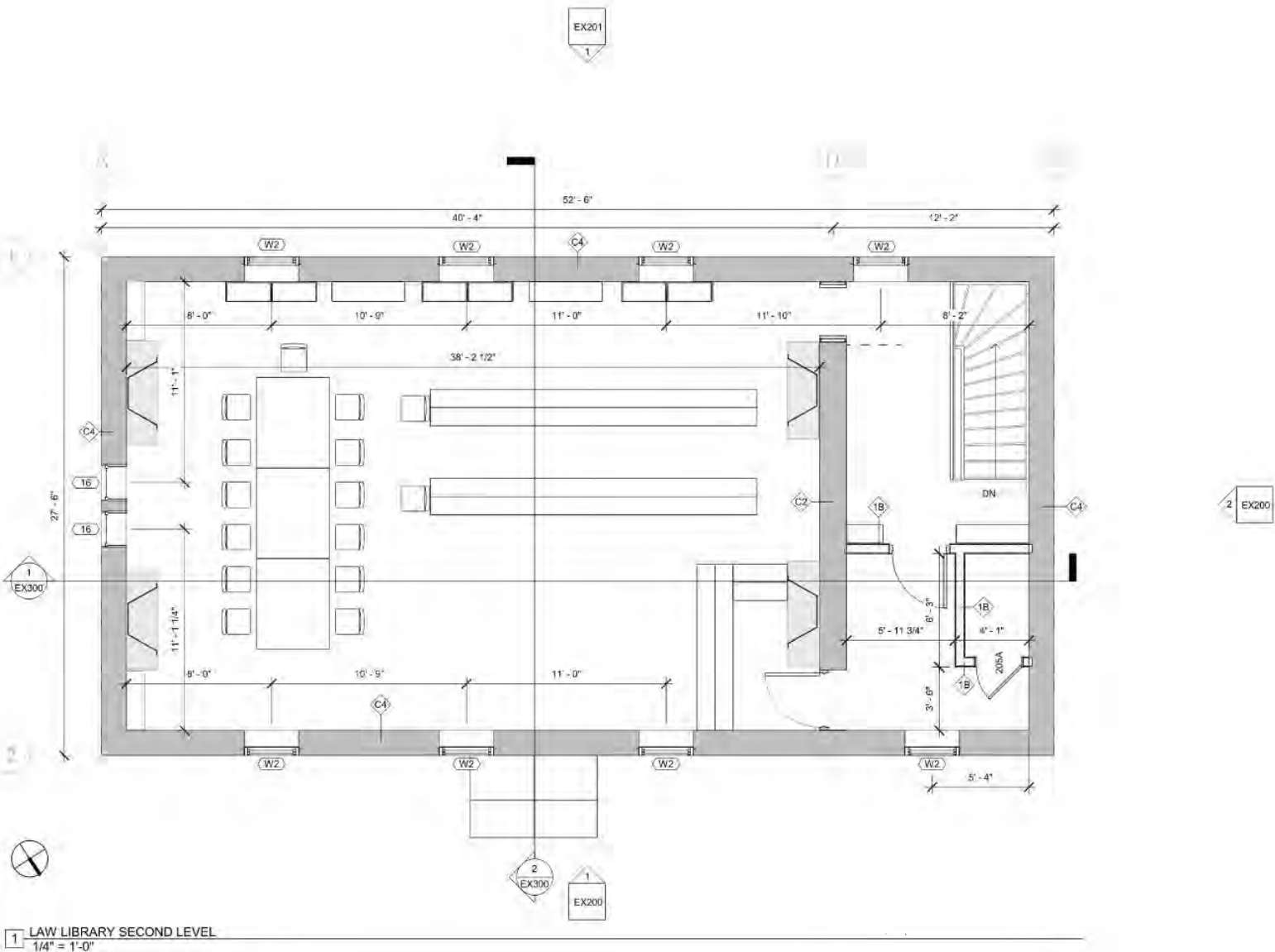
ILLUSTRATION

Project number	22115
Date	3/22/2023
Drawn by	SPD
Checked by	MJM

EX103

Scale 1/4" = 1'-0"

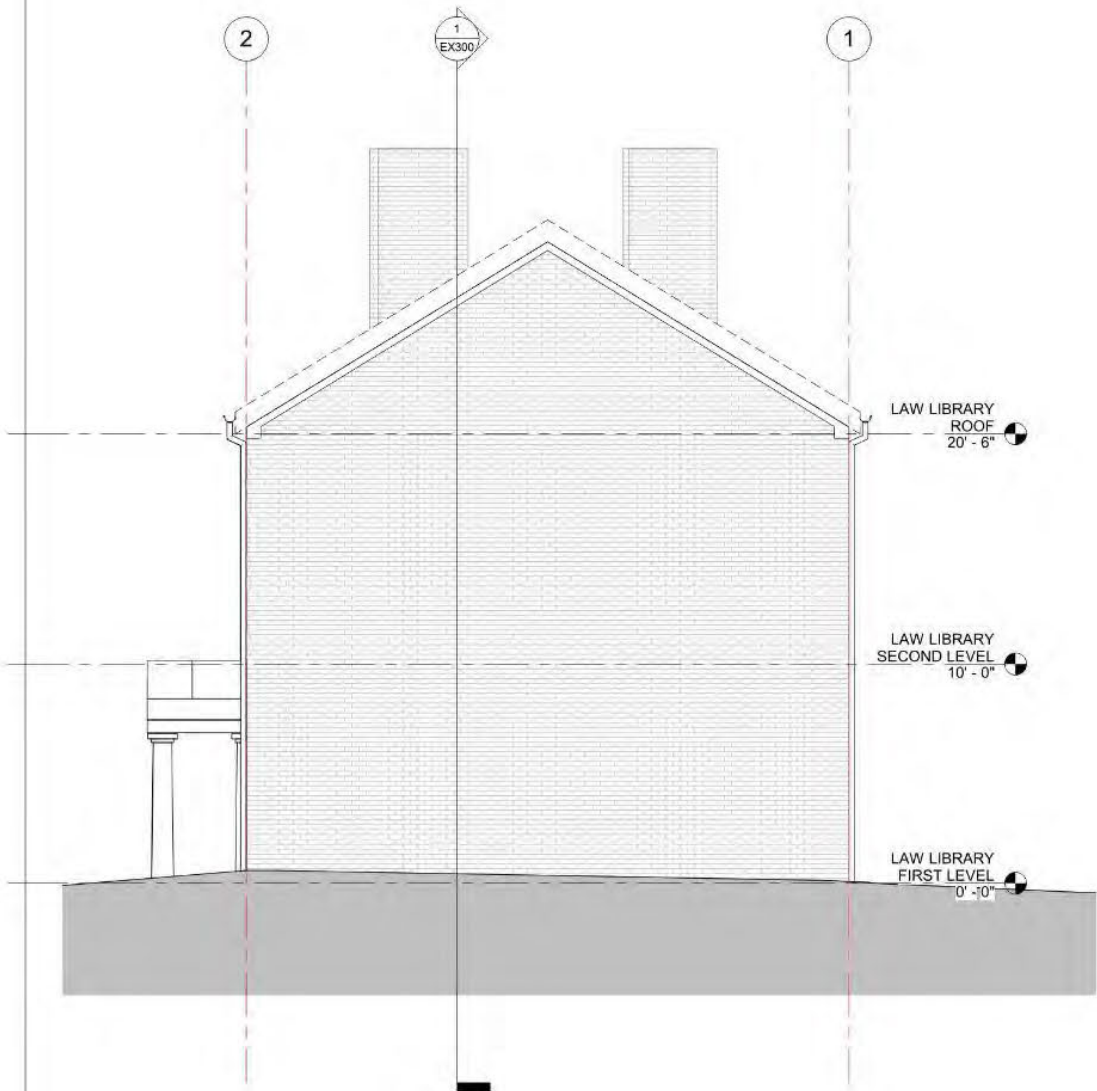
SCALE REFERS TO 24" X 36" PAPER SIZE



PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY
200 COURTNEY DRIVE
Greenbrier Historical Society
LAW LIBRARY EXTERIOR ELEVATIONS

Revision Schedule		
No.	Revision Description	Date
INTENDED DRAWING USE:		
ILLUSTRATION		
Project number	22115	
Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
EX200		
Scale	1/4" = 1'-0"	
SCALE REFERS TO 24" X 36" PAPER SIZE		



2 LAW LIBRARY WEST ELEVATION
1/4" = 1'-0"



1 LAW LIBRARY NORTH ELEVATION
1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

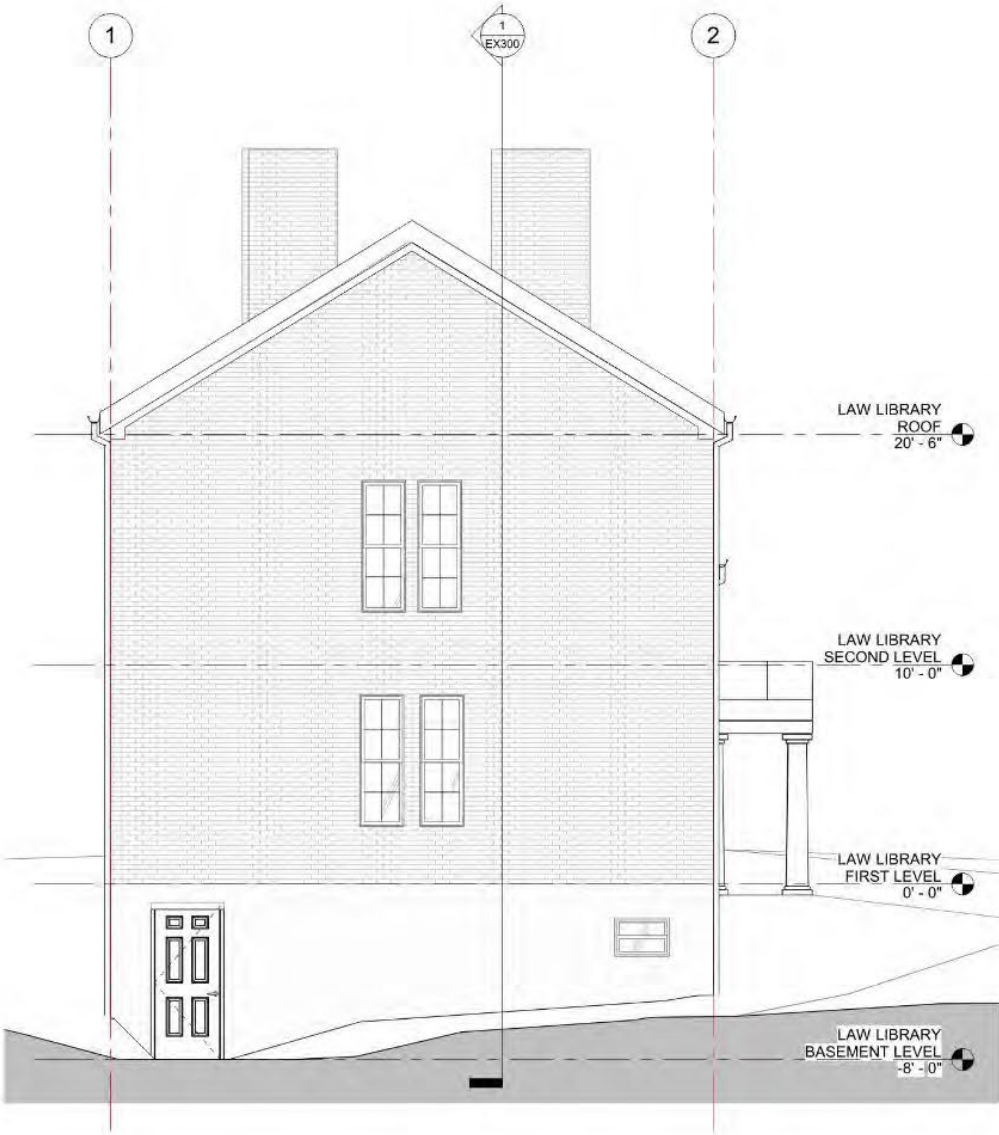
PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

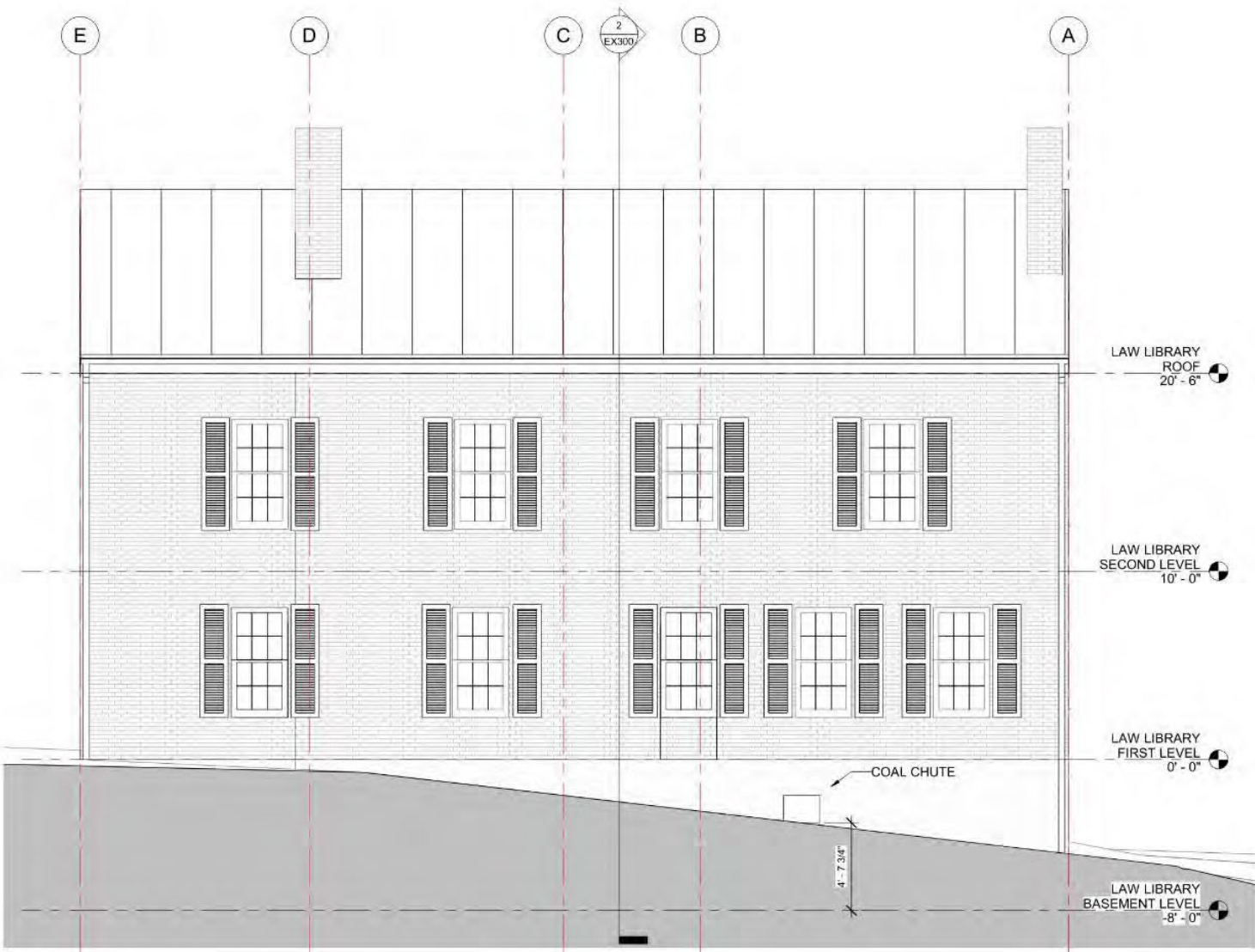
Greenbrier Historical Society

LAW LIBRARY EXTERIOR ELEVATIONS

Revision Schedule		
No.	Revision Description	Date
INTENDED DRAWING USE:		
ILLUSTRATION		
Project number	22115	
Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
EX201		
Scale	1/4" = 1'-0"	
SCALE REFERS TO 24" X 36" PAPER SIZE		



2 LAW LIBRARY EAST ELEVATION
1/4" = 1'-0"



1 LAW LIBRARY SOUTH ELEVATION
1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

BUILDING SECTIONS

Revision Schedule

No.	Revision Description	Date
-----	----------------------	------

INTENDED DRAWING USE:

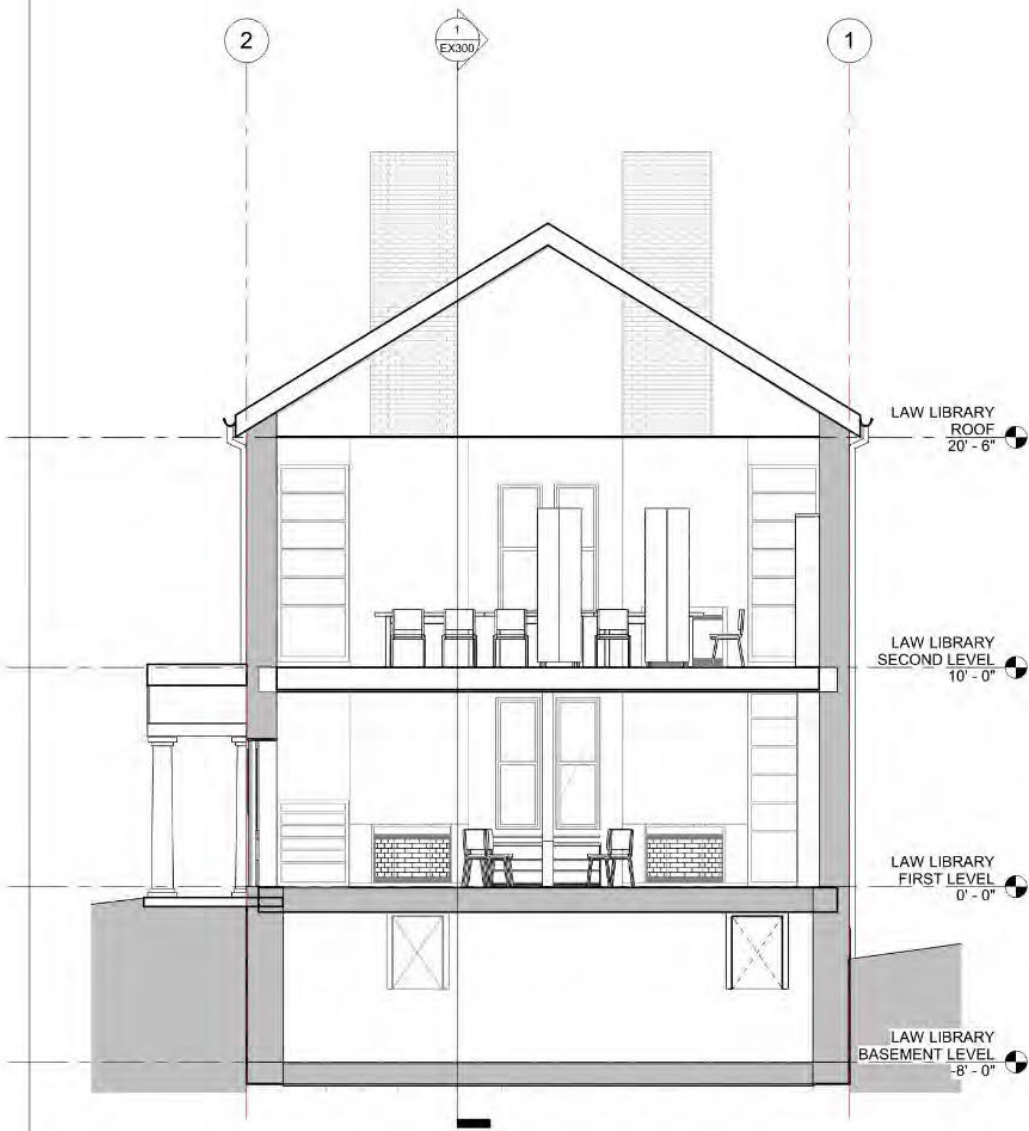
ILLUSTRATION

Project number	22115
Date	3/22/2023
Drawn by	SPD
Checked by	MJM

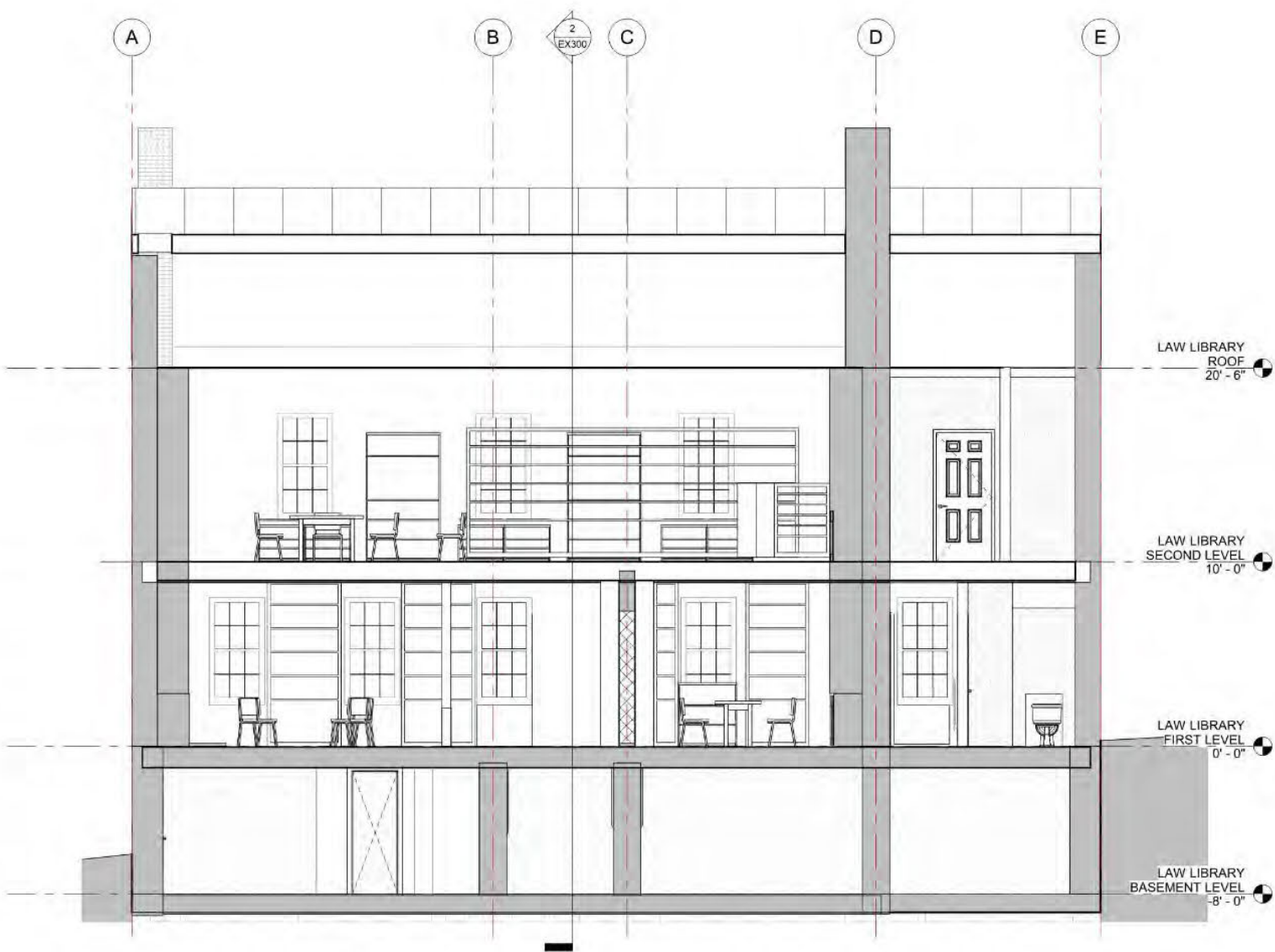
EX300

Scale 1/4" = 1'-0"

SCALE REFERS TO 24" X 36" PAPER SIZE



2 LAW LIBRARY TRAVERSE SECTION
1/4" = 1'-0"



1 LAW LIBRARY LONGITUDINAL SECTION
1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

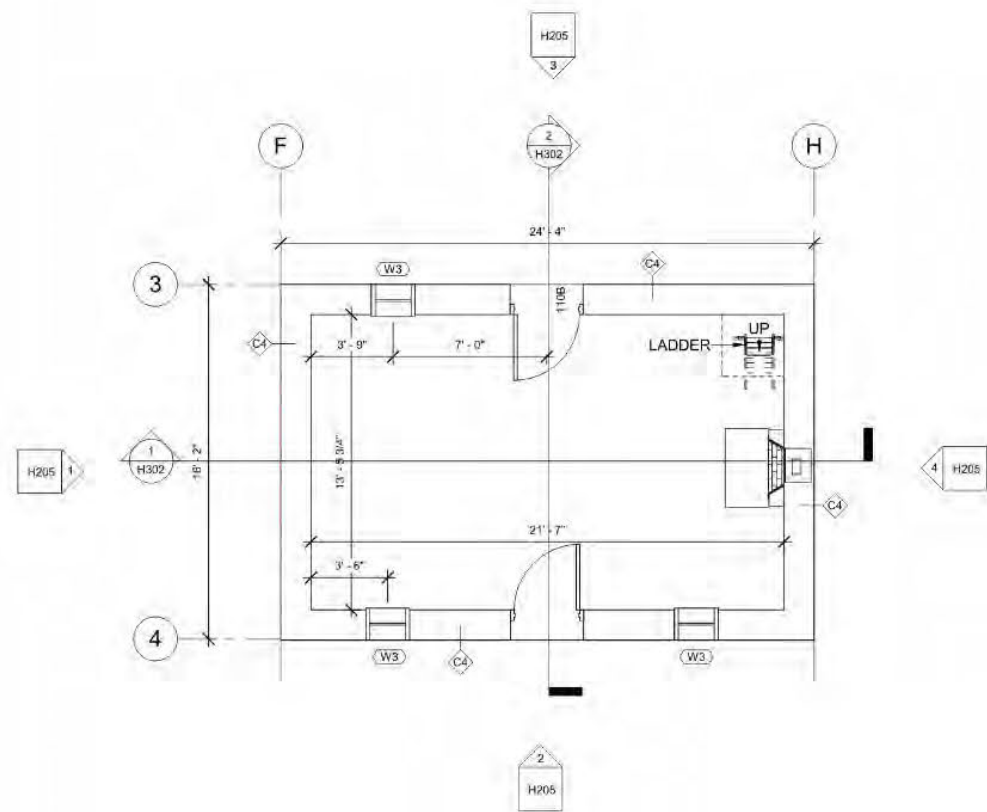
PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

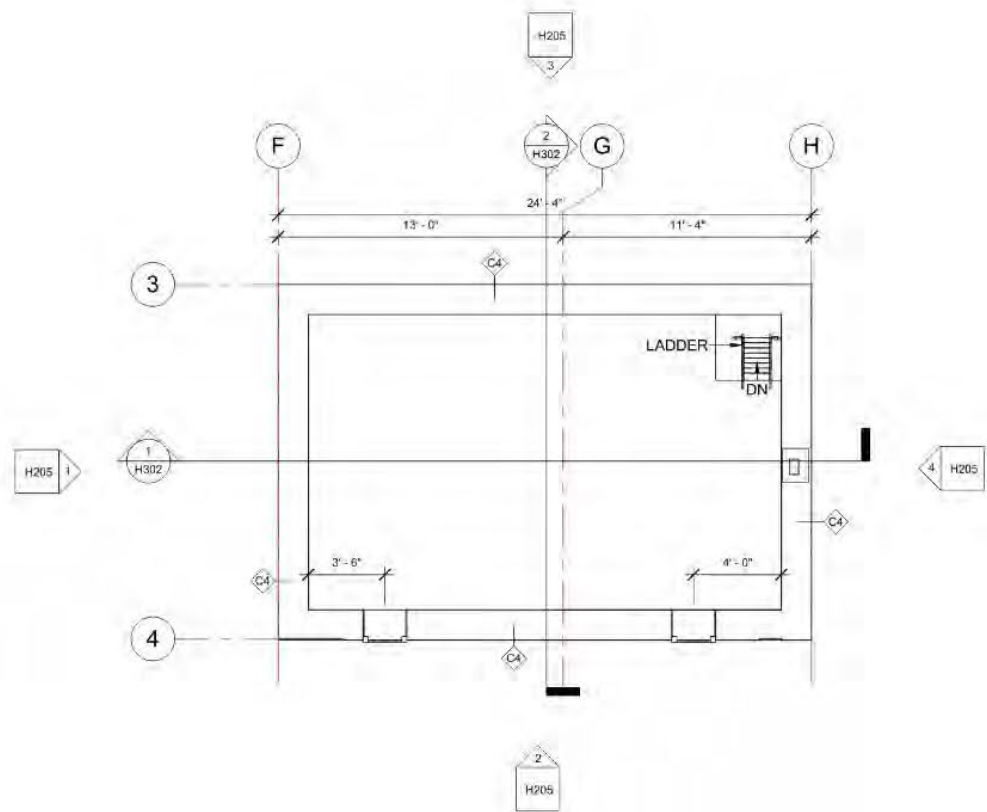
Greenbrier Historical Society

ENSLAVED QUARTERS FLOOR PLANS FIRST
PHASE

Revision Schedule		
No.	Revision Description	Date
INTENDED DRAWING USE:.		
ILLUSTRATION		
Project number	22115	
Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
<h1>H104</h1>		
<div> <div>Scale</div> <div>1/4" = 1'-0"</div> </div>		
SCALE REFERS TO 24" X 36" PAPER SIZE		



1 ENSLAVED QUARTERS FIRST FLOOR FIRST PHASE
1/4" = 1'-0"



2 ENSLAVED QUARTERS SECOND FLOOR FIRST PHASE
1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

ENSLAVED QUARTERS FIRST PHASE
ELEVATIONS

Revision Schedule

No.	Revision Description	Date
-----	----------------------	------

INTENDED DRAWING USE:

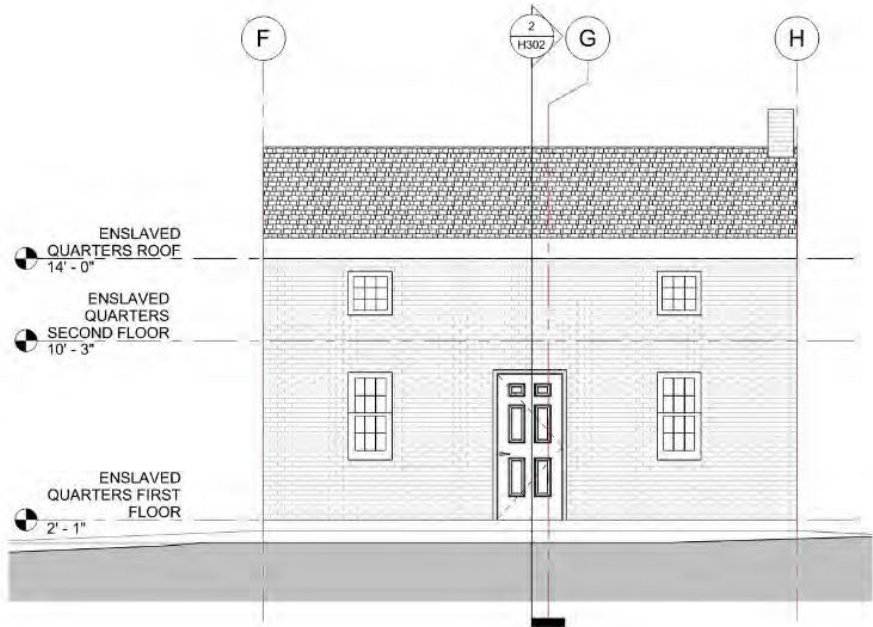
ILLUSTRATION

Project number	22115
Date	3/22/2023
Drawn by	SPD
Checked by	MJM

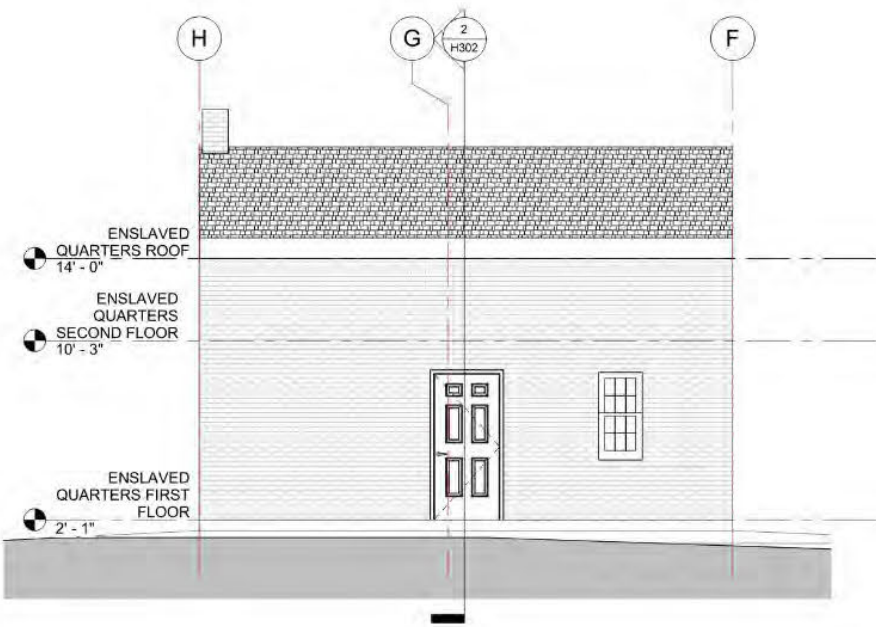
H205

Scale 1/4" = 1'-0"

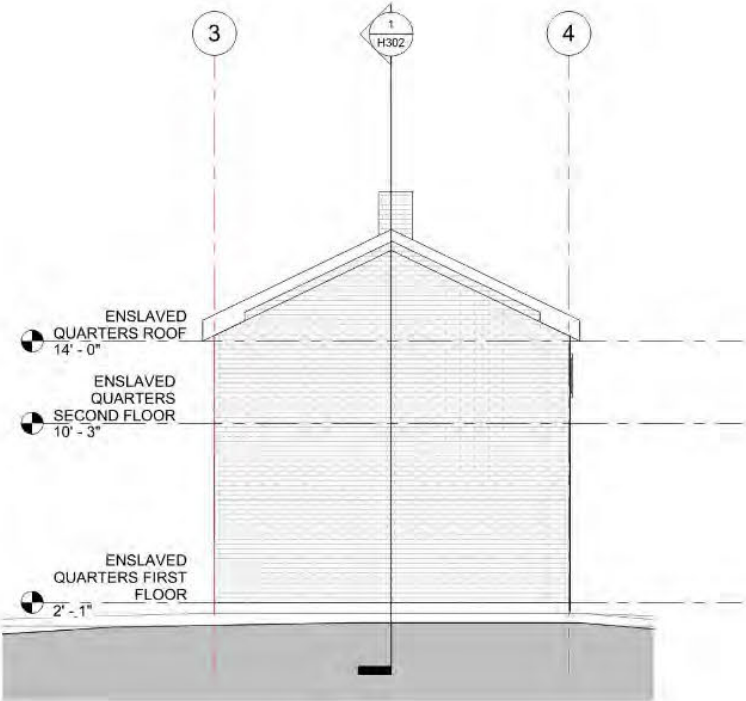
SCALE REFERS TO 24" X 36" PAPER SIZE



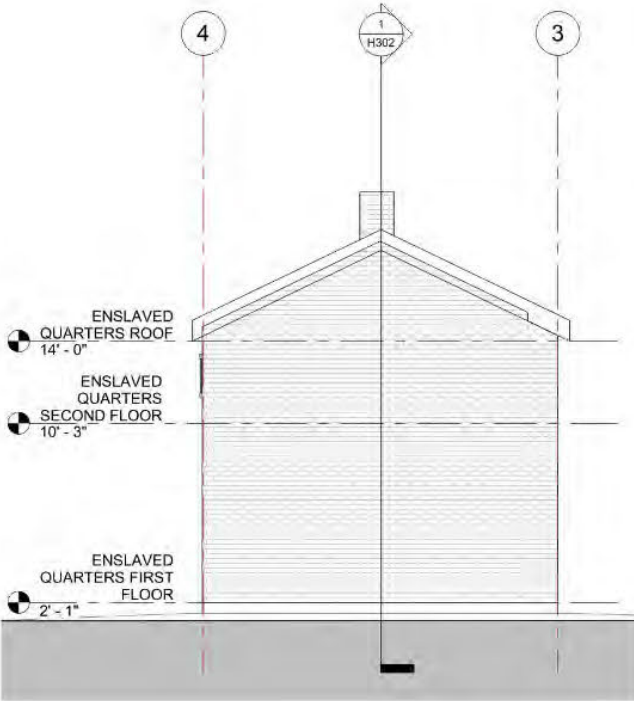
2 ENSLAVED QUARTERS NORTH FIRST PHASE ELEVATION
1/4" = 1'-0"



3 ENSLAVED QUARTERS SOUTH FIRST PHASE ELEVATION
1/4" = 1'-0"



1 ENSLAVED QUARTERS EAST FIRST PHASE ELEVATION
1/4" = 1'-0"



4 ENSLAVED QUARTERS WEST FIRST PHASE ELEVATION
1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:

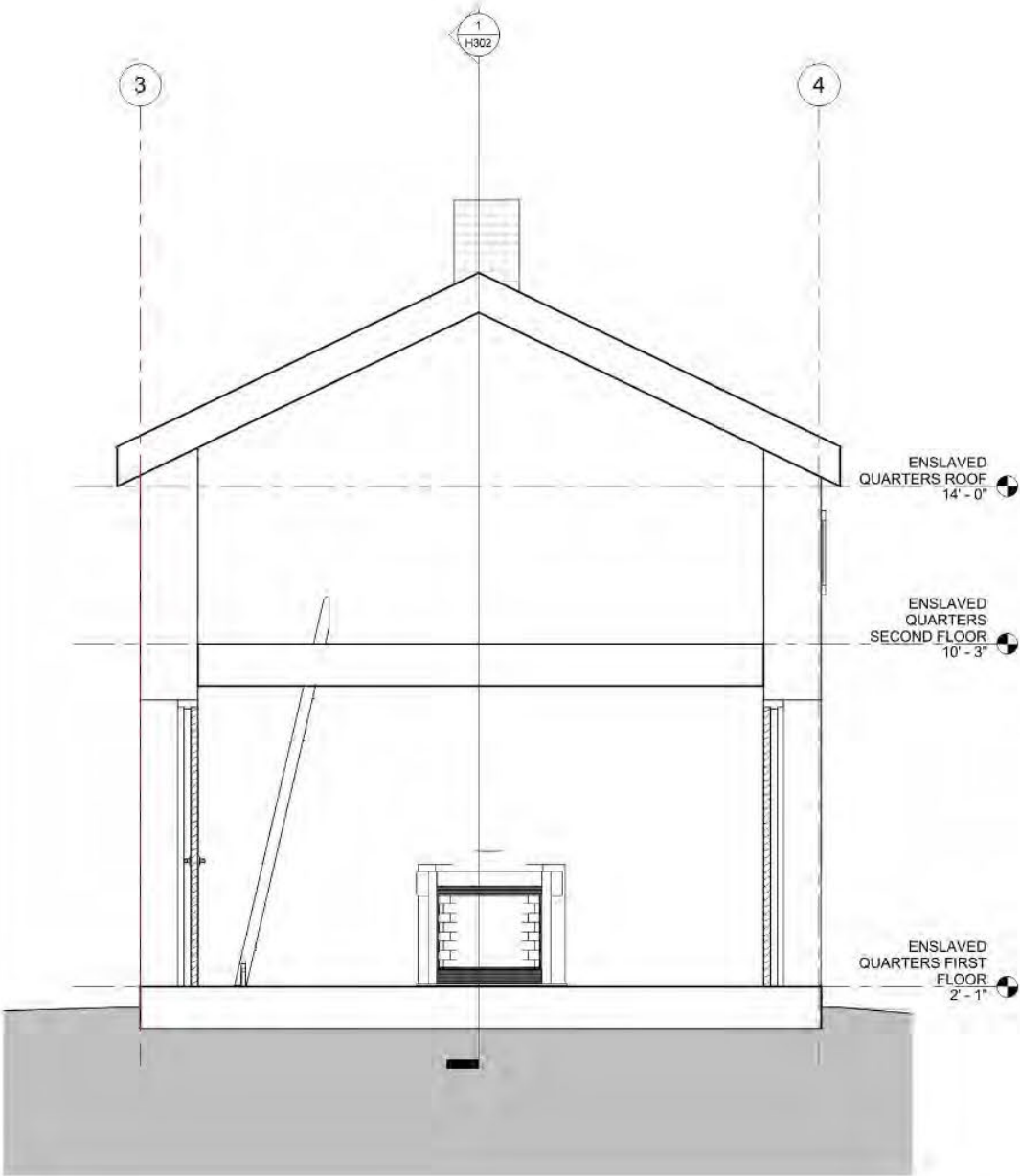
GHS LAW LIBRARY

200 COURTNEY DRIVE

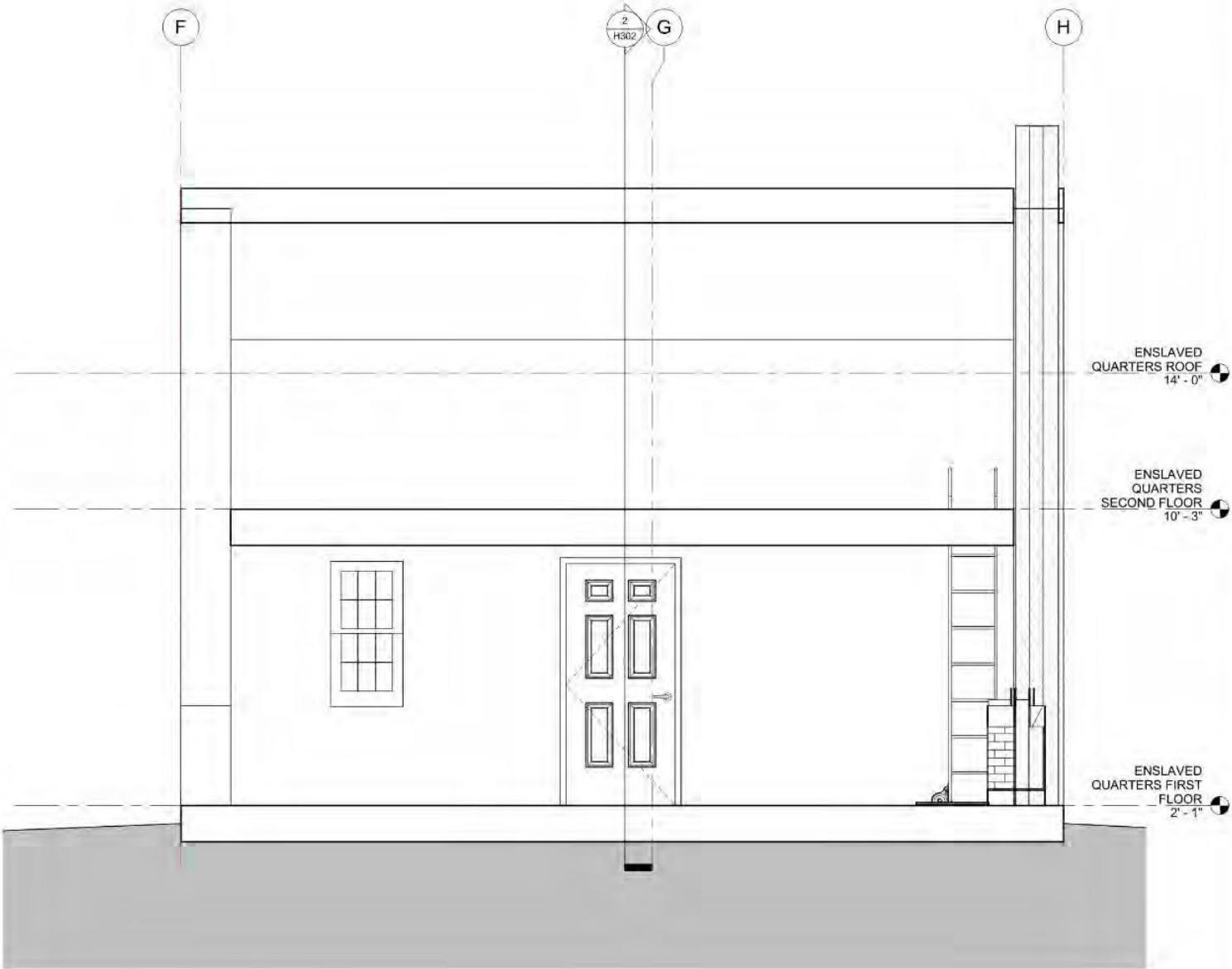
Greenbrier Historical Society

ENSLAVED QUARTERS FIRST PHASE SECTIONS

Revision Schedule		
No.	Revision Description	Date
INTENDED DRAWING USE:		
ILLUSTRATION		
Project number	22115	
Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
H302		
Scale	1/2" = 1'-0"	
SCALE REFERS TO 24" X 36" PAPER SIZE		



2 ENSLAVED QUARTERS TRANSVERSE SECTION PHASE 1
1/2" = 1'-0"



1 ENSLAVED QUARTERS LONGITUDINAL SECTION PHASE 1
1/2" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

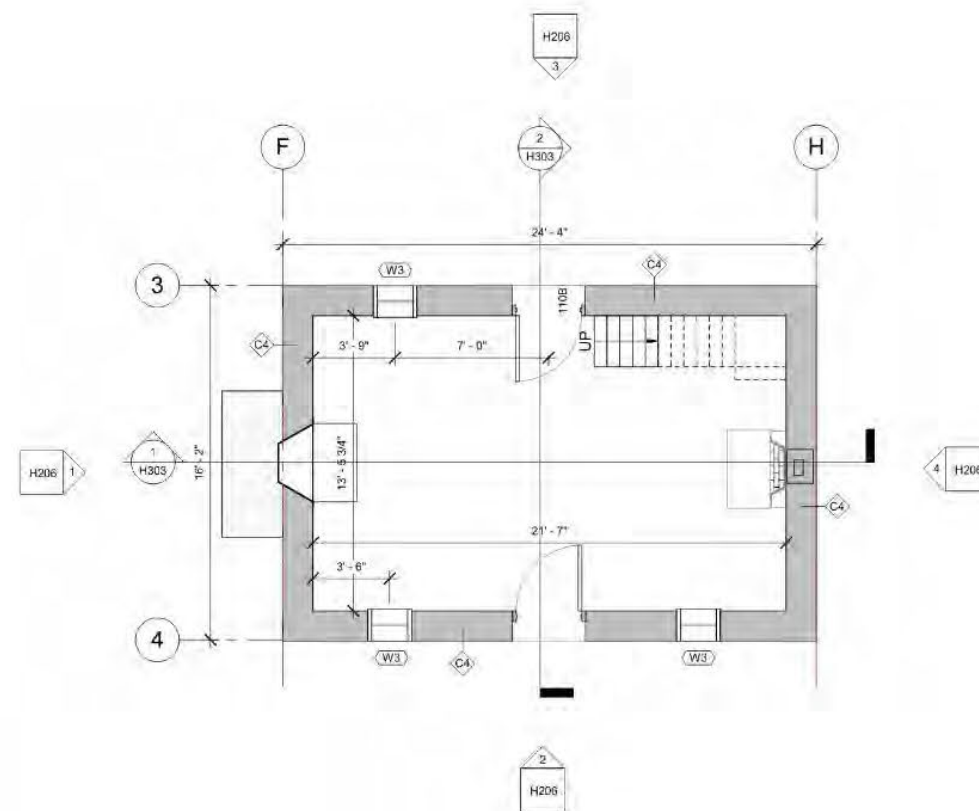
PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

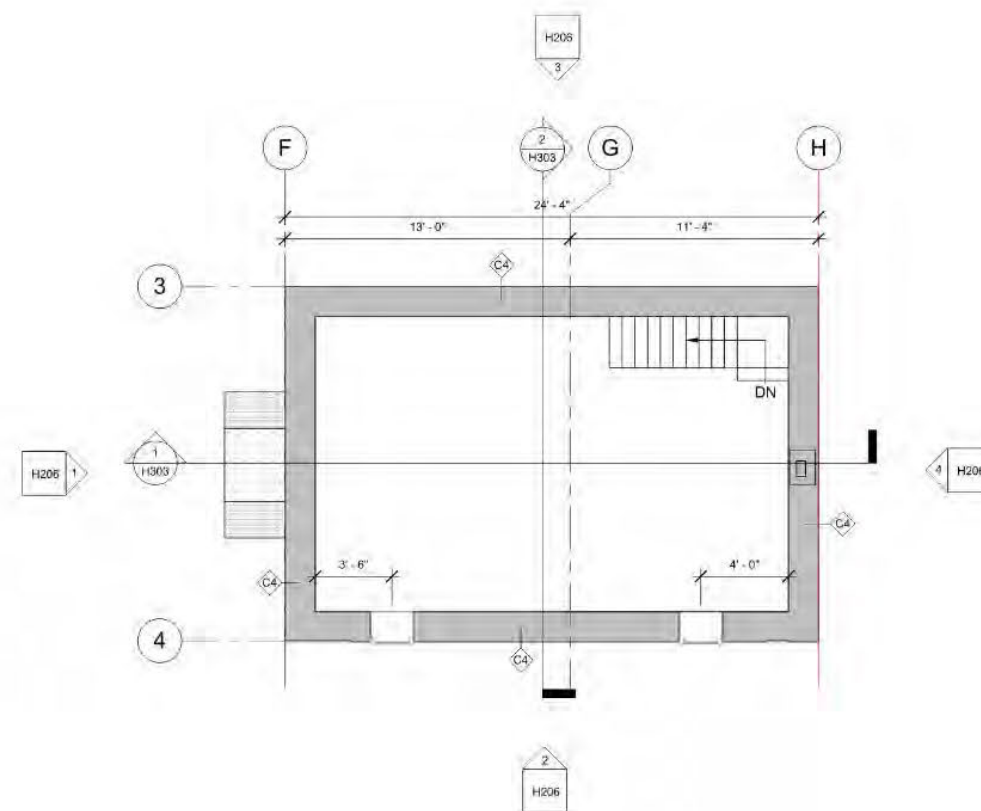
Greenbrier Historical Society

**ENSLAVED QUARTERS FLOOR PLANS SECOND
PHASE**

Revision Schedule		
No.	Revision Description	Date
INTENDED DRAWING USE:		
ILLUSTRATION		
Project number	22115	
Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
H105		
Scale 1/4" = 1'-0"		
SCALE REFERS TO 24" X 36" PAPER SIZE		



