THOMAS BLACKSTONE HOUSE

HISTORIC STRUCTURES REPORT

SEIP EARTHWORKS UNIT – HOPEWELL CULTURE NATIONAL HISTORICAL PARK
BAINBRIDGE, OHIO

APRIL 17, 2017
NPS PMIS # 218963

Cover Image:
Blackstone House & Smokehouse, View Southwest.
(STRATA Architecture 2016)

Thomas Blackstone House
HISTORIC STRUCTURES REPORT
Seip Earthworks – Unit Hopewell Culture National Historical Park

Bainbridge, Ohio

Recommended: ______________________ Date: 5/24/17
Superintendent

Concurred: ______________________ Date: 6/5/17
Associate Regional Director
Cultural Resources, Midwest Region

Approved: ______________________ Date: 6/8/2017
Regional Director, Midwest Region

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Blackstone House, looking southwest. (STRATA 2016)

SUMMARY

Summary

Executive Summary

The Blackstone house and outbuildings have been part of the cultural landscape of the Seip Earthworks site for more than 150 years. The buildings are historically significant as well-crafted, highly intact, nineteenth century residential and agricultural architecture. Together, they offer a representative example of a farmstead that was established in the mid-nineteenth century and remained active well into the twentieth century. They also have significance for their association with the Seip family, for whom the surrounding earthworks are named. Because the farmstead is not presently listed in the National Register, there is no official period of significance. This report recommends a period of significance which begins with construction of the house and smokehouse, ca. 1857, and ends in 1957, with the completion of updates and porch alterations by then-owner Charles Schlegel.

The goal of this Historic Structures Report (HSR), as defined by the National Park Service (NPS), is to provide a document to guide the interpretation, rehabilitation and maintenance of the Blackstone house and outbuildings. Part 1 of this report provides the history and a record of the existing conditions and past alterations of the Blackstone house and outbuildings through field study, conditions assessments and archival research. Preservation objectives, considerations and treatment recommendations for the buildings are presented in Part 2 of this report. Archival research conducted for this report focused on the Blackstone house and outbuildings. This research included the families and other interests involved in the occupation of the house, as well as the relationship between the buildings and the historic earthworks. The prehistory associated with the Seip Earthworks was not part of the scope of this project. The report is intended to provide historical context related to the nineteenth through twenty-first century development and to support future research and interpretive efforts for the buildings within the overall historic Seip Earthworks site.

The house and smokehouse were built for Thomas and Hannah Blackstone ca. 1857, and the milk house was added ca. 1860. The buildings served as the center of the Blackstone farm until the death of Thomas Blackstone in 1882, when they were sold to settle his estate. The buildings and 103-3/4 acres of land were purchased by Chillicothe businessman Charles Seip in 1883, and they remained in his family until 1990, when his great grand-daughter, Mary Anne Schlegel, bequeathed the property to the Ohio Historical Society. With that gift, the property became part of the Seip Mound State Memorial, and in 2014 it was transferred to the National Park Service. It is now part of the Hopewell Culture National Historical Park.

Treatment recommendations for the buildings are addressed with regards to immediate maintenance and repair issues, a future long term treatment alternative, which focuses on the rehabilitation of the historic Blackstone house and outbuildings, and the potential for demolition of the historic buildings. Treatment recommendations were developed in partnership with the park, the Ohio State Historic Preservation Office, the Friends of Hopewell Culture National

Historical Park and representatives from the NPS Midwest Regional Office during a Treatment Alternatives Workshop in August of 2016 which was held at the park. Based on the workshop, three Treatment Options were developed for the Part 2 Treatment Recommendations section of this report: Immediate Interim Preservation and Maintenance; Long Term Rehabilitation; and Demolition.

The Preferred Treatment Alternative selected by the NPS is Immediate Interim Preservation and Maintenance, which incorporates the required repairs to stabilize the house and to prevent further water infiltration, vandalism and deterioration. These immediate recommendations are listed separately and have costs identified to assist in planning for these items of work.

A definitive long-term use of the house and outbuildings was not determined at the workshop. Several options for use were discussed and vetted along with the recommendations of the 2016 Cultural Landscape Report for the site, which was in the process of being completed at the time of this report production. The Blackstone house is not suitable for rehabilitation as a full service Visitor Center or Visitor Contact Station, due to its sensitive location and also the limited utilities available at the house site. The Blackstone house is significant for its architecture, as well as its connection to the earthworks. However, the house itself has not been well-documented through photographs and other means. It is not desired by the park to restore the building back to an earlier period of significance. For the buildings to remain, the park determined the buildings must be useful and contribute to the interpretation of the overall Seip Earthworks site. Current resources are not available to have a staffed visitor experience at the house.

The workshop attendees recommended a generic long-term use for the house that would accommodate a few potential future uses. This more generic use would allow for the development of a rehabilitation plan for future planning and interpretive efforts, including a magnitude of construction costs. The use would accommodate a museum/exhibit function, as well as office space and limited support services. Therefore, *Rehabilitation* of the house and outbuildings was the recommended long-term preservation approach of treatment. The workshop attendees also have assumed that a separate Visitor Contact Station would be constructed on site or nearby, which would provide most of the required visitor services, including restrooms, fresh water and potentially interpretive exhibits. By limiting the amount of support services, the amount of utilities and required modifications to the historic buildings is moderated. Recommended rehabilitation of the house includes: stabilization of the foundations; exterior restoration of materials; restoration and repair of interior finishes; installation of new utilities; installation of a single restroom for staff use; installation of new heating, ventilation and cooling; barrier free access to the house and within the first floor of the house; new lighting, fire notification and intrusion alarm. Schematic drawings for the rehabilitation work were prepared in the Part 2 section of this report, with costs documented in Appendix I.

Demolition was also discussed as an alternative treatment for the buildings. The pros and cons of this decision are documented in the Treatment Alternatives Workshop notes in Appendix H.

Demolition and deconstruction are discussed in the Part 2 Treatment Recommendations, as well as potential costs, which are documented in Appendix I.

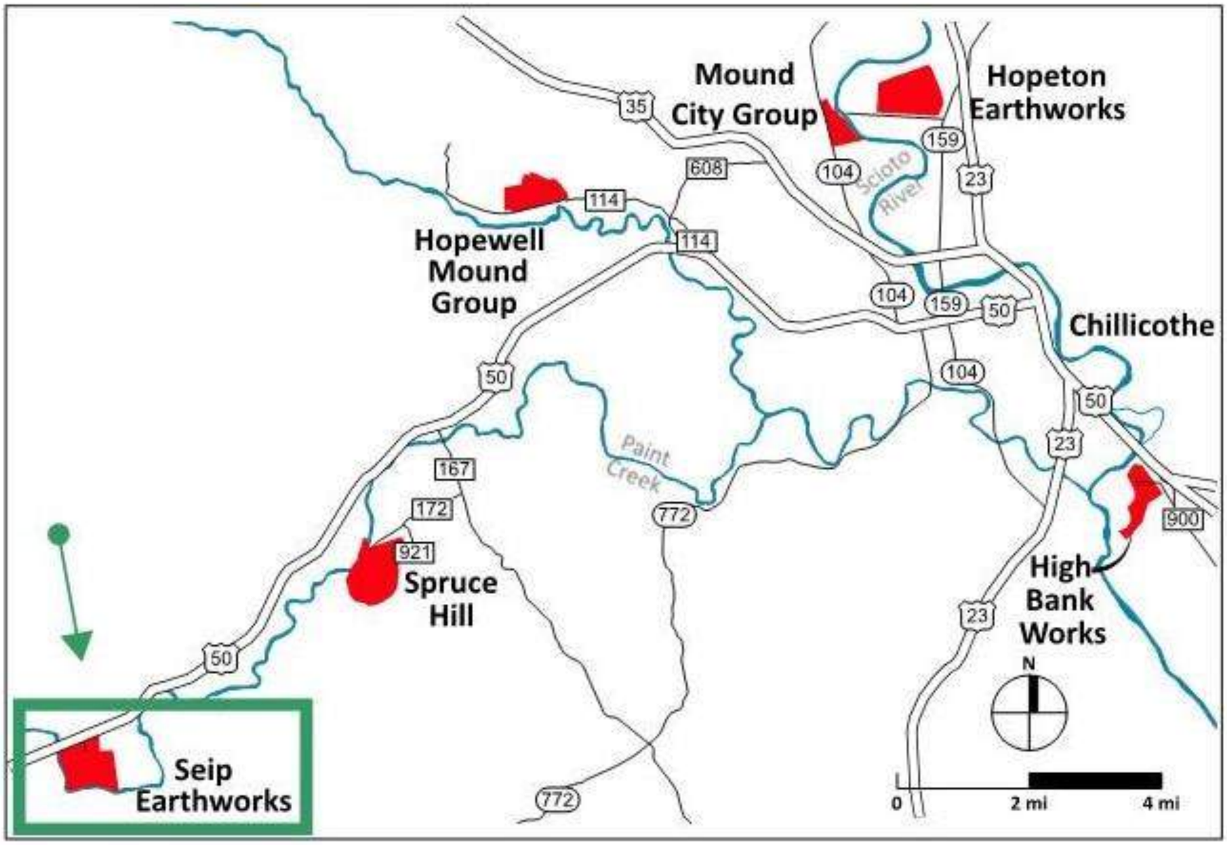

Figure 1. Location Map of units at the Hopewell Culture National Historical Park. Seip Earthworks is within the Green Box. Map by Mundus Bishop, et. al. in "Hopewell Culture National Historical Park: Cultural Landscape Report and Environmental Assessment," (National Park Service, U. S. Department of the Interior, 2016) 1-2.

Introduction

The Blackstone house, smokehouse and milk house are located at the Seip Earthworks, one of six park units in the Hopewell Culture National Historical Park. (Figure 1) The Seip unit encompasses 236 acres in a horseshoe bend of Paint Creek, approximately two miles east of the town of Bainbridge and sixteen miles southwest of Chillicothe.[1] It is in the Paxton Township of Ross County, in southwestern Ohio. The site was developed by the American Indian Hopewell people, whose civilization was active in the area between 200 B.C. and 400 A.D. Hopewell earthworks at the site include approximately two miles of earthen embankments constructed in precise geometric shapes, as well as the Seip Mound, the third largest burial

[1] The 236-acre parcel includes most of the prehistoric earthworks; a small portion on the east side of the complex remains in private ownership. See Figure 2.

mound known to have been built by the Hopewell[2] (Figure 2). The house and outbuildings were built on top of the largest earthwork at the site, an immense circle some 1500 feet across. They are on the north edge of that circle; the house faces north to U. S. Highway 50, and the outbuildings are south of it (Figures 3-4).

The buildings are located on a large parcel of land that was transferred to the National Park Service in 2014. That transfer included more than 100 acres of land that was part of the original Blackstone farm. The house was designated as HS-37 soon after, but the outbuildings were not; they are mentioned in the List of Classified Structures entry for the house, but remain unnumbered at this time.[3] The buildings examined in this document are as follows:

Blackstone House, HS-37, is a one and one-half story brick house with a symmetrical façade and a side-gabled roof. It was built ca.1857 (Figure 3).

Smokehouse, a one story building with brick walls, a stone foundation and a side-facing gable roof. It is believed to have been built about the same time as the house, ca. 1857 (Figure 4).

Milk House, one story, with brick walls, a brick foundation, and a front-facing gable roof. The milk house may have been added a few years later than the other buildings. It was most likely in place by 1860, and first mentioned in documents in 1882. It has therefore been assigned a construction date of ca. 1860 (Figure 4).

[2] National Park Service, U.S. Department of the Interior, Hopewell Culture National Historical Park. *Hopewell Culture, Seip Earthworks Site Bulletin*, National Park Service. Accessed July 21, 2016. https://www.nps.gov/hocu/learn/historyculture/seip-earthworks.htm.
[3] “Seip Unit: William Blackstone House” List of Classified Structures, 2015. Note that the name is in that document is incorrect, subsequent research has shown that the house was built for Thomas, not William, Blackstone. The National Park Service maintains a List of Classified Structures (LCS) to document all resources found at or near National Park properties. This is not the same as a National Register of Historic Places, which is the official list of the Nation’s historic places worthy of preservation.

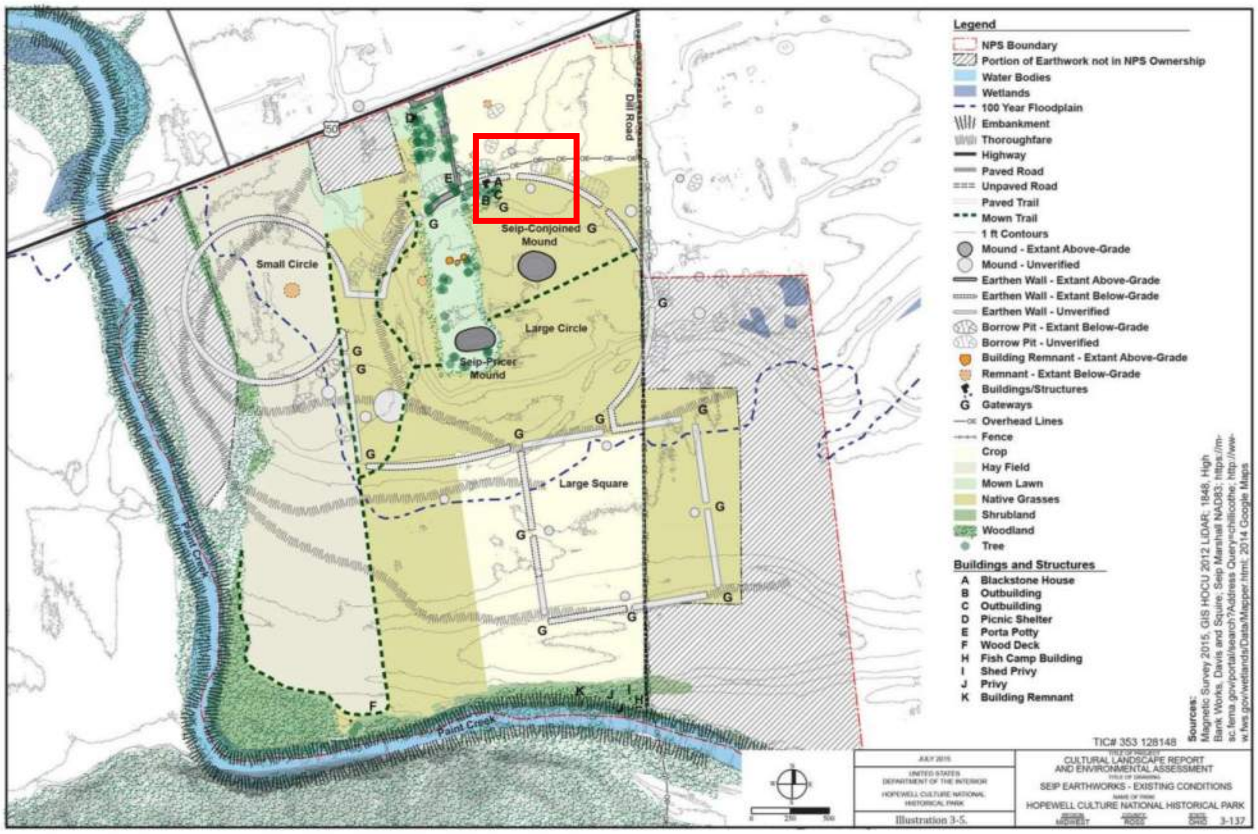

Figure 2. Seip Earthworks-Existing Conditions. Map by Mundus Bishop, et. al. in "Hopewell Culture National Historical Park: Cultural Landscape Report and Environmental Assessment," (National Park Service, U. S. Department of the Interior, 2016) 3-137.

Figure 3. Blackstone House, looking southeast.
The Milk House is in the right background. (Sheals 2016)

Figure 4. Smokehouse (left) and Milk House, (right) looking southwest. (Sheals 2016)

Significance

The Blackstone house and outbuildings have been part of the cultural landscape of the Seip Earthworks site for more than 150 years. The buildings are historically and architecturally significant as highly intact examples of mid-nineteenth century residential and agricultural architecture.

Architecturally, the house reflects the early cultural identity of the Virginia Military District in which it is located, as well as the long period of influence that the Georgian style had upon American architecture. It is typical of the early nineteenth century houses in the Virginia Military District in that it is was built for a Virginia native, with red brick walls and limestone accents. It is likely that the bricks were made onsite. The house is atypical in its form—one and one-half stories with a gable roof and front dormers. Research in the area revealed no other nineteenth century houses of this form in the Bainbridge vicinity. The house features a Georgian plan that had become part of the vernacular vocabulary by the time the house was completed for Thomas and Hannah Blackstone. Interior detailing includes well-crafted and highly intact millwork that was likely the product of local craftsmen.

The buildings are also significant for their association with the Charles Seip family, for whom the earthworks complex takes its name. It was under Seip family ownership that the site saw its first archaeological excavation, and the Blackstone house served as the field headquarters for at least one major archeological investigation. The farm remained in the family until 1990, when Charles Seip's great-granddaughter, Mary Anne Schlegel, bequeathed the property to the Ohio State Historical Society. That bequest concluded more than a century of Seip family stewardship of the historic and prehistoric resources on the property.

The house and outbuildings have seen almost no changes since the 1850s. The only alterations of note took place in the mid-1950s, when Charles Seip's grandson, Charles Schlegel, updated the house by adding a bathroom to the first floor and updating the back porch. That project included adding a septic system, as well as a poured concrete floor and some new framing and screening to the porch. The recommended period of significance for the house and outbuildings is ca. 1857 to 1957. It begins with the construction of the house, ca. 1857 and ends with the updates done by Charles Schlegel, which were completed in 1957. Changes since that time have been minimal, and the house and outbuildings clearly convey a sense of their time and place.

National Register Status

Although the house and outbuildings are located within the "Seip Earthworks and Dill Mounds Historic District," which is listed in the National Register, they were constructed outside of the period of significance for that district and are not mentioned in that nomination. (Under current National Register policies, they would be counted as "non-contributing resources" in that district, which was listed in the 1970s for significance in the area of Archaeology.) The buildings do,

however, appear to have potential to be listed in the National Register for significance in the areas of Architecture and Agriculture. Any future rehabilitation work or potential demolition should include consultation with the National Register department of the Ohio History Connection to evaluate options for listing the buildings in the National Register of Historic Places.

Report Organization

The Blackstone House and Outbuildings Historic Structures Report is organized into two parts, followed by appendices. Part 1A includes the following: setting and current appearance; episodes of development; and the identification of the period of significance for the Blackstone house and outbuildings. Part 1B includes the following: the historical and cultural significance; architectural context; comparative analysis with other public parks; and the summary of findings. Part 1C includes the descriptions of the existing conditions and existing floor plans and elevation drawings of the buildings. Part 2 includes discussion of critical issues, preservation treatment recommendations (immediate and long term) and related treatment drawings, as well as potential demolition of the structures. Following, is a bibliography and appendices with supporting cost estimates, archival, documentary and relevant project information.

Throughout the report, the terms 'original' and 'contemporary' are utilized to reference materials. 'Original' refers to materials or features which are thought to have been from the initial construction of the house or outbuildings, or early enough to be indistinguishable from original materials. Items referencing the period of significance (1857-1957), include those that are considered to be original, but may also have been constructed or added later, prior to 1957. 'Contemporary' refers to materials or alterations made within the last fifty years.

The term 'prehistory' and 'history' are used throughout the report. 'Prehistory' refers to "human history in the period before recorded events, known mainly through archaeological discoveries, study, research, etc."[4] 'History' refers to the study of past events since they have been recorded as part of our modern history and settlement of this region.

[4] Definition of Prehistory, www.dictionary.com, Accessed on September 30, 2016.

Project Team Members

The Historic Structures Report team for the Blackstone House and Outbuildings includes the following:

Project Manager and Preservation Architect
Strata Architecture + Preservation (Strata), Kansas City, Missouri
Strata served as the Project Manager and Preservation Architect for the Historic Structures Report, prepared as-built architectural recordation drawings, performed existing conditions analysis, coordinated the Treatment Alternative Workshop and provided treatment recommendations for the immediate and long term repair and rehabilitation of the buildings.

Architectural Historian
Deb Sheals (DS), Columbia, Missouri
Deb Sheals was the Lead Historian, assisted by Andrea Herries. Research for this project focused upon identifying the original owner and date of construction, identifying possible builders or craftsmen, and developing historical and architectural context for the buildings. Additional research was conducted to identify other parks that contain similar combinations of resource types.

Structural Engineer
Structural Engineering Associates, Inc. (SEA), Kansas City, Missouri
SEA provided structural engineering services related to the existing conditions analysis and provided treatment recommendations for immediate repairs and long term stabilization and rehabilitation of the buildings.

Civil Engineering
SK Design Group, Inc. (SKDG), Overland Park, Kansas
SKDG provided civil engineering services, which included site analysis, utility research, and identification of treatment recommendations for required utility access and methodologies related to the potential rehabilitation of the Blackstone house.

Mechanical, Plumbing and Electrical Engineering (MPE)
Henderson Engineers, Inc. (HEI), Lenexa, Kansas
HEI provided HVAC, plumbing and electrical engineering services related to the existing conditions analysis and provided sensitive treatment recommendations for the Blackstone house.

Cost Estimating
Construction Management Resources (CMR), Mission, Kansas
CMR provided independent Class C cost estimating services for the immediate and long term treatment recommendations for the buildings.

Methodology and Review Standards

This report is based upon a combination of field study, data analysis and archival research, conducted by a multi-disciplinary project team. The work was guided by Preservation Brief #43: *The Preparation and Use of Historic Structure Reports* and *Historic Structure Reports*[5] and *Preservation Plans: A Preparation Guide*.[6] All recommendations included in the report have been developed in compliance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties.*

On-site study, photography and assessment of the house, outbuildings and relevant site features occurred during April 2016, May 2016 and August 2016 by various team members. The park conducted limited archaeological investigations of the foundations at the interior of the basement in Room 005, at the exterior northeast corner of the house and also at the east wall of the smokehouse during the May 2016 site visit. The purpose of these investigative areas was to determine the depth, construction methodology and relative condition of the stone foundations. Four small slivers of wood samples were taken of original joists and interior millwork by the design team from the interior of the house for wood species identification. These were processed by Regis Miller, Ph.D., Wood Identification & Information Specialist. The results of this testing can be found in Appendix F.

In all, thousands of pages of text and hundreds of images have been reviewed for this study. Sources consulted ranged from land survey notes written in the 1790s, to online searches of present day articles and documents. Research for this project included consultation of primary and secondary materials, in a large number of locations.[7] Primary materials were found in the following locations, in general order of importance for this study: Ohio History Connection, Columbus; Ross County Historical Society, Ross County Courthouse, and Hopewell Culture National Historical Park Archives, all in Chillicothe; and Ohio University, Athens. Secondary sources were found at the Chillicothe and Ross County Library, in Chillicothe; the Bainbridge Historical Society in Bainbridge; and the Highland County Library, in Hillsboro. Additional information was located through more general sources, as well as online searches, personal interviews, and email conversations.

Primary materials consulted include those of the Ohio History Connection (originally known as the Ohio Historical and Archaeological Society) in Columbus. The History Connection is the home of the Ohio State Archives. Files at the Archives and at the nearby Archeological Collections Facility include extensive information about archaeological explorations at the Seip earthworks. They contain hundreds of photographs and slides which were taken during field studies that took place between 1907 and the 1990s. Those photos included some images of

[5] Slaton, Deborah, *Preservation Brief 43. "The Preparation and Use of Historic Structure Reports*." Washington, D.C.: National Park Service, 2005.
[6] Dominique M. Hawkins and Lyssa Papzaian, *Historic Structure Reports & Preservation Plans; A Preparation Guide* (New Jersey State Historic Preservation office, n.d.).
[7] To facilitate any future research, the bibliography of this report includes location information for rare or unusual sources.

the house and outbuildings, including a particularly good set of photos taken by architectural historian I. T. Frary in 1927.

Real estate records on file at the Ross County Courthouse were particularly useful. They include deeds at the Recorder's office and real estate tax assessments on file in the Auditor's office. Those records made it possible to trace the ownership of the property from the 1790s to the present, and to determine the original owner and the date of construction of the house. This was particularly important given that many early sources had incorrect information about the date and the name of the first owner. Other records on file at the courthouse include maps at the County Engineer's Office, and probate records at the Probate Archives.

The McKell Library of the Ross County Historical Society in Chillicothe has a notably complete collection which includes early published works, as well as extensive files of primary materials. Those files, paired with the assistance of archivist Pat Medert, yielded a good deal of information about the Seip and Schlegel family, including the original diaries of Charles G. Schlegel. Additionally, the Spring 1984 issue of the *Ross County Historical Society Recorder*, included a charming first-hand account of a 1920s archaeological exploration written by Mary Anne Schlegel. That article was located with the assistance of local architectural historian Kevin Coleman, who was interviewed in June, 2016.

Other repositories of primary information include the archives of the Hopewell Culture National Historical Park (HOCU Archives), and Ohio University, in Athens, Ohio. Files at the HOCU Archives include aerial photos of the site, and a variety of reports and maps. There are also a number of files that contain copies of early photos and other records that are now on file with the Ohio History Connection. Those files also contained letters written by Mary Anne Schlegel when she was trying to sell the property in the 1960s and a very helpful summary of legal documents that were given to the National Park Service with the transfer of ownership of the Seip Mound State Memorial. Ohio University is the home to the records of the now defunct South Central Ohio Preservation Society, which was among the first organizations in the state to recognize the historic importance of the Blackstone house.

Secondary sources included local histories on file at the Chillicothe and Ross County Library, the Bainbridge Historical Society, and the Highland County Library. Most of those were general overviews which ranged from county histories written in the 1800s to late twentieth century surveys of historic architecture in Ross and Highland Counties. Nancy Baum's typescript "History of Bainbridge" on file at the Ross County Library and the Bainbridge Historical Society, includes particularly useful information about the Bainbridge area in the nineteenth century. Published architectural histories of a more general nature assisted with architectural context, as did a number of HABS records available online.

Comparative study of other parks that contain a similar mix of pre-historic and historic resources was done largely online. The offices of the State Archaeologists of twenty eastern states were

contacted via email to identify likely study properties. Numerous subsequent email exchanges and telephone conversations, as well as the review of park websites, management plans and interpretive plans, helped document management issues and practices in place in parks across the country.

Acknowledgements
The Historic Structures Report team would like to acknowledge several important organizations and individuals for their contributions and insight, in no particular order.

- Hopewell Culture National Historical Park staff, included:
    - Dean Alexander, Superintendent, provided leadership for the interpretation and potential rehabilitation of the Blackstone house and Seip Earthworks site.
    - Dr. Kathleen Brady, Curator, served the project contact and coordinator for the report. Kathy provided insight, institutional knowledge and guidance throughout the project.
    - Dr. Bret Ruby, Chief of Resource Management, provided the field school archaeological investigation work during the May site visit, as well as a wealth of history and knowledge of the Hopewell culture and Seip Earthworks.
    - Rick Perkins, Chief Ranger and Acting Facilities Manager, provided insight related to the future interpretation and use of the house, as well as maintenance issues.
- Alan O'Bright, Historical Architect, NPS Midwest Regional Office (MWRO), was the Contracting Officer Technical Representative for this project. Al provided guidance for the development of the research, the assessment and treatment recommendations for the buildings and site.
- William Harlow, Chief, Historic Architecture and Landscapes and Marla McEnaney, Historical Landscape Architect, NPS Midwest Regional Office, both provided guidance and institutional knowledge of the Seip Earthworks site related to the future treatment recommendations and potential uses.
- Ohio History Connection, State Historic Preservation Office:
    - Brad Lepper, Archaeology and Natural History Manager & Curator of Archaeology
    - Lisa Adkins, Architecture Reviews Manager
    - Dave Snyder, Archaeology Reviews manager
- Kevin Coleman with Intrepid Heritage Services, Chillicothe
- Pat Medert, Ross County Historical Society, assisted with the archival research.
- Dee Stevenson, Friends of Hopewell Culture National Historical Park, attended the Treatment Alternatives Workshop and provided insight for potential use of the Blackstone house.

Photo of the Blackstone House taken ca 1989. (Photo Number 1989.21.055. Ross County Historical Society.)

1A PROPERTY HISTORY

CHRONOLOGY OF DEVELOPMENT AND USE

Part 1A | Property History: Chronology of Development and Use

Summary of Setting and Current Appearance

Site

The Blackstone house and outbuildings are located near the north end of the Seip Earthworks property. The 236-acre park unit is located south of U. S. Highway 50, which connects Chillicothe, (sixteen miles east) and Cincinnati (fifty-eight miles west).[8] The park unit is bounded by the highway to the north, and Paint Creek to the south and west. Part of the eastern boundary runs along Dill Road, a gravel county lane, and the remainder of the east boundary is edged by cultivated fields (Figure 2). Almost all of the prehistoric Seip earthworks complex is located within the park boundaries. The only other buildings within the park unit are located at the southern end of the property, on the north bank of Paint Creek. That site contains a modest twentieth century fish camp building and a pair of shed privies, all of which are in poor condition. The landscape is relatively level and open; the creek is edged with narrow bands of woodlands and most of the acreage is mown.

The Seip earthworks were built at a monumental scale. Although long-term agricultural use has eroded many of the original aboveground features, the complex has been well-documented, and some original or reconstructed features are still visible to the untrained eye. The complex includes a large circle, just over 1500 feet in diameter, which intersects a smaller circle, approximately 750 feet across, and a square which is approximately 1080 feet across.

Within the large circle are two mounds. The largest is the Seip-Pricer Mound, which has also been referred to as the Central Mound, Pricer Mound, Seip Mound and Seip Mound #1. The nearby Seip-Conjoined Mound was also referred to as Seip Mound #2 in early studies.[9] The conjoined mound, which was at one point as much as 20 feet tall, was originally three mounds grouped together. It is now just four feet tall, and approximately 250 feet across. The Seip-Pricer Mound, which was excavated and reconstructed in the 1920s, is the most prominent current feature of the Seip Earthworks site.[10] The 30-foot tall mound is 160 feet long and 240 feet wide. It is located approximately 1500 feet south of the highway (Figure 2).

The Blackstone house and outbuildings are northeast of the Seip-Pricer Mound, approximately 600 yards south of the highway. The house was built on part of the large circle of the prehistoric earthworks. It is on the north edge of the large circle, facing north to the highway. In Figure 5, the long, curved line represents the approximate inside edge of the large prehistoric earthworks circle. The outbuildings are close to the house, just a few yards from its back (south) wall. The portion of the large circle occupied by the house is believed to be one of the least-disturbed

[8] That roadway was referred to as the Milford and Chillicothe turnpike in the 19th century. *History of Ross and Highland Counties, Ohio*, (Cleveland: Williams Bros., 1880), 322.
[9] Brad Lepper, “Seip Mound,” Typescript with site history, (Ohio History Connection Archeological Collections Facility, Columbus, Ohio. n.d.), n.p.
[10] Lepper, “Seip Mound,” n.p.

sections of the earthworks at the site; it was described as "the only unrestored or unexcavated portion of the earthworks system" in the 1971 National Register nomination of the property.[11] The house and outbuildings were not mentioned in that document.

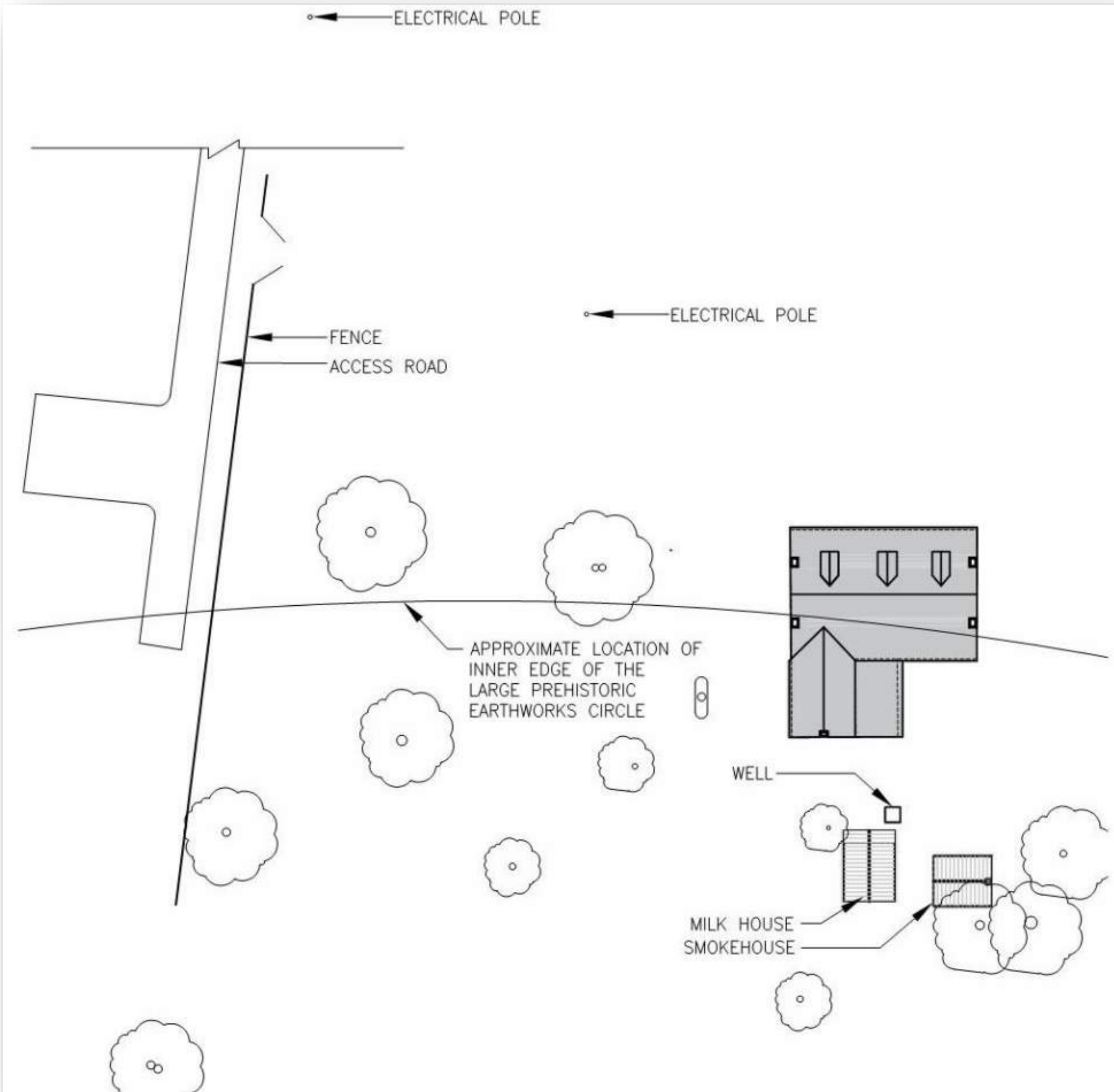

Figure 5. Site Plan. (Strata 2016)

[11] Stephan C. Kolezar, *Seip Earthworks,* National Register Nomination, Ref. No. 74001611, (National Park Service, US Department of the Interior, 1974), n.p.