1 ENSLAVED QUARTERS FIRST FLOOR SECOND PHASE
1/4" = 1'-0"



2 ENSLAVED QUARTERS SECOND FLOOR SECOND PHASE
1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

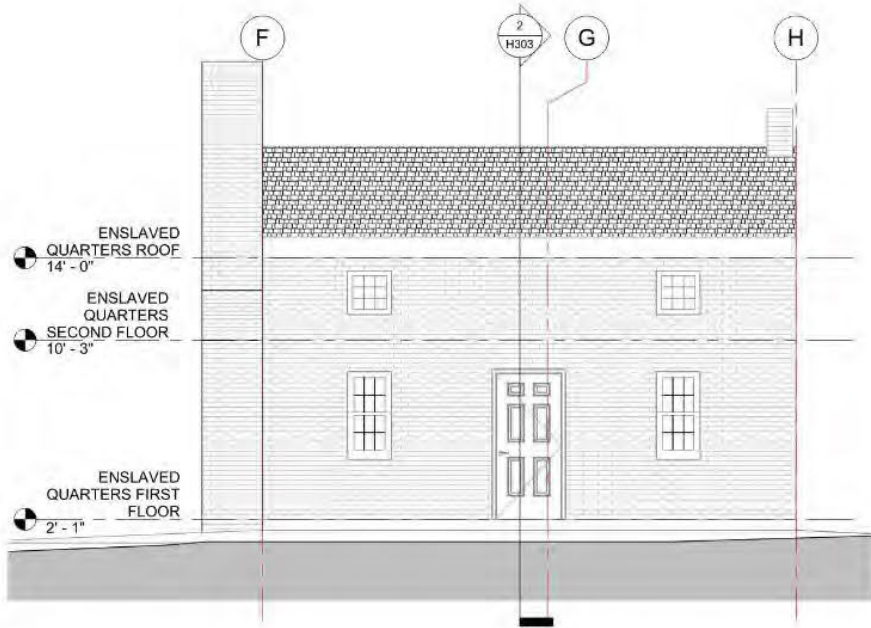
PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

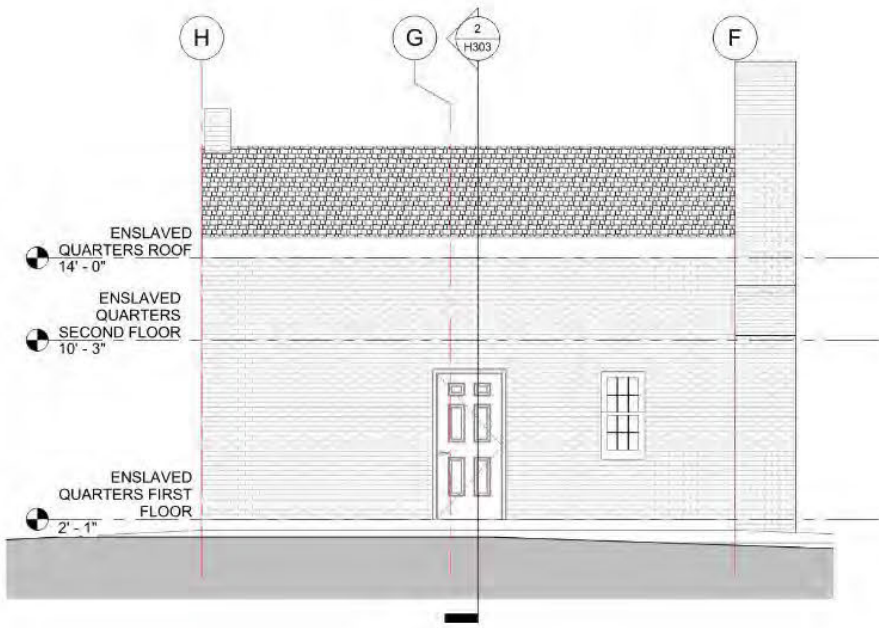
Greenbrier Historical Society

ENSLAVED QUARTERS SECOND PHASE
ELEVATIONS

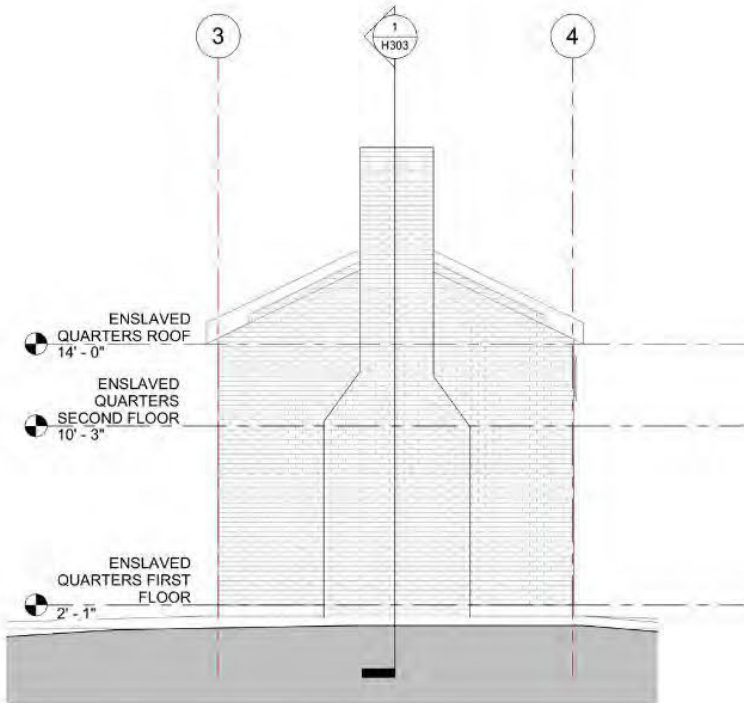
Revision Schedule		
No.	Revision Description	Date
INTENDED DRAWING USE:		
ILLUSTRATION		
Project number	22115	
Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
H206		
Scale	1/4" = 1'-0"	
SCALE REFERS TO 24" X 36" PAPER SIZE		



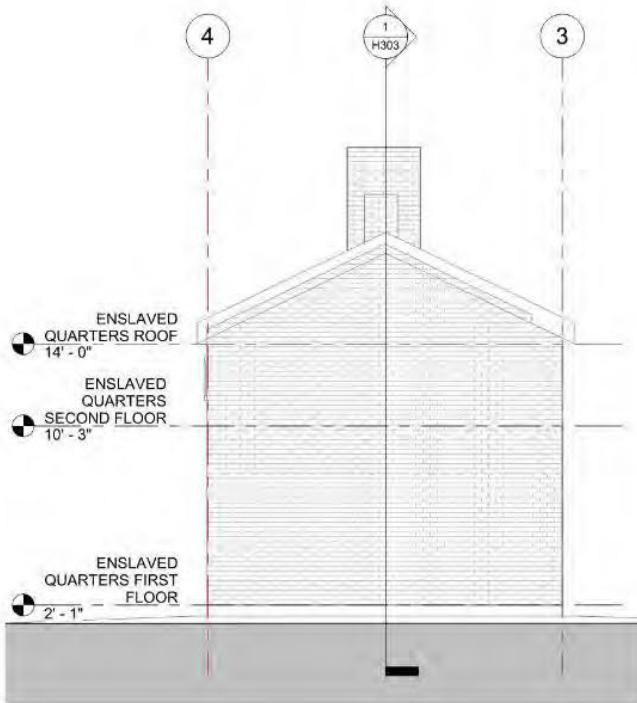
2 ENSLAVED QUARTERS NORTH SECOND PHASE ELEVATION
1/4" = 1'-0"



3 ENSLAVED QUARTERS SOUTH SECOND PHASE ELEVATION
1/4" = 1'-0"



1 ENSLAVED QUARTERS EAST SECOND PHASE ELEVATION
1/4" = 1'-0"



4 ENSLAVED QUARTERS WEST SECOND PHASE ELEVATION
1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

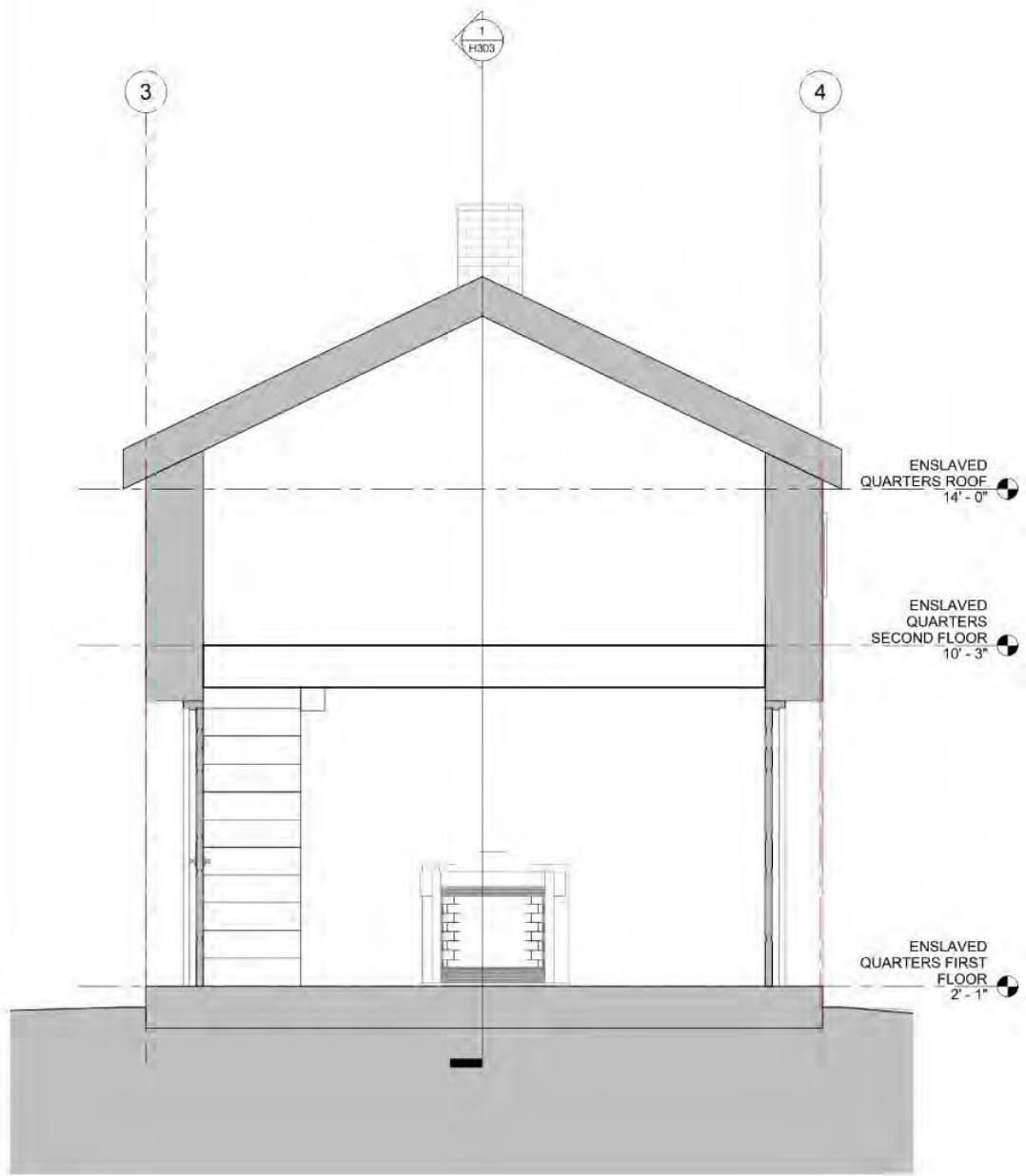
PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

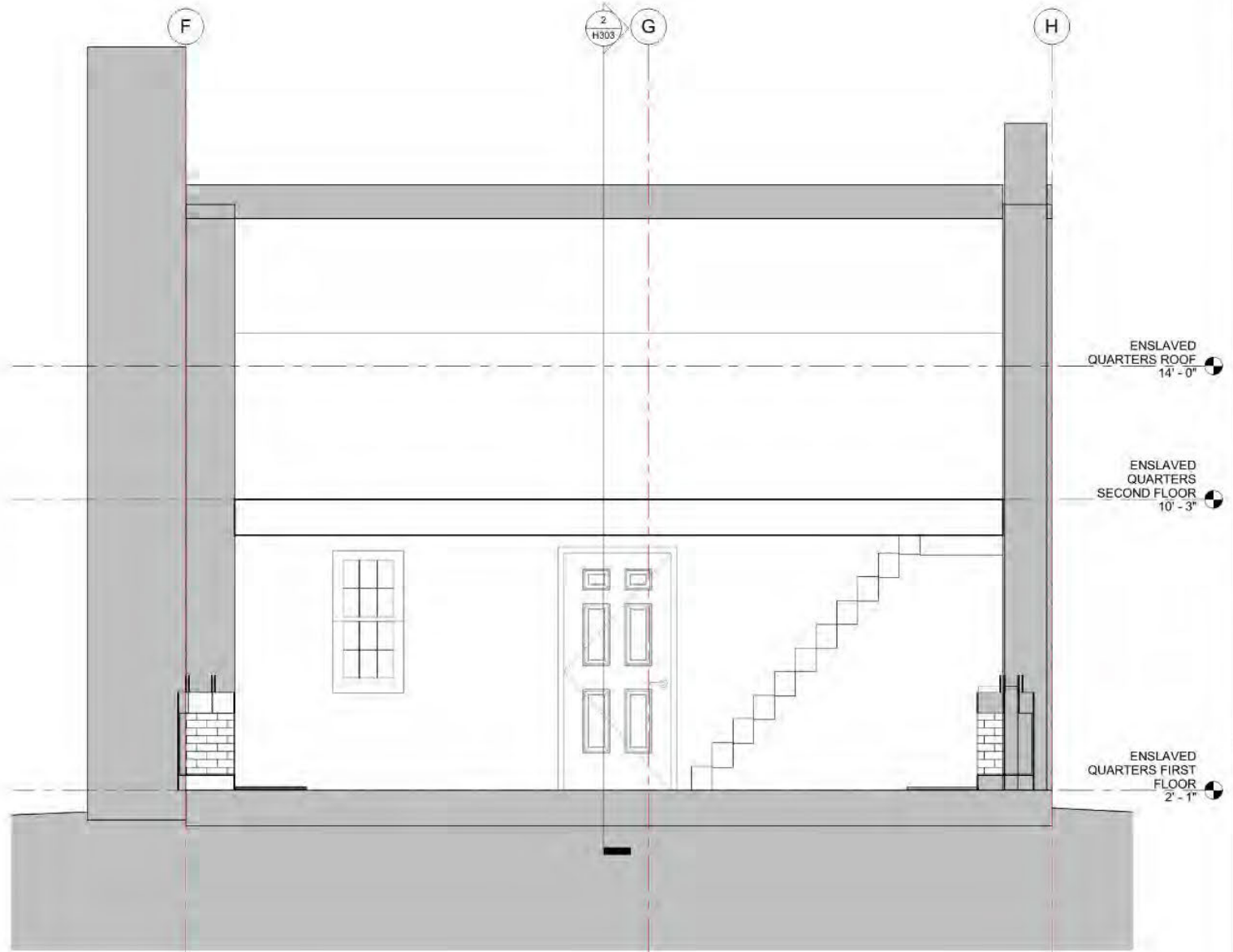
Greenbrier Historical Society

ENSLAVED QUARTERS SECOND PHASE
SECTIONS

Revision Schedule		
No.	Revision Description	Date
INTENDED DRAWING USE:		
ILLUSTRATION		
Project number	22115	
Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
H303		
Scale	1/2" = 1'-0"	
SCALE REFERS TO 24" X 36" PAPER SIZE		



2 ENSLAVED QUARTERS TRANSVERSE SECTION PHASE 2
1/2" = 1'-0"



1 ENSLAVED QUARTERS LONGITUDINAL SECTION PHASE 2
1/2" = 1'-0"

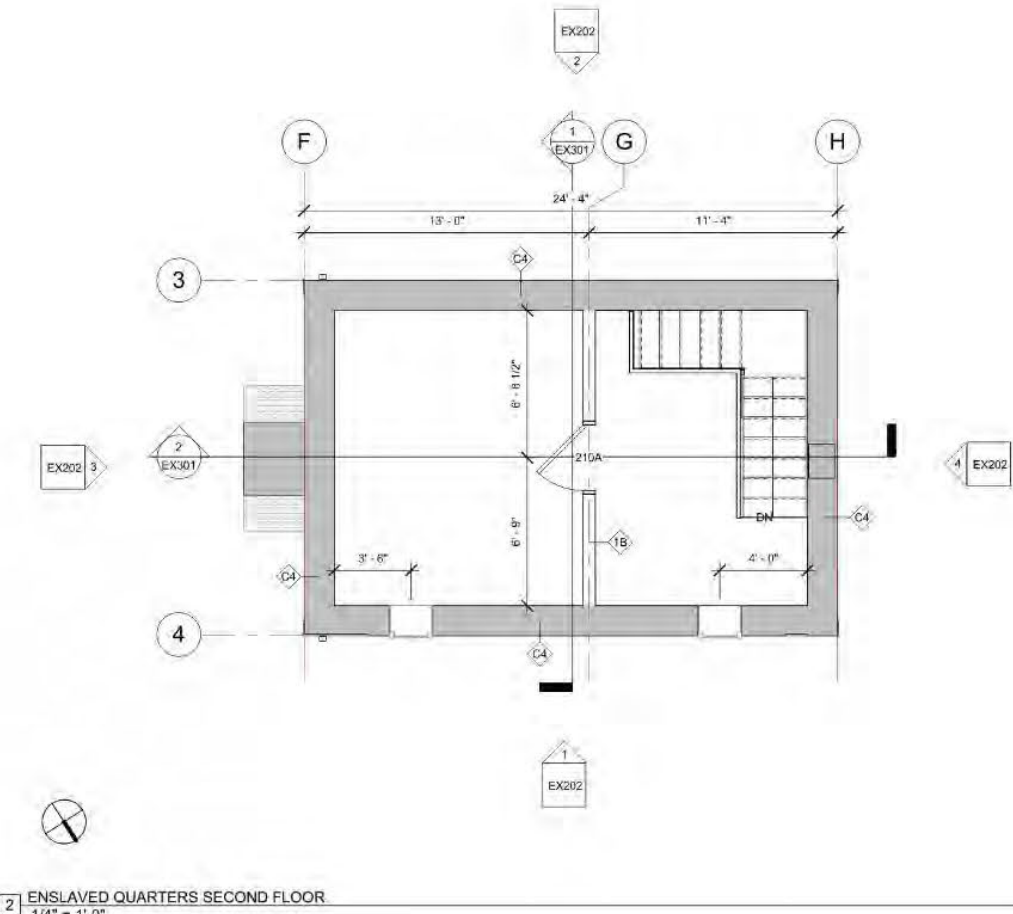
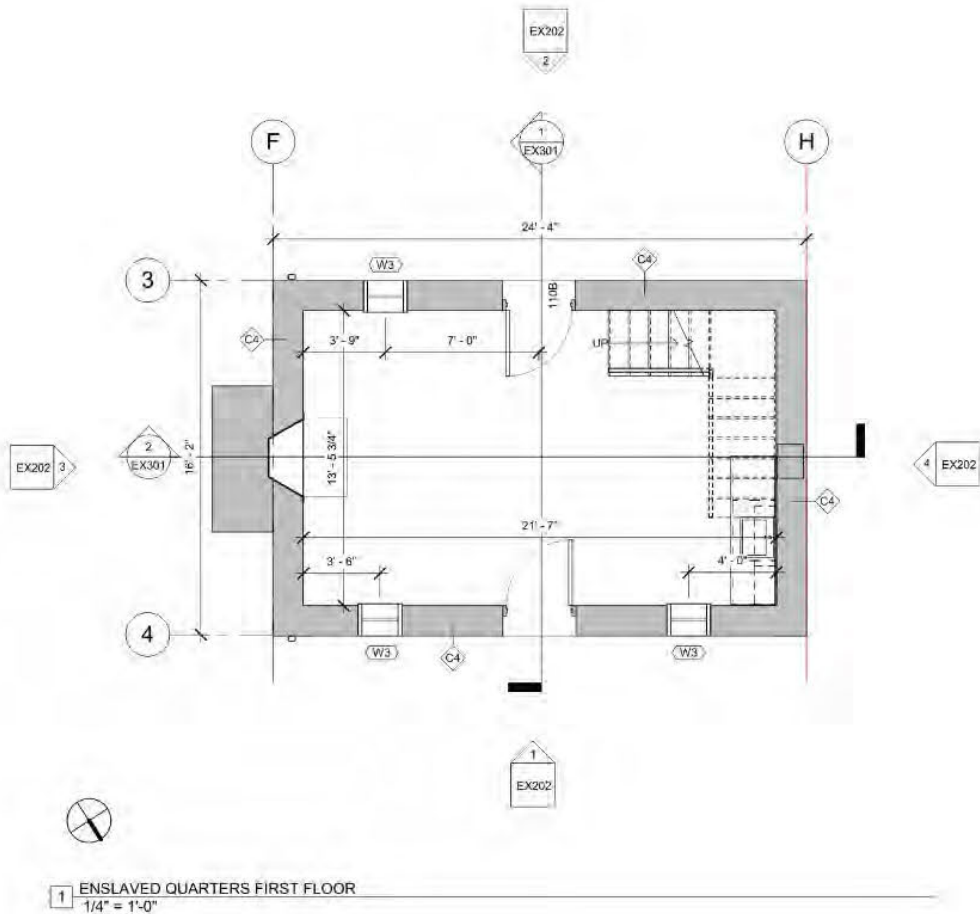
PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

ENSLAVED QUARTERS FLOOR PLANS



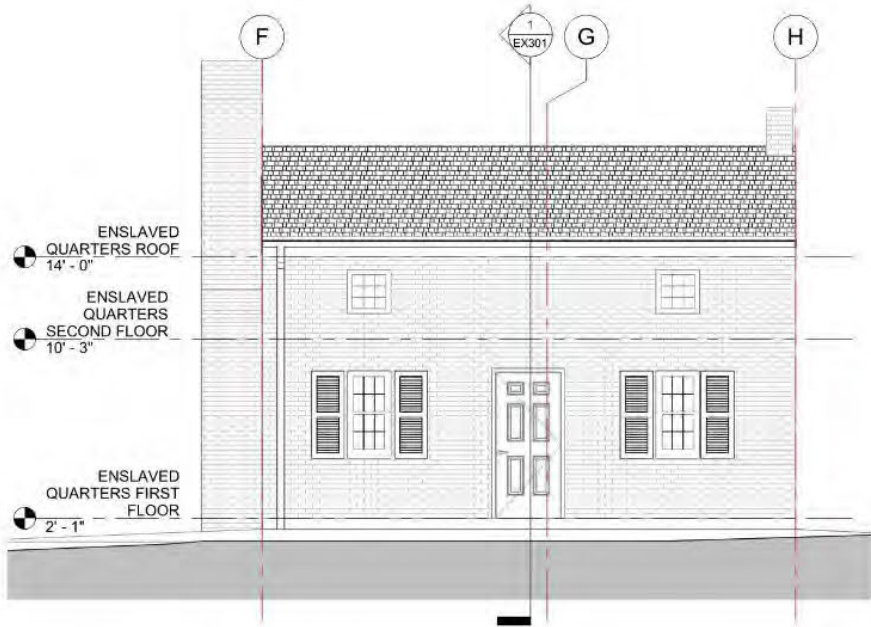
Revision Schedule		
No.	Revision Description	Date
INTENDED DRAWING USE:..		
ILLUSTRATION		
Project number	22115	
Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
EX104		
Scale	1/4" = 1'-0"	
SCALE REFERS TO 24" X 36" PAPER SIZE		

PRELIMINARY
NOT FOR
CONSTRUCTION

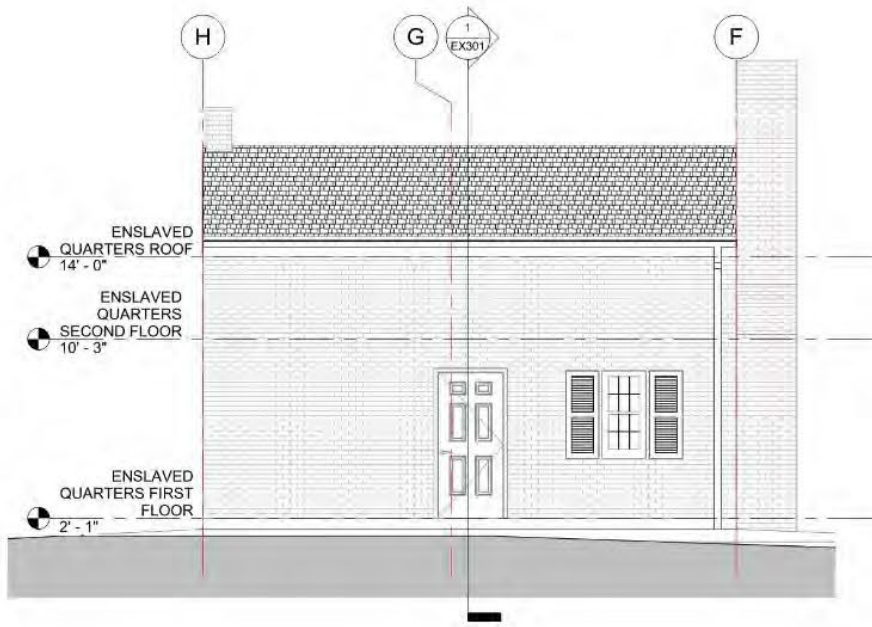
PROJECT:
GHS LAW LIBRARY
200 COURTNEY DRIVE
Greenbrier Historical Society

ENSLAVED QUARTERS EXTERIOR ELEVATIONS

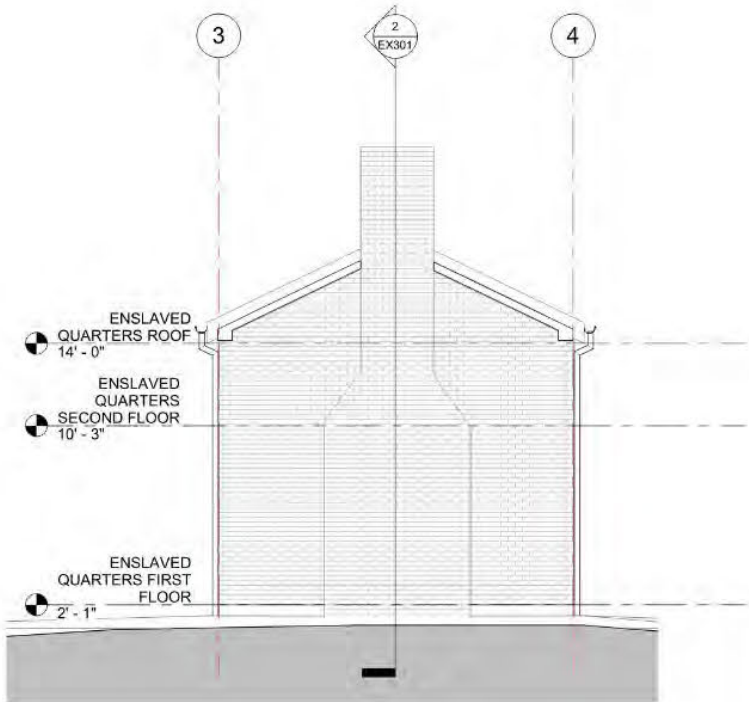
Revision Schedule		
No.	Revision Description	Date
INTENDED DRAWING USE:		
ILLUSTRATION		
Project number	22115	
Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
EX202		
Scale	1/4" = 1'-0"	
SCALE REFERS TO 24" X 36" PAPER SIZE		



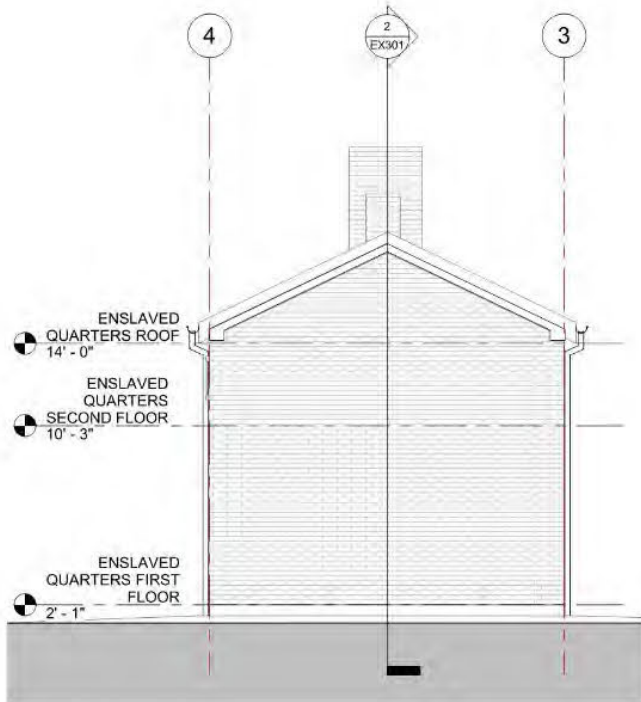
1 ENSLAVED QUARTERS NORTH ELEVATION
1/4" = 1'-0"



2 ENSLAVED QUARTERS SOUTH ELEVATION
1/4" = 1'-0"



3 ENSLAVED QUARTERS EAST ELEVATION
1/4" = 1'-0"



4 ENSLAVED QUARTERS WEST ELEVATION
1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

BUILDING SECTIONS

Revision Schedule

No.	Revision Description	Date
-----	----------------------	------

INTENDED DRAWING USE:

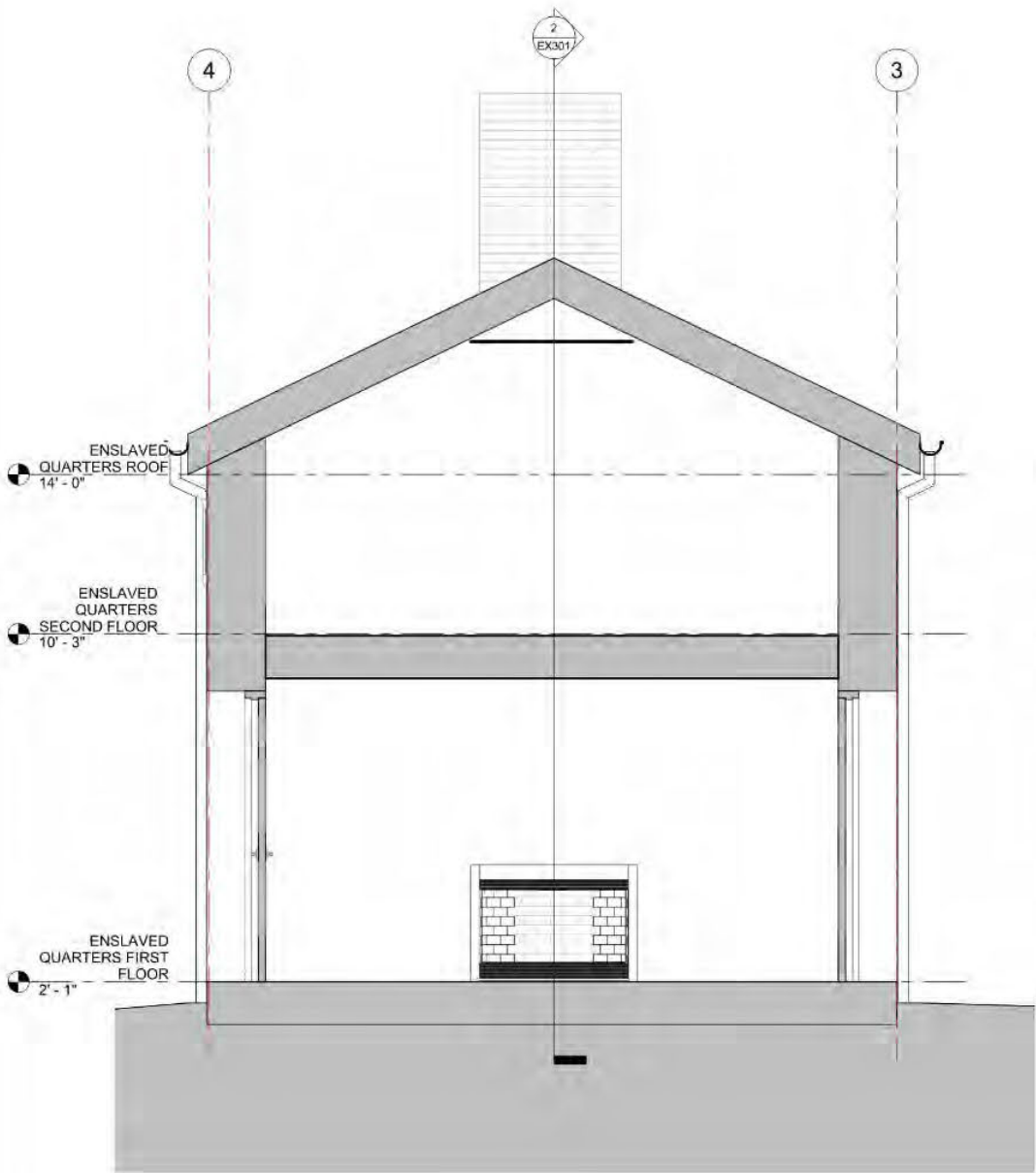
ILLUSTRATION

Project number	22115
Date	3/22/2023
Drawn by	SPD
Checked by	MJM

EX301

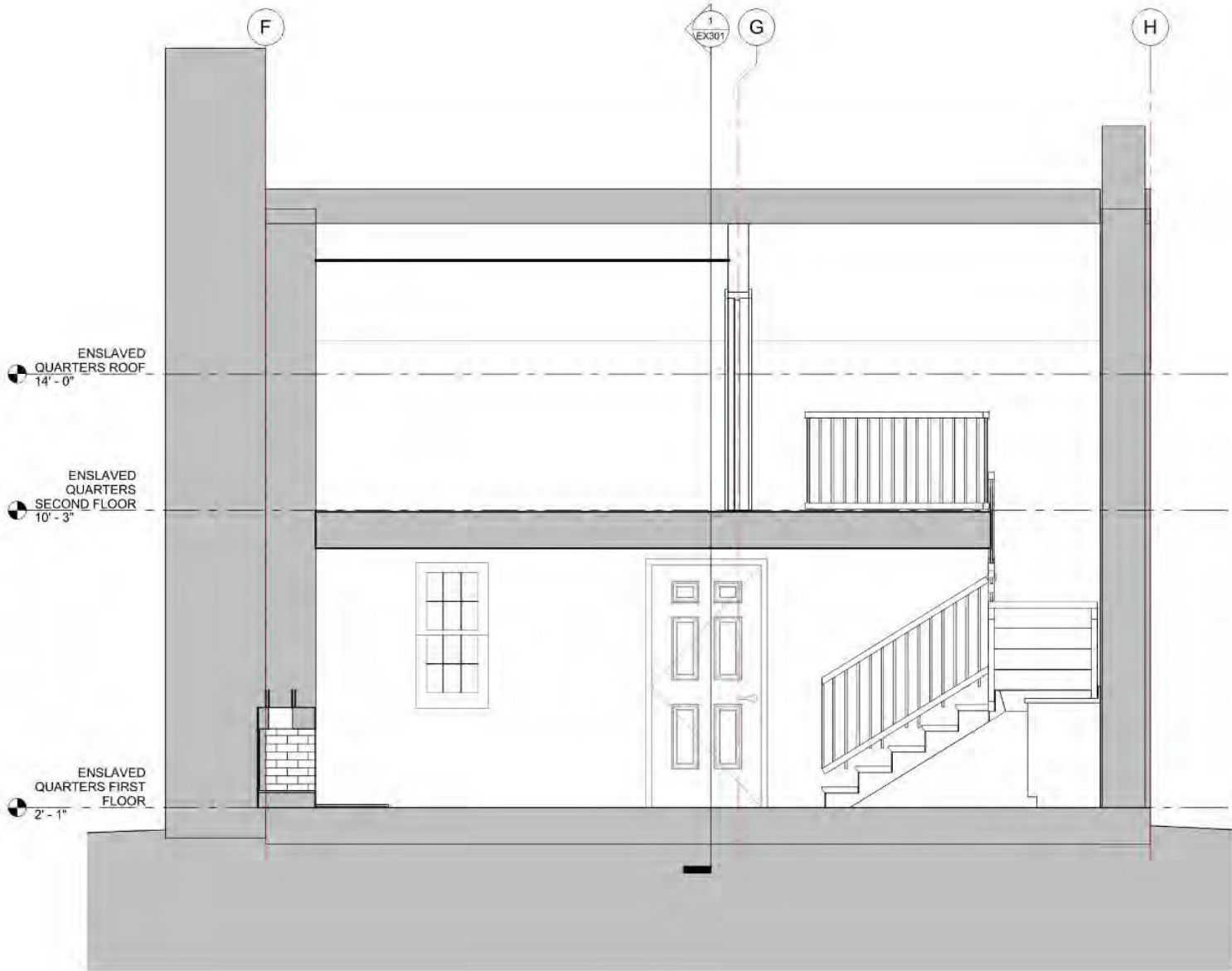
Scale 1/2" = 1'-0"

SCALE REFERS TO 24" X 36" PAPER SIZE



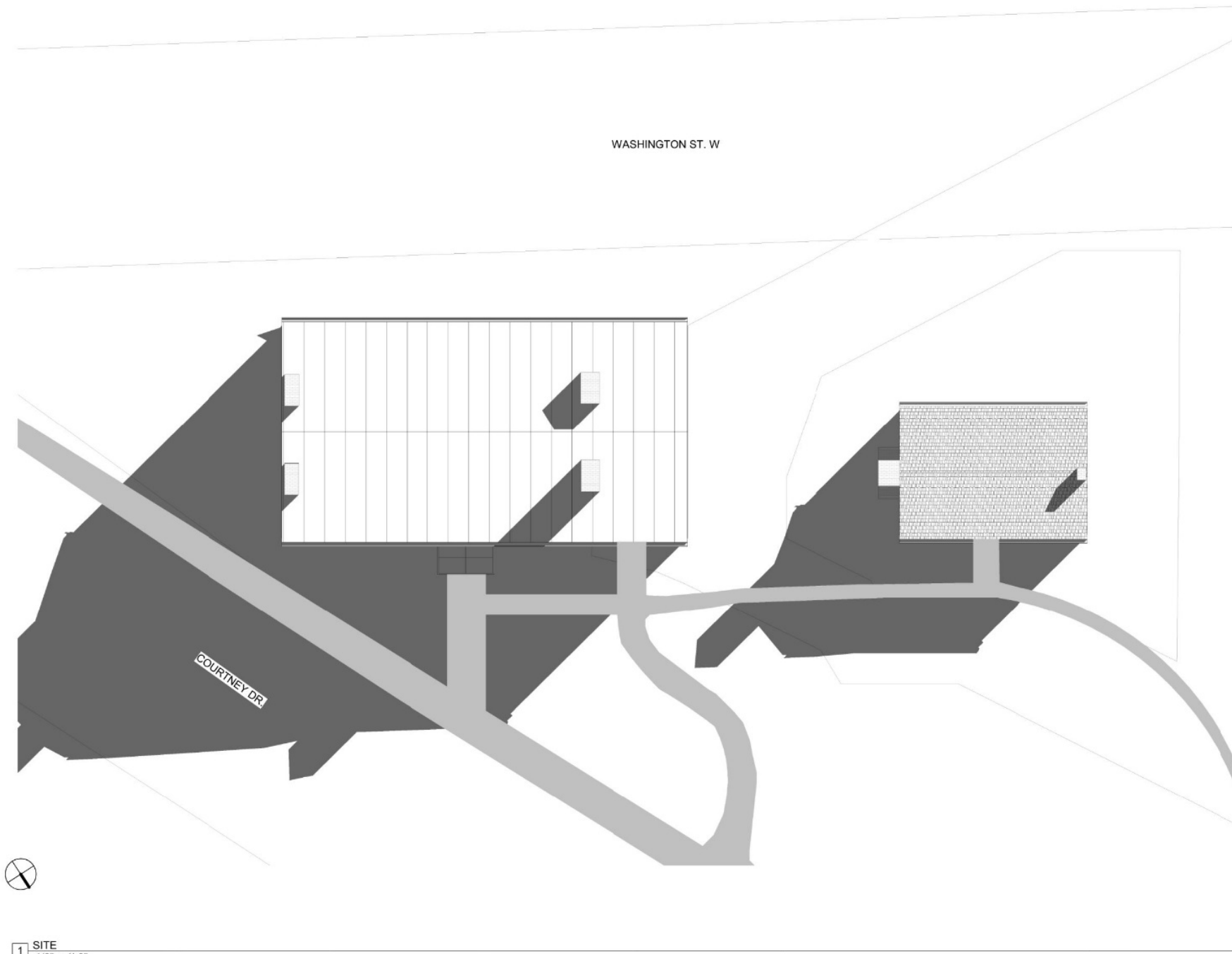
1 ENSLAVED QUARTERS TRANSVERSE SECTION

1/2" = 1'-0"



2 ENSLAVED QUARTERS LONGITUDINAL SECTION

1/2" = 1'-0"



1 SITE
1/8" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:	GHS LAW LIBRARY	
	200 COURTNEY DRIVE	Greenbrier Historical Society
	SITE	

Revision Schedule		
No.	Revision Description	Date
INTENDED DRAWING USE:		
ILLUSTRATION		
Project number	22115	
Date	3/22/2023	
Drawn by	SPD	
Checked by	MJM	
EX100		
Scale	1/8" = 1'-0"	
SCALE REFERS TO 24" X 36" PAPER SIZE		

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

ROOF PLANS

Revision Schedule

No.	Revision Description	Date
-----	----------------------	------

INTENDED DRAWING USE:

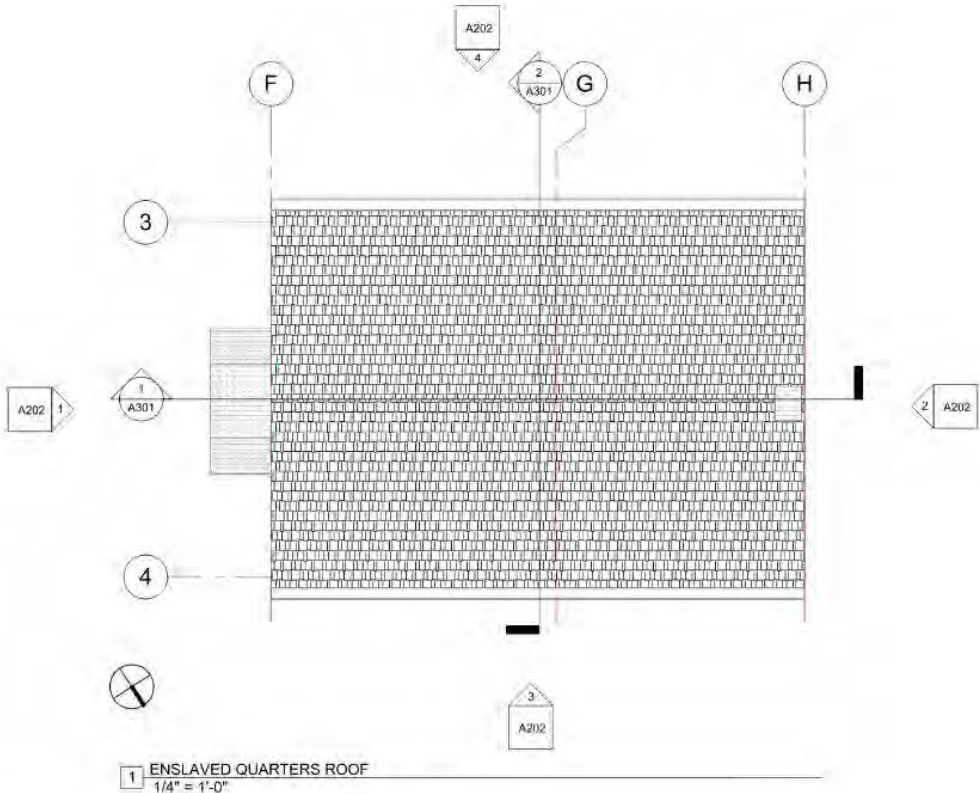
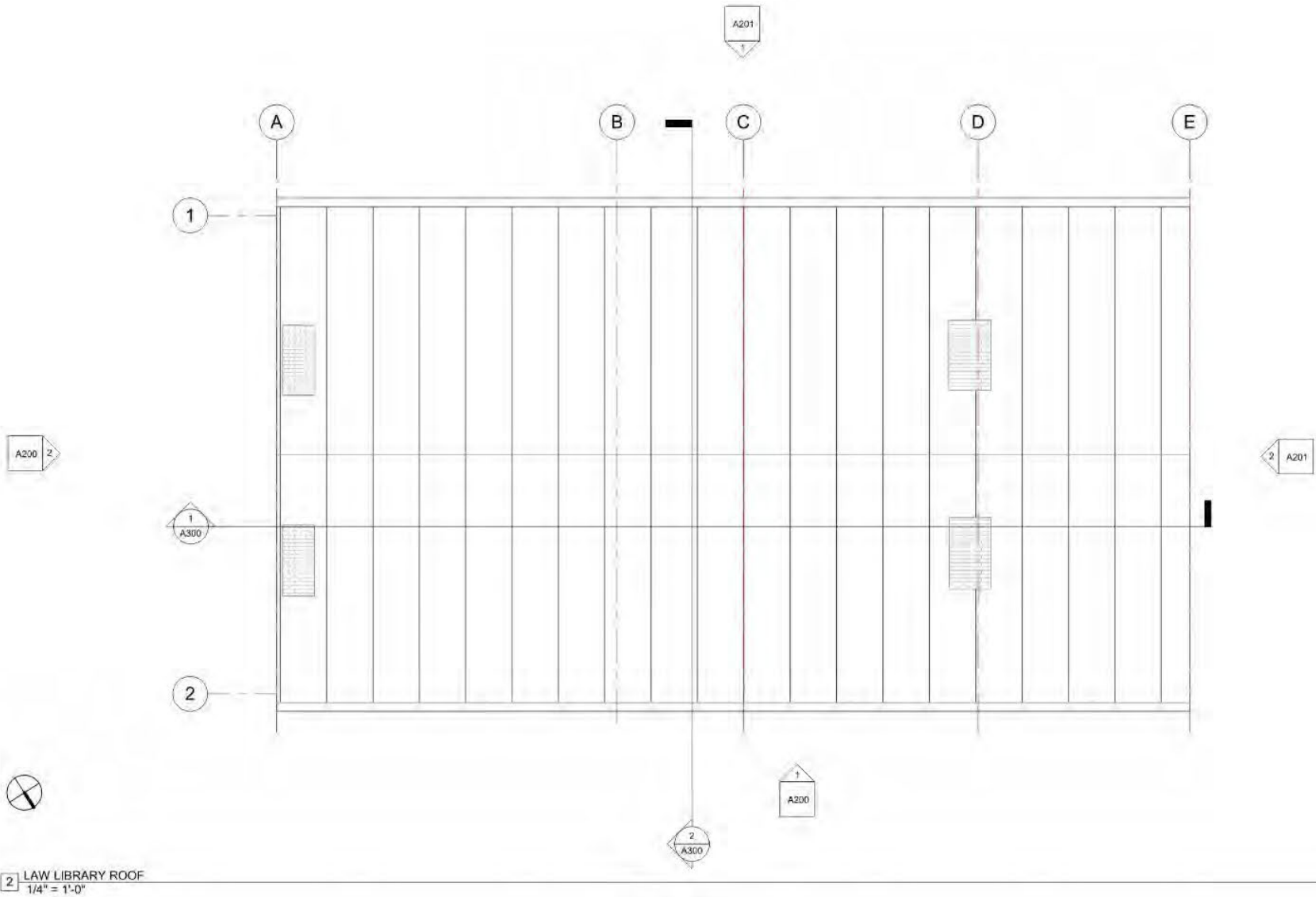
ILLUSTRATION

Project number	22115
Date	3/22/2023
Drawn by	SPD
Checked by	MJM

EX105

Scale 1/4" = 1'-0"

SCALE REFERS TO 24" X 36" PAPER SIZE



PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

LAW LIBRARY BASEMENT FLOOR PLAN
PROPOSED WORK

Revision Schedule

No.	Revision Description	Date
-----	----------------------	------

INTENDED DRAWING USE:

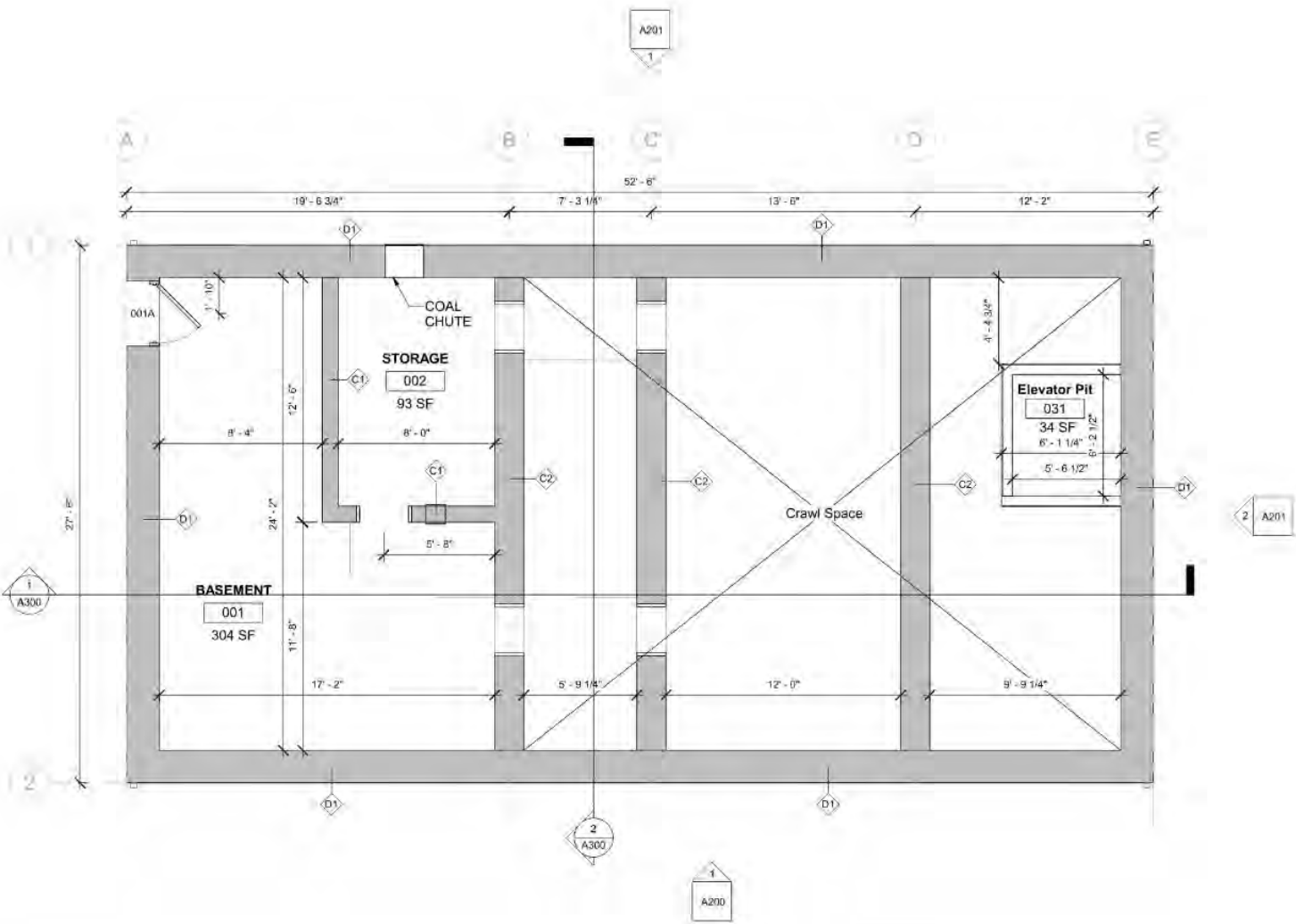
ILLUSTRATION

Project number	22115
Date	3/22/2023
Drawn by	SPD
Checked by	MJM

A101

Scale 1/4" = 1'-0"

SCALE REFERS TO 24" X 36" PAPER SIZE



1 LAW LIBRARY BASEMENT LEVEL PROPOSED WORK
1/4" = 1'-0"

096 08 85'01 E 70°24'N

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

LAW LIBRARY PROPOSED WORK ELEVATIONS

1

2

1
A301

1
A300

LAW LIBRARY
ROOF
20' - 6"

LAW LIBRARY
SECOND LEVEL
10' - 0"

LAW LIBRARY
FIRST LEVEL
0' - 0"

LAW LIBRARY
BASEMENT LEVEL
-8' - 0"

2 LAW LIBRARY EAST ELEVATION PROPOSED WORK
1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY
200 COURTNEY DRIVE
Greenbrier Historical Society
**ENSLAVED QUARTERS FLOOR PLANS
PROPOSED WORK**

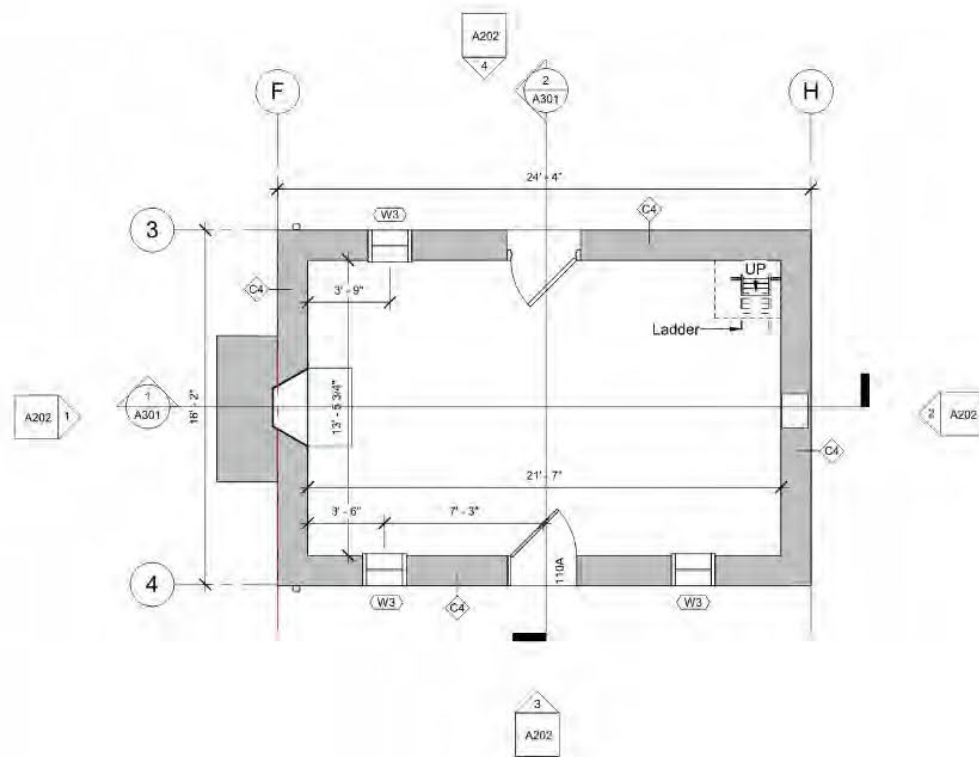
Revision Schedule		
No.	Revision Description	Date

INTENDED DRAWING USE:

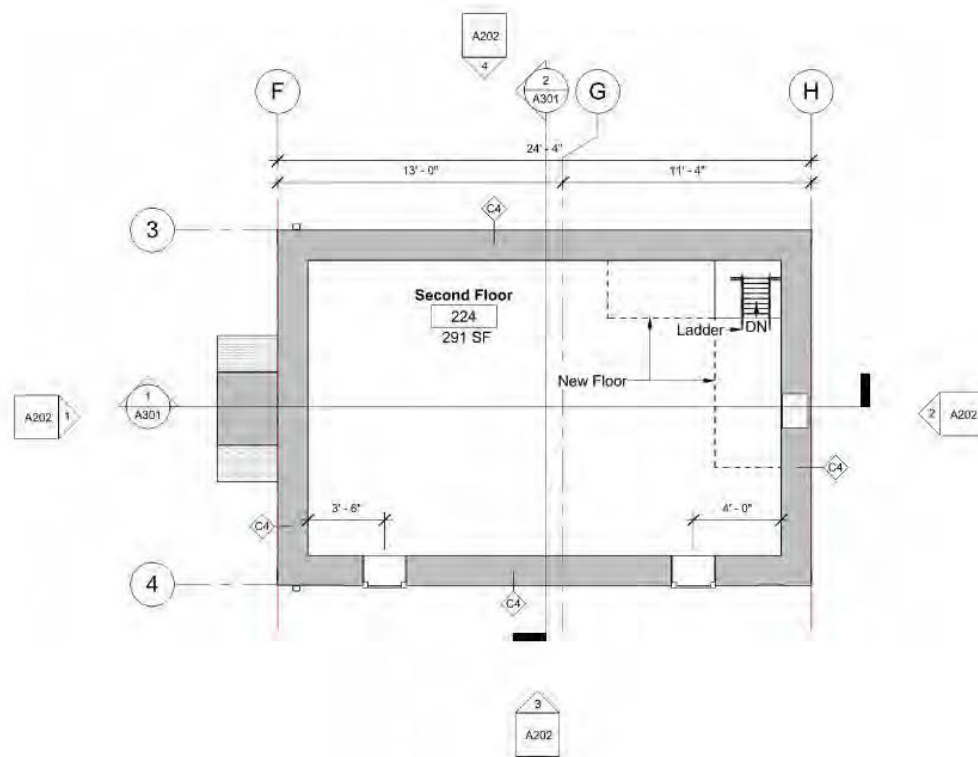
ILLUSTRATION

Project number	22115
Date	3/22/2023
Drawn by	SPD
Checked by	MJM

A104
Scale 1/4" = 1'-0"
SCALE REFERS TO 24" X 36" PAPER SIZE



1 ENSLAVED QUARTERS FIRST FLOOR PROPOSED WORK
1/4" = 1'-0"



2 ENSLAVED QUARTERS SECOND FLOOR PROPOSED WORK
1/4" = 1'-0"

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

ENSLAVED QUARTERS PROPOSED WORK
SECTIONS

Revision Schedule

No.	Revision Description	Date
-----	----------------------	------

INTENDED DRAWING USE:

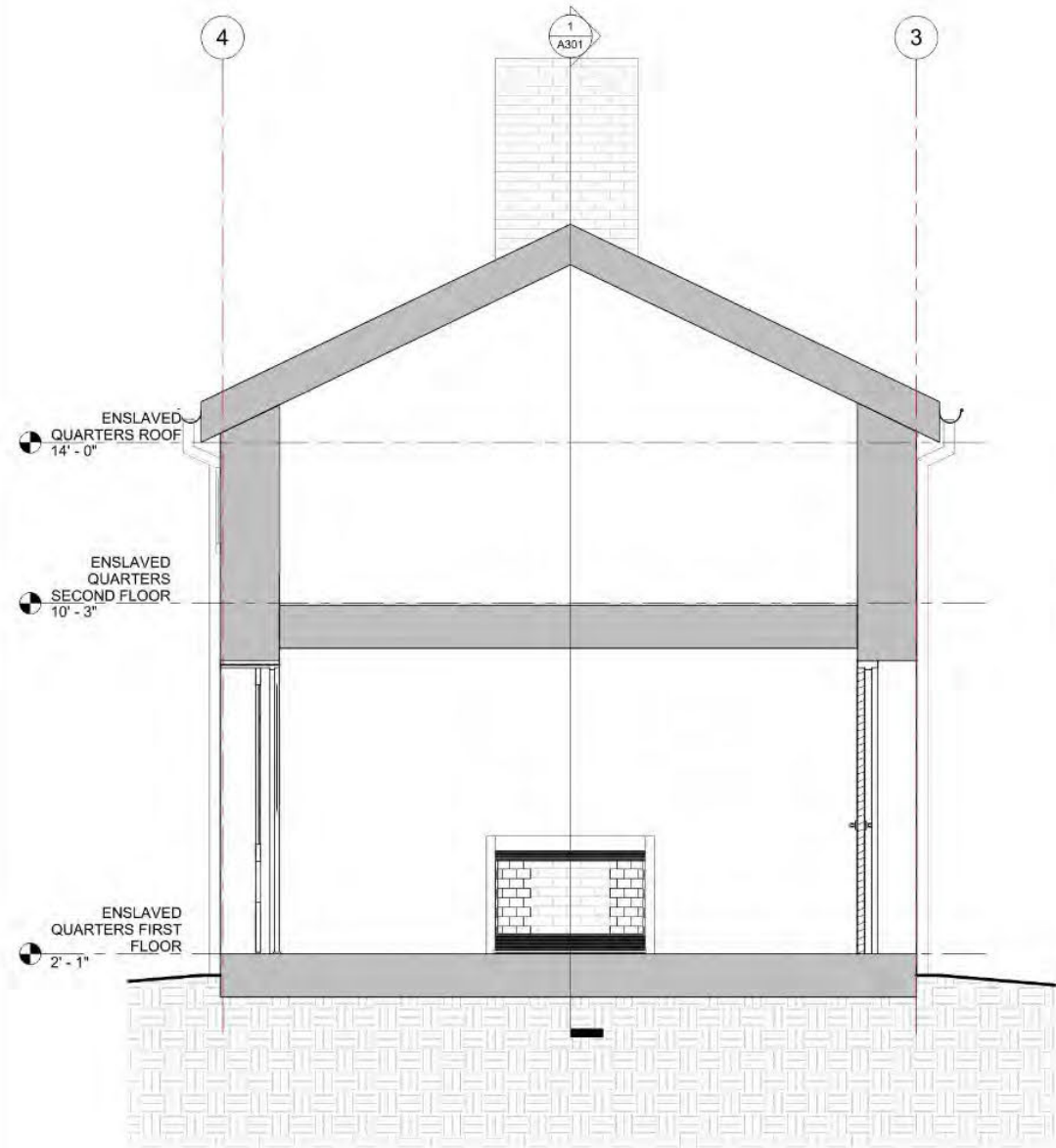
ILLUSTRATION

Project number	22115
Date	3/22/2023
Drawn by	SPD
Checked by	MJM

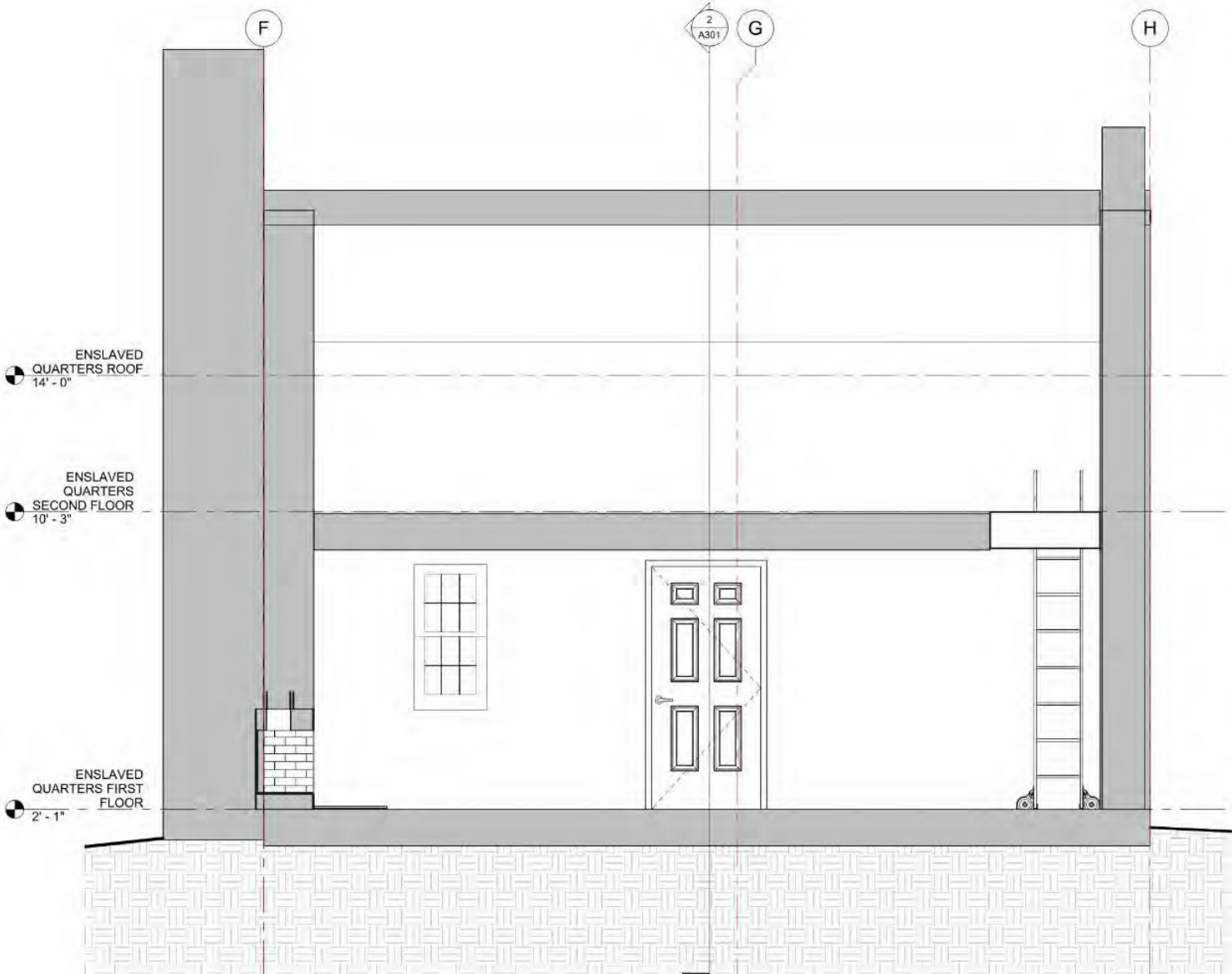
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CONSTRUCTION

PROJECT:
GHS LAW LIBRARY

200 COURTNEY DRIVE

Greenbrier Historical Society

SITE PROPOSED WORK

Revision Schedule		
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Date	3/22/2023	
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1 LAW LIBRARY FIRST LEVEL MODIFIED PROPOSED WORK
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LAW LIBRARY SECOND LEVEL FLOOR PLAN
MODIFIED PROPOSED WORK

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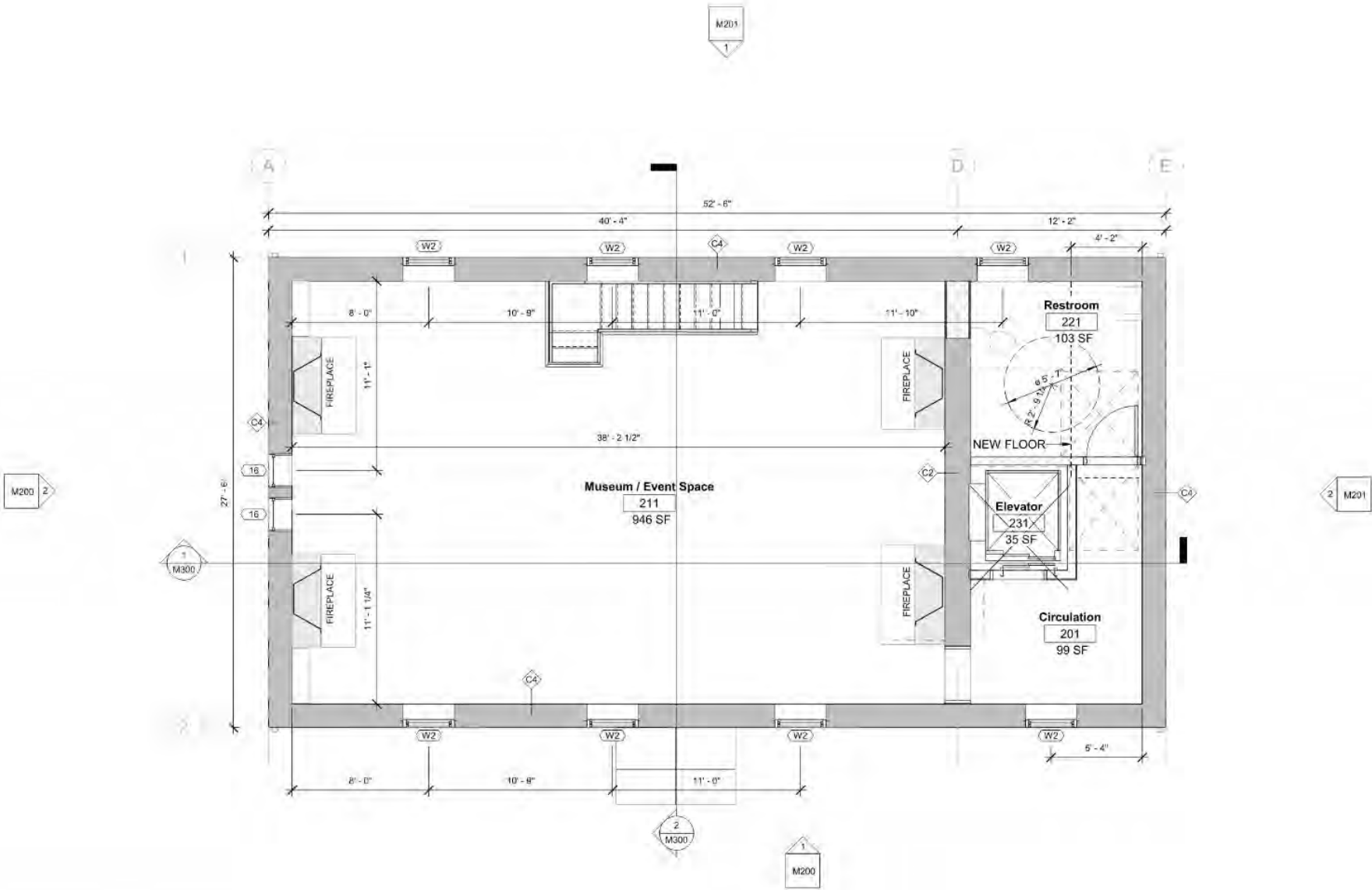
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200 COURTNEY DRIVE

Greenbrier Historical Society

LAW LIBRARY MODIFIED PROPOSED WORK
ELEVATIONS

Revision Schedule

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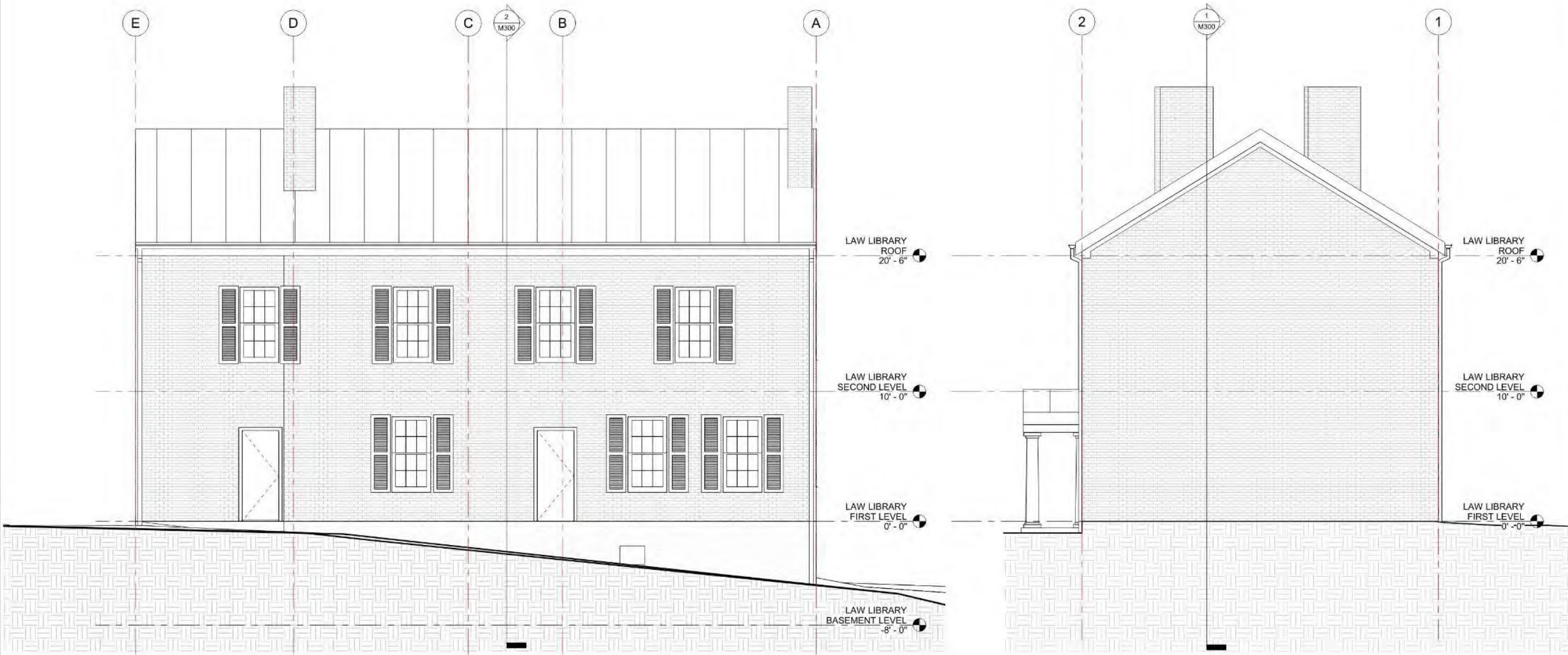
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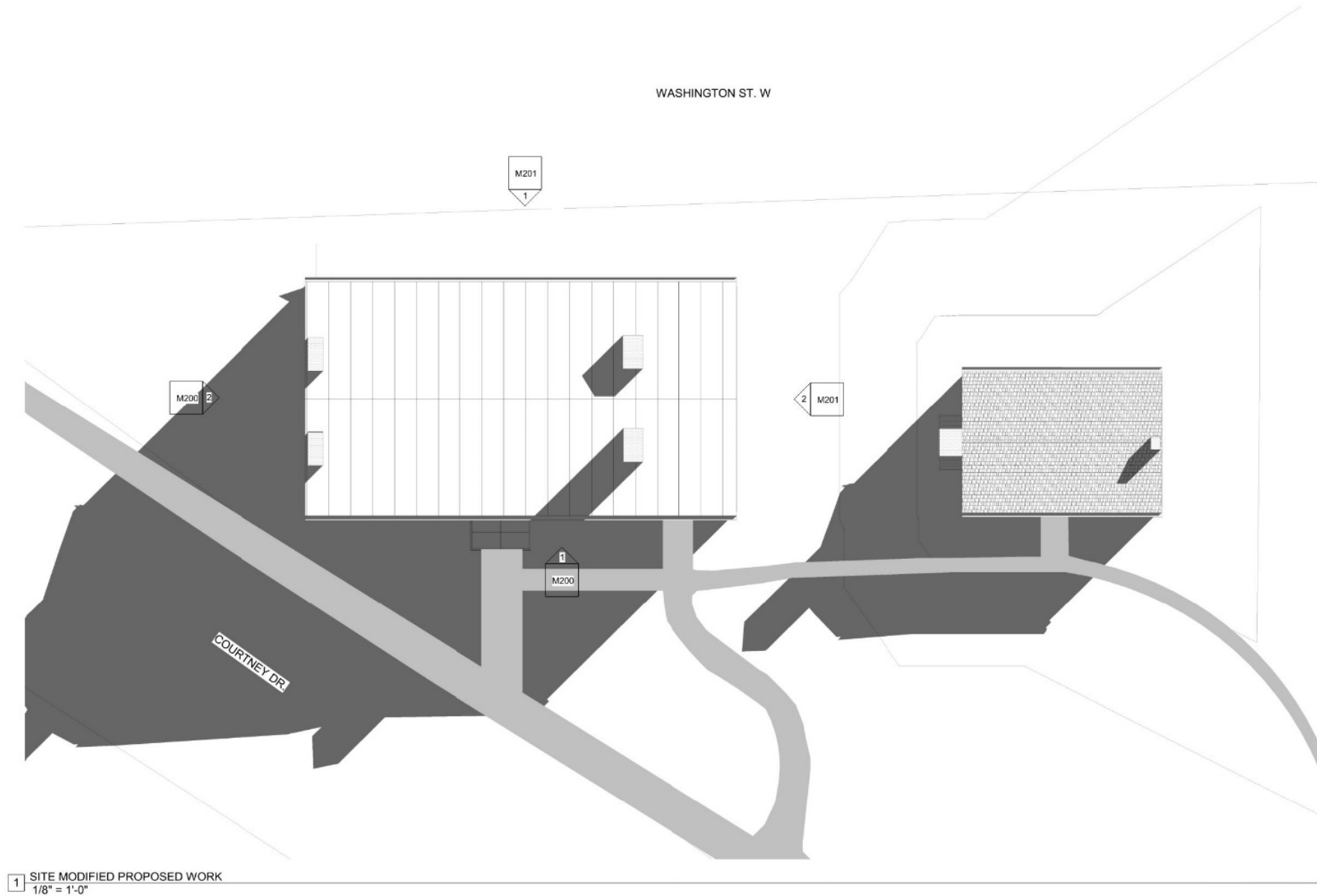
2 LAW LIBRARY WEST ELEVATION MODIFIED PROPOSED WORK
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NOT FOR
CONSTRUCTION

PROJECT:
GHS LAW LIBRARY
200 COURTNEY DRIVE
Greenbrier Historical Society
SITE MODIFIED PROPOSED WORK

Revision Schedule		
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3. CONDITIONS ASSESSMENTS & RECOMMENDATIONS

- A. SUBSTRUCTURE
- B. SUPERSTRUCTURE
- C. BUILDING ENVELOPE
- D. ROOFING
- E. INTERIOR

A. Substructure

1. Foundations

Description: The foundation of the main building is a combination of existing stone in situ and bedrock. Mortared to these two foundation elements are irregular basalt stones fitted to the peaks and valleys formed by the existing stone and bedrock (Fig 001). Mortared into these stones are courses of red brick using a stretcher bond style that creates the stem walls (Fig 002). At the top of the stem wall, the inner wythe is stepped down to create a shelf to support floor joists that sit upon the wythe. When the floor joists' timbers were removed and replaced with two-by-twelve milled lumber, the inner wythe of the stem walls were reinforced with a concrete cladding that increased the ledge area which the joists rest upon. The foundation of the Masonic addition on the west side of the original structure is most likely concrete with a visible red brick stem wall exhibiting a stretcher bond style. The foundation of the Enslaved quarters is constructed from concrete buried below grade with a brick or block stem wall attached. A mudsill is attached to an inner notch that supports the framed floor.

Conditions: The condition of all foundation structures appears to be satisfactory with no visual deficiencies observed. There is water infiltration within the walkable area of the basement on the floor. It is minor and is not unusual for a building of this age and foundation type. The crawl spaces of both buildings appear dry except for the small area around the access hole that was made under the stairs built with the addition. The visible foundation seen through the interior of the basement wall appears dry and free of any cracks. A small portion of the rock with a slight overhang has been shored up with bricks and mortar (Fig. 003).

Recommendations: There are no recommendations for the foundation currently. Any water infiltration should be addressed with an exploration of sloping grade away from the foundation wall. The visible foundation beneath the building appears to be in good condition and shows no signs of

deterioration. The upper floor levels indicate that the foundations are very stable with little if any settlement.

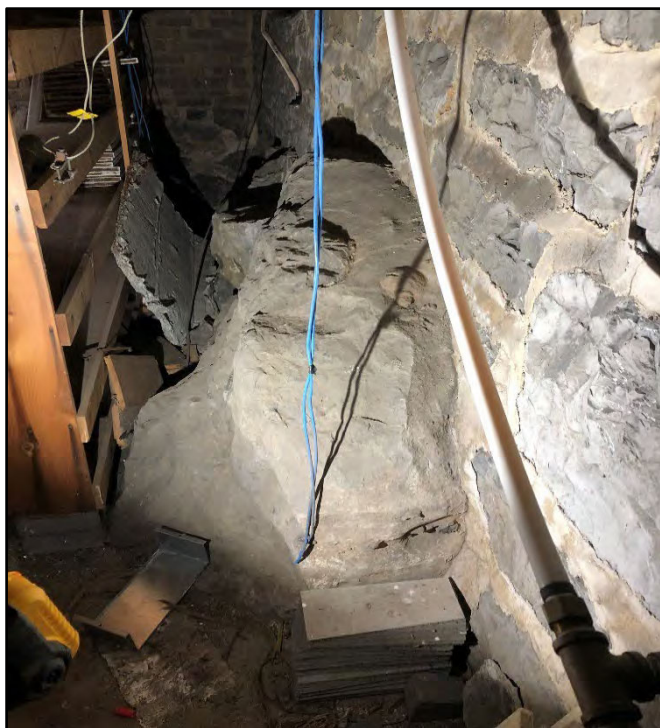


Fig. 001 Note bedrock and basalt stone



Fig. 002 Note red clay brick formed into mortared together lower basalt stones.



Fig 003 Notice brick support (red) under the footing stone overhang (black).

2. Basements and Crawl Spaces.

Description: The walkable basement is comprised of the area directly below the main room on the first floor and has generally a rectangular footprint. The area has approximately eight feet of vertical clearance. It is accessed by an exterior door located at the southeast corner of the building. Immediately to the left of the doorway on the adjacent wall is evidence of a past opening in the basement wall. The basement has an L-shaped room that houses the HVAC system for the first floor, as well as a water heater. The HVAC unit vents through the exterior wall via a three-inch PVC pipe to the right of the window. The water heater vent has been mortared into an existing opening which vents up the existing chimney flue. Water is handled by a combination of galvanized iron pipe and flexible tubing. Power is fed from the main floor source. Through an opening in the inside corner of the interior wall that forms the L is a small room that was most likely a wood or coal storage room. This is probable as there is a cast door chute just below the joist line of the first floor. One of the interior basement walls which form this storage room encases an original hand-hewn column that supports the main central beam (Figs. 004 and 005). The floor of the basement is poured concrete with floor drains. Crawl space access is located in two places along an internal bearing wall in the basement that runs from the south exterior foundation wall to the north foundation wall. An original opening can be found very close to the north exterior wall (Fig 006), while another opening was made by removing brick close to the south exterior wall (Fig 007).

The crawl spaces are primarily located under the small study area and the Masonic addition. It also has a rectangular footprint but is larger than the basement. Access is by two openings in the first bearing partition wall viewed from the basement. Approximately seven feet away is a second bearing partition wall that is the original west side exterior wall. It also has two openings that were made at some point in the building's history. Modern MEP systems run through these openings. There is also an unfinished opening under the stairs in the addition which provides limited access from that point. The grade under the crawl space is uneven. Distance from floor joists varies from twelve inches to twenty inches. Rubble footings are presently supporting the fireplace (Fig. 008 and 009).



Fig 004 Encased support column, lower



Fig 005 Top, encased column



Fig 006 Original north opening to crawl space. Note the finished wall edges



Fig 007 Crawl space access created after original construction. Note broken bricks.



Fig. 008 Footing in original crawl space
Note tight space and debris



Fig. 009 Crawl space in Masonic addition
Note tight space and debris

Conditions: Overall, the basement is in good condition. Both spaces, the basement and crawl, are littered with debris and refuse that has been left after upgrades to various systems, but it should be easy to clean and restore for use. Line voltage wires as well as low voltage communication cables are suspended loosely from the floor timbers and are lying loose on the floor of the crawl space. It was quite dry at the time of the survey which did have rain and high wind for a portion of the day. The wood column embedded in the bearing wall that closes off the storage area appears somewhat deteriorated. At the time of the survey, no moisture was present.

Recommendations: Remove the debris and clutter. Thoroughly clean the entire space. Resecure wires and cabling where needed. Raise the FAU unit above floor level when the unit is replaced. Consider mitigation of asbestos in the mortar of vent pipes during FAU's future replacement.

B. Super Structure

1. Floor Construction:

Description: The first floor was originally framed using ten-to-twelve-inch diameter timbers, planed on one face to provide a three to five-inch surface to attach the floor planks. These timbers are visible in the crawl space of the original building between the second bearing partition footer wall and the original west side exterior wall (Fig. 010).



Fig.010 Timber joist in crawl space

They still have their bark attached. In the basement and the small crawl space between the two interior bearing footer walls, the overhead floor joists were replaced in the renovation of the building from 1939 to 1940. Two-by-twelve milled lumber now supports a biased-oriented planked subfloor. The subflooring over the original timbers is perpendicular in orientation and was most likely the as-built finished floor (Fig. 011).

The second floor has been framed with hand-hewn timbers pocketed into the interior wythe of the exterior brick wall. The eight-by-ten-inch floor joists are spaced twenty-four inches on-center with a perpendicular plank subfloor.



Fig. 011 Framing in the walkable basement. Note modern 2x12 floor joists and diagonal planking.

Conditions: The floor framing appears to be in stable condition and as such needs no attention as presented. While some settling has affected floor levelness, it is very minor and very good for a building of this age.

Recommendations: The GHS may use the second-floor main room as archive storage. Per MG's engineering consultant, Arrow Engineering, the existing framing of the second floor should be capable of supporting a 150 PSF archival load as well as the load transfer to the foundation. As such, the GHS should consider floor deflection monitoring if heavy loads to the existing framing are applied by the use of multiple book stack units. If needed, upon evaluation of monitoring data, upgrade framing to handle expected loads.

2. Roof Construction:

Description: The original roof is constructed using stick framing with an open ridge. The rafters are hand cut as well as the roof planking which creates the under the sheathing (Fig 012). A conversation with Martin Schleiff on 17 November 2022 revealed that Martin was a laborer for the latest roof replacement which occurred approximately fifteen years ago. Martin indicated that his crew installed dense foam sheeting over the plywood sheathing that was on top of the original planking. The current roofing type is composed of steel sheeting, a G-style seamed profile, and aluminum in color. There is also evidence of a structural remodel that took place sometime in the past, most likely

when the masonic addition was completed. There is an internal rafter set with a collar tie at the center of the attic space.



Fig. 012 Underside of existing roof framing



Fig. 013 Modern load-bearing truss
attached to the original load-bearing beam

The rafter tails rest on the wall plate and the peak is approximately two feet from the ridge of the structure's roof. There is a collar tie as well as a rafter tie adding strength to the truss. Also, there is a length of three-quarter inch all thread attached to the top of the rafter ridge, and it drops straight down through the existing bearing center beam. There is a nut at the top of the all thread to adjust tension and level the beam (Fig 013).

Conditions: The original structure's roof framing is in stable condition. There appears to be no degradation of the framing lumber or their attachment points. The roof cladding is a steel sheet product and is still within the first third of its service life expectancy. It appears to be in excellent condition. The internal support rafter is in excellent condition and is evidence that at one time there were support columns on the second level. There are open electrical junction boxes in the attic space above the masonic addition. Also, there are access points somewhere in the building that is allowing a bat infestation to occur. Indeed, at the time of the MG's investigative demo of the upper

fireplace locations, there were live bats observed emerging from behind the wainscot panels and moving back into the chimney and floor. This coincides with the large amounts of bat guano present in the attic space and roof framing above the Masonic addition.



Fig. 014 Attic space over Masonic addition. Notice loose wires.



Fig. 015 Open junction box. Notice guano

Recommendations: No maintenance to the roof framing and roof cladding is required at this time. The attic space above the original structure is clean and in need of no attention. The attic space above the Masonic addition needs attention (Fig.013). There is building debris strewn about the whole of the attic and should be removed. Removal of bat guano is recommended as well as the installation of junction box covers at open boxes (Fig. 014). Securing both line voltage wires and low voltage wiring to framing members is also recommended. Three of the chimney crowns are covered with crown plate caps. The need for venting is non-existent as those fireplaces that have their flue running through them are blocked off. But the northeast chimney is still in use as a vent for the water heater and as such should have a chimney cap installed at the top of the chimney, attached to the flue. A crown plate would also prevent rain and snow from entering the chimney as well as an entry point for bats, birds, and rodents. Roof framing for the Enslaved Quarters was not accessible as the roof rafters form the framing to which drywall is attached. This forms a cathedral-style ceiling for the second floor of this structure.

C. Building Envelope

1. Exterior walls

Description: The exterior walls of the buildings are constructed of red clay brick. The type of brick is a frogged mason's style laid out in a stretcher bond with no visible bonding courses between the outer and inner wythes.

Condition: The brick faces and mortar joints have been painted. The current shade most closely resembles what is known in the building industry as "salmon". At the northwest corner of the Law Library building, the brick and its pointing have deteriorated due to water infiltration due to a deficient gutter system (Fig. 016).



Fig. 016 Northeast exterior corner. Notice deteriorated brick cladding as well as failing paint.

Recommendation: The order of repairs to the exterior walls should be to first remove all paint that has been applied to the brick walls. The report from Boggs Environmental states there is lead present within this coat of paint. Precautions and procedures outlined in US OSHA regulation "Lead Exposure in Construction" (29 CFR §1926.62) should be followed in the abatement of lead contained within the paint. Once the as-built brick surface is exposed, loose and damaged bricks at the northwest corner of the building should be removed. Both inner and outer wythes appear to need partial replacement

at this location. After these repair treatments have been implemented, repointing all the brick surfaces is recommended. The original exterior brickwork and pointing are visible from the Masonic addition's attic space (Fig 015). The gable can be used as a reference for desired finish. A lime-based mortar would be the preferred mortar of choice for this application. The Enslaved Quarters would require the same lead abatement protocols before repointing where needed of the exterior brick cladding.

2. Exterior doors

Description: There are two exterior doors on the main building and two on the Enslaved Quarters. The entry door to the main building appears to be the original six-panel unit that was originally located on the opposite side of the room where there is a window at present (Fig. 017). It is fitted with a period-correct morticed style lock and a modern deadbolt. There is a modern storm door mounted to the exterior of the jamb set, providing additional protection from the weather (Fig 018). The second door is located on the same façade, to the right of the main entry, as an entry to the masonic addition. It is a solid raised, six-panel design with a modern storm door protecting its exterior. The storm door design is an eight-lite glazed door with a solid panel below and is of modern design.



Fig 017 Main building Entry door and Storm door



Fig 018 Addition entry door

The Enslaved Quarters entry door appears to be of modern design and is a raised six-panel style. Its jamb set appears to be original to the building (Fig 019). Located directly across the main room is a second door that seems to be older in appearance and construction than the entry door (Fig 020). Unlike the entry door, the second door has a raised threshold, which may indicate possible age regarding the jam set. All doors and jambs appear to be made from pine and are painted.



Fig 019 Enslaved Quarters entry door



Fig 020 Enslaved Quarters rear door

Conditions: Structurally, all doors appear to be sound as well as fully operational. All doors are showing age in their paint coat as well as their associated jamb sets. Hinges and locksets are showing no deficiencies.

Recommendations: Lock sets for exterior doors utilize round knobs. ADAAG requires the use of lever handle sets. New weatherstripping and threshold seals should be installed to minimize weather intrusion at sealing surfaces.

3. Windows.

Description: There are multiple styles of windows used on both buildings. The main building uses a wooden double-hung style with the top sash containing six lites and the lower sash containing nine. The main building's windows are all the same size, approximately 3'0" x 5'0", and painted white. They have wooden sills and recessed brick molds (Fig 021).



Fig 021 Example of Main Building Windows

The Enslaved Quarters use two styles of windows. The lower level contains three double-hung units with the top sash housing six lites and the same in the lower sash. The three units are the same size, approximately 3'0" x 4'0" and they are painted white. The upper level contains two windows, and they are located on the entry façade (Fig 022). They differ from the other windows in that they are single-sash, swing-in style. Each window has a single sash glazed with six lites. All windows used in the Enslaved Quarters building have wooden sills and recessed brick mold (Fig 023).



Fig 022 Enslaved Quarters windows at front façade

All the double-hung windows on both structures have storm shutters attached to the jam of the window frame. All double-hung windows utilize modern sliding storm window units.

Conditions: Most windows are showing marginal operating functions. There are also instances of mixed muntin profiles in use within the same sash. All shutters exhibit severe peeling/fading of the paint coat as well as some loose, broken, or missing louvers. A first-floor window on the south façade of the Law Library is missing the complete right shutter. Three shutters of the Law Library have broken or missing hinges.

Recommendations: From photos dated circa the 1940s, it appears that the original as-built condition of the window installation included a now missing stone lintel over at least all the south façade windows. Also, as these photographs show, there were no shutters.



Fig 023 Enslaved Quarters window at the rear facade

In the interest of preservation, the lintels should be reinstalled, the shutters removed, and the storm windows removed. It could be argued that reinstalling the stone lintels would be impractical. Also, it should be considered that the storm windows do protect the windows against the elements. Additionally, the shutters provide a pleasing aesthetic not achieved without them. However, a consistent preservation approach should inform these decisions.

It is therefore recommended to repair the mismatched muntins where needed, and then to clean and reinstall the storm windows. Lastly, the removal of all the shutters from the structures may be advised based on the preservation approach.

D. Interior

1. Walls and Ceilings

Description: All interior walls and ceilings within the main structure and the Enslaved Quarters are covered in smooth plaster. All ceiling and interior walls have metal lath as their support structure (Fig 024). The interior surfaces of exterior walls are plastered directly to their brick surfaces. Ceilings in the

main building have their metal lath and plaster attached under the face of the eight-by-ten ceiling joist timbers, creating a smooth ceiling throughout both floors (Fig 025).



Fig 024 Main building ceiling plaster

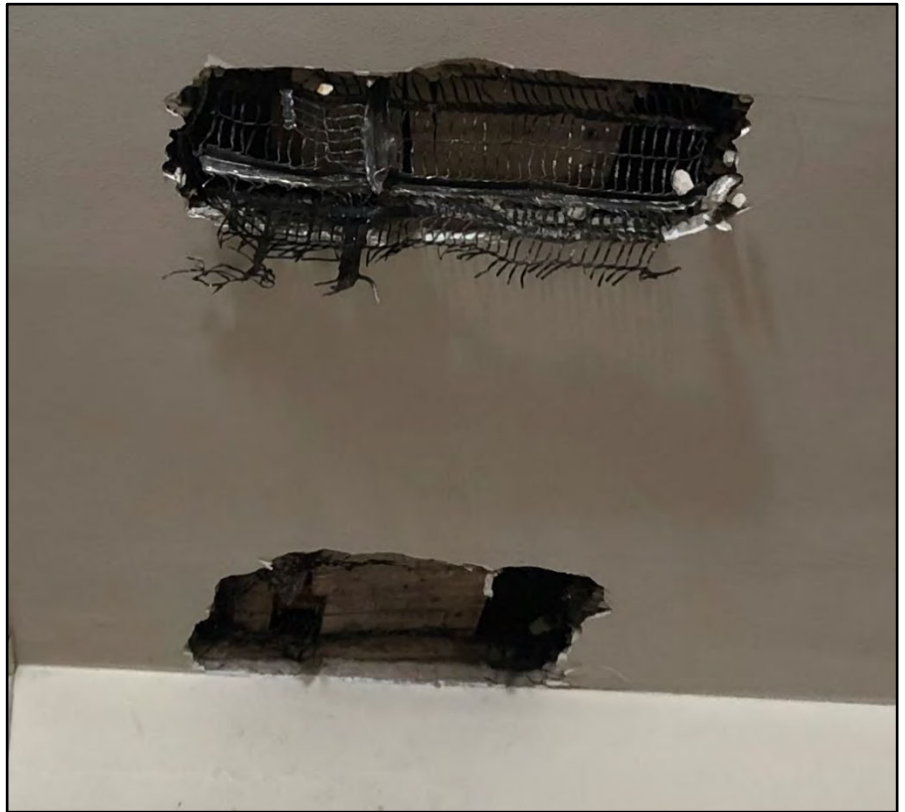


Fig 025 Ceiling plaster. Note modern metal lath

The Enslaved Quarters has plaster applied between the first floor ceiling joists, leaving the joists exposed. This plaster treatment is most likely more representative of the method in which the main house was originally plastered at the ceilings (Fig 026).

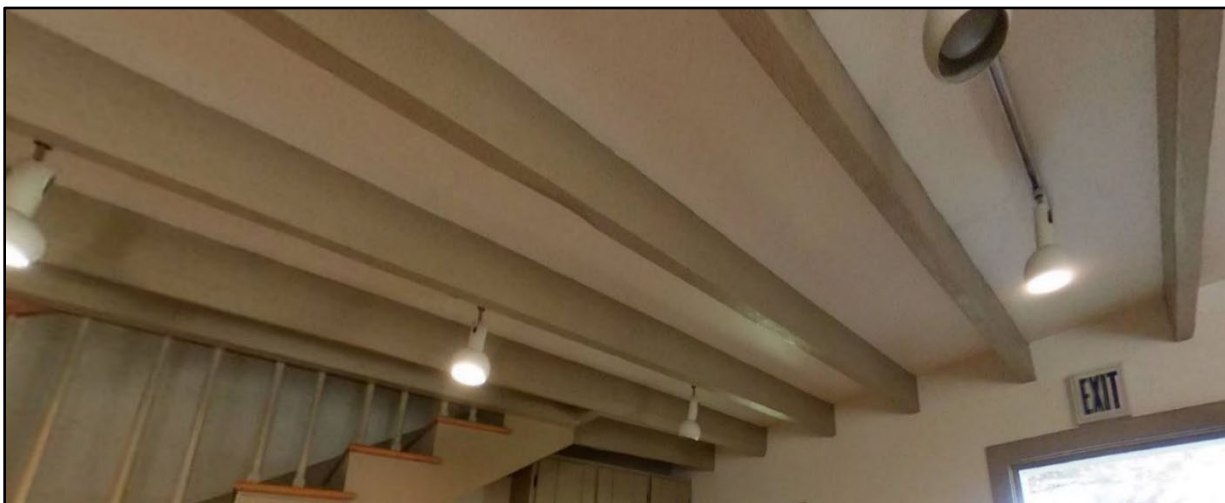


Fig 026 Enslaved Quarters first-floor ceiling. Note exposed ceiling joists with recessed plaster

Conditions: It is the opinion of MG that all original wall and ceiling surfaces were at one time in each building's past removed and replaced with modern claddings using contemporary installation techniques. Steel lath supporting the ceiling and wall plaster in the Law Library structure as well as gypsum cladding on the upper floor of the Enslaved Quarters is evidence of post-construction rework. There is cracking and chipping to most surfaces in the Law Library structure. This is to be expected as a direct result of wall plaster having been applied to the vertical brick wall surfaces. The cracks in the ceiling plaster could be caused by flexing in the framing of the second floor due to the heavy load deflection imparted by the previously existing book stacks. During the MG's minor investigative demolition phase, it has been determined that steel lath is the support structure for the plaster attached to the ceiling and interior walls. This would indicate that there was a remodel of these surfaces at some point after the structure was originally built. While steel lath had been known since the end of the seventeenth century, its use didn't become somewhat common until late in the nineteenth century, and then almost exclusively in large commercial and government structures.⁶ Another observation is the complete coverage of all ceiling bays with plaster. This was not usual practice in rural areas and at the period, the main structure was built. Indeed, the Enslaved Quarters have their second-floor joists exposed with plaster between, mounted to the second-level floor planks. In the main building, there is a notable ridge in the ceiling that runs from the middle of the west windows, between the fireplaces, to the four-by-four post located centrally in what is now the main room. This indicates that at one time there may have been a wall at this location. Further evidence of this missing wall can be seen in the separation by a wide mullion between the two east-facing first-floor windows.