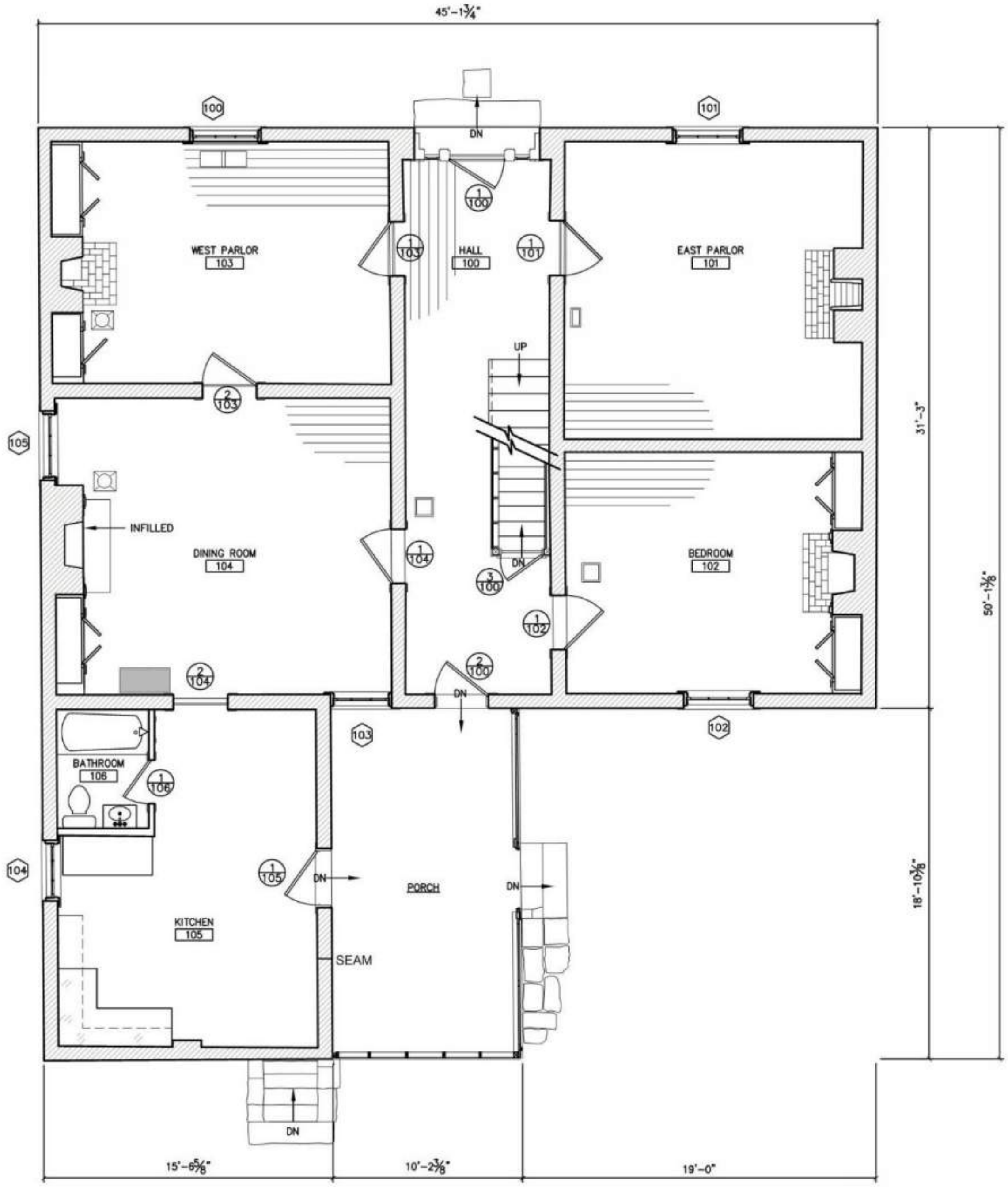

Figure 6. Blackstone House, First Floor Plan. (Strata 2016)

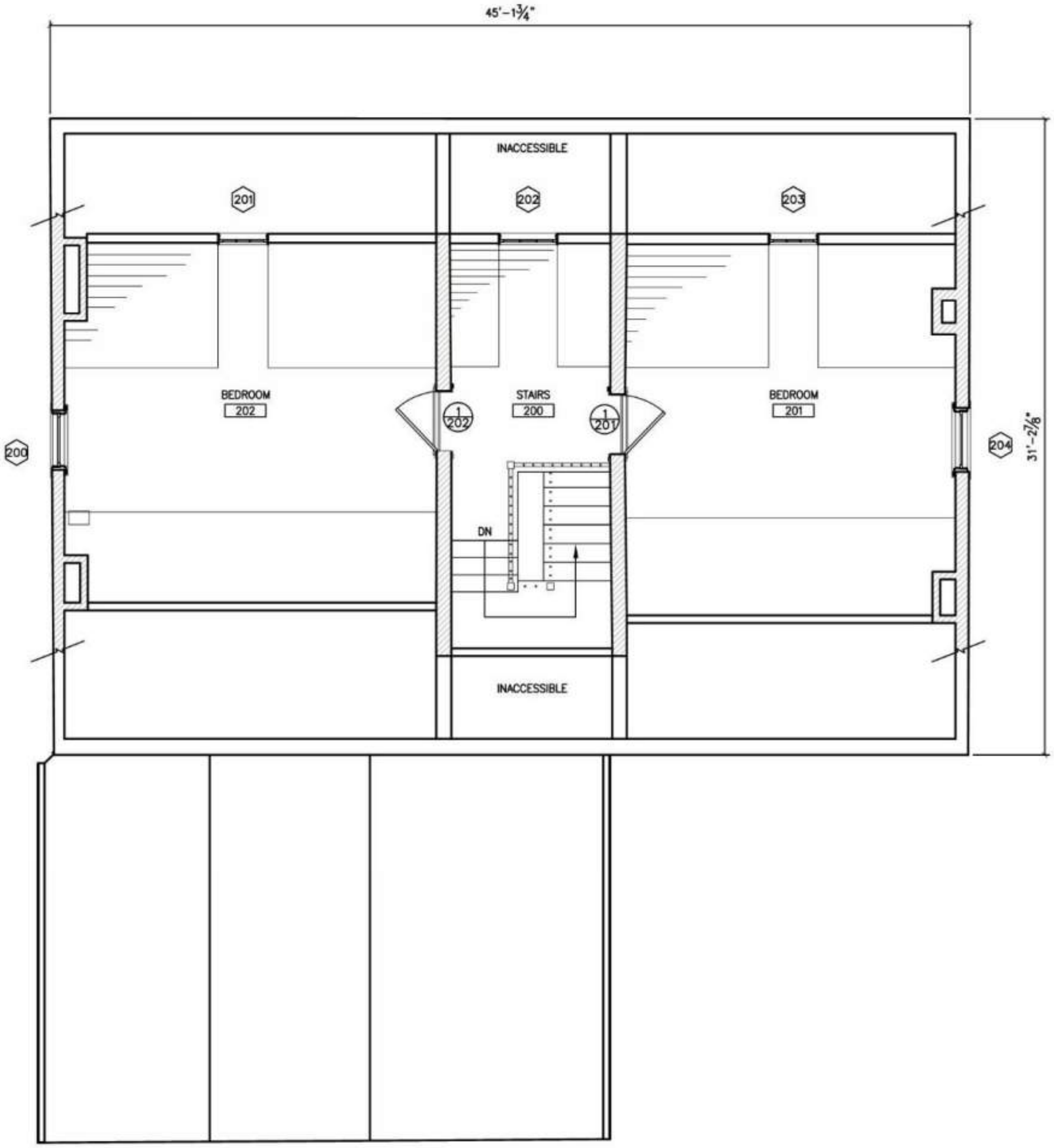

Figure 7. Blackstone House Second Floor Plan. (Strata 2016)

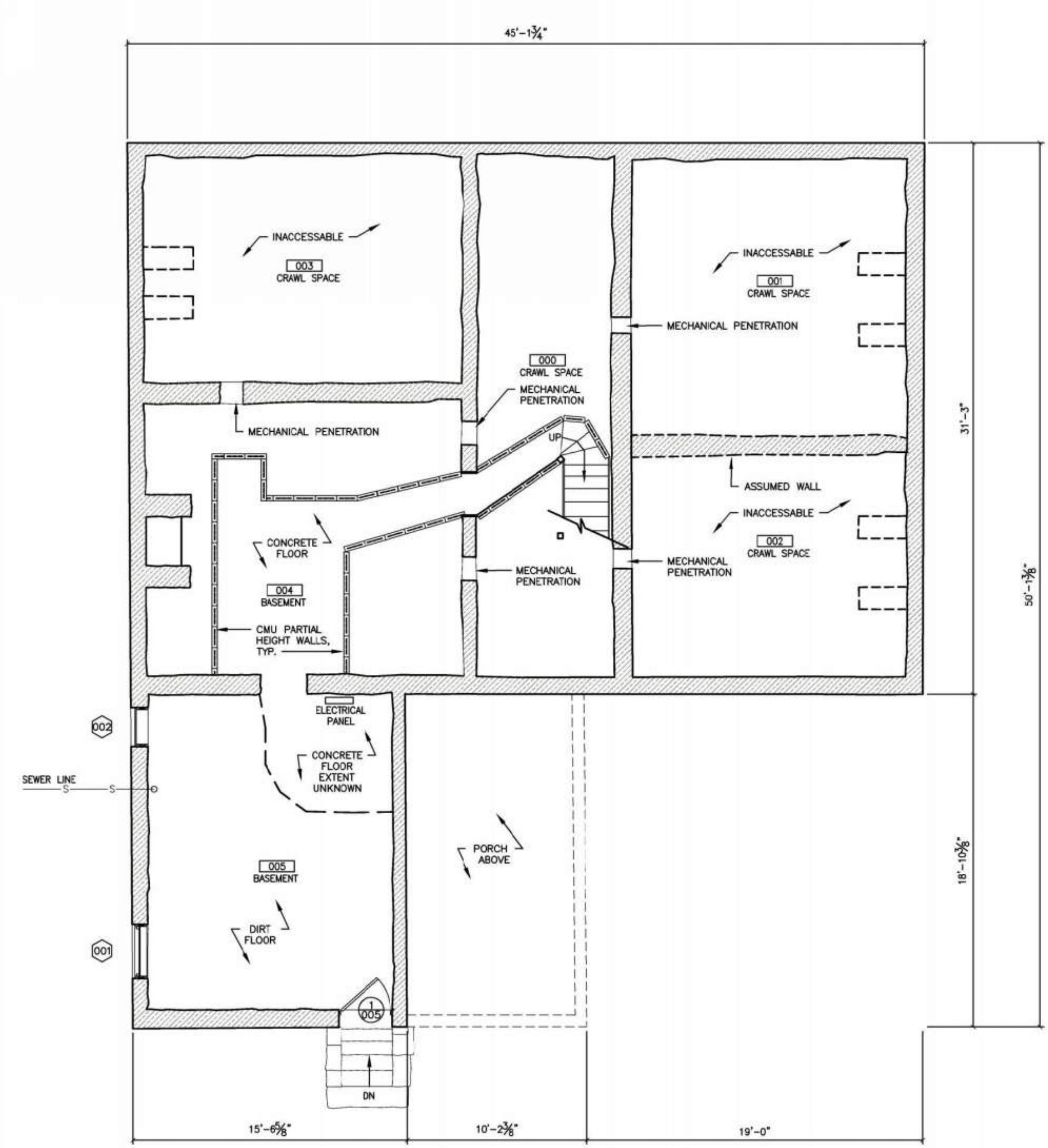

Figure 8. Blackstone House Basement Plan. (Strata 2016)

HS-37: House

Figure 9. Blackstone House, looking southwest. (Sheals 2016)

House: History and Construction Date

The house was built ca. 1857 for Thomas and Hannah Blackstone on a 104¾ acre parcel of land located in Virginia Military Survey (VMS) #392. The house and associated land served as the Blackstone family home and farm until his death in 1882. In 1883, they were sold to Charles Seip. The property remained in the Seip family until 1992, when Seip's great-granddaughter, Mary Anne Schlegel, bequeathed it to the Ohio Historical Society in her will. In 2014, the property was transferred to the National Park Service.

House: Source of Date

County deed records show that Blackstone purchased the land in VMS #392 in 1852 and 1853, but county real estate tax assessments do not mention a house on the property until 1858, when the record includes a valuation for a new brick house. There was no house mentioned in the 1856 assessment, and the 1857 record is missing. Those records therefore indicate the house was built between the time of the 1856 and 1858 assessments of the property, ca. 1857.

House: Exterior Appearance

The Blackstone house has red brick walls, a native stone foundation, and a side-facing gable roof with newer asphalt shingles. There are no roof overhangs; the side walls have flat facia boards set nearly flush with the wall, and the front and back eaves are edged with modern gutters. The seven-room house has a compact form and an L-shaped plan. The one and one-half story main block of the house is roughly square, and there is an original one-story rear ell edged on the east side by a small screened porch. The rear ell has a gabled roof which faces south, and there is a lower slope shed roof over the rear screened porch (Figure 10). The house has seen very few alterations of note, and no additions or changes to the original footprint.

Figure 10. Blackstone House, looking northwest. (Sheals 2016)

The front eave line of the façade is accented by two rows of brick corbels, and there are three small gabled dormers along the front slope of the roof. The dormers align with the doorway and windows below. Each dormer has an overhanging pedimented roof and clapboard walls, all of which are painted white. They are filled with six-over-six wood sashes of various dates (one may be original, while the other two may date to the 1950s).[12] There are five internal brick chimneys; two on each side wall of the main block, and one centered in the gable end of the rear ell. Three of the front chimneys have been parged with gray mortar. The third chimney was rebuilt in the mid-twentieth century. The chimney on the rear ell, which is constructed of darker

[12] Charles G. Schlegel, “Diary,” 1955, (Ross County Historical Society, McKell Library Archives: East, 1989.201, Schlegel Box East Wall).

more textured bricks, was rebuilt with non-matching bricks and shortened within the past fifty years.

The symmetrical front wall has a wide central entranceway that is flanked by large single window openings (Figure 11). The front doorway, which features an early or original transom, sidelights and four-paneled door, is slightly recessed. The entranceway has a stone lintel that is topped by a row of sailor bricks, as well as a large stone sill. The sill rests directly upon the foundation, which is composed of large buff-colored stones that have been tooled to form rough blocks. The sill and lintel have flatter, more uniform surfaces. There is a similarly tooled large stone step below the bottom of the sill which appears to have settled several inches below its original location. The front windows on the first floor have large smooth stone lintels and smaller stone sills, many of which have been painted. They have six-over-six wood sashes, painted white. The sashes are early or original.

Figure 11. Blackstone House Façade (north wall), looking south. (Sheals 2016)

The long west side wall includes the front section and the rear ell. There is no joint or change in the brickwork of the wall or in the stone foundation between the front section and the rear ell indicating the entire masonry enclosure was built contiguous. There are three windows, one in each level of the front section and one in the rear ell. All are very similar to those of the façade, with stone sills and lintels and six-over-six wood sashes. There are two openings in the foundation of the rear ell; one appears to have been used for a coal chute and the other was probably a window; both are now boarded over. The east wall of the house is a flat brick wall. It has just one window, located in the upper gable end.

The south wall of the rear ell (kitchen wing) is brick, with a weather-boarded frame wall along the south edge of the screened porch. The brick wall has no windows or architectural embellishment, aside from an oversized stone lintel above a door into the basement. The basement doorway is reached by a set of below-grade stone stairs. The stairs and doorway appear to be original. The doorway is filled with a modern plywood door. The screened porch on the east side of the rear ell was reconstructed in the mid-1950s. It has a concrete masonry unit (CMU) foundation, with a poured concrete floor. The porch roof is supported by solid wooden square posts, and the west wall of the porch consists of screening above square wood panels. The south wall of the house that is not covered by the porch or ell contains a single 6/6 window that is very similar to the other windows on the house.

House: Plan and Interior Finishes

The house contains five large rooms and a hall on the first floor, plus two additional rooms on the upper level (Figures 6 and 7). The front door opens to Hall 100, a wide stair hall. The hall contains doors to the front four rooms on the first floor. The East Parlor 101 and Bedroom 102 are on the east side of the hall, and the Dining Room 104 and the West Parlor 103 are on the west. Door 2/100 in the south wall of the hall leads to the screened porch. The rear ell is reached via a Door 2/104 in the south wall of the Dining Room 104; it contains the Kitchen 105 and the small 1950s Bathroom 106.

The ground floor rooms of the house retain a high amount of historic finishes. Most rooms have a majority of the early wall and/or ceiling plaster in place, and the four front rooms and hall all have wood flooring. Some of those wood floors are early or original; some appear to have been installed many decades ago. The kitchen and bathroom in the rear ell both have vinyl flooring.

Interior millwork is notably intact. Each room on the ground floor has all or most door and window trim, as well as original four-panel walnut doors with rimlock hardware. Two of the four original mantels are still in place, and three of the rooms have original built-in cabinets next to the fireplaces. The doors and cabinets are particularly well-crafted, with joints secured by hand-made square pegs (Figure 12). Almost all door and window trim is of varnished butternut, with simple well-proportioned lintels and side rails. Door 1/101 in the east parlor has a more elaborate casing which features a pedimented and eared frame.

The open staircase to the second floor leads up from the front of the hall. The treads and risers of the staircase are intact, but much of the lower balustrade is missing (Figure 13). The second floor contains the Hall 200, a small central stair hall. The large bedrooms, the East Bedroom 201 and the West Bedroom 202, flank the center hall. There is a small front dormer in the upper hall and one in each of the bedrooms. Each bedroom also has a larger window in the gable end wall. The second floors rooms have simpler, painted millwork, plastered walls and ceilings, and wood flooring. Neither room has a closet, cabinets or a fireplace.

Interior access to the basement is provided by a door beneath the staircase in the first floor hall, which leads to an unfinished stair that was added later, possibly in the 1950s. That change

included excavating part of the crawlspace below the hall and dining room to create a walkway and room for a forced air furnace in the room below the dining room. The walkway is lined with CMU walls. It leads from the base of the stairs to Room 004 and on to the original basement, Room 005, which is directly below the kitchen. The original basement has foundation walls of large stone blocks, and a partial concrete floor.

Figure 12. Cabinetry detail photo. (Sheals 2016)

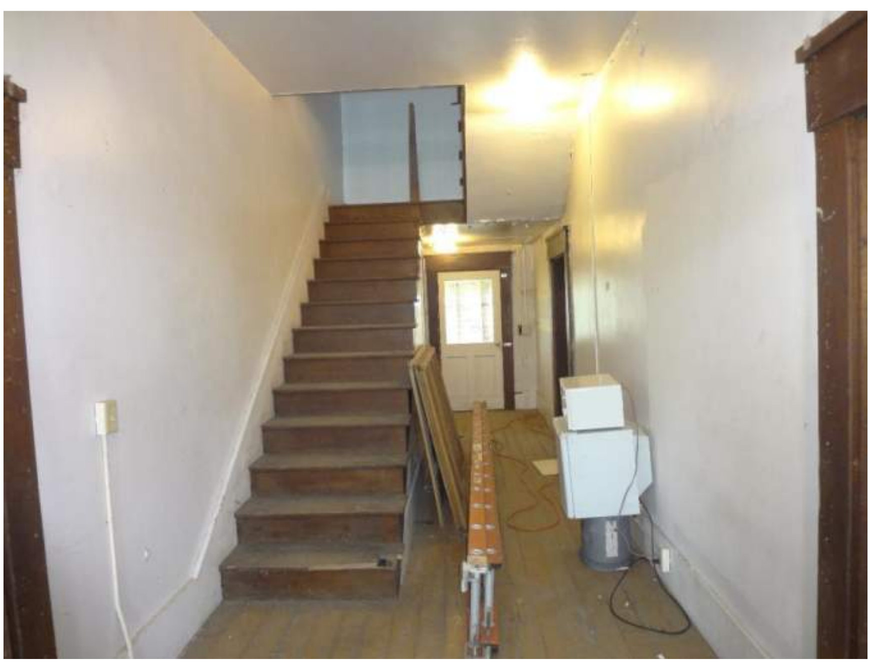

Figure 13. Stair Hall 100, first floor, looking south. (Sheals 2016)

Smokehouse

Figure 14. Smokehouse, looking south. (Sheals 2016)

Smokehouse: History and Construction Date

The smokehouse appears to have been built at the same time as the house, ca. 1857. The similarity in construction methods between the house and smokehouse invites speculation that they were constructed at the same time. Both buildings have stone foundations, and very similar brick masonry walls with matching brick sizes. The first documentary indication of a smokehouse on the property dates to 1883, when Thomas Blackstone's estate was inventoried and then auctioned off. The estate included valuable processed meats such as hams and sides of bacon, which indicates the presence of a smokehouse.[13] The first actual known use of the term "smokehouse" dates to 1953, when it was mentioned in Charles G. Schlegel's diary.[14]

Smokehouse: Exterior

The single-story smokehouse is roughly 14 feet wide and 12 feet deep, with brick walls and a stone foundation. The exterior walls have been painted green. Historic photographs show that building has been painted since at least 1927.[15] It sits just a few yards south and slightly east of the house. It has a side-facing gable roof that is parallel to the main roof of the house. The roof

[13] Ross County Probate Records, "Estate of Thomas Blackstone," Probate Case Number 144, 1882, (Ross County, Ohio Courthouse, Probate Archives.)
[14] Schlegel, "Diary," 1955.
[15] Two photos labeled "Old Seip Home, Photograph by I. T. Frary, Columbus Ohio, Aug 1, 1927," (Photo Collection Number A0957, Folder 6. Ohio History Connection Archeological Collections Facility, Columbus, Ohio).

is covered with standing seam metal roofing which dates to the 1950s, and there is an original internal chimney in the east side wall.

The north wall, which faces the house, has a single doorway, and a diamond-shaped wall vent that is formed by leaving 16 regularly spaced gaps in the brickwork. Some of the intermediate bricks have since fallen out of the opening (Figure 14). The doorway, which appears to be original, currently has no frame or door. The west side wall contains a single small square window opening that may have been added at a later date, plus a small four-opening brick vent located in the upper gable end. The flat south wall has two large brick vents which match that of the north wall. The east side wall has an exterior flue opening to the interior chimney. The flue opening and chimney appear to be original.

Smokehouse: Interior
The building has a single room, with a dirt floor and brick walls that were painted white many years ago. Some, but not all, of the open rafters are blackened and several are lined with nails which may have been used to hang meat. The interior masonry is in poor condition, especially along the lower surfaces of the walls, where many bricks are crumbling. The interior chimney on the east wall ends a few feet above the floor, and the lower courses of brick are corbeled to create a wall bracket and includes a rounded opening from the exterior flue access point.

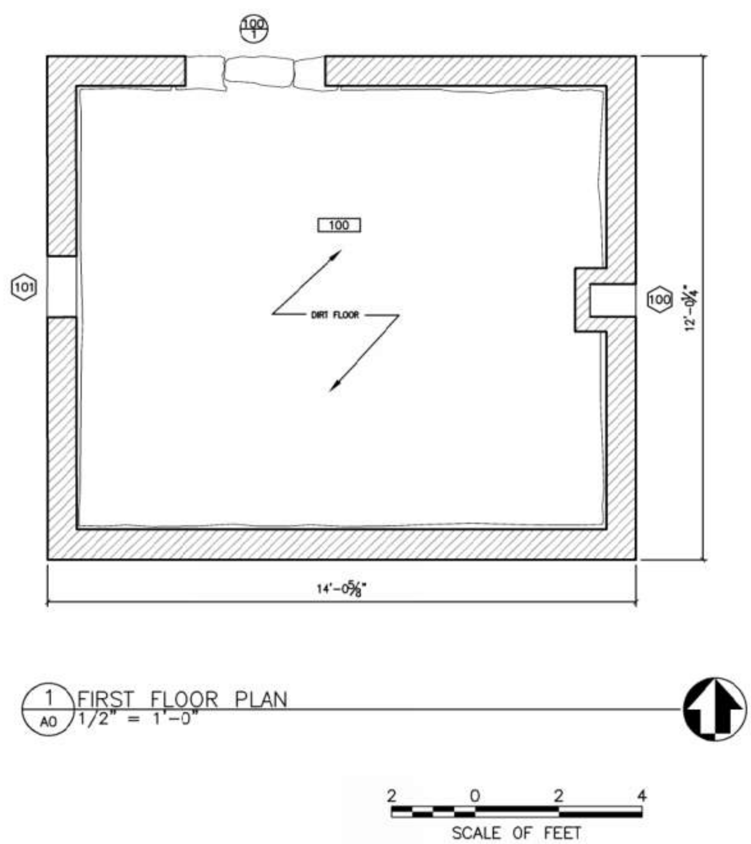

Figure 15. Smoke House Plan. (Strata 2016)

Milk House

Figure 16. Milk House, looking east. (Sheals 2016)

Milk House: History and Construction Date

Construction methods for the milk house vary from those of the house and smokehouse, in that the foundation of the milk house is of brick instead of stone. For that reason, it is believed that the milk house was built slightly later than the house and smokehouse. It may have been completed as early as 1860, when the Blackstone farm included 5 “milch cows” and produced 60 pounds of butter.[16] It was definitely in use by 1882, when it is referred to in the inventory of Thomas Blackwell’s estate. That document has a line item for “crocks in milk house.”[17] The construction date for the milk house has thus been set at ca. 1860.

Milk House: Exterior

The single-story milk house is located west of the smokehouse, near the rear ell of the house. It has a gable roof, brick walls and a brick foundation. It is approximately the same size as the smokehouse, roughly 12 by 14 feet, but oriented differently, with the narrower gable end facing the house. The roof is covered with standing seam metal roofing which was installed in 1953.[18]

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[16] United States Census Records, “Products of Agriculture,” Paxton Township, Ross County, Ohio, 1860.
[17] Ross County Probate Records, Estate of Thomas Blackstone, Probate Case Number 144, 1882, (Ross County, Ohio Courthouse, Probate Archive).
[18] Schlegel, “Diary,” 1953.

Like the smokehouse, the exterior walls of the milk house have been painted green, and photos show that it has been painted since at least 1927.[19]

The front (north) wall of the milk house has a single doorway, which is nearly opposite the back door of the house. That doorway is sheltered by a deep overhang of the gable roof. The doorway appears to have originally had a wood frame and door, which are now missing. (A plank door stored inside the building may have come from that doorway.) The doorway also has a newer poured concrete threshold. A recently poured concrete pad a few feet northeast of the doorway covers a stone-lined well. The east side wall and the back wall each have a nine-hole diamond-shaped brick vent similar to those of the smokehouse. The west wall has a small square window opening that is early and may be original.

Milk House: Interior

The milk house has a single room, with a poured concrete floor that appears to be just a few decades old. The walls are covered with early or original plaster that is painted white. There is no ceiling finish, and the ceiling joists and slim roof rafters are exposed. The plaster in in fair condition, and has spalled off in a few locations.

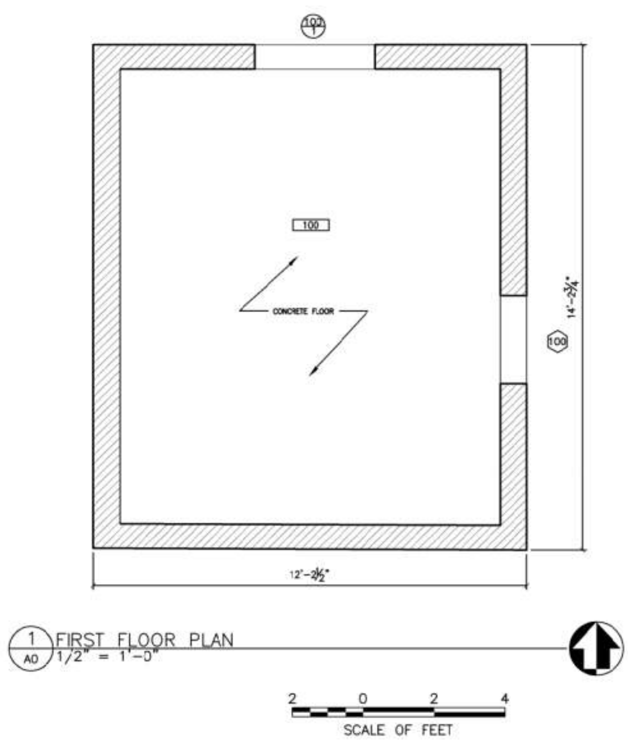

Figure 17. Milk House Plan. (Strata 2016)

[19] Photo labeled “Old Seip Home-Rear, Photograph by I. T. Frary, Columbus Ohio, Aug 1, 1927,” (Photo Collection Number A0957, Folder 6. Ohio History Connection Archeological Collections Facility, Columbus, Ohio). It was painted white in that photo.

Episodes

The history of the Blackstone house and outbuildings can be divided into six periods of development, starting with Anglo American settlement of the area, as listed below. **The recommended period of significance for the house and outbuildings, ca. 1857 to 1957**, begins with the construction of the house, ca. 1857 and ends with the updates done by Charles Schlegel, which were completed in 1957. That period encompasses Episodes 1 and 2.

- **Site History - Virginia Military District, 1784-1852**
  The Virginia Military District was created in 1784. Thomas Blackstone's parents John and Jemima King Blackstone, moved to the area in 1802. Thomas Blackstone later took over ownership of their farm south of Paint Creek.

- **Episode 1 – Blackstone Family, 1852-1883**
  Thomas and Hannah Blackstone purchased 104-3/4 acres of land in 1852, and built the house there approximately five years later, ca. 1857. **Construction of the house marks beginning of the recommended period of significance.** The property was the Blackstone family home until Thomas Blackstone died in 1882. It was sold the following year.

- **Episode 2 – Seip Family, 1883-1957**
  In 1883, Chillicothe businessman Charles Seip purchased the farm, including the house and outbuildings, and operated it as a rental property. It was during this period that the property saw its first major archaeological excavations. In the mid-1950s, Seip's grandson Charles Schlegel updated the house to its current form. **This marks the end of the recommended period of significance.**

- **Episode 3 – Mary Anne Schlegel and Additional Park Development, 1957-1990**
  The house and outbuildings remained in the Seip-Schlegel family and continued to serve as the center of a rental farm. Charles Seip's great-granddaughter, Mary Anne Schlegel attempted to sell the property to the Ohio Historical and Archaeological Society to ensure its preservation.

- **Episode 4 – State Ownership, 1990-2014**
  In 1990, Mary Ann Schlegel, left the property to the state of Ohio in her will. The land became part of the Seip Mound State Memorial, and the house and outbuildings were maintained by the state of Ohio.

- **Episode 5 – National Park Ownership, 2014-2016**
  In 2014, ownership of the entire Seip Mound State Memorial, including the Blackstone house and outbuildings, were transferred to the National Park Service.

Blackstone House Ownership History	
1793	Simeon Morgan files Virginia Military Survey (VMS) Number 392, a 1000 acre parcel which includes the study property. [VMS Vol. 1, p. 1, Ross County Courthouse, Chillicothe, OH.]
1803	The same 1000 acre parcel assigned to Thomas and Robert Dill. [Vol. 101, pp. 252 and 526, Ross County, Ohio Deed Records.]
1835	Dill Heirs to John Woodridge, 500 acres. [Vol. 30, pp. 293-295, Ross County, Ohio Deed Records.]
1852, Oct. 7.	Woodridge to Richard Renick Seymour, 305 acres. [Vol. 53, pp. 509-510, Ross County, Ohio Deed Records.]
1852, Nov. 30.	R. R. Seymour to Thomas Blackstone, Sr., 100 acres, **including land now occupied by the house and outbuildings.** [Vol. 53, p. 510 and 526, Ross County, Ohio Deed Records.]
1853, April 23.	R. R. Seymour to Thomas Blackstone, Sr., 4-3/4 acres. Adjacent to the northwest corner of his 100 acre parcel. [Vol. 55, pp. 14-15, Ross County, Ohio Deed Records.]
1883, Aug. 30.	Thomas Blackstone Jr., to Charles Seip at auction, 103-3/4 acres. (T. Blackstone Sr. donated one acre to the school board in 1878; Vol. 85, p. 569.) [Vol. 95, pp. 258-258, Ross County, Ohio Deed Records.]
1952-55	Charles G. Schlegel (grandson of Charles Seip) inherits part and purchases part of the property with the house and outbuildings from Seip Heirs. [Vol. 291, pp. 4-9, Ross County, Ohio Deed Records.]
1990, Feb. 16	Land is transferred from the estate of Charles Schlegel's daughter Mary Anne Schlegel to the Ohio History Connection. [Vol. 518, p 542, Ross County, Ohio Deed Records.]
2014, Aug. 14	Ohio History Connection transfers the Blackstone land and others to the NPS. [Vol. 462, pp. 2206-2211, Ross County, Ohio Deed Records.]

Figure 18. Ownership History of the Blackstone House and Outbuildings. (Compiled from Ross County Deed Records by Deb Sheals 2016.)

Site History – Virginia Military District, 1784-1852

Early Settlement 1784-1805

In 1784, the Virginia Military District was created in what would become southwest Ohio, to benefit Virginia veterans of the Revolutionary War.[20] The Virginia Military District encompasses just over 4.2 million acres of land. It is the only part of Ohio that was not surveyed using a rectangular system of property lines. The district was divided into more than 16,000 different parcels, with irregular property boundaries that are defined by metes and bounds, often using natural features such as trees and streams as markers. In 1793, Simeon Morgan patented 1000 acres in the Virginia Military District, designated as Virginia Military Survey (VMS) 392.[21] That survey included the future Thomas and Hannah Blackstone farm (Figure 19).

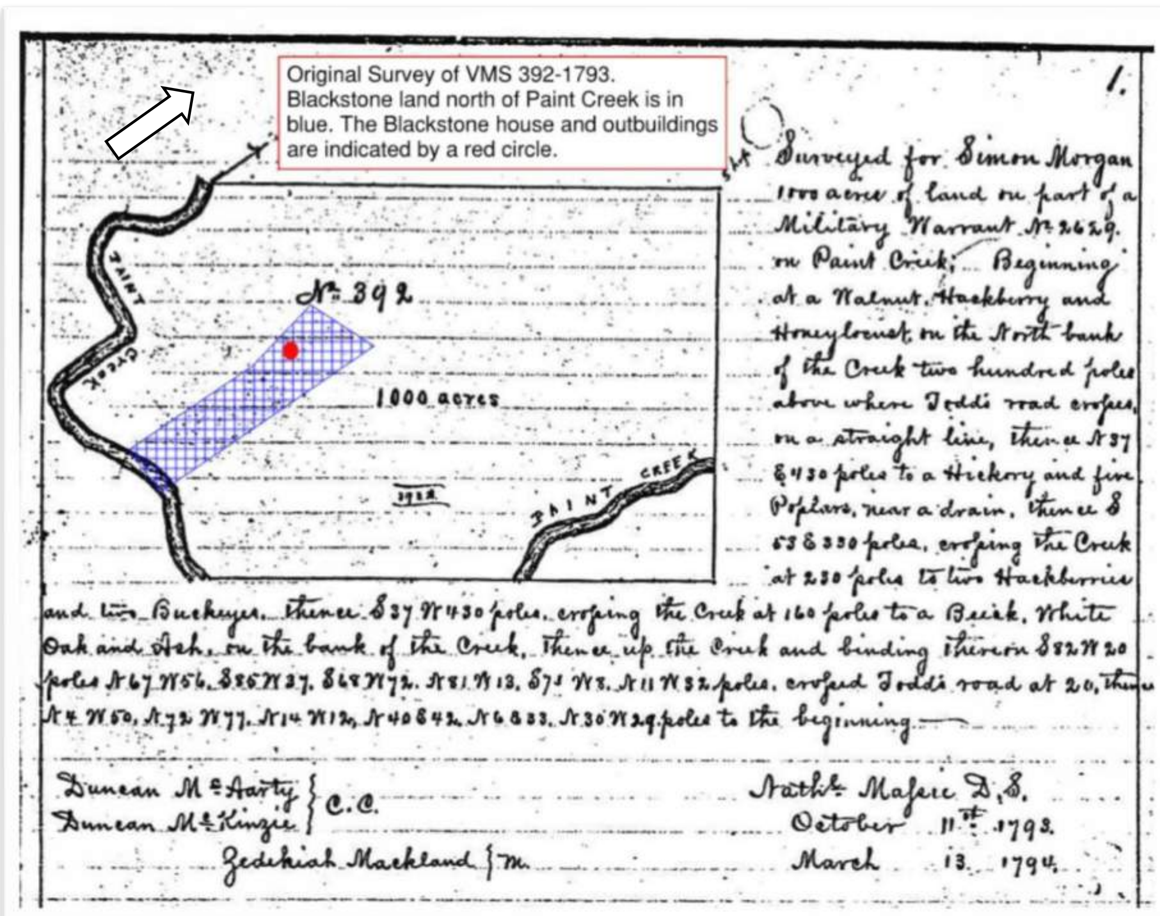

Figure 19. Simeon Morgan’s Survey, VMS Number 392. (Ross County Courthouse, Engineer’s Office)

[20] Richard N. Campen, *Ohio: An Architectural Portrait* (Chagrin Falls, Ohio: West Summit Press, 1973), 16.
[21] Ross County Virginia Military Survey Records. Vol. 1:1 1793 (Ross County Courthouse, Engineering Office).

The Virginia Military District was located in the Northwest Territory, which eventually encompassed Ohio, Indiana, Illinois, Michigan, Wisconsin, and part of Minnesota. Ohio was the first of those states to be established. A constitutional convention was held in Chillicothe in 1802, and the state was established in February of 1803.[22] Chillicothe served as the state Capitol from 1803 to 1810, and again from 1812 to 1816.[23] Chillicothe is also the seat of Ross County, much of which is in the Virginia Military District (Figure 20). In 1805, the western Ross County town of Bainbridge was established by former Virginia residents who had settled within the Virginia Military District.[24]

Figure 20. Map of Ohio, showing Ross County and the Virginia Military District. The Blackstone property is indicated by the red dot. (Richard N. Campen, *Ohio: An Architectural Portrait* Chagrin Falls, Ohio: West Summit Press, 1973, 17.)

[22] George B. Knepper, *The Official Ohio Lands Book* (Columbus, OH: Ohio Auditor of State, 2002), 14-15, accessed July 25, 2016, https://ohioauditor.gov/publications/OhioLandsBook.pdf.
[23] Knepper, *Ohio Lands Book,* 26.
[24] Nancy Baum, "History of Bainbridge" (Self-Published Typescript, 1994), 50.

Blackstone Family 1802-1852

Thomas Blackstone's parents, John Blackstone (1772-1844) and Jemima King Blackstone (1773-1848) were among those early settlers. In 1802, they purchased land in VMS #3992, located just south of VMS 392 (Figure 21). A biography of John Blackstone that was written in 1880 noted that he bought 200 acres "near the foot of big Copperas mountain…built a fine log house later and lived in it until his death."[25] John and Jemima Blackstone raised five children on that farm; Thomas was their youngest child and one of only two born after they moved to Ohio.

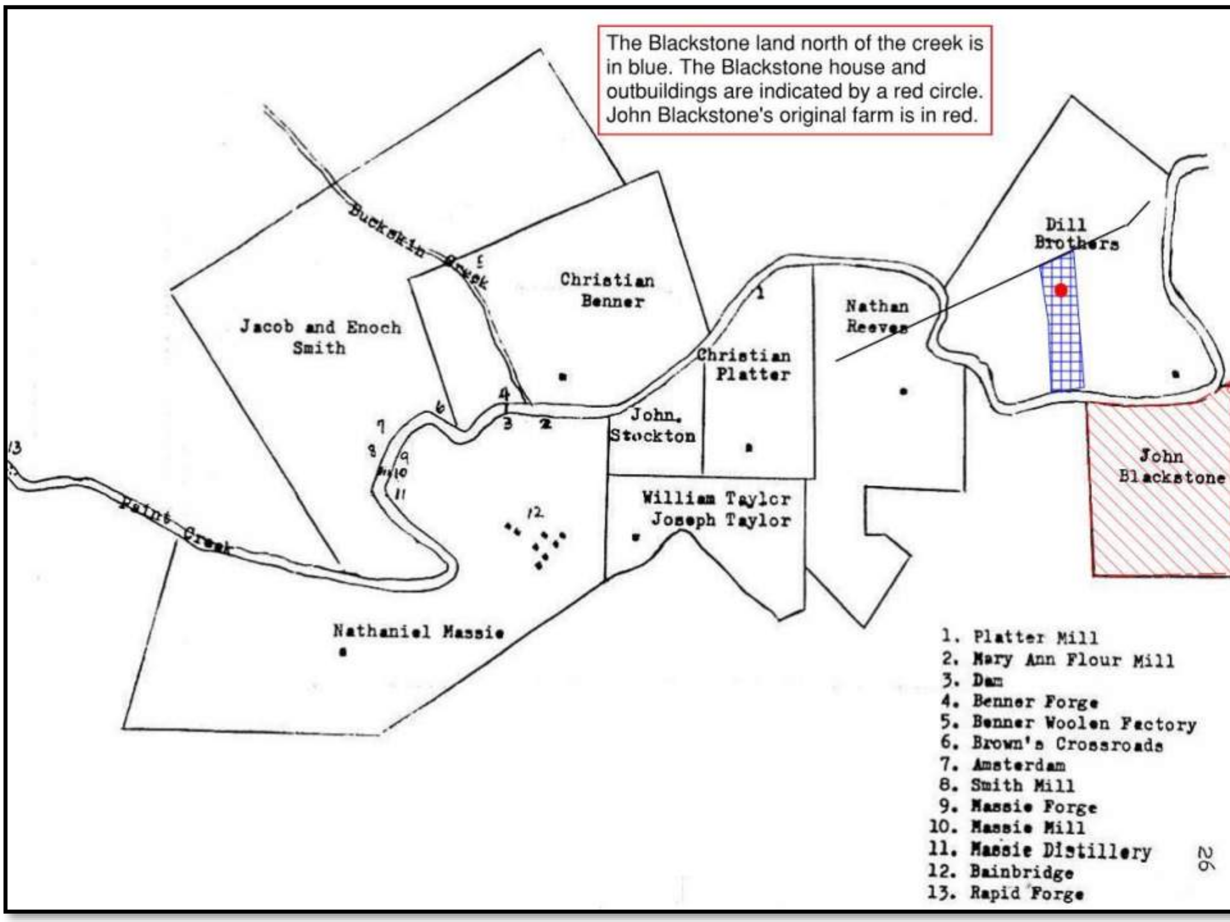

Figure 21. Map of the Paxton Township of Ross County in 1805, with early landowners. (Nancy Baum, "History of Bainbridge" Self-Published Typescript, 1994, 50.)

It appears that the farm remained in the family after John Blackstone's death in 1844, and that it was managed by one or more of his sons, including Thomas. The 1850 agricultural census for the Paxton Township of Ross County shows just 29 farms in operation, including one owned by Samuel Blackstone, who had 172 unimproved acres and approximately 200 that were

[25] *History of Ross and Highland Counties, Ohio*. (Cleveland: Williams Bros., 1880), 320. Ross County Real Estate tax records show that by 1860, that farm had grown to 392 acres and was owned by their son, Thomas Blackstone.

improved.[26] Samuel might have been the oldest son in the family, better known as William Blackstone.[27]

By 1852, Thomas Blackstone was clearly the owner of the farm established by his parents. Ross County real estate tax records show that he owned 372 acres and a house in VMS #3992.[28] By that time, Thomas Blackstone was 45 years old, with a family of his own. He had married Hannah Chenowith in 1832, and in 1850 their household included eight offspring: William, 17; John, 16; Rebecca, 15; Susan, 9; Harriet, 7; Gideon, 6; and Thomas Jr, 4.[29] Their oldest son, Abraham, (born in 1837) had already moved away by that time.[30] Abraham is the only immediate member of the Blackstone family for which a photograph has been located (Figure 22).