The Enslaved Quarters' walls and ceilings are in better condition. The lone exception is the taped drywall corners on the second level. They have the appearance of being "dry taped", where the reinforcing tape has pulled away from the abutted sheets of gypsum but was probably caused by the structure's relocation to its present site or thermal movement owing to the ceiling cladding being attached directly to the roof rafters.

Recommendation: There are multiple methods in the industry to abate plaster cracking. Adhesive injection between the lath and plaster, as well as bonding sheets applied over the full wall and ceiling, are stable and cost-effective ways to permanently stabilize plaster cracking while at the same time keeping cost and mess at a minimum. There is the option of also removing all existing lath

⁶ "Iron Lath." *Catalogue of the Cincinnati Corrugating Company*. Nov 1888: 19. Print.

and plaster and recladding in plaster or gypsum sheeting. Even though this option seems drastic, there are some real benefits to be had with this path. First and foremost, with all the framing of the structure exposed, this would give MG and GHS the greatest opportunity to discover the as-built layout of the structure. Two hundred-year-old nailing evidence as well as framing overlap shading would become quite visible and easy to evaluate. An in-depth examination of spaces and cavities not accessible before demolition would have larger openings to photograph and video scope. The partition wall framing between the main room and the study room on the first floor of the Law Library structure and the encased doorway would be completely exposed and how it tied into a possible partition wall between the two fireplaces could be examined in full and possibly change the understanding of what the traffic flow was in this area. Another area that could give up some clues as to what the as-built conditions were when the structure was built in 1834 is the areas between the second-level floor joists and whether plaster was attached to just the areas between the eight-by-ten timbers holding up the second-level floor. It would not be a surprise if it is determined that this type of finish was used in this area. Many structures were built during this period utilizing cladding between floor joists and allowing the beams and joists to remain exposed as a compromise between look and cost. If it were determined that this treatment was indeed used, then it could be replicated upon recladding of the lower level.

2. Interior Doors, Frames, and Hardware

Description: Within the main original structure, only one of the original interior doors are within their openings. An original door was found covered by book cases on each side of the wall. What appears to be original door jambs, are still mounted in two locations within the original structure: the entrance to the study room off the main room (Fig 027). Existing four-inch morticed pockets can be seen where hinges attached doors to their frame. Within the Masonic addition, modern raised, six-panel doors are present. There are two on the first floor and four on the second floor. Jamb sets are of modern design with modern lock sets installed in the lower-level doors (fig 028). The upper-level addition doors use morticed locksets in three of the four doors. This indicates that these three doors may be original to the addition (Fig 029). A modern lock set in the fourth door, as well as modern electrical devices in the wall in which it is hung, indicate the period in which this small remodel project took place. All doors utilize round knob handles. All doors are pine wood in construction.

Conditions: As mentioned above, there are no as-built interior doors hung in the original Law Library building. Therefore, it is difficult to determine the design of the interior doors. There is an opening

between the main room and the study room that was most likely an office doorway in the as-built configuration. Sandwiched between the backs of the two bookcases that cover this area may be

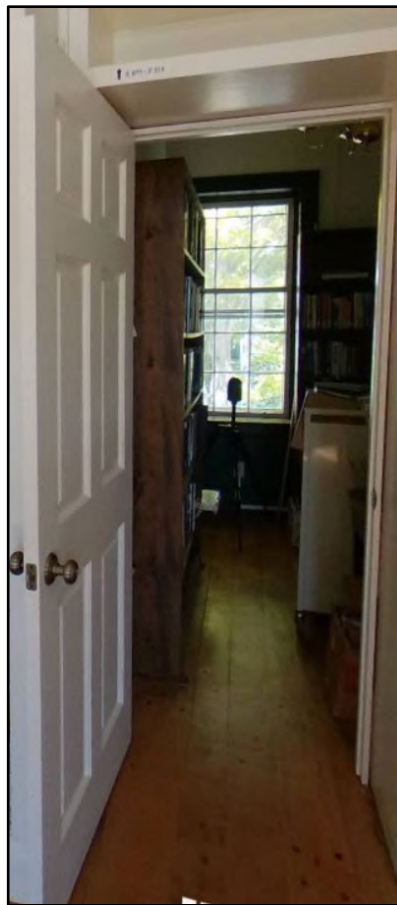


Fig 027 Original doorway. No door

Fig 028 Modern 6-panel door in
Masonic addition

Fig 029 Masonic addition original door

the original door and jamb. The interior doors located in the Masonic addition are more modern in design. They use modern locksets as well as modern hinges. The upstairs restroom door and two entry doors to the large room have morticed lock sets which are period correct to the time of the masonic addition. They function and are lockable. There are no deficiencies in these doors and are in a usable condition. There are no interior doors in the Enslaved Quarters save only on the upper level to the small room across from the stairs. Interestingly, while everything upstairs other than the floor suggests modern materials, the single upstairs door looks period correct to the mid-1830s. It is constructed using a board and batten design with no through lock mechanism.

Recommendation: Remove the bookcase on the study room side of the interior partition wall and identify if the original door and jamb are present. If so, then the findings will guide how to proceed

with the procurement of new doors for the restoration of the as-built layout. Change all lock set hardware to lever handle design.

3. Finishes

Description: Paint: All surfaces other than flooring are finished in various shades of paint. In the main structure, most doors, jambs, casing, and base moldings are finished in a shade of hunter green. The walls and ceilings are off-white as well as the mantles and bookcases with the latter two items having semi-gloss finishes. Floors are tongue and groove white oak with dowel inlay, coated in polyurethane (Fig 030). The interior of the fireplace fireboxes has been painted red, and the surround is black stone (Fig 031). On the upper level, there are painted, twenty-eight-inch-tall wainscot panels throughout.

Conditions: The existing conditions of the interior finishes are stable and presentable. Painted wall and ceiling surfaces appear to be in near newly painted condition except for the areas affected by the MG's investigative demo. One area that will require complete paint treatment will be the small water heater closet at the northwest corner of the masonic addition. This is the area affected by the deterioration of the brick wall due to exterior water infiltration. Paint covering moldings and trim are also in good condition but show some wear except in selective areas where samples were taken for paint analysis by John Canning. Also, two locations at the newly discovered fireboxes on the second floor have been dismantled and will require paint after repairs (Fig 033). Per Boggs Environmental Consultants report there is lead contained in most of the interior paint that covers numerous surfaces.



Fig 030 Wall and trim paint colors. Second-floor

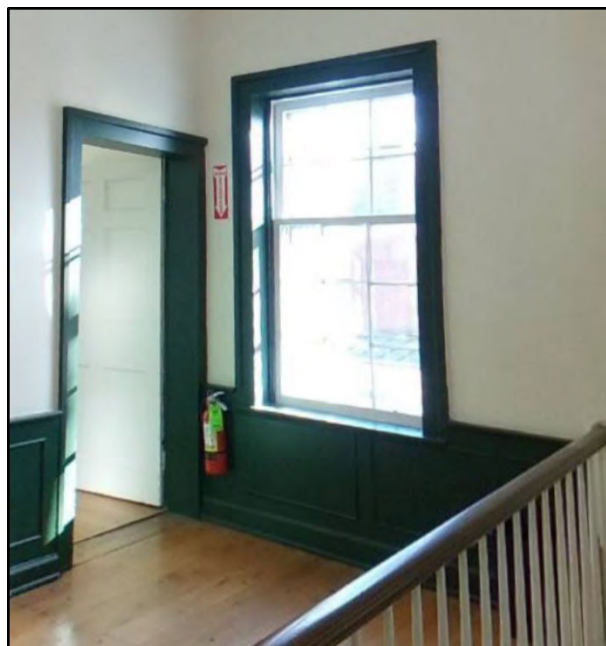


Fig 031 Wall, trim, and fireplace paint colors

Floors are in usable condition with no visible defect observed. Paint line evidence indicates that the original finish to the upper-level oak floor was a brown wash (Fig 032). In a previous period, the floor was stripped of its brown wash, and polyurethane was applied. The condition of the existing floor coating is stable but does show wear in the appearance of scuffs and scratch marks. It would be difficult to determine just when the brown wash coating was applied, but in the pursuit of preservation to an as-built condition, the brown wash should be considered the final color. One other condition must be considered in the approach to floor preservation; the floor planking below the oak flooring is one and one-quarter inches thick with shiplap joinery. This was likely the original flooring for both levels of the main building. Unfortunately, the majority, if not all this planking on the first level in the main room has been replaced at the time the floor joists were replaced with modern planking and attached in a biased orientation.



Fig 032 Evidence of past floor colors.



Fig 033 Buried and filled in fireboxes on the second floor

The Enslaved Quarters has pine planking as the floor diaphragm. It appears that the original floor was removed at some time and replaced with newer planking on the lower level. This notion is supported by the single wide planks which run along the exterior walls and the much narrower planks within the main field of flooring. Additionally, the upper-level planking is similar in width to the outermost planks on the lower level. The lower-level floor appears to have a polyurethane coating applied to it and the upper floor is in its natural, unfinished state. The lower-level coating is in stable condition and should continue to give several years of quality service.

Recommendations: Paint preservationist, John Canning was consulted on the original paint colors that were used in 1834 on the main building. They determined that all trim and doors were coated in a warm green hue. The exception to this was the original bookcases located at each side on the

fireplaces. They were coated in a taupe hue. The windows are white, but due to previous restoration the original paint has been removed. The original plaster was covered in a yellow hue as this sample was pulled from the area behind the original bookcases and not from new or replastered areas such as the interior walls or ceilings.

The Enslaved Quarters also has updated plaster cladding, so an original color is not available. The original trim and doors was determined to be a grey-blue hue. Modern color equivalents are in Canning's report which can be found in this report's appendix.

At a bare minimum, all areas that have been disturbed by MG's demolition process should be repainted with a two-coat primer approach followed by two topcoats of finish color. Consideration of John Canning's findings as to the as-built finish materials and colors should be interpreted and implemented. Encapsulation of existing lead lead-based and lead-filmed coating should follow US OSHA regulation "Lead Exposure in Construction" (29 CFR §1926.62) as well as any local regulation for lead abatement.

It is recommended to leave the oak floors of the main building in place and refinish them in either their original brown wash or the current polyurethane coating.

The Enslaved Quarters polyurethane lower floor coating is in above-average condition and may benefit from the rejuvenation of the finish using several products.

4. Stairs

Description: Each building utilizes one set of stairs to provide access to its upper floors. During MG's investigative demolition phase, possible evidence was found to support the notion that there was a set of stairs originally located where the main entry door is located now. Further evidence to support this idea is that modern milled two-by-ten ceiling/floor joists are attached to the original eight-by-ten hewn ceiling/floor timbers separating the two levels (Fig 035). Situated within this ceiling framing are the remnants of what appear to be stair newel ends as they had once penetrated the second-floor diaphragm and were attached to the rough-hewn timbers (Fig 034). The current stair is located in the Masonic addition at the west end of the building. It is an L-shaped winder design and is comprised of a three-step lead flight, a three-step Kite Windsor section, and an eight-step main flight attached to the second level. An access door below the main flight allows entry under the stairs which not only houses the electrical panel, but also the demark location for communication cabling. Tucked in the corner, under the Kite Windsor treads is the opening to the crawl space under the Masonic addition. Treads are lightly stained oak with painted risers. The original handrail and newels are stained maple with painted balusters attached. The upper flight handrail uses a downturn volute which wraps back

one hundred and eighty degrees and provides the starting point for the second-floor guard that overlooks the stairwell. Attached to the wall is a segmented modern oak handrail utilizing metal handrail brackets (Fig 036). The wall handrail is stained in a color similar to the balustrade handrail. The staircase in the Enslaved Quarters is a thoroughly modern design and build. It is an L-shaped winder design with a five-step lead flight, a landing, and a seven-step main flight leading up to the second level. The treads are stained oak with painted risers. The handrail and balustrade systems are composed of clear maple with painted balusters. The upper flight handrail uses a downturn volute that wraps back one hundred and eighty degrees and provides the starting point for the second-floor railing that overlooks the stairwell (Fig 037).



Fig 034 Possible stair newel remanent



Fig 035 Existing second-floor timber with modern framing attached



Fig 036 Main building handrail system. Notice noncontinuity



Fig 037 Enslaved Quarters staircase. Note missing Wall handrailing

Conditions: As mentioned above, there appears to be evidence of an earlier staircase that was once located in what is now the entry to the Law Library building. All existing evidence is buried beneath lath and plaster that has subsequently been applied since the original staircase was removed. The staircase in the addition that provides access to the second floor is in good condition and satisfies almost all building code requirements. Risers do not vary more than 3/8" over the continuous flight of stairs and the step/riser ratio is correct at a collective 18". The one deficient area is the handrails mounted to the walls. According to IBC building code 1014.3, all handrails shall return to the wall surface. This is to prevent an article of clothing or strapped bag from catching on the open end of the handrail and causing a person to trip and fall down the stairs. All four of the handrails installed along the walls are open-ended and do not return to the walls.

The Enslaved Quarters staircase is also in sound condition. There seem to be no deficiencies. The existing handrail is proper for existing structure compliance. There is no continued handrail installed on the wall in the stairway.

Recommendations: Replace both structure's wall attached handrail systems with compliant units per IBC 1014.4 and 1014.6. Also, it is recommended to install a secondary guard system in both structures at a height of forty-two inches from floor level.

IBC 1015.3 for guard height.

5. Lavatories:

Description: There are two lavatories in the Law Library building and none in the Enslaved Quarters. Both the Law Library's lavatories are located within the Masonic addition. The first-floor lavatory has recently been remodeled. There is a white porcelain pedestal sink in a thirty-eight-inch-wide recessed area across from the toilet. The space incorporates a residential-designed faucet. A grab rail is mounted on the wall at the left of the toilet. The entry door to the lavatory is perpendicular to and centered on the line that runs between the sink and toilet. The toilet is residential in style with a tank mounted to a bowl and incorporates a ball float and flapper flushing mechanism. Painted walls tie into a vinyl floor covering using painted wood base moldings (Fig 038).

The second-floor lavatory layout is split into two areas. There is a water closet that houses the toilet. Located outside that, tucked into a corner at the end of the small hall, is a pedestal sink. The sink's location makes it open to the narrow hall/walkway that serves as a book storage area and a secondary access point to the main room on the second floor (Fig 039).

Conditions: Both lavatories are non-ADA compliant. Referencing the Guide to the ADA Accessibility Standards Chapter 6 "Toilet Rooms "section, almost every applicable standard is in non-compliance.



Fig 038 Lower-level Lavatory

Fig 039 Upper-level lavatory. Note that the toilet is in the water closet behind the door on left

Recommendations: A reimagining of the areas that create the lavatory spaces is recommended. To satisfy maneuverability requirements alone, which the ADA guidelines require, would require the addition of more floor space for each lavatory. Consultation with an architectural firm could help identify how to increase the footprint of the lavatories and eliminate the bottleneck in circulation.

6. Lift:

Recommendations: There is no lift or elevator conveyance system currently within the two structures. According to the most current ADA Standards, buildings with fewer than three floors or each floor having less than three thousand square feet do not need to have an elevator or Limited Use/Limited Application (LULA) elevators. But it would be prudent for the GHS to consider the installation of a LULA system during the planning of an ADA-compliant restroom and the paired re-structuring that could take place. Refer to IBC section 3004.

4. COST ESTIMATE

- A. INTERIOR
- B. EXTERIOR
- C. PHASING

A. INTERIOR

Item No.	Location	Architectural Components	Condition/Action Required	Quantity	Unit	Estimated cost per unit	Estimated Cost of Recommendations
	Library BDLG	Electrical system	Upgrade electrical service and bring building up to code-minor	2400	SQ FT	\$ 4.00	\$9,600
	Library BDLG	Plumbing system	Water efficient fixtures and new piping as required, clean out drain lines. Add new ADA restroom. Water supply upgrades	2400	SQ FT	\$ 7.00	\$16,800
	Library BDLG	Mechanical system	Existing air handler to be cleaned and serviced.	2	EA	\$ 8,500.00	\$17,000
	Library BDLG	Fire Alarm and Emergency lighting	New fire alarm and detection system with emergency lighting.	2900	SQ FT	\$ 5.00	\$14,500
	Library BDLG	Plaster restoration		2000	SQ FT	\$ 15.00	\$30,000
	Library BDLG	Wood floor restoration		1	SQ FT	\$ 4,500.00	\$4,500
	Library BDLG	Wood Millwork and trim cleaning		1	SQ FT	\$ 2,000.00	\$2,000
	Library BDLG	Paint Ceilings		1500	SQ FT	\$ 2.00	\$3,000
	Library BDLG	Paint Wall Surfaces		2400	SQ FT	\$ 6.00	\$14,400
	Library BDLG	Restore fire boxes and period mantels		4	EA	\$ 7,500.00	\$30,000
	Library BDLG	Maintain existing fire boxes and period mantels		4	EA	\$ 5,000.00	\$20,000
	Library BDLG	Lower level build out	Restored walls, trim and doors to recreate historic layout	1200	SQ FT	\$ 40.00	\$48,000
	Library BDLG	Upper level build out	Restored walls, trim and doors to recreate historic layout	1200	SQ FT	\$ 40.00	\$48,000
	Library BDLG	ADA Compliant LULA lift	Lift equipment, electrical service, and structure modifications	1	LS	\$ 80,000.00	\$80,000
	Library BDLG	Stair Upgrades	New Stairs, Handrails and Gaurdrails	1	LS	\$ 25,000.00	\$25,000
	Library BDLG	Main Level ADA bathroom		1	LS	\$ 32,000.00	\$32,000
	Library BDLG	Upper level Bathroom upgrades		1	LS	\$ 5,000.00	\$5,000

	Enslaved Quarters	Electrical system	Upgrade electrical service and bring building up to code	770	SQ FT	\$ 22.00	\$16,940
	Enslaved Quarters	Plumbing system	Water supply upgrades and instant hot water heater	770	SQ FT	\$ 4.50	\$3,465
	Enslaved Quarters	Mechanical system	Upgrade heating system	770	SQ FT	\$ 12.00	\$9,240
	Enslaved Quarters	Fire Alarm and Emergency lighting	New fire alarm and detection system with emergency lighting.	770	SQ FT	\$ 5.00	\$3,850
	Enslaved Quarters	First level restoration	remove kitchen build out, remove all interior Plaster wall and framing over brick walls. Removing staircase. Removing second floor Drywall	1	LS	\$ 3,500.00	\$3,500
	Enslaved Quarters	New Attic access	Ladder type stairs to upper level. No hand rails.	1	LS	\$ 4,500.00	\$4,500
	Enslaved Quarters	Wood floor restoration		1	LS	\$ 4,500.00	\$4,500
	Enslaved Quarters	Wood Millwork and trim cleaning		1	SQ FT	\$ 2,000.00	\$2,000
	Enslaved Quarters	Paint Ceilings		770	SQ FT	\$ 2.00	\$1,540
	Enslaved Quarters	Paint Wall Surfaces		800	SQ FT	\$ 6.00	\$4,800
					EA		

Subtotal \$454,135 **Net Construction Cost**

\$68,120.25 15% Design and Construction contingency

\$49,614.25 9.5% A&E Design Fees

\$571,869 Total

B. EXTERIOR

Item No.	Location	Architectural Components	Condition/Action Required	Quantity	Unit	Estimated cost per unit	Estimated Cost of Recommendations
1	Library BDLG	Site and downspout drainage	Existing grade allows for some ponding and collection of storm water in lawn. <u>Ensure positive drainage and install lawn drainage.</u>	1	LS	\$ 12,000.00	\$12,000
1	Library BDLG	Chimney Cap	18"x24" crown cap and 8"x8" flue cap required	1	LS	\$ 1,500.00	\$1,500
1	Library BDLG	Painted brick exterior envelope	Existing brick is painted and covered in airborne particles and exhibits signs of organic growth. <u>All brick surfaces to have the paint removed and be cleaned with a non-caustic wash and scrubbed with a non-abrasive brush.</u>	3300		\$ 15.00	\$49,500
1	Library BDLG	Repoint brick exterior envelope	The lime mortar joints seem sound but require close up inspection. <u>All brick surfaces to be cleaned with a non-caustic wash and scrubbed with a non-abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	3300		\$ 12.00	\$39,600
1	Library BDLG	Brick restoration	Replace deteriorated bricks at NE corner	40	SF	\$ 40.00	\$1,600
1	Library BDLG	Exterior Wood trim	All exposed exterior trim are showing weathering. Due to the lead found in the paint, we recommend to encapsulate all trim in a new coat of paint.	1	LS	\$ 18,000.00	\$18,000
1	Library BDLG	Restore Window Shutters	One shutter is missing and three are in need of repair.	1	LS	\$ 2,200.00	\$2,200
1	Library BDLG	Repaint Window Shutters	All exposed shutters are showing weathering. Due to the lead found in the paint, we recommend to encapsulate all trim in a new coat of paint.	30	ea	\$ 150.00	\$4,500
1	Library BDLG	Gutters and Downspouts	Install new 6" galvalume gutters and downspouts	106	LF	\$ 150.00	\$15,900
1	Library BDLG	Restore Window sash to original configuration	Existing units are in good condition. 6 over 9 sash. <u>Existing sash to be restored, painted, and weather-stripped. Options of double pane glazing, interior storms, or exterior storms.</u>	15	EA	\$ 350.00	\$5,250
1	Library BDLG	Entry Improvements at North East	Given the need to relocate the entry and restore the original configuration to the period of significance; the secondary entrance shall be the primary in this proposed concept and would require covering and general improvements.	1	LS	\$ 45,000.00	\$45,000

1	Enslaved Quarters	Site and downspout drainage	Existing grade allows for some ponding and collection of storm water in lawn. <u>Ensure positive drainage and install lawn drainage.</u>	1	LS	\$ 12,000.00	\$12,000
1	Enslaved Quarters	Painted brick exterior envelope	Existing brick is painted and covered in air borne particles and exhibits signs of organic growth. <u>All brick surfaces to have the paint removed and be cleaned with a non caustic wash and scrubbed with a non abrasive brush.</u>	1200		\$ 15.00	\$18,000
1	Enslaved Quarters	Repaint brick exterior envelope	The lime mortar joints seem sound but require close up inspection. <u>All brick surfaces to be cleaned with a non caustic wash and scrubbed with a non abrasive brush. All mortar joints to be inspected and repointed with grout to match the existing.</u>	1200		\$ 12.00	\$14,400
1	Enslaved Quarters	Cedar Shake Roof	Existing roof material should be cleaned and resealed	1200		\$ 10.00	\$12,000
1	Enslaved Quarters	Exterior Wood trim	All exposed exterior trim are showing weathering. We recommend, due to the lead found in the paint to encapsulate all trim in a new coat of paint.	1	LS	\$ 12,000.00	\$12,000
1	Enslaved Quarters	Restore Window Shutters	One shutter is missing and three are need of repair.	1	LS	\$ 2,200.00	\$2,200
1	Enslaved Quarters	Repaint Window Shutters	All exposed shutters are showing weathering. We recommend, due to the lead found in the paint to encapsulate all trim in a new coat of paint.	6	ea	\$ 150.00	\$900
1	Enslaved Quarters	Six over six double hung windows with exterior screens and in swing casement units	Existing units are in good condition. <u>Existing sash to be restored, painted, and weather-stripped. Options of double pane glazing, interior storms, or exterior storms. Existing screens on the lower sash appear to be a later addition and should be store. New screens could be integrated with the storm units or installed as components on a as needed basis.</u>	5	EA	\$ 1,200.00	\$6,000

Subtotal \$272,550 **Net Construction Cost**

\$272,550 **Gross Construction Cost**

\$40,882.50 15% Design and Construction contingency

\$29,776.09 9.5% A&E Design fees

\$343,209 TOTAL

C. PHASING SCOPE SCHEDULE

1st Phase Work Scope

Exterior Brick Paint Removal

Coat and peel method of removal. (Both structures)

Brick Repair

Evaluate integrity of northwest corner damage with Masonry Preservationist and repair (Main structure)

Repoint structures. (100% main structure, 20% Enslaved Quarters)

Window Refurbishment

Encapsulate lead paint with new paint coat. (Both structures)

Bead weather strip sashes at contact point to jambs. (Both structures)

Install storm windows to interior of window openings. (\$200 per + \$150 Labor)

Window Shutters

Remove, refurbish, and reinstall existing shutters.

Paint

If brick surfaces exhibit excessive and irreparable dissimilarities, GHS will consider coating to consolidate appearance. (Both structures using breathable coating)

Roof gutters

Replace existing half round gutters. (Main structure)

Demo Kitchen, Interior Wall Surfaces, Stairs, Upper Floor Partition Wall

Employ demo crew to remove and haul. (Enslaved Quarters)

Clean Attic and Basement

Employ demo crew to clean and haul debris from basement and crawl space as well as debris and guano in Masonic addition attic. (Main structure, Employ Hazmat mitigation team for bat and bird guano)

2nd Phase Work Scope

Demo 1st Floor Ceiling Plaster

Remove plaster ceiling in 1st floor main room and adjacent study room. (4 weeks)

Evaluate existing condition above plaster ceiling and determine as built framing.

3rd Phase Work Scope

Frame original first floor to proposed layout

Add partition walls to form two east side offices.

Create Faux Entry door at as built location.

Install as built staircase in main room.

Locate as built style staircase at south wall in front of faux entry door

Sprinkle entire main structure

Restore 4 lower fireplaces

Consult with HVAC contractor.

Rework register locations.

Hold on replacing systems in both buildings until last phase of construction.

Rework electrical to accommodate changes in Phase 4.

Relocate panel, devices, and wiring due to interior wall and stair removal in Enslaved Quarters.

Relocate interior panel, devices, and wiring due to interior layout reconfiguration of first floor Masonic addition and addition of LU/LA lift.

4th Phase Work Scope

Restore 4 fireplaces on 2nd floor.

Complete restoration of the second floor.

Make sure all reworking of second floor main building work is complete and cordon off.

Demo 1st and 2nd floor Masonic addition interiors.

Demo staircase in Masonic Addition

Consult with Plumbing contractor

Evaluate, design and rework plumbing to remove marginal piping and relocate supply and DWV for new restroom locations.

Construct Interior Partition Walls and Lift Well.

Construct walls and doorways for restrooms as well as hoist way and pit in Masonic addition.

Install LULA lift

Construct Restrooms

Set and Finish Out 1st and 2nd floor Masonic Addition.

5. BUILDING CODE AND ACCESSIBILITY ANALYSIS

A. SUMMARY

B. CODE ANALYSIS – EXISTING CONDITIONS

C. CODE ANALYSIS – PROPOSED CONDITIONS

D. ADA ACCESSIBILITY GUIDELINES ANALYSIS-EXISTING BUILDING

A. SUMMARY

The Building Code and Accessibility Analysis is a review of current compliance with building codes, various fire, and life safety issues, and features related to the Americans with Disabilities Act (ADA). The design team conducted a thorough review of existing conditions and made recommendations to bring the building to comply with code and accessibility requirements based upon the limited programmatic knowledge of the desired future uses.

Understanding that the existing building is largely compliant and the program for the building upon preservation/rehabilitation is to have a public function on the first level and upper level, this document makes a specific recommendation based on our current understanding of the project.

B. CODE ANALYSIS – EXISTING CONDITIONS

1. Applicable Codes:

- International Existing Building Code 2018
 - International Building Code 2018 (IBC)
 - Life Safety Code 2018-NFPA-101 and WV State Fire Code Title 87
- All references are directly from IBC unless stated otherwise. Where building code and Fire code conflict, fire code takes precedence

2. Components:

- Use Groups: A-3/Assembly
- Construction Type: 3A/Type 3 (211)
- Fire and Life Safety System: Smoke Alarm hard-wired to the monitored system.
- Egress Requirements and Occupancy Loads:
- Occupancy Load Calculations: See floor section.
- Egress Width Calculations:
- Egress Width Calculations:
- Fixture Count: Calculations for the proposed renovation are outlined in Section C, Proposed Conditions.

C. CODE ANALYSIS – PROPOSED CONDITIONS

1. Applicable Codes:

- International Existing Building Code 2018,
- International Building Code 2018 (IBC)
- Life Safety Code -NFPA 101-2003 and WV State Fire Code Title 87
- Accessibility Code – 2017 ICC/ANSI A117.1

All references are directly from the IBC unless stated otherwise.

2. Use and Occupancy Classification

- i. As found in section 303.1 in IBC 2021, an area having or serving as a museum or other assembly area shall be classified as Assembly type occupancy, Group 'A-3'. The Law Library Building will be designed using this classification, including the Enslaved Quarters.
- ii.

3. Construction Classification

- i. As found in section 602.3, a structure built utilizing exterior non-combustible materials, and the interior building elements are of any permitted material, the construction classification is *Type 5-B (000)*. The Law Library building, primarily constructed of exterior brick, exterior bearing construction, with exposed second-floor joists, classifies as *Type 5-B (000)* construction, under this definition.
- ii. As found in section 602.3, a structure built utilizing exterior non-combustible materials, and the interior building elements are of any permitted material, the construction classification is *Type 5-B (000)*. The Enslaved Quarters Building, primarily constructed of exterior brick, and exterior bearing construction, with second-floor exposed joists, classifies as *Type 5-B (000)* construction, under this definition.

4. Means of Egress and Occupancy Requirements

- i. As per table 1004.5, the maximum allowable occupancy is based upon the existing square footage and occupancy classes listed above.
 - Main Building
 - a. The first floor = 26 people
 - b. The second floor = 29 people
 - c. Total Estimated Occupancy = 54 people
 - Out Building
 - d. The first floor = 26 people
 - e. The second floor = 26 people
 - f. Total estimated occupancy = 52 people
- ii. As per table 1019.1, the required means of egress for new construction would be 2. However, as found in section 3407.1 the historic designation of this building negates the requirement for two means of egress.
 - a. Use of an approved automatic sprinkler system, in addition to Section 3407.1 should negate the requirement for 2 means of egress.

5. Fire Resistance Rating Requirements

- i. As per table 601, a structure with Type-3 construction utilizing an approved automatic sprinkler system is required to have fire resistance as listed below
 - a. Structural Frame – 0 hr. fire-rated construction
 - b. Exterior Bearing walls – 2 hr. fire-rated construction
 - c. Interior Bearing walls – 1 hr. fire-rated construction
 - d. Floor Construction – 1 hr. fire-rated construction
 - e. Roof Construction – 1 hr. fire-rated construction
- ii. Any new construction such as elevator shafts and mechanical are required to have a 1-hour fire rating when less than 4 stories.

6. Plumbing fixtures

- i. As per table 2902.1 for a total occupant load of 224 persons, the existing plumbing fixtures are sufficient except for the items listed below
 - a. Urinals – 1
 - b. Drinking fountains – 1
 - c. Service sinks – 1

7. Accessibility Requirements

- i. All public/main use areas of the building should meet accessibility requirements as found in (ADAAG) ADA Accessibility Guidelines for Buildings and Facilities.
 - a. A lift/elevator will increase accessibility. Its implementation should meet accessibility guidelines.
- ii. Public restroom is required to meet accessibility guidelines.
- iii. Exit/entrance to the building is required to meet accessibility guidelines.
 - a. A minimum of (1) accessible parking space is required and will be located near the building's main entrance.
 - b. Low energy/power operated door required if single means to access the building.

D. ADA ACCESSIBILITY GUIDELINES ANALYSIS: EXISTING BUILDING

The ADA is a civil rights act passed in 1990 to ensure that persons with disabilities are not discriminated against at work (Title I), by state or local governments (Title II), by private businesses (Title III), or in communication (Title IV). Titles II and III have the most impact on historic structures because compliance often involves altering buildings physically. The law intends to allow people with disabilities to engage in everyday activities such as eating at a restaurant, registering their car, or buying an item at the store, ADA guides accommodations and access equal or similar to that available to the general public. Because the ADA is a civil rights law, it is enforced through civil court cases rather than police action. In addition to the regulations of the act, there are design guidelines to help with compliance. These are the

Standards for Accessible Design, often known as the ADA Accessibility Guidelines (ADAAG)* and the Uniform Federal Accessibility Standards (UFAS).

The ADA gives qualified historic buildings more options for compliance and special provisions in some cases. Depending on the use of the building, the standards for compliance vary slightly. Qualified historic structures are not exempt and must comply with the ADA. If it is determined that full compliance will threaten or destroy the historic significance of the structure, then minimum standards may be used. This decision must be made in conjunction with the State Historic Preservation Office (SHPO). If even the minimum standards will threaten or destroy the historic significance of the structure, then alternate methods of access may be used. This option is considered a last resort and is only applicable in rare situations. When alterations are involved, all structures must comply with the ADA design guidelines. For projects using federal money or licensing, then a Section 106 Review must occur. For sensitive repair solutions and help rating accessibility solutions The Secretary of the Interior's Standards for Rehabilitation must be referenced.

In general, when alterations to an existing building are undertaken, each altered element must comply with the technical requirements of the ADA guidelines. Many of the proposed spatial changes are a direct result of ADA deficiencies. Because this project will result partly in rehabilitation and there is a possibility of public funding for future work, the building will need to be compliant when completed.

The current building requires a complete and comprehensive approach if the building is to be converted to accommodate public use. Non-compliant elements include entrances, interior routes, bathrooms, doors, hardware, and fixtures.

The compliance statement below is taken directly from the **2010 Americans with Disabilities Act Accessibility Guidelines (ADAAG) Checklist for Buildings and Facilities**.

Historic Preservation

Alterations to a qualified historic building or facility must comply with ADAAG unless it is determined by procedures described in ADAAG 202.3 and 202.4 that compliance with certain requirements would threaten or destroy the historic significance of the building or facility. In such a case, alternative requirements may be used. The alternative requirements are discussed in 28 CFR 36.405 and ADAAG 202.5 and on the Minimum Requirements Summary Sheet J: Accessible Buildings - Historic Preservation.

ACCESSIBLE BUILDINGS -- HISTORIC PRESERVATION

Alterations to a qualified historic building or facility must comply with the minimum requirements for alterations in 202.3 and 202.4. Use the applicable survey forms for new construction for each altered element or space.

If it is determined, by the required procedures in 202.3 and 202.4 that the proposed alterations would threaten or destroy the historic significance of the building or facility, the following alternative requirements in (206.2.1 exception 1 and 206.2.3 exception 7); entrances(206.4 exceptions 2); and toilet facilities(213.2 exception2) 205.5 may be utilized:

- Site Accessible Route - Minimum Number: At least one accessible route complying with 206.5.1 must be provided from a site access point to an accessible entrance.
- Ramps - Slope and Rise: A ramp with a slope no steeper than 1:6 may be used as part of an accessible route to an entrance, but the run must not exceed 2 feet.
- Entrances - Minimum Number and Primary Entrance: At least one accessible entrance complying with 206.4 and which is used by the public must be provided. If no public entrance can be made accessible, then access may be provided at any open entrance (unlocked) when directional signage is provided at the primary public entrance. The alternative accessible entrance must have a notification system, and where security is a concern, remote monitoring may be used. Building Accessible Route - Access to Other Floors: Accessible routes from an accessible entrance to all publicly used spaces must be provided at least on the accessible entrance level. Access must be provided in compliance with 206.4(2) to all levels of a building and facility whenever practicable.
- Toilet Rooms - Unisex: If toilets are provided, then at least one toilet facility, which may be unisex in design, complying with sections 603 thru 606, must be provided on an accessible route.
- Displays: Displays and written information should be located to be seen by a seated person.

If it is determined, by the required procedures in sections 603 thru 606 that it is not feasible to provide physical access to a qualified historic building or facility using the alternative requirements in 202.5 without threatening or destroying the historic significance of the building or facility, alternative methods of access must be provided. See 36 CFR _36.405(b).

ADAAG Section	Technical Requirements	Existing Deficiencies
Site:		
Entrances Entry Element 404	Historic preservation: At least one accessible entrance complying with this section shall be provided.	The existing main entrance has no handrails. Requires ramps from the main walk to the landing, and ramp to the threshold. The secondary entrance ramped correctly but needs a handrail.

Entrances Entry Element 405.2 405.7	The number of accessible entrances shall be equivalent to the number of exits required by the code.	Lack of accessible entry. Additional entries require ramps or other means.
Interior:		
Elevators Limited Use/Limited Application Elevator Element 408	One LU/LA elevator complying with all sections of 408 shall serve each level	Lack of passenger elevator. Required for proposed use if public access shall be granted to the Upper Levels or alternant equal accommodations are provided
Accessible Route – Interior Stair Element 505.3 505.10.2 505.10.3	Handrails are to be continuous within the full length of each stair flight. Handrail extensions shall be provided as follows: Top of stair flights: parallel to the floor, 12" min. beyond top riser nosing. Bottom of stair flights: continue sloping for one tread width beyond bottom riser, plus 12" min. parallel to the floor. Alterations/Existing Conditions Full extensions are not required where they would be hazardous or impossible due to plan configuration.	Main Building: Handrails are broken and not continuous. There is no 12" parallel extension at the top or foot of the stairs. The foot extension will overhang the window. The outbuilding has no existing wall handrails.
Accessible Route – Interior Stair Element 505.4 505.5 505.7.2	Handrails: Height: 34"-38" measured from nosing. Clear space between rail and wall shall be 1½". The diameter of the gripping surface shall be 1¼"- 2", or equivalent.	Main Building: Compliant rail clearances and profiles. Outbuilding: Handrail closer than 1½" to surface.
Accessible Route – Interior	Doorways shall provide a clear opening of 32" min.	Modifications to existing doorways with alternant hinges or actual widening of

Interior Door Element 404.2.3	Alterations/Existing Conditions Where it is technically infeasible to comply with clear opening requirements, a maximum projection of 5/8" shall be permitted for the latch side stop (reducing opening to 31-3/8" minimum)	openings may be required.
Accessible Route – Interior Walkway Element 4.13.6	Maneuvering clearances at doorways: Approach to pull side: 18" Approach to push side: 12"	Not compliant in all areas
Accessible Route – Interior Entry Element 4.13.8 4.1.6(3)(d)(ii)	Maximum threshold height: 1/2" Alterations/Existing Conditions If existing thresholds are 3/4" high maximum and have (or are modified to have) a beveled edge on each side, they may remain.	Modifications may be required
Accessible Route – Interior Door Element 4.13.8	Door hardware: lever-operated mechanisms, push-type, and U-shaped handles are acceptable designs. Mounting height shall be a maximum of 48" above the finished floor.	Existing hardware is not compliant
Lavatories and Mirrors Lavatory Element 4.19.4	Hot water and drainpipes under lavatories shall be insulated or otherwise configured to protect against contact	None existing
Lavatories and Mirrors Lavatory Element 4.19.5 4.27.4	Controls shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. Lever-operated, push-type, and electronically controlled mechanisms are examples of acceptable designs	None existing

ADA compliance at the Law Library Building could be funded by A Community Development Block Grant through HUD. There are many challenges involved in using and reusing historic buildings; satisfying current codes and laws are one of them. The goal is to achieve the highest level of accessibility with the lowest amount of impact on the historic structure. The bottom line is to understand how the reuse of the building is going to drive the requirement of ADA.

ADA modifications to existing buildings can come in many forms. As an example, installing an elevator in a historic house museum to provide access to the second-floor bedrooms could destroy architectural features of historic significance on the first floor. Providing an audio-visual display of the contents of the upstairs rooms in an accessible location on the first floor would be an alternative way of achieving program accessibility.

In any case, although the historic preservation exception to the ADA relaxes accessibility requirements, it does not eliminate all requirements. The exception cannot be used as a loophole to deny access to people with disabilities. Every building must meet at least the minimum requirements or create "innovative alternatives" to provide access such as making reasonable accommodations and providing a replicated use on the accessible level.

6. IMPLEMENTATION PLAN

A. GENERAL APPROACH

B. PROJECT APPROACH AND PHASING

C. NEXT STEP

A. GENERAL APPROACH

As previously stated in this report this building is a cultural resource for the city, state, and nation. The reality of the building and the comprehensive site is that it is a "Landmark Structure" from the perspective of most deserving of preservation for future generations.

Across North Central West Virginia we are challenged with structures that are, or certainly once were community icons yet today require restoration and preservation efforts. These buildings contributed to the Social-Economical-Physical dynamics of their respective downtowns and with their stature often bring many memories from the local community of the yesteryears. These structures all have stories as to why they are in a state of disrepair or noncompliance that they are in, whether it be bank foreclosure, absentee ownership, obsolete infrastructure, hazardous materials, or several other situations.

Whether it is the 1500 square feet Stump Hotel in Grantsville, the 100,000 square feet Waldo Hotel in Clarksburg, or the Law Library Building, their commonality is that the respective communities have been shaped around these structures and the Landmarks play an important role in the legacy of the place. None of the above-mentioned communities can afford to lose these historic structures; it takes some thought and careful planning to "Attack these Landmarks".

To be effective these projects often require a public-private partnership. The public entity, whether it is the city, county, state, or federal government can bring capital that is usually for site infrastructure improvement or a loan to seed the project. The private investment can secure the balance of the needed capital for the project and work to utilize the available tax credits.

The start of the Plan: *a successful project relies on a clear vision of the end goals and how to get there.* A vision is needed that outlines common goals, expectations, and desired results within a set schedule and for a given budget. In dealing with an existing building one of the largest challenges is to develop a winning building program with the understanding that some uses are more evasive than others. The building configuration and typology are an issue. The conversion of a train station to market-rate housing is not necessarily the best fit. In planning for the best results look at precedents both locally and nationally, what worked and what did not. We hope that this report provides the client with the basis for this plan.

How should clients **equip themselves for the challenge**? The right team members and partners are crucial with a composition of technical experts, financial experts, and members with local knowledge. The technical experts will guide the configuration, the infrastructure, the adaptability, the constructability, and the regulatory/approvals process for the project. The financial experts

will guide the market studies, cash flow analysis, and capital investments all centered around the return on investment. It is not any one of these team members that make this project successful, but the consolidated efforts of the team that creates a winning solution.

The first step is the **strategic approach**: *identify the economic and social incentives for what otherwise may seem a hopeless project*. The common incentives are State Tax Credits, Federal Tax Credits, and Tax Abatement. It can often be proven to local, state, and federal officials that these projects can be pivotal projects for larger-scale revitalization. Additionally, when executed using the established standards, the Secretary of The Interior's Standards for Rehabilitation as one, the projects can be models bringing a community and its leadership together (both the business community and citizen groups) with pride and a sense of accomplishment.

The second move could be **funding**: *identify potential funding sources and partnerships for a successful project*. Some mechanisms and sources that have been used in the past: are TIFF Financing, State Wide Preservation Grants, Community Development Block Grants, Bank Consortium Funding, HUD funds, Transportation Enhancement Funding (ISTEA and TEA-21), Save America's Treasures Grants, Bank Reinvestment Acts Requirement, special bonds or levies, and private foundation funding. Additionally, work with your local banking community to leverage financing for the project based on future income from federal, private, and corporate user groups.

The third step would be the **professional study**: *pull together all the historical documentation on the structure, assess the existing conditions, and start the creative process to conceptualize a result*. Sensitive and responsible preservation and restoration work must be responsive to the category of the historical significance of the building. Each building provides a unique set of requirements and conditions; so too, each solution is unique. Realize that the approach for the Law Library will be much different from that of a similar-use building based on several factors such as size, location, historical significance, available documentation, current and desired uses, existing conditions, and project budget to name a few. Again, the work provided in this study should provide the client with the basis for this step in the process.

The fourth step could be to **identify partners**: *projects with consensus amongst the community and project members have greater possibilities for success*. Each project can benefit from a developer or facilitator that has worked with these issues before. Some projects warrant a phased approach and multiple partners/investors to develop a winning solution. With a team actively facilitating the process, garnering leadership from the local community, and conveying the vision consensus on all sides shall be reached.

Note that the order of the strategies can vary slightly depending on the project's constraints and opportunities. Generally speaking, the approach for the preservation of a historical building is not your typical real estate development exercise, you have no option to turn away from the endeavor and failure is not an option. It is important to understand that it is a different approach each time and no one solution fits all. This battle has been won on many fronts in the past and the challenge is out there awaiting you.

B. PROJECT APPROACH AND PHASING

The Greenbriar Historical Society has worked hard to develop goals to tackle with this project:

1st Phase Work Scope

Exterior Brick Paint Removal

Coat and peel method of removal. (Both structures)

Brick Repair

Evaluate integrity of northwest corner damage with Mason preservationist and repair (Main structure)

Repoint structures. (100% main structure, 20% Enslaved Quarters)

Window Refurbishment

Remove and replace modern muntins on exterior windows. (Lower level only, Main structure)

Encapsulate lead paint with new paint coat. (Both structures)

Bead weather strip sashes at contact point to jambs. (Both structures)

Install storm windows to interior of window openings. (\$200 per + \$150 Labor)

Window Shutters

Remove, refurbish, and reinstall existing shutters.

Paint

If brick surfaces exhibit excessive and irreparable dissimilarities, coat to consolidate appearance. (Both structures using breathable coating)

Roof gutters

Evaluate sizing of existing half round gutters. (Main structure)

Demo Kitchen, Interior Wall Surfaces, Stairs, Upper Floor Partition Wall

Employ demo crew to remove and haul. (Enslaved Quarters)

Clean Attic and Basement

Employ demo crew to clean and haul debris from basement and crawl space as well as debris and guano in Masonic addition attic. (Main structure, Employ Hazmat mitigation team for bat and bird guano)

2nd Phase Work Scope

Demo 1st Floor Ceiling Plaster

Remove plaster ceiling in 1st floor main room and adjacent study room. (4 weeks)

Evaluate existing condition above plaster ceiling and determine as built framing.

3rd Phase Work Scope

Frame original first floor to as built conditions

Add partition walls to form two east side offices.

Create Faux Entry door at as built location.

Install as built staircase in main room.

Locate as built style staircase at south wall in front of faux entry door

Sprinkle entire main structure

Restore 4 lower fireplaces

Consult with HVAC contractor.

Rework register locations.

Hold on replacing systems in both buildings until last phase of construction.

Rework electrical to accommodate changes in Phase 4.

Relocate panel, devices, and wiring due to interior wall and stair removal in Enslaved Quarters.

Relocate interior panel, devices, and wiring due to interior layout reconfiguration of first floor Masonic addition and addition of LU/LA lift.

4th Phase Work Scope

Restore 4 fireplaces on 2nd floor.

Complete restoration of the second floor.

Make sure all reworking of second floor main building work is complete and cordon off.

Demo 1st and 2nd floor Masonic addition interiors.

Demo staircase in Masonic Addition

Consult with Plumbing contractor

Evaluate, design and rework plumbing to remove marginal piping and relocate supply and DWV for new restroom locations.

Construct Interior Partition Walls and Lift Well.

Construct walls and doorways for restrooms as well as hoist way and pit in Masonic addition.
Install LULA lift

Construct Restrooms

Set and Finish Out 1st and 2nd floor Masonic Addition.

In addition to the items listed above we have provided a cost break out in an order of project priority for the building in Chapter 4, Section C of this report.

C. FOLLOW UP NEXT STEPS

i. Execute a Building Maintenance Plan

Building maintenance may be defined as the preservation of a building so that it can serve its intended purpose and a combination of any actions carried out to retain an item or restore it to an acceptable condition. The maintenance of historic buildings is the first line of defense yet requires an offensive stance. Maintenance is significant not only regarding the physical components of a building, but also for the health, safety, and welfare of those who inhabit it.

As integral as maintenance is to the overall well-being and life span of a building, its implementation is often plagued by poor, incomplete, or inadequate survey work, non-existent records, and complicated directions. A major problem in historic preservation is a lack of consistency.

Local non-profit groups and historical societies, for example, should be aware of and have access to these technological methods, but they should not be so complicated that they sit unused. In other words, while consistent recording and survey tools should be determined, their affordability should be considered as well. Certain technology may provide more accuracy, per se, but in the end, having everyone, including those without significant financial backing, such as local groups and government agencies, maintain a common language and method will go further in providing the most complete information.

The reality of dealing with any historic building is that change happens over time and sometimes in catastrophic events leaving the stewards of the building to react. Over the history of any building, many events take place that directly affects the components that constitute the whole. The events start with the design documents, the construction, the routine maintenance, the modifications, and the deferred maintenance. Each one of these events has documentation that is associated and provides invaluable data. The reality of folks associated with any given building is that they change over time; the day-to-day supervisors, the cleaning crews, the maintenance workers, the repair people, the building contractors, and the building owners can change hands many times over the course of a building's life span.

With any building, it is often the case that assessments are performed, and reports are written to memorialize and document an event or snapshot in time. The documents too often become part of the buildings' dead files (archives), or worse yet, the circular files. This documentation is often done with different personnel, in different formats, and with different scopes of work thus challenging the building stewards to establish the baseline data and document the change over time. The data collected on the building needs to inform the personnel with qualitative and quantitative information to allow for conscientious decision-making.

ii. Execute a Cultural Landscape Report

Taken from the NPS Preservation Brief #36: <http://www.nps.gov/hps/tps/briefs/brief36.htm>

A Cultural Landscape Report (CLR) is the primary report that documents the history, significance, and treatment of a cultural landscape. A CLR evaluates the history and integrity of the landscape including any changes to its geographical context, features, materials, and use.

CLWs are often prepared when a change (e.g., a new visitor's center or parking area to a landscape) is proposed. In such instances, a CLR can be a useful tool to protect the landscape's character-defining features from undue wear, alteration, or loss. A CLR can provide managers, curators, and others with the information needed to make management decisions.

A CLR will often yield new information about a landscape's historic significance and integrity, even for those already listed on the National Register. Where appropriate, National Register files should be amended to reflect the new findings.

iii. Develop a Business Plan

It is recommended that a comprehensive business plan for the facility be developed to sustain the long-term viability of the project. This plan would look at the sources and uses as well as the capital and operational cost centers of the project.

7. APPENDIX

A. CONSULTANTS REPORTS

B. ADDITIONAL PHOTOGRAPHS

A. CONSULTANTS REPORTS

- a. Arrow Engineering
- b. Boggs Environmental Consultants
- c. John Canning Company
- d. Harper Engineering PLLC



1459 Willey St.
Morgantown, WV

PH: 304.276.1296

info@arwcg.com

December 20, 2022

Mr. Tom Kilonski
Project Manager
Mills Group Architecture
88 High Street
Morgantown, WV 26505

RE: Structural Engineering Assessment at GHS Law Library
201 Courtney Dr., Lewisburg WV 24901

Dear Mr. Kilonski:

At your request, Arrow Engineering was asked to provide an overall structural assessment for the Law Library Building located at 201 Courtney Drive, Lewisburg, WV 24901. This assessment is based on information gathered by Mills Group Architecture during multiple site visits to the building.

Objectives of the Assessment:

- Provide an overall opinion of the building's structural integrity and identify any significant or major deficiencies in the structure that are apparent through visual observation.
- Provide floor rating guidance based on theoretical capacities for framing sizes and orientation noted during the site visits.
- Assist the GHS and Mills Group Architecture with interpretations of this assessment for practical planning purposes and conceptual master planning for future work at the building.

Qualifications of the Assessment:

- Observations limited to visual and readily accessible or observable areas as reported to Arrow from Mills Group Architecture.
- Non-destructive testing was not performed as part of this study.
- Conditions noted are a "snap-shot" in time and may not be used to accurately describe or predict conditions or issues which may only develop in time.

Criteria & Assumptions used in this Assessment:

- Analysis carried out in accordance with 2018 International Building Code and ASCE 7-16.

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- Since non-destructive or material testing was not carried out as part of this assessment, all wood analysis has been carried out using assumed wood parameters for similar / typical framing used in other buildings and structures of this age.
- Required live load considered in the analysis are as follows:

Reading Rooms	60 PSF
Stack areas	150 PSF
Corridors	80 PSF
Museum Rooms	100 PSF
Roof Live Load	20 PSF
Ground Snow Load	25 psf

Main Structure

General Structural Description:

The existing structure at 201 Courtney Drive is a two story structure with a partial basement and crawlspace. The primary foundation for the building consists of a combination of masonry stone and brick walls with supplemental concrete reinforcing at select locations. The main floor level is framed with dimensional wood joists spanning from the exterior side walls to a center load bearing wall / beam line running along the length of the building for the basement portion. The main level floor of the crawlspace area is formed from rough sawn round 10-12" diameter wood limb / joists. The upper floor level consists of 8x10 joists at 24" spacing. The roof is structured with rough sawn joists and load bearing scissor trusses spaced along the building axis.

Observations & Assessment - Foundations:

The overall condition of the masonry in the foundation is in good condition with no evidence noted of settlement observed in our findings. The additional reinforcement added to the wall to support the 2x12 floor joists in the full basement portion of the building appears to be adequate.

Observations & Assessment - First Floor Framing:

The main level framing consists of a variety of framing types explained below:

- At the full basement and first bay of the crawlspace there are 2x12's spanning from the exterior wall to a center load bearing support (approximately 12'-0"). This area is used as a museum and must be rated for a 100 PSF live load. In this capacity, the existing floor framing is adequately sized. In the absence of any noted deterioration of these elements, this area would be considered to be appropriately sized with sufficient capacity.
- In the second bay of the crawlspace, the floor is supported by full length 10-12" diameter timber logs serving as the joists at approximately 20-24" OC. This area is used primarily as a reading room and thus subject to a live load of 60 PSF. The capacity of the full length timber joist is sufficient for this area. The use of this room as a reading room also carries with it some additional consideration of the weight of the book stacks on either end of the room. The existing timber logs were checked for the additional shear which may be present due to the

weight of these shelves but it is assumed that the majority of this weight is transferred directly into the walls below each of these locations and thus is not likely to adversely affect the floor capacity.

- At the addition at the western end of the structure, there are 2x12's running to a center support also. This area serves primarily as a corridor and light storage area subject to a live load of 80 PSF. The framing in this area is sufficient to support this load as no deterioration was noted and reported to Arrow.

At all three of these areas, the allowable "serviceability limit" of deflection ($L/360$) may be exceeded by heavy, concentrated loads, near the center of the span. This does not indicate failure, and is a relatively modern criteria to consider when analyzing framing of structures, so its implications must remain within the context of practicality. It is defined as a serviceability limit because it represents limitations which, when applied to a particular element, will preserve the "feel" of that element inside the structural envelope of the rest of the building (i.e., it will not feel loose, bouncy, nor will its movement adversely affect finishes applied to this area). The recommended outcome of this consideration is that if the floor begins to feel bouncy or if finishes are ever applied to the floors which are less tolerant of movement, strengthening of this floor system may be warranted to counteract sporadic, heavy concentrated loads as may be realized by heavy book stacks or files.

Observations & Assessment - Second Floor Framing:

The second level framing consists of 8x10 rough sawn joists at 24" OC. A post is visible in the museum portion of the first floor indicating that there is likely a mid-floor beam cutting the span of these joists to approximately half of the width of the building. *(Analysis of these timbers supports the conclusion that the floor would likely be noticeably bouncy under even the lightest load if such a midspan support was not present; so even though this area is concealed, empirical evidence suggests that it is reasonable to assume that these joists are supported near the midpoint of the building as this floor is currently being loaded by heavy book stack shelving)* The second floor currently serves as a library with heavy book stacks and shelves with an appropriate live load of 150 PSF.

It is our belief that this floor is adequate to continue to function as a library space with book stack shelving. It is recommended that the presence of a center support be investigated further. There is cause to be somewhat concerned about the long term use of this space to support sustained heavy deadloads as would be imposed by tall bookshelves / stacks. It is recommended therefore that a floor monitoring program be considered to periodically check the elevation, bowing, or deflection of the floor over time in order to provide data to check the progress of any structural movement.

Observations & Assessment - Roof Framing:

The existing roof is structured with a combination of the original rough sawn roof joists and, what appears to be newer, dimensional lumber scissor trusses which span across the width of the attic. The scissor trusses also have threaded rods spanning down to support what was originally a beam / top plate of an existing load bearing wall that ran down the middle of the second floor. The newer trusses were

likely added in order to facilitate the removal of this middle wall from the second floor. Analysis of this system demonstrates sufficient capacity to resist the prescribed snow and roof live loads appropriately applied to it.

Observations & Assessment - Walls:

The exterior walls of the structure were noted to be brick masonry. The primary concern for longevity of the building envelope in a structural assessment is to identify areas where the brick is failing or potentially failing. This includes the primary building walls, lintels above openings, and any projection or cornice type embellishments. Based on what could be observed, the only area of significant concern is the brick behind the water heater. This area exhibits significant deterioration of the brick in this area (possibly because of heat and humidity at this location) which should be rebuilt. There are some other opportunities where mortar has failed in the joints at other walls to perform a repointing of the existing brick as part of a long term maintenance plan which should be considered to maintain the longevity of the overall building envelope.

Enslaved Structure

General Structural Description:

The detached structure, known as the Enslaved Structure, is generally described as having a similar foundation type as the main building and presumably a similar type of timber joist framing for the floor levels.

Observations & Assessment:

The detached structure exhibits no obvious structural concerns though the size of it precludes any real occupancy. Given some of the unknowns present in the framing that could not be directly observed by our team during the assessment, it is our opinion that the structure can remain a storage / miscellaneous occupancy. Any substantial loading or occupancy should be limited however.

We appreciate the opportunity to work with you on this project and look forward to its progression and future. If there are any questions, please feel free to give me a call.



Respectfully,

A handwritten signature in blue ink that reads "Michael W. Howell".

Michael Howell, PE SE
President



LEAD-BASED PAINT INSPECTION

FINAL TECHNICAL REPORT

Conducted at:

**GREENBRIER HISTORICAL SOCIETY
LAW LIBRARY**
814 Washington Street,
Lewisburg, West Virginia 24901

Prepared for:

 **MILLS GROUP**
ARCHITECTURE ■ PLANNING ■ PRESERVATION
88 High Street,
Morgantown, West Virginia 26501

Attention :

Mr. Michael J. Mills, AIA
Managing Principal

BEC Project #WV22045

Fieldwork Conducted: November 3, 2022

Report Date: November 14, 2022

Prepared by:



Middletown MD ~ Morgantown, WV
Corporate Office: 200 Main St., Middletown, MD 21769
Tel: (301) 694-5687 ~ Fax: (301) 694-9799

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES



LEAD-BASED PAINT INSPECTION FINAL TECHNICAL REPORT

Conducted at:

GREENBRIER HISTORICAL SOCIETY LAW LIBRARY

814 Washington Street,
Lewisburg, West Virginia 24901

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TABLES

TABLE A: LEAD BASED PAINT FILMS

TABLE B: PAINT CONTAINING LEAD FILMS

APPENDICES

APPENDIX A PROTEC "LPA-1" RADIOACTIVE ENERGY RESOURCING DATA

APPENDIX B XRF PERFORMANCE CHARACTERSTIC SHEET

APPENDIX C XRF TESTING DATA

APPENDIX D BEC STAFF QUALIFICATIONS

APPENDIX E BEC FIELD DOCUMENTATION

APPENDIX F BEC PHOTOSHEET

BOGGS ENVIRONMENTAL CONSULTANTS, INC.

Final Technical Report & Onsite Fieldwork Conducted By:

A handwritten signature in black ink, appearing to read 'Andrew L. Hanson', is written over a horizontal line.

Andrew L. Hanson, Project Manager
State of West Virginia Lead Inspector (#PI000716)
State of West Virginia Lead Risk Assessor (PA000431)

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES



SECTION 1.0 SUBJECT SITE DESCRIPTION & SCOPE OF WORK

Project Site: GREENBRIER HISTORICAL SOCIETY
LAW LIBRARY
814 Washington Street,
Lewisburg, West Virginia 24901

Requester Name: Mr. Michael Mills, AIA, Managing Principal
Requestor Address: THE MILLS GROUP LLC.
88 High Street,
Morgantown, West Virginia 26501

Subject Site Description & Scope of Work:

The focus of this lead-based paint (LBP) inspection was the readily-accessible suspect materials located within the Greenbrier Historical Society Law Library and associated Enslaved Quarters at 814 Washington Street, Lewisburg, West Virginia 24901.

BEC received authorization from Mr. Michael Mills, AIA, Managing Principal of The Mills Group LLC, to provide support services to conduct the lead-based paint (LBP) inspection to identify building components for the presence of lead-based paint (LBP) and/or paint-containing lead (PCL). Mr. Mills requested the LBP inspection to determine applicability (and impact) of US EPA/US HUD/State of West Virginia Bureau of Public Health (WV BPH) environmental and US OSHA worker protection regulations potentially triggered during routine maintenance and/or planned renovation (construction) work activities, which will, or can be reasonably anticipated to, result in disturbance of building components finished with LBP or PCL.

SECTION 2.0 LEAD-BASED PAINT INSPECTION

2.1 Background

BOGGS ENVIRONMENTAL CONSULTANTS, INC. (BEC) conducted the LBP inspection utilizing an US EPA/HUD/WV BPH accredited LBP inspector and all necessary sampling equipment to perform the LBP inspection, by evaluating the representative building components within each functional space located at the structure to gain an understanding of the locations of LBP and/or PCL within the subject site. The lead-based paint (LBP) inspection was conducted strictly adhering to the US HUD guidance document entitled "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing" with the 1997 revisions and the WV "Lead Abatement Licensing" (WV 64 CSR 45) regulations.

BEC staff member, Mr. Andrew Hanson, whom possesses valid United States Environmental Protection Agency (US EPA), US Housing and Urban Development (US HUD), WV BPH approved "Lead Inspector" and "Lead Risk Assessor" training certification conducted the inspection for LBP and/or PCL-finished building components on November 3, 2022.

2.2 LBP Inspection Procedures

The LBP inspection consisted of critical visual inspection and surface-by-surface investigation utilizing an X-Ray Fluorescence (XRF) *in situ* testing of paint films present at the structure. PROTEC "LPA-1" XRF manufactured by PROTEC Instrument Corporation, 38 Edge Hill Road, Waltham, Massachusetts. The PROTEC LPA-1 is a hand-held portable lead detector, designed to make accurate, non-destructive measurements of lead concentrations in paint. The LPA-1 (SN #1677) underwent resourcing of the Cobalt-57 radioactive isotope-based energy source on December 6, 2021. (See **Appendix A** - PROTEC "LPA-1" Radioactive Energy Resourcing Data).

The "LPA-1" is a hand-held portable lead detector, designed to make accurate, non-destructive measurements of lead concentrations in paint films, coatings, and/or finishes. BEC adhered to the XRF manufacturer's specifications and directives contained in the "XRF Performance Characteristic Sheet" (PCS) in the conduct of the lead-based paint inspection. (See **Appendix B** – XRF Performance Characteristic Sheet).

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES



SECTION 2.0 LEAD-BASED PAINT INSPECTION

2.2 LBP Inspection Procedures (continued)

Prior to beginning the XRF testing, BEC performed the manufacturer's recommended warm up procedures and calibrated the XRF device. BEC performed six calibration check readings using a National Institute of Standards and Technology (NIST) Standard Reference Material (SRM) paint film test strip (NIST SRM #2579), which possesses a lead level of 1.02 mg/cm². All measurements were within the range of the calibration check limits; 0.7 to 1.3 mg/cm², inclusive. The XRF instrument was deemed in calibration and testing began.

BEC advises, based upon visual inspection and XRF testing activities, a total of **one hundred eighty-two** (182) readings were collected from painted surfaces including: walls, ceilings, window components, door components, millwork, baseboards, closet components, and exterior building components. A complete listing of all XRF results is included in **Appendix C – XRF Testing Data**.

According to WV BPH, an XRF reading of greater than or equal to 1.0 milligrams of lead (Pb^{1/2}) per square centimeter (mg/cm²) is considered positive; lead-based paint (LBP). An XRF reading less than 1.0 mg/cm² is considered negative. It is relevant to note, the XRF testing did not result in any inconclusive readings.

The United States Occupational Safety and Health Administration (US OSHA) does not define lead paint based on content; paint-containing lead (PCL). Any detectable mass and/or concentration of lead in a paint film categorizes it as lead paint for purposes of complying with US OSHA regulations to determine worker exposure. Refer to “*OSHA Lead in Construction Advisor*”, Office of the Assistant Secretary for Policy / Office of Compliance Assistance Policy; <https://www.dol.gov/elaws/oshal/lead/glossary.asp>

2.3 LBP Testing Combinations

A Testing Combination is characterized by the room equivalent, component, and substrate. The Testing Location is a specific area on a testing combination where the XRF instrument measures for lead-based paint.

A Room Equivalent is an identifiable part of a building, such as a room, exterior sides, or an exterior area. Hallways, stairways, and exterior areas are all examples of room equivalents. Walls are identified as A, B, C and D. The “A” wall in each room corresponds with the wall on which the main entrance or street side of the building is located. The remaining walls are located in order proceeding clockwise from “A” wall. Side A faced the entrance to each apartment building. Windows and/or doors are identified as #1, #2, #3, etc. with the Window #1 and/or Door #1, located at the extreme left-hand side of a room with additional windows and/or doors encountered at the same wall, numbered in ascending order; left to right naming convention.

Each room equivalent is made up of Components. Components may be located inside or outside a building. For example, components in a room are the ceiling, floor, walls, a door and its casing, the window sash, and window casing. The Substrate is the material underneath the paint. Many substrates exist; however US HUD Final Guidelines recommend classifying substrates into one of six substrate types: brick, concrete, drywall, metal, plaster, and wood. These substrate types are intended to include a broad range of materials. If the true substrate is not one of the six types, the substrate that most closely matches the true substrate is selected. For substrates on top of substrates, such as plaster on concrete, the substrate directly beneath the paint surface is used.

2.4 LBP Inspection Limitations

The above inspection was characterized by close visual inspection of subject site, in accordance with US HUD regulations and generally accepted engineering work practices associated with the conduct of a LBP inspection. It is relevant to note, BEC did NOT conduct exploratory demolition to gain access to enclosed building conditions (e.g., wall cavities, pipe chases, HVAC ductwork shafts, ceiling plenums, etc.).

Accordingly, BEC makes no warranty, expressed or implied that all LBP and/or PCL-finished building components present at the building have been identified. BEC represents the XRF testing to identify LBP and/or PCL-finished building components, have been conducted in accordance with accepted engineering work practices and Federal/State regulations.

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SECTION 3.0 LEAD-BASED PAINT TESTING RESULTS

3.1 Lead-Based Paint Films

BEC concludes, based upon review of the LBP inspection findings, “lead based paint” was detected (via XRF *in situ* testing) as the subject site and are listed in **Table A – Lead-Based Paint Films**.

TABLE A – LEAD-BASED PAINT FILMS

Paint Color	Building Component	Location	Substrate	Lead (mg/cm ²)
Green	Book Cabinet	Law Library Room #101	Wood	>9.9
Green	Bookcase	Law Library Room #201 & 203	Wood	>9.9
White	Bookshelf	Law Library Room #101	Wood	4.1
White	Door	Law Library Room #103, #206, #201 & #203	Wood	4.1 – >9.9
Green	Door	Law Library Room #001	Wood	5.8
Green	Door Casing	Law Library Room #101, #102, #201, & #206	Wood	>9.9
White	Door Casing	Law Library Room #205	Wood	>9.9
White	Fireplace Surround	Law Library Room #101 & 102	Wood	6.9 – >9.9
White	Fireplace Mantel	Law Library Room #101 & 102	Wood	1.7 – 4.5
Green	Window Casings	Law Library Room #101, #102, #204, & #206	Wood	>9.9
Green	Window Sill	Law Library Room #204, & #206	Wood	1.5 – >9.9
White	Window Sash	Law Library Room #102, #204 & #206	Wood	1.5 – >9.9
Green	Exterior Door	Exterior Law Library	Wood	7.0 – >9.9
Green	Exterior Coal Chute	Exterior Law Library	Metal	1.0
White	Exterior Door Casing	Exterior Law Library & Enslaved Quarters	Wood	2.5 – 8.7
White	Exterior Window Sill	Exterior Law Library	Wood	>9.9
White	Exterior Window Casings	Exterior Law Library & Enslaved Quarters	Wood	1.0 – >9.9
Green	Shutters	Exterior Law Library	Wood	3.3 – 4.9
Wood	Soffit	Exterior Law Library	Wood	5.2
Wood	Column	Exterior Law Library	Wood	6.8
Wood	Beam	Exterior Law Library	Wood	6.7
Pink	Exterior Walls	Law Library & Enslaved Quarters	Brick	1.0 – 5.4

3.2 Paint Containing Lead Films

BEC concludes, based upon review of the LBP inspection findings, “paint-containing lead” was detected (via XRF *in situ* testing at the subject site and are listed in **Table B – Paint Containing Lead Films**.

TABLE B – PAINT CONTAINING LEAD FILMS

Paint Color	Building Component	Location	Substrate	Lead (mg/cm ²)
White	Walls & Ceilings	Interior Law Library	Plaster	0.1 – 0.7
White	Walls & Ceiling	Law Library Room #204 & #211	Sheetrock	0.1 – 0.3
Tan	Door Casing	Law Library Room #110/111	Wood	0.2
White	Door	Law Library Room #101 & #103	Wood	0.1 – 0.7
White	Window Sash	Law Library Room #103	Wood	0.4
Green	Window Sill	Law Library Room #101, #102, & #103	Wood	0.2 – 0.5
Green	Window Casing	Law Library Room #103	Wood	0.6

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SECTION 3.0 LEAD-BASED PAINT TESTING RESULTS

3.2 Paint Containing Lead Films (continued)

TABLE B – PAINT CONTAINING LEAD FILMS

Paint Color	Building Component	Location	Substrate	Lead (mg/cm ²)
Green	Door Casing	Law Library Room #103	Wood	0.5
Green	Wainscoting	Law Library Room #204, #206, #201, & #203	Wood	0.4
Red	Firebrick	Law Library Room #101 & #102	Brick	0.4
Brown	Exterior Threshold	Exterior Law Library	Wood	0.7
Pink	Exterior Walls	Law Library	Brick	0.2 – 0.4
White	Exterior Window Sill	Exterior Law Library	Wood	0.5

3.3 LBP and PCL Management

Notwithstanding the absence of specific measurement (data gap) on the lead content of particular paint-finished building component placed within a LBP or PCL group, BEC recommends, in an abundance of caution, the Owner manage the building component present at planned work areas (e.g., renovation, demolition) and/or building areas subject to routine maintenance, as LBP or PCL finished. Alternatively, BEC recommends further discrete (actual) XRF testing and/or paint chip sampling of the particular paint-finished building component to definitively reveal the lead concentration at those not evaluated during this testing event. It is relevant to note, US OSHA worker protection regulations govern the disturbance of both LBP and PCL building components.

SECTION 4.0 CONCLUSION AND RECOMMENDATIONS

- A. BEC concludes, based upon review of the LBP inspection findings, “lead based paint” was detected (via XRF *in situ* testing & paint chip sampling) at the subject site.
- B. BEC concludes, based upon review of the LBP inspection findings, “paint containing lead” was detected (via XRF *in situ* testing) at the subject site.
- C. BEC advises compliance with US OSHA “Lead-in-General Industry” standard (29 CFR 1910.1025) is required for all employers whose employees perform any maintenance activities, which involve making or keeping a structure, fixture, or foundation in proper condition on a routine, scheduled, or in an anticipated fashion, that disturbs “lead-based paint”.
- D. BEC advises the US OSHA regulation “Lead Exposure in Construction” (29 CFR §1926.62) applies to all construction activities, in which employees might be exposed to lead and all related construction activities, currently excluded from the general industry standard for lead (29 CFR §1910.1025).
- E. Additionally, BEC advises, in the State of West Virginia, all work, of which an employee may be occupationally exposed to lead - falls within the authority (purview) of US OSHA. It is relevant to note, paint with any measurable lead content may, when subjected to various construction or demolition actions, yield airborne particulate levels that exceed the regulatory Permissible Exposure Level (PEL). OSHA policy explicitly requires compliance with the applicable standard for detectable levels of lead that are below the abatement levels. OSHA policy also recognizes XRF data for establishing a positive determination only. Only those surfaces, which have been determined by an accredited laboratory to be below the detection limit for lead, are exempted from these standards.



SECTION 4.0 CONCLUSION AND RECOMMENDATIONS

- F. BEC advises that the building owner is required to communicate (*i.e.*, specify in the contract documents) the presence of “lead-based paint” and/or “paint-containing lead” within the phase limits of the renovation/demolition work area to the general contractor.

Contract specifications governing renovation/demolition work, should explicitly require that the general contractor, and any subcontractor engaged in work that may involve contact with existing paint, make an initial exposure assessment and comply with all other pertinent provisions of 29 CFR 1926.62; notwithstanding the low potential for demolition workers’ exposures to airborne lead concentrations, in excess of the legally-enforceable Action Limit (AL, 30 $\mu\text{g}/\text{m}^3$) and/or Permissible Exposure Limit (PEL, 50 $\mu\text{g}/\text{m}^3$).

- G. In an abundance of caution and prudent risk management, BEC recommends, at a minimum, a General Contractor- whom possesses current and valid US EPA “*Renovation, Repair, and Painting (RRP)*” [40 C.F.R §745.80] training certifications and contractor registration (accreditation)- conduct any and all renovation work, of which will, or can reasonably anticipated to, result in the disturbance of these LBP/PCL films.
- H. BEC recommends conducting representative sampling of the comprehensive waste stream generated from (associated with) any and all renovation work, of which will, or can reasonably anticipated to, result in the disturbance of these “lead based paint” and/or “paint-containing lead” films; ensure bulk samples of both LBP and PCL-finished as well as all unpainted building components are collected to form one composite sample. Submit the composite bulk sample to a US EPA-accredited laboratory to undergo Toxic Characteristic Leachate Procedure (TCLP) analysis to reveal appropriate disposal requirement; general construction debris versus lead-containing hazardous waste.

WORK PRODUCT DISCLAIMER

XRF readings and/or samples collected during an investigation reflect the lead level of that particular area. Readings and samples are collected at random in accordance with established procedures to obtain a representative overview of lead levels within or around a building. Therefore, it should not be construed that every surface, or area in or around a building was sampled or measured for lead content. Testing included exposed and accessible surfaces only, and lead-based paint may be present on securely enclosed or inaccessible surfaces, such as beneath enclosed window wells.

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APPENDIX A

PROTEC "LPA-1 RADIOACTIVE ENERGY RESOURCING DATA

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES

Leak Test Certificate



38 Edge Hill Road
Waltham, MA 02451

Leak Test
Number: 1677-2021

Customer: Boggs Environmental Consultant

System:	LPA-1	Instrument Serial Number:	1677
Source Manufacturer:	Isotope Products	Source Model:	A3901-2
Active Material:	Co57	Source Activity:	444MBq (12mCi)
Source Serial Number:	U3-320	Assay Date	06 Dec 21
Source Enclosure:	Stainless Steel in Tungsten Holder		

Description of Area Wiped:
Comments

Front and Sides of Bezel

Leak Test Results: $<0.005 \mu\text{Ci}$

Chinh Huynh

Individual Performing Test (please print)

Signature of Individual Performing Test

6 December 2021

Date



CERTIFICATION

Dear Customer:

This is to certify that the radioactive source, previously installed in your XRF analyzer, has been removed for decommissioning as part of the resource process of your unit.

The source, Co-57, will be disposed in accordance with all applicable rules and regulations.

Model: LPA-1 X LPA-1B LTR1000

Unit Serial Number: 1677

Source Model: IPL

Source Serial Number: R9-009

Date of Removal: 22 November 2021

Performed by: CH

If you have any questions, please do not hesitate to contact us at telephone 781-701-8638 or info@protecinstrument.com.

Sincerely

A handwritten signature in black ink, appearing to be "CW", is written over the word "Sincerely".

Radiation Safety Department
Protec Instrument Corporation

38 Edge Hill Road · Waltham, MA 02451 · Tel: (781)-701-8638
www.ProtecInstrument.com

LPA-FRM-0009_R1a



APPENDIX B
XRF PERFORMANCE CHARACTERISTIC SHEET

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES

RMD LPA-1, PCS Edition 5

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Performance Characteristic Sheet

EFFECTIVE DATE: October 25, 2006

EDITION NO.: 5

MANUFACTURER AND MODEL:

Make: **Radiation Monitoring Devices**
Model: **LPA-1**
Source: **⁵⁷Co**
Note: This sheet supersedes all previous sheets for the XRF instrument of the make, model, and source shown above for instruments sold or serviced after June 26, 1995. For other instruments, see prior editions.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Quick mode or 30-second equivalent standard (Time Corrected) mode readings.

XRF CALIBRATION CHECK LIMITS:

0.7 to 1.3 mg/cm² (inclusive)

SUBSTRATE CORRECTION:

For XRF results below 4.0 mg/cm², substrate correction is recommended for:

Metal using 30-second equivalent standard (Time Corrected) mode readings.
None using quick mode readings.

Substrate correction is not needed for:

Brick, Concrete, Drywall, Plaster, and Wood using 30-second equivalent standard (Time Corrected) mode readings
Brick, Concrete, Drywall, Metal, Plaster, and Wood using quick mode readings

THRESHOLDS:

30-SECOND EQUIVALENT STANDARD MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm ²)
Results corrected for substrate bias on metal substrate only	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	0.9
	Plaster	1.0
	Wood	1.0

QUICK MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm ²)
Readings not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted on approximately 150 test locations in July 1995. The instrument that performed testing in September had a new source installed in June 1995 with 12 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

XRF CALIBRATION CHECK:

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm² in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm² film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Chapter 7 of the HUD Guidelines provides guidance on correcting XRF results for substrate bias. Supplemental guidance for using the paint film nearest 1.0 mg/cm² for substrate correction is provided:

XRF results are corrected for substrate bias by subtracting from each XRF result a correction value determined separately in each house for single-family housing or in each development for multifamily housing, for each substrate. The correction value is an average of XRF readings taken over the NIST SRM paint film nearest to 1.02 mg/cm² at test locations that have been scraped bare of their paint covering. Compute the correction values as follows:

Using the same XRF instrument, take three readings on a bare substrate area covered with the NIST SRM paint film nearest 1 mg/cm². Repeat this procedure by taking three more readings on a second bare substrate area of the same substrate covered with the NIST SRM.

Compute the correction value for each substrate type where XRF readings indicate substrate correction is needed by computing the average of all six readings as shown below.

For each substrate type (the 1.02 mg/cm² NIST SRM is shown in this example; use the actual lead loading of the NIST SRM used for substrate correction):

$$\text{Correction value} = (1^{\text{st}} + 2^{\text{nd}} + 3^{\text{rd}} + 4^{\text{th}} + 5^{\text{th}} + 6^{\text{th}} \text{ Reading}) / 6 - 1.02 \text{ mg/cm}^2$$

Repeat this procedure for each substrate requiring substrate correction in the house or housing development.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use either the Quick Mode or 30-second equivalent standard (Time Corrected) Mode readings.

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Conduct XRF re-testing at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family and multi-family housing, a result is defined as a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

BIAS AND PRECISION:

Do not use these bias and precision data to correct for substrate bias. These bias and precision data were computed without substrate correction from samples with reported laboratory results less than 4.0 mg/cm² lead. The data which were used to determine the bias and precision estimates given in the table below have the following properties. During the July 1995 testing, there were 15 test locations with a laboratory-reported result equal to or greater than 4.0 mg/cm² lead. Of these, one 30-second standard mode reading was less than 1.0 mg/cm² and none of the quick mode readings were less than 1.0 mg/cm². The instrument that tested in July is representative of instruments sold or serviced after June 26, 1995. These data are for illustrative purposes only. Actual bias must be determined on the site. Results provided above already account for bias and precision. Bias and precision ranges are provided to show the variability found between machines of the same model.

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30-SECOND STANDARD MODE READING MEASURED AT	SUBSTRATE	BIAS (mg/cm ²)	PRECISION* (mg/cm ²)
0.0 mg/cm ²	Brick	0.0	0.1
	Concrete	0.0	0.1
	Drywall	0.1	0.1
	Metal	0.3	0.1
	Plaster	0.1	0.1
	Wood	0.0	0.1
0.5 mg/cm ²	Brick	0.0	0.2
	Concrete	0.0	0.2
	Drywall	0.0	0.2
	Metal	0.2	0.2
	Plaster	0.0	0.2
	Wood	0.0	0.2
1.0 mg/cm ²	Brick	0.0	0.3
	Concrete	0.0	0.3
	Drywall	0.0	0.3
	Metal	0.2	0.3
	Plaster	0.0	0.3
	Wood	0.0	0.3
2.0 mg/cm ²	Brick	-0.1	0.4
	Concrete	-0.1	0.4
	Drywall	-0.1	0.4
	Metal	0.1	0.4
	Plaster	-0.1	0.4
	Wood	-0.1	0.4

*Precision at 1 standard deviation.

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than the upper boundary of the inconclusive range, and negative if they are less than the lower boundary of the inconclusive range, or inconclusive if in between. The inconclusive range includes both its upper and lower bounds. Earlier editions of this *XRF Performance Characteristics Sheet* did not include both bounds of the inconclusive range as "inconclusive." While this edition of the Performance Characteristics Sheet uses a different system, the specific XRF readings that are considered positive, negative, or inconclusive for a given XRF model and substrate remain unchanged, so previous inspection results are not affected.

DOCUMENTATION:

An EPA document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD. A HUD document titled *A Nonparametric Method for Estimating the 5th and 95th Percentile Curves of Variable-Time XRF Readings Based on Monotone Regression* provides supplemental information on the methodology for variable-time XRF instruments. A copy of this document can be obtained from the HUD lead web site, www.hud.gov/offices/lead.

This XRF Performance Characteristic Sheet was developed by QuanTech, Inc., under a contract from the U.S. Department of Housing and Urban Development (HUD). HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

Limit of Detection (LOD)

Statistically, $LOD = 3 \text{ STD}$ (Standard Deviation) or as it is called 3Sigma. You have to be careful about LOD detection calculations. It is the calculation of Sigma (STD) that is a bit tricky. The Sigma (STD.) is not a constant; it depends on time, %Pb, substrate, etc.

One can, as some XRF manufacturers do, base the calculation of the STD on counting statistics. Scientifically, the STD calculation for XRF application should not be based solely on statistical counting or precision calculations (Random error) due to the fact that one can achieve excellent precision by measuring for a long time. So, in this model, the square root of the longest measurement time count rate is used to represent the Sigma. Numbers as low as 0.05 mg/cm^2 can be achieved by most XRF systems including the LPA-1 analyzer.

The true measurement of LOD should also include the Systematic errors into the calculation of STD. The most dominating factor into the Systematic error contributor is the NIST Standard.

No one can measure better than what the calibration standards represent. The uncertainty of the NIST 1.04 sample is $\pm 0.064 \text{ mg/cm}^2$. This means the STD for this sample is 0.032. Therefore, the contribution from this sample's error alone to LOD is $3 \times (.032) = 0.096$ or almost 0.1 mg/cm^2 .

We suggest that you also read the "Methodology for XRF Performance Characteristic Sheet", EPA 747-R-95-008 that details how the HUD/EPA attempted these calculations. You can get a copy by calling 800-424-LEAD.

We hope this note is helpful to you.

RMD Instruments, LLC

Operation of the LPA-1 analyzer and its operational statistics **Zero measurements and negative values**

XRF analysis, like all other methods of measurements, is influenced by both random and systematic errors. The random errors are those that their magnitude can be reduced but not eliminated such as the effect of the radioactive decay of the source in measurements. The systematic errors are those that can be avoided, or at least corrected for. For example the effect of calibration samples, electronics, substrate, and mathematical algorithms.

The statistical terms such as precision, bias, accuracy, and uncertainty refer to these errors and are mathematical approaches for defining and measuring the contribution of each parameter. The uncertainty of a measurement is the summation of the contribution of precision, accuracy, and bias for that measurement.

The scatter on a single substrate represents random errors. We define this to be the *precision*. Strictly speaking, precision is the standard deviation of this scatter. The error in the mean value of lead, for a single substrate, represents a systematic error. Some would refer to this as the bias for this particular substrate, i.e., a particular piece of wood. We use the word *bias* to refer to the average of systematic errors for substrates class not only a particular component in that class.

The scatter in the systematic errors (strictly speaking, the standard deviation in the errors in the mean) we call *accuracy*. For any single reading obtained by the LPA-1, there will be some uncertainty which results from the counts used in this reading (i.e., the precision) and the systematic error in our algorithm (which is quantified by the accuracy). Because these two factors are statistically independent, the total uncertainty is given by the square of the sum of the squares of precision and accuracy.

The contribution of random and systematic errors in an analysis is best represented by a statistical distribution curve. A series of replicate measurements results in a statistical distribution curve represented by Gaussian or Normal distribution. The curve is characterized by number of measurements, range or spread, mean, and scatter or divergence. The standard deviation (sigma) for such a curve is calculated to be the square root of the variance. In practice it can be stated that the probability is 68.3% (1 sigma or 1 standard deviation) that any individual measurement will have a value between the average of all readings plus and minus the standard deviation. For 2sigma or 2 standard deviation the probability is 95.4%.

From the above explanation, one can conclude that a set of repeated measurements for a zero lead sample would result in a Gaussian distribution curve with mean value of zero. This curve implies that for a perfect zero sample fifty out of one hundred measurements would be to the negative side of the curve as the other fifty would lay on the positive side. Therefore, depending on the standard deviation and degree of confidence a zero lead sample can have measured values ranging from negative to positive numbers.

Therefore, the existence of negative values should be expected and interpolated as zero lead content due to statistical nature of the XRF measurements. The lack of such negative values suggests that data have been manipulated and should be questioned.

Both the HUD and the EPA recognize the statistical nature of the analytical measurements and the possibility of obtaining negative values where the lead content is around zero. In practice, the interpretation of a negative number has been as a reading that is below the regulatory Action Level threshold and as a result is negative lead.



APPENDIX C

XRF TESTING DATA

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES



THE PROTEC LPA-1 XRF LEAD PAINT SPECTRUM ANALYZER

LEAD PAINT INSPECTION REPORT

REPORT NUMBER: S#01677 – 11/03/22 12:19

INSPECTION FOR: THE MILLS GROUP LLC.
Attn: Michael Mills
88 High Street,
Morgantown, West Virginia 26501

ABATEMENT LEVEL: 1.0

TOTAL READINGS: 188

JOB STARTED: 11/03/22 12:19

JOB FINISHED: 11/03/22 14:26


PERFORMED AT: GREENBRIER HISTORICAL SOCIETY
LAW LIBRARY
814 Washington Street,
Lewisburg, West Virginia 24901

INSPECTION DATE: November 3, 2022

INSTRUMENT TYPE: PROTEC
MODEL LPA-1
XRF TYPE ANALYZER
Serial Number: #01677

OPERATOR LICENSE: Andrew L. Hanson

State of West Virginia Lead Inspector (#PI000716) Exp: 11/30/2022
State of West Virginia Lead Risk Assessor (#PA000431) Exp: 11/30/2022

SIGNED: 
Andrew L. Hanson, Project Manager

DATE: November 16, 2022



THE PROTEC LPA-1 XRF LEAD PAINT SPECTRUM ANALYZER

SEQUENTIAL REPORT OF LEAD PAINT INSPECTION

Inspection Date: 11/03/22
 Report Date: 11/8/2022
 Abatement Level: 1.0
 Report No. S#01677 - 11/03/22 12:19
 Total Readings: 188
 Job Started: 11/03/22 12:19
 Job Finished: 11/03/22 14:26

Read No.	Room Rm	Room Name	Wall	Structure	Location	Member	Paint Cond	Substrate	Paint Color	Lead (mg/cm ²)	Mode
1		CALIBRATION								0.9	TC
2		CALIBRATION								0.9	TC
3		CALIBRATION								0.9	TC
4	001	Room #101	A	Wall	U Ctr		I	Plaster	White	0.1	QM
5	001	Room #101	B	Wall	U Ctr		I	Plaster	White	0.2	QM
6	001	Room #101	C	Wall	U Ctr		I	Plaster	White	0.5	QM
7	001	Room #101	D	Wall	U Ctr		I	Plaster	White	-0.1	QM
8	001	Room #101	A	Ceiling			I	Plaster	White	0.2	QM
9	001	Room #101	B	Baseboard		Ctr	I	Wood	Green	0.0	QM
10	001	Room #101	A	Door		Ctr U Ctr	I	Wood	White	0.7	QM
11	001	Room #101	A	Door		Ctr Rgt casing	I	Wood	Green	>9.9	QM
12	001	Room #101	C	Window		Ctr Sill	I	Wood	Green	0.4	QM
13	001	Room #101	C	Window		Ctr Sash	I	Wood	White	1.0	QM
14	001	Room #101	C	Window		Ctr Rgt casing	I	Wood	Green	>9.9	QM
15	001	Room #101	B	FireplaceSurrnd		Ctr	I	Wood	White	6.9	QM
16	001	Room #101	B	FireplaceMantel		Ctr	I	Wood	White	1.7	QM
17	001	Room #101	B	Book Cabinet		Ctr	I	Wood	Green	>9.9	QM
18	001	Room #101	B	Bookshelf		Ctr	I	Wood	White	4.1	QM
19	001	Room #101	B	Fire Brick		Ctr	I	Brick	Red	0.4	QM
20	002	Room #102	A	Wall		U Ctr	I	Plaster	White	0.4	QM
21	002	Room #102	B	Wall		U Ctr	I	Plaster	White	0.3	QM
22	002	Room #102	C	Wall		U Ctr	I	Plaster	White	-0.2	QM
23	002	Room #102	D	Wall		U Ctr	I	Plaster	White	0.1	QM
24	002	Room #102	A	Ceiling			I	Plaster	White	0.2	QM
25	002	Room #102	C	Baseboard		Ctr	I	Wood	Green	-0.1	QM
26	002	Room #102	B	Door		Ctr Rgt casing	I	Wood	Green	>9.9	QM
27	002	Room #102	B	Window		Ctr Sill	I	Wood	Green	0.5	QM
28	002	Room #102	B	Window		Ctr Rgt casing	I	Wood	Green	>9.9	QM
29	002	Room #102	B	Window		Ctr Sash	I	Wood	White	>9.9	QM
30	002	Room #102	D	FireplaceSurrnd		Ctr	I	Wood	White	>9.9	QM
31	002	Room #102	D	Fireplace Mantel		Ctr	I	Wood	White	4.5	QM
32	002	Room #102	D	Fire Brick		Ctr	I	Brick	Red	0.4	QM
33	002	Room #102	B	Bookshelf		Ctr	I	Wood	White	0.0	QM
34	003	Room #103	A	Wall		U Ctr	I	Plaster	White	0.0	QM
35	003	Room #103	B	Wall		U Ctr	I	Plaster	White	0.6	QM
36	003	Room #103	C	Wall		U Ctr	I	Plaster	White	0.1	QM
37	003	Room #103	D	Wall		U Ctr	I	Plaster	White	0.0	QM
38	003	Room #103	C	Ceiling			I	Plaster	White	0.0	QM



THE PROTEC LPA-1 XRF LEAD PAINT SPECTRUM ANALYZER

39	003	Room #103	C	Baseboard	Ctr	I	Wood	Green	0.0	QM
40	003	Room #103	D	Stairs	Ctr Risers	I	Wood	Green	-0.1	QM
41	003	Room #103	D	Stairs	Ctr Stringer	I	Wood	Green	0.0	QM
42	003	Room #103	C	Window	Ctr Sill	I	Wood	Green	0.2	QM
43	003	Room #103	C	Window	Ctr Rgt casing	I	Wood	Green	0.6	QM
44	003	Room #103	C	Window	Ctr Sash	I	Wood	White	0.4	QM
45	003	Room #103	D	Stairs	Ctr Balusters	I	Wood	White	-0.1	QM
46	003	Room #103	A	Door	Ctr U Ctr	I	Wood	White	6.9	QM
47	003	Room #103	A	Door	Ctr Rgt casing	I	Wood	Green	0.5	QM
48	004	Room #104	A	Wall	U Ctr	I	Sheetrock	White	-0.2	QM
49	004	Room #104	B	Wall	U Ctr	I	Sheetrock	White	-0.1	QM
50	004	Room #104	C	Wall	U Ctr	I	Plaster	White	0.4	QM
51	004	Room #104	D	Wall	U Ctr	I	Plaster	White	0.3	QM
52	004	Room #104	A	Ceiling		I	Plaster	White	0.6	QM
53	004	Room #104	D	Baseboard	Ctr	I	Wood	White	0.0	QM
54	004	Room #104	B	Door	Ctr U Ctr	I	Wood	White	0.0	QM
55	004	Room #104	B	Door	Ctr Rgt casing	I	Wood	Green	-0.2	QM
56	005	Room #106	A	Wall	U Ctr	I	Plaster	White	0.0	QM
57	005	Room #106	B	Wall	U Ctr	I	Sheetrock	White	-0.1	QM
58	005	Room #106	C	Wall	U Ctr	I	Sheetrock	White	-0.3	QM
59	005	Room #106	D	Wall	U Ctr	I	Plaster	White	0.1	QM
60	005	Room #106	B	Ceiling		I	Plaster	White	0.1	QM
61	005	Room #106	D	Baseboard	Ctr	I	Wood	Green	-0.1	QM
62	005	Room #106	B	Door	Ctr U Ctr	I	Wood	White	-0.1	QM
63	005	Room #106	B	Door	Ctr Rgt casing	I	Wood	Green	-0.1	QM
64	006	Room #201&3	A	Wall	U Ctr	I	Plaster	White	0.2	QM
65	006	Room #201&3	B	Wall	U Ctr	I	Plaster	White	0.3	QM
66	006	Room #201&3	C	Wall	U Ctr	I	Plaster	White	0.5	QM
67	006	Room #201&3	D	Wall	U Ctr	I	Plaster	White	0.5	QM
68	006	Room #201&3	B	Ceiling		I	Plaster	White	0.3	QM
69	006	Room #201&3	D	Baseboard	Ctr	I	Wood	Green	0.0	QM
70	006	Room #201&3	A	Wainscotting	Ctr	I	Wood	Green	0.3	QM
71	006	Room #201&3	B	Window	Ctr Sill	I	Wood	Green	1.0	QM
72	006	Room #201&3	B	Window	Ctr Rgt casing	I	Wood	Green	1.0	QM
73	006	Room #201&3	B	Window	Ctr Sash	I	Wood	White	1.0	QM
74	006	Room #201&3	D	Door	Ctr U Ctr	I	Wood	White	>9.9	QM
75	006	Room #201&3	D	Door	Ctr Rgt casing	I	Wood	Green	>9.9	QM
76	006	Room #201&3	B	Bookshelf	Ctr	I	Wood	White	0.0	QM
77	006	Room #201&3	B	Bookcase	Ctr	I	Wood	Green	>9.9	QM
78	007	Room #204	A	Wall	U Ctr	I	Sheetrock	White	-0.1	QM
79	007	Room #204	B	Wall	U Ctr	I	Sheetrock	White	0.1	QM
80	007	Room #204	C	Wall	U Ctr	I	Sheetrock	White	0.3	QM
81	007	Room #204	D	Wall	U Ctr	I	Sheetrock	White	0.0	QM
82	007	Room #204	C	Ceiling		I	Sheetrock	White	0.3	QM
83	007	Room #204	B	Baseboard	Ctr	I	Wood	Green	-0.1	QM
84	007	Room #204	B	Wainscotting	Ctr	I	Wood	Green	0.4	QM
85	007	Room #204	C	Window	Ctr Sill	I	Wood	Green	1.5	QM
86	007	Room #204	C	Window	Ctr Rgt casing	I	Wood	Green	>9.9	QM
87	007	Room #204	C	Window	Ctr Sash	I	Wood	White	>9.9	QM
88	007	Room #204	A	Bookshelf	Ctr	I	Wood	White	0.0	QM
89	007	Room #204	A	Door	Ctr U Ctr	I	Wood	White	-0.3	QM
90	008	Room #205	A	Wall	U Ctr	I	Plaster	White	0.2	QM



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143	011	Room #110	A	Door	Ctr Rgt casing	I Wood	Tan	0.1	QM
144	011	Room #110	C	Window	Ctr Sill	I Wood	Tan	0.0	QM
145	011	Room #110	C	Window	Ctr Rgt jamb	I Wood	Tan	-0.3	QM
146	011	Room #110	C	Window	Ctr Sash	I Wood	Tan	0.0	QM
147	011	Room #110	D	Cabinet	Ctr	I Wood	Tan	0.0	QM
148	011	Room #110	D	Stairs	Ctr Stringer	I Wood	Tan	0.0	QM
149	011	Room #110	D	Stairs	Ctr Risers	I Wood	Tan	0.0	QM
150	012	Room #210	A	Wall	U Ctr	I Sheetrock	White	-0.2	QM
151	012	Room #210	B	Wall	U Ctr	I Sheetrock	White	-0.2	QM
152	012	Room #210	C	Wall	U Ctr	I Sheetrock	White	-0.2	QM
153	012	Room #210	D	Wall	U Ctr	I Sheetrock	White	-0.2	QM
154	012	Room #210	D	Ceiling		I Sheetrock	White	0.0	QM
155	012	Room #210	B	Baseboard	Ctr	I Wood	Tan	-0.2	QM
156	012	Room #210	A	Window	Ctr Sill	I Wood	Tan	-0.1	QM
157	012	Room #210	A	Window	Ctr Rgt jamb	I Wood	Tan	0.0	QM
158	012	Room #210	A	Window	Ctr Sash	I Wood	Tan	-0.2	QM
159	012	Room #210	D	Door	Ctr U Ctr	I Wood	Tan	-0.4	QM
160	012	Room #210	D	Door	Ctr Rgt casing	I Wood	Tan	-0.1	QM
161	013	Room #211	A	Wall	U Ctr	I Sheetrock	White	0.1	QM
162	013	Room #211	B	Wall	U Ctr	I Sheetrock	White	-0.5	QM
163	013	Room #211	C	Wall	U Ctr	I Sheetrock	White	-0.2	QM
164	013	Room #211	D	Wall	U Ctr	I Sheetrock	White	-0.3	QM
165	013	Room #211	C	Ceiling		I Sheetrock	White	0.0	QM
166	013	Room #211	A	Baseboard	Ctr	I Wood	Tan	-0.1	QM
167	013	Room #211	A	Window	Ctr Sill	I Wood	Tan	-0.1	QM
168	013	Room #211	A	Window	Ctr Rgt jamb	I Wood	Tan	-0.2	QM
169	013	Room #211	A	Window	Ctr Sash	I Wood	Tan	-0.1	QM
170	013	Room #211	D	Stairs	Ctr Balusters	I Wood	Tan	0.0	QM
171	002	Quarters	A	Wall	U Ctr	I Brick	Pink	3.4	QM
172	002	Quarters	A	Door	Ctr U Ctr	I Wood	Green	0.0	QM
173	002	Quarters	A	Window	Ctr Rgt casing	I Wood	White	9.2	QM
174	002	Quarters	A	Window	Ctr Sill	I Wood	White	-0.3	QM
175	002	Quarters	A	Window	Ctr Sash	I Wood	White	-0.1	QM
176	002	Quarters	A	Window	Ctr Lft casing	I Wood	White	>9.9	QM
177	002	Quarters	A	Shutter	Ctr	I Wood	Green	-0.1	QM
178	002	Quarters	B	Wall	U Ctr	I Brick	Pink	1.0	QM
179	002	Quarters	C	Wall	U Ctr	I Brick	Pink	4.7	QM
180	002	Quarters	C	Door	Ctr U Ctr	I Wood	Green	-0.2	QM
181	002	Quarters	C	Door	Ctr Rgt casing	I Wood	White	2.5	QM
182	002	Quarters	C	Window	Ctr Sill	I Wood	White	-0.3	QM
183	002	Quarters	C	Window	Ctr Sash	I Wood	White	-0.2	QM
184	002	Quarters	C	Window	Ctr Rgt casing	I Wood	White	2.0	QM
185	002	Quarters	D	Wall	U Ctr	I Brick	Pink	5.4	QM
186		CALIBRATION						0.9	TC
187		CALIBRATION						0.9	TC
188		CALIBRATION						0.8	TC