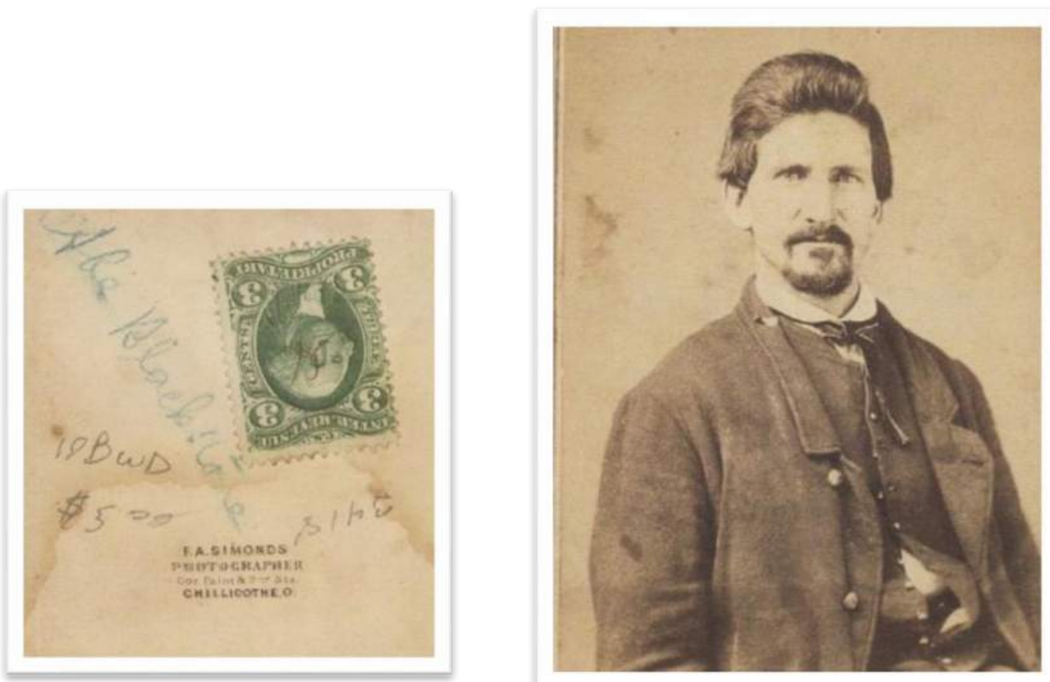

Figure 22. Front and back views of a ca. 1865 photo of Thomas and Hannah Blackstone's oldest son, Abe Blackstone, who was approximately 28 years old at the time. (Tom Blackstone, "Abe Blackstone: A Window to the Past," *Chenowith Family Newsletter* March 2012, accessed July 15, 2016, http://www.chenowethsite.com/newsletter/nlvol11-1.htm#past.)

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[26] United States Census Records, "Products of Agriculture," Ross County, Ohio, 1840-1880.
[27] William Blackstone is referred to in one unattributed *Ancestry.com* family tree entry as William Samuel Blackstone. There were no subsequent census listings for Samuel Blackstone in Ross County census records, but the proximity of this listing to other known residents of the area indicates that this entry was for the farm established by John and Jemima Blackstone.
[28] Ross County Real Estate Tax Records, 1852-1882, Ross County, Ohio Courthouse, Auditor's Office.
[29] 1850 Population census, at "Thomas Blackstone Sr. 1808-1882," Ancestry.com Profile, created June 2016 by Deb Sheals, http://person.ancestry.com/tree/100724007/person/370004365712/facts.
[30] Tom Blackstone, "Abe Blackstone: A Window to the Past,"*Chenowith Family Newsletter* (March 2012), accessed, July 15, 2016, http://www.chenowethsite.com/newsletter/nlvol11-1.htm#past.

Archeological Studies 1810s-1840s

In the late 1810s, what is now known as the Seip Earthworks was documented by Caleb Atwater, during one of the first archaeological studies ever conducted in the United States. In 1820, Atwater published "*Description of the Antiquities Discovered in the State of Ohio and Other Western States,"* in the first volume of the *Transactions of the American Antiquarian Society.*[31] He assumed many of the earthworks were built for defense, including those at the Seip site, which were labeled as "Forts whose walls are of earth."[32] Atwater also noted that the volume of the small square of the Seip site had exactly the same area as a square at a nearby site that was located on the south side of Paint Creek, and noted the "such coincidences are very common, in our ancient works; so that a correct description of one applies to hundreds in different parts of the country."[33]

A quarter of a century later, in the mid-1840s, Ephraim George Squier and Dr. Edwin Hamilton Davis undertook a more extensive study of Hopewellian earthworks, which included excavations as well as mapping and general observations of aboveground conditions.[34] In 1848, Squier and Davis published a long report on their findings in the first ever publication of the Smithsonian Institute (Figure 23).[35] Their report included a detailed map of the Seip site, and noted that the central mound was "considerably larger than any other single mound in the valley."[36] The report also provided evidence that the site was being used for agricultural pursuits; they noted that "the small circle...has been so much reduced by the plough as to be traced with difficulty." They also noted that there were so many "wells" and irregularities in the topography associated with the earthworks that "a deduction of several acres is allowed to the tenant in consequences, by the lease of the estate upon which they occur."[37]

Their map also indicates the presence of two rectangular buildings, located south of the large mound. It is likely that those buildings were barns or other agricultural structures that were used by landowner "John Woodbridge, Esq. of Chillicothe" or his tenants. The smaller structure was located on land that would be purchased by Thomas Blackstone in a few years. Real estate records show that that property did not have a house on it until around 1857. The larger of the two, almost due south of the mound, could have been a house or a barn. The larger building occupied land was purchased by R. R. Seymour in 1852, along with additional acreage that he sold to Thomas and Hannah Blackstone just a few weeks later (Figure 18). An 1860 atlas map of Paton Township shows that Seymour still owned the land with the larger building at that time, as well as several other large parcels nearby (Figure 24).[38]

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[31] Caleb Atwater, *Description of Antiquities Discovered in the State of Ohio and Other Western States*, first edition printed in 1820 as *Transactions and Collections of the American Antiquarian Society,* Vol 1: 105-26, (New York: AMS Press, Inc., reprint 1973), 146-147.
[32] Atwater, *Description,* 144*.*
[33] Atwater, *Description*, 147.
[34] Bishop, et. al., *Hopewell Culture National Historical Park: Cultural Landscape Report*, 2-27.
[35] E. G. Squier and E. H. Davis. *Smithsonian Contributions to Knowledge, Vol 1. Ancient Monuments of the Mississippi Valley: Comprising the Results of Extensive Original Surveys and Explorations* (New York: Smithsonian Institution, 1848), Plate 21, 57-59.
[36] Squier and Davis, *Smithsonian Contributions*, 58.
[37] Squier and Davis, *Smithsonian Contributions*, 58.
[38] H. F. Walling, *Topographical Map* of *Ross County, Ohio*, 1860, n.p.

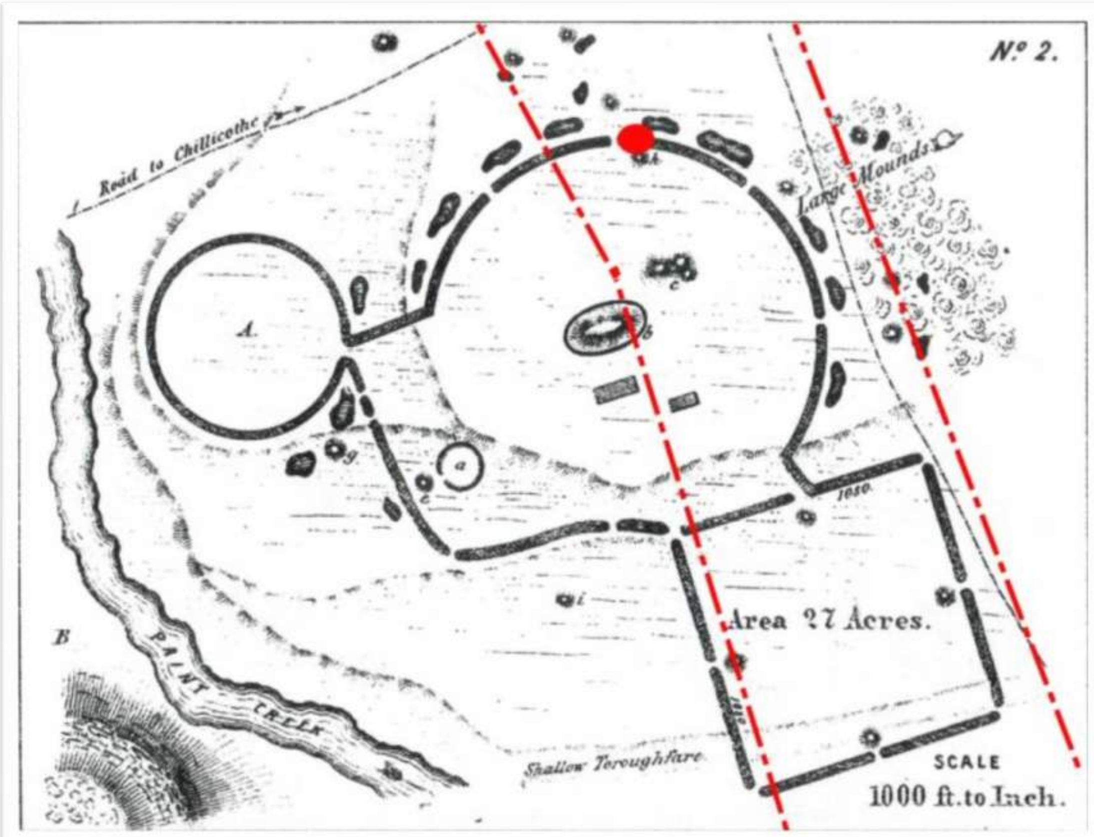

Figure 23. Map of what is now known as the Seip Earthworks, published in 1848. Approximate Blackstone property boundaries are marked with a dashed line; the house is indicated by the red circle. (E. G. Squier, A.M., and E. H. Davis, *Smithsonian Contributions to Knowledge, Vol 1. Ancient Monuments of the Mississippi Valley: Comprising the Results of Extensive Original Surveys and Explorations,* New York: Smithsonian Institution, 1848, Plate 21, 57-59.)

Episode 1 – Blackstone Family: 1852-1883

In 1852, Thomas and Hannah Blackstone expanded their property holdings to include land on the north side of Paint Creek, in VMS #392. On November 30th, 1852, they purchased 100 acres of land from Richard R. Seymour.[39] Seymour had only owned that property for a short time; it was part of a 305-acre parcel he purchased on October 7, 1852.[40] It is likely that the Blackstones purchased the land to gain access to a home site near one of the best roads in the area, the Milford and Cincinnati Pike, which is now U. S. Highway 50. The narrow 100-acre tract land stretches south from the Pike to the north bank of Paint Creek, and the southeast corner of the new property is close to the northwest corner of the land they already owned south of the creek (Figure 24). The west property line sliced through the east end of the mound and the east line followed Dill Road (Figure 24).

[39] Ross County Ohio Deed Records, Deed Book 53: 510.
[40] Ross County Ohio Deed Records, Deed Book 53: 509-510.

A few months later, on April 23, 1853, the Blackstones added a narrow triangular parcel totaling 4-3/4 acres to the northwest edge of their new property.[41] The boundaries of the resulting 104-3/4 acre parcel in Survey 392 saw only one small change over the next eight decades. A one-acre lot facing the road at the northeast corner of the property was set aside for school use sometime before 1860, and in 1878, Thomas Blackstone officially deeded it to the local school board (Figure 24).[42]

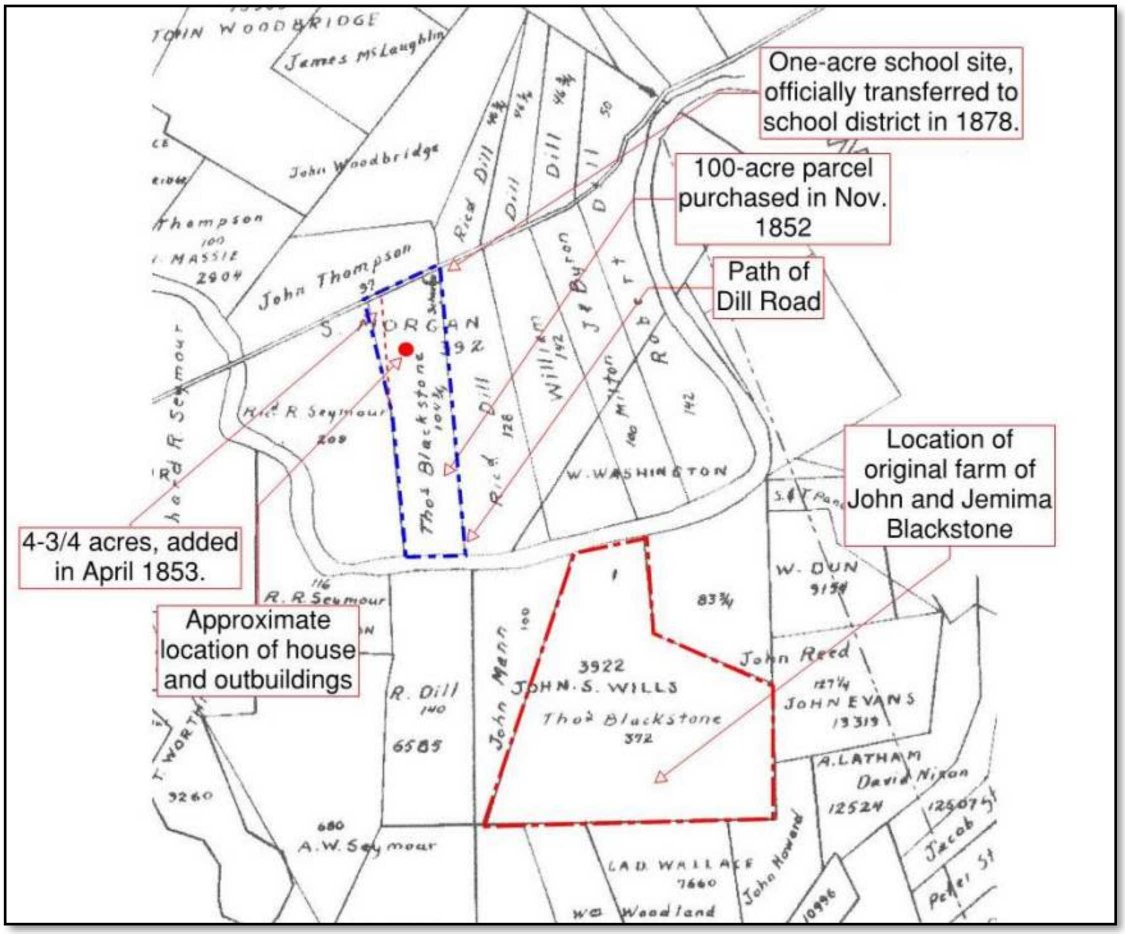

Figure 24. Detail of an 1860 Atlas Map of Paxton Township, with property boundaries marked. (Base Map: *Paxton Township, Ross County Ohio, 1860*. Ownership map on file with the Ross County Engineer's Office, Ross County, Ohio Courthouse, 1860.)

Construction of the House, ca. 1857

Thomas and Hannah Blackstone continued to live in VMS 3992 on the south side of Paint Creek until 1856 or 1857, when the brick house and smokehouse were completed on the north end of their new land in VMS 392. County real estate tax records listed Thomas Blackstone as the

[41] Ross County Ohio Deed Records, Deed Book 55: 14-15. No reason has been found for the addition of that sliver of land, which does not appear to have contained a building or other improvement.
[42] Ross County Ohio Deed Records, Deed Book 85: 569.

owner of both parcels from 1853-1856, but show that only the older parcel contained a house, valued at $360. That changed with the 1858 tax book, which described a “new br. house” on Thomas Blackstone’s 104-3/4 acre parcel in Survey 392.[43] (There is no tax book on file for 1857.) The new brick house was valued at $800, nearly three times as much as the older dwelling south of the creek. The smokehouse was probably built at the same time or soon after. By 1863, the year of the next available tax book, there was no longer a house on the land they owned south of the creek.

Based upon the note about the new house and the increase in value between the publication of the 1856 and 1858 tax books, the house and smokehouse have been assigned a construction date of ca. 1857.

Census records show that the Blackstones still had five children living at home when the new house was completed, ranging in age from 23 to 12. The 1860 Population Census entry included names and ages of everyone in the household: Thomas 52, Hannah 53, Rebecca 23, Susan 19, Harriett 16, Gideon 15, Thomas Jr. 12, and John Woodland, an 18-year-old farmhand. Their real estate was valued at $8,900 ($236,996.30 in 2015 dollars) and the family had personal property worth $1,818.[44]

The agricultural census taken that same year shows that the new buildings soon became the heart of the family’s farming operation, which included hundreds of acres of land. The 1860 agricultural census listed Thomas Blackstone as the owner of one of forty farms in the township, with the following statistics:

<u>1860 Agricultural Census entry for Thomas Blackstone:</u>

472 acres of land, 286 acres of which were improved. That included the land with the house in Survey 392, plus the land to the south acres.

Livestock: 5 horses, 5 milch cows 23 other cows, 29 sheep, and 50 swine.

Crops: Wheat (acreage number illegible), 2,000 bushels of Indian corn, 100 bushels of Irish potatoes, and 2 tons of hay.

Products: 116 lbs. of wool, and 60 lbs. (number barely legible) of butter.

The number of milch cows and the production of butter being done by this time indicate that need for a milk processing facility, and the construction date for the milk house has therefore been set at ca. 1860.

It is likely that the farm contained additional buildings at the time, to support the varied activities of the farm and to provide shelter for the livestock. The locations for those buildings have not been identified. The building shown on the Squier and Davis map published ten years earlier may still have been in use, and there may also have been frame barns that have since been demolished.

[43] Ross County Real Estate Tax Records, 1852-1858, Ross County, Ohio Courthouse, Auditor’s Office. Note: there is no tax book for 1857.
[44] “Inflation Calculator,” http://www.westegg.com/inflation/infl.cgi. Accessed August, 2016.

Blackstone did not limit his activities to running the farm, however, he is also credited with operating a school. A county history published in 1880 noted that one of the early subscription schools in the Bainbridge area was “taught by Thomas Blackstone, on his place.”[45] Those classes were most likely conducted in a building located on the one-acre parcel near the road. Two different county maps published in 1860 show that property as the site of a school, and it was still marked as such in 1875 (Figure 25).[46] That one-acre parcel still contains a building that, although altered, is of the correct size and shape to have served as a one-room school in the nineteenth century.

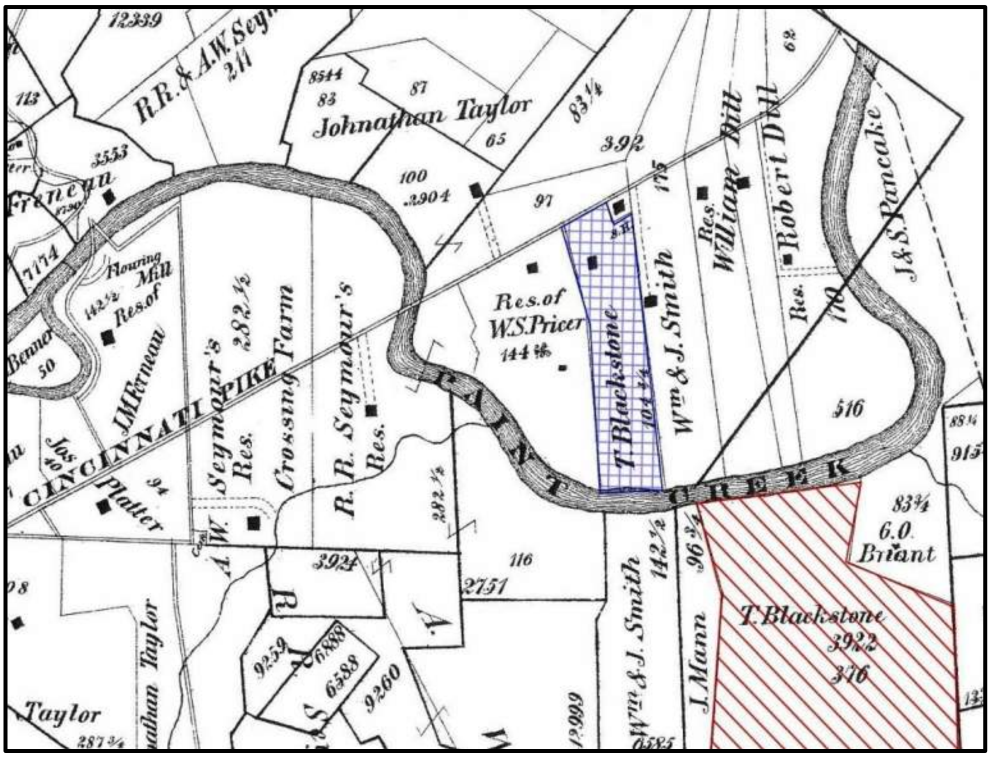

Figure 25. 1875 County Atlas Map of Paxton Township. The schoolhouse is located at the northeast corner of the T. Blackstone land, labeled “S.H.” (Hueston T. Gould, compl. Illustrated Atlas of Ross County and Chillicothe, Ohio. Columbus: H.T. Gould & Co., 1875. Kingstown, Indiana: The Bookmark, reprint 1975.)

Thomas Blackstone was part of a family that valued education. His oldest brother, William Blackstone, who moved to Ohio with his parents as a young child, managed to become a teacher and later a physician in spite of growing up on the Ohio frontier. As one biography noted, William Blackstone’s “preliminary education was such as could be obtained from the common schools at that time, but it was sufficiently thorough to render him competent to teach

[45] *History of Ross and Highland Counties, Ohio*, (Cleveland: Williams Bros., 1880) 324.
[46] The school site is included in *Paxton Township, Ross County Ohio, 1860*, and H. F. Walling, *Topographical Map* of *Ross County, Ohio*, 1860, n.p. (HOCU Archives).

and he followed that occupation before he entered the medical profession." [47] Years later, Thomas Blackstone's youngest son, Thomas Blackstone, Jr. followed his in his uncle's footsteps, studying medicine at Ohio University and later practicing in Circleville, Ohio.[48]

Another historical account that was written by Thomas Blackstone's ancestor, Tom Blackstone, in 2012 noted that: "Thomas interested himself in educational matters. In the pioneer days of Paxton Township, subscription schools were started to provide a basic education for children of the community in the absence of public schools, Thomas opened a school…where he taught for many years…he thus became the first of a long line of teachers in the westward moving Blackstone family."[49] In spite of the family value of education, Thomas Blackstone's role of teacher appears to have been a secondary occupation. The operation of a nearly 500 acre farm undoubtedly required most of his attention, and he is listed as a farmer in census records throughout his adult life.

Hannah Blackstone died in 1868, but Thomas and a few of his children continued to live in the house on the Milford and Chillicothe Pike. In June of 1869, Thomas Blackstone, then 61, married 48 year-old widow, Mary Dugan, with whom he spent the rest of his life.[50] The 1870 population census shows that his household was much smaller than it had been in 1860, with just him and Mary, plus two of his sons, John, 35 and Gideon, 24. Their real estate was valued at $8,200, and personal property at $1,260.[51] By 1880, only Thomas and Mary were living at the farm, along with one servant, Amanda Jenkins, 22. Jenkins may have been a neighbor; the census records show that John Jenkins 57, was head of the next listed household.[52] That same year, it was noted in a biography of John Blackstone that his son, "Thomas Blackstone…lives on the Milford and Chillicothe turnpike, between the bridge and the railroad crossing."[53]

Thomas Blackstone died just two years after that account was written, on July 20, 1882. His obituary described him as "a man highly respected by all who knew him…a lifelong resident of this county." [54] His will stipulated that all land be sold and the proceeds distributed to his heirs. Mary was allowed to exclude some furnishings from the sale which were identified as belonging to her when she married Thomas. Probate records include an inventory of the estate, as well as

[47] *Ohio Medical Recorder, Vol. III,* (Columbus, Ohio: Cott and Han. 1879) 570. Some early historical accounts incorrectly identified this house as belonging to William Blackstone, but deed records show that there was no connection.
[48] "Medical Students' Contest," *Cincinnati Enquirer* (Cincinnati, Ohio), Feb. 2, 1872, 3, accessed June 3, 2016, https://www.newspapers.com/image/30488276, and "Thomas Blackstone Sr. 1808-1882," Ancestry.com Profile, Created June 2016 by Deb Sheals, http://person.ancestry.com/tree/100724007/person/370004365712/facts.
[49] Tom Blackstone, "A Blackstone Family History in America," *Chenowith Family Newsletter*. 29 Jan, 2012. (Online. http://www.chenowethsite.com/newsletter/nlvol11-1.htm#past. Accessed, July 15, 2016.)
[50] Tom Blackstone, "A Blackstone Family History in America."
[51] Population census, 1880. Agricultural census records were not found for this census period.
[52] "Thomas Blackstone Sr. 1808-1882," Ancestry.com Profile. Created June 2016 by Deb Sheals. http://person.ancestry.com/tree/100724007/person/370004365712/fact.
[53] *History of Ross and Highland Counties, Ohio*, 322.
[54] "Tomas Blackstone, d. July 20, 1882," *Scioto Gazette* (Ohio), (Clipping, Ross County Genealogical Society, Chillicothe, OH.) The obituary noted that he was buried in Bainbridge with Masonic Honors.

a detailed list of the items subsequently sold at auction. (See Appendix B. Inventory of the Blackstone Estate.) Those records provide valuable information about how the house was used, including room names and locations. Rooms specifically mentioned include the “Parlor”, “Hall”, “Dining Room”, “Kitchen”, “SE Bed Room”, “Front Bed Room”, and “Each Bed Room upstairs”. [55] The “Front Bed Room” at that time may have been the West Parlor 103, a front parlor which includes cabinets. It is possible that that room was converted to use as a bedroom after all children moved away, to eliminate the need to heat the second floor of the house or climb the stairs to bed. The Blackstones probably used that room, and left the rear “SE Bedroom” for their servant.

The inventory also includes listings that show the brick outbuildings were still in use. There were several line items for treated meats such as hams and sides of bacon that would have been processed and stored in the smokehouse. Those smoked goods were valuable; the sale bill from the auction shows that four sides of bacon ended up selling for $20, compared to an older wagon that brought just $7. The inventory also includes the first known specific reference to the milk house, with a listing for “crocks in milk house.”[56]

The sale of the farm and settling of the estate were taken care of by Thomas Blackstone, Jr. who by that time was a physician and resident of Circleville.[57] After the contents of the property were sold in September, 1882, Mary Blackstone probably moved to Circleville to live with or be close to Thomas Blackstone, Jr.; she died in that city in 1889.[58] The final step to settling the estate of Thomas Blackstone--sale of the house and land, took place in August of 1883. [59]

<u>Notes on the Earthworks 1871-1880</u>
Although there were no formal studies of the earthworks in the region during this period, county histories of the time show that area residents were interested in the history of the mounds, and that some amateur explorations were taking place. A Ross County history published in 1871 included a section on “Ancient Works” which observed that “on Mr. Thomas Blackstone’s farm is a circular formed earthwork containing some 17 acres. The embankment is some 3 or 4 feet high…One of these mounds is coated with gravel some eighteen inches in depth…Several years since this mound was opened, and a skeleton was found on the inside, in a sitting posture, surrounded by stones.”[60]

[55] Ross County Probate Record, 1880-1910, Ross County, Ohio Courthouse, Probate Archives. 1882 Probate File 1144.
[56] Ross County Probate Record, 1880-1910, Ross County, Ohio Courthouse, Probate Archives. 1882 Probate File 1144.
[57] “Conference,” *Stark County Democrat*, (Canton, Ohio). Jan 15, 1880, 5. Accessed June 3, 2016. https://www.newspapers.com/image/35986790.
[58] “Thomas Blackstone Sr. 1808-1882,” Ancestry.com Profile, Created June 2016 by Deb Sheals, http://person.ancestry.com/tree/100724007/person/370004365712/facts.
[59] Ross County Ohio Deed Records, Deed Book 95: 256.
[60] Finley and Putnum, *Pioneer Record*, 81.

A history of Ross County that was published in 1880 included similar comments. “A very remarkable system of defensive works exists on the farms now owned by Robert Dill and Thomas Blackstone respectively, situated on the Milford and Chillicothe turnpike….
In the center of the largest work, which is nearly circular in form, is the largest mound in the valley…it was, a few years since, by actual measurement, thirty-five feet high.”[61]

Episode 2 – Seip Family, 1883-1957

On August 30, 1883, Thomas Blackstone, Jr. sold the last of his father’s estate at auction. The high bidder for the farmland in VMS 392 was Chillicothe businessman Charles Seip, who paid $13,900 for the property.[62] Charles Seip was a German immigrant who moved to Chillicothe with his family in 1849. He had been trained as butcher in Germany, and continued in that profession after his move to Ohio. He did well in the meat business, and as one biography noted, “lived frugally and accumulated substantial wealth.”[63]

Seip appears to have purchased the Blackstone property for investment purposes only; there is no record that he ever lived there. He and his family resided in a large house on Allen Street in Chillicothe that is still in existence, and still well known for its association with the Seip family.[64] County directories show that in 1900, the Allen Street house was home to Seip’s extended family, which included six of his seven children. His oldest daughter, Mary Ida Seip, had by that time married Charles Frederick Schlegel and moved away.[65] Her children and grandchildren later owned and operated the former Blackstone farm.

By the time Charles Seip died in 1902, he owned five farms in Ross County, with a total of more than 1,000 acres.[66] Unlike Thomas Blackstone, who had directed that everything be sold to settle his estate, Seip’s will decreed that the family should keep all of his property together.[67] Real estate records and other documents of the early twentieth century show that the former Blackstone farm was jointly listed in five of his children’s names, including John Seip, his oldest son, and Elizabeth Seip, his youngest daughter.[68] Like Charles Seip, the next generation of the family lived in Chillicothe, and operated the former Blackstone farm as rental property.

<u>Archeological Activities 1883-1927</u>

In the late 1800s and early 1900s, the earthworks of the former Blackstone farm began to attract the attention of archeologists, but Charles Seip and his neighbor, W. S. Pricer, resisted early efforts to excavate the mounds. A newspaper article published around the time of Charles

[61] *History of Ross and Highland Counties,* 330.
[62] Ross County Ohio Deed Records, Deed Book 95: 256.
[63] Patricia Fife Medert, *Church and High Streets, Chillicothe: Buildings and People,* (Chillicothe, Ohio: Private Press, 1990) 227.
[64] *Ohio Historic Places Dictionary, Vol 2.* (St. Clair Shores, WI: Somerset Publishers, Inc. 2008) 1223.
[65] “Mary Ida Seip—Facts” Ancestry.com, http://person.ancestry.com/tree/12691126/person/-195129648/facts. Accessed June 27, 2016.
[66] Henry Holcomb Bennett, ed. *State Centennial History of the County of Ross (Ohio),* vol. 2, compiled by Ross County Genealogical Society, (Baltimore: Gateway Press, Inc., 1981, First edition published 1902, Limited Reprint 1981), 678.
[67] Ross County Probate Records, Probate File #11373.
[68] Ross County Real Estate Tax Records, 1903-1950.

Seip's death included descriptions of the mounds and proclaimed the "the large mound has never been opened, despite the fact that it probably contains some of the most valuable discoveries that could be unearthed anywhere in the United States."[69] The reporter noted that "Mr. Seip" (presumably Charles) had refused several requests to excavate the property, as had Mr. Pricer, who "prizes the mound very highly and wants to keep it as a curiosity."[70]

It appears that Charles Seip's children were more open to the idea of excavation, including his son David, who decided to dig into the side of one of the mounds himself during a visit to the property. The same article noted that David Seip "being interested to some extent in ancient relics, decided that he would take a look at the mound." He borrowed a shovel and "had dug but a short distance when he discovered a skeleton of an aborigine."[71] That discovery may have convinced Charles Seip's children that the site was worthy of more formal attention.

In 1906, Dr. William Mills of the Ohio Historical Society began the first large-scale scientific exploration of the earthworks located on the Seip property. Dr. Mills' first work at the site was the study of what is now known as Seip Mound #2, the conjoined mounds.[72] Because that was the first excavation of that particular group of earthworks, the site was named after the landowners, and the small mound was first known as the "Seip Mound."[73] Mills named the larger mound the Pricer Mound, as most of it was located on the land of W. S. Pricer at the time.[74] His work at the Seip property and in numerous other sites in Ohio did much to raise interest in and awareness of Ohio's mound builders. He headed excavations there that spanned at least two years, and published a report on the project in 1909.[75]

It is possible that Dr. Mills and his crew stayed in the Blackstone house for at least some of their time at the site. Photos from the excavation include several images that appear to have been taken from the back yard of the farmhouse, including one overlooking a rail fence that was probably located near the back wall of the milk house (Figure 26).

The work of Dr. Mills and others led to an increasing amount of public interest in the prehistoric mounds of the Scioto Valley. In 1923, the Mound City Group National Monument was created, and in 1925 Dr. Henry Shetrone, then Curator of the Ohio Historical and Archeological Society,

[69] "Big Mound Rich in Archaeological Affairs is Unopened on Seip Farm." (Undated newspaper clipping on file in the HOCU archives.)
[70] "Big Mound."
[71] "Big Mound."
[72] Brad Lepper, "Seip Mound," (Typescript, Ohio History Connection Archeological Collections Facility, Columbus Ohio, n.y.); and "Hopewell Culture National Historical Park: Cultural Landscape Report and Environmental Assessment," (National Park Service, US Department of the Interior, 2016) 2-5.
[73] "Exploration of the Seip Mound," in file labeled "Typescript of Report—Seip Mound" HOCU Archives, Acc #HOCU-00314 Cat #HOCU-42037.
[74] Brad Lepper, "Seip Mound," n.p.
[75] William C. Mills "Explorations of the Seip Mound," Ohio Archaeological and Historical Quarterly 18 (1909): 269-321.

began a new series of explorations at the Seip earthworks.[76] Shetrone's work at the Seip property was part of a larger study that is still considered to be "the existing authority on the Hopewell Mound Group."[77]

Figure 26. Photo of Seip Mound #2 (Seip Conjoined Mound), taken during the investigations by William Mills. View from the back yard of the Blackstone House, looking south. (Ohio History Connection, Collection SP54, B1, F1. No. 26.)

Figure 27. Photo of Seip Mound #2 (Seip Conjoined Mound), the same view, taken after much of the mound was removed. (Ohio History Connection, Collection SP54, B1, F1. No. 28.)

[76] "Hopewell Culture National Historical Park Ohio: E10 Draft - Regional/WASO/Program Review August 2015 Foundation Document," (National Park Service, US Department of the Interior, 2015) 6, and Brad Lepper, "Seip Mound," n.p.
[77] Mundus Bishop, et. al. "Hopewell Culture National Historical Park: Cultural Landscape Report," 2-6.

The Blackstone house served as a field headquarters for Shetrone and his crew while they were working at the Seip property. A charming first-hand account of his excavation can be found in an article written by a member of the Seip family who visited the excavation site frequently. In 1984, Mary Anne Schlegel, grand-daughter of Charles Seip's oldest daughter, Mary Ida, wrote about her visits to the excavation when she was a child (Figure 28). She was about 10 years old when Shetrone began his study of the Seip Mounds in 1925, and nearly sixty years later, she remembered much about her time with the archaeologists:

> My family connection is responsible for my being the sole surviving witness to the 'dig'; I was the only child present, having been invited by Dr. Shetrone to come as often as I liked to watch the work under way….I would walk up Dill Road from the cabin on Paint Creek where my parents and I were spending several weeks. I always wore black gym bloomers, a middy blouse with black tie and white ankle-high tennis shoes, a costume considered at that time eminently suitable for all outdoor summertime activities.
>
> I sat entranced under a large canvas umbrella, orange and white, probably borrowed from a farm wagon, and watched for hot dusty hours as horse drawn plows and scraper followed by local farmers with picks and shovels cut into the west side of the mound…As it proceeded downward the sectioning would reveal layers of sand, clay, black earth, burnt rock and gravel until it finally reached the floor where the burials lay. Some were cremations, some flexed, some extended skeletons, all accompanied by elaborate grave goods whose placement often indicated a distinction in rank of the dead.
>
> The most exciting part of my time at the dig, however, came in the evening when my father returned from his work in Chillicothe and Dr. Shetrone invited us into the farmhouse where he and his crew were living. There we saw the 'finds' of the day, treasure spread out on the wide floor boards, and as we walked among them, marveling at the explanations from our guides. There was no electricity in the house and stepping over the skeletons in the twilight made a lifetime impression on the child in the middy blouse…[78]

Shetrone's finds at the Seip farm attracted widespread attention from the general public as well as the scientific community. As word of his findings spread, the site undoubtedly saw increasing numbers of visitors, including many members of the press. The archives of the Hopewell Culture National Historical Park contain numerous clippings of newspaper articles, published locally and in major newspapers in other states.[79]

At least one visitor to the farm during that time period was more interested in the house than the archaeological studies. In August 1927, one of the Ohio's more prominent early architectural historians, Ihna T. Frary, visited the site. While there, Frary photographed the Blackstone house

[78] Schlegel, Mary Anne, "Memoir of a 'Dig' at Seip Mound," *Ross County Historical Society Newsletter*, Spring, 1984.
[79] HOCU Archives, File Labeled "Photographs, Clippings," Acc # HOCU-00314 Cat # HOCU-42034.

and outbuildings from the front and back, providing some of the clearest early images of the buildings known to exist today (Figures 29 and 30).

Figure 28. Photo of Mary Anne Schlegel (left) and A. D. Fuller, 1927. Fuller's connection to the family is unknown; the names come from a label on the back of the photo. (Photo Collection Number A0957, Folder 6, Ohio History Connection Archeological Collections Facility, Columbus, Ohio.)

Figure 29. Blackstone House, Photo by I. T. Frary. The back of the image has a handwritten label which reads “Old Seip Home, August 1, 1927,” and a stamp that reads “Photograph by I. T. Frary, Cleveland, Ohio.” (Photo Collection Number A0957, Folder 6, Ohio History Connection Archeological Collections Facility, Columbus, Ohio.)

Figure 30. Blackstone House and Outbuildings, Photo by I. T. Frary. The back of the image has a handwritten label which reads “Old Seip Home, rear, August 1, 1927” and a stamp that reads “Photograph by I. T. Frary, Cleveland, Ohio.” Note the frame addition in the shadows east of the smokehouse. (Photo Collection Number A0957, Folder 6, Ohio History Connection Archeological Collections Facility, Columbus, Ohio.)

A longtime employee of the Museum of Art in Cleveland and a lecturer in architectural history at the Cleveland Institute of Art and Western Reserve University's School of Architecture, I. T. Frary spent years photographing and writing about architecture. He authored seven books on the subject, including *Early Homes of Ohio,* a 1936 publication filled with high-quality photos of historic buildings throughout Ohio.[80] While the Blackstone house did not make it into his book about Ohio houses, it clearly captured his attention enough that he took the time to photograph it, and to make at least two sets of prints. The negatives and one set of prints are part of his photo collection now on file at the Ohio History Connection, and he appears to have given a second set to Dr. Shetrone. The prints reproduced above are stored with other photos of Shetrone's 1920s excavations at the farm. [81]

Seip Earthworks State Memorial--1927

Dr. Shetrone and others in the state were obviously impressed with the results of the 1920s explorations on the Seip property. In 1927, Shetrone, in his role as the curator of the Ohio Historical and Archaeological Society, announced plans to purchase the large Seip Mound and 10 acres of land. A newspaper article titled "Seip Mound Saved from Plow by Archaeologists" explained that the move was done to prevent the large mound from being leveled for agricultural purposes, with the end goal to be the creation of a state park.[82] That plan came to fruition later that same year, when the historical society acquired a total of 10.31 acres of land. That parcel included the large mound, plus a narrow strip of land to link it to the highway (Figure 31).

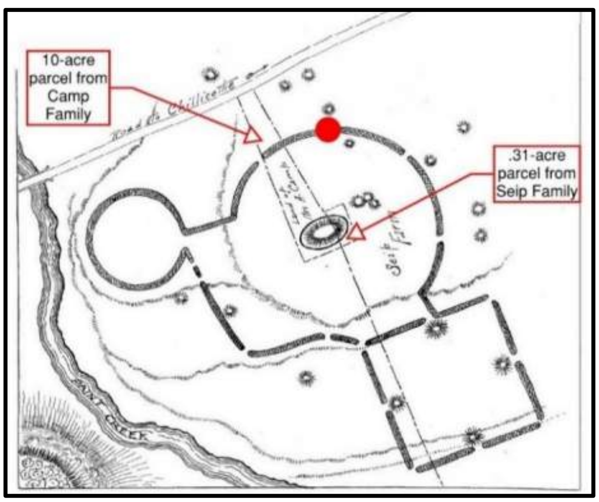

Figure 31. Map of Proposed Seip Mound State Memorial. The approximate location of the house is indicated by the red dot. (Historic Documents Relating to the Acquisition of Seip Mound by the Ohio History Connection. Typescript, Oct. 2014, HOCU Archives.)