---- End of Readings ----



THE PROTEC LPA-1 XRF LEAD PAINT SPECTRUM ANALYZER

SUMMARY REPORT OF LEAD PAINT INSPECTION

Inspection Date: 11/03/22
 Report Date: 11/8/2022
 Abatement Level: 1.0
 Report No. S#01677 - 11/03/22 12:19
 Total Readings: 188 Actionable: 52
 Job Started: 11/03/22 12:19
 Job Finished: 11/03/22 14:26

Read No.	Wall	Structure	Location	Member	Paint Cond	Substrate	Paint Color	Lead (mg/cm ²)	Mode
Exterior Room 001 Library									
114	A	Soffit			I	Wood	White	5.2	QM
118	A	Window	Ctr	Rgt casing	I	Wood	White	9.3	QM
117	A	Window	Ctr	Sill	I	Wood	White	>9.9	QM
121	A	Door	Ctr	Rgt casing	I	Wood	White	5.4	QM
120	A	Door	Ctr	U Ctr	I	Wood	Green	7.0	QM
115	A	Beam	Ctr		I	Wood	White	6.7	QM
116	A	Column	Ctr		I	Wood	White	6.8	QM
119	A	Shutter	Ctr		I	Wood	Green	4.9	QM
126	B	Window	Ctr	Rgt casing	I	Wood	White	1.0	QM
128	B	Door	Ctr	Rgt casing	I	Wood	White	8.7	QM
127	B	Door	Ctr	U Ctr	I	Wood	Green	>9.9	QM
130	C	Coal Chute	Ctr		I	Metal	Green	1.0	QM
131	C	Shutter	Ctr		I	Wood	Green	3.3	QM
134	D	Wall	U Ctr		I	Brick	Pink	1.0	QM
Exterior Room 002 Quarters									
171	A	Wall	U Ctr		I	Brick	Pink	3.4	QM
173	A	Window	Ctr	Rgt casing	I	Wood	White	9.2	QM
176	A	Window	Ctr	Lft casing	I	Wood	White	>9.9	QM
178	B	Wall	U Ctr		I	Brick	Pink	1.0	QM
179	C	Wall	U Ctr		I	Brick	Pink	4.7	QM
184	C	Window	Ctr	Rgt casing	I	Wood	White	2.0	QM
181	C	Door	Ctr	Rgt casing	I	Wood	White	2.5	QM
185	D	Wall	U Ctr		I	Brick	Pink	5.4	QM
Interior Room 001 Room #101									
011	A	Door	Ctr	Rgt casing	I	Wood	Green	>9.9	QM
015	B	FireplceSurround	Ctr		I	Wood	White	6.9	QM
016	B	Fireplace Mantel	Ctr		I	Wood	White	1.7	QM
017	B	Book Cabinet	Ctr		I	Wood	Green	>9.9	QM
018	B	Bookshelf	Ctr		I	Wood	White	4.1	QM
014	C	Window	Ctr	Rgt casing	I	Wood	Green	>9.9	QM
013	C	Window	Ctr	Sash	I	Wood	White	1.0	QM
Interior Room 002 Room #102									
028	B	Window	Ctr	Rgt casing	I	Wood	Green	>9.9	QM
029	B	Window	Ctr	Sash	I	Wood	White	>9.9	QM



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026	B	Door	Ctr	Rgt casing	I	Wood	Green	>9.9	QM
030	D	Fireplace Surround	Ctr		I	Wood	White	>9.9	QM
031	D	Fireplace Mantel	Ctr		I	Wood	White	4.5	QM
Interior Room 003 Room #103									
046	A	Door	Ctr	U Ctr	I	Wood	White	6.9	QM
Interior Room 006 Room #201&3									
072	B	Window	Ctr	Rgt casing	I	Wood	Green	1.0	QM
073	B	Window	Ctr	Sash	I	Wood	White	1.0	QM
071	B	Window	Ctr	Sill	I	Wood	Green	1.0	QM
077	B	Bookcase	Ctr		I	Wood	Green	>9.9	QM
075	D	Door	Ctr	Rgt casing	I	Wood	Green	>9.9	QM
074	D	Door	Ctr	U Ctr	I	Wood	White	>9.9	QM
Interior Room 007 Room #204									
086	C	Window	Ctr	Rgt casing	I	Wood	Green	>9.9	QM
087	C	Window	Ctr	Sash	I	Wood	White	>9.9	QM
085	C	Window	Ctr	Sill	I	Wood	Green	1.5	QM
Interior Room 008 Room #205									
098	A	Door	Ctr	Rgt casing	I	Wood	White	2.3	QM
Interior Room 009 Room #206									
107	A	Window	Ctr	Rgt casing	I	Wood	Green	>9.9	QM
108	A	Window	Ctr	Sash	I	Wood	White	6.7	QM
106	A	Window	Ctr	Sill	I	Wood	Green	>9.9	QM
110	B	Door	Ctr	Rgt casing	I	Wood	Green	>9.9	QM
109	B	Door	Ctr	U Ctr	I	Wood	White	>9.9	QM
Interior Room 010 Room #001									
112	B	Door	Ctr	Rgt casing	I	Wood	White	3.0	QM
111	B	Door	Ctr	U Ctr	I	Wood	Green	5.8	QM
---- End of Readings ----									



THE PROTEC LPA-1 XRF LEAD PAINT SPECTRUM ANALYZER

DETAILED REPORT OF LEAD PAINT INSPECTION

Inspection Date: 11/03/22
 Report Date: 11/8/2022
 Abatement Level: 1.0
 Report No. S#01677 - 11/03/22 12:19
 Total Readings: 188
 Job Started: 11/03/22 12:19
 Job Finished: 11/03/22 14:26

Read No.	Wall	Structure	Location	Member	Paint Cond	Substrate	Paint Color	Lead (mg/cm ²)	Mode
Exterior Room 001 Library									
113	A	Wall	U Ctr		I	Brick	Pink	0.4	QM
114	A	Soffit			I	Wood	White	5.2	QM
118	A	Window	Ctr	Rgt casing	I	Wood	White	9.3	QM
117	A	Window	Ctr	Sill	I	Wood	White	>9.9	QM
121	A	Door	Ctr	Rgt casing	I	Wood	White	5.4	QM
120	A	Door	Ctr	U Ctr	I	Wood	Green	7.0	QM
115	A	Beam	Ctr		I	Wood	White	6.7	QM
116	A	Column	Ctr		I	Wood	White	6.8	QM
119	A	Shutter	Ctr		I	Wood	Green	4.9	QM
122	A	Threshold	Ctr		I	Wood	Brown	0.7	QM
123	A	Storm Door	Ctr		I	Wood	Green	-0.1	QM
124	B	Wall	U Ctr		I	Brick	Pink	0.2	QM
126	B	Window	Ctr	Rgt casing	I	Wood	White	1.0	QM
125	B	Window	Ctr	Sill	I	Wood	White	0.5	QM
128	B	Door	Ctr	Rgt casing	I	Wood	White	8.7	QM
127	B	Door	Ctr	U Ctr	I	Wood	Green	>9.9	QM
129	C	Wall	U Ctr		I	Brick	Pink	0.2	QM
133	C	Window	Ctr	Rgt casing	I	Wood	White	0.0	QM
132	C	Window	Ctr	Sill	I	Wood	White	0.0	QM
130	C	Coal Chute	Ctr		I	Metal	Green	1.0	QM
131	C	Shutter	Ctr		I	Wood	Green	3.3	QM
134	D	Wall	U Ctr		I	Brick	Pink	1.0	QM
Exterior Room 002 Quarters									
171	A	Wall	U Ctr		I	Brick	Pink	3.4	QM
173	A	Window	Ctr	Rgt casing	I	Wood	White	9.2	QM
175	A	Window	Ctr	Sash	I	Wood	White	-0.1	QM
174	A	Window	Ctr	Sill	I	Wood	White	-0.3	QM
176	A	Window	Ctr	Lft casing	I	Wood	White	>9.9	QM
172	A	Door	Ctr	U Ctr	I	Wood	Green	0.0	QM
177	A	Shutter	Ctr		I	Wood	Green	-0.1	QM
178	B	Wall	U Ctr		I	Brick	Pink	1.0	QM
179	C	Wall	U Ctr		I	Brick	Pink	4.7	QM
184	C	Window	Ctr	Rgt casing	I	Wood	White	2.0	QM
183	C	Window	Ctr	Sash	I	Wood	White	-0.2	QM
182	C	Window	Ctr	Sill	I	Wood	White	-0.3	QM
181	C	Door	Ctr	Rgt casing	I	Wood	White	2.5	QM



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180	C	Door	Ctr	U Ctr	I	Wood	Green	-0.2	QM
185	D	Wall	U Ctr		I	Brick	Pink	5.4	QM

Interior Room 001 Room #101

004	A	Wall	U Ctr		I	Plaster	White	0.1	QM
008	A	Ceiling			I	Plaster	White	0.2	QM
011	A	Door	Ctr	Rgt casing	I	Wood	Green	>9.9	QM
010	A	Door	Ctr	U Ctr	I	Wood	White	0.7	QM
005	B	Wall	U Ctr		I	Plaster	White	0.2	QM
009	B	Baseboard	Ctr		I	Wood	Green	0.0	QM
015	B	FireplaceSurround	Ctr		I	Wood	White	6.9	QM
016	B	Fireplace Mantel	Ctr		I	Wood	White	1.7	QM
017	B	Book Cabinet	Ctr		I	Wood	Green	>9.9	QM
018	B	Bookshelf	Ctr		I	Wood	White	4.1	QM
019	B	Fire Brick	Ctr		I	Brick	Red	0.4	QM
006	C	Wall	U Ctr		I	Plaster	White	0.5	QM
014	C	Window	Ctr	Rgt casing	I	Wood	Green	>9.9	QM
013	C	Window	Ctr	Sash	I	Wood	White	1.0	QM
012	C	Window	Ctr	Sill	I	Wood	Green	0.4	QM
007	D	Wall	U Ctr		I	Plaster	White	-0.1	QM

Interior Room 002 Room #102

020	A	Wall	U Ctr		I	Plaster	White	0.4	QM
025	A	Baseboard	Ctr		I	Wood	Green	-0.1	QM
021	B	Wall	U Ctr		I	Plaster	White	0.3	QM
028	B	Window	Ctr	Rgt casing	I	Wood	Green	>9.9	QM
029	B	Window	Ctr	Sash	I	Wood	White	>9.9	QM
027	B	Window	Ctr	Sill	I	Wood	Green	0.5	QM
026	B	Door	Ctr	Rgt casing	I	Wood	Green	>9.9	QM
033	B	Bookshelf	Ctr		I	Wood	White	0.0	QM
022	C	Wall	U Ctr		I	Plaster	White	-0.2	QM
024	C	Ceiling			I	Plaster	White	0.2	QM
023	D	Wall	U Ctr		I	Plaster	White	0.1	QM
030	D	FireplaceSurround	Ctr		I	Wood	White	>9.9	QM
031	D	Fireplace Mantel	Ctr		I	Wood	White	4.5	QM
032	D	Fire Brick	Ctr		I	Brick	Red	0.4	QM

Interior Room 003 Room #103

034	A	Wall	U Ctr		I	Plaster	White	0.0	QM
047	A	Door	Ctr	Rgt casing	I	Wood	Green	0.5	QM
046	A	Door	Ctr	U Ctr	I	Wood	White	6.9	QM
035	B	Wall	U Ctr		I	Plaster	White	0.6	QM
036	C	Wall	U Ctr		I	Plaster	White	0.1	QM
038	C	Ceiling			I	Plaster	White	0.0	QM
043	C	Window	Ctr	Rgt casing	I	Wood	Green	0.6	QM
044	C	Window	Ctr	Sash	I	Wood	White	0.4	QM
042	C	Window	Ctr	Sill	I	Wood	Green	0.2	QM
039	C	Baseboard	Ctr		I	Wood	Green	0.0	QM
037	D	Wall	U Ctr		I	Plaster	White	0.0	QM
040	D	Stairs	Ctr	Risers	I	Wood	Green	-0.1	QM
041	D	Stairs	Ctr	Stringer	I	Wood	Green	0.0	QM
045	D	Stairs	Ctr	Balusters	I	Wood	White	-0.1	QM



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Interior Room 004 Room #104

048	A	Wall	U Ctr	I	Sheetrock	White	-0.2	QM
052	A	Ceiling		I	Plaster	White	0.6	QM
049	B	Wall	U Ctr	I	Sheetrock	White	-0.1	QM
055	B	Door	Ctr	I	Wood	Green	-0.2	QM
054	B	Door	Ctr	I	Wood	White	0.0	QM
050	C	Wall	U Ctr	I	Plaster	White	0.4	QM
051	D	Wall	U Ctr	I	Plaster	White	0.3	QM
053	D	Baseboard	Ctr	I	Wood	White	0.0	QM

Interior Room 005 Room #106

056	A	Wall	U Ctr	I	Plaster	White	0.0	QM
057	B	Wall	U Ctr	I	Sheetrock	White	-0.1	QM
060	B	Ceiling		I	Plaster	White	0.1	QM
063	B	Door	Ctr	I	Wood	Green	-0.1	QM
062	B	Door	Ctr	I	Wood	White	-0.1	QM
058	C	Wall	U Ctr	I	Sheetrock	White	-0.3	QM
059	D	Wall	U Ctr	I	Plaster	White	0.1	QM
061	D	Baseboard	Ctr	I	Wood	Green	-0.1	QM

Interior Room 006 Room #201&3

064	A	Wall	U Ctr	I	Plaster	White	0.2	QM
070	A	Wainscotting	Ctr	I	Wood	Green	0.3	QM
065	B	Wall	U Ctr	I	Plaster	White	0.3	QM
068	B	Ceiling		I	Plaster	White	0.3	QM
072	B	Window	Ctr	I	Wood	Green	1.0	QM
073	B	Window	Ctr	I	Wood	White	1.0	QM
071	B	Window	Ctr	I	Wood	Green	1.0	QM
076	B	Bookshelf	Ctr	I	Wood	White	0.0	QM
077	B	Bookcase	Ctr	I	Wood	Green	>9.9	QM
066	C	Wall	U Ctr	I	Plaster	White	0.5	QM
067	D	Wall	U Ctr	I	Plaster	White	0.5	QM
075	D	Door	Ctr	I	Wood	Green	>9.9	QM
074	D	Door	Ctr	I	Wood	White	>9.9	QM
069	D	Baseboard	Ctr	I	Wood	Green	0.0	QM

Interior Room 007 Room #204

078	A	Wall	U Ctr	I	Sheetrock	White	-0.1	QM
089	A	Door	Ctr	I	Wood	White	-0.3	QM
088	A	Bookshelf	Ctr	I	Wood	White	0.0	QM
079	B	Wall	U Ctr	I	Sheetrock	White	0.1	QM
083	B	Baseboard	Ctr	I	Wood	Green	-0.1	QM
084	B	Wainscotting	Ctr	I	Wood	Green	0.4	QM
080	C	Wall	U Ctr	I	Sheetrock	White	0.3	QM
082	C	Ceiling		I	Sheetrock	White	0.3	QM
086	C	Window	Ctr	I	Wood	Green	>9.9	QM
087	C	Window	Ctr	I	Wood	White	>9.9	QM
085	C	Window	Ctr	I	Wood	Green	1.5	QM
081	D	Wall	U Ctr	I	Sheetrock	White	0.0	QM

Interior Room 008 Room #205



THE PROTEC LPA-1 XRF LEAD PAINT SPECTRUM ANALYZER

090	A	Wall	U Ctr	I	Plaster	White	0.2	QM
094	A	Ceiling		I	Plaster	White	0.2	QM
098	A	Door	Ctr	I	Wood	White	2.3	QM
097	A	Door	Ctr	I	Wood	White	0.1	QM
091	B	Wall	U Ctr	I	Plaster	White	0.2	QM
095	B	Baseboard	Ctr	I	Wood	White	0.0	QM
092	C	Wall	U Ctr	I	Plaster	White	0.2	QM
096	C	Shelf	Ctr	I	Wood	White	-0.1	QM
093	D	Wall	U Ctr	I	Plaster	White	0.3	QM

Interior Room 009 Room #206

099	A	Wall	U Ctr	I	Plaster	White	0.3	QM
103	A	Ceiling		I	Plaster	White	0.5	QM
107	A	Window	Ctr	I	Wood	Green	>9.9	QM
108	A	Window	Ctr	I	Wood	White	6.7	QM
106	A	Window	Ctr	I	Wood	Green	>9.9	QM
104	A	Baseboard	Ctr	I	Wood	Green	0.0	QM
105	A	Wainscotting	Ctr	I	Wood	Green	0.4	QM
100	B	Wall	U Ctr	I	Plaster	White	0.5	QM
110	B	Door	Ctr	I	Wood	Green	>9.9	QM
109	B	Door	Ctr	I	Wood	White	>9.9	QM
101	C	Wall	U Ctr	I	Wood	White	-0.1	QM
102	D	Wall	U Ctr	I	Plaster	White	0.1	QM

Interior Room 010 Room #001

112	B	Door	Ctr	I	Wood	White	3.0	QM
111	B	Door	Ctr	I	Wood	Green	5.8	QM

Interior Room 011 Room #110

135	A	Wall	U Ctr	I	Sheetrock	White	0.0	QM
143	A	Door	Ctr	I	Wood	Tan	0.1	QM
142	A	Door	Ctr	I	Wood	Tan	0.0	QM
141	A	Baseboard	Ctr	I	Wood	Tan	-0.1	QM
136	B	Wall	U Ctr	I	Plaster	White	-0.1	QM
137	C	Wall	U Ctr	I	Plaster	White	-0.1	QM
139	C	Ceiling		I	Sheetrock	White	-0.3	QM
145	C	Window	Ctr	I	Wood	Tan	-0.3	QM
146	C	Window	Ctr	I	Wood	Tan	0.0	QM
144	C	Window	Ctr	I	Wood	Tan	0.0	QM
140	C	Beam	Ctr	I	Wood	Tan	-0.1	QM
138	D	Wall	U Ctr	I	Plaster	White	-0.3	QM
149	D	Stairs	Ctr	I	Wood	Tan	0.0	QM
148	D	Stairs	Ctr	I	Wood	Tan	0.0	QM
147	D	Cabinet	Ctr	I	Wood	Tan	0.0	QM

Interior Room 012 Room #210

150	A	Wall	U Ctr	I	Sheetrock	White	-0.2	QM
157	A	Window	Ctr	I	Wood	Tan	0.0	QM
158	A	Window	Ctr	I	Wood	Tan	-0.2	QM
156	A	Window	Ctr	I	Wood	Tan	-0.1	QM
151	B	Wall	U Ctr	I	Sheetrock	White	-0.2	QM
155	B	Baseboard	Ctr	I	Wood	Tan	-0.2	QM



THE PROTEC LPA-1 XRF LEAD PAINT SPECTRUM ANALYZER

152	C	Wall	U Ctr	I	Sheetrock	White	-0.2	QM
153	D	Wall	U Ctr	I	Sheetrock	White	-0.2	QM
154	D	Ceiling		I	Sheetrock	White	0.0	QM
160	D	Door	Ctr Rgt casing	I	Wood	Tan	-0.1	QM
159	D	Door	Ctr U Ctr	I	Wood	Tan	-0.4	QM

Interior Room 013 Room #211

161	A	Wall	U Ctr	I	Sheetrock	White	0.1	QM
168	A	Window	Ctr Rgt jamb	I	Wood	Tan	-0.2	QM
169	A	Window	Ctr Sash	I	Wood	Tan	-0.1	QM
167	A	Window	Ctr Sill	I	Wood	Tan	-0.1	QM
166	A	Baseboard	Ctr	I	Wood	Tan	-0.1	QM
162	B	Wall	U Ctr	I	Sheetrock	White	-0.5	QM
163	C	Wall	U Ctr	I	Sheetrock	White	-0.2	QM
165	C	Ceiling		I	Sheetrock	White	0.0	QM
164	D	Wall	U Ctr	I	Sheetrock	White	-0.3	QM
170	D	Stairs	Ctr Balusters	I	Wood	Tan	0.0	QM

Calibration Readings

001							0.9	TC
002							0.9	TC
003							0.9	TC
186							0.9	TC
187							0.9	TC
188							0.8	TC

----- End of Readings -----



THE PROTEC LPA-1 XRF LEAD PAINT SPECTRUM ANALYZER

DISTRIBUTION REPORT OF LEAD PAINT INSPECTION

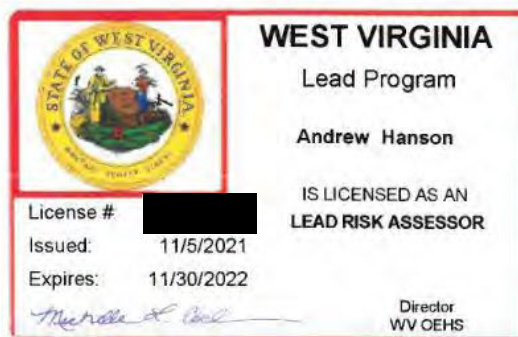
Inspection Date: 11/03/22
 Report Date: 11/8/2022
 Abatement Level: 1.0
 Report No. S#01677 - 11/03/22 12:19
 Total Reading Sets: 182
 Job Started: 11/03/22 12:19
 Job Finished: 11/03/22 14:26

Structure	Total	Structure Positive	Distribution Negative	Inconclusive
Baseboard	12	0 <0%>	12 <100%>	0 <0%>
Beam	2	1 <50%>	1 <50%>	0 <0%>
Book Cabinet	1	1 <100%>	0 <0%>	0 <0%>
Bookcase	1	1 <100%>	0 <0%>	0 <0%>
Bookshelf	4	1 <25%>	3 <75%>	0 <0%>
Cabinet	1	0 <0%>	1 <100%>	0 <0%>
Ceiling	12	0 <0%>	12 <100%>	0 <0%>
Coal Chute	1	1 <100%>	0 <0%>	0 <0%>
Column	1	1 <100%>	0 <0%>	0 <0%>
Door Rgt casing	14	9 <64%>	5 <36%>	0 <0%>
Door U Ctr	15	6 <40%>	9 <60%>	0 <0%>
Fire Brick	2	0 <0%>	2 <100%>	0 <0%>
Fireplace Mantel	2	2 <100%>	0 <0%>	0 <0%>
Fireplace Surround	2	2 <100%>	0 <0%>	0 <0%>
Shelf	1	0 <0%>	1 <100%>	0 <0%>
Shutter	3	2 <67%>	1 <33%>	0 <0%>
Soffit	1	1 <100%>	0 <0%>	0 <0%>
Stairs Balusters	2	0 <0%>	2 <100%>	0 <0%>
Stairs Risers	2	0 <0%>	2 <100%>	0 <0%>
Stairs Stringer	2	0 <0%>	2 <100%>	0 <0%>
Storm Door	1	0 <0%>	1 <100%>	0 <0%>
Threshold	1	0 <0%>	1 <100%>	0 <0%>
Wainscotting	3	0 <0%>	3 <100%>	0 <0%>
Wall	56	5 <9%>	51 <91%>	0 <0%>
Window Lft casing	1	1 <100%>	0 <0%>	0 <0%>
Window Rgt casing	11	9 <82%>	2 <18%>	0 <0%>
Window Rgt jamb	3	0 <0%>	3 <100%>	0 <0%>
Window Sash	11	5 <45%>	6 <55%>	0 <0%>
Window Sill	14	4 <29%>	10 <71%>	0 <0%>
Inspection Totals:	182	52 <29%>	130 <71%>	0 <0%>



APPENDIX D
BEC STAFF QUALIFICATIONS

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES





APPENDIX E
BEC FIELD DOCUMENTATION

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES



LEAD INSPECTION PROJECT INFORMATION SHEET

Date: 11/3/2022 Project Location: Greenbrier Historical Society Law Library
BEC Staff: Andrew Hanson 814 Washington Street, Lewisburg, West Virginia 24901
BEC Project No: WV22045 Project Manager: Ricky Robinson

On-Site Time	Temperature	Weather Conditions	Precipitation
Arrival: <u>900</u>	<u>49°</u>	<u>Partly Cloudy</u>	<u>N/A</u>
Departure: <u>1300</u>	<u>68°</u>	<u>Sunny</u>	<u>↓</u>

SCOPE OF WORK TO BE PERFORMED/ SUMMARY OF WORK COMPLETED

BEC to conduct a LBP inspection at the subject site

POINT OF CONTACT:

Name(s): Michael J. Mills, Contact Information: mmills@millsgrouponline.com

ANALYSIS TYPE:

- ☐ Lead Swipes (SW-846-3050B/7000B)
☐ Lead in Air (NIOSH 7082)
☐ Paint Chip (SW-846-3050B/7000B)
☐ Lead in Soil (SW-846-3050B/7000B)
☐ TCLP for Lead (Flame AA/ICP-OES)
☒ X-Ray Fluorescence (XRF)

INSPECTION TYPE:

- ☐ LRRS
☐ MDE Lead Free
☐ Risk Assessment
☒ Inspection / Screen
☐ Clearance
☐ Other _____

PPE USE:

- ☐ Half – Face APR (Type A)
☐ Full Body Coveralls ☐ Boots
☐ Head/Foot Covers ☐ Gloves
☐ Hard Hat ☐ Eye Protection
☐ Safety Harness ☒ N/A

TURN AROUND TIME:

- ☐ 6 Hour
☐ 24 Hour
☐ 5 Day
☐ Other _____

ADDITIONAL REQUIREMENTS:

- ☐ Patch / Paint

DATE SAMPLES SHIPPED:

N/A

QUANTITY OF SAMPLES:

Sample # N/A

Rooms # N/A

TRACKING NUMBER:

N/A

LIMITATIONS / INACCESSIBLE AREAS

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES



XRF Worksheet

Date: 11/3/2022
BEC Staff: Andrew Hanson
Project #: WV22045

Project Location: Greenbrier Historical Society Law Library
814 Washington Street, Lewisburg, West Virginia 24901
Project Manager: Ricky Robinson

XRF Serial # 1677

Shot	Room#	Room Name	Substrate	Color	Component	Side	Locations	Condition	Mg/cm2	Comments
1		Calibrate	B C M P S W O			A B C D	L C R Up Lo	I F P	0.9	
2			B C M P S W O			A B C D	L C R Up Lo	I F P	0.9	
3			B C M P S W O			A B C D	L C R Up Lo	I F P	0.9	
4	1	Rm # 101	B C M P S W O	White	Wall	A B C D	L C R Up Lo	I F P	0.1	
5			B C M P S W O			A B C D	L C R Up Lo	I F P	0.2	
6			B C M P S W O			A B C D	L C R Up Lo	I F P	0.5	
7			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.1	
8			B C M P S W O			A B C D	L C R Up Lo	I F P	0.2	
9			B C M P S W O	Green	Brickwork	A B C D	L C R Up Lo	I F P	-0.0	
10			B C M P S W O	White	Door	A B C D	L C R Up Lo	I F P	0.7	
11			B C M P S W O	Green	Case	A B C D	L C R Up Lo	I F P	79.9	
12			B C M P S W O		with Sill	A B C D	L C R Up Lo	I F P	0.4	
13			B C M P S W O	White	Seal	A B C D	L C R Up Lo	I F P	1.0	
14			B C M P S W O	Green	Case	A B C D	L C R Up Lo	I F P	79.9	
15			B C M P S W O	White	Fireplace Surround	A B C D	L C R Up Lo	I F P	6.9	
16			B C M P S W O		Mantle	A B C D	L C R Up Lo	I F P	1.7	
17			B C M P S W O	Green	Book Cabinet	A B C D	L C R Up Lo	I F P	79.9	
18			B C M P S W O	White	Shelf	A B C D	L C R Up Lo	I F P	4.1	
19			B C M P S W O	Red	Fireplace Brick	A B C D	L C R Up Lo	I F P	0.4	
20	2	Rm # 102	B C M P S W O	White	Wall	A B C D	L C R Up Lo	I F P	0.4	
21			B C M P S W O			A B C D	L C R Up Lo	I F P	0.3	
22			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.2	
23			B C M P S W O			A B C D	L C R Up Lo	I F P	0.1	
24			B C M P S W O		Case	A B C D	L C R Up Lo	I F P	0.2	
25			B C M P S W O	Green	Baseboard	A B C D	L C R Up Lo	I F P	-0.1	

Substrates - B-Brick, C-Concrete, M-Metal, Plaster, Sheetrock, Wood
Location - R-Right, L-Left, C-Center, Up-Upper, Lo-Lower
Condition - I-Intact, F-Fair, P-Poor

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Shot	Room#	Room Name	Substrate	Color	Component	Side	Locations	Condition	Mg/cm2	Comments
26	2	Rm# 102	B C M P S W O	Green	Door Casing	A B C D	L C R Up Lo	I F P	79.9	
27			B C M P S W O		Window Sill	A B C D	L C R Up Lo	I F P	0.5	
28			B C M P S W O		Casing	A B C D	L C R Up Lo	I F P	79.9	
29			B C M P S W O	White	Sash	A B C D	L C R Up Lo	I F P	79.9	
30			B C M P S W O		Fireplace Surround	A B C D	L C R Up Lo	I F P	79.9	
31			B C M P S W O		Mantle	A B C D	L C R Up Lo	I F P	4.5	
32			B C M P S W O	Red	Brick	A B C D	L C R Up Lo	I F P	0.4	
33			B C M P S W O	White	Bookshelf	A B C D	L C R Up Lo	I F P	-0.0	
34	3	Rm# 103	B C M P S W O		Wall	A B C D	L C R Up Lo	I F P	0.0	
35			B C M P S W O			A B C D	L C R Up Lo	I F P	0.6	
36			B C M P S W O			A B C D	L C R Up Lo	I F P	0.1	
37			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.0	
38			B C M P S W O		Casing	A B C D	L C R Up Lo	I F P	-0.0	
39			B C M P S W O	Green	Baseboard	A B C D	L C R Up Lo	I F P	-0.0	
40			B C M P S W O		Stair Riser	A B C D	L C R Up Lo	I F P	-0.1	
41			B C M P S W O		Stringer	A B C D	L C R Up Lo	I F P	-0.0	
42			B C M P S W O		Window Sill	A B C D	L C R Up Lo	I F P	0.2	
43			B C M P S W O		Casing	A B C D	L C R Up Lo	I F P	0.6	
44			B C M P S W O	White	Sash	A B C D	L C R Up Lo	I F P	0.4	
45			B C M P S W O		Bellows	A B C D	L C R Up Lo	I F P	-0.1	
46			B C M P S W O		Door	A B C D	L C R Up Lo	I F P	6.9	
47			B C M P S W O	Green	Casing	A B C D	L C R Up Lo	I F P	0.5	
48	4	Rm# 104	B C M P S W O	White	Wall	A B C D	L C R Up Lo	I F P	-0.2	
49			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.1	
50			B C M P S W O			A B C D	L C R Up Lo	I F P	0.4	
51			B C M P S W O			A B C D	L C R Up Lo	I F P	0.3	
52			B C M P S W O		Casing	A B C D	L C R Up Lo	I F P	0.6	
53			B C M P S W O		Baseboard	A B C D	L C R Up Lo	I F P	-0.0	
54			B C M P S W O		Door	A B C D	L C R Up Lo	I F P	-0.0	
55			B C M P S W O	Green	Casing	A B C D	L C R Up Lo	I F P	-0.2	
56	5	Rm# 106	B C M P S W O	White	Wall	A B C D	L C R Up Lo	I F P	-0.0	

Substrates - B-Brick, C-Concrete, M-Metal, Plaster, Sheetrock, Wood
Location - R-Right, L-Left, C-Center, Up-Upper, Lo-Lower
Condition - I-Intact, F-Fair, P-Poor

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Shot	Room#	Room Name	Substrate	Color	Component	Side	Locations	Condition	Mg/cm2	Comments
57	5	Rm #106	B C M S W O	White	Wall	A B C D	L C R Up Lo	I F P	-0.1	
58			B C M S W O			A B C D	L C R Up Lo	I F P	-0.3	
59			B C M S W O			A B C D	L C R Up Lo	I F P	0.1	
60			B C M S W O		Ceiling	A B C D	L C R Up Lo	I F P	0.1	
61			B C M P S W O	Green	Baseboard	A B C D	L C R Up Lo	I F P	-0.1	
62			B C M P S W O	White	Door	A B C D	L C R Up Lo	I F P	-0.1	
63			B C M P S W O	Green	Ceiling	A B C D	L C R Up Lo	I F P	-0.1	
64	6	Rm #201-203	B C M S W O	White	Wall	A B C D	L C R Up Lo	I F P	0.2	
65			B C M S W O			A B C D	L C R Up Lo	I F P	0.3	
66			B C M S W O			A B C D	L C R Up Lo	I F P	0.5	
67			B C M S W O			A B C D	L C R Up Lo	I F P	0.5	
68			B C M S W O		Ceiling	A B C D	L C R Up Lo	I F P	0.3	
69			B C M P S W O	Green	Baseboard	A B C D	L C R Up Lo	I F P	-0.0	
70			B C M P S W O		Wainscoting	A B C D	L C R Up Lo	I F P	0.3	
71			B C M P S W O		Wid Sill	A B C D	L C R Up Lo	I F P	1.0	
72			B C M P S W O		Ceiling	A B C D	L C R Up Lo	I F P	1.0	
73			B C M P S W O	White	Ceiling	A B C D	L C R Up Lo	I F P	1.0	
74			B C M P S W O	White	Door	A B C D	L C R Up Lo	I F P	79.9	
75			B C M P S W O	Green	Ceiling	A B C D	L C R Up Lo	I F P	79.9	
76			B C M P S W O	White	Back Shield	A B C D	L C R Up Lo	I F P	-0.0	
77			B C M P S W O	Green	Ceiling	A B C D	L C R Up Lo	I F P	79.9	
78	7	Rm #204	B C M P S W O	White	Wall	A B C D	L C R Up Lo	I F P	-0.1	
79			B C M P S W O			A B C D	L C R Up Lo	I F P	0.1	
80			B C M P S W O			A B C D	L C R Up Lo	I F P	0.3	
81			B C M P S W O			A B C D	L C R Up Lo	I F P	0.0	
82			B C M P S W O		Ceiling	A B C D	L C R Up Lo	I F P	0.3	
83			B C M P S W O	Green	Baseboard	A B C D	L C R Up Lo	I F P	-0.1	
84			B C M P S W O		Wainscoting	A B C D	L C R Up Lo	I F P	0.4	
85			B C M P S W O		Wid Sill	A B C D	L C R Up Lo	I F P	1.5	
86			B C M P S W O		Ceiling	A B C D	L C R Up Lo	I F P	79.9	
87			B C M P S W O	White	Ceiling	A B C D	L C R Up Lo	I F P	79.9	

Substrates - B-Brick, C-Concrete, M-Metal, Plaster, Sheetrock, Wood
Location - R-Right, L-Left, C-Center, Up-Upper, Lo-Lower
Condition - I-Intact, F-Fair, P-Poor

Page 3



Shot	Room#	Room Name	Substrate	Color	Component	Side	Locations	Condition	Mg/cm2	Comments
88	7	Rm # 204	B C M P S W O	White	Bookshelf	A B C D	L C R Up Lo	I F P	0.0	
89	7	1	B C M P S W O		Door	A B C D	L C R Up Lo	I F P	-0.3	
90	8	Rm # 205	B C M P S W O		Wall	A B C D	L C R Up Lo	I F P	0.2	
91			B C M P S W O			A B C D	L C R Up Lo	I F P	0.2	
92			B C M P S W O			A B C D	L C R Up Lo	I F P	0.2	
93			B C M P S W O			A B C D	L C R Up Lo	I F P	6.3	
94			B C M P S W O		Ceiling	A B C D	L C R Up Lo	I F P	0.2	
95			B C M P S W O		Baseboard	A B C D	L C R Up Lo	I F P	-0.0	
96			B C M P S W O		Shelf	A B C D	L C R Up Lo	I F P	-6.1	
97			B C M P S W O		Door	A B C D	L C R Up Lo	I F P	0.1	
98			B C M P S W O		Case	A B C D	L C R Up Lo	I F P	2.5	
99	9	Rm # 206	B C M P S W O		Wall	A B C D	L C R Up Lo	I F P	0.3	
100			B C M P S W O			A B C D	L C R Up Lo	I F P	0.5	
101			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.1	
102			B C M P S W O			A B C D	L C R Up Lo	I F P	0.1	
103			B C M P S W O		Ceiling	A B C D	L C R Up Lo	I F P	0.5	
104			B C M P S W O	Green	Baseboard	A B C D	L C R Up Lo	I F P	-0.0	
105			B C M P S W O		Wainscoting	A B C D	L C R Up Lo	I F P	0.4	
106			B C M P S W O		Window Sill	A B C D	L C R Up Lo	I F P	79.9	
107			B C M P S W O		Casing	A B C D	L C R Up Lo	I F P	79.9	
108			B C M P S W O	White	Sash	A B C D	L C R Up Lo	I F P	6.7	
109			B C M P S W O		Door	A B C D	L C R Up Lo	I F P	79.9	
110			B C M P S W O	Green	Casing	A B C D	L C R Up Lo	I F P	79.9	
111	10	Rm # 001	B C M P S W O		Door	A B C D	L C R Up Lo	I F P	5.8	
112			B C M P S W O	White	Ceiling	A B C D	L C R Up Lo	I F P	3.0	
113	Ext 1	Exterior Linen	B C M P S W O	Pink	Wall	A B C D	L C R Up Lo	I F P	0.4	
114			B C M P S W O	White	Shelf	A B C D	L C R Up Lo	I F P	5.2	
115			B C M P S W O		Beam	A B C D	L C R Up Lo	I F P	6.7	
116			B C M P S W O		Column	A B C D	L C R Up Lo	I F P	6.8	
117			B C M P S W O		Window Sill	A B C D	L C R Up Lo	I F P	79.9	
118			B C M P S W O		Ceiling	A B C D	L C R Up Lo	I F P	9.3	

Substrates - B-Brick, C-Concrete, M-Metal, Plaster, Sheetrock, Wood
Location - R-Right, L-Left, C-Center, Up-Upper, Lo-Lower
Condition - I-Intact, F-Fair, P-Poor

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Shot	Room#	Room Name	Substrate	Color	Component	Side	Locations	Condition	Mg/cm2	Comments
119	Ent 1	Exterior Library	B C M P S O	Green	Wick Shutter	A B C D	L C R Up Lo	I F P	4.9	
120			B C M P S O	↓	Door	A B C D	L C R Up Lo	I F P	7.0	
121			B C M P S O	White	Ceiling	A B C D	L C R Up Lo	I F P	5.4	
122			B C M P S O	Brown	Threshold	A B C D	L C R Up Lo	I F P	0.7	
123			B C M P S O	Green	Storm Door	A B C D	L C R Up Lo	I F P	-0.1	
124			B C M P S W O	pink	Wall	A B C D	L C R Up Lo	I F P	0.2	
125			B C M P S O	White	Wn Sill	A B C D	L C R Up Lo	I F P	0.5	
126			B C M P S O	↓	Ceiling	A B C D	L C R Up Lo	I F P	1.0	
127			B C M P S O	Green	Door	A B C D	L C R Up Lo	I F P	79.9	
128			B C M P S O	White	Ceiling	A B C D	L C R Up Lo	I F P	8.7	
129			B C M P S W O	Pink	Wall	A B C D	L C R Up Lo	I F P	0.2	
130			B C M P S W O	Green	Coal chute	A B C D	L C R Up Lo	I F P	1.0	
131			B C M P S O	↓	Wn Shutter	A B C D	L C R Up Lo	I F P	3.3	
132			B C M P S O	White	Sill	A B C D	L C R Up Lo	I F P	-0.0	
133			B C M P S O	↓	Ceiling	A B C D	L C R Up Lo	I F P	0.0	
134			B C M P S W O	Pink	Wall	A B C D	L C R Up Lo	I F P	1.0	
135	11	Rm 110/111	B C M P S W O	White	Wall	A B C D	L C R Up Lo	I F P	-0.0	
136			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.1	
137			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.1	
138			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.3	
139			B C M P S W O		Ceiling	A B C D	L C R Up Lo	I F P	-0.2	
140			B C M P S O	Tan	Beam	A B C D	L C R Up Lo	I F P	-0.1	
141			B C M P S O		Baseboard	A B C D	L C R Up Lo	I F P	-0.1	
142			B C M P S O		Door	A B C D	L C R Up Lo	I F P	-0.0	
143			B C M P S O		Ceiling	A B C D	L C R Up Lo	I F P	0.1	
144			B C M P S O		Wn Sill	A B C D	L C R Up Lo	I F P	0.0	
145			B C M P S O		Trim	A B C D	L C R Up Lo	I F P	-0.3	
146			B C M P S O		Ceiling	A B C D	L C R Up Lo	I F P	-0.0	
147			B C M P S O		Cabinet	A B C D	L C R Up Lo	I F P	-0.0	
148			B C M P S O		Stair Stringer	A B C D	L C R Up Lo	I F P	-0.0	
149			B C M P S O		Riser	A B C D	L C R Up Lo	I F P	-0.0	

Substrates - B-Brick, C-Concrete, M-Metal, Plaster, Sheetrock, Wood
Location - R-Right, L-Left, C-Center, Up-Upper, Lo-Lower
Condition - I-Intact, F-Fair, P-Poor

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Shot	Room#	Room Name	Substrate	Color	Component	Side	Locations	Condition	Mg/cm2	Comments
150	12	Room 210	B C M P S W O	White	Wall	A B C D	L C R Up Lo	I F P	-0.2	
151			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.2	
152			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.2	
153			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.2	
154			B C M P S W O		Ceiling	A B C D	L C R Up Lo	I F P	-0.0	
155			B C M P S W O	Tan	Recessed	A B C D	L C R Up Lo	I F P	-0.2	
156			B C M P S W O		Wn S.H	A B C D	L C R Up Lo	I F P	-0.1	
157			B C M P S W O		June	A B C D	L C R Up Lo	I F P	-0.0	
158			B C M P S W O		Sash	A B C D	L C R Up Lo	I F P	-0.2	
159			B C M P S W O		Door	A B C D	L C R Up Lo	I F P	-0.4	
160			B C M P S W O		Ceiling	A B C D	L C R Up Lo	I F P	-0.1	
161	13	Room 211	B C M P S W O	White	Wall	A B C D	L C R Up Lo	I F P	0.1	
162			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.5	
163			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.2	
164			B C M P S W O			A B C D	L C R Up Lo	I F P	-0.3	
165			B C M P S W O		Ceiling	A B C D	L C R Up Lo	I F P	-0.0	
166			B C M P S W O	Tan	Recessed	A B C D	L C R Up Lo	I F P	-0.1	
167			B C M P S W O		Wn S.H	A B C D	L C R Up Lo	I F P	-0.1	
168			B C M P S W O		June	A B C D	L C R Up Lo	I F P	-0.2	
169			B C M P S W O		Sash	A B C D	L C R Up Lo	I F P	-0.1	
170			B C M P S W O		Balluster	A B C D	L C R Up Lo	I F P	-0.0	
171	Room 2	Quarters	B C M P S W O	Pink	Wall	A B C D	L C R Up Lo	I F P	3.4	
172			B C M P S W O	Green	Door	A B C D	L C R Up Lo	I F P	0.0	
173			B C M P S W O	White	Ceiling	A B C D	L C R Up Lo	I F P	9.2	
174			B C M P S W O		Wn S.H	A B C D	L C R Up Lo	I F P	-0.3	
175			B C M P S W O		Sash	A B C D	L C R Up Lo	I F P	-0.1	
176			B C M P S W O		Ceiling	A B C D	L C R Up Lo	I F P	29.9	
177			B C M P S W O	Green	Stuffers	A B C D	L C R Up Lo	I F P	-0.1	
178			B C M P S W O	Pink	Wall	A B C D	L C R Up Lo	I F P	1.0	
179			B C M P S W O			A B C D	L C R Up Lo	I F P	4.7	
180			B C M P S W O	Green	Door	A B C D	L C R Up Lo	I F P	-0.2	

Substrates -- B-Brick, C-Concrete, M-Metal, Plaster, Sheetrock, Wood
Location - R-Right, L-Left, C-Center, Up-Upper, Lo-Lower
Condition - I-Intact, F-Fair, P-Poor

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Shot	Room#	Room Name	Substrate	Color	Component	Side	Locations	Condition	Mg/cm2	Comments
181	Ext 2	Quarters	B C M P S W O	White	Door Casing	A B C D	L C R Up Lo	I F P	2.5	
182			B C M P S W O		Door Sill	A B C D	L C R Up Lo	I F P	-0.3	
183			B C M P S W O		Sash	A B C D	L C R Up Lo	I F P	-0.2	
184			B C M P S W O		Trim	A B C D	L C R Up Lo	I F P	2.0	
185			B C M P S W O	Pink	Wall	A B C D	L C R Up Lo	I F P	5.4	
186		Caliber	B C M P S W O			A B C D	L C R Up Lo	I F P	6.9	
187			B C M P S W O			A B C D	L C R Up Lo	I F P	0.9	
188			B C M P S W O			A B C D	L C R Up Lo	I F P	6.8	
189			B C M P S W O			A B C D	L C R Up Lo	I F P		
190			B C M P S W O			A B C D	L C R Up Lo	I F P		
191			B C M P S W O			A B C D	L C R Up Lo	I F P		
192			B C M P S W O			A B C D	L C R Up Lo	I F P		
193			B C M P S W O			A B C D	L C R Up Lo	I F P		
194			B C M P S W O			A B C D	L C R Up Lo	I F P		
195			B C M P S W O			A B C D	L C R Up Lo	I F P		
196			B C M P S W O			A B C D	L C R Up Lo	I F P		
197			B C M P S W O			A B C D	L C R Up Lo	I F P		
198			B C M P S W O			A B C D	L C R Up Lo	I F P		
199			B C M P S W O			A B C D	L C R Up Lo	I F P		
200			B C M P S W O			A B C D	L C R Up Lo	I F P		
201			B C M P S W O			A B C D	L C R Up Lo	I F P		
202			B C M P S W O			A B C D	L C R Up Lo	I F P		
203			B C M P S W O			A B C D	L C R Up Lo	I F P		
204			B C M P S W O			A B C D	L C R Up Lo	I F P		
205			B C M P S W O			A B C D	L C R Up Lo	I F P		
206			B C M P S W O			A B C D	L C R Up Lo	I F P		
207			B C M P S W O			A B C D	L C R Up Lo	I F P		
208			B C M P S W O			A B C D	L C R Up Lo	I F P		
209			B C M P S W O			A B C D	L C R Up Lo	I F P		
210			B C M P S W O			A B C D	L C R Up Lo	I F P		
211			B C M P S W O			A B C D	L C R Up Lo	I F P		