[80] Edward R. Lentz, ed. *An Inventory to the Ihna Thayer Frary Audiovisual Collection,* (Columbus, Ohio Historical Society, Inc., 1976) 6.
[81] *Seip Mound,* Photo Collection Number A0957, Folder 6, Ohio History Connection Archeological Collections Facility, Columbus, Ohio.
[82] "Seip Mound Saved from Plow by Archaeologists," 1927, (Unattributed newspaper clipping on file in the HOCU Archives, File Labeled "Photographs, Clippings," Acc. # HOCU 00314, Cat. # HOCU 42034.)

That 10.31 acre parcel was acquired from two sources. The bulk of the property, ten acres, was purchased from the Camp family in July, and the Seip family provided .31 acres that December.[83] The Seip land included the east end of the mound, which had been partitioned off when Thomas Blackstone bought the property in 1852 (Figure 31). Although most of the land from the park came from the Camp family, the park was created to preserve the Seip Mound, and therefore named the Seip Mound State Memorial.[84]

The new park was unstaffed, and in the beginning included little more than a road which circled the mound and a small parking lot (Figure 22). Some of the first improvements to the state park grounds took place in the 1930s, when Civilian Works Administration crews were tasked with site improvements. That work included landscaping, work on an observation tower, brick comfort stations, a 70' flag pole, a stone gateway, and the construction of restrooms.[85] At least one of those restroom buildings was located south of the mound, and the parking lot was approximately half way between the mound and the road, near the west edge of the Seip farm.

Figure 32. Seip Mound in 1935, looking south. (Photo Collection Number P365, B. 12, F 7, Ohio History Connection.)

[83] Ross County Ohio Deed Records, Deed Book 207:100, and Book 291: 5; Map of Proposed Seip Mound State Memorial. (Historic Documents Relating to the Acquisition of Seip Mound by the Ohio History Connection. Typescript, Oct. 2014, HOCU Archives.)
[84] Some early sources also refer to it as the Seip Mound State Park.
[85] *Civilian Works Administration Files, 1933,* State Archives Series 4002, Ohio History Connection Archives, Columbus Ohio.

Seip Farm Operations 1927-1957
Most of the surrounding land, including the balance of the Seip farm, continued to be used for agricultural purposes after the state park was created. The house and outbuildings saw few changes in the first half of the twentieth century. The property remained in the joint ownership of four of Charles Seip's children, Charlotte, George, David and Elizabeth Seip, but it does not appear that any of them lived on the farm or took an active role in its operation. That task was taken on at an early date by their sister Mary Ida's son, Charles G. Schlegel (1880-1962).[86] As shown by the article written by Charles Schlegel's daughter Mary Anne cited above, Charles G. Schelgel and his family were spending time at the fish camp on the banks of Paint Creek as early as the 1920s.[87]

Charles G. Schlegel operated a successful jewelry store in his home city of Chillicothe, but he also made time to help manage the Ross County farms, including the former Blackstone property. By 1941, 75 year-old Elizabeth Seip (1866-1952) was the only surviving owner of the property. Schlegel kept diaries of his activities, many of which have survived to modern times, as part of the collection at the Ross County Historical Society in Chillicothe.[88] Those diaries show that by 1950, he was managing several of the Seip family holdings, including the Blackstone property, which he called the "Seip farm" with "the brick farmhouse." Diary entries from the early 1950s mention the need to pay back taxes, and also record payments he made to "Aunt Lizzie," indicating that he may have been considering purchasing some of the property at that time.[89]

Elizabeth Seip died in 1952. She left equal shares of the former Blackstone farm to her three nephews, Charles G., Edwin and Albert Schlegel.[90] Charles continued to manage the property, and in 1955 he bought the interests of his brothers to gain full ownership. That transaction included the 103-3/4 acres of Blackstone land in VMS 392, less the .31 acre lot that was part of the park.[91]

Schlegel's diaries show that he began working to update and improve the Blackstone house and outbuildings even before he owned a full share of the property. Two of his early priorities were the addition of indoor plumbing and repairs to the back porch of the house. In early 1953 he wrote about looking at the house to "figure out where to put a bath room in kitchen and decided the back porch could be filled with gravel and a cement floor put in. Will need a electric pump and septic tank for bathroom also would put cellar steps in from kitchen."[92] An entry in March 1953, mentioned getting bricks to repair crack in the brick milk house and that the "tinner" was starting work on roofs. Later notes about a visit to the Seip farm mentioned a lot of nails missing

[86] "Charles George Schlegel—Facts" Ancestry.com, http://person.ancestry.com/tree/12691126/person/-19512487/facts. Accessed June 27, 2016. His father, who married Mary Ida Seip, was Charles F. Schlegel.
[87] Schlegel, Mary Anne.
[88] Charles G. Schlegel, "Diaries," 1946-1962. Ross County Historical Society. McKell Library Archives: East, 1989.201, Schlegel Box East Wall.
[89] Schlegel Diary, 1952.
[90] Ross County Ohio Deed Records, Deed Book 291: 5.
[91] Ross County Ohio Deed Records, Deed Book 291: 6-9.
[92] Schlegel Diary, 1953.

on the house roof, and said the workers “had roof on milk house and were working on brickwork on building.” He also wrote that he told them he would have them figure on work on “shed barn later”.[93] Historic photos and maps show that there was at least one sizeable frame barn on the property during this period, located east of the house, and a smaller one to the south, near the park road to the mound.[94]

By 1955, he was getting the house ready to rent, with work that included varnishing “walnut woodwork”, and repairing floors “at baseboards.” In May of 1955, he rented the house and garden to Pearl Carter, for $35 month, but apparently continued to do work. Tucked inside one diary is a receipt for varnish dated July 2, 1955, with an added note “for Farm house dining room.” On the back of that sheet is a note that shows he was still deciding what to do about the back porch floor: “Farm house Porch floor 10 ½ feet wide 19 ft. long.”

He also mentioned a “new floor over the old one” in the dining room, plus “new sash upstairs, and new sills in most window frames.”[95] Another entry shows that having rental property so close to a state park could present management challenges: “Mr. Reid said they took the wire gate down at the mound and used it at hog lot. I will tell him the will have to put it back as it belongs to the state and must be maintained as entrance to Mrs. Camp’s.”[96]

Work on the house and outbuildings intensified in 1956, when Schlegel began working with new tenants to get the house and farm into better shape. Tenant farmer Joseph Sonia and his wife (first name unknown) are mentioned frequently in Schlegel’s 1956 and 1957 diary entries. Both of the Sonias appear to have been excited about their new home and interested in seeing improvements to the buildings and farmland. A note in his diary in March 1956 mentioned that Mr. Sonia wanted more hog fence, and that Mrs. Sonia had paid him for hay sold.

Another 1956 entry indicates that one of the brick outbuildings had been pressed into service as a brooder house: “Mrs. Sonia is still talking about chicken house for moving chicks out of brick building.” He wrote in March that “I am going to tell Mr. Sonia my money is running out,” and later said he would help pay for a brooder house and that would be it for the year. He continued to invest in the property after that, however, and even expanded the boundaries of the farm in 1956 or 57, with a purchase of land located south of the large mound. [97]

Other work done in 1956 included adding telephone service and replacing part of the roof on the house. On March 28, 1956 he wrote that “Mrs. Sonia called to tell me wind loosened metal roof on house pulled up nails.” He called a roofer to do repairs, but had more trouble on April 3:

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[93] Schlegel Diary, 1953.
[94] Both barns are visible on the Morgantown Quadrangle Map, Ross County, Ohio, 1961. (U. S. Topo and Historical Topographic Map Collection, 1961. Accessed April 24, 2016. http://geonames.usgs.gov/apex/f?p=262:18:0::NO:RP.) The one to the east was still there in the 1970s, see Photo Collection Number A0957, Sheet 9, number 177, Ohio History Connection Archeological Collections Facility, Columbus, Ohio.
[95] Schlegel Diary, 1955.
[96] Schlegel Diary, 1956-57. Note, this diary has 1957 on the cover, but some of the entries within are dated 1956.
[97] Schlegel Diary, 1956-57.

"Wind damage on Brick house. Mrs. Sonia called and told me wind storm loosened the roof on one side of house over Dining room hall and back bedroom." Schlegel had several discussions with "McAllister," a roofer who "suggested to put on a green asbestos shingle roof." He eventually told McCallister to put a "green asbestos shingle roof on that side" and later wrote that "Mr. E. E. McCallister brought his bill in for new roof on Seip brick farm house $432."[98] The new roofing was probably added to just the back slope of the main roof; later photos show that the front part of the roof had metal roofing until at least 1989.

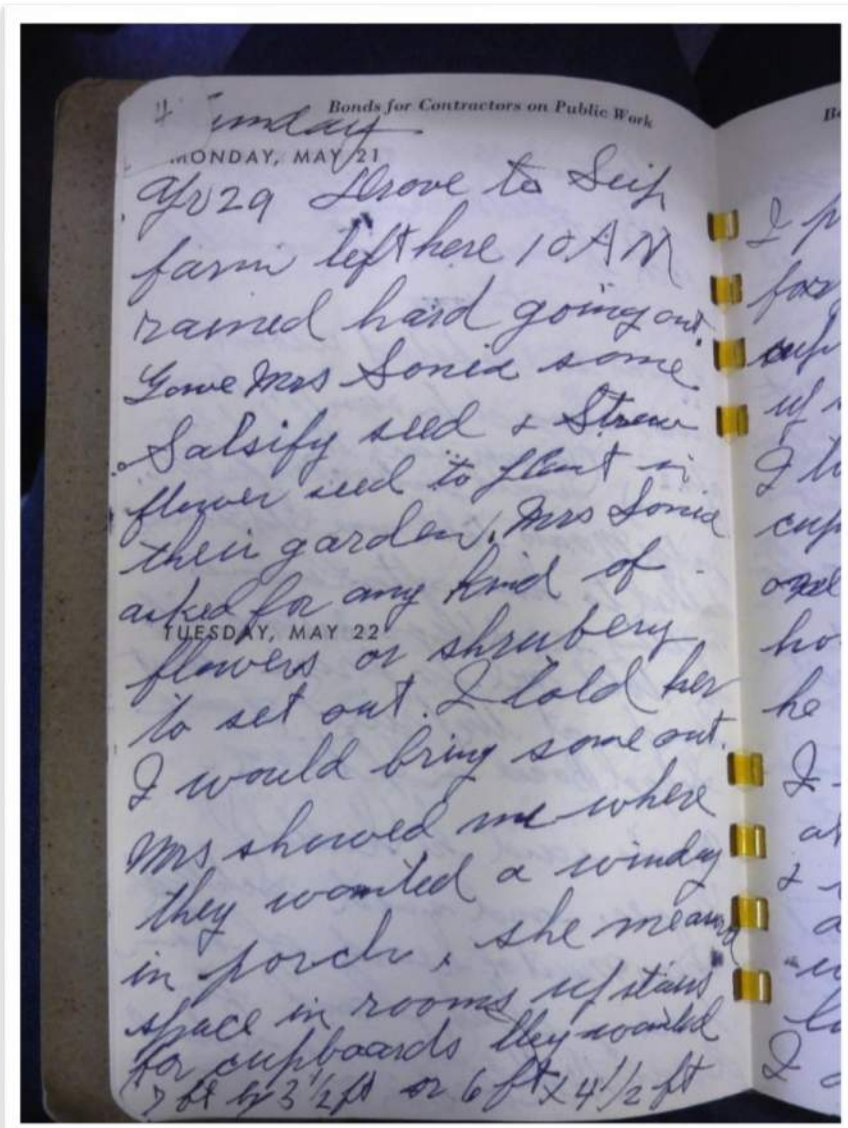

Figure 33. Page from a Diary of Charles G. Schlegel. (Chillicothe, Diary, Ross County Historical Society, McKell Library Archives: East, 1989.201, Schlegel Box East Wall, 1956.)

[98] Schlegel Diary, 1956-57.

Mrs. Sonia was clearly involved in many aspects of life on the farm. She handled collection of payments and other farm chores, and often spoke to Schlegel about work on the house. He wrote around May 1956 that that she had “measured space in rooms upstairs for cupboards she wanted…and Mrs. Sonia showed me rugs she bought for hall…used the linoleum...in one of the bedrooms upstairs…I promised to buy lumber for Joe to build clothes cupboards in the two rooms upstairs.”[99] Part of her interest in the house may have been to prepare for an upcoming expansion of the family. Schlegel’s diary includes an entry for July 14, 1957 titled in red ink “Mrs. Sonia’s baby girl.”[100]

Another “red letter” diary entry shows that Schlegel was interested in the history of the Blackstone house. He also used red ink for an entry dated June 17, 1954, which consisted of a brief history of the house that Schlegel noted had come from Rodney Gragg, a resident of Bainbridge who was interested in local history. Gragg’s account correctly identified the house as having been built for a member of the Blackstone family, but incorrectly attributed it to Thomas Blackstone’s brother William, and gave it a construction date of 1840.[101] Inaccuracies aside, Gragg deserves credit as one of the first area residents to recognize the historical significance of the house. Schlegel’s use of red ink for that diary entry indicates that he considered it to be important information.

Work on the back porch of the house appears to have finally gotten underway by April 29, 1956, when Schlegel wrote: “Drove to Seip farm…Mrs. Showed me where they wanted a windy in porch...” and by July that year they were installing screening. (Figure 33). The work was apparently completed early in 1957, when he noted “Screen door ordered from Bainbridge Hardware for Sonia’s.[102] The 1957 diary also had notes that the Sonias were paying $1,500 that year for “100 acres and 6 room brick house,” and that he had spent $4,000 on the house up to that point.

Completion of the porch capped a long string of improvements to the Blackstone house and outbuildings. Between 1953 and 1957, Schlegel repaired and re-roofed the brick outbuildings, rebuilt the back porch and partially re-roofed the house, added a bathroom and septic system, as well as new telephone service, and upgraded interior finishes. His apparent appreciation for the craftsmanship of the house (and perhaps his thrifty nature) resulted in a decision to keep interior woodwork and other features, adding varnish and minor upgrades instead of ripping everything out and starting over. As a result, his upgrades improved functionality while retaining character-defining historic features. The house today looks much as it did after that flurry of activity, and the period of significance therefore ends at 1957.

[99] Schlegel Diary, 1956-57. It does not look like cabinets were ever added to the upstairs bedrooms.
[100] Schlegel Diary, 1956-57.
[101] Schlegel Diary, 1954. The description also claimed Blackstone built it to match a building from his hometown in Virginia, which would not have possible, since Thomas Blackstone was born in Ohio.
[102] Schlegel Diary, 1956-57.

Episode 3 – Mary Anne Schlegel and Additional Park Development, 1957-1990

When Charles Schlegel died in 1962, his only child, Mary Anne Schlegel, took over ownership of the farm. She was very familiar with the property, having spent time there throughout her life. She visited during the archeological digs of the 1920s, and continued to spend time there with her father into the 1950s. His diary entries show that Mary Anne sometimes came along on his trips to the farm, which were frequent. One of his routine tasks was to wind the clocks at the Seip farmhouse, as well as in the buildings of the fish camp by the creek on the south end of the property.[103] The fish camp appears to have served as a country retreat for the Schlegels over much of the twentieth century.

Mary Anne Schlegel was also a resident of Chillicothe, and like the rest of her family, operated the Seip farm as an investment property. Also like the rest of her family, she was aware of the significance of the earthworks and interested in seeing them preserved. To that end, she began working to get the land into public hands just a few years after she inherited it.

In 1966, she wrote to the Ohio Historical Society with an offer to sell the property to them. Although the first reply to that offer was positive, upon further study the society decided not to pursue acquisition at that time. Society director Daniel R. Porter wrote that the society had decided that since the Seip earthworks "were, in use identical to those earthworks presently preserved at Mound City" that they had decided against trying to purchase the property at that time. He stated that the Society was still "keenly interested" and hoped to be able to revisit the issue once more funding became available.[104]

Three years later, those parties were still having much the same conversation. In January 1969, Mary Anne Schlegel wrote to Dr. Ray Baby of the Ohio Historical Society:

> "It was pleasant to meet with you...to discuss acquisition of my farm by the state of Ohio for archeological exploration and development. I will sell the entire farm…for $100,000, reserving only approximately five acres along the banks of the Paint Creek with two cabins thereon as a life estate. The seven-room brick house, brick smoke house and milk house, and corn crib will be immediately transferred with the 110 acres…The house is presently rented for $75 month, and the land is under cultivation on 50-50 share basis. There is no lien against the farm and I will, of course, pay the taxes in full to date of transfer.[105]

[103] Schlegel Diary, 1953.
[104] Daniel R. Porter to Mary Anne Schlegel, December 19, 1966. (HOCU Archives Acc # HOCU-00314 Cat # HOCU-42039, Seip Mound Box 9 F 5, OHS files.)
[105] Mary Anne Schlegel to Dr. Ray Baby, Ohio Historical Society, Jan 11, 1969. HOCU Archives Acc # HOCU-00314 Cat # HOCU-42039, Seip Mound Box 9 F 5, OHS files.

Again, she received a polite refusal of her offer. Her reply to the Historical Society shows a growing frustration with the process:

> I appreciate (the trustees) expression of regret but in view of the fact that our correspondence on this matter dates from 1966, I would also like to convey to them the probability that this tract may not be available to them in the future. I have already been approached by a realtor interested in a subdivision there and while I have, as you know, a sentimental concern for this farm and a vital interest in historic preservation…I may have to forgo the luxury of a dream of seeing an extensive restoration of an archeological attraction.…As we say down here in Paint Valley, one must 'fish or cut bait'.[106]

In spite of that sharp reply, Schlegel did not allow the farm to be redeveloped. She retained ownership of the property for the rest of her life, and the house and land were used as rental property for many more years. Photos taken in the 1970s and 80s show that there were few to no changes made to the house in those decades (Figures 34 and 35). Aside from new fencing in the front yard and changes in patterns of vegetation, those photos of the house look much like the ones taken by Frary in the 1920s (Figures 29 and 30).

<u>Seip Mound State Monument 1957-1990</u>
Although the Ohio Historical Society did not fund expansion of the Seip Mound State Monument via acquisition of the Seip farm in the 1960s, the organization remained committed to the site, and worked to expand knowledge of the resources during this time period. Daniel Porter's reply to Schlegels' first offer of a sale in 1966 noted that "the sheltered exhibit to be created at the Seip Mound and due to be built this spring will have to suffice as the state's share of participation, as we see it.[107] That teepee-shaped exhibit, which was located almost due west of the Blackstone house, was installed in 1968.[108] A description of the property that was written a few years later also noted that "restrooms are near the exhibit pavilion," and that the land closest to the highway contained a rest area and picnic ground. [109]

The 1960 and 70s also brought additional state-sponsored study of the Seip Earthworks complex. New archeological studies began in 1966, when archaeologists Ray Baby and Martha Potter excavated a trench into a part of Seip Mound #1 not excavated before. (Baby was the same person Mary Anne Schlelgel spoke to about selling her property in 1969.) Those archaeological explorations continued through 1977, and included excavating parts of the restored embankment, as well as areas between them and the mound.[110]

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[106] Mary Anne Schlegel to Daniel Porter, Director, Ohio Historical Society, May 5, 1969. HOCU Archives Acc # HOCU-00314 Cat # HOCU-42039, Seip Mound Box 9 F 5, OHS files.
[107] Daniel R. Porter to Mary Anne Schlegel, December 19, 1966. (HOCU Archives Acc # HOCU-00314 Cat # HOCU-42039, Seip Mound Box 9 F 5, OHS files.)
[108] Stephan C. Kolezar, *Seip Earthworks*, National Register Nomination, Ref. No. 7400161, (National Park Service, US Department of the Interior, 1974), n.p.
[109] Kolezar, *Seip Earthworks*, n.p.
[110] Lepper, "Seip Mound", n.p.

In the early 1970s the state encouraged further recognition of the entire earthworks complex by preparing successful nominations to the National Register of Historic Places. In 1971, the entire Seip Earthworks were listed in the Register, for significance in the area of Archaeology. The period of significance for that work was 300-600 A.D., and no direct mention was made of the house and outbuildings in that nomination. The nomination did note, however, that "the only unrestored and untouched portion of the earthworks system is one segment of the semi-circular embankment immediately east of the segment owned by the State."[111] At least part of that "untouched" site contains the Blackstone house and outbuildings, which served to protect that part of the earthworks.

Figure 34. Photo of the Blackstone House taken in 1974. (Photo Number 1974.164.76.os. Ross County Historical Society.)

[111] Kolezar, *Seip Earthworks*, n.p.

Figure 35. Photo of the Blackstone House taken ca 1989. (Photo Number 1989.21.055. Ross County Historical Society.)

Shortly after the Seip Earthworks were listed in the Register, the state sponsored another nomination, which added mounds on the Dill property east of the Seip farm, for an overall nomination of the Seip Earthworks and Dill Mounds District. That larger new district was listed in the National Register in 1974.[112] The second nomination also shows that there was interest in seeing the Seip Mound State Memorial expanded: "Plans to acquire additional land for the state memorial and to carry out further problem-oriented excavations are underway."[113]

[112] Dr. Major C. R. McCullogh, *Seip Earthworks and Dill Mounds District*, (National Register Nomination, Ref. No. 74001611. National Park Service, US Department of the Interior, 1974.) n.p.
[113] McCullogh, *Seip Earthworks and Dill Mounds District*, n.p.

Figure 36. An aerial view of the farm (looking north) taken during the 1970s excavation project. The Blackstone house and outbuildings are in the upper center, and the frame barn or corn crib is east (right) of the house. Note the tree line of the state park. (Photo Collection Number A0957, Sheet 9, number 177, Ohio History Connection Archeological Collections Facility, Columbus, Ohio.)

<u>Recognition of the Blackstone House 1970-1980</u>

The 1970s and 80s also brought an increased appreciation for the historical value of the Blackstone house and outbuildings. One of the first organizations to recognize the house was the South Central Ohio Preservation Society (SCOPS), one of the first regional historic preservation groups to form in the state of Ohio.[114] The group was organized in 1967, and by 1970, they had published an annotated map of south-central Ohio that included basic information about local historic sites of note.[115] The Blackstone house was among the forty-two Ross County sites that were described in that publication. It may have been included due to the efforts of Rodney Gragg, who was listed as a contributor for that study.[116] Seven years later SCOPS completed an “Ohio Historic Inventory Form” for the Blackstone property, as part of a larger survey of historic sites in the state. Gragg is also listed as a source for that document. [117] Those sources provided significant early recognition of the architectural and historic significance of the house. Prior to that time, study of the house had taken a backseat to that of the prehistoric resources on the property. The inventory form is also notable as the first document to identify the house as potentially eligible for inclusion in the National Register of Historic Places.

[114] “New Area Preservation Society Grows Rapidly.” *Chillicothe Gazette.* Feb. 2, 1967, 22B.
[115] “SCOPS Historical Area: In Historical South Central Ohio,” Ross County Map. (South Central Ohio Preservation Society, 1970), n.p.
[116] “New Area Preservation Society Grows Rapidly.”
[117] That form is on file with the Ohio State Historic Preservation Office, Columbus, Ohio. The form and the map both incorrectly refer to it as the William Blackstone house, built in 1840.

In 1980, the Blackstone house received further recognition, when it was included in a study of historic houses in the Bainbridge area, titled "Houses in the Valley," by Dorothy Countryman.[118] That study, which featured large photos of historic houses in and around Bainbridge, described the Blackstone house as being "built in the style of many Virginia country houses of the period."[119]

Mary Anne Schlegel retained ownership of the house and the rest of the farmland until her death in 1988. Her will included a bequest of the land to the Ohio Historical Society, at long last addressing her stated wish to see the land become public property. The property was transferred to the state on Feb. 16, 1990. [120]

Episode 4 – State Ownership, 1990-2014

Schlegel's gift to the state resulted in a major expansion of the grounds of the Seip Mound State Monument. The acreage of the park increased more than ten times over, from 10.31 acres to approximately 126 (Figure 37.) The newly expanded boundaries encompassed all of the 103-3/4 acre parcel of land in VMS 392 that belonged to Thomas Blackstone at the time of his death, and included the house and brick outbuildings.

The park had those boundaries for only a short time. Two years later it was expanded once again, via a cooperative effort with the National Park Service which included NPS acquisition of land on either side of the state park, to bring the majority of the original earthworks complex into public ownership. That purchase was part of a larger project which included NPS acquisition of the High Bank Works, Hopeton Earthworks, and the Hopewell Mound Group.[121] Soon after, on March 27, 1992, the Seip Mound State Memorial became part of the newly established Hopewell Culture National Historical Park.[122]

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[118] Dorothy Countryman, "Houses in the Valley: 1805-1980," (Bainbridge Ohio: Bainbridge Historical Society, 1980) n.p.
[119] Countryman, "Houses in the Valley", n.p.
[120] The property was transferred to the Historical Society in early 1990. The deed of transfer was recorded in Ross County Deed Records, Book 519, p. 542.
[121] "Hopewell Culture National Historical Park: Cultural Landscape Report and Environmental Assessment," (National Park Service, US Department of the Interior, 2016), 2-62.
[122] "Hopewell Culture National Historical Park: Administrative History," (National Park Service, 1999.) Accessed July 20, 2016, https://www.nps.gov/parkhistory/online_books/hocu/adhi/adhiad.htm.

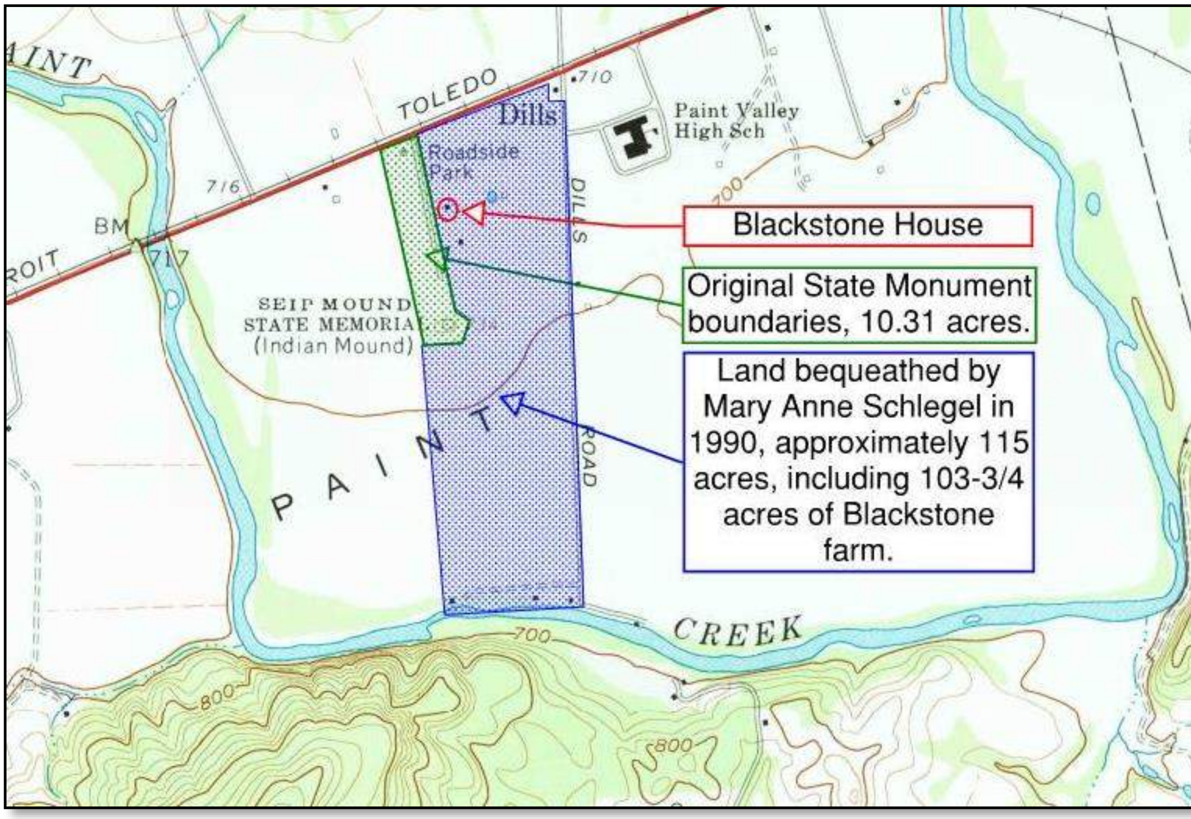

Figure 37. Approximate outline of Seip Monument Boundaries in 1990. (Base Map: Morgantown Quadrangle Map, Ross County, Ohio, 1961, U. S. Topo and Historical Topographic Map Collection, 1961, Accessed April 24, 2016.)

The 126-acre state park and the Blackstone house and outbuildings remained in the control of the Ohio Historical Society, however. The house continued to serve as a rental property for several years after that, but after decades without major upgrades, it was in poor condition, and it was difficult to find and keep good tenants.[123] Minor updates were made every few years throughout the 1990s in an effort to make the aging house more attractive to renters.

A new water pump was installed in 1994, and a year later the front dormers and facia boards were repaired. In 1997, the basement was winterized, and a larger project in 1999 included new plumbing and general kitchen and bathroom upgrades. A year later, wiring was replaced, and new flooring was added to the bathroom. Exterior work in 2000 included some exterior tuck pointing, soffit and fascia repair, and new gutters and roofing.[124] Park managers struggled to find suitable renters in spite of those upgrades, and finally decided to leave the house empty. By 2003 it was vacant and the state had stopped heating it in the winter.[125]

[123] George Kane, Ohio History Connection Facilities Department, in conversation with Deb Sheals, April, 2016.
[124] "Seip Earthworks House," Inventory and repair record on file with the Ohio History Connection, n.d.
[125] George Kane, 2016.

Episode 5 – National Park Ownership, 2014-2016

In 2014, ownership of the Seip Mound State Memorial was transferred to the National Park Service, which already owned the rest of the sites in the Hopewell Culture National Historical Park. A ceremony to mark that change was held October 9, 2014 at the park. A program for that event invited interested parties to "Join us to mark this occasion as the Ohio History Connection transfers ownership of its part of this important World Heritage Tentative List site to the National Park Service."[126] The "Ohio History Connection" was the new name of the Ohio State Historical Society, which had also been known as the Ohio State Historical and Archaeological Society earlier in the century. The new name was launched just a few months before the transfer ceremony for Seip Earthworks.[127]

With that change, almost all of the Seip Earthworks were owned by the National Park Service, which also took over responsibility for the Blackstone house and outbuildings. In 2015, the Blackstone house was added to the List of Classified Structures (LCS), with the designation of Historic Structure 37 (HS-37).[128] The outbuildings were mentioned in the LCS entry for HS-37 but were not assigned individual historic structure numbers. That LCS entry also included basic historical information, some of which appears to have been taken from the 1977 inventory form, including the wrong original owner name. The LCS did revise the assumed date of construction, to ca. 1847. That change was made due to an observation that the house was not shown on the 1846 Squier and Davis map of the earthworks.

Physical work on the former State Monument property has been limited since the change of ownership. Changes to the earthworks and grounds included removal of public toilets and the teepee-shaped display that was installed in the 1960s. Smaller new interpretive signage was added, and the Interpretive Exhibit that shows the post pattern of prehistoric structures excavated in the 1970s was also partially rehabilitated. Work on the house and outbuildings has been confined to basic upkeep and stabilization. A small change to the site took place in the summer of 2016, when a stone cover for the well near the milk house was replaced with a poured concrete slab.

Recent National Park Service-sponsored study of the property includes a Cultural Landscape Report (CLR) that was begun in 2015. The CLR includes information about all of the sites in the Hopewell Culture National Historical Park. That document contains good background

[126] A copy of the program is included with *Historic Documents Relating to the Acquisition of Seip Mound by the Ohio History Connection, (*Typescript, Oct. 2014).
[127] "Ohio Historical Society is now the Ohio History Connection," (Posted April 21, 2014 by Emmy Beach. Accessed September 2, 2016. https://www.ohiohistory.org/about-us/newsroom/april-2014/ohio-history-connection-announcement.)
[128] "Seip Unit: William Blackstone House," List of Classified Structures, Ohio, Hopewell Culture National Historical Park [OH]. Accessed July 21, 2016. http://www.hscl.cr.nps.gov/insidenps/report.asp?STATE=OH&PARK=HOCU&STRUCTURE=&SORT=&RECORDNO=10.

information about archeology issues and general park development, as well as evaluation of park landscapes for their association with the Hopewell culture.

The current Historic Structures Report was commissioned in 2016, with the stated goals of documenting the history and physical condition of the buildings, and examining a range of future treatment alternatives.

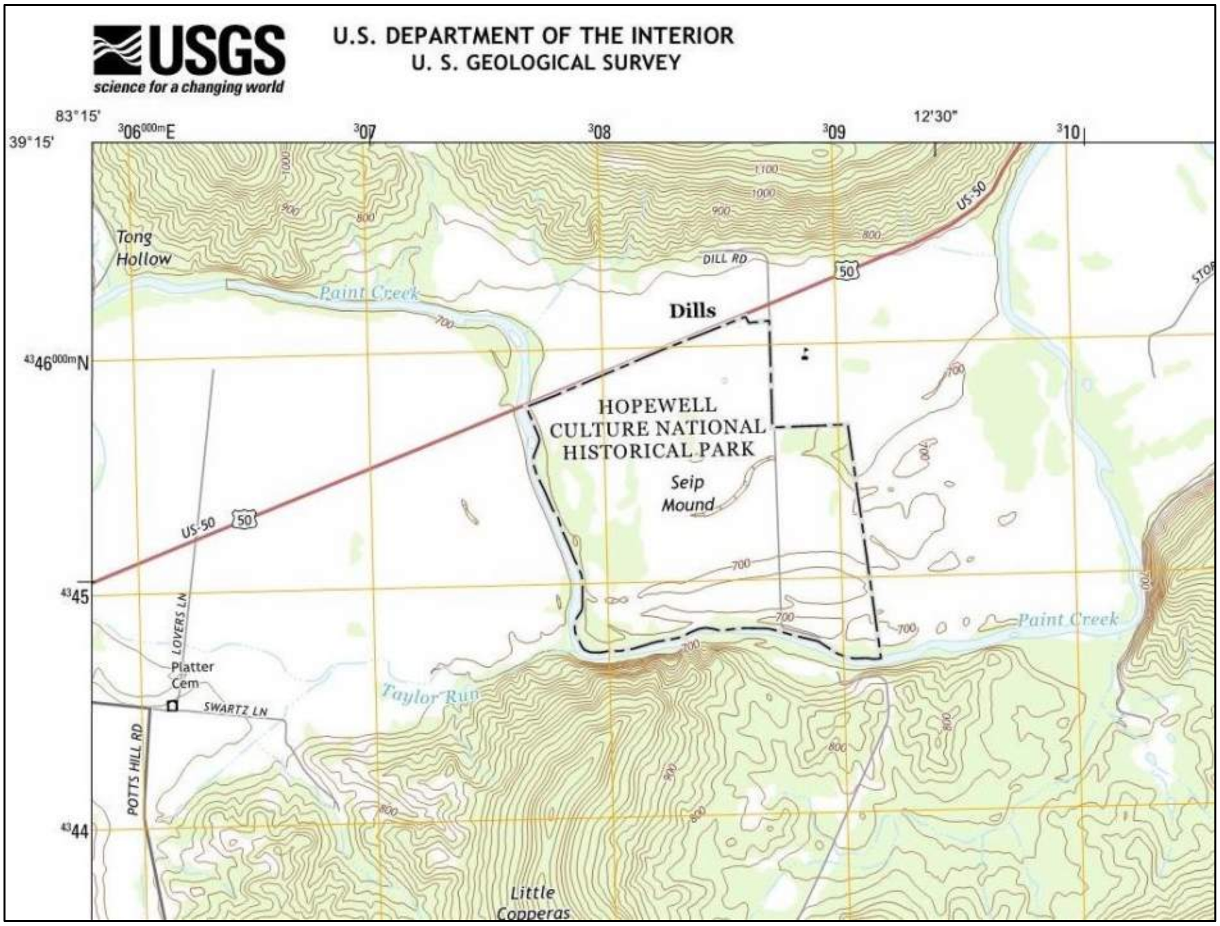

Figure 38. 2013 Topographic Map of the Property, with Current Legislative Park Boundary. (U. S. Topo and Historical Topographic Map Collection, Morgantown and Piketown Quads, Ross County, Ohio, 1915-2010. Accessed April 24, 2016. http://geonames.usgs.gov/apex/f?p=262:18:0::NO:RP.)

Photo of Mary Anne Schlegel (left) and A. D. Fuller, 1927. (Photo Collection Number A0957, Folder 6, Ohio History Connection Archeological Collections Facility, Columbus, Ohio.)

1B HISTORICAL BACKGROUND AND CONTEXT

Part 1B | Historical Background and Context

Historical and Cultural Significance

The Blackstone house and outbuildings are architecturally significant as well-crafted, highly intact examples of mid-nineteenth century residential and agricultural architecture. From the time of their construction, ca. 1857, until the death of Thomas Blackstone in 1882, they served as the headquarters of the Blackstone family farm. That farm encompassed more than 470 acres along Paint Creek, including just over 100 acres of the prehistoric earthworks north of the creek.

The house was recognized in 1977 as potentially eligible for the National Register of Historic Places, as an example of nineteenth century Georgian-inspired architecture. This survey was conducted by interested volunteers, with the inventory form completed by local historian Rodney Gragg. It remains a highly intact example of what is a locally rare vernacular house type, one and one-half stories with a dormered roof and a massed plan that features a wide central stair hall. That floorplan type has distinct ties to Georgian architecture of the previous century and is often referred to as a "Georgian plan" in architectural studies of nineteenth-century vernacular architecture.[129]

The house is notably intact, inside and out. It has seen no additions or major exterior alterations to its original form or footprint since the time of its construction. It contains an impressive amount of original millwork, including a formal front entranceway, hand crafted doors and cabinetry, and interior door casing typical of the Greek Revival style.

Subsequent research has revealed that the brick outbuildings near the house contribute to that significance, as intact examples of agricultural outbuildings. The smokehouse and milk house were essential parts of the Blackstone family farm and they continued to serve an agricultural function well into the twentieth century. They have many features typical of agricultural outbuildings of the time period and like the house, have seen very few alterations. Together, the three buildings form a significant, intact example of a nineteenth century house-yard which served as the center of a working farm for well over a century.

The buildings are also significant for their association with the Seip family, for whom the earthworks complex takes its name. After Thomas Blackstone's death, his land was divided. The house and outbuildings, along with 103.73 acres of land, were purchased in 1883 by Charles Seip, a businessman from Chillicothe who bought the property as an investment. Seip died in 1902, but the land remained in his family far into the twentieth century. It was owned by Charles Seip's children in 1906, when William C. Mills began the first formal archeological exploration within the earthworks. Mills excavated what is now called the Seip Conjoined

[129] See for example, Henry Glassie, *Pattern in the Material Folk Culture of the Eastern United States,* (Philadelphia: University of Pennsylvania Press, 1968), 109.

Mound.[130] From that point on, the entire earthworks complex has been known as the Seip Earthworks.

Seip family contributions to the study and preservation of the earthworks continued in the 1920s, when Charles Seip's children allowed archeologist Henry Shetrone to use the Blackstone house as a field headquarters during excavations. In 1927, they conveyed a small section of the large central mound (now Seip-Pricer Mound) to the Ohio State Historical and Archaeological Society.[131] That transfer facilitated the creation of the Seip Mound State Memorial.[132] In the 1950s, Charles Seip's grandson, Charles G. Schlegel, took over ownership of the farm, and upgraded and repaired the house and outbuildings.

Finally, in 1990, Charles Seip's great granddaughter, Mary Anne Schlegel, bequeathed the remainder of the farm, including the Blackstone house and outbuildings, to the Ohio Historical Society. Schlegel had a long interest in the preservation of the property. As a child, she visited the site during the much-publicized excavation of the Seip-Pricer Mound in 1927, and in the 1960s she offered to sell the property to the Ohio Historical Society to ensure preservation of the earthworks (Figure 39). Lack of funding prevented the Society from purchasing the property at that time, and she still owned it when she died in 1988. She left it to the organization in her will, capping more than a century of Seip family stewardship. The property was transferred to the state in 1990.

Figure 39. Photo of 12-year-old Mary Anne Schlegel (left) and A. D. Fuller, 1927. Fuller's connection to the family is unknown; the names come from a label on the back of the photo. (Photo Collection Number A0957, Folder 6, Ohio History Connection Archeological Collections Facility, Columbus, Ohio.)

[130] Lepper, *Seip Mound,* 1.
[131] Now named the Ohio History Connection.
[132] Ross County, Ohio Deed Records, Book 291, 5. The Seips transferred .31 of an acre, their portion of the mound, to supplement a 10 acre parcel supplied by the Camp family in July the same year. (Deed Book 207, 100.)

Architectural Context

Virginia Military District

The Blackstone house and outbuildings are located within the Virginia Military District of Ohio, an area that saw a concentration of early settlers from Virginia and other southern states in the late eighteenth and early nineteenth centuries. That influx resulted in the development of a cultural region with distinct architectural traditions that that reflected southern norms.

The Northwest Territory, which encompassed the area that is now Ohio, became part of the United States in 1785.[133] After the Revolutionary War, land in the Northwest Territory was subject to claims of ownership by existing states, including Virginia. This was before the formation of West Virginia, which meant that Virginia shared a long border with the area that is now Ohio. In 1786, Virginia's claims were settled with the creation of the Virginia Military District, a large area located between the Scioto and Little Miami Rivers in what is now southwest Ohio.[134] The only other state to be awarded land in the new territory was Connecticut, which received a large section in the northeast, dubbed the Western Reserve of Connecticut.[135]

The Military District was created to supply land to Virginia veterans of the American Revolution, who were awarded land bounties based upon rank. A private was given 100 acres and a Major General was eligible for up to 15,000 acres.[136] Veterans or their heirs could settle the land themselves or sell it to speculators. As a result, the area became what historian Walter Kidney described as "a South in miniature."[137] Kidney also observed that "the Southern way of building, naturally enough, was reflected in the homes and city architecture" of the region.[138]

Another author noted that the building traditions of the Military District offered a clear contrast to those of the Western Reserve, which was settled by New Englanders. Architectural historian Richard Campen wrote in *Ohio: An Architectural Portrait* that former New Englanders who settled in Western Reserve laid out their towns to resemble New England villages, and favored frame construction. He observed that they often built "one-and-a-half and two-story frame houses modestly reflecting the Federal forms then prevailing in the east."[139] Houses built in the Virginia Military District, by contrast, "often assume a square or nearly square plan which is relatively rare in the north. Moreover, brick with stone trim is more apt to be the building material in the South."[140] The Blackstone house was clearly built according to the traditions of those southern settlers.

[133] Walter C. Kidney, *Historic Buildings of Ohio* (Pittsburgh: Ober Park Associates, 1972) 3.
[134] Campen, *Architectural Portrait,* 15.
[135] Campen, *Architectural Portrait,* 15.
[136] Knepper, *Ohio Lands Book*, 20.
[137] Kidney, *Historic Buildings,* 3.
[138] Kidney, *Historic Buildings,* 3.
[139] Campen, *Architectural Portrait,* 17.
[140] Campen, *Architectural Portrait,* 21. Campen and others have also noted that a third regional identity developed across the middle of the state in the early 1800s, as the Cumberland Pike or National Road was extended along what is now the I-70 corridor. That area included influences of Pennsylvania Germans and others.

The Blackstone property is located less than twenty miles from Chillicothe, which became the first state capitol in 1803. Large numbers of the town founders were natives of Virginia, including Thomas Worthington, one of the town's most prominent early residents. Worthington moved to the Territory from Virginia in 1798, and was active in the push for Ohio statehood. He served as one of the first U. S. Senators for Ohio, and became the state's sixth governor in in 1814.[141] He was also responsible for the construction of one of the most distinguished early buildings in Chillicothe, a large brick house which he named Adena.

Adena, completed in 1807 and still in existence, shows that even though the Virginia Military District was at the edge of the American frontier, it was far from culturally secluded. The house was designed by Benjamin Henry Latrobe, the first professional architect of the United Sates, best known for this work on the United Sates Capitol.[142] (Latrobe is also credited with the design of a smaller house built for Nathan Reeves in the nearby town of Bainbridge around 1800.[143]) The style of the two-story stone house is listed in one architectural history as being transitional, with a Georgian style exterior and Federal style interior detailing (Figure 40).[144] That blending of styles is not surprising, since the house was built early in the Federal period, just after the end of the Georgian period of architectural design in the United Sates.

Figure 40. "Adena, Thomas Worthington House." (HABS OHIO, 71-CHILC.V. 1, Adena, Saint Margaret's Cemetery vicinity, Chillicothe, Ross County, OH. HABS Survey No. 0H-645. Accessed, July 9, 2016. http://www.loc.gov/pictures/collection/hh/item/oh0144.)

[141] "Adena, Thomas Worthington House" (HABS OHIO, 71-CHILC.V. 1, Adena, Saint Margaret's Cemetery vicinity, Chillicothe, Ross County, OH. HABS Survey No. 0H-645. Accessed, July 9, 2016. http://www.loc.gov/pictures/collection/hh/item/oh0144) Descriptive data, 8.
[142] HABS, "Adena, Descriptive Data", 8.
[143] Baum, *History of Bainbridge*, 19.
[144] Campen, *Architectural Portrait,* 45.

Georgian Style

The Georgian style was the first formal architectural style to develop in the American colonies. Named after British King George, it has been described as "the dominant style of the English colonies from 1700 to about 1780, and remained popular in some areas into the late 1820s.[145] The style had its genesis in Williamsburg, Virginia, with the construction of the Wren Building which was built at the College of William and Mary in 1695 and followed soon after with the Governor's Palace and the Capitol, also in Williamsburg.[146]

The Wren building is named for English architect Christopher Wren. Wren popularized Renaissance ideals of architecture in England that came to characterize the Georgian style.[147] Those ideals spread to the Colonies through various publications which focused on the work of Andreas Palladio and other architects of the sixteenth century, who in turn had borrowed freely from classical Roman architecture.[148] By the last quarter of the century, architectural pattern books had been widely distributed in the colonies, and American builders were known to copy everything from specific doorway detailing to the design of entire facades.[149]

Tendencies to copy architectural motifs directly notwithstanding, the style marked the introduction of symmetrical massing and classical design elements to the Colonies, where earlier buildings had often emulated late medieval architecture.

Georgian style houses also tended to have what is sometimes called a "double-pile" floorplan that was two rooms deep, with a central hall.[150] This was also a generally new development in residential design in the colonies. As Marcus Whiffen wrote in *American Architecture Since 1780*, most seventeenth century houses in the colonies had linear floorplans that were just one room deep in the main part of the house, although extra rooms were often located in rear ells or lean-to additions. He noted that "the double-pile house—two rooms deep, squarish in plan" appeared early in the eighteenth century and persisted, as the commonest type for houses of any consequence, down to the Revolution and beyond."[151]

Although many, if not most, Georgian houses were two to two and one-half stories, smaller versions were also popular. One study of American houses identified many smaller "Four-Room Plan" house types that were built in the Chesapeake Bay tidewater area throughout the eighteenth century (Figures 41 and 42). Historian Gerald Forster's description of that house type could have been written specifically for the Blackstone House: "symmetrical 1½ or later 2½

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145 Virginia and Lee McAlester, *Field Guide to American Houses* (New York: Knopf, 1986) 146.
146 John Poppeliers, et. al. *What Style Is it?: A Guide to American Architecture United States* (National Trust for Historic Preservation, 1983) 18-19.
147 Gerald Foster, *American Houses* (Boston: Houghton Mifflin Company, 2004), 114-116. It is not clear if Wren designed that building or simply inspired it.
148 Poppeliers, et. al. *What Style Is it?,* 18.
149 Whiffen, American Architecture, 8-10.
150 Whiffen, American Architecture, 8.
151 Whiffen, American Architecture, 8.

story, 2-room deep, end gabled block on a raised foundation. Twin chimneys at the gable ends, gabled dormers common."[152]

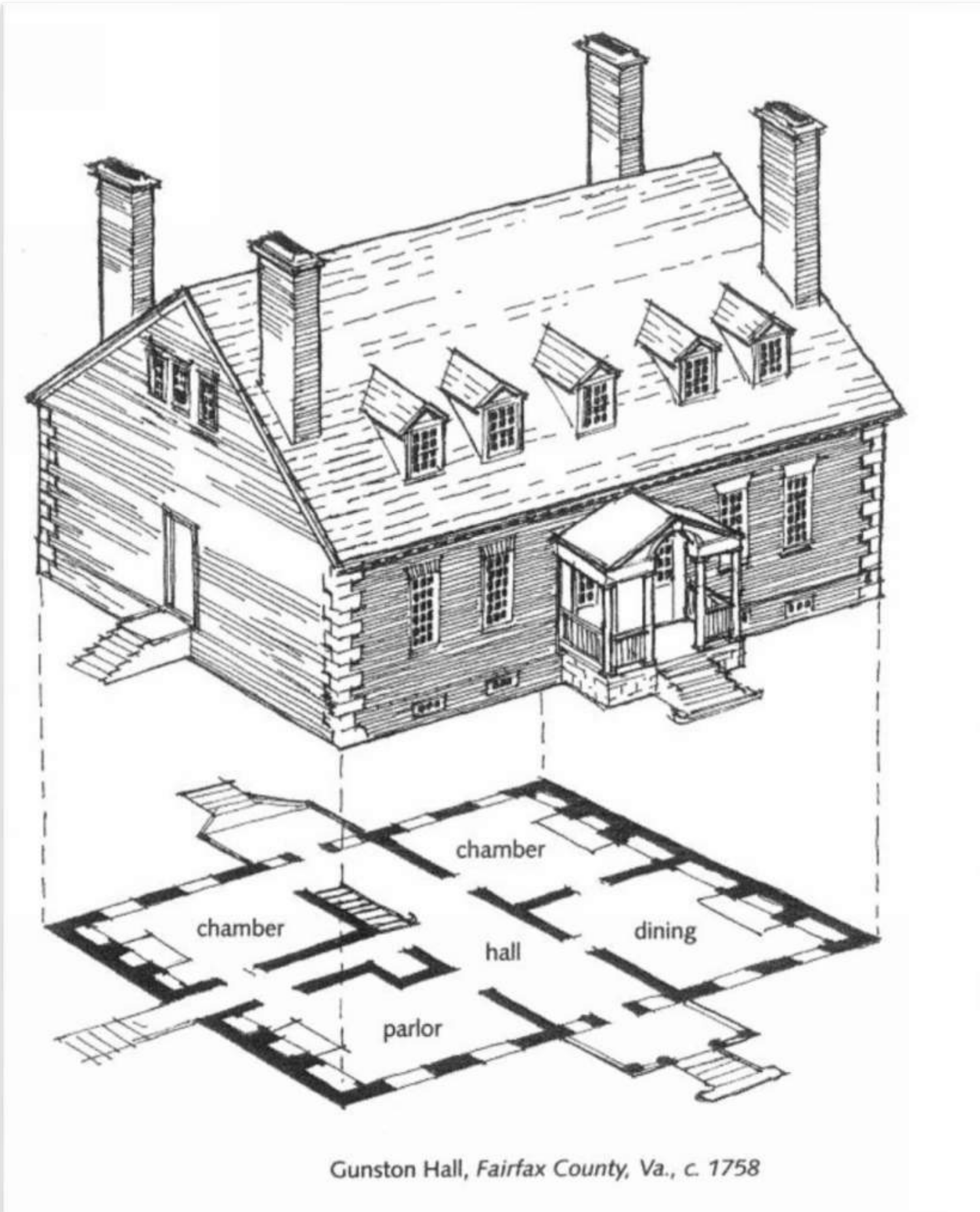

Figure 41. Gunston Hall, built a full century before the Blackstone house. (Gerald Foster, *American Houses,* Boston: Houghton Mifflin Company, 2004, 113.)

[152] Foster, *American Houses*, 110.

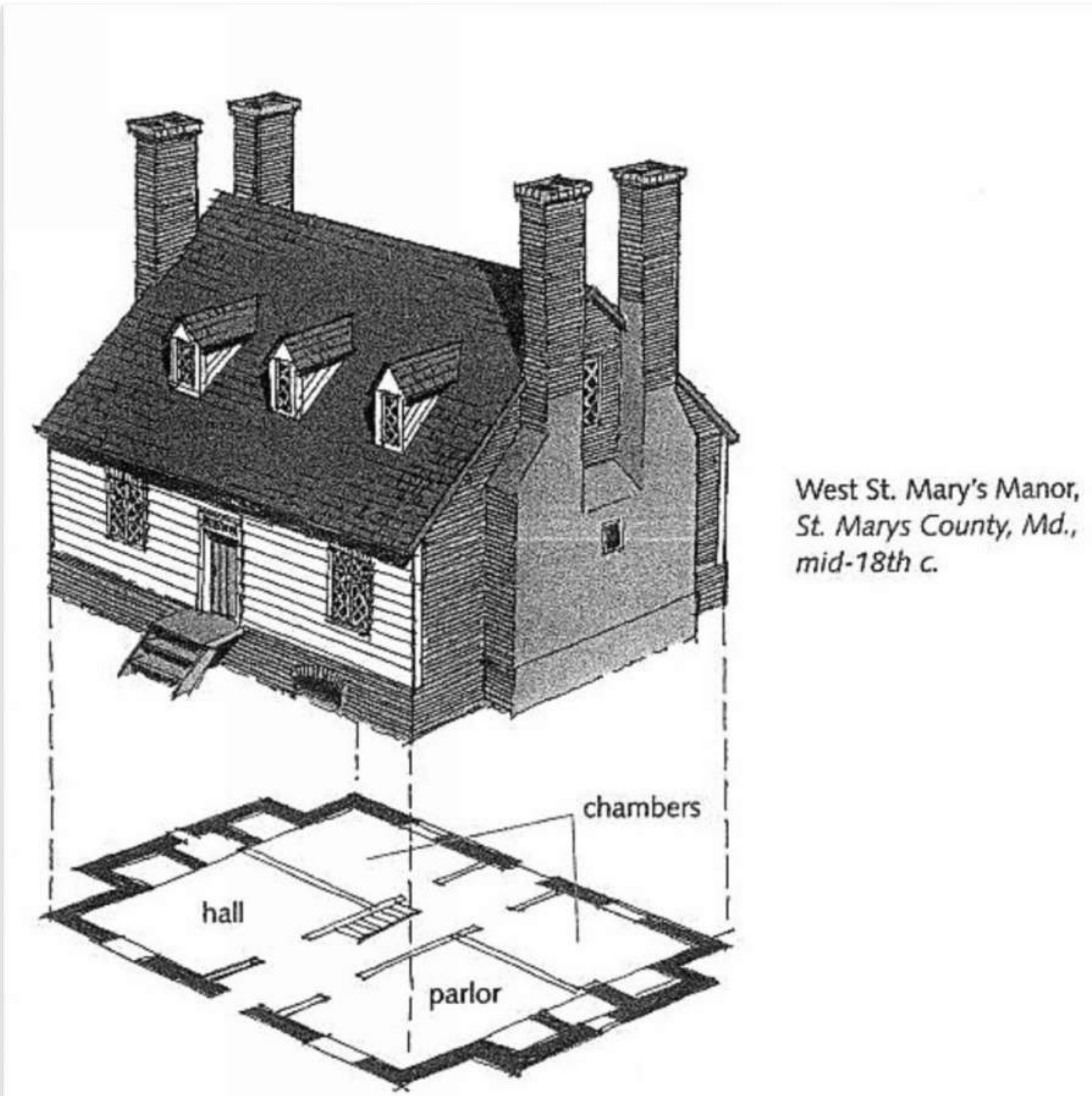

Figure 42. West St. Mary's Manor, built a full century before the Blackstone house. (Gerald Foster, *American Houses,* Boston: Houghton Mifflin Company, 2004, 112.)

Architectural Detailing of the Blackstone House

By the time the Blackstone house was built in the 1850s, the Georgian style had long been supplanted by Federal and Greek Revival movements in high-style architecture. However, many characteristics of Georgian houses had become part of a vernacular vocabulary that was based more upon building traditions than the latest trends in architectural design. Everyday builders tended to build what they knew, and by the time this house was constructed, Georgian plan houses had been around for more than a century. The two-room deep central hall plan proved to be particularly enduring, and numerous studies of nineteenth century vernacular architecture refer to that layout as "Georgian."[153] Early cultural geographer Henry Glassie, for example, wrote that "the Georgian type…continued to be built through the nineteenth century, long after it had ceased to be fashionable."[154]

Although the Blackstone house is most accurately described as a vernacular house with a Georgian plan, it also exhibits elements of the Greek Revival style, which was in vogue at the time the house was built. The Greek Revival Style was most popular in American residential design from 1825-1860. [155] The most elaborate exterior feature of the house, the wide and carefully detailed front doorway, is a good example of Greek Revival style detailing. The doorway utilizes the most common configuration found in the doorways of Greek Revival house, a paneled door topped with a full-width transom and three-light sidelights (Figure 43).[156]

The sidelights are flanked by slender pilasters that have stylized capitals that are formed of vertical bands of millwork which vary in size and profile (Figure 43). That type of vernacular interpretation of classical detailing is not uncommon, as noted by early Ohio architectural historian Ihna T. Frary. Frary wrote in 1936, that "Along with the fine craftsmanship that exists in so much of Ohio's early architecture are to be found many examples of design"...which include "the attempts of untrained mechanics to interpret half-understood drawings."[157] Although Frary found some of those early attempts to be "ludicrous", he conceded that many reflected "rare ingenuity in solving problems of construction, and active imagination in working out the details of a design with which the builders were unfamiliar."[158]

[153] For example, Glassie, *Pattern,* 56, and Howard Wight Marshall, *Folk Architecture in Little Dixie: A Regional Culture in Missouri* (Columbia: University of Missouri Press, 1981) 67.
[154] Glassie, *Pattern*, 54.
[155] McAlester, *Field Guide*, 179
[156] McAlester, *Field Guide,* 181.
[157] Frary, *Early Homes,* 215.
[158] Frary, *Early Homes,* 215.

Figure 43. Front doorway of the Blackstone house. (Deb Sheals 2016)

The dormers of the Blackstone house, which are carefully detailed to form small temple fronts, also reflect a blending of traditional architecture and contemporary architectural trends. Although this house form and especially dormered roofs are unusual features in the Virginia Military District, there are clear precedents in Colonial architecture of the preceding century, including much of Virginia and Maryland (Figures 41 and 42).[159] A review of numerous historic sources and architectural survey records uncovered only a few double-pile one or one and one-half story houses of comparable age in Ross County or other parts of the Virginia Military District, and none of those houses had dormered roofs.[160] Local historian Kevin Coleman has observed that this house type is very rare in this part of the Paint Valley.[161]

[159] Forster, *American Houses*, 110-113.
[160] Sources checked include general architectural histories of Ohio, histories of Ross and Highland counties, local histories of Chillicothe and Bainbridge, and a review of Ohio Historic Inventory Forms for Ross County.
[161] Interview Deb Sheals and Kevin Coleman, Chillicothe Ohio, June 2016. Coleman noted that there were a few houses of this form around Hillsboro, but a review of Highland County histories did not reveal any examples of comparable dates.

One of the most similar early buildings in the area was built in the nearby town of Bainbridge in the 1840s, to serve as a courthouse. The Massie County Courthouse was constructed in the 1840s, in anticipation of the formation of a new county, which did not happen. The building was put to use as a business building, but continued to be known by that name until it was demolished in the twentieth century. Early photos show that it was brick, one and one-half stories, with a five bay facade and a side-gabled roof topped by a pair of gabled dormers (Figure 44).[162]

Figure 44. Massie County Courthouse in the late twentieth century. (Photo courtesy of Kevin Coleman.)

The general form of the Blackstone house may have been inspired by older houses in Virginia or Maryland, but the detailing of the front dormers appears to be a nod to the popularity of temple-front Greek Revival style houses of the mid nineteenth century. Gable front houses with Greek Revival styling were particularly popular in Ohio when the Blackstone house was built.[163] The more highly styled of those houses were often detailed to emulate classical temples, with pent front gables and a row of pilasters or columns across the façade.

[162] Baum, *History of Bainbridge*, 51. The building was demolished sometime after 1994.
[163] McAlester, *Field Guide*, 179-183. A map of the distribution of the front-gabled subtype of the style included in that book shows that it was “very-common” in the northeast states, including Ohio.

Figure 45. Dormer of the Blackstone house. (Sheals 2016)

Figure 46. The Allen House, Kinsman Ohio, ca. 1821. (Frary, *Early Homes of Ohio*, 180.)

Nearly every room in the Blackstone house retains at least one early or original four-panel wood door, and three of the ground floor rooms also have early built-in cabinets that are fronted with paneled doors (Figure 47). All of those doors feature mortise and tenon joints that are secured by ornamental square pegs, and they appear to be the work of a skilled cabinet-maker.

The interior millwork of the Blackstone house is well-crafted, and perhaps more refined than one might expect to find in a vernacular rural house. Although most doors and windows are surrounded by relatively simple trim, the casing around the door in the East Parlor 101 is particularly elaborate. It features a pedimented and eared top that is clearly based upon classical models. That type of interior detailing had been in use since the Georgian period, but it was also common to Greek Revival houses of the mid-eighteenth century.

Figure 47. Left, doorway at Mount Pleasant, built 1762. (Andrew Hopkins, “Mount Pleasant 1762 Philadelphia”, posted, January 2, 2011. Accessed July 10, 2016.) http://andrewhopkinsart.blogspot.com/2011/01/mount-pleasant-1762-philadelphia-pa.html. Right, Door 1/101, East Parlor 101 of the Blackstone house. (Sheals 2016)

Possible Builders/Craftsmen

Although no mention of a builder for the house was found in any historical accounts, the high-quality craftsmanship of the house and particularly of the interior millwork invites speculation that it is the work of professionals. While it is possible that the Blackstones looked to Chillicothe when it came time to hire someone to build their new home, it is more likely that they would have started closer to home, probably in the nearby town of Bainbridge, which is less than two miles away. Bainbridge today contains a number of large well-constructed buildings which date to the early eighteen hundreds, providing ample evidence that there were skilled craftsmen in the area at the time.

Bainbridge was established in 1805, and incorporated as a village in 1838 with a population of 400.[164] There were a number of construction-related businesses in operation there when the Blackstone house was built. There was at least one sawmill near the town and as many as ten in the region, all powered by the Paint Creek.[165] Mid-nineteenth century businesses in Bainbridge included a furniture dealer, a hardware store and an undertaker, (undertakers were commonly skilled as cabinet makers).[166]

Bainbridge was also home to at least two brick makers in the nineteenth century, John Wroten and Price Taylor. Wroten is credited with making the bricks used for the two-story Italianate style William Dill house that was built just east of the Blackstone house in 1859. Historian Nancy Baum wrote that the clay for the Dill House bricks came "from the Indian mound located on the farm."[167] Wroten may also have been involved in the construction of the Blackstone house, but since he would have been just 18 or 19 at the time, it is unlikely he had a leading role.[168] The 1880 census was the first in which Wroten was found to be living in Bainbridge; he was listed as a brick maker in that record.

It is more likely that Price Taylor (1808-1883) had a hand in making the bricks used for the Blackstone house. He was approximately the same age as Thomas Blackstone and lived in the Bainbridge area from at least 1840 through the 1880s.[169] Although census records routinely listed his occupation as "farmer," at least one history of Bainbridge identified him as an early brick maker. According to *Houses in the Valley*, he "burned the bricks for several early houses in Bainbridge" and also helped with the construction of a Methodist Church there in 1834. He was also involved in the general development of Bainbridge; in 1843 he and a partner platted one of the first additions to the original town.[170]

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[164] Baum, *History of Bainbridge*, 50.
[165] Baum, *History of Bainbridge*, 50.
[166] Baum, *History of Bainbridge*, 57.
[167] Baum, *History of Bainbridge*, 118.
[168] Population Schedules for Ross County, Ohio, 1880, United States Census Records, accessed August 1, 2016 at Ancestry.com.
[169] Population Schedules for Ross County, Ohio, 1840-1880, United States Census Records, accessed August 12, 2016 at Ancestry.com.
[170] *Houses in the Valley*, n.p.

It is possible that the bricks for the Blackstone house were also made from clay mined from a nearby mound. A short profile of the Blackstone house that was included in *Houses of the Valley,* noted that "the Seip Mound serves as the backdrop and probably the source of the clay of this brick house…"[171] It should be noted, however, that much of the other information about the house in that profile was incorrect, which calls the accuracy of that statement into question.

There were also a number of area residents who had other types of construction jobs. A review of the 1850 population census for the townships nearest Bainbridge and the Blackstone farm identified eleven carpenters, one "nail maker" and one brick layer, any of whom could have been involved in the Blackstone construction project.[172] (See Appendix--- for a list of early construction professionals.) No cabinet makers were listed in those census records, but that may simply be because the term was not used by census takers, or that the cabinet makers of the day also worked as farmers or carpenters.

Three of those professionals were members of the same household. The family of the nail-maker, James McIntosh, operated a boarding house that appears to have catered to tradesmen. The McIntosh family had nine boarders in 1850, all working men. That group included a carpenter and a brick layer, as well as three laborers, two blacksmiths and a millwright.

While it is entirely possible that Taylor made the bricks for the Blackstone house and McIntosh or one or more of his renters were involved in its construction, no direct tie has been established to them or to any other area builders. Historical sources for Chillicothe and the nearby town of Bourneville also failed to reveal any ties to craftsmen in those towns.[173] As is often the case with vernacular architecture, the identities of the builders of the Blackstone house and outbuildings remains a mystery.

Smokehouse

It is likely that the smokehouse on the property was built at the same time and by the same mason who constructed the house. In 1860, the Blackstone family was farming close to 500 acres of land and they owned fifty pigs, which meant they needed a way to process meat.[174] In the absence of refrigeration, smokehouses held a vital role in the preservation of meat, especially pork. As one history of smokehouses in America observed, "nearly every farm with

[171] *Houses in the Valley*, n.p.

[172] Population Schedules for Ross County, Ohio, Paint and Paxton Townships, 1850, United States Census Records. Accessed May 2016 at Ancestry.com. http://interactive.ancestry.com/8054/4204504_00739/14488014?backurl=http://person.ancestry.com/tree/100724007/person/370004365712/facts/citation/1040020723866/edit/record May 2016.

[173] "Memoirs of Madison Hemmings," PBS Frontline, Accessed June 24, 2016. http://www.pbs.org/wgbh/pages/frontline/shows/jefferson/cron/1873march.html; and Rodney Gragg, "The History of Bourneville," (Chillicothe, Ohio, 1963), 16. Gragg mentioned Patrick Keran, who he described as a cabinet maker of the "first water," but did not give a date he was active. Keran was not found in census or other records of the 1800s.

[174] Products of Agriculture, Paxton Township, Ross County, Ohio, 1860, United States Census Records.

pigs had a smokehouse to cure and store bacon and hams."[175] Smokehouses did double duty, providing secure storage as well as processing space. One description of Colonial smokehouses noted that early smokehouses were solidly built, with sturdy doors that could be locked: "After the fires went out, the meat was stored in there. Poachers had to be kept at bay."[176]

The inventory of Thomas Blackstone's belongings that was prepared to settle his estate shows that cured meat was a particularly valuable commodity in the 1800s. Processed meats were listed as assets just the same as farm equipment and furnishings of the house in the initial inventory of the estate, and in the account of the sale that followed. In the inventory, four sides of bacon were valued at $22.50, more than an "old wagon and bed," which was judged to be worth just $20.[177] Buyers at the estate sale found the meat to be even more valuable than that wagon; the bacon sold for $20 and the wagon brought just $7.

Curing meat is a two-step process. First, excess water is drawn from the meat by covering it in a thick layer of salt, often mixed with sugar to add flavor, and then packing it in more salt and letting it sit to let the excess moisture drain. That process could take weeks, and pigs were generally slaughtered in the winter to take advantage of the cool weather while the meat was being cured.[178] Once the meat was sufficiently dried, it was washed and hung in a smokehouse, where a slow-burning fire was maintained for a few weeks to finish the curing process.

Smokehouses of the eighteenth and nineteenth centuries came in a variety of forms and materials, ranging from plank sheds to substantial brick buildings. Steep hipped roofs were popular, the better to trap smoke in the rafters, but gabled roofs were not at all uncommon. Brick provided a sturdy fire- and weather-proof structure, but was sometimes too airtight, and a lack of ventilation could cause the stored meat to mold.[179] Early masons, including the one who built the Blackstone smokehouse, addressed that issue by incorporating vents into the masonry walls. This was most commonly done by leaving gaps between bricks, usually in an ornamental pattern. The diamond-shaped vent pattern used in the Blackstone outbuildings was often used in the eighteenth and nineteenth centuries.

Other brick smokehouses with diamond-shaped vents include one on the grounds of Mount-Oval, which was built near Circleville, Ohio ca. 1823 (Figure 49). That smokehouse was pictured in I. T. Frary's *Early Homes of Ohio,* with a note that the type of diamond-pattern vent used there was found on many brick smokehouses in Virginia, including "Bremo on the James and Barbourville in Orange County, both of which, by the way, were designed by Thomas

175 Stuart Englert, "Smokehouse: An American Profile," *American Profile* (2013), accessed July 13, 2016, http://newsomscountryham.com/smarpr.html.
176 Michael Olmert, "Smokehouses," *Colonial Williamsburg Journal*. CW Journal (/Foundation/journal/): Winter 2004-2005 (/Foundation/journal/feature2.cfm#winter0405): Smokehouses, accessed July 7, 2016, https://www.history.org/foundation/journal/feature2.cfm
177 Ross County Probate Records, Estate of Thomas Blackstone," Probate Case Number 144, 1882. (Ross County, Ohio Courthouse, Probate Archives.)
178 Olmert, *Smokehouses.*
179 Olmert, *Smokehouses.*

Jefferson."[180] Historic American Building Survey records include a number of other examples, including a large elaborately vented example at Ashland, near Lexington Kentucky, and a more modest brick one in New Castle County, Delaware (Figures 49 and 50).[181]

Figure 48. Vent detail, Blackstone smokehouse. (Sheals 2016)

Figure 49. Mount Oval smokehouse. (Sheals 2016)

[180] Frary, *Homes of Ohio*, 127.
[181] Ashland, Smokehouse, Richmond Road, 2 miles Southeast of Lexington, Lexington, Fayette County, KY. Documentation compiled after 1933, HABS KY, 34-LEX.V,3B. Accessed July 9, 2016. http://hdl.loc.gov/loc.pnp/hhh.ky0288/photos.070551p, and Corbit-Sharp Smokehouse, State Route 299 (Saint Georges Hundred), Odessa, New Castle County, DE. HABS DEL,2-OD,3-A. Accessed July 20, 2016. http://www.loc.gov/pictures/item/de0324/.

Figure 50. Ashland, Smokehouse, Richmond Road, 2 miles Southeast of Lexington, Lexington, Fayette County, KY. (Documentation compiled after 1933, HABS KY,34-LEX.V,3B. Accessed July 9, 2016. http://hdl.loc.gov/loc.pnp/hhh.ky0288/photos.070551p.)

The Corbit-Sharp Smokehouse in Delaware is very similar to the one on the Blackstone Farm (Figure 51 and 52). It also has a gabled roof, and it is nearly the same size, twelve feet square. (The Blackstone smokehouse is roughly twelve feet by fourteen feet.) The vents on the two buildings even have the same number of holes, sixteen per diamond. The smokehouse at Mount Oval also has sixteen-hole vents.

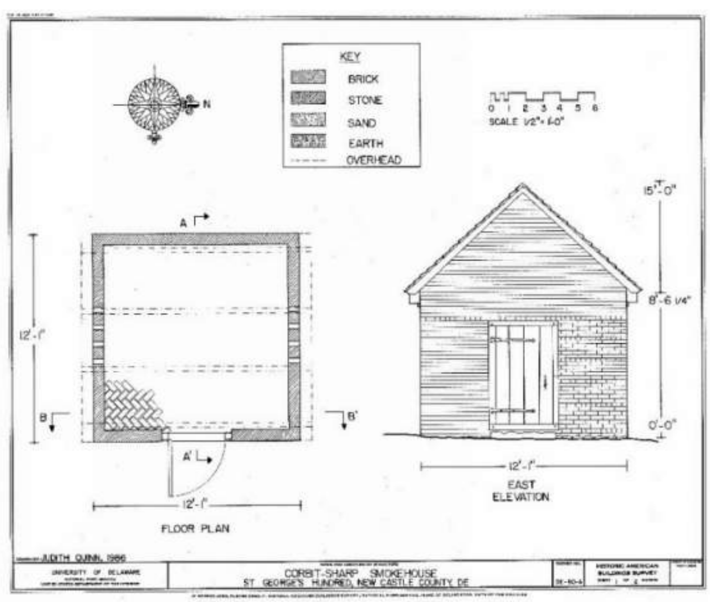

Figure 51. Corbit-Sharp Smokehouse, State Route 299, Sheet 1 of 2, 1986. (Saint Georges Hundred), Odessa, New Castle County, DE. HABS DEL,2-OD,3-A. Accessed July 20, 2016. http://www.loc.gov/pictures/item/de0324/.)

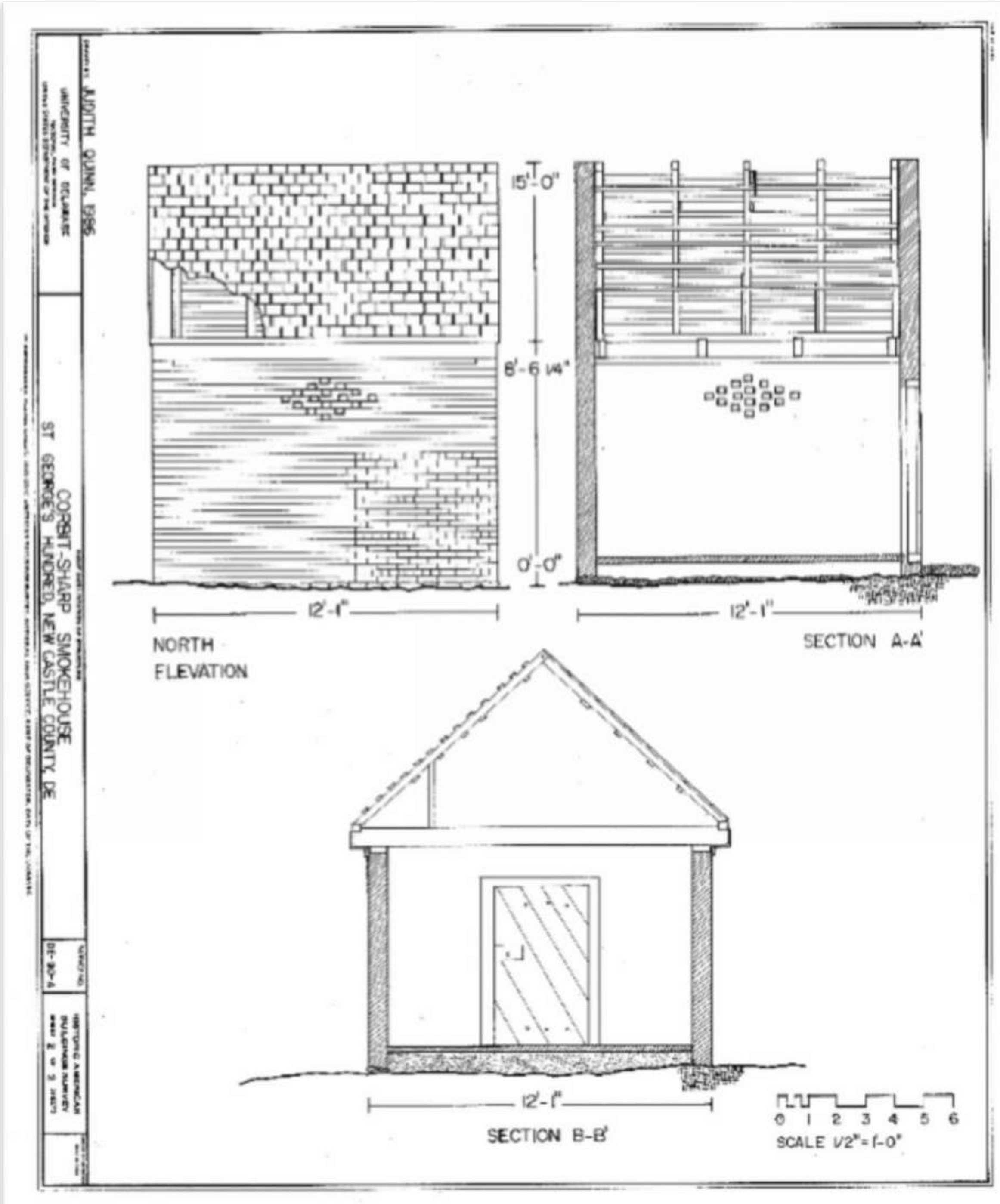

Figure 52. Corbit-Sharp Smokehouse, State Route 299, Sheet 2 of 2, 1986. (Saint Georges Hundred), Odessa, New Castle County, DE. HABS DEL,2-OD,3-A. Accessed July 20, 2016. http://www.loc.gov/pictures/item/de0324/.)

Figure 53. Mount Vernon Smokehouse. (Meathead Goldwyn, "The Story of Barbecue," Amazing Ribs.com, accessed August 2016. http://amazingribs.com/BBQ_articles/barbecue_history.html.)

The Blackstone smokehouse is somewhat unusual in that it has a chimney. In many smokehouses, the fire was simply lit on the dirt or brick floor of the building, rekindled as needed, and the smoke was left to trickle out along the eaves and out of the vents. The frame and brick smokehouse at George Washington's Mount Vernon, for example, has a dirt floor and a round brick-lined fire pit in the center of the room (Figure 53).[182] Another, in Colonial Williamsburg, had a dirt floor with a small brick trough in the center in which to build the fire.[183]

182 Meathead Goldwyn, "The Story of Barbecue," Amazing Ribs.com, accessed August 2016. http://amazingribs.com/BBQ_articles/barbecue_history.html.
183 Edward Chappell, "Recommendations for Restoration of the James Geddy House Block 19 Building 11, 1986." Library Research Report Series—271. Colonial Williamsburg Foundation Library, Williamsburg, Virginia, 1990, accessed July 2016. http://research.history.org/DigitalLibrary/View/index.cfm?doc=ResearchReports%5CRR0271.xml.

The smokehouse of the Blackstone farm has a much more elaborate smoke system. The chimney is integrated into the inside surface of the east end wall, with openings into the flue from both inside and outside of the building (Figure 54). That type of exterior access allowed the fire to be renewed without losing extra smoke inside the building by opening the door. It is a common feature in modern smokehouses, but less so in early examples. It was not unheard-of, however; the Thomas Black Smokehouse, which was built in New Jersey in 1825, incorporated a small external brick firebox which vented into the smokehouse.[184] [See Figure 15, Smoke House Plan]. Figures 20 and SH.15 show a wood frame addition on the east side of the smoke house. This addition may have housed the smoking apparatus that connected into the chimney and may have offered protection for the wood to be burned.

Figure 54. Blackstone Smokehouse, detail of external flue. (Sheals 2016)

[184] HABS NJ,3-JOBTO.V,4A Thomas Black Smokehouse, Monmouth Road, Jobstown, Burlington County, NJ, accessed July 12, 2016. http://www.loc.gov/pictures/item/nj0341.