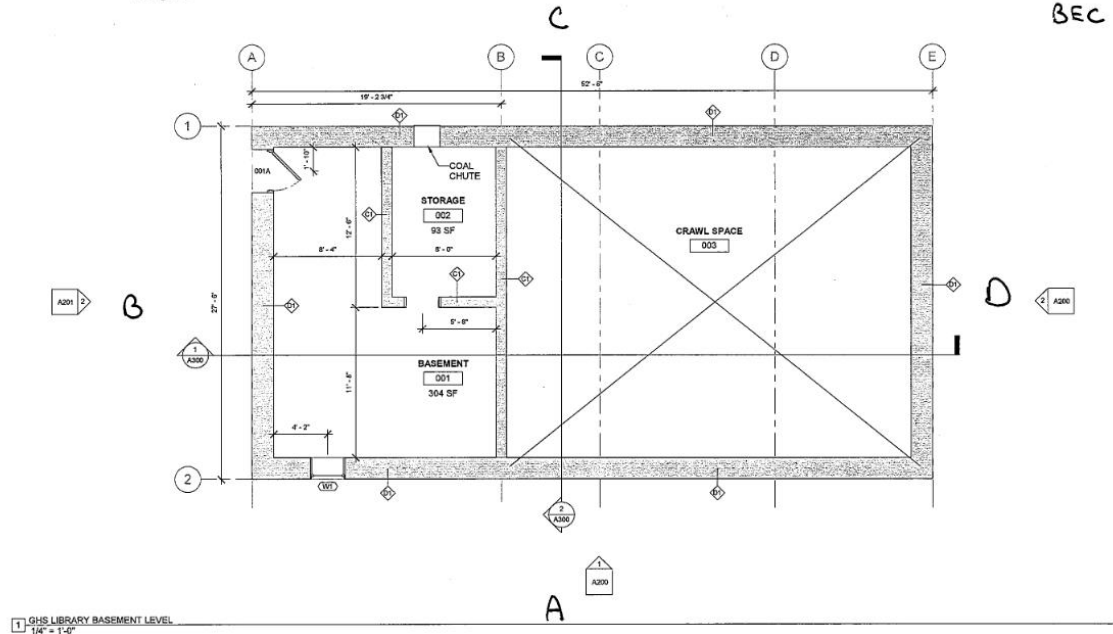
Substrates - B-Brick, C-Concrete, M-Metal, Plaster, Shotrock, Wood
Location - R-Right, L-Left, C-Center, Up-Upper, Lo-Lower
Condition - I-Intact, F-Fair, P-Poor

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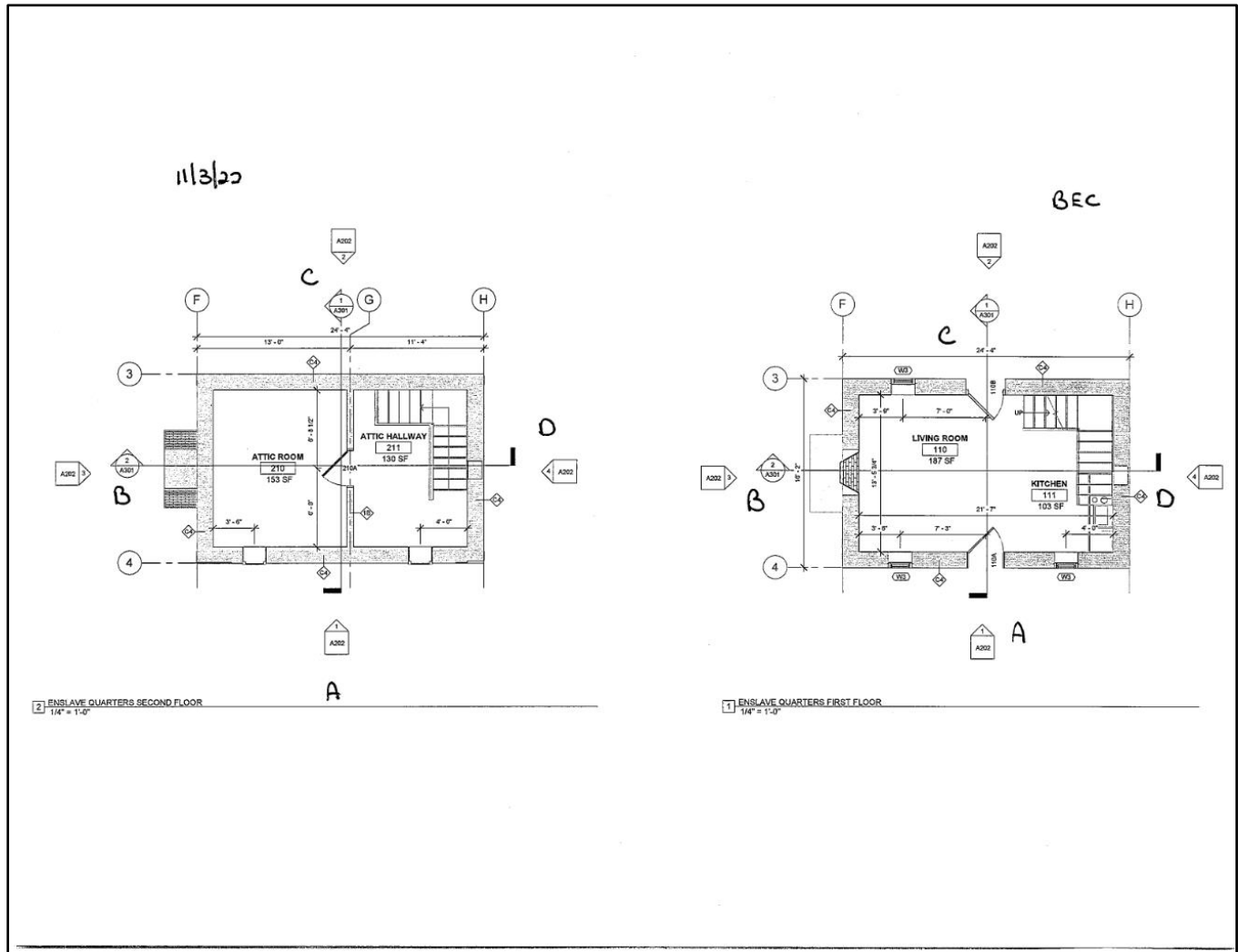


11/3/22

BEC









APPENDIX F
BEC PHOTOSHEET

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES



Law Library – Doors and Casings



Law Library – Windows and Casings



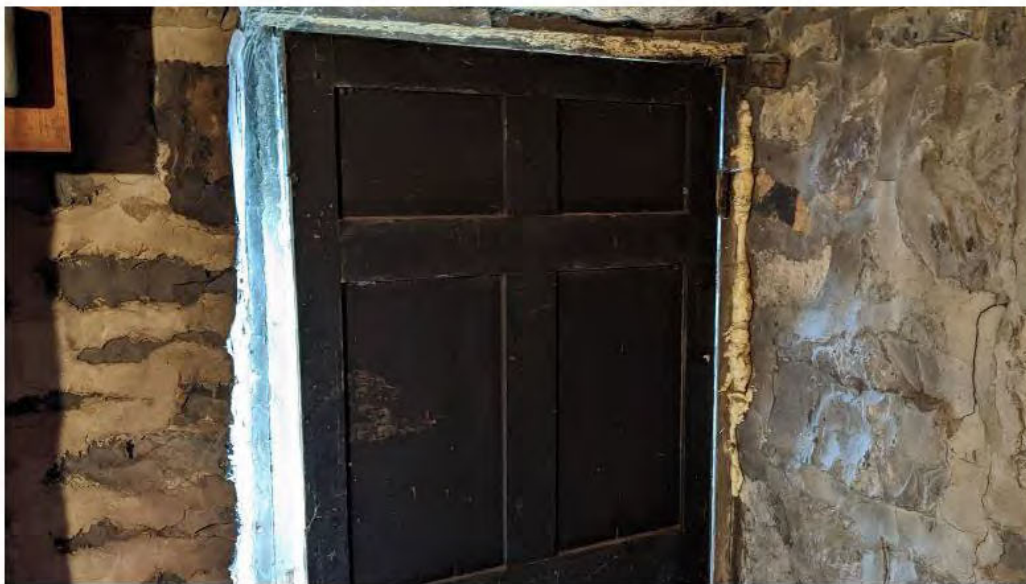
Law Library – Fireplace Surround



Law Library – Book Cabinets



Law Library - Book Shelves



Law Library – Basement Door and Casing



Law Library – Exterior Column, Soffit, Beam, Shutters, Wall



Enslaved Quarters - Exterior Walls



ASBESTOS-CONTAINING MATERIALS SURVEY

FINAL TECHNICAL REPORT

Conducted at:

GREENBRIER HISTORICAL SOCIETY

LAW LIBRARY

814 Washington Street,
Lewisburg, West Virginia 24901

Prepared for:



88 High Street,
Morgantown, West Virginia 26501

Attention :

Mr. Michael J. Mills, AIA
Managing Principal

BEC Project #WV22045

Fieldwork Conducted: November 3, 2022

Report Date: November 16, 2022

Prepared by:



BOGGS
ENVIRONMENTAL CONSULTANTS

Middletown, MD ~ Morgantown, WV
Corporate Office: 200 W Main Street, Middletown, MD 21769
Tel: (301) 694-5687 ~ Fax: (301) 694-9799

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES



**ASBESTOS-CONTAINING MATERIALS SURVEY
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TABLES

TABLE A:	US EPA Minimum Number of Bulk Samples Required to Rebut ACM Designation
TABLE B:	Asbestos-Containing Material Testing Results
TABLE C:	Asbestos-Containing Materials

APPENDICES

APPENDIX A:	Homogeneous Area Photo Sheet
APPENDIX B:	BEC Bulk Sampling Locations
APPENDIX C:	Eurofins CEI Laboratory Analytical Results & Chain of Custody
APPENDIX D:	BEC Staff Qualifications

BOGGS ENVIRONMENTAL CONSULTANTS, INC.

On-site Fieldwork & Final Technical Report By:

Derrick A. Klein, Project Manager
US EPA AHERA Asbestos Inspector (#21-193)
State of West Virginia Asbestos Inspector (#AI010191)

Andrew Hanson, Project Manager
US EPA AHERA Asbestos Inspector (#21-1076)
State of West Virginia Asbestos Inspector (#AI010058)

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES



SECTION 1.0 SUBJECT SITE DESCRIPTION & SCOPE OF WORK

Project Site: GREENBRIER HISTORICAL SOCIETY
LAW LIBRARY
814 Washington Street,
Lewisburg, West Virginia 24901

Requester Name: Mr. Michael Mills, AIA, Managing Principal

Requestor Address: THE MILLS GROUP LLC,
88 High Street,
Morgantown, West Virginia 26501

Subject Site Description & Scope of Work:

The focus of this asbestos-containing building materials (ACBM's) inspection was the readily-accessible suspect asbestos-containing material located within the Greenbrier Historical Society Law Library and associated Enslave Quarters at 814 Washington Street, Lewisburg, West Virginia 24901.

BEC received authorization from Mr. Michael Mills, AIA, Managing Principal of The Mills Group LLC., to provide project support services to determine the presence of asbestos containing building materials prior to renovation/demolition activities. Mr. Mills requested the asbestos inspection to ensure in compliance with United States Environmental Protection Agency's (US EPA) and State of West Virginia regulations, prior to disturbance of building construction materials anticipated (scheduled) to occur during renovation/demolition activities.

SECTION 2.0 ASBESTOS-CONTAINING MATERIALS SURVEY

2.1 Background

[BOGGS ENVIRONMENTAL CONSULTANTS, INC.](#) (BEC) conducted an asbestos-containing building construction materials (ACBMs) survey at the Greenbrier Historical Society Law Library and associated Enslave Quarters of the subject site located at 814 Washington Street, Lewisburg, West Virginia 24901 on November 3, 2022.

BEC conducted interviews with Mr. Michael Mills, Managing Principal with The Mills Group, to become familiar with the building history and the scope of the inspection, prior to proceeding with the field inspection activities. BEC notes, all materials that will be or may potentially be impacted during upcoming demolitions activities at the subject site were sampled during the course of this asbestos-containing materials survey.

2.2 Field Sampling

BEC staff accredited United States Environmental Protection Agency ([US EPA](#)) and licensed State of West Virginia Department of Health and Human Resources ([WV DHHR](#)) "Asbestos Inspector", Andrew L. Hanson and Derrick A. Klein, conducted preliminary field walk inspections for the purpose of developing an inventory of suspect ACBMs. Subsequently, Mr. Hanson and Mr. Klein collected multiple bulk samples of suspect ACBMs observed at the subject site on November 3, 2022.

BEC advises, based upon current US EPA asbestos hazard control regulations, the minimum number of samples necessary to definitively determine the presence (or absence) of ACBMs is dependent on the nature and quantity of the suspect building construction material. Additionally, the US EPA has established a standardized schedule for bulk sample collection of suspect ACBMs based upon homogeneous areas. Homogeneous areas are defined as "...building construction materials that are similar in color, consistency, texture, and appearance of similar application/installation time period".

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ASBESTOS-CONTAINING MATERIALS SURVEY
FINAL TECHNICAL REPORT



SECTION 2.0 ASBESTOS-CONTAINING MATERIALS SURVEY

2.2 Field Sampling

Based upon on-site visual inspection and bulk sampling guidelines, forty-three (43) samples of the suspect ACMs were collected and submitted to the analytical laboratory; which upon standard polarized light microscopy with dispersion staining (PLM/DS) examination revealed the presence of fifty-six (56) individual PLM/DS layers.

BEC advises, based upon the US EPA asbestos regulations prescribed (mandatory) analytical method, the laboratory analyst has the sole discretion/responsibility in determining whether the bulk sample is composed of one or multiple layers.

2.3 Material Classification

Asbestos-containing materials (ACMs) are any building construction materials containing greater than one percent (>1%) asbestos. Friable ACM is any material which can be broken, crumbled, pulverized, or reduced to powder under hand pressure; conversely, non-friable ACMs are materials incapable of reduction to powder via hand pressure.

In accordance with Federal asbestos hazard control regulations ([40 CFR Part 763 - Asbestos, Subpart E](#)), bulk sampling is not required to designate (i.e., presume and treat) a construction material suspected to contain asbestos as Presumed Asbestos-Containing Material (PACM), should a duly trained and accredited asbestos inspector observe/inspect and assign the PACM designation to the suspect ACM.

However, BEC advises, in accordance with Federal regulations, rebuttal of the PACM designation and re-classification of a material to non-ACM, requires collection and analysis of a minimum number of samples of the suspect ACM. As a reminder, a homogeneous material is a unique group of construction materials (e.g. surfacing material, thermal system insulation material, or miscellaneous material) that possesses uniform properties such as color, texture, age, and functionality.

For a summary of the minimum number of samples required to undergo collection and analysis to rebut the PACM designation, please refer to **TABLE A: US EPA Minimum Number of Bulk Samples Required to Rebut ACM Designation** below.

TABLE A: US EPA Minimum Number of Bulk Samples Required to Rebut ACM Designation

Thermal System Insulation (TSI):		
Thermal System Insulation includes materials such as boiler insulation, pipe insulation, and ductwork insulation.		
At least three (3) samples from each homogeneous material of TSI.	At least one (1) sample from patched TSI that is less than six square or linear feet.	For pipe fittings, in a manner sufficient to determine if the material is asbestos-containing.
Surfacing Material:		
Surfacing material includes materials such as spray-applied fireproofing, troweled-on plasters or ceiling textures.		
At least three samples from homogeneous materials of 1,000 square feet or less.	At least five samples from homogeneous materials of greater than 1,000 square feet but less than 5,000 square feet.	At least seven samples from homogeneous materials of greater than 5000 square feet, with an additional 1 sample per each increment of 1,000 sf, in excess of 5,000 sf.
Miscellaneous Material and Non-friable Suspect ACM:		
Miscellaneous materials include all materials that are not TSI or Surfacing Materials, such as vinyl floor tile, acoustical ceiling tile, vinyl sheet goods (linoleum), roofing materials, <i>et cetera</i> .		
For each homogeneous material, a sufficient number are required to be collected and analyzed to determine if the material is ACM.		Samples are not required to be collected from homogeneous materials, of which the trained accredited asbestos inspector has determined to be non-asbestos-containing material, such as fiberglass or rubber.



SECTION 2.0 ASBESTOS-CONTAINING MATERIALS SURVEY

2.4 Laboratory Analysis

Pursuant to the field screen and bulk sample collection, BEC submitted the bulk samples to Eurofins CEI ([Eurofins](#)) of Cary, North Carolina for asbestos content analysis. Eurofins is fully accredited by the American Industrial Hygiene Association and the National Institute of Standards and Technology's ([NIST](#)) National Voluntary Laboratory Accreditation Program ([NVLAP](#)) as proficient in the analysis of asbestos in bulk samples.

Eurofins performed PLM/DS analysis of all bulk samples, in accordance with the "[Test Method for the Determination of Asbestos in Bulk Building Materials](#)" (US EPA 600/R-93/116, July 1993). BEC advises PLM/DS analysis revealed multiple suspect ACM bulk samples submitted to Eurofins contained US EPA and US OSHA regulated asbestos concentrations. BEC provides the results of the PLM/DS analyses hereunder in **TABLE B: Asbestos-Containing Material Testing Results**:

TABLE B: ASBESTOS-CONTAINING MATERIAL TESTING RESULTS

HA #	Sample #	Material Class	Sampling Location	Building Construction Material	Asbestos (%)
1	814-1	Surfacing	Library Museum	Finished Plaster – Skim Coat	None Detected
				Finished Plaster – Base Coat	None Detected
1	814-2	Surfacing	Reading Room	Finished Plaster – Skim Coat	None Detected
				Finished Plaster – Base Coat	None Detected
1	814-3	Surfacing	1 st Floor Closet	Finished Plaster – Skim Coat	None Detected
				Finished Plaster – Base Coat	None Detected
1	814-4	Surfacing	Janitors Closet	Finished Plaster – Skim Coat	None Detected
				Finished Plaster – Base Coat	None Detected
1	814-5	Surfacing	2 nd Floor Hallway	Finished Plaster – Skim Coat	None Detected
				Finished Plaster – Base Coat	None Detected
1	814-6	Surfacing	2 nd Floor Bookstacks	Finished Plaster – Skim Coat	None Detected
				Finished Plaster – Base Coat	None Detected
1	814-7	Surfacing	2 nd Floor Bathroom	Finished Plaster – Skim Coat	None Detected
				Finished Plaster – Base Coat	None Detected
2	814-8	Misc.	1 st Floor Bathroom	Gypsum Board Sheeting	None Detected
2	814-9	Misc.	Janitors Closet	Gypsum Board Sheeting	None Detected
2	814-10	Misc.	2 nd Floor Landing	Gypsum Board Sheeting	None Detected
3	814-11	Misc.	1 st Floor Bathroom	Joint Finishing Compound	None Detected
3	814-12	Misc.	Janitors Closet	Joint Finishing Compound	None Detected
3	814-13	Misc.	2 nd Floor Landing	Joint Finishing Compound	None Detected
4	814-14	Misc.	Exterior Window	Window Glazing	None Detected
4	814-15	Misc.	Exterior Window	Window Glazing	None Detected
4	814-16	Misc.	Exterior Window	Window Glazing	None Detected
5	814-17	Misc.	Janitors Closet	Black Slate Pattern VSG	None Detected
				Associated Tan Mastic	None Detected
5	814-18	Misc.	Janitors Closet	Black Slate Pattern VSG	None Detected
				Associated Tan Mastic	None Detected
6	814-19	Misc.	1 st Floor Bathroom	Dark Gray Marble Pattern VSG	None Detected
				Associated Tan Mastic	None Detected
6	814-20	Misc.	1 st Floor Bathroom	Dark Gray Marble Pattern VSG	None Detected
				Associated Tan Mastic	None Detected



SECTION 2.0 ASBESTOS-CONTAINING MATERIALS SURVEY

2.4 Laboratory Analysis (continued)

TABLE B: ASBESTOS-CONTAINING MATERIAL TESTING RESULTS

HA #	Sample #	Material Class	Sampling Location	Building Construction Material	Asbestos (%)
7	814-21	Misc.	2 nd Floor Bathroom	Tan Stone Pattern VSG	None Detected
				Associated Yellow Mastic	None Detected
7	814-22	Misc.	2 nd Floor Bathroom	Tan Stone Pattern VSG	None Detected
				Associated Yellow Mastic	None Detected
8	814-23	Misc.	Library Basement	Transite Debris	20% Chrysotile
8	814-24	Misc.	Library Basement	Transite Debris	20% Chrysotile
9	814-25	Misc.	Library Basement	Flue Mortar	35% Chrysotile
9	814-26	Misc.	Library Basement	Flue Mortar	35% Chrysotile
10	814-27	Misc.	Library Basement	Heat Shield	50% Chrysotile
10	814-28	Misc.	Library Basement	Heat Shield	50% Chrysotile
11	814-29	Misc.	Exterior Door	Masonry Joint Sealant	None Detected
11	814-30	Misc.	Exterior Window	Masonry Joint Sealant	None Detected
11	814-31	Misc.	Exterior Window	Masonry Joint Sealant	None Detected
12	814-32	Misc.	Enslave Quarters	Gypsum Board Sheeting	None Detected
12	814-33	Misc.	Enslave Quarters	Gypsum Board Sheeting	None Detected
12	814-34	Misc.	Enslave Quarters	Gypsum Board Sheeting	None Detected
13	814-35	Misc.	Enslave Quarters	Joint Finishing Compound	None Detected
13	814-36	Misc.	Enslave Quarters	Joint Finishing Compound	None Detected
13	814-37	Misc.	Enslave Quarters	Joint Finishing Compound	None Detected
14	814-38	Misc.	Enslave Quarters	Masonry Joint Sealant	None Detected
14	814-39	Misc.	Enslave Quarters	Masonry Joint Sealant	None Detected
15	814-40	Misc.	Enslave Quarters	Window Glazing	None Detected
15	814-41	Misc.	Enslave Quarters	Window Glazing	None Detected
16	814-42	Misc.	Entry Roof	Dark Gray Roof Tarpaper	None Detected
16	814-43	Misc.	Entry Roof	Dark Gray Roof Tarpaper	None Detected

* Photos Available in [Appendix A – Homogeneous Area Photo Sheet](#).

2.5 Asbestos Survey Limitations

The above inspection was characterized by making observations for suspect ACBMs and conducting bulk sampling, limited to only readily-accessible building areas. All accessible areas within the scope of work were inspected, in accordance with US EPA regulations and generally accepted engineering work practices.

BEC asbestos survey sampling strategy included multiple samples of the same materials chosen at random. However, BEC advises, due to the inconsistencies of manufacturer processes and contractor installation methods, materials of similar construction may have varied quantities of asbestos.

Furthermore, BEC advises locating all asbestos-containing materials present at a structure can only be definitively achieved by bulk sampling every section of pipe insulation, every fitting or valve covering, every square yard of fireproofing, and every square foot of other surface coating material, for suspect materials both readily-accessible and hidden.

Therefore, BEC makes no warranty, expressed or implied, that all asbestos within the subject site has been found. Accordingly, BEC recommends bulk sampling and analysis of all suspect ACBMs (not otherwise evaluated during this survey) during work, which will, or can be reasonably anticipated to, result in the disturbance or damage of same prior to commencement and/or during demolition/renovation work.

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814 WASHINGTON ST., LEWISBURG, WEST VIRGINIA 24901

ASBESTOS-CONTAINING MATERIALS SURVEY
FINAL TECHNICAL REPORT



SECTION 3.0 CONCLUSIONS & RECOMMENDATIONS

3.1 Conclusions

1. BEC concludes, based upon on-site visual inspection and review of analytical data, US EPA-regulated asbestos-containing materials **were identified** at the subject site and are listed hereunder in **TABLE C: Asbestos-Containing Materials**.

TABLE C: ASBESTOS-CONTAINING MATERIAL

Building Construction Material	Material Location(s)	EPA Regulated	OSHA Regulated	Quantity*
Transite Debris	Library Basement	YES	YES	~62 SF
Flue Mortar	Library Basement	YES	YES	~12 SF
Heat Shield	Library Basement	YES	YES	~35 SF

**BEC advises that these quantifications are solely estimations based on the square footage of the materials in question that was visibly observed within the subject site. Therefore, it is incumbent upon the general and/or asbestos abatement contractor to verify these quantities prior to the commencement of any demolition/renovation activities that may impact asbestos-containing materials within the subject site.*

2. BEC concludes, based upon review of US EPA and State of West Virginia law, specific regulations governing the disturbance, removal, and disposal of asbestos, **DO APPLY** to **ANY** work, of which is planned and/or can be reasonably anticipated to result in the disturbance of the asbestos-containing materials identified in the course of this inspection.
3. BEC concludes, based upon review of United States Occupational Safety and Health Administration (Construction Industry: [29 CFR 1926.1101](#) and General Industry: [29 CFR 1910.1001](#)) regulations governing non-occupational and occupational exposure to asbestos, **DO APPLY** to **ANY** renovation/demolition, housekeeping, maintenance, and/or repair activities directly and/or indirectly impacting (disturbance/damage) the asbestos-containing materials identified in the course of this inspection.

3.2 Recommendations

1. BEC recommends, in accordance with Federal and State of West Virginia law, a licensed asbestos abatement contractor is retained to conduct the removal of any ACBMs or suspect asbestos-containing materials that would be disturbed by future planned renovation, construction, or demolition activities at the subject site.
2. In the event the client elects to abate any asbestos-containing materials identified at the subject site, BEC recommends a third-party Industrial Hygiene firm perform baseline, continuous, and post abatement air quality surveillance at the asbestos abatement work area(s) prior to permitting re-occupancy of the work area(s).
3. BEC recommends should any planned renovation activities result in the discovery of additional suspect ACBMs, halting all work activities with subsequent bulk sample collection and analysis of discovered ACBMs, to determine asbestos content.

PLM/DS Limitations

BEC advises all bulk samples were analyzed by Polarized Light Microscopy with Dispersion Staining (PLM/DS). This is a standard method of analysis in optical mineralogy and a suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The resultant characteristic color display enables mineral identification.

Although PLM/DS analysis is the primary technique used for asbestos determination, it can show significant bias leading to false negatives and false positives for certain types of materials. PLM is limited by the visibility of the asbestos fibers. In some samples the fibers may be reduced to a diameter so small or masked by coatings to such an extent that they cannot be reliably observed or identified using PLM.

As such, BEC recommends further evaluation via gravimetric reduction sample preparation technique and PLM/DS analysis with subsequent TEM analysis (10,000-20,000x magnification), should inconclusive PLM results persist, prior to designation as "non-asbestos-containing".



APPENDIX A
HOMOGENEOUS AREA PHOTO SHEET

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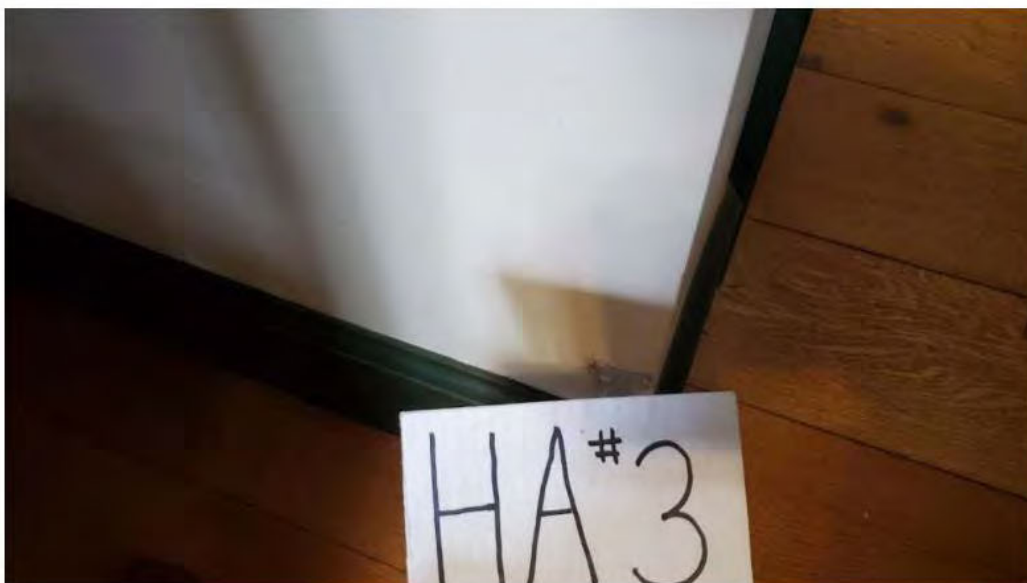


HA #1: Finished Plaster



HA #2: Gypsum Board Sheeting

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HA #3: Joint Finishing Compound



HA #4: Window Glazing

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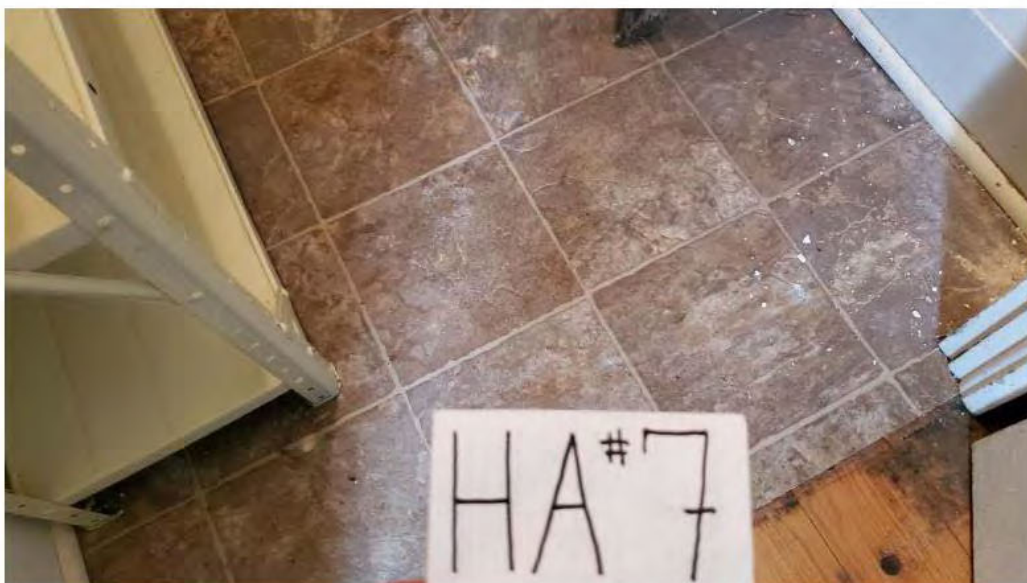


HA #5: Black Slate Pattern VSG

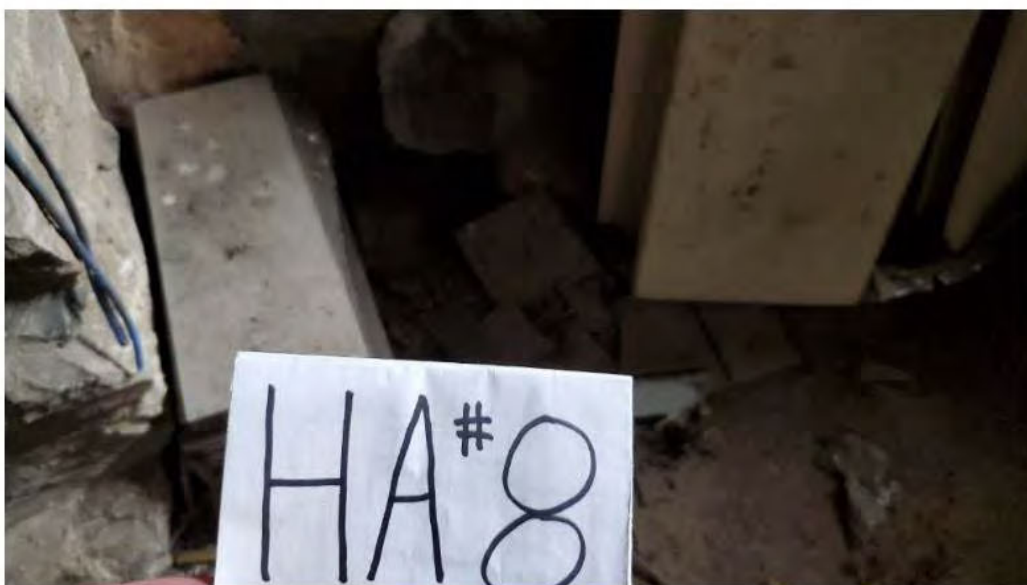


HA #6: Dark Gray Marble Pattern VSG

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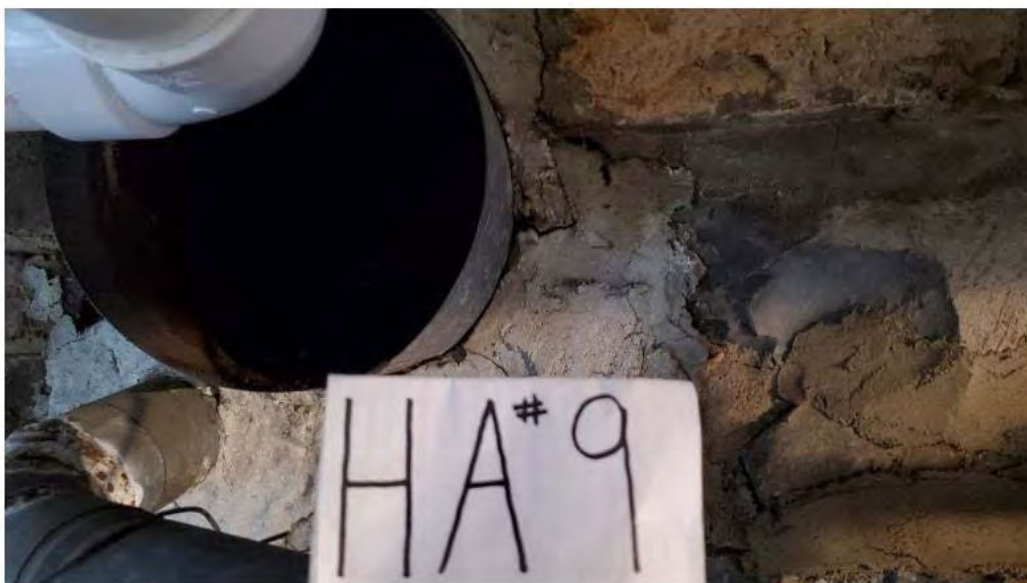


HA #7: Tan Stone Pattern VSG



HA #8: Transite Debris

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HA #9: Flue Mortar

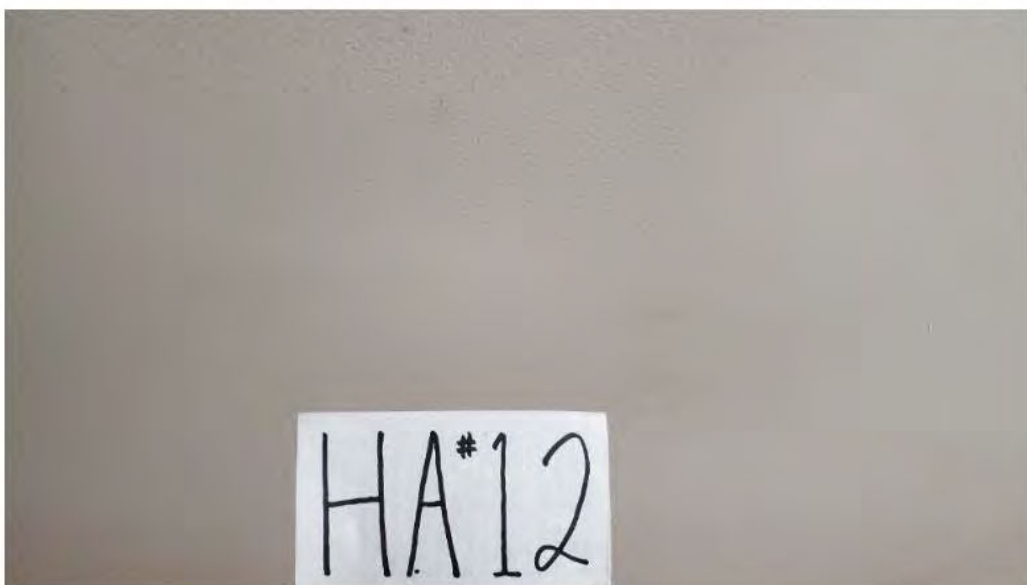


HA #10: Heat Shield

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HA #11: Masonry Joint Sealant



HA #12: Gypsum Board Sheeting

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HA #13: Joint Finishing Compound



HA #14: Masonry Joint Sealant

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HA #15: Window Glazing



HA #16: Dark Gray Roof Tarpaper

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APPENDIX B
BEC BULK SAMPLING LOCATIONS

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ASBESTOS INSPECTION PROJECT INFORMATION SHEET

Date: 11/3/2022 Project Location: Greenbrier Historical Society Law Library
Staff: Andrew Hanson • Derrick Klein 814 Washington Street, Lewisburg, West Virginia 24901
Project #: WV22045 Project Manager: Ricky Robinson

On-Site Time	Temperature	Weather Conditions	Precipitation
Arrival: <u>900</u>	<u>49°</u>	<u>Partly Cloudy</u>	<u>N/A</u>
Departure: <u>1300</u>	<u>68°</u>	<u>Sunny</u>	<u>↓</u>

SCOPE OF WORK TO BE PERFORMED/ SUMMARY OF WORK COMPLETED

<u>BEC to conduct an asbestos inspection at the subject site</u>

POINT OF CONTACT:

Name(s): Michael J. Mills Contact Information: mmills@millsgrouponline.com

ANALYSIS TYPE:

- ☒ PLM EPA 600/R-93/116
☐ PLM EPA 400 Point Count
☐ PLM EPA 1000 Point Count
☐ PLM EPA NOB
☐ TEM Chatfield
☐ TEM EPA NOB

TURN AROUND TIME:

- ☐ 6 Hour
☐ 24 Hour
☐ 3 Day
☒ 5 Day
☐ Other _____

INSPECTION TYPE:

- ☐ AHERA
☒ NESHAP
☐ Pre-Demo
☐ Limited (Note Limitations)
☐ Other _____

ADDITIONAL REQUIREMENTS:

- ☐ Patch / Repair
☐ Roof Sampling

DATE SAMPLES SHIPPED:

11/4/22

PPE USE:

- ☐ Half – Face APR (Type A)
☐ Full Body Coveralls ☐ Boots
☐ Head/Foot Covers ☐ Gloves
☐ Hard Hat ☐ Eye Protection
☐ Safety Harness ☒ N/A

QUANTITY OF SAMPLES:

Bulk # 43
HA's # 16

TRACKING NUMBER:

7703 6996 7170

LIMITATIONS / INACCESSIBLE AREAS

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ASBESTOS INSPECTION BULK SAMPLING LOGSHEET

Date: 11/3/2022
Staff: Andrew Hanson • Derrick Klein
Project #: WV22045

Project Location: Greenbrier Historical Society Law Library
814 Washington Street, Lewisburg, West Virginia 24901

Page: 1 of 3

Material Identification					Friable/ Nonfriable		
Sample #	Ha #	Location	Color/Description	Quantity (sf, lf, vd ³)	CHECK F	CHECK NF	
814-1	1	Library Museum	Finished Plaster 	~7,300sf		x	
-2	1	Reading Room				x	
-3	1	1 st Floor Closet				x	
-4	1	Janitors Closet				x	
-5	1	2 nd Floor Hallway				x	
-6	1	2 nd Floor Bookstacks				x	
-7	1	2 nd Floor Bathroom				x	
-8	2	1 st Floor Bathroom	Gypsum Board Sheeting 	~385sf		x	
-9	2	Janitors Closet				x	
-10	2	2 nd Floor Stair Landing	Joint Finishing Compound 			x	
-11	3	1 st Floor Bathroom			~385sf		x
-12	3	Janitors Closet					x
-13	3	2 nd Floor Stair Landing	Window Glazing 			x	
-14	4	Exterior Windows			~390lf		x
-15	4						x
-16	4		Black Slate Pattern VSG 			x	
-17	5	Janitors Closet			~22sf		x
-18	5						x
-19	6	1 st Floor Bathroom	Dark Gray Marble Pattern VSG 	~44sf		x	
-20	6						x

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ASBESTOS INSPECTION BULK SAMPLING LOGSHEET

Date: 11/3/2022

Project Location: Greenbrier Historical Society Law Library

Staff: Andrew Hanson + Derrick Klein

814 Washington Street, Lewisburg, West Virginia 24901

Project #: WV22045

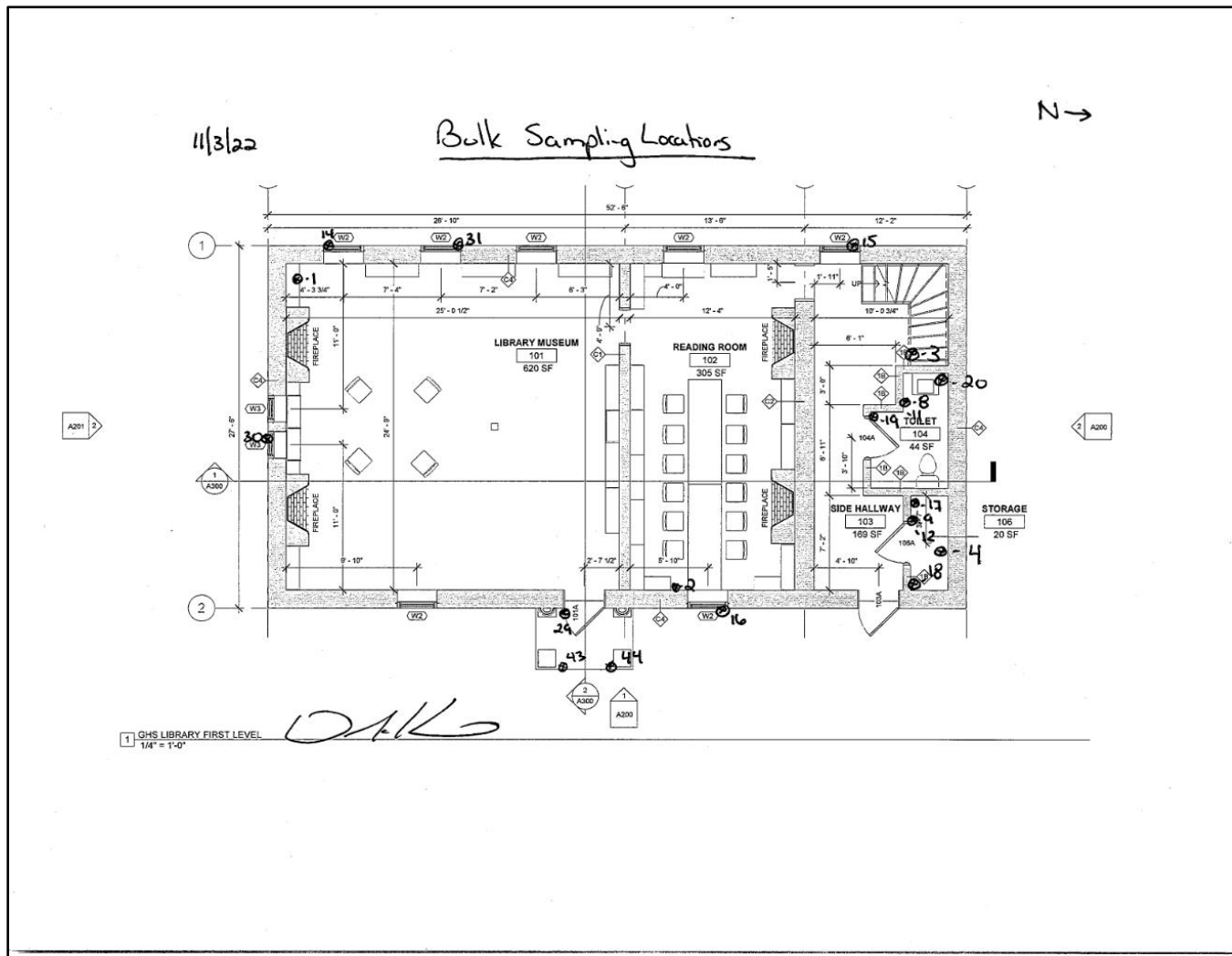
Page: 2 of 3

Sample #	Ha #	Location	Material Identification Color/Description	Quantity (sf, lf, vd ³)	Friable/ Nonfriable	
					CHECK F	CHECK NF
814-21	7	2 nd Floor Bathroom	Tan Stone Pattern VSG	~20sf		x
-22	7	↓	↓	↓		x
-23	8	Basement	Transite Debris	~62sf		x
-24	8	↓	↓	↓		x
-25	9	↓	Flue Mortar	~12sf		x
-26	9	↓	↓	↓		x
-27	10	↓	Heat Shield	~35sf	x	
-28	10	↓	↓	↓	x	
-29	11	Exterior Door	Masonry Joint Sealant	~380lf		x
-30	11	Exterior Window	↓	↓		x
-31	11	Exterior Window	↓	↓		x
-32	12	Enslave Quarters	Gypsum Board Sheeting	~2280sf		x
-33	12	↓	↓	↓		x
-34	12	↓	↓	↓		x
-35	13	↓	Joint Finishing Compound	~2280sf		x
-36	13	↓	↓	↓		x
-37	13	↓	↓	↓		x
-38	14	↓	Masonry Joint Sealant	~60lf		x
-39	14	↓	↓	↓		x
-40	15	↓	Window Glazing	~65lf		x

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Page: 3 of 3[illegible]

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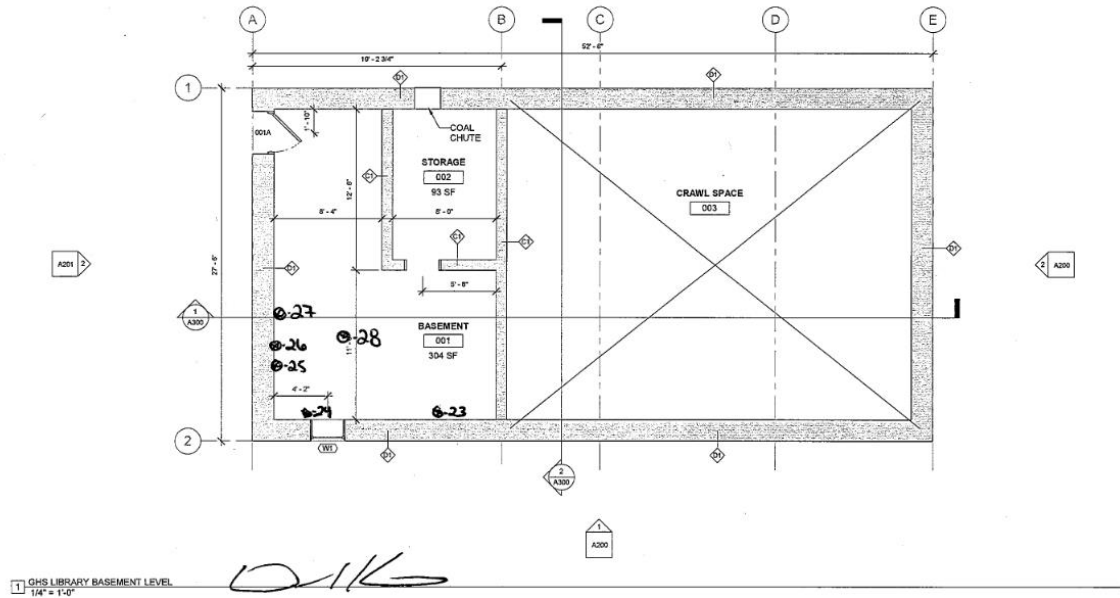




11/3/22

Bulk Sampling Locations

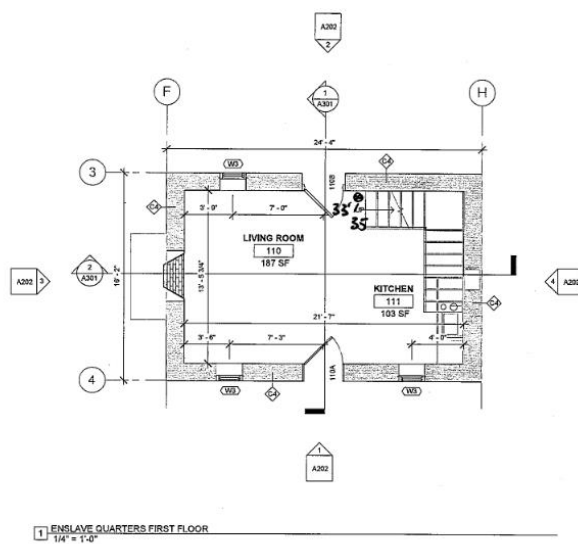
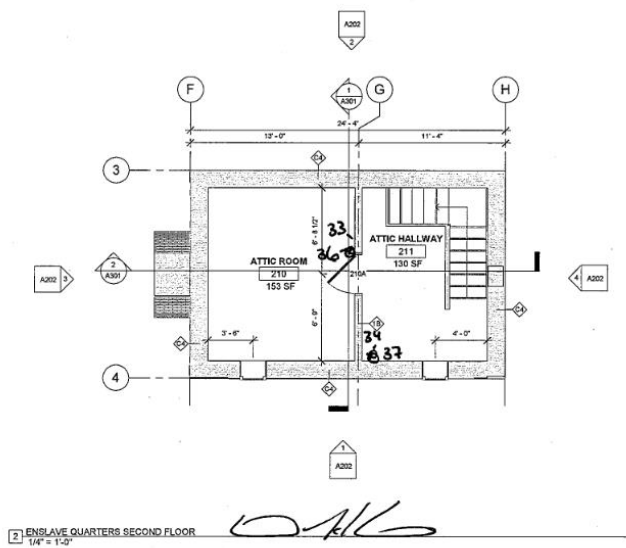
N →



11/3/22

Bulk Sampling Locations

N →





APPENDIX C
EUROFINS CEI LABORATORY ANALYTICAL RESULTS
&
CHAIN OF CUSTODY

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November 14, 2022

Boggs Environmental Consultants
200 West Main St.
Middletown, MD 21769

CLIENT PROJECT: Greenbrier Historical Law Library, WV22045
CEI LAB CODE: B2215600

Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on November 7, 2022. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,

A handwritten signature in black ink, appearing to read "Tianbao Bai".