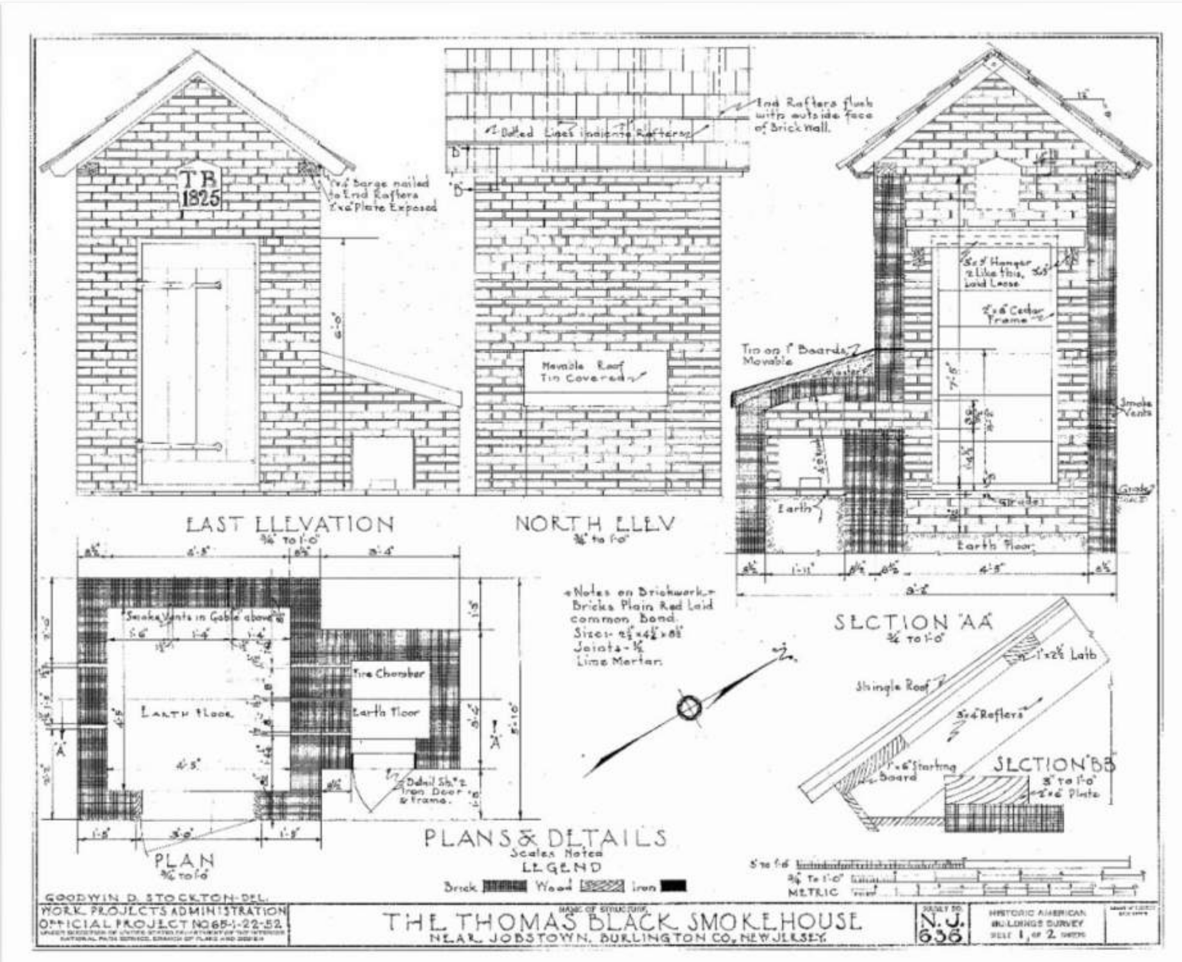

Figure 55. Drawings of the Thomas Black Smokehouse, Sheet 1 of 2. (Thomas Black Smokehouse, Monmouth Road, Jobstown, Burlington County, NJ. HABS NJ,3-JOBTO.V,4A. Accessed July 2, 2016. http://www.loc.gov/pictures/item/nj0341.)

The smokehouse of the Blackstone farm played an important role in the family's agricultural operation, providing a way to process meat and store it for future use. With a herd of fifty swine, it is possible that the Blackstones processed meat for sale as well as family consumption. The sturdy brick building enhanced the overall setting of the house and farmstead, and it continued to be known as a smokehouse after it ceased to be used as such. A 1956 entry in Charles Schlegel's diary indicated that the building was serving as a temporary brood house at the time, but he also referred to it as the smokehouse in other diary entries. His daughter Mary Anne also specifically listed a smokehouse among the buildings on the property when she was attempting to sell it in the 1960s. [185]

[185] Mary Anne Schlegel to Dr. Ray Baby of the Ohio Historical Society, Jan 11, 1969. (HOCU Archives Acc. # HOCU-00314 Cat # HOCU-42039, Seip Mound Box 9 F 5, OHS files.)

Milk House

The brick milk house was an equally valuable component of the farm. According to the agricultural census, the Blackstones owned 5 "milch" cows in 1860.[186] With an average yield of up to seven gallons of milk per cow, per day, a clean comfortable work place would have been a necessary and welcome addition to the house-yard.[187] Milk houses, or dairies, have been a part of the American cultural landscape since colonial times.[188] One study of early milk houses cited a 1785 tax enumeration of Halifax County, Virginia which included fourteen different dairies.[189] Those buildings ranged in size from four feet square to twelve feet square. (Like the nearby smokehouse, the Blackstone milk house measures roughly 12 feet by 14 feet.) The term "dairy" was most commonly used in Virginia after the 1720s, and "milk house" was favored in Maryland and Delaware.[190] The building at the Blackstone farm appears to have always been called a milk house. It is referred to by that name in the 1882 inventory of the estate, and was still known as the milk house nearly a century later, as shown by a 1960s letter written by then-owner Mary Anne Schlegel.[191]

Considering that early farmers had to process milk on a daily basis, and that dairy products are notoriously unstable, it was particularly important that milk be processed in a location that could be kept clean and relatively cool. As historian Michael Olmert noted, "when you're dealing with milk and its products—cream, butter, cheese, anything less than perfect sanitation can be lethal, and well, unprofitable."[192] Early milk houses, including the one on the Blackstone farm, often included features that helped to ensure a safe working environment. Walls and often ceilings were plastered and/or whitewashed to keep dust to a minimum, and vents were situated to prevent the heat of the sun from getting inside the building.[193] The interior walls of the Blackstone milk house are plastered, but the ceiling is not currently finished. It also has diamond-shaped vents in the brick walls which match those of the nearby smokehouse, and a small window in the east wall which provides ventilation as well as light.

The Blackstone milk house also has an extension of the roof over the door, a common feature which provided shade and a sheltered place to set the milk cans.[194] That particular type of roofline has been seen in milk houses built a century apart, including a ca. 1821 brick milk

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186 Products of Agriculture, Paxton Township, Ross County, Ohio, 1860. United States Census Records.
187 "Industrial Milk Factory." Factory-Farming.com, accessed July, 2016, http://www.factory-farming.com/milk_factory.html.
188 Carl R. Lounsbury, *An Illustrated Glossary of Early Southern Architecture and Landscape*, (New York and Oxford: Oxford University Press, 1994) 109.
189 Michael Olmert, "Cool, Calm, Clean," Colonial Williamsburg Journal. CW Journal (/Foundation/journal/): Winter 2005-2006 (/Foundation/journal/feature2.cfm#winter0506), accessed July 7, 2016, https://www.history.org/foundation/journal/feature2.cfm.
190 Olmert, "Cool, Calm, Clean."
191 Mary Anne Schlegel to Dr. Ray Baby of the Ohio Historical Society, Jan 11, 1969. (HOCU Archives HOCU Archives Acc. # HOCU-00314 Cat # HOCU-42039, Seip Mound Box 9 F 5, OHS files.)
192 Olmert, "Cool, Calm, Clean."
193 Olmert, "Cool, Calm, Clean."
194 "Milk Houses," Historic Barns of the San Juan Islands, accessed July 7, 2016, https://historicbarnssanjuanislands.com/history-design/associated-farm-buildings/milk-houses.

house at the Charles Benbow home in North Carolina, and an early 20th century example located in Washington State (Figures 56 and 57).[195]

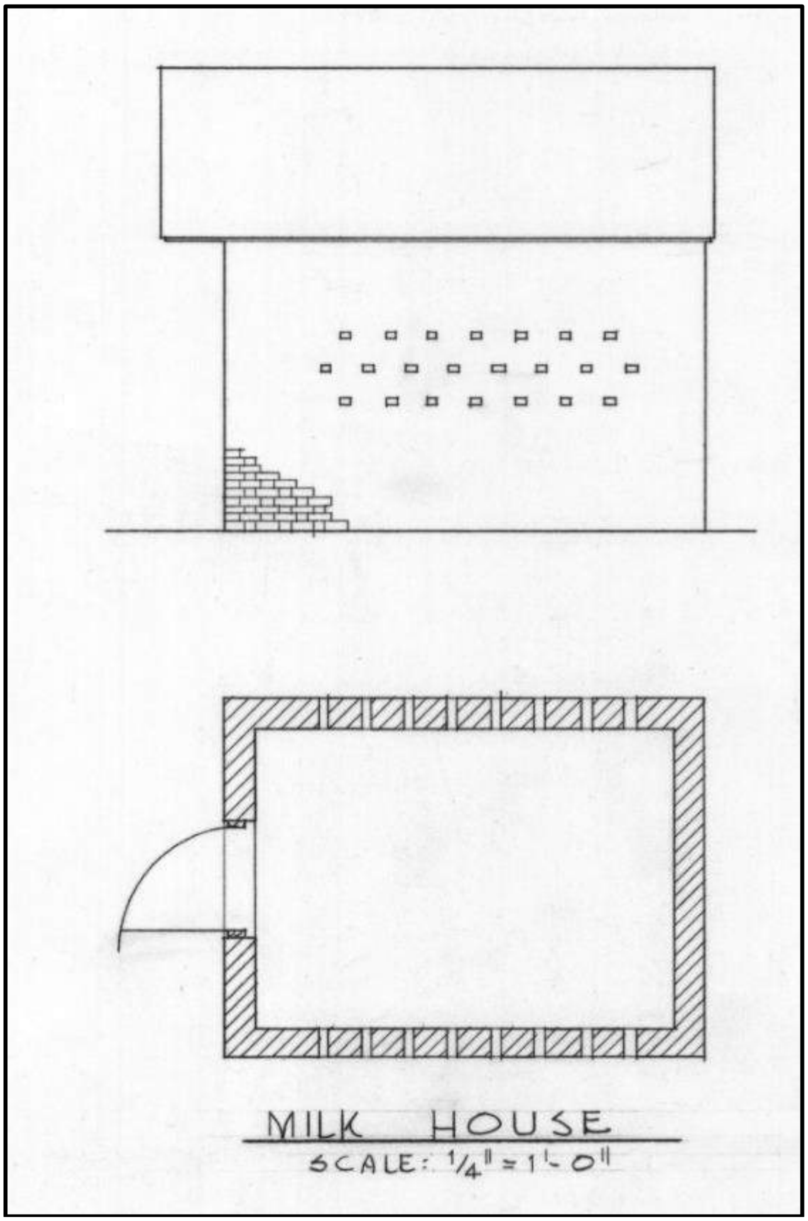

Figure 56. Milk House at the Charles Benbow House in Oak Ridge North Carolina. Detail of a drawing by Thad L. Feree. Note the brick vents in the side wall. (Benbow Home: Milk House. Undated Drawing. Historic Architecture Research Project Records (UA110.041), NCSU Libraries' Digital Collections: Rare and Unique Materials. Accessed July 24, 2016. http://d.lib.ncsu.edu/collections/catalog/bh032011703.)

[195] "Milk Houses," and Thad L. Ferree, "Benbow Home: Milk House," Undated Drawing, Historic Architecture Research Project Records (UA110.041), NCSU Libraries' Digital Collections: Rare and Unique Materials, accessed July 24, 2016, http://d.lib.ncsu.edu/collections/catalog/bh032011703.

Figure 57. Early Twentieth Century Milk House in Lopez, Washington. ("Milk Houses." Historic Barns of the San Juan Islands. Accessed July 7, 2016. https://historicbarnssanjuanislands.com/history-design/associated-farm-buildings/milk-houses.)

Early milk house floors were often paved with brick or stone, and in some cases the floor level was two or three feet below grade for added insulation.[196] Troughs near the floor were filled with water to cool the fresh milk.[197] The Blackstone milk house is located close to the mouth of an early stone-lined well, which would have made it easy to fill troughs within with fresh cool water. The floor of the Blackstone milk house is now at grade level and covered with concrete that was possibly installed when the back porch floor was poured in the 1950s. It is not currently known what it looked like in the 1800s.

The Blackstone milk house provides a significant link to the property's agricultural past, and it is a rare local example of an ante-bellum milk house. Like the nearby smokehouse, it is a sturdy brick building which enhanced the appearance and functionality of the Blackstone farm. It too continued to be known as the "milk house" well into the twentieth century. In 1953, Charles Schlegel noted in his diary that he was having the brick repaired and a new roof added to the "brick milk house," and his daughter Mary Anne also specifically called it a milk house in the 1960s.[198]

[196] Olmert, "Cool, Calm, Clean," and Lounsbury, *Illustrated Glossary,* 109.
[197] "Milk Houses."
[198] Mary Anne Schlegel to Dr. Ray Baby of the Ohio Historical Society, Jan 11, 1969. (HOCU Archives Acc # HOCU-00314 Cat # HOCU-42039, Seip Mound Box 9 F 5, OHS files.)

Other Parks: Comparative Analysis

The Blackstone farm presents an unusual, but far from unique, combination of historic and prehistoric resources. The house and outbuildings are located on a portion of the large circle, which has been described as one of the most intact sections of earthwork on the site. The buildings and the earthworks are obviously very different resources, with periods of significance separated by almost 1500 years. The period of significance for the earthworks is AD 1 to AD 400.[199] The period of significance for the house and outbuildings is ca. 1857-1957. Those histories are intertwined, however. Construction of the buildings naturally resulted in some damage to the earthworks, but the same buildings also helped to protect that part of the large circle from being diminished by subsequent plowing or being excavated for archaeological study.

The Seip Earthworks property was listed in the National Register of Historic Places in 1971, for significance in the area of prehistory. The 1971 nomination noted that “the only unrestored and untouched portion of the earthworks system is one segment of the semi-circular embankment immediately east of the segment owned by the State.”[200] That passage appears to refer to the site of the house and outbuildings, although they are not mentioned at all in the nomination.

In 1977, the house was recognized as being potentially eligible for listing in the National Register of Historic Places as a good example of Georgian-influenced architecture. Subsequent study has shown that the outbuildings are also significant, and together, the buildings reflect a long history of agricultural use. The buildings are also linked to the development of the Seip Earthworks unit of the Hopewell Culture National Historical Park.

The combination of historic and prehistoric resources naturally gives rise to questions of how to interpret the site. Should the buildings be removed to restore the site to its archeological period of significance? Or should they be retained as evidence of the continued evolution of the cultural landscape? A review of how other parks have managed that duality of resources reveals a wide variety of conditions and interpretive approaches.

Comparable Blends of History and Prehistory

Thousands of prehistoric mounds have been documented throughout the eastern United States. A map prepared by noted archaeologist Henry Clyde Shetrone that was published in 1930 shows that at one time mounds and other earthworks could be found in nearly all eastern states(Figure 58).[201] Because most of those sites were located along major waterways and trade routes, they were natural targets for settlement when Anglo-Americans began arriving in

[199] Mundus Bishop, et. al, “Cultural Landscape Report,” 1-3.
[200] Kolezar, Stephan C. *Seip Earthworks*. National Register Nomination, n.p. The statement about that part of the earthworks being “untouched” does not appear to have been based upon any fieldwork.
[201] Henry Clyde Shetrone, *The Mound Builders: A Reconstruction of the Life of a Prehistoric American Race…* (New York: D. Appleton and Company, 1930) Plate 8, facing page 28.

the seventeenth century. It is not surprising, therefore, to find that many mound sites were "reused" as settlers moved into new territories (Figure 59). It is a practice that began in the earliest days of settlement, and has continued into modern times. As a result, prehistoric and historic resources often occupy the same site. In some cases, that combination can be found in publicly owned properties that are operated to enhance our understanding of the past.

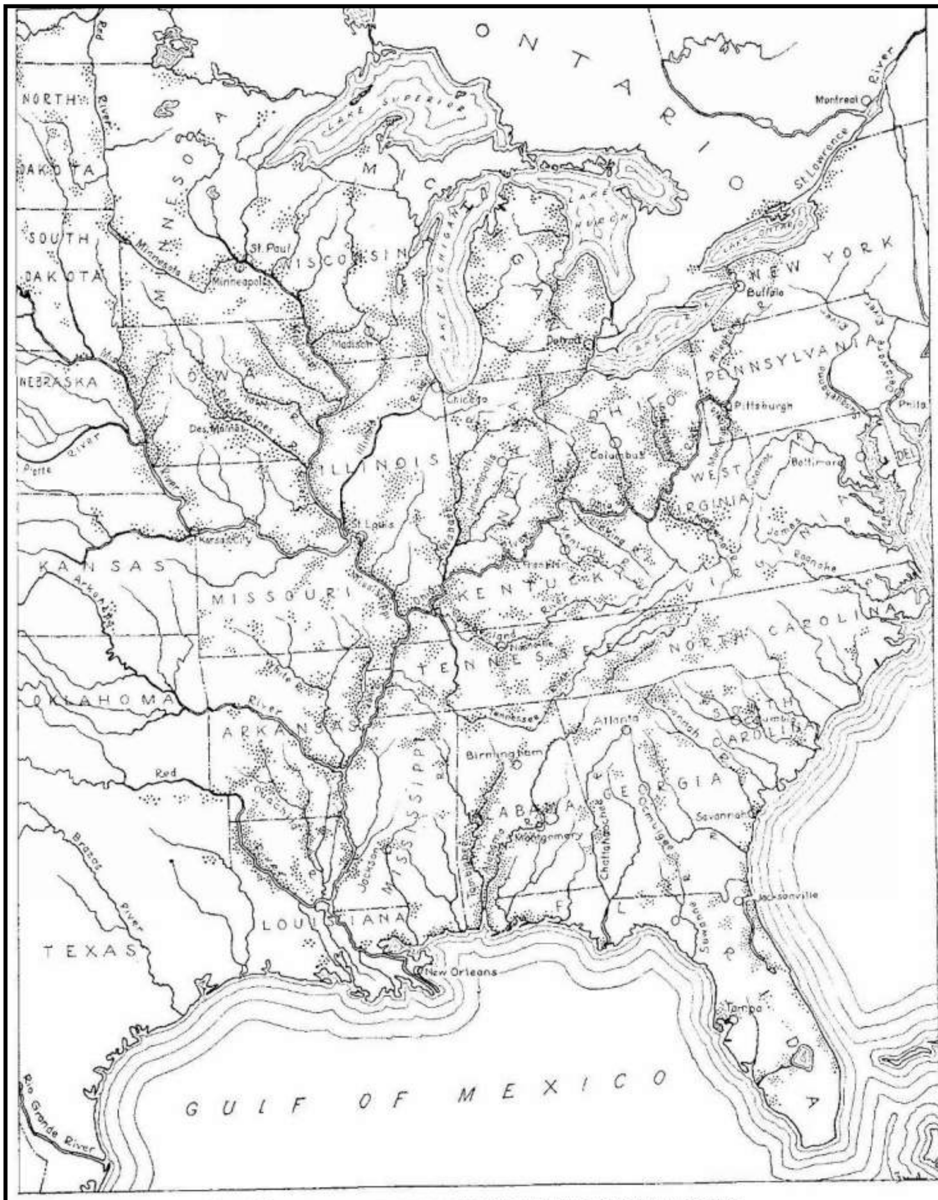

FIG. 8. DISTRIBUTION OF MOUNDS AND EARTHWORKS IN THE EASTERN UNITED STATES
Red dots indicate relative occurrence and comparative distribution rather than individual major remains.

Figure 58. Map of Mound Distribution in the Eastern United States. (Henry Clyde Shetrone, *The Mound Builders: A Reconstruction of the Life of a Prehistoric American Race…* New York: D. Appleton and Company, 1930, Plate 8, facing page 28.)

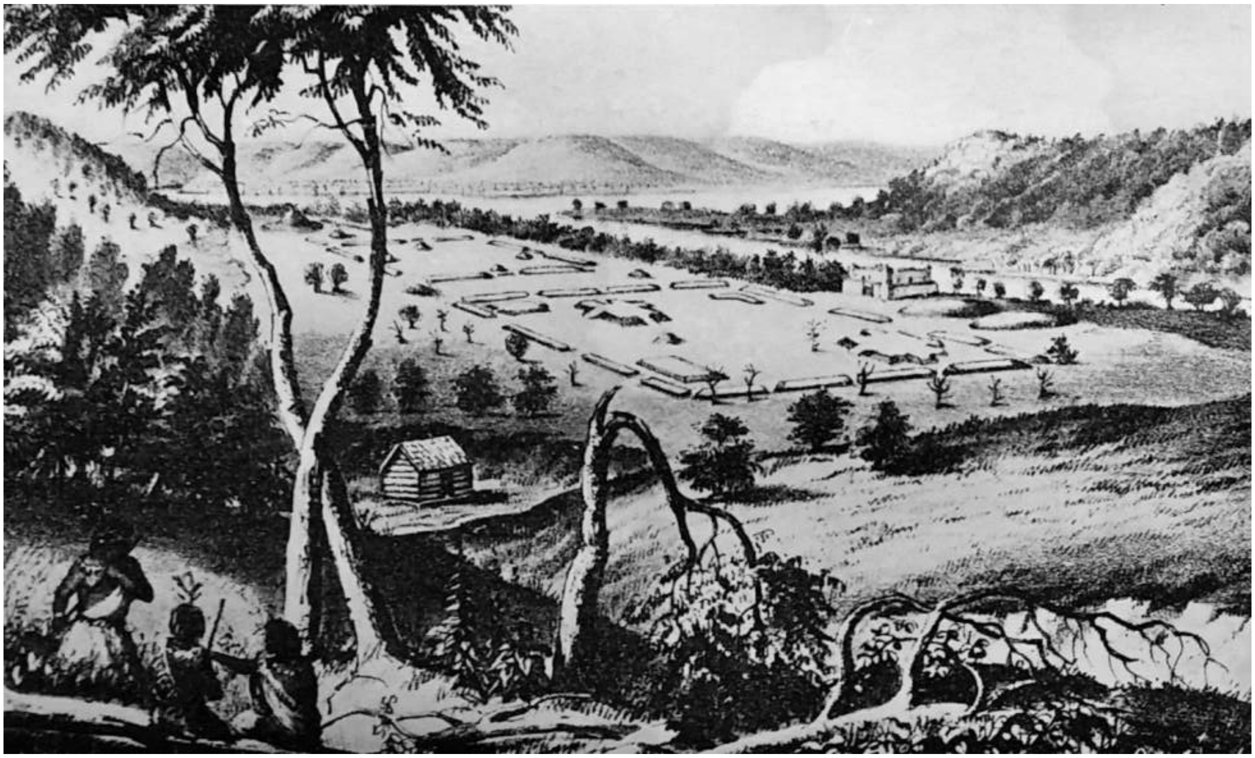

Figure 59. Marietta Group of Prehistoric Earthworks. Marietta Ohio, 1787. Shetrone noted that "General Rufus Putnam, recognizing as did the 'first Ohioans,' the strategic importance and scenic beauty of the spot, preempted it as the site of the first settlement of the Ohio Company and capital of the great Northwest Territory." (Shetrone, *Mound Builders,* 8.)

The following discussion is based upon the study of a group of public properties in the eastern United States that are known to include prehistoric mounds and historic architecture. Public properties were defined for this study as properties that are open to the general public, in most cases as parks or historic sites. Most are owned by government entities; a few are privately held (Figure 60).[202] Most of the properties in that group, referred to hereafter as the **study group**, were identified by contacting the state archaeologist's office or other knowledgeable persons. The representatives were asked if they knew of any publicly-operated sites in their state which contained both historic resources and prehistoric earthworks. Offices in twenty states were contacted, and responses were received from fifteen. From that survey and other research, sixteen sites located in fifteen eastern states were identified.[203] Each contains prehistoric earthworks and nineteenth or twentieth century architecture.

[202] There are also a large number of privately-owned sites that have comparable combinations of resources; they are less relevant to this study and were not included in the study group.
[203] That number does not include Seip Earthworks.

Study Group					
State	**City or County**	**Property Name**	**Onwership**	**Type**	**Notes**
AL	Hillsboro	Pond Spring-- General Joe Wheeler House	State or local NPF	History Dominates	Mounds in yard of house, information about the house mentions that the site was home to Native Americans in prehistory.
AL	Danville	Oakville Indian Mounds State Park	County	Prehistory Dominates	19th c. cemetery at mound site. Park is interpreted for mounds but cemetery is preserved.
FL	Oak Hill	Seminole Rest- Canaveral National Seashore	National	Diverse Interpretation	Two late 19th century houses built on top of a prehistoric shell mound. Houses recognized as having helped to preserve the mounds.
IL	Grafton	Pere Marquette State Park	State	Diverse Interpretation	CCC shelter on edge of small mounds in a state park used largely for recreation.
IN	Laurel	Laurel Mound (12 FR18)	City	Diverse Interpretation	Adena mound topped with a bandstand, located in a city park.
IN	Anderson	Mounds State Park	State	Diverse Interpretation	Mounds and a historic house in the same park, but house not on a mound.
IA	Harper's Ferry	Effigy Mounds Natl Monument Visitors Center	National	Prehistory Dominates	Visitor's center of the park is likely built on a mound site, per Bill Whittaker, state archaeologist. Mound was not visible when it was built.
GA	White County	Nacoochee Mound	Private	Diverse Interpretation	Reconstructed platform mound topped with a 19th century gazebo. On private property but visible from public land.
KY	Ballard County	Wickliff Mounds State Park	State	Prehistory Dominates	One 1920s park building on a mound, and they recently removed a building from another mound.
MI	Garden	Fayette Historic State Park	State	History Dominates	19th c. iron smelting town on a small harbor, with known prehistoric resources.
MN	Mendota	Sibley Historic Site	County	History Dominates	State archaeologist noted mounds at site but there is no mention in website history.
MS	Sharkey County	Mt. Helena	Probalby Private	History Dominates	Large antebellum house on mound. Privately owned, mentions mound in promotional material.
ND	Fort Ransom	Fort Ransom State Park	State	History Dominates	On a mound site. Mound builders mentioned in history section of website.
SD	Britton	Fort Sisseton Historic State Park	State	History Dominates	No mention of prehistory on website.
TN	Kingston	Fort Southwest Point State Park	State	History Dominates	18th century fort being reconstructed. No mention of mounds in online history.
WI	Prairie du Chien	Villa Louis	State	History Dominates	19th century mansion and gardens built on a mound.

Figure 60. Park Study Group. Compiled by Deb Sheals 2016. See Appendix IV for links to park websites and additional information.

In general, the properties in the study group can be categorized by their interpretive emphasis:

Type One: Prehistory Dominates. It is expected that visitors will be most interested in the archaeological significance of the site, which is managed primarily to interpret the relevant prehistoric culture.

Type Two: History Dominates. Visitors to these sites are expected to be more interested in historic resources, such as architecture. The presence of prehistoric resources are often mentioned only in passing in interpretative materials, if at all.

Type Three: Diverse Interpretation. This type of site explores the full continuum of use, with information about both prehistoric and historic resources. Some also have other areas of emphasis such as recreation.

Type One: Prehistory Dominates

There are three examples in the study group:

- Oakville Indian Mounds State Park; Danville, Alabama
- Effigy Mounds National Park; Harpers Ferry, Iowa
- Wickliffe Mounds State Park; Ballard County, Kentucky

Where prehistory dominates, historic and modern buildings are frequently considered to be intrusions, and are often targeted for removal as time and budgets allow. Cahokia Mounds State Historic Site in Illinois, for example, includes few to no examples of historic architecture (Figure 61). (It is not in the study group.) Site development over the years at Cahokia Mounds has included removal of contemporary buildings and other resources, including razing an entire forty-acre housing development and reconstructing mounds that had originally occupied that site.[204]

Figure 61. Cahokia Mounds. ("Cahokia Mounds." Destination 360. Accessed August 10, 2016. http://www.destination360.com/north-america/us/illinois/cahokia-mounds)

[204] "Cahokia Mounds Site Report." National Park Service, n.d., 9, accessed August 1, 2016, https://www.nps.gov/oia/topics/Cahokia.pdf.

In some cases, historic buildings serve as support space for park operations. Wickliffe Mounds State Park in Kentucky, which is in the study group, focuses upon prehistoric mound interpretation. That park includes one sizeable historic building, which is used for park operations. Their Lifeways Museum Building is a large 1920s structure which covers an excavated mound to protect exposed archaeological features such as hearths and post holes. The same park recently demolished another interpretive building that had been constructed on a mound; that project involved taking the building down practically piece by piece to avoid damage to archaeological resources.[205] Effigy Mounds National Park in Harper's Ferry, Iowa has a less beneficial pairing of architecture and prehistoric mounds; the visitors' center there is believed to have been built upon the remains of a mound that had not been identified at the time.[206]

Type Two: History Dominates.

There are eight examples in the study group:

- Pond Spring: The General Joe Wheeler House; Hillsboro, Alabama
- Fayette Historic State Park; Garden, Michigan
- Sibley Historic Park; Mendota, Minnesota
- Mt. Helena; Sharkey County, Mississippi
- Fort Ransom State Park; Fort Ransom, North Dakota
- Fort Sisseton Historic State Park; Briton, South Dakota
- Fort Southwest Point State Park; Kingston, Tennessee
- Villa Louis; Prairie du Chien, Wisconsin

Where history dominates, prehistoric resources are often ignored altogether in interpretive materials and activities. The website for one of the most famous such pairings, Villa Louis, at Prairie Du Chien, Wisconsin, for example, does not even mention that the complex occupies a mound.[207] Villa Louis features a large house and extensive grounds that were developed in the mid to late nineteenth century, atop a Mississippian mound.[208] It is one of three Victorian house museums in the study group that were built on mounds. Promotional materials for Mount Helena, another house museum located in Mississippi, are more forthright about that house site. The Mount Helena website proclaims that the "Delta plantation home, famous for its architecture, grace and location on a ceremonial Indian Mound, provides an unforgettable setting…"[209]

[205] Carla Hildebrand, Park Manager. Email to Deb Sheals, August 12, 2016.
[206] William Whittaker, Research Director, Office of the State Archaeologist of Iowa. Email to Deb Sheals, Jul 14, 2016.
[207] "Villa Louis," Wisconsin Historical Society, accessed August 2, 2016, http://villalouis.wisconsinhistory.org/About/History.aspx.
[208] "Villa Louis," *Placeography,* accessed July 15, 2016, http://www.placeography.org/index.php/Villa_Louis,_521_North_Villa_Louis_Road,_Prairie_du_Chien,_Wisconsin.
[209] "Mount Helena," accessed July 18, 2016, http://www.monthelena.com/index.html.

There are also several larger sites that feature a combination of history and prehistory, including three widely dispersed American fort sites. As Shetrone observed in *Mound Builders*, some prehistoric earthworks were constructed as fortifications, or simply located in easy to defend locations, which made them natural targets for later military installations.[210] Archaeologists Sigrid Arnott and David Maki recently completed a research project which included study of several frontier forts that were built on mound sites. That study identified what Arnott described as “a colonialist inclination to build forts, etc. on mounds.”[211] Their work included study of Fort Sisseton Historic State Park, established in 1868 in Briton, South Dakota (Figure 62).[212] Although that fort occupies a site that still has several intact mounds, no mention of their presence was found on the park website. A lack of promotion of prehistoric resources does not, however, indicate that they are not taken into consideration by site managers. This is especially true of publicly-held sites such as state or national parks, where shovel tests and other archaeological testing frequently precede any construction projects

Figure 62. Aerial View of Fort Sisseton. A flagpole in the center of the parade ground pierces a prehistoric mound. Photo from Google Earth. Accessed August 15, 2016.

Fayette Historic State Park, in Garden, Michigan provides an interesting example of a sizeable collection of historic buildings that is managed to preserve both above and below-ground resources. Fayette is a small nineteenth century iron-smelting town located on a natural harbor in Michigan’s Upper Peninsula. It is now a state historic site, with a mix of stabilized ruins,

[210] Shetrone, *Mound Builders*, 229-230.
[211] Sigrid Arnott, Sigrid Arnott Consulting, LLC, Minnesota. Email to Deb Sheals, July 18, 2016. A paper based upon that study is tentatively scheduled for future publication in *Historical Archaeology*.
[212] “Fort Sisseton Historic State Park,” accessed July 25, 2016, https://gfp.sd.gov/state-parks/directory/fort-sisseton/.

reconstructed and restored historic buildings (Figure 63). Archaeological testing has shown that the site also contains prehistoric deposits. Although the property is promoted as a historic town site that has access to recreational opportunities such as boating and diving, park management and planning includes attention to prehistoric resources as well. As Michigan State Archaeologist Dean Anderson recently noted, “Because we know there is potential to encounter prehistoric deposits, we pay close attention during planning for the site, and during any archaeological investigations that take place.”[213]

Figure 63. Fayette Historical State Park. (“Fayette Historic State Park.” Michigan Department of Natural Resources. Accessed July 30, 2016. http://www.michigandnr.com/parksandtrails/details.aspx?id=417&type=SPRK.)

Type Three: Diverse Interpretation.

There are four examples in the study group:

- Seminole Rest, Oak Hill; Florida
- Pere Marquette Sate Park; Grafton, Illinois
- Mounds State Park; Anderson, Indiana
- Nacoochee Mound; White County, Georgia

Only a few sites in the study group give nearly equal attention to the historic and prehistoric resources found within their boundaries. Often, both types of resources take a back seat to recreational activities such as hiking and camping, particularly in large sites that focus on recreation, such as Pere Marquette State Park in Grafton, Illinois. Pere Marquette State Park covers more than 8,000 acres of land which includes approximately 100 mound sites, numerous

[213] Dean Anderson, Michigan State Archaeologist, Lansing, Michigan. Email to Deb Sheals, July 29, 2016.

historic buildings and an extensive collection of recreational facilities.[214] History and prehistory coalesce at the McAdams Peak Shelter, which was erected or remodeled by CCC crews on or near three mounds in the 1930s. Those mounds are small and it is unlikely that the crews realized they were working so close to prehistoric resources.[215]

Interestingly enough, the McAdams Peak shelter commemorates early archaeological work, as well as efforts to place the resources under public control. According to a marker erected at the shelter by the state of Illinois in 1934:

> In 1892, 100 Indian skeletons were removed from this vicinity by Professor William McAdams for the Smithsonian Institute. He also obtained artifacts which are now (1934) exhibited at the Centennial Building, Springfield, and the Monticello Seminary. Forty years later (1932) his son John D. McAdams, of Alton, was instrumental in acquiring this property for a state park.[216]

Figure 64. McAdams Peak Shelter, Pere Marquette Sate Park, Grafton, Illinois. ("McAdams Peak Shelter." Accessed August 8, 2016. http://www.greatriverroad.com/pere/mcAdams.htm.)

Mounds State Park, a smaller state park in Indiana, is a multi-use park which maintains and promotes both historic and prehistoric resources. The park is located near Anderson, Indiana, less than 200 miles from the Seip Earthworks. As the name implies, prehistoric mounds are among the most important attractions at the park. There are at least ten ceremonial Hopewell mounds within the original 258-acre park boundaries.[217] Those include the "Great Mound" which

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[214] Chris Hespen, Superintendent, Pere Marquette State Park, August 9, 2016. Telephone interview with Deb Sheals, and "Pere Marquette Sate Park," Illinois Department of Natural Resources, accessed July 30, 2016. http://www.dnr.illinois.gov/Parks/Activity/Pages/PereMarquette.aspx.
[215] Hespen, August 2016.
[216] "McAdams Peak Shelter," accessed August 8, 2016, http://www.greatriverroad.com/pere/mcAdams.htm.
[217] Dudley Smith, *Mound Builders of Indiana and the Mounds State Park in Madison County near Anderson, Indiana*, (Indianapolis: Dept. of Conservation, State of Indiana, Division of Lands and Waters, 1932), 7.

was described in 1932 as the finest specimen of an elliptical mound to be found within the State."[218]

The park also contains a large mid-nineteenth century brick house that is described in the park's interpretive plan as "a feature of the park."[219] Like the Blackstone house at the Seip Earthworks, it is associated with a family that helped preserve the nearby archaeological resources. The house was built for the Bronnenberg family, early owners of the land now occupied by the park. Frederick Bronnenberg Jr. recognized the value of the mounds on the site at an early date. According to the interpretive plan, Bronnenberg "left the mounds undisturbed, protected them from looters, and extolled their virtue as a community point of interest and destination."[220] An earlier description of the park noted that "this almost forgotten site of a primitive habitation and culture" might have been "lost entirely" had it not been for the efforts of the Bronnenbergs.[221]

The Bronnenberg house became state property when Mounds State Park was established in 1930. It served as the home of the park superintendent into the 1950s, then as extra park housing into the 1970s. Amid talk of demolition, the Friends of Mounds State Park began working to restore the house, and it is currently open for public tours and special events (Figure 65).

Figure 65. Bronnenberg House, Mounds State Park. ("Friends of Mounds Ready for Bronnenberg Open House." Herald Bulletin. (Anderson, IN) Jun 15, 2013. Accessed online August 5, 2016.)

The Interpretive Master Plan for Mounds State Park identifies the Bronnenberg house as an important feature of the park and includes a separate subtheme relating to it: "*The*

[218] Smith, *Mound Builders of Indiana*, 20.
[219] "Mounds State Park Interpretive Master Plan, 2011," 6, (no author or place of publication listed,) accessed June 21, 2016, http://www.in.gov/dnr/parklake/2977.htm. The house is part of the property, but it is not on top of any of the mounds.
[220] "Mounds State Park Interpretive Master Plan, 2011," 7.
[221] Smith, *Mound Builders of Indiana, 20.*

Bronnenbergs successfully worked the land while still protecting the mounds."[222] That same document notes that the house "offers a wonderful opportunity to interpret the lives of the first property owners," but cautions that ownership of such a resources "is also a huge responsibility" which requires ongoing upkeep.[223]

Seminole Rest, at the Canaveral National Seashore in Oak Hill, Florida, is another park which includes prehistoric mounds and historic residential architecture (Figure 66). Seminole Rest has much in common with the Seip Earthworks. Like the Seip Earthworks, it is a part of a larger National Park that is open to the public, and it contains a very similar combination of prehistoric and historic features. The site features two large shell mounds constructed between 2000 BC and 1585 AD, as well as two houses that were built in the late 1800s.[224] The houses are both located on the largest mound on the site, Snyder's Mound. One served as a caretaker's house and one was the home of the Snyder Family. Seminole Rest was listed in the National Register of Historic Places in 1997, with two periods of significance: 2000 BC to 1585 AD, for the mounds, and 1870 to 1940, for the houses.[225] The later history of the property is also similar to that of the Seip site in that the houses were owned by only two families before the property became a park, and the early owners were interested in the preservation of the prehistoric resources on the site.

Figure 66. Caretaker's House, Seminole Rest, before rehabilitation. (Leonard Brown, "Seminole Rest." National Register Nomination, 1996, photo 13.)

[222] "Mounds State Park Interpretive Master Plan, 2011," 26.
[223] "Mounds State Park Interpretive Master Plan, 2011," 26.
[224] Lord, Aeck and Sargent, Inc. *Historic Structure Report for The Main House and Caretaker's House of Seminole Rest,* (National Park Service: 2004.)
[225]Leonard Brown, "Seminole Rest," National Register Nomination, 1996.

Promotional materials for Seminole Rest celebrate the variety of resources found there, to the point that it is sometimes referred to as "A Pre-Historical and Historical Interpretive Park."[226] Planning documents prepared by the National Park Service have recognized the importance of both types of resources at the park. In 2004 a Historic Structures Report (HSR) for the houses at Seminole Rest recommended exterior restoration for both houses, with interior rehabilitation to allow them to be used for interpretive and staff functions. That study was followed in 2008 by a Historic Resource Study (HRS) for all of Canaveral National Seashore. The HRS recommended that both periods of significance be interpreted at Seminole Rest.

Of the fifteen properties in the study group, Seminole Rest clearly has the most to offer as a comparative property. There are a surprising number of parallels between it and the Blackstone property at the Seip Earthworks. Many of the statements made about the houses at Seminole Rest can apply to the houses at the Seip site as well. HRS author Susan Parker wrote of the houses at Seminole Rest that, "although they seem to be unrelated, the stories of the houses and…(the site)…are intertwined…While the house itself may be considered by some as intrusive upon the mound, the existence of the house preserved the mound from being dispersed around the countryside as paving materials..."[227] The same can be said about the Blackstone House, which protected part of the large circle from gradual erosion by plowing and other agricultural use, or by more direct damage due to early intrusive excavation practices. Additionally, like the Bronnenbergs in Indiana, the early owners of both properties recognized the cultural value of the mounds and refused to allow them to be destroyed. The owners of the houses at Seminole Rest refused to allow the mound to be mined for shells to serve as road surfacing materials, a common practice in Florida in the early twentieth century, and the Seip family had a long history of care of the Seip earthworks.

Private Uses

The Blackstone house and outbuildings were private property for much of their history. It is worth noting here that research has revealed numerous examples of houses and other buildings that occupy prehistoric mound sites on private property. As noted above, earthworks were often located in attractive locations, as at Marietta, Ohio. In other cases, such as at Seminole Rest, the mounds provided a convenient patch of high ground and the builders may or may not have been aware of their origin. Other builders clearly knew the origin of the site, and chose to build there in spite of, or even because of, its origin (Figure 59, above). That certainly appears to have been the case at Indian Mound Country Club in Ohio (Figure 67). In other locations, the mounds provided decidedly awkward building sites, resulting in a house or other building perched on the side of a steep incline. Henry Shetrone documented at least one example of that in his book of 1930 (Figure 68). A more recently constructed example can be found in St. Louis,

[226] "Seminole Rest: A Prehistorical & Historical Interpretive Park," accessed May 4, 2016, http://www.nbbd.com/godo/cns/SeminoleRest/index.html
[227] Susan Parker, *Canaveral National Seashore: Historic Resource Study*, (National Park Service, 2008) 91, accessed July 15, 2016, http://www.nbbd.com/godo/cns/Canaveral-Nat-Seashore-Research.pdf.

where a 1920s house occupies the side of the last known extant mound in that city, Sugar Loaf Mound.[228]

Figure 67. Photo of Moundbuilders Country Club, Ohio. (Photo Courtesy of Brad Lepper.)

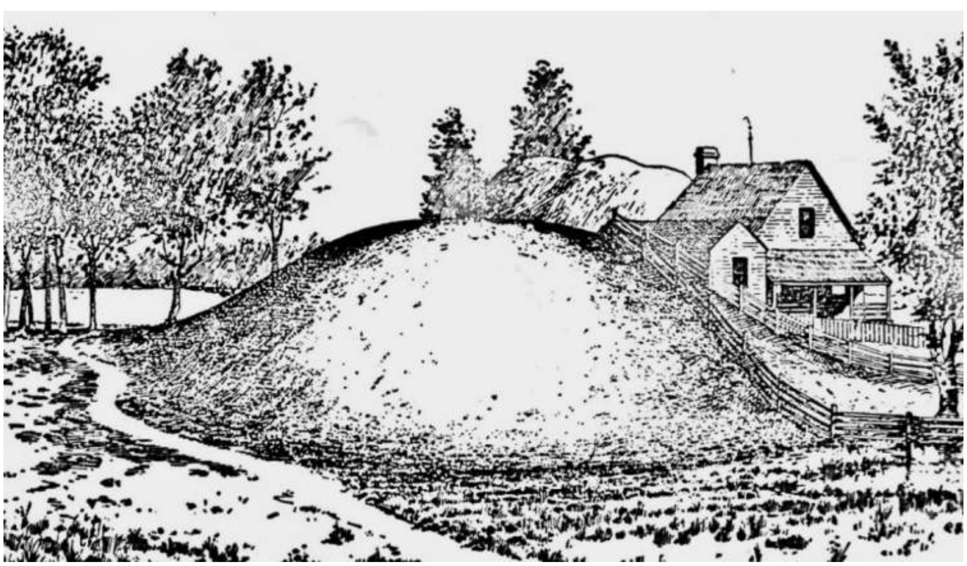

Figure 68. House on a mound in Catahoula Parish, Louisiana. (Shetrone, *Mound Builders, 379.)*

[228] Joe Holleman, "Last Indian Mound Slowly Disappearing," St Louis Post-Dispatch, Oct 4, 2015, M2.

Summary of Findings

General History

The Blackstone house and outbuildings were owned by only two families before entering the public realm. Research has shown that early descriptions of the builder and the construction date for house were not entirely accurate. An often-cited Ohio Historic Information Form stated that the house was built in 1840 for Dr. William Blackstone, but a closer look at documentation has shown that it was constructed ca. 1857 (between 1856 and 1858), for William Blackstone's brother, Thomas Blackstone, Sr. and his first wife Hannah. This information was confirmed through primary sources, including Ross County Deed, Probate and Real Estate Tax Records. Thomas Blackstone and his family lived in the house from the time of its construction until his death in 1882, when the estate was sold, as stipulated in Blackstone's will.

The property was purchased at auction by Charles Seip in 1883, and it remained in his family for more than a century. The house and outbuildings passed through four generations of the Seip family, and it is from that family that the Seip Earthworks takes its name. The Blackstone farm served as a rental property throughout that time. The first excavation at the site took place under the ownership of Charles Seip's children in 1908, and they participated in the formation of the Seip Mound State Park in 1927. Charles Seip's Grandson, Charles G. Schlegel, owned and operated the farm for many years, and it was under his stewardship that the house was updated to its current form in the mid-1950s. Finally, Charles Seip's great-grand daughter, Mary Anne Schlegel, bequeathed the property to the Ohio History Connection in 1990.

Comparative Park Properties

A review of properties with buildings that are located on or very close to prehistoric mounds has shown that while that combination is not unheard-of, it is rare in public parks and historic sites. Research into public sites in twenty eastern states yielded information about just one park which actively maintains and interprets historic houses built on prehistoric mounds—Seminole Rest at Canaveral National Seashore. That property has many parallels to the Blackstone house and outbuildings. Both sites are now owned by the National Park Service, both sets of buildings were owned by only two families before becoming park property, and in both cases, those houses played a role in the preservation of the mounds upon which they were built. A very similar set of conditions can also be found at Mounds State Park in Anderson, Indiana. That park maintains and interprets intact ceremonial Hopewell mounds, plus the mid-nineteenth century house of early landowners who were instrumental in the preservation of the mounds. It differs in that the house is not built directly on any earthworks. One other state park, Wickliffe Mounds State Park in Ballard County, Kentucky, has an early twentieth-century building that was constructed to shelter an excavated mound as part of the park operations. That park recently removed another building from a mound, and could serve as a source of information about the process of architectural demolition on a prehistoric mound.

An aerial view of the farm taken during the 1970s excavation project. (Photo Collection Number A0957, Sheet 9, number 177, Ohio History Connection Archeological Collections Facility, Columbus, Ohio.)

1C EXISTING CONDITIONS

SUMMARY AND MATERIALS

Part 1C | Existing Conditions

Summary

The existing Blackstone house and outbuildings have been vacant for nearly fifteen years. The house retains its original room layout and most of its original historic finishes and millwork. The last major renovation of the house ca. 1999-2000 by the Ohio History Connection included upgrades to the electrical, mechanical and plumbing systems, exterior wood rot repairs, roofing replacement, painting, installation of kitchen cabinets, and very likely upgrades to the septic system (although documentation of this has not been located).[229] The house was not occupied after the renovation.

The house is in fair to good structural condition, but is not habitable due to many issues. The electrical, plumbing and mechanical services within the building are not functioning. There is a need for immediate interior and exterior maintenance, and the lack of a railing at the main staircase poses life safety issues. The building requires upgrades to all utility services and overall maintenance, repairs and structural stabilization before it can once again be habitable. The outbuildings also retain a significant amount of historic materials and have seen very few changes since their original construction.

This assessment report was generated from field investigations of the existing conditions recorded by the Design Team during a May 2016 site visit and a follow up visit by Strata in August 2016. The existing conditions were recorded through measured field drawings, photographs, wood species sampling and visual observations. The park staff led archaeological investigations at the site during the May site visit which assisted in the evaluation of the house and smokehouse foundations.

The purpose of this section of the report is to assess the existing conditions of the exterior and interior of the house, outbuildings and adjacent site. The building construction materials and finishes were also evaluated to determine the extent and condition of original fabric and the changes that have occurred through the years. The existing as-built floor plans, elevations, building sections and details of the house and outbuildings follow the Existing Conditions section of the report.

Wood species testing was done by Regis Miller, PhD. for a total of four interior wood samples. The results of these tests are found in Appendix F. Wood species testing was from very small slivers taken from inconspicuous areas on the back side or bottom of the designated areas. No testing for hazardous materials was undertaken as part of this assessment study. It should be assumed that all paint finishes contain lead.

Site and Context

The ca. 1857 Thomas Blackstone house is located fifteen miles southwest of Chillicothe on Route 50 outside of Bainbridge, Ohio (Figures EX-1 – EX-7). The house faces north-to-northeast. For the purposes of this report, the front of the house is considered to be north (Figure EX-7). The property currently consists of 236 acres, known as the Seip Earthworks, a

[229] Ohio History Connection Maintenance Report, date unknown. Copy provided by Ohio History Connection, August 2016.

unit of the Hopewell Culture National Historical Park. The house is set back from the highway and was constructed atop the north edge of the Seip large circle earthwork wall. The extent (height and width) of the original earthwork wall is unknown at this time, but the house, smokehouse and milk house sit at a higher elevation than the surrounding flat grade.

Figure EX-1. North Façade. (Sheals 2016)

Figure EX-2. North and west elevations. (Sheals 2016)

Behind the house, to the south, are two remaining outbuildings – the smokehouse and the milk house. A stone lined well is present, northeast of the milk house entrance. No other structures remain on the immediate site.

Figure EX-3. West and south elevations of the house and outbuildings. (Sheals 2016)

Figure EX-4. South elevations of the house and outbuildings. (Sheals 2016)

Figure EX-5. South and east elevations of the house and outbuildings. (Sheals 2016)

Figure EX-6. East elevations of the house and outbuildings. (Sheals 2016)

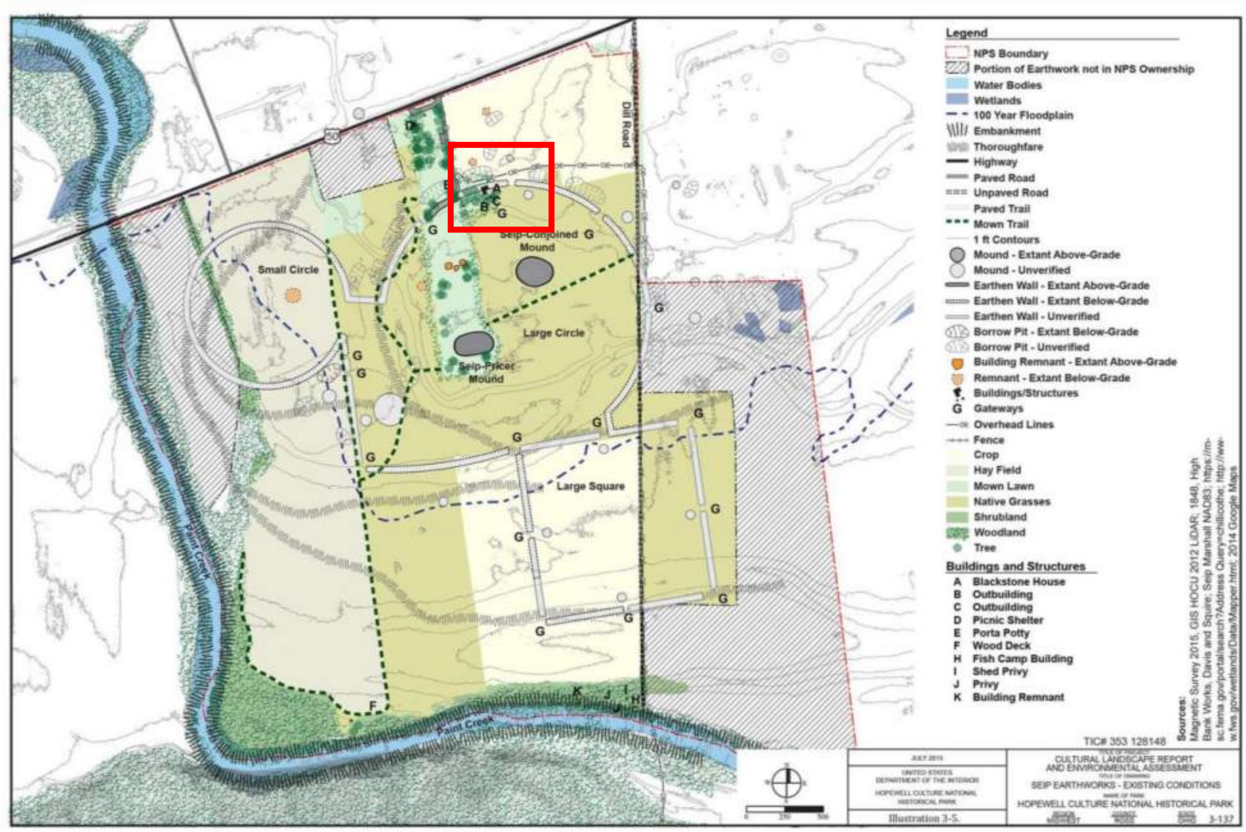

Figure EX-7. Seip Earthworks-Existing Conditions Site Plan. Red box identifies location of house and outbuildings. Map by Mundus Bishop, et. al. in "Hopewell Culture National Historical Park: Cultural Landscape Report and Environmental Assessment," (National Park Service, U. S. Department of the Interior, 2016) 3-137.

Site Access

The site is accessed from and is located south of Highway 50. An asphalt-paved parking lot is located at the park entrance. A metal gate in the southeast corner of the lot leads to an asphalt-paved park road that extends approximately 675 feet to the south towards the historic earthworks site (Figures EX-8, EX-9 and EX-11). This road once extended even further south and encircled the central mound as part of a driving tour (Figure 32). When this drive was closed, the road was partially removed and now ends at this point. It is currently a dead end and is used to access the temporary portable restroom facility and the Blackstone home site (Figure EX-9). A fence line runs along the east side of the southern portion of the road. A metal gate leads to a mown drive path which runs east/west in front of the house (Figure EX-10). There is no defined driveway or parking area near the house, except by the mown paths. There are no concrete walkways surrounding the house. The parking and access to the house are not ADA accessible.

Figure EX-8. Park road, looking south from entrance gate. (Strata 2016)

Figure EX-10. Looking east through the metal gate. The house is located on the right side of the photograph. (Strata 2016)

Figure EX-9. Park road, looking south. Note the temporary portable restroom is located on the right side of the photograph. (Strata 2016)

Figure EX-11. Looking from house to park entrance road and parking lot. (Strata 2016)

Grading and Vegetation Surrounding Home Site

There are no current site topographic surveys to confirm the grade changes surrounding the home site. Because the house is constructed on the highest portion of the earthworks wall, the fields in front and behind the house are several feet lower than the yard surrounding the house. The yard is grass and is seasonally mowed to create a perimeter around the house.

The house and outbuildings rest on widest portion of the existing raised earthworks. The extent (height and width) of the original earthworks is unknown. The grade surrounding the house and outbuildings does fluctuate but is relatively level. The grade gradually slopes from the front of the house to the north and again from the back (south) of the house to beyond the outbuildings. The immediate yard site surrounding the house is more expansive in comparison with the other earthwork walls on site. It is unknown if the earth in the area where the house or outbuildings

are located may have been filled to accommodate the construction of these three structures; archeological investigation of this portion of the earthwork wall has been very limited.

For the most part, the grade surrounding the house slopes positively away from the structure, with a slight crown in the grade centered on the house (Figure EX-12). There are some areas where the downspouts have been disconnected. The missing downspouts create a concentrated flow of water landing at the base of the wall, which in turn creates soil erosion and depressions that hold water. This standing water against the foundations migrates into the stone and brick walls causing mortar loss and masonry deterioration (Figure EX-17).

Mature trees line the edges of the southern portion of the access road to the site (Figures EX-9 and EX-11). There are currently no trees or shrubs near the front, east and west sides of the house. The historic photographs from 1927 show there were once large trees surrounding the house (Figures 29 and 30). Theses historic photographs also show a wood post and rail fence surrounding the house site with a wood arched-top gate centered on the front door. The date this fencing was removed is unknown. Except for a large unidentified shrub growing at the southeast corner of the house, the current trees and shrubs closest to the home site are located at the rear of the house and adjacent to the outbuildings. There are three large-diameter trees east and south of the smokehouse (Figures EX-13 - EX-15). The age of these trees is unknown. Trees in this general area appear in the 1927 photograph of this area (Figure 30). The roots of the tree just south of the smokehouse do not appear to be creating any issues with the foundation of the building at this time but should be carefully monitored for future issues, as the tree is very close to the small building. The canopy of the three trees extends over the smokehouse; thus, there are broken branches in the gutters.

A small tree with a double trunk structure grows just west of the milk house. The tree is growing slanted, away from the building. There are three additional trees west of the house and outbuildings. The effect of the trees growing on the earthworks wall was discussed at the workshop, but there was no clear determination of their effect at this time. Many other trees are located closer to and aligning the access road.

The stone areaway stair to the basement, located on the south side of the house, has no cover and is open to the elements. Since there is no drain at the base of the steps, this area should be monitored for water infiltration into the basement during rain events.

Figure EX-12. Home site, looking south. (Strata 2016)

Figure EX-13. Home site, looking southwest. (Strata 2016)

Figure EX-14. Home site, looking southwest. (Strata 2016)

Figure EX-15. Home site, looking north. (Sheals 2016)

Figure EX-16. Home site, looking east. (Strata 2016)

Figure EX-17. Deterioration, southeast corner, due to missing downspout. (Strata 2016)

Utility Assessment – Existing Conditions

A site visit was performed May 16-18, 2016 to observe the existing conditions at the site, determine the existing utility services active and review evidence of prior utility services at the Blackstone house (Figure EX-18). The site was walked and photographs were taken to document existing conditions, no formal survey of the site was done. The local utility providers were contacted by phone and in person to determine the utility services available at the site. The following utility providers were contacted: Ross County Rural Water, South Central Power, Ross County Health Department, and Horizons Telecom. There are two natural gas carriers in Ross County, Ohio Columbia Gas of Ohio and Pike Natural Gas. Neither carrier provides service to the Seip Earthworks site area.

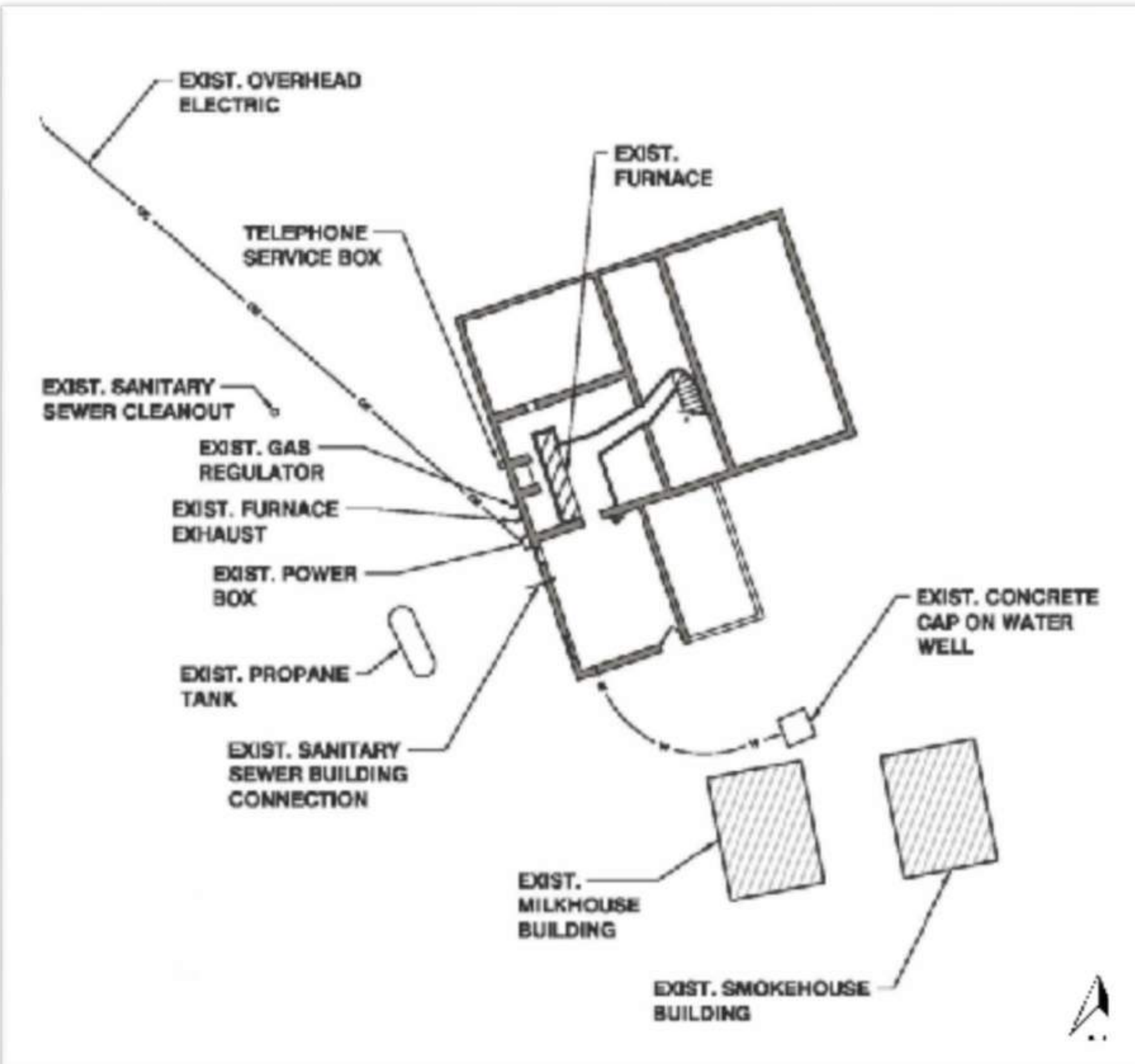

Figure EX-18. Utility Service Connections. (SKDG 2016)

The house currently has utility service connections for water, propane gas, sanitary sewer, telephone and electric. Overhead electric service is the only active utility service to the house. All utility service connections are located along the west face of the house (Figures EX-18 and EX-19) except for the water connection which enters the south basement wall below the kitchen.

The milk house shows evidence of previous electrical service, though it is no longer connected.

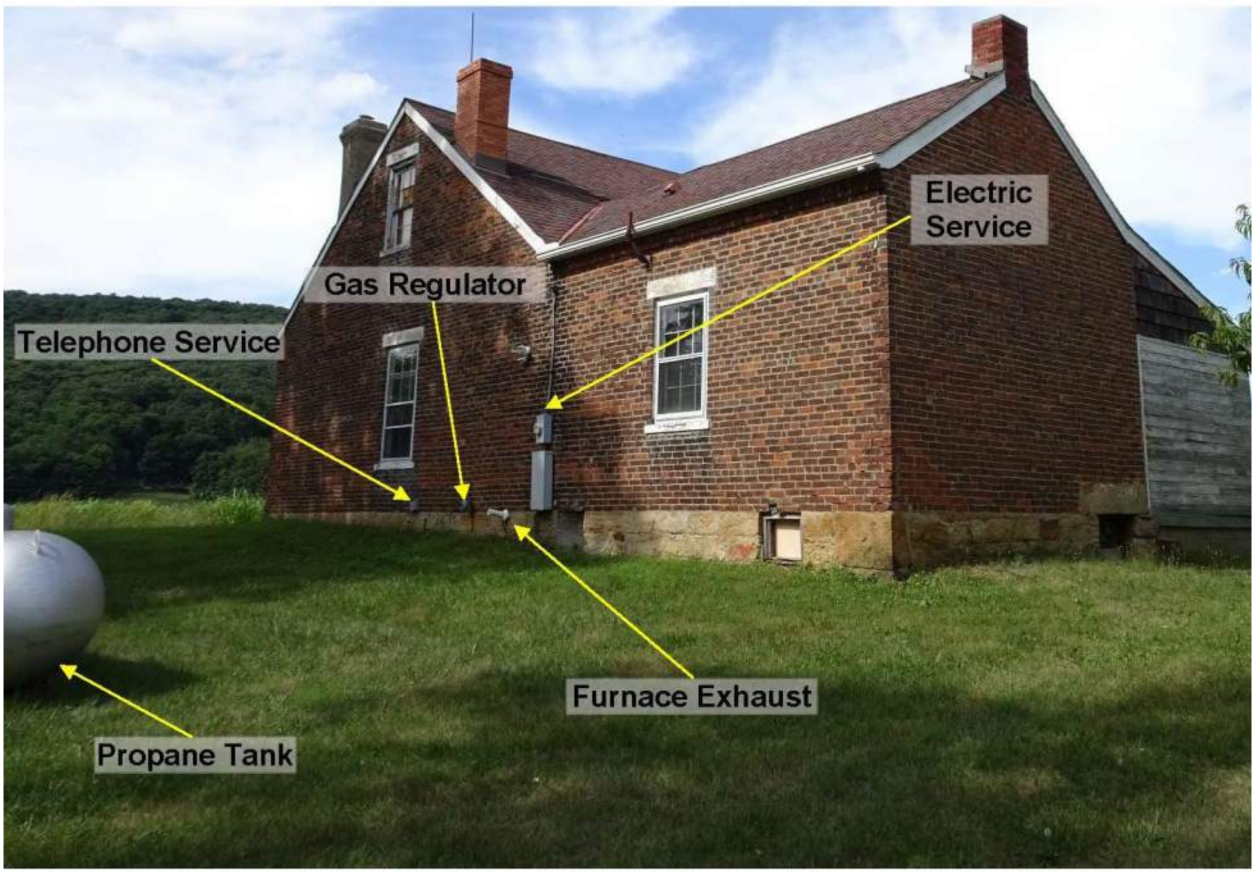

Figure EX-19. Utility service connections at west side of house. (SKDG 2016)

Water

There is an existing 6” PVC rural water main along the north side of Highway 50. Ross County Rural Water Service records show an existing 5/8” tap on the main crossing under Highway 50 approximately 40 feet east of the east edge of the driveway to the Blackstone House. The service line turns west approximately 100 feet south of the south edge of the Highway 50 pavement edge and runs over to (2) water meter sets adjacent to the west edge of the driveway to the Blackstone House. From the meter sets there is visible evidence of a service line running west to a water fountain located just south of the Park pull-off drive.

SKDG met with a Ross County service technician onsite to determine if one of the meters served the Blackstone House. Both meter sets serve the Park water fountain at the pull off location. One pit contains the 5/8” meter set and the other contains a regulator feeding the 5/8” meter (Figure EX-20). The regulator was likely installed to reduce the pressure to the fountain.

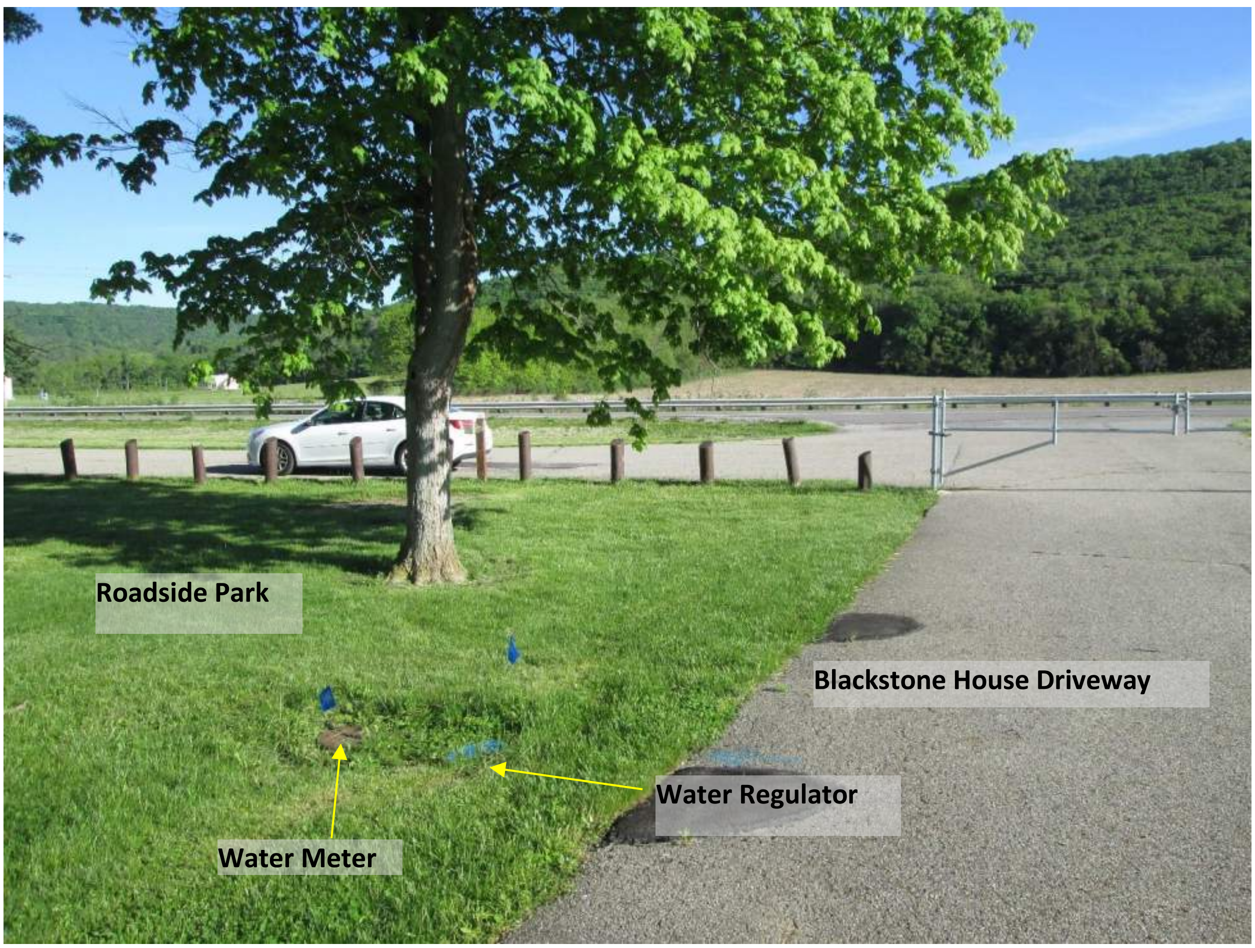

Figure EX-20. Roadside park water service, looking north toward Highway 50. (SKDG 2016)

The water service to the house is no longer active. The service to the house was provided from the stone lined well located just north of the northeast corner of the milk house. The well was recently capped with a concrete slab and was not accessible for inspection (Figure EX-21). The former water service enters the house under the kitchen area in the basement area along the south wall approximately midway between the exterior access to the basement and the southwest corner of the house. The service entered below frost depth, ran across the basement floor and turned up to connect to the house plumbing below the kitchen floor (Figure EX-22).

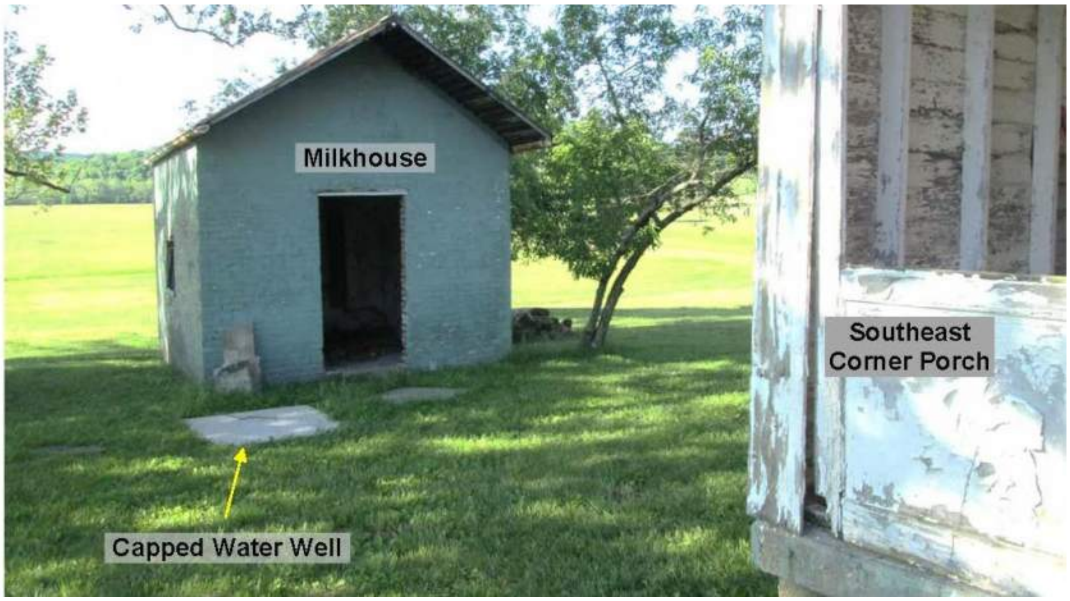

Figure EX-21. Capped water well. (SKDG 2016)

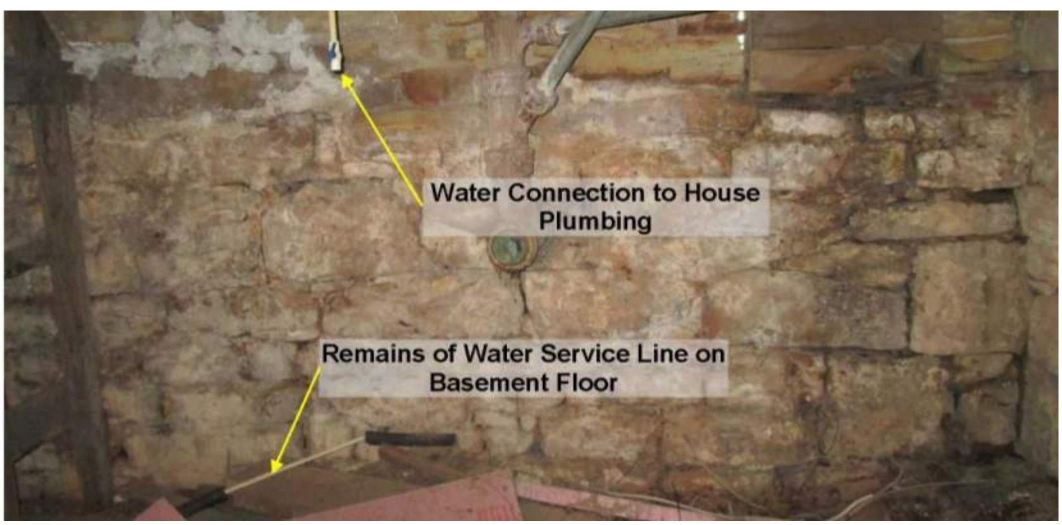

Figure EX-22. Water service line on floor, Room 005. (SKDG 2016)

Propane Gas

The house was heated with a gas fired forced air furnace located in basement Room 004 (Figure EX-24). The furnace is in disrepair and is not operational. Gas was supplied to the furnace from the propane tank located on the west side of the house (Figure EX-23). The routing of the propane service line from the tank to the house is underground and enters the west basement wall of Room 004. There is an old gas regulator located on the west face of the house that once served as the gas service connection.

There are two natural gas distribution companies located in Ross County, Ohio, the Columbia Gas of Ohio, Inc. and Pike Natural Gas. Both companies were contacted and neither company provides natural gas service to the site.

Figure EX-23. Propane gas service, west of house. (SKDG 2016)

Figure EX-24. Forced Air Furnace Basement Room 004, looking north. (SKDG 2016)

Sanitary Sewer

The sanitary service line exits through the west wall in basement Room 005 (Figure EX-25). A video of the existing line was performed to determine its routing. A ductile iron pipe exits the basement of the house and the pipe makes a 45-degree bend five feet outside the wall heading northwest to the existing cleanout. The pipe material changes from ductile iron to PVC at the 45-degree bend. The video indicates the entrance to the septic tank is located approximately three feet beyond the cleanout approximately 53 feet from the line location leaving the house. The PVC cleanout is located approximately 29 feet west and 5 feet south of the northwest corner of the house (Figure EX-26). The cleanout cap was removed to see if it was located over a septic tank. The cleanout line makes a 90-degree bend approximately 3 feet deep and provides service to the existing septic tank located adjacent to the cleanout. The top of the septic tank is around one foot below existing grade as determined with a probe rod. The location of the absorption field is assumed to be beyond the septic tank on the extension of the sewer line from the house to the tank. Ground penetrating radar is required to determine the exact size and location of the absorption field. SKDG met with the Ross County Health Department to obtain records on the design of the absorption field. The installation of the septic system at the Blackstone house pre-dated their record keeping and no information on the septic system is available.

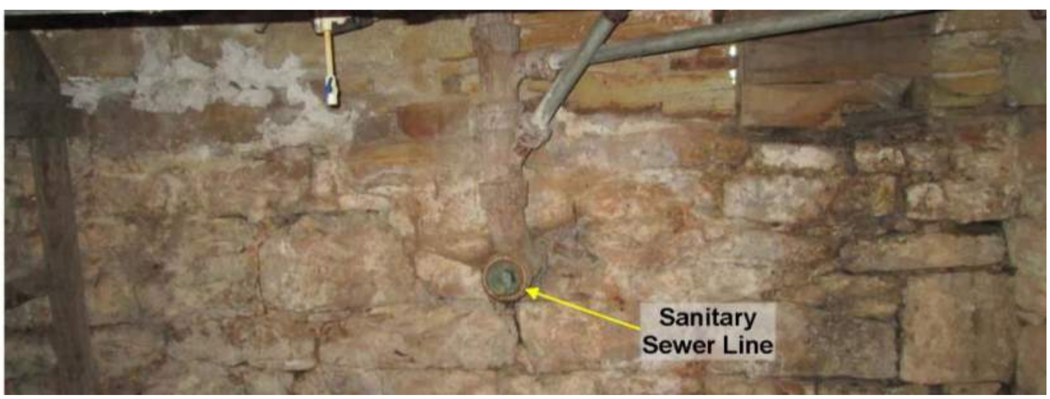

Figure EX-25. Sanitary sewer service, west wall, Room 005. (SKDG 2016)

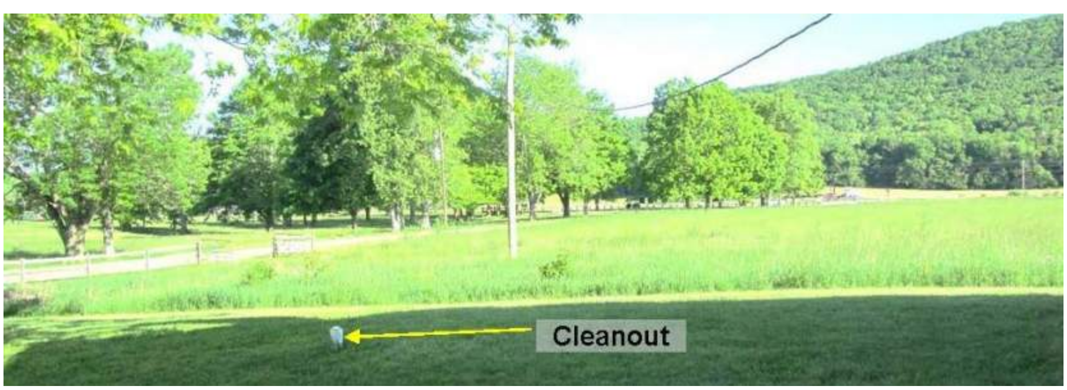

Figure EX-26. Sanitary sewer cleanout, west of house. (SKDG 2016)

Telecom

The telephone service to the house is inactive. There is a telephone service box located on the west wall of the house (Figure EX-17). The previous service to the house may have originated from a telephone service pedestal located approximately fifteen feet east of the entry drive to the Blackstone House and fifteen feet south of Highway 50 (Figure EX-18). The actual location of the service line from Highway 50 to the house is undetermined. The telephone service line to the house appears to be located along the east side of the driveway as shown in Figure EX-18.