Tianbao Bai, Ph.D., CIH
Laboratory Director



730 SE Maynard Road • Cary, NC 27511 • 919.481.1413



CEI

ASBESTOS ANALYTICAL REPORT
By: Polarized Light Microscopy

Prepared for

Boggs Environmental Consultants

CLIENT PROJECT: Greenbrier Historical Law Library, WV22045

LAB CODE: B2215600

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 11/14/22

TOTAL SAMPLES ANALYZED: 43

SAMPLES >1% ASBESTOS: 6

730 SE Maynard Road • Cary, NC 27511 • 919.481.1413



CEI

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: Greenbrier Historical Law Library,
WV22045

LAB CODE: B2215600

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
814-1	Layer 1	B2215600.01	Off-white,White	Plaster Skim Coat	None Detected
	Layer 2	B2215600.01	Gray	Plaster Base Coat	None Detected
814-2	Layer 1	B2215600.02	Off-white,White	Plaster Skim Coat	None Detected
	Layer 2	B2215600.02	Gray	Plaster Base Coat	None Detected
814-3	Layer 1	B2215600.03	Off-white,White	Plaster Skim Coat	None Detected
	Layer 2	B2215600.03	Gray	Plaster Base Coat	None Detected
814-4	Layer 1	B2215600.04	Off-white,White	Plaster Skim Coat	None Detected
	Layer 2	B2215600.04	Gray	Plaster Base Coat	None Detected
814-5	Layer 1	B2215600.05	Off-white,White	Plaster Skim Coat	None Detected
	Layer 2	B2215600.05	Gray	Plaster Base Coat	None Detected
814-6	Layer 1	B2215600.06	Off-white,White	Plaster Skim Coat	None Detected
	Layer 2	B2215600.06	Gray	Plaster Base Coat	None Detected
814-7	Layer 1	B2215600.07	Off-white,White	Plaster Skim Coat	None Detected
	Layer 2	B2215600.07	Gray	Plaster Base Coat	None Detected
814-8		B2215600.08	Off-white,White	Gypsum Board	None Detected
814-9		B2215600.09	Off-white,White	Gypsum Board	None Detected
814-10		B2215600.10	Off-white,White	Gypsum Board	None Detected
814-11		B2215600.11	Off-white,White	Joint Compound	None Detected
814-12		B2215600.12	Off-white,White	Joint Compound	None Detected
814-13		B2215600.13	Off-white,White	Joint Compound	None Detected
814-14		B2215600.14	Off-white,Gray	Glazing	None Detected
814-15		B2215600.15	Off-white,Gray	Glazing	None Detected
814-16		B2215600.16	Off-white,Gray	Glazing	None Detected
814-17		B2215600.17A	Black,Off-white	Vinyl Flooring	None Detected
		B2215600.17B	Yellow,Tan	Mastic	None Detected
814-18		B2215600.18A	Black,Off-white	Vinyl Flooring	None Detected
		B2215600.18B	Yellow,Tan	Mastic	None Detected
814-19		B2215600.19A	Gray,Off-white	Vinyl Flooring	None Detected
		B2215600.19B	Yellow,Tan	Mastic	None Detected
814-20		B2215600.20A	Gray,Off-white	Vinyl Flooring	None Detected
		B2215600.20B	Yellow,Tan	Mastic	None Detected



CEI

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: Greenbrier Historical Law Library,
WV22045

LAB CODE: B2215600

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
814-21		B2215600.21A	Tan,Off-white	Vinyl Flooring	None Detected
		B2215600.21B	Yellow,Tan	Mastic	None Detected
814-22		B2215600.22A	Tan,Off-white	Vinyl Flooring	None Detected
		B2215600.22B	Yellow,Tan	Mastic	None Detected
814-23		B2215600.23	Brown,Gray	Transite	Chrysotile 20%
814-24		B2215600.24	Brown,Gray	Transite	Chrysotile 20%
814-25		B2215600.25	Tan,Gray	Flue Mortar	Chrysotile 35%
814-26		B2215600.26	Tan,Gray	Flue Mortar	Chrysotile 35%
814-27		B2215600.27	Tan,Gray	Heat Shield	Chrysotile 50%
814-28		B2215600.28	Tan,Gray	Heat Shield	Chrysotile 50%
814-29		B2215600.29	Gray,Off-white	Joint Sealant	None Detected
814-30		B2215600.30	Gray,Off-white	Joint Sealant	None Detected
814-31		B2215600.31	Gray,Off-white	Joint Sealant	None Detected
814-32		B2215600.32	Off-white,White	Gypsum Board	None Detected
814-33		B2215600.33	Off-white,White	Gypsum Board	None Detected
814-34		B2215600.34	Off-white,White	Gypsum Board	None Detected
814-35		B2215600.35	Off-white,White	Joint Compound	None Detected
814-36		B2215600.36	Off-white,White	Joint Compound	None Detected
814-37		B2215600.37	Off-white,White	Joint Compound	None Detected
814-38		B2215600.38	Gray,Off-white	Joint Sealant	None Detected
814-39		B2215600.39	Gray,Off-white	Joint Sealant	None Detected
814-40		B2215600.40	Off-white,Tan	Glazing	None Detected
814-41		B2215600.41	Off-white,Tan	Glazing	None Detected
814-42		B2215600.42	Black,Gray	Tarpaper	None Detected
814-43		B2215600.43	Black,Gray	Tarpaper	None Detected



CEI

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Boggs Environmental Consultants
200 West Main St.
Middletown, MD 21769

Lab Code: B2215600
Date Received: 11-07-22
Date Analyzed: 11-14-22
Date Reported: 11-14-22

Project: Greenbrier Historical Law Library, WV22045

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
814-1 Layer 1 B2215600.01	Plaster Skim Coat	Heterogeneous	2%	Cellulose	35%	Silicates	None Detected
		Off-white, White			48%	Binder	
		Fibrous Bound			15%	Calc Carb	
Layer 2 B2215600.01	Plaster Base Coat	Heterogeneous	3%	Cellulose	65%	Silicates	None Detected
		Gray	2%	Hair	30%	Binder	
		Fibrous Bound					
814-2 Layer 1 B2215600.02	Plaster Skim Coat	Heterogeneous	2%	Cellulose	35%	Silicates	None Detected
		Off-white, White			48%	Binder	
		Fibrous Bound			15%	Calc Carb	
Layer 2 B2215600.02	Plaster Base Coat	Heterogeneous	3%	Cellulose	65%	Silicates	None Detected
		Gray	2%	Hair	30%	Binder	
		Fibrous Bound					
814-3 Layer 1 B2215600.03	Plaster Skim Coat	Heterogeneous	2%	Cellulose	35%	Silicates	None Detected
		Off-white, White			48%	Binder	
		Fibrous Bound			15%	Calc Carb	
Layer 2 B2215600.03	Plaster Base Coat	Heterogeneous	3%	Cellulose	65%	Silicates	None Detected
		Gray	2%	Hair	30%	Binder	
		Fibrous Bound					
814-4 Layer 1 B2215600.04	Plaster Skim Coat	Heterogeneous	2%	Cellulose	35%	Silicates	None Detected
		Off-white, White			48%	Binder	
		Fibrous Bound			15%	Calc Carb	



CEI

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Boggs Environmental Consultants
200 West Main St.
Middletown, MD 21769

Lab Code: B2215600
Date Received: 11-07-22
Date Analyzed: 11-14-22
Date Reported: 11-14-22

Project: Greenbrier Historical Law Library, WV22045

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
Layer 2 B2215600.04	Plaster Base Coat	Heterogeneous Gray Fibrous Bound	3% 2%	Cellulose Hair	65% 30%	Silicates Binder	None Detected
814-5 Layer 1 B2215600.05	Plaster Skim Coat	Heterogeneous Off-white,White Fibrous Bound	2%	Cellulose	35% 48% 15%	Silicates Binder Calc Carb	None Detected
Layer 2 B2215600.05	Plaster Base Coat	Heterogeneous Gray Fibrous Bound	3% 2%	Cellulose Hair	65% 30%	Silicates Binder	None Detected
814-6 Layer 1 B2215600.06	Plaster Skim Coat	Heterogeneous Off-white,White Fibrous Bound	2%	Cellulose	35% 48% 15%	Silicates Binder Calc Carb	None Detected
Layer 2 B2215600.06	Plaster Base Coat	Heterogeneous Gray Fibrous Bound	3% 2%	Cellulose Hair	65% 30%	Silicates Binder	None Detected
814-7 Layer 1 B2215600.07	Plaster Skim Coat	Heterogeneous Off-white,White Fibrous Bound	2%	Cellulose	35% 48% 15%	Silicates Binder Calc Carb	None Detected
Layer 2 B2215600.07	Plaster Base Coat	Heterogeneous Gray Fibrous Bound	3% 2%	Cellulose Hair	65% 30%	Silicates Binder	None Detected



CEI

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Boggs Environmental Consultants
200 West Main St.
Middletown, MD 21769

Lab Code: B2215600
Date Received: 11-07-22
Date Analyzed: 11-14-22
Date Reported: 11-14-22

Project: Greenbrier Historical Law Library, WV22045

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
814-8 B2215600.08	Gypsum Board	Heterogeneous Off-white, White Fibrous Bound	10%	Cellulose	65% 25%	Gypsum Binder	None Detected
814-9 B2215600.09	Gypsum Board	Heterogeneous Off-white, White Fibrous Bound	10%	Cellulose	65% 25%	Gypsum Binder	None Detected
814-10 B2215600.10	Gypsum Board	Heterogeneous Off-white, White Fibrous Bound	10%	Cellulose	65% 25%	Gypsum Binder	None Detected
814-11 B2215600.11	Joint Compound	Heterogeneous Off-white, White Fibrous Bound	2%	Cellulose	75% 23%	Calc Carb Binder	None Detected
814-12 B2215600.12	Joint Compound	Heterogeneous Off-white, White Fibrous Bound	2%	Cellulose	75% 23%	Calc Carb Binder	None Detected
814-13 B2215600.13	Joint Compound	Heterogeneous Off-white, White Fibrous Bound	2%	Cellulose	75% 23%	Calc Carb Binder	None Detected
814-14 B2215600.14	Glazing	Heterogeneous Off-white, Gray Fibrous Bound	3%	Cellulose	65% 22% 10%	Caulk Binder Calc Carb	None Detected



CEI

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Boggs Environmental Consultants
200 West Main St.
Middletown, MD 21769

Lab Code: B2215600
Date Received: 11-07-22
Date Analyzed: 11-14-22
Date Reported: 11-14-22

Project: Greenbrier Historical Law Library, WV22045

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
814-15 B2215600.15	Glazing	Heterogeneous	3%	Cellulose	65%	Caulk	None Detected
		Off-white,Gray			22%	Binder	
		Fibrous			10%	Calc Carb	
		Bound					
814-16 B2215600.16	Glazing	Heterogeneous	3%	Cellulose	65%	Caulk	None Detected
		Off-white,Gray			22%	Binder	
		Fibrous			10%	Calc Carb	
		Bound					
814-17 B2215600.17A	Vinyl Flooring	Heterogeneous	15%	Fiberglass	85%	Vinyl	None Detected
		Black,Off-white					
B2215600.17B	Mastic	Fibrous					None Detected
		Bound					
		Homogeneous	2%	Cellulose	98%	Mastic	
		Yellow,Tan					
814-18 B2215600.18A	Vinyl Flooring	Heterogeneous	15%	Fiberglass	85%	Vinyl	None Detected
		Black,Off-white					
		Fibrous					
		Bound					
B2215600.18B	Mastic	Homogeneous	2%	Cellulose	98%	Mastic	None Detected
		Yellow,Tan					
		Fibrous					
		Bound					
814-19 B2215600.19A	Vinyl Flooring	Heterogeneous	15%	Fiberglass	85%	Vinyl	None Detected
		Gray,Off-white					
		Fibrous					
		Bound					



CEI

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Boggs Environmental Consultants
200 West Main St.
Middletown, MD 21769

Lab Code: B2215600
Date Received: 11-07-22
Date Analyzed: 11-14-22
Date Reported: 11-14-22

Project: Greenbrier Historical Law Library, WV22045

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
B2215600.19B	Mastic	Homogeneous Yellow, Tan Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected
814-20 B2215600.20A	Vinyl Flooring	Heterogeneous Gray, Off-white Fibrous Bound	15%	Fiberglass	85%	Vinyl	None Detected
B2215600.20B	Mastic	Homogeneous Yellow, Tan Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected
814-21 B2215600.21A	Vinyl Flooring	Heterogeneous Tan, Off-white Fibrous Bound	15%	Fiberglass	85%	Vinyl	None Detected
B2215600.21B	Mastic	Homogeneous Yellow, Tan Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected
814-22 B2215600.22A	Vinyl Flooring	Heterogeneous Tan, Off-white Fibrous Bound	15%	Fiberglass	85%	Vinyl	None Detected
B2215600.22B	Mastic	Homogeneous Yellow, Tan Fibrous Bound	2%	Cellulose	98%	Mastic	None Detected



CEI

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Boggs Environmental Consultants
200 West Main St.
Middletown, MD 21769

Lab Code: B2215600
Date Received: 11-07-22
Date Analyzed: 11-14-22
Date Reported: 11-14-22

Project: Greenbrier Historical Law Library, WV22045

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
814-23 B2215600.23	Transite	Heterogeneous Brown,Gray Fibrous Bound	5%	Cellulose	75%	Binder	20% Chrysotile
814-24 B2215600.24	Transite	Heterogeneous Brown,Gray Fibrous Bound	5%	Cellulose	75%	Binder	20% Chrysotile
814-25 B2215600.25	Flue Mortar	Heterogeneous Tan,Gray Fibrous Bound	5%	Cellulose	60%	Silicates	35% Chrysotile
814-26 B2215600.26	Flue Mortar	Heterogeneous Tan,Gray Fibrous Bound	5%	Cellulose	60%	Silicates	35% Chrysotile
814-27 B2215600.27	Heat Shield	Heterogeneous Tan,Gray Fibrous Bound			50%	Binder	50% Chrysotile
814-28 B2215600.28	Heat Shield	Heterogeneous Tan,Gray Fibrous Bound			50%	Binder	50% Chrysotile
814-29 B2215600.29	Joint Sealant	Heterogeneous Gray,Off-white Fibrous Bound	3%	Cellulose	60% 32% 5%	Caulk Binder Paint	None Detected



CEI

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Boggs Environmental Consultants
200 West Main St.
Middletown, MD 21769

Lab Code: B2215600
Date Received: 11-07-22
Date Analyzed: 11-14-22
Date Reported: 11-14-22

Project: Greenbrier Historical Law Library, WV22045

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
814-30 B2215600.30	Joint Sealant	Heterogeneous Gray, Off-white Fibrous Bound	3%	Cellulose	60% 32% 5%	Caulk Binder Paint	None Detected
814-31 B2215600.31	Joint Sealant	Heterogeneous Gray, Off-white Fibrous Bound	3%	Cellulose	60% 32% 5%	Caulk Binder Paint	None Detected
814-32 B2215600.32	Gypsum Board	Heterogeneous Off-white, White Fibrous Bound	10%	Cellulose	65% 25%	Gypsum Binder	None Detected
814-33 B2215600.33	Gypsum Board	Heterogeneous Off-white, White Fibrous Bound	10%	Cellulose	65% 25%	Gypsum Binder	None Detected
814-34 B2215600.34	Gypsum Board	Heterogeneous Off-white, White Fibrous Bound	10%	Cellulose	65% 25%	Gypsum Binder	None Detected
814-35 B2215600.35	Joint Compound	Heterogeneous Off-white, White Fibrous Bound	2%	Cellulose	75% 23%	Calc Carb Binder	None Detected
814-36 B2215600.36	Joint Compound	Heterogeneous Off-white, White Fibrous Bound	2%	Cellulose	75% 23%	Calc Carb Binder	None Detected



CEI

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Boggs Environmental Consultants
200 West Main St.
Middletown, MD 21769

Lab Code: B2215600
Date Received: 11-07-22
Date Analyzed: 11-14-22
Date Reported: 11-14-22

Project: Greenbrier Historical Law Library, WV22045

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
814-37 B2215600.37	Joint Compound	Heterogeneous	2%	Cellulose	75%	Calc Carb	None Detected
		Off-white, White			23%	Binder	
		Fibrous					
		Bound					
814-38 B2215600.38	Joint Sealant	Heterogeneous	3%	Cellulose	60%	Caulk	None Detected
		Gray, Off-white			32%	Binder	
		Fibrous			5%	Paint	
		Bound					
814-39 B2215600.39	Joint Sealant	Heterogeneous	3%	Cellulose	60%	Caulk	None Detected
		Gray, Off-white			32%	Binder	
		Fibrous			5%	Paint	
		Bound					
814-40 B2215600.40	Glazing	Heterogeneous	3%	Cellulose	65%	Caulk	None Detected
		Off-white, Tan			22%	Binder	
		Fibrous			10%	Calc Carb	
		Bound					
814-41 B2215600.41	Glazing	Heterogeneous	3%	Cellulose	65%	Caulk	None Detected
		Off-white, Tan			22%	Binder	
		Fibrous			10%	Calc Carb	
		Bound					
814-42 B2215600.42	Tarpaper	Heterogeneous	15%	Cellulose	50%	Tar	None Detected
		Black, Gray	5%	Fiberglass	10%	Gravel	
		Fibrous			20%	Binder	
		Bound					
814-43 B2215600.43	Tarpaper	Heterogeneous	15%	Cellulose	50%	Tar	None Detected
		Black, Gray	5%	Fiberglass	10%	Gravel	
		Fibrous			20%	Binder	
		Bound					



CEI

LEGEND: Non-Anth = Non-Asbestiform Anthophyllite
 Non-Trem = Non-Asbestiform Tremolite
 Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORTING LIMIT: <1% by visual estimation

REPORTING LIMIT FOR POINT COUNTS: 0.25% by 400 Points or 0.1% by 1,000 Points

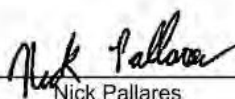
REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. *Estimated measurement of uncertainty is available on request.*

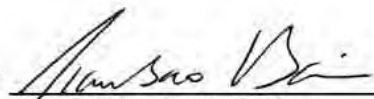
This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. Samples were received in acceptable condition unless otherwise noted. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

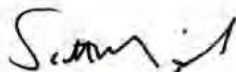
Information provided by customer includes customer sample ID and sample description.

ANALYST:


Nick Pallares

APPROVED BY:


Tianbao Bai, Ph.D., CIH
Laboratory Director

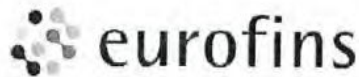


Scott Minyard



730 SE Maynard Road • Cary, NC 27511 • 919.481.1413

Page 9 of 9



CEI

CHAIN OF CUSTODY

(43)

730 SE Maynard Road, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:

CEI Lab Code:

B2215600

CEI Lab I.D. Range:

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #: 30189	Job Contact: Andrew Hanson
Company: Boggs Environmental Consultants Inc.	Email / Tel: ahanson@boggsenvironmental.com
Address: 200 West Main Street, Middletown, Maryland 21769	Project Name: Greenbrier Historical Law Library
Email: rrobinson@boggsenvironmental.com	Project ID#: WV22045
Tel: 301-694-5687 Fax: 301-694-9799	PO #:
STATE SAMPLES COLLECTED IN: WV	

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	1 DAY	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
PLM POINT COUNT (400)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (1000)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM GRAV w POINT COUNT	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM BULK	CARB 435	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCM AIR	NIOSH 7400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR (PCME)	ISO 10312	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	ASTM 6281-15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM BULK	CHATFIELD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST WIPE	ASTM D6480-05 (2010)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST MICROVAC	ASTM D5755-09 (2014)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM SOIL	ASTM D7521-16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM VERMICULITE	CINCINNATI METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM QUALITATIVE	IN-HOUSE METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS / SPECIAL INSTRUCTIONS:

See Attached BEC Logsheet

☒ Accept Samples

☐ Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
	11/4/22 1300	BWB	11/7 10:40

Samples will be disposed of 30 days after analysis

Page 1 of 1
Version: CCOC.01.18.1/2.LD

BOGGS

ASBESTOS INSPECTION BULK SAMPLING LOGSHEET

Date: 11/3/2022

Project Location: Greenbrier Historical Society Law Library

Staff: Andrew Hanson - Derrick Klein

814 Washington Street, Lewisburg, West Virginia 24901

Project #: WV22045

Page: 1 of 3

			Material Identification			Friable/ Nonfriable	
Sample #	Ita #	Location	Color/Description		Quantity (sf, lf, vd³)	CHECK F	CHECK NF
814-1	1	Library Museum	Finished Plaster		~7,300sf		x
-2	1	Reading Room	↓		↓		x
-3	1	1st Floor Closet	↓		↓		x
-4	1	Janitors Closet	↓		↓		x
-5	1	2nd Floor Hallway	↓		↓		x
-6	1	2nd Floor Bookstacks	↓		↓		x
-7	1	2nd Floor Bathroom	↓		↓		x
-8	2	1st Floor Bathroom	Gypsum Board Sheeting		~385sf		x
-9	2	Janitors Closet	↓		↓		x
-10	2	2nd Floor Stair Landing	↓		↓		x
-11	3	1st Floor Bathroom	Joint Finishing Compound		~385sf		x
-12	3	Janitors Closet	↓		↓		x
-13	3	2nd Floor Stair Landing	↓		↓		x
-14	4	Exterior Windows	Window Glazing		~390lf		x
-15	4	↓	↓		↓		x
-16	4	↓	↓		↓		x
-17	5	Janitors Closet	Black Slate Pattern VSG		~22sf		x
-18	5	↓	↓		↓		x
-19	6	1st Floor Bathroom	Dark Gray Marble Pattern VSG		~44sf		x
-20	6	↓	↓		↓		x

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES

BOGGS

ASBESTOS INSPECTION BULK SAMPLING LOGSHEET

Date: 11/3/2022

Project Location: Greenbrier Historical Society Law Library

Staff: Andrew Hanson + Derrick Klein

814 Washington Street, Lewisburg, West Virginia 24901

Project #: WV22045

Page: 2 of 3

Project #: WY22043

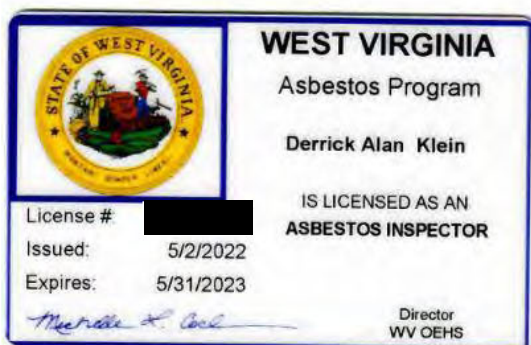
			Material Identification	Quantity (sf, lf, yd³)	Friable/ CHECK F	Nonfriable CHECK NF
Sample #	Ha #	Location	Color/Description			
814-21	7	2 nd Floor Bathroom	Tan Stone Pattern VSG	~20sf		x
-22	7	↓	↓	↓		x
-23	8	Basement	Transite Debris	~62sf		x
-24	8	↓	↓	↓		x
-25	9	↓	Flue Mortar	~12sf		x
-26	9	↓	↓	↓		x
-27	10	↓	Heat Shield	~35sf	x	
-28	10	↓	↓	↓	x	
-29	11	Exterior Door	Masonry Joint Sealant	~380lf		x
-30	11	Exterior Window	↓	↓		x
-31	11	Exterior Window	↓	↓		x
-32	12	Enclave Quarters	Gypsum Board Sheeting	~2280sf		x
-33	12	↓	↓	↓		x
-34	12	↓	↓	↓		x
-35	13	↓	Joint Finishing Compound	~2280sf		x
-36	13	↓	↓	↓		x
-37	13	↓	↓	↓		x
-38	14	↓	Masonry Joint Sealant	~60lf		x
-39	14	↓	↓	↓		x
-40	15	↓	Window Glazing	~65lf		x

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES



APPENDIX D
BEC STAFF QUALIFICATIONS

ENVIRONMENTAL SCIENCE, ENGINEERING & INDUSTRIAL HYGIENE SERVICES





Approval Number: 21 14 01

Certificate of Achievement
Awarded to
Derrick Klein

In recognition of successful completion of the course entitled

ASBESTOS BUILDING INSPECTOR REVIEW

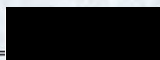
A 4-Hour annual review program of study presented in accordance with the provisions of the U.S
Environmental Protection Agency Model Accreditation Plan 40 CFR Part 763, Appendix C to SUBPART
E, for Accreditation under TSCA Title II



Location: Columbia, MD

A handwritten signature in black ink, appearing to read "Clayton E. Miller".

Clayton E. Miller Course Instructor



Certificate Number

January 25, 2022

Examination Date

January 25, 2023

Expiration Date

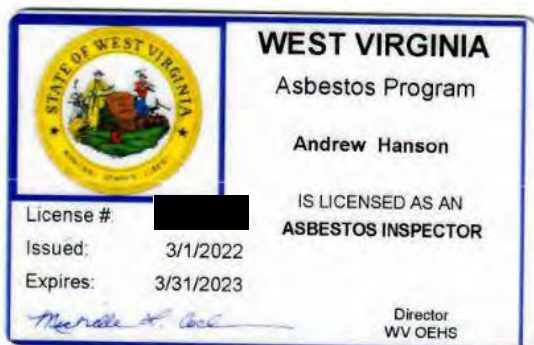
January 25, 2022

Course Date

A handwritten signature in black ink, appearing to read "C. Gomez".

Carla M. Gomez Course Director

9231 Rumsey Road Columbia, Maryland 21045 410-381-0232 Office 410-423-9235 Direct






Approval Number: 21 14 01

Certificate of Achievement
Awarded to
Andrew Hanson

In recognition of successful completion of the course entitled
**ASBESTOS BUILDING INSPECTOR/
MANAGEMENT PLANNER REVIEW**

An 8-Hour annual review program of study presented in accordance with the provisions of the U.S
Environmental Protection Agency Model Accreditation Plan 40 CFR Part 763, Appendix C to SUBPART
E, for Accreditation under TSCA Title II




Certificate Number

November 23, 2021

Examination Date

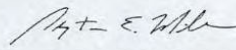
November 23, 2022


Expiration Date

November 23, 2021

Course Date

9231 Rumsey Road Columbia, Maryland 21045 410-381-0232 Office 410-423-9235 Direct


Clayton E. Miller Course Instructor


Carla M. Gomez Course Director

Greenbrier Historical Society

201 Courtney Drive
Lewisburg, WV 24901



LIMITED HISTORIC PAINT ANALYSIS

Law Library

January 13, 2023

Prepared For:

Greenbrier Historical Society

ATTN: Tom Kilionski



150 Commerce Court, Cheshire, CT 06410
www.JohnCanningCo.com | 203-272-9868

Page | 1 Greenbrier Historical Society, Historic Paint Analysis

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Methodology.....	2
Microscopy Analysis.....	2
Color Matching.....	3
Findings.....	3
Appendix A.....	4

*John Canning & Co. Ltd.
January 2023*

Page | 2 Greenbrier Historical Society, Historic Paint Analysis

INTRODUCTION

It has been requested of the John Canning & Co. to perform a paint analysis to document the original color presentations of the samples provided to us which were taken from the Law Library at the Greenbrier Historical Society. The intent of this examination is to determine the original presentation of colors in order that this original scheme might be replicated in the future.

DEFINITIONS

Chroma chronology

the arrangement of items in order of intensity or color

Stratigraphy

the analysis of the order and position of layers of archaeological remains

Microscopy

the use of the microscope

Cross-section

a surface or shape that is or would be exposed by making a straight cut through something, especially at right angles to an axis

METHODOLOGY

Samples were analyzed in Canning's laboratory with supervision by Principal Conservator and Professional Associate of the American Institute for Conservation (AIC), David Riccio.

Samples were set in resin to reveal the cross-section of the painted finishes. The main purpose for analysis of the cross-sections is for the color matching of the historic colors. The historic colors have been identified by the Munsell standard of color notation. The Munsell Color system identifies colors within a three-dimensional color space by describing the hue, value and chroma. For purposes of the restoration, the Munsell colors identified will be color matched by a commercial paint manufacturer.

MICROSCOPY ANALYSIS

Microscopy Analysis provides an understanding of the original paint scheme, identifies newer materials and/or additions to a surface, and the correct identification of the various layers can tell the history of the space. The sampling of the structure is critical to correctly identify the paint scheme. Sampling in areas with the least exposure to causes of deterioration, such as sunlight, the elements, smoke, and abrasions, yields the most intact and informative samples. Knowledge of the style of the period informs the sampling process, instructing where it is most likely to find color changes or decorative painting. The layers of paint can also show periods of neglect and deterioration, fading or darkening due to UV or smoke, and it can show a change in what type of paint was used.

Refer to Appendix A for a complete list of samples. Samples were set in 100% clear resin, polished from 800 grit to 10,000 grit sand paper and a final polish with velvet cloth. Samples were mounted and examined using a binocular zoom microscope ranging from 20x to 100x magnification. Illumination was provided by a fiber optic source filtered to approximate daylight conditions.

*John Canning & Co. Ltd.
January 2023*

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COLOR MATCHING

The Munsell System of Color is a scientific system in which colors have been ranged into a color fan based upon three attributes: hue or color, the chroma or color saturation, and the value or neutral lightness or darkness. Unlike color systems developed by paint manufacturers, the Munsell system provides an unchanging standard of reference which is unaffected by the marketplace and changing tastes in colors.

The hue notation, the color, indicates the relation of the sample to a visually equally spaced scale of 100 hues. There are 10 major hues, five principal and five intermediate within this scale. The hues are identified by initials indicating the central member of the group: red R, yellow-red YR, yellow Y, yellow-green YG, green G, blue-green BG, blue B, purple-blue PB, purple P, and red-purple R. The hues in each group are identified by the numbers 1 to 10. The most purplish of the red hues, 1 on the scale of 100, is designated as 1R, the most yellowish as 10R, and the central hue as 5R. The hue 10R can also be expressed as 10, 5Y as 25, and so forth if a notation of the hue as a number is desired.

Chroma indicates the degree of departure of a given hue from the neutral gray axis of the same value. It is the strength of saturation of color from neutral gray, written /0 to /14 or further for maximum color saturation.

Value, or lightness, makes up the neutral gray axis of the color wheel, ranging from black, number 1, to white at the top of the axis, number 10.

A visual value can be approximated by the help of the neutral gray chips of the Rock or Soil Color chart with ten intervals. The color parameters can be expressed with figures semi-quantitatively as: hue, value/chroma (H, V/C). The color "medium red" should serve as an example for presentation with the three color attributes, 5R 5.5/6. This means that 5R is located in the middle of the red hue, 5.5 is the lightness of Munsell value near the middle between light and dark, and 6 is the degree of the Munsell chroma, or the color saturation, which is about in the middle of the saturation scale.

Readily available commercial paint colors matches are provide following the Munsell selection. Specific colors are evaluated against California Paints and Pittsburg Paints. These particular palettes compared closest to the historic paint layers as opposed to other commercial colors.




FINDINGS

According to the discoveries of the paint investigation, the Law Library was originally painted in a scheme of green, grey, yellow, and taupe. The stratigraphy of each sample is someone elaborate, showing many layers of paint in a variety of different colors. Appendix A provides a documentation of the original paint campaign which we are naming as the historic color. Also included is the generic name of this historic color, the Munsell color match, the closest commercial color match, and a microphotograph. Under each sample documentation, we have noted the substrate of each sample as well as its general stratigraphy which includes observation of paint colors, possible glazes, or possible layers of dirt and grime buildup between campaigns.

*John Canning & Co. Ltd.
January 2023*


APPENDIX A

The following summary provides the historic color identified with each sample by generic name, Munsell color match, the closest commercial color, and microphotograph. Also noted is the substrate of each sample.


SUMMARY OF HISTORIC PAINT COLORS				
Sample #	Description	Munsell	Closest Commercial Color	Microphotograph
A 1 st Floor Window Sill	Warm Green	5 GY 3/6	Pittsburg Paints 309-7 Globe Artichoke	
Notes: Substrate is wood. Multiple layers of paint were detected. The original color is a warm, somewhat bright green which is followed by a layering of greyish-brown, pale yellow, umber, a thin eggplant color, beige, a pale brown, light teal, two layers of white with a layer of grime between them, and finally a forest green which is the current campaign.				
B 2 nd Floor Book Shelf	Taupe	5 Y 9/4	Benjamin Moore 311 Squish-Squash	
Notes: Substrate is wood. The original color is a taupe which is followed by two more layers in the same taupe scheme. Following the taupe layers is a pale blue followed by a bright yellow, salmon, white primer, and the familiar forest green of Sample A.				
C 1 st Floor Book Shelf	Taupe	5 Y 9/4	Benjamin Moore 311 Squish-Squash	
Notes: Substrate is wood. The original color is taupe followed by a layering of pale yellow, grey, light blue, a white primer and the familiar forest green of the original campaign. In between the pale blue and primer there is a				

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very thin layer of grime. The identified color above is that of the bottom layer on the left side of this photograph which we are identifying as the original campaign. It should be noted, however, that the right side of the photograph shows a small hint of the warm green color in Sample A. This could be interpreted as overpaint from the windowsill where Sample A was extracted, since both Sample A and Sample C were taken from the first floor.

D E.Q. Door	Grey- Blue	5 G 6/1	Benjamin Moore 1574 Rushing River	
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Notes: Substrate is wood. There exists an initial layer of white primer followed by the original color which was found to be a pale, greyish-blue. This blue is followed by two beige campaigns including a thin layer of grime between them.

E Plaster	Yellow	2.5 Y 8/6	Benjamin Moore 180 Beverly Hills	
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Notes: Substrate is plaster. There appears to be layers of multiple campaigns in this sample. The original is a yellow followed by a paler yellow, white, grey, a slightly blue-grey, another layer of pale yellow, the salmon color which appears to be that of Sample B, followed by white which is the current campaign.

John Canning & Co. Ltd.
January 2023



January 13, 2023

Michael Mills, AIA
Mills Group
88 High Street
Morgantown, WV 26505

Re: Lewisburg Law Library Evaluation

Dear Michael,

A representative from Harper Engineering visited the site on Tuesday, November 29, 2022 to review existing mechanical, electrical, and plumbing systems of the historic law library and adjacent building. Intent is to restore the building back to it's original floor plan on the first floor for use as a museum.

Natural gas is available on site. Existing meter is located in the basement. Water heater and furnaces in the law library are gas fired. Water heater flue shows significant corrosion. A qualified technician should review the installation and confirm it's leak free. Recommend that CO detectors be added to each space to monitor and alarm in case of flue failure or poor draft thru the existing chimney.

Existing domestic water piping is galvanized steel. Exterior of the pipe is showing signs of corrosion and leakage at the joints. Interior of the pipe was not reviewed but typically will corrode from the inside. All galvanized steel domestic water piping should be replaced.

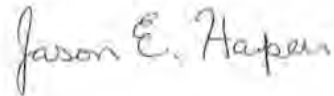
Sanitary piping that is visible is PVC. This piping should be suitable for reuse.

Mechanical system for the law library consists of gas fired split systems with outdoor condensing units. One unit is ducted to the first floor. The other unit is located in the attic and is ducted to the second floor. Units are adequately sized for the building. The units appear to have been manufactured in 2011. Basement unit sits on dirt floor. Recommend unit is raised when it's replaced in the future. Outside air will need to be introduced to each unit to meet ASHRAE ventilation requirements.

Electrical entrance is 120/240v single phase 200a. Main electrical panel is located on the exterior wall adjacent to the meter. A 40a sub panel is located on the exterior of the adjacent building. Distribution system is a mix of nm cable and pvc conduit. System is adequate for current use. Additional evaluation will be required if significant electrical load is added in the adjacent building.

Feel free to call if you have any questions.

Sincerely,



Jason Harper, PE
Harper Engineering, pllc



Fig. 040 Air Handler Unit



Fig. 041 Electrical Meter



Fig. 042 Exterior Electrical Panel



Fig. 043 Gas Meter in Basement



Fig. 044 Outdoor Condensing Unit



Fig. 045 Romex Wiring in Basement



Fig. 046 Sub Panel on Small Building



Fig. 047 Water Heater on Floor



Fig. 048 Water Heater Flue



Fig. 048 Water Heater

B. ADDITIONAL PHOTOGRAPHS



Fig. 049 Enslaved Quarters roof view

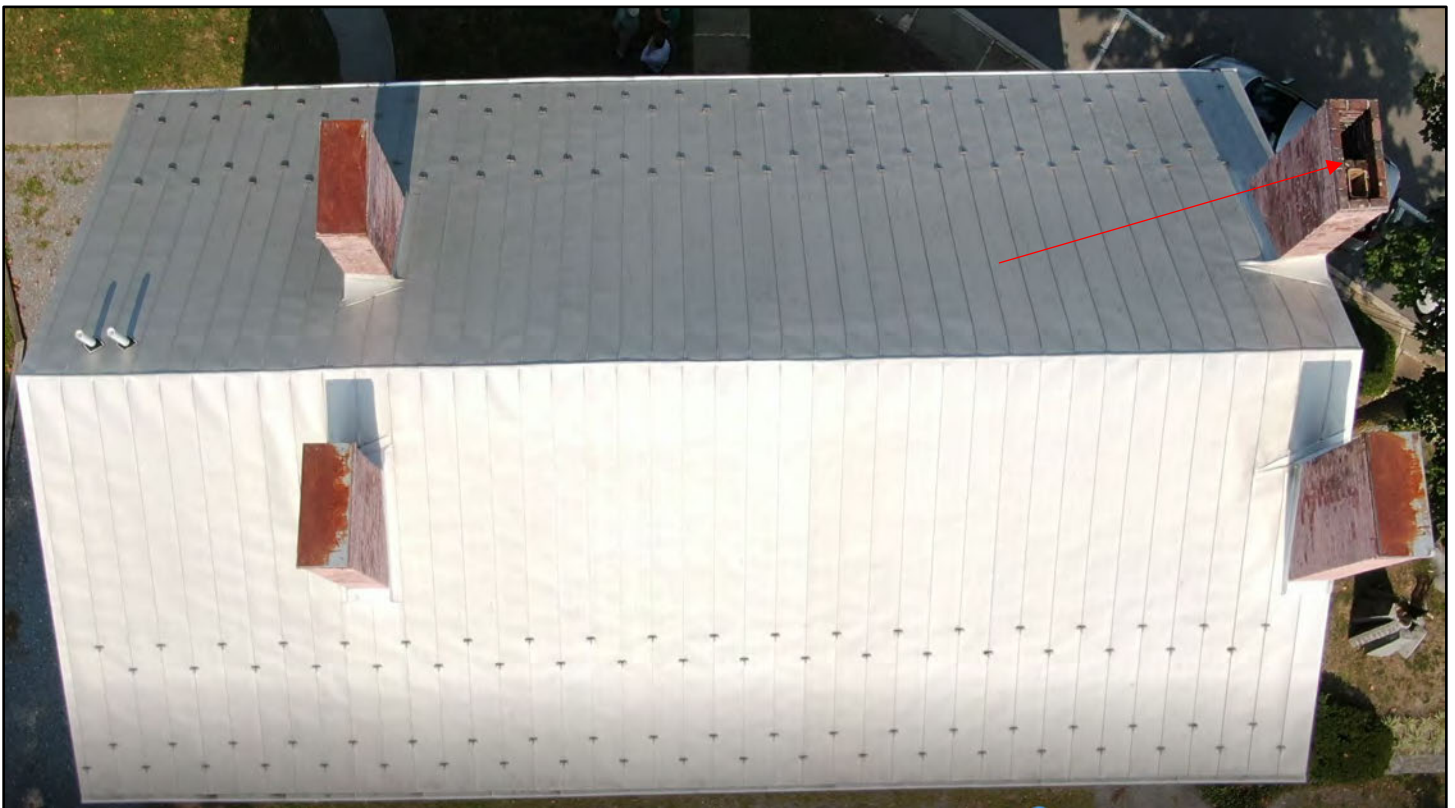


Fig. 050 Law Library roof view. Notice northwest chimney missing its crown and flue caps

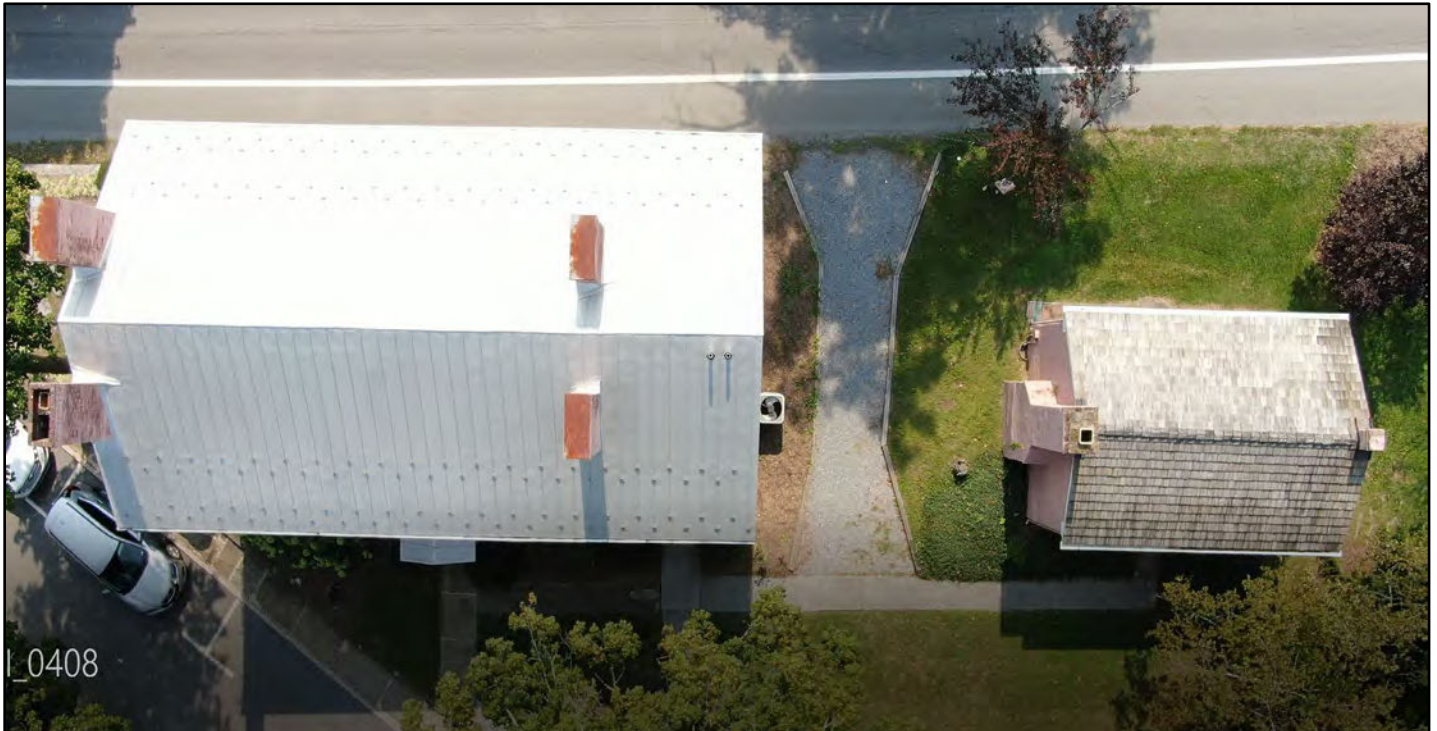


Fig 051 Site ariel view



Fig 052 Main room from the east interior wall



Fig 052 Main room from interior wall facing west wall



Fig 053 Study room from as viewed from south wall

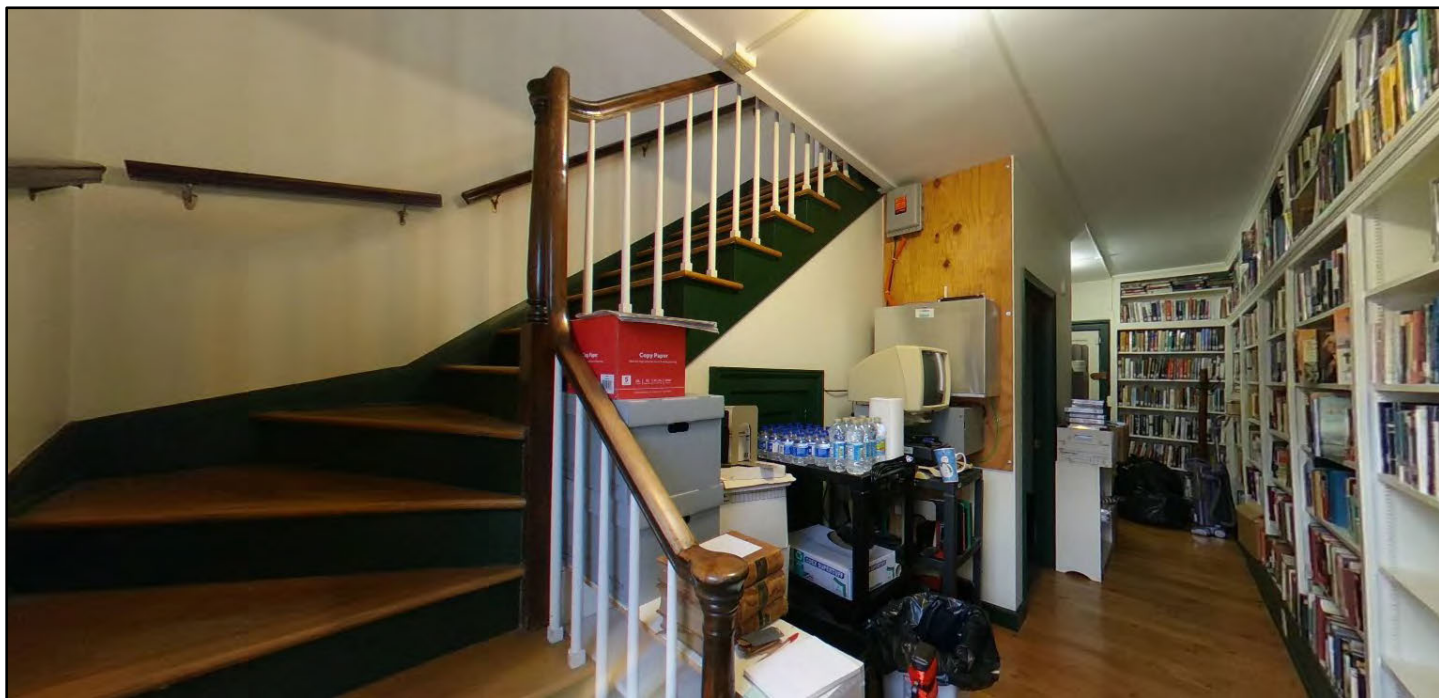


Fig 054 First floor Masonic addition as viewed from south wall

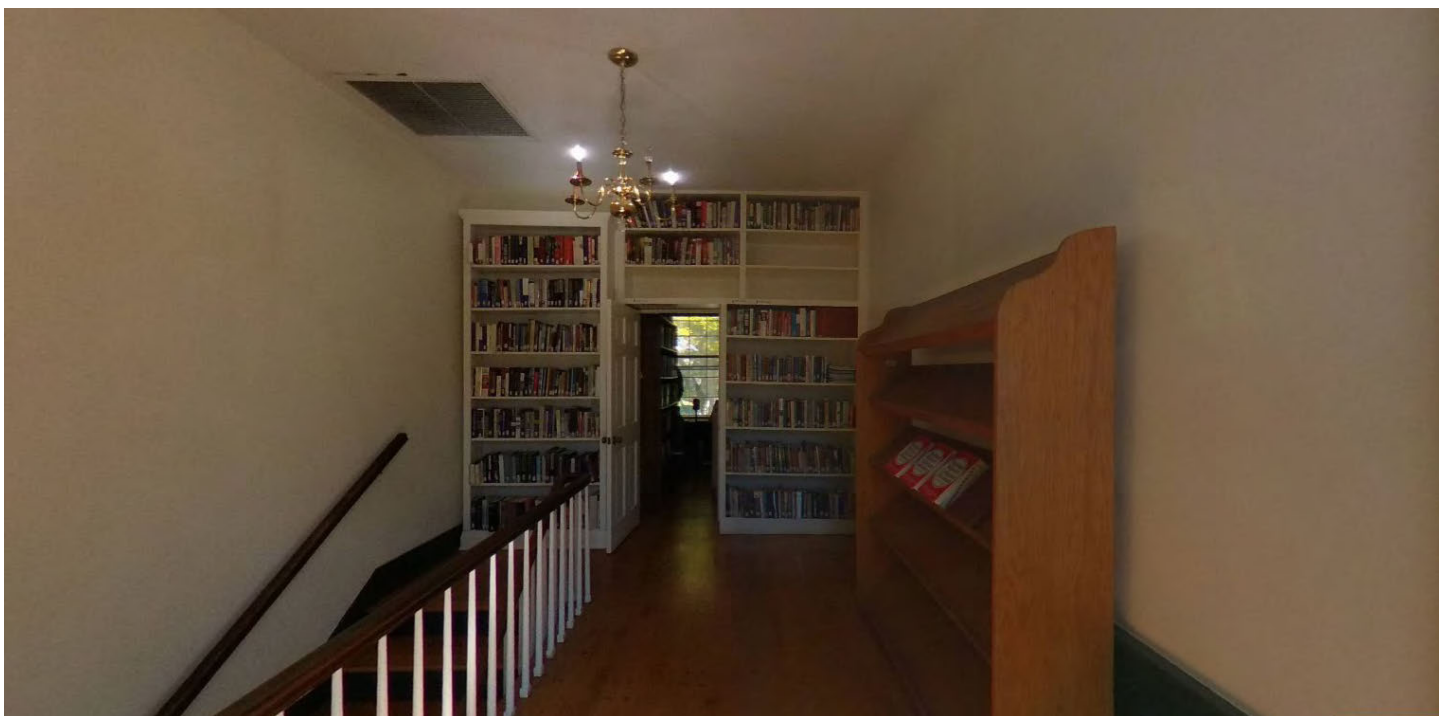


Fig 055 Second floor Masonic addition as viewed from south wall



Fig 056 Second floor as viewed from southeast wall