Figure EX-27. Telephone service, west wall. (SKDG 2016)

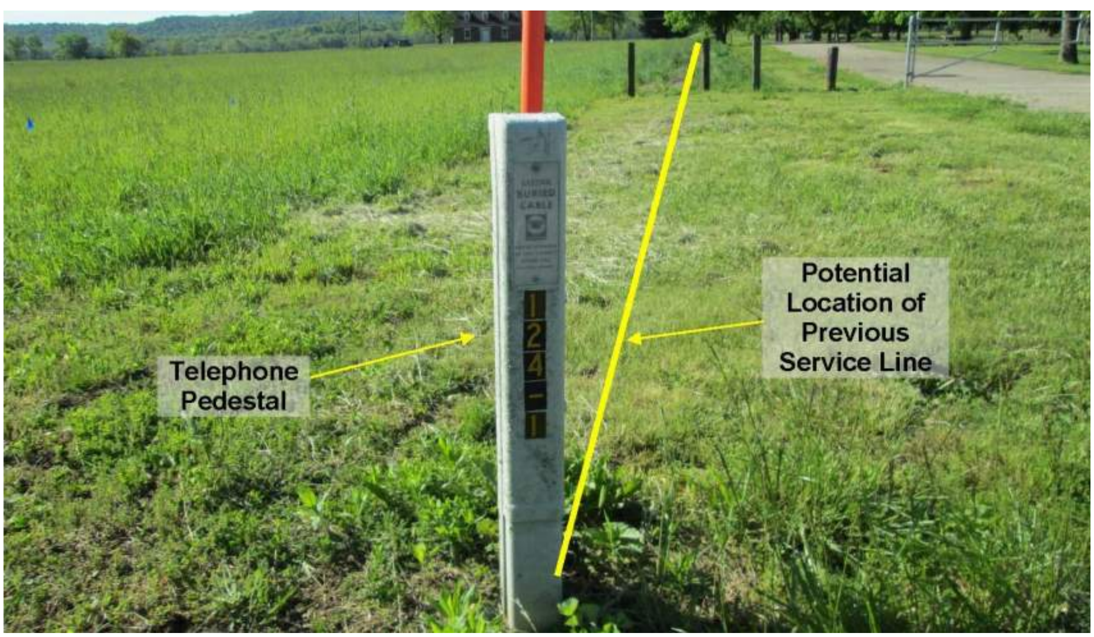

Figure EX-28. Telephone service near Highway 50 at the park entrance (east of drive). (SKDG 2016)

Electric
Electric service to the house is active and is provided by South Central Power located in Hillsboro, Ohio, website southcentralpower.com. Contact: Kevin Caro, Engineer, Ph. (740) 653-4422 Ex. 4424.

There are existing overhead power lines running east-west across the Seip Earthworks property from Dill Road on the east to a residential outparcel within the park property on the west (Figure EX-29). There is a pole mounted transformer located approximately 190 feet northwest of the NW corner of the house next to the east side of the driveway (Figure EX-30). Overhead electric service from the pole mounted transformer is provided to the house. The existing poles and overhead lines are considered to be intrusions on the historic landscape.

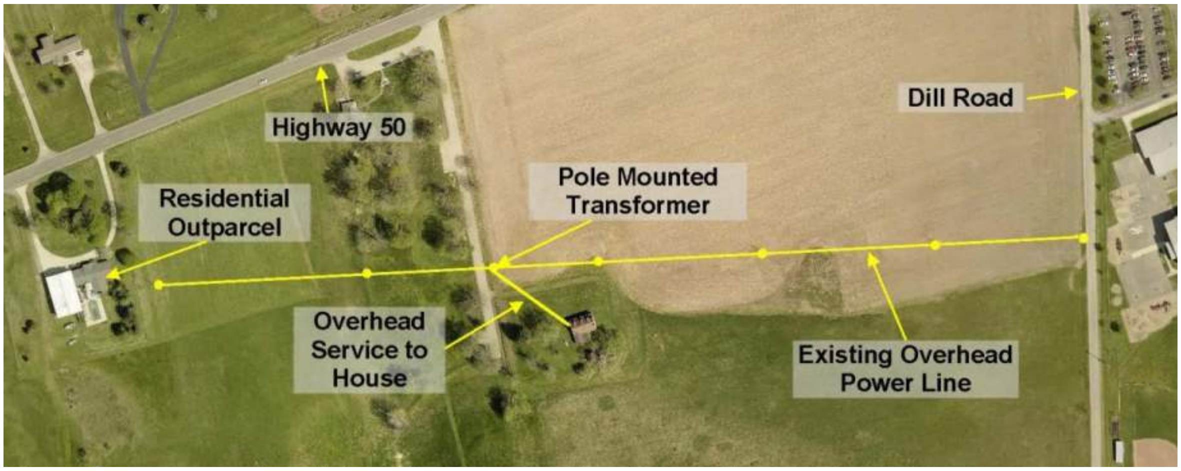

Figure EX-29. Electric system on site. (SKDG 2016)

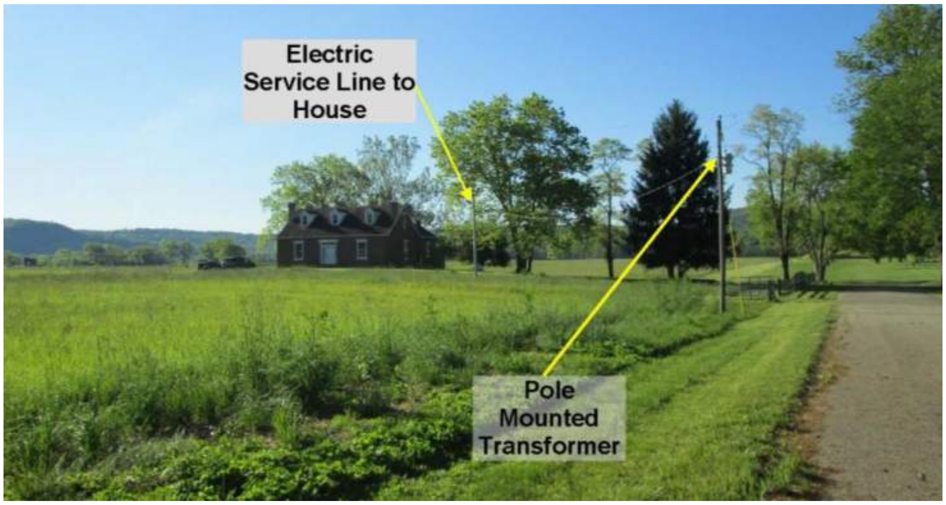

Figure EX-30. Electric service in front of house. (SKDG 2016)

Exterior Envelope Materials

Masonry

The house and smokehouse exterior walls are constructed of brick masonry resting on stone foundations (Figure EX-21). The milk house exterior walls are also brick, but the foundation construction is unknown at this time. The buildings appear have been constructed of similar materials and around the same time. This section of the report explores these individual building components: Mortar, Brick, Cut Stone Lintels and Sills, Native Stone Foundations and Chimneys.

Figure EX-31. Typical exterior masonry walls and chimney. (Strata 2016)

Mortar

The mortar used for the brick and stone masonry walls is a lime based mortar utilizing a native aggregate material with lime inclusions (Figure EX-32). The mortar was not tested, but it is likely very soft and does not carry any great structural characteristics typical of contemporary Portland mortars.

Figure EX-32. Typical bricks, showing what appears to be original or early mortar with fine aggregate and lime inclusions. (Strata 2016)

Brick Walls at the House and Outbuildings

The exterior walls of the house and outbuildings are brick masonry (Figure EX-33). The bricks are handmade and measure 8 ½-inches by 4-inches by 2 3/8-inches. The brick lengths vary by ¼-inch and the widths vary by 1/8-inch. There are approximately three rows for every eight inches in vertical height. The bricks are relatively soft which is to be expected for handmade bricks from this period. The darker colored bricks tend to be better fired and are harder. The interior salmon-colored bricks are much lighter and are not suited for exterior installation. Throughout the exterior, many softer bricks can be identified which are deteriorating faster than the harder bricks. The brick walls are double-wythe thick, including all exterior and interior partition walls.

Figure EX-33. Typical bricks, showing the different colors of bricks and what appears to be original or early mortar. Note some of the softer bricks are deteriorated and areas have been patched and repointed with a Portland cement mortar that is too hard for the soft bricks. (Strata 2016)

The exterior brick masonry walls on the house and outbuildings are original and have witnessed very few changes since the original construction. The bricks walls of the house and milk house are in relatively good to fair condition with several of the softer bricks in very poor condition. The brick walls at the smokehouse are in poor condition, especially on the interior. The brick used for the construction of the smokehouse is a very soft brick.

There are signs of previous repointing campaigns throughout the exterior and interior of the masonry walls. Several campaigns of previous mortar repairs can be seen, including areas that appear to have been repointed with improper Portland mortar which is too hard for the soft bricks.

Cracks extend through the two wythes of bricks in the walls in several locations which indicates previous foundation settlement. There are several areas where daylight can be seen through the exterior walls from the inside of the house.

Where the downspouts are missing or the gutters overflow, the mortar is deteriorating from the joints. The house and outbuildings require spot repointing. The brick walls are soiled with concentrated areas under the window sills that are darker.

Painted Walls
The exterior walls of the smokehouse and milk house are painted (Figure EX-34). The paint is latex and is trapping moisture in the brick walls. Historic photographs in the 1920s indicate that the outbuildings were painted or whitewashed.

Figure EX-34. Typical green painted walls at the brick smokehouse. (Strata 2016)

Cut Stone Lintels and Sills at the House
Cut stone lintels and sills are installed at windows and doors (Figure EX-35). The cut stone appears to be a native limestone and has been painted white. The lintels and sills have been painted white. The paint is deteriorated and flaking. The presence of the paint makes it difficult to assess the condition of the lintels and sills.

Figure EX-35. Cut stone lintel and sill, typical, Window 100. (Strata 2016)

Native Stone Foundation at the House and Outbuildings

At the house, the brick walls rest on a native cut stone foundation which is exposed above grade for approximately five inches to thirteen inches at the perimeter (Figure EX-36). The cut stones are a veneer with back-up rubble stone walls. The stone appears to have a slight vertical tooled finish to even out the natural texturing. Signs of settlement occur at the northeast corner where the corner of the house has begun to rotate. This is further discussed in the Structural Existing Conditions section of this report. The foundation is in fair condition with some settlement cracks and is missing mortar throughout. The foundation is lightly soiled.

At the smokehouse, the brick walls rest on a native stone foundation which is exposed for only a few inches at the north side of the building and approximately twelve inches at the southwest corner. The stones on the smokehouse are shaped to fit the walls but are not as finished or tooled as the stones at the main house. The foundation is in fair condition with some settlement cracks and is missing mortar throughout. The foundation is lightly soiled.

Figure EX-36. Typical stone and brick deterioration at southeast corner due to water infiltration. Note the vertical tooling on the stone foundation. (Strata 2016)

Chimneys - House

There are five brick chimneys at the main house. Three of the brick chimneys that are covered in stucco are in very poor condition (northwest, northeast and southeast chimneys – Figures EX-37, EX-38 and EX-39). It is likely they were covered in stucco due to advanced deterioration of the soft bricks. The stucco finish that was installed on the exterior has minor cracking which allows water infiltration. Hard, cementitious stucco also retains moisture within the bricks leading to further deterioration of the bricks. The flashing at the perimeter of the chimneys on the main part of the house is failing. The cap conditions are unknown for the northeast and southeast chimneys. Due to the amount of debris in the southeast chimney, it is assumed this chimney flue is open. The northwest chimney has a vent pipe and cover from a previous stove installation.

The southwest chimney has been reconstructed in the twentieth century (Figure EX-40) and the kitchen chimney has also been reconstructed and has a concrete cap (Figure EX-41). The two reconstructed chimneys were built of brick that does not match the historic handmade bricks. The southwest chimney has a vent pipe from an old furnace installation installed.

The chimneys are in overall poor condition. All four of the chimneys at the main house are failing at the perimeter flashing, causing significant interior damage to the second floor. These require immediate repair.

Figure EX-37. Northeast chimney. (Strata 2016)

Figure EX-39. Southeast chimney. (Strata 2016)

Figure EX-38. Northwest chimney. (Strata 2016)

Figure EX-40. Southwest chimney. (Strata 2016)

Figure EX-41. Kitchen chimney. (Strata 2016)

Dormers

Three dormers are located on the north-facing roof. The dormers were last rehabilitated in 1995.[230] The dormers are wood frame construction with wood trim, lap siding and a pedimeted gable (Figures EX-42 – EX-45). The windows are wood 6/6 double hung. The wood trim and lap siding at the three dormers are in various states of deteriorated condition. The wood towards the tops of the dormers and side walls is in good condition, while the base of the trim and the wood window sills on the fronts of the dormers are in poor condition and require immediate replacement. The jambs of the central Window 202 require replacement, as well.
The three dormers require prepping, priming and painting of all wood surfaces. The metal exterior storm windows are in poor condition and need to be replaced. The space between the storm and wood windows are full of wasp nests. The wood double hung window sashes are in fair condition with deteriorated paint, deteriorated glazing putty and some wood rot.

The flashing at the side walls is unsightly and is not properly installed to shed water which will lead to water infiltration at this joint. When the roof is replaced, the siding needs to be removed and reinstalled to provide flashing behind the wood siding.

[230] Ohio Historic Connection Maintenance Schedule, (Ohio SHPO, Ohio History Connection).

Figure EX-42. Dormers at north side of house. (Strata 2016)

Figure EX-44. Detail of the center dormer and Window 202. The trim is deteriorated and the window requires restoration. Note the side wall flashing installation is unable to shed water effectively. (Strata 2016)

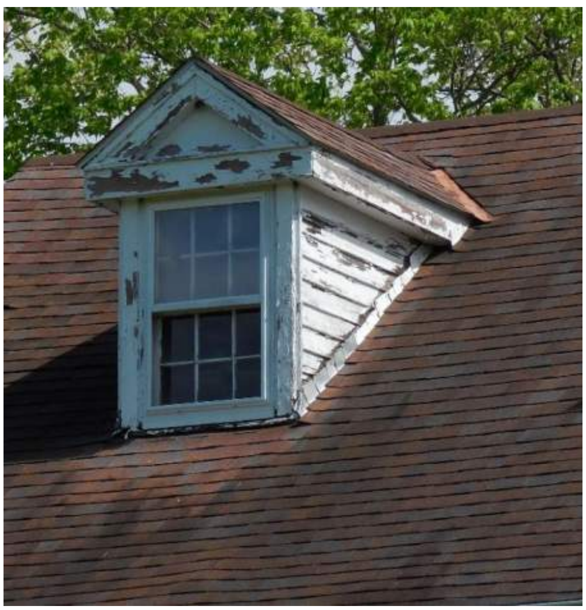

Figure EX-43. Detail of the eastern-most dormer and Window 203. The trim is deteriorated and the window requires restoration. Note the side wall flashing installation is unable to shed water effectively. (Strata 2016)

Figure EX-45. Detail of the western-most dormer and Window 201. The trim is deteriorated and the window requires restoration. Note the side wall flashing installation is unable to shed water effectively. (Strata 2016)

Roofing, Flashing, Gutters and Downspouts

Asphalt Roofing and Flashing at Main House

Evidence of existing skip sheathing on the main house roof suggests the house was originally roofed with wood shingles. The second roof was likely the metal roof seen first in the 1920s photographs of the house. The existing asphalt shingle roof was installed in 2000 and the roof may have been covered with plywood sheathing over the earlier skip sheathing boards during this work (Figures EX-46 – EX-51). This existing plywood sheathing can be seen in the hole in the north ceiling of Bedroom 201. The existing asphalt roofing material is in fair condition. The shingles are starting to show streaking and wear, including loss of the asphalt granular coating, especially at the dormers and at the lower-sloped roof over the back porch.

The roof was installed with open valleys at the rear ell and main roof connection. The roof itself is not leaking; however, the area where flashing is installed is leaking (Figure EX-52). The flashing installation does not meet Sheet Metal & Air Conditioning Contractors' National Association (SMACNA) recommendations for flashing and counterflashing installation details and in some cases, appears to funnel water into the structure rather than direct it away. Leaks are prevalent at the perimeter of the chimneys. This may be due to the lack of saddles or crickets behind the chimneys which would help direct water away, but it is more likely that the flashing and counterflashing at the mortar joints have failed. Sidewall flashing at the back porch roof is deteriorated and relies on sealant to keep water out of the joints (Figure EX-50).

Gutters and Downspouts at Main House

Contemporary pre-finished aluminum K-style gutters are installed on the house, but the downspouts are missing (Figures EX-46 – EX-51). The lack of downspouts results in water from the gutters streaming down the side of the building and collecting at grade. The soil below the gutters where the downspouts are missing is depressed, which allows the pooling of water. This pooling water infiltrates the surrounding soil slowly, and eventually migrates into the foundation walls. The water running down the brick walls pools and splashes back onto the building, keeping the walls damp. The consequence of missing downspouts can most significantly be seen at the northwest corner, where the foundation has settled, resulting in cracked masonry. This water infiltration can be seen at each corner where the downspouts are missing.

New downspouts had been delivered to the site prior to the last site visit in August 2016, but they had not yet been installed.

Metal Roofs, Gutters and Downspouts at the Outbuildings

The metal roofs on the smokehouse and milk house may have been installed at the same time as the metal roof on the house (Figure EX-52). The exact date of installation is unknown, but these metal roofs are first seen in 1927 photographs. In these photographs (Figures 29 and 30), the roofs are well worn and showing signs of age. It is therefore very likely that these were installed prior to the 1920s. Both structures were most likely roofed with wood shingles to match the house, as evidenced by the wood skip sheathing. The metal roofs on these buildings are in poor condition. The smokehouse roof has holes through the roofing and is deteriorated at the edges. The existing gutters are painted steel, 4-inch diameter, half-round and the downspouts

are 4-inch round. They are hung with twisted steel wire hangers. The gutters and downspouts are deteriorated and partially missing and require complete replacement.

Figure EX-46. Existing asphalt shingle roof on north side of the house. (Sheals 2016)

Figure EX-47. Existing asphalt shingle roof on rear ell of house. (Sheals 2016)

Figure EX-48. Detail of dormers and roofing. (Strata 2016)

Figure EX-49. Detail of flashing transition at the west upper roof to the kitchen roof. This is an awkward transition and there is a resultant hole under the flashing which leads into the attic. This requires further inspection and new flashing detailing. (Strata 2016)

Figure EX-50. Detail of rear porch roof connection to the main house. Note the flashing is pulling away from the building and has several layers of sealant installed. The downspout from the upper gutter is very short and does not direct the water far enough away from the side wall. (Strata 2016)

Figure EX-51. Detail of rear wood fascia and contemporary K-style gutter. Note, the downspout is missing. (Strata 2016)

Figure EX-52. Metal roofing, half-round gutters and round downspouts at the smokehouse and milk house. (Strata 2016)

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The Greek Revival Style front door of the house. (STRATA 2016)

1C EXISTING CONDITIONS
MAIN HOUSE EXTERIOR

House Exterior Existing Conditions

The Blackstone house is a one and one-half story building with an L-shaped plan. While the rear porch is a reconstruction in the mid-twentieth century, historic photographs and physical evidence suggest that a wood-framed porch structure originally existing in this location. The Georgian Revival style building has retained many of its original materials and features and is unique to this region in Ohio.

North Elevation

Figure EX-53. North elevation. (Sheals 2016)

The north elevation of the house is the primary elevation and is visible from the highway (Figure EX-53). The north elevation is brick one and one-half story with three pedimented dormers located on the roof. The roof has a chimney at either end. It is worth noting that these chimneys are asymmetrical in their placement towards the front of the building. Also, their height varies – the chimney on the west side is shorter than the one on the east side. The Greek Revival front door surround is centered on the façade and is flanked by two large 6/6 double hung wood windows.

The exterior brick walls rest on a cut native stone foundation. The stones are in good condition, but are missing mortar at nearly every joint.

The brick masonry of the north wall is laid in a running bond pattern with header rows every ninth or tenth course. The top of the wall is capped with a three-brick corbeled brick cornice. In general, the bricks are slightly better quality than bricks used on the other exterior walls. The bricks are in fair condition with some of the softer bricks starting to deteriorate. The brick mortar appears to be a combination of original lime mortar and areas of incompatible mortar patching that are done with a Portland cement-based mortar that is unsightly and too hard for the historic soft bricks. Through-wall cracks are prevalent at the tops of the windows and the front door as well as below the windows. Daylight can be seen in the crack above Window 100 from the interior of the house (Figure EX-54). This crack suggests that the northwest corner has settled and pulled away at this joint. The masonry wall is in fair to good condition but is missing mortar throughout, containing deteriorated bricks and through-wall cracks.

The cut stone lintels and sills are difficult to assess because they have been painted, but they appear to be in good condition (Figures EX-54, EX-55 and EX-57). The paint is flaking.

The two wood double hung windows are covered with contemporary metal storm windows. The storm windows do not close properly. The window sashes and jambs are deteriorated and have significant paint loss. The deterioration includes the glazing putty, wood rot and broken glass. The joints at the perimeter of the window frames in contact with masonry have deteriorated sealant. The window conditions are discussed in greater detail in the Materials section of this report and documented in the Window Schedule.

The front door surround is the focal point of the north elevation and is designed in the Greek Revival style which was popular in the mid-nineteenth century (Figures EX-57 – EX-62). Except for the peeling paint, the surround appears to be in good to fair overall condition. Bare wood is exposed throughout the surround, due to significant paint deterioration and peeling. Maintenance of the paint finish is a top priority for the preservation of this critical character defining feature of the house. The sidelights and transom window have deteriorated glazing putty. The original wood front door condition is similar to that of the surround. It is currently protected with a metal storm door, which does not close properly. The front door does not have weatherstripping, and there are wasp nests throughout the surround. The front door surround is constructed atop a massive finished stone sill, which is in good condition. The front stone stoop has settled and is uneven. The front door and hardware are discussed in greater detail in the Materials section of this report and documented in the Door Hardware Schedule.

An exterior light was once mounted above the entry door. The remnant of the fixture installation can be seen in the top jamb.

The 1x wood fascia board is a replacement from 2000.[231] This board is very tall and conceals the brick corbeled cornice. The original fascia board height and detailing requires further investigation when the gutters are next replaced so that future replacement fascia boards are the historically correct height and do not cover the brick cornice.

[231] Ohio History Connection Maintenance Schedule, (Ohio SHPO, Ohio History Connection).

The condition of the chimneys, roofing, guttering and downspouts are discussed in the Exterior Materials section of this report. The downspouts are missing from each corner, causing significant water damage to the foundation and brick walls. The ground below the missing downspouts is eroded and holds water when it rains. This water is the cause of the settling foundations at the corners of the building.

Figure EX-54. Cracks at top of Window 100, north elevation. (Strata 2016)

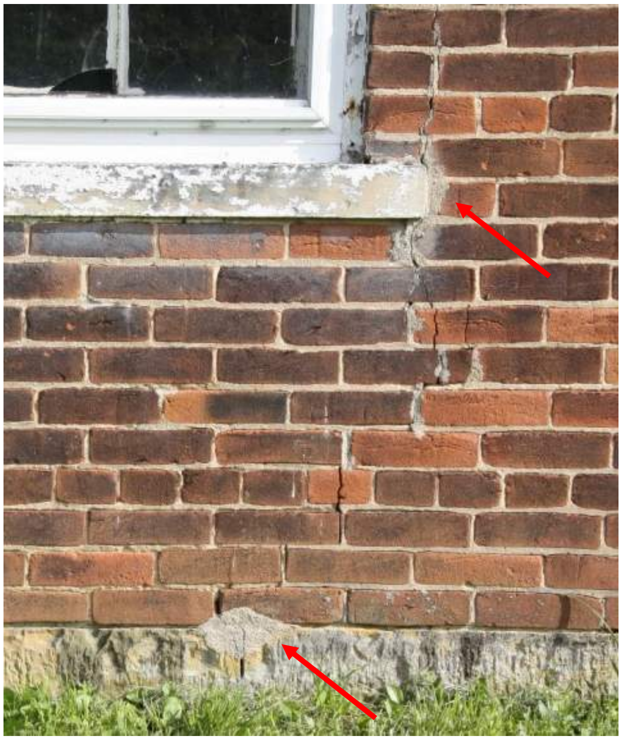

Figure EX-55. Examples of incompatible Portland cement-based mortar below Window 101, north elevation. (Strata 2016)

Figure EX-56. Northeast corner settlement, north elevation. The foundation in this area has settled and the corner is rotating outward. (Strata 2016)

Figure EX-57. The front door surround is designed in the Greek Revival Style and is original to the construction of the house. (Strata 2016)

Figure EX-58. Detail of the transom at the front door surround. Note the exposed wiring from a previous light fixture installation. The transom glass appears to be original. (Strata 2016)

Figure EX-59. Detail of the Greek Revival pilaster capitals at the front door surround. (Strata 2016)

Figure EX-60. Detail of the front door surround sidelight panel and trim. (Strata 2016)

Figure EX-61. Interior detail of the front door trim resting on the stone sill. The base of the trim is deteriorated. The wood threshold is a replacement. (Strata 2016)

Figure EX-62. Interior detail of the water infiltration and deterioration at the front door sidelights. The residue on the wood is from some type of sealer tape, presumably used to stop drafts. The interior of the door surround is quite primitive and does not have any fine millwork detailing. It appears to be all original (Strata 2016)

East Elevation

Figure EX-63. East Elevation. (Sheals 2016)

The east elevation of the house is a secondary elevation, and is partially visible from the highway (Figure EX-63). The east elevation steps back to reflect the L-shaped plan. The north section is the gable end of the front one and one-half story portion of the house and is brick. A single 6/6 Window 204 is centered near the roofline on the second floor. Two chimneys flank the ridge. The stepped back portion contains a wood framed porch with a low-slope roof, set atop a concrete floor and concrete masonry unit foundation.

The exterior brick walls rest on a cut native stone foundation. The stones are in good condition, but are missing mortar at nearly every joint.

The brick masonry of the east wall is laid in a running bond pattern with header rows every tenth course. The top of the gabled wall is lined with a 1x wood barge board that is not original, but likely replaced in 2000 (Figure EX-67). The board does not meet at the ridge line and likely allows water into the brick wall at this location.[232] In general, the bricks are in fair condition with some of the softer bricks starting to deteriorate. The brick mortar appears to be a combination of

[232] Ohio History Connection Maintenance Schedule, (Ohio SHPO, Ohio History Connection).

original lime mortar and areas of incompatible mortar patching that are done with a Portland cement-based mortar that is unsightly and too hard for the historic soft bricks. A row of roofing nails is installed into the brick wall about eight feet up from the foundation that need to be removed and the holes patched.

The most noticeable crack in the brick wall is located at the northeast corner (Figure EX-64). This was discussed in the North Elevation section above and is due to water infiltration and foundation settlement. A similar, but smaller crack is located at the southeast corner, also due to foundation settlement, brought on by a missing downspout (Figure EX-65). A large vertical crack is in the northern part of the first floor which has previously been repaired with incompatible mortar (Figure EX-64). A second crack with smaller cracks branching off is located below the window, stretching from the first floor to the underside of the window. Daylight can be seen through the wall from inside the fireplace chimney flue in the East Parlor 101. At the smoke shelf, the exterior brick wall is only a single wythe. This area requires both interior and exterior repointing. The masonry wall is in fair to good condition but is missing mortar throughout, containing deteriorated bricks and through-wall cracks.

Figure EX-64. East elevation cracks at north end of wall. (Strata 2016)

Figure EX-65. East elevation crack at south corner of wall. (Strata 2016)

The cut stone lintel and sill at Window 204 appear to be in good condition, but they are difficult to assess because they have been painted. The paint is flaking.

Window 204 at the second floor is covered with contemporary metal storm window which is broken and is not offering protection to the historic window, allowing water to enter the wall through the deteriorated wood sill and jambs (Figure EX-66). The window sill and frame have shifted for an unknown reason and have rotated to project outside of the wall at the lower left corner of the window sill. This rotation may be partially due to water infiltration and freezing and thawing, resulting in the expansion of the masonry and mortar within the wall. The window sashes, sill and jambs are deteriorated and have significant paint loss. The deterioration includes the glazing putty, wood rot and broken glass. The joints at the perimeter of the window frames in contact with masonry have deteriorated sealant. The window conditions are discussed in greater detail in the Materials section of this report and documented in the Window Schedule.

The condition of the window, chimneys, roofing, guttering and downspouts are discussed in the Exterior Materials section of this report.

The porch is discussed in the South Elevation section below.

Figure EX-66. East elevation, detail Window 204. (Strata 2016)

Figure EX-67. East elevation, detail above Window 204. Note that the barge board does not meet at the ridge line. (Strata 2016)

South Elevation and Back Porch

Figure EX-68. South elevation and back porch. (Strata 2016)

The south elevation of the house is the tertiary elevation, facing away from the main road and is stepped in the 'L' shape of the house plan (Figures EX-68 – EX-75). The south elevation of the main portion of the house is one story brick walls on a native stone foundation with a pitched roof. There is one large 6/6 double hung wood Window 102 centered in the brick wall. Also on the south wall (under the porch) there is the back Door 2/100 and a smaller 6/6 double hung Window 103. A stucco clad masonry chimney is at the east end of the roof. The back porch runs north/south along the kitchen wing, at the inside corner of the 'L' plan. The shed-roofed wood frame porch was constructed in the 1950s and has a raised concrete slab atop unreinforced concrete masonry unit foundations.[233] This existing porch structure replaced an earlier porch that can be seen in Figure 30, taken in 1927. The south elevation of the kitchen wing is a gabled brick masonry wall atop a native stone foundation. There are no windows in this wall. A reconstructed brick chimney is centered on the gable and projects through the roof. The basement stair stone areaway is located in the south wall and is open with no covering (Figure EX-75).

[233] Schlegel Diary, 1956-57.

The exterior brick walls rest on a native cut stone foundation. The stones are in good condition but missing mortar at nearly every joint and have drip spots of previous painting.

The brick masonry of the main house section of the south wall is laid in a running bond pattern with header rows every tenth course (Figures EX-71 – EX-72). The top of the wall is capped with a three-brick corbeled cornice. In general, the bricks are in fair condition with some of the softer bricks starting to deteriorate. The brick mortar appears to be a combination of original lime mortar and newer incompatible Portland cement-based mortar that is unsightly and too hard for the historic soft bricks. There is a small crack through the wall to the bottom left of Window 102. Masonry deterioration is prevalent at the southeast corner where the downspout is missing. The wall has taken on a much moisture and the soft bricks and mortar are deteriorating. Other areas include wash-out of the mortar at the wall below the porch guttering where the overflow hits the brick wall.

The cut stone lintel and sill at Window 102 appear to be in good to fair condition, but they are difficult to assess because they have been painted. The walls under the porch are painted with several coats of white paint, making the masonry difficult to assess (Figures EX-77 and EX-78). Window 103 under the porch has a painted cut stone sill but no lintel. The bricks above Window 103 have begun to settle and a diagonal crack has formed from the top left of the window to the upper right above the porch ceiling. Additional cracking occurs to the lower left of Door 2/100, as well as mortar loss below the door threshold. Likewise, there is no stone lintel spanning Door 2/100, only bricks in the continued bond pattern which are supported by the thick wood buck frame.

The south gable brick wall of the kitchen wing is laid in the same pattern at the rest of the house with a running bond and header rows every tenth course (Figure EX-69). The west corner appears to have had previous mortar repairs. A hole is drilled through the brick wall near the top left of the ridge. This requires further investigation and likely patching to keep insects and birds out of the attic area. There are approximately twenty bricks that are very soft and deteriorated – most near the top of the wall. The kitchen chimney is reconstructed of a textured red brick that does not match the historic wall brick (Figures EX-69 and EX-73). The chimney has been topped with a poured concrete cap.

Overall, the south-facing masonry walls are in fair to good condition but are missing mortar throughout and contain deteriorated bricks and through-wall cracks.

The basement stairs are constructed of large cut stone blocks, matching the foundation (Figure EX-75). The six treads are set into grade with stacked stone retaining walls on either side. The side wall foundation stones are toothed into the house foundation walls. A very large stone lintel spans the door opening. The contemporary wood door frame is unfinished 2x4 construction. The door is a wood frame door clad with unfinished plywood. The basement door and frame are meant to be temporary. In the 1927 photograph of the rear of the house, (Figure 30) this exterior basement areaway appears to have been covered with a slanted wood bulkhead door.

There are two wood 6/6 double hung window openings on the south elevation. Window 102 is centered in the south wall of the main portion of the house. The lower wood jambs and sill of Window 102 are deteriorated (Figure EX-71). This window does not have a protective storm

window installed. Window 103 is a smaller 6/6 window and has been better protected by the porch roof and storm window (Figure EX-78). The storm window does not close properly. The windows sashes are deteriorated and have significant paint loss. The deterioration includes the glazing putty, wood rot and broken glass. The joints at the perimeter of the windows have deteriorated sealant. The window conditions are discussed in greater detail in the Materials section of this report and documented in the Window Schedule.

Door 2/100 to the hall (south exterior wall) and Door 1/105 to the Kitchen (east exterior wall) are original door openings with replacement single lite glass doors (Figure EX-77). The windows and the doors are discussed in the Materials section of this report and are also documented in the Window and Door Schedules.

The 1x wood fascia board running along the south roof edge and the gable roof line is a replacement from 2000.[234] This board is very tall and conceals the brick corbeled cornice (Figures EX-69, EX-71, EX-73 and EX-74). The original fascia board height and detailing requires further investigation when the gutters are next replaced, so that future replacement fascia boards are the historically correct height and do not cover the brick cornice.

The condition of the chimneys, roofing, guttering and downspouts are discussed in the Exterior Materials section of this report. The downspouts are missing from each corner. These missing downspouts are causing significant water damage to the foundation and brick walls. The ground below the missing downspouts is worn away and holds water when it rains. This water is the cause of the settling foundations at the corners of the building.

Figure EX-69. South elevation of rear ell and back porch addition. (Sheals 2016)

[234] Ohio History Connection Maintenance Schedule, (Ohio SHPO, Ohio History Connection).

Figure EX-70. Back porch, looking west. (Sheals 2016)

Figure EX-71. Back porch and south elevation of main house, looking northwest. (Sheals 2016)

Figure EX-72. Deteriorated and patched bricks, south wall, adjacent to Window 102. (Strata 2016)

Figure EX-73. Kitchen (south) chimney. Note, the arrow points to a hole drilled through the wall. (Strata 2016)

Figure EX-74. Southwest corner of the kitchen wing with corbeled brick cornice. (Strata 2016)

Figure EX-75. Basement stair. (Strata 2016)

Back Porch Structure

The wood frame back porch measures approximately nineteen feet by ten feet with an average ceiling height of seven feet ten inches (Figure EX-76 – EX-81). The porch was constructed in the 1950s, likely replacing and earlier deteriorated porch structure. The current porch is wood framed and is clad with painted German lap siding at the bottom two-thirds of the south wall and unfinished wood shingle siding at the top section of the wall. The south wall wood frame studs are exposed on the interior of the porch. The wood structure is painted white.

The sloped concrete porch floor slab is 5 ¾-inches thick and sets approximately 8 ½-inches below the interior finish floor. The foundation of the porch structure is constructed of concrete masonry units, which are settling and do not appear to be reinforced. The foundation is missing mortar and is cracked. The simple wood soffits and 1x barge board appear to have been replaced in the 2000 renovation. A gutter is installed along the roof, but the downspout is missing. The back porch stairs are uneven and have no handrail.

The shed roof is clad in asphalt shingles, matching the rest of the house and has an eighteen-degree slope. The roof structure is wood framed, with two-inch by three and one-half-inch joists and rafters at twenty-four inches on center. The ceiling is clad with painted gypsum board and therefore, only a portion of the ceiling rafters could be observed near the north end where the ceiling has been partially removed.

The south elevation and east elevation brick walls within the porch structure are painted white with several layers of paint. A defined line in the paint finish, located between the kitchen door and the south porch wall, indicates that there was likely a partition wall in this location, as the paint to the south of the line is very thick (Figure EX-79). The wall paint is peeling and in very poor condition. A previous wall light adjacent to the north door has been removed and a junction box remains.

The existing wood frame porch walls and supports along the east wall are in deteriorated condition overall. The door and screening is missing, the wood panels are deteriorated and warping, and the base of the columns are rotten (Figures EX-80 and EX-81). This back porch wall requires stabilization and is further discussed in the Structural Existing Condition section of this report.

The photograph from 1927 (Figure 30) shows a small shed roofed porch structure in this location, but the roof appears to be more sloped than the existing structure. It too, was clad with horizontal clapboard siding on the south wall and had a small window centered on the wall. Thomas Blackstone's inventory mentions a 'wash room.' It may be that this back porch area was infilled and contained some type of wash room. The outline of the earlier porch can be seen in the paint on the walls above the existing porch ceiling (Figure EX-80). This physical evidence suggests that the ceiling in the previous porch structure was much higher and that the roof slope was indeed greater, at 5.5/12. The bottom of the porch roof just barely missed the top right corner of the back Door 2/100.

A contemporary non-functioning security light is mounted on the back porch outer wall.

Figure EX-76. Back porch, looking south. (Strata 2016)

Figure EX-77. Back porch, looking northwest at Door 1/105, Window 103 and Door 2/100. (Strata 2016)

Figure EX-78. Back porch south exterior wall, looking at Window 103 and Door 1/200. (Strata 2016)

Figure EX-79. Back porch, east exterior wall. The arrow points to the defined line in the paint, indicating a previous wall may have been present in this location. (Strata 2016)




Figure EX-80. Back porch, opening in the ceiling to view porch roof framing. Note the defined lines of the white paint, which would have been the height of the previous porch ceiling. (Strata 2016)

Figure EX-81. Details of deteriorated porch wall structure. (Strata 2016)

West Elevation

Figure EX-82. West elevation. (Sheals 2016)

The west elevation of the house is a secondary elevation and is visible from the highway (Figure EX-82). The west elevation is long, as the rear kitchen wing wall is continuous with the gabled end of the main house structure. The north section of this elevation is the gable end of the front one and one-half story portion of the house and is brick. A single 6/6 Window 200 is centered near the roofline on the second floor. A larger 6/6 Window 105 is just north of center within this wall. Two chimneys flank the ridge. The brick masonry wall of the north portion of the house is continuous with the rear one-story kitchen wing. The kitchen wing contains a 6/6 Window 104, which is centered in the wall and is smaller than the other first floor Window 105. Eleven inches of the native cut stone foundation wall is visible at the north corner of the wall, and grade slopes toward the south corner, exposing twenty-eight inches of the stone foundation. Two basement window openings are located in the basement foundation wall under the kitchen wing. Both openings are boarded over. The north opening may have been used as a coal chute. A stunted chimney is present at the south end of the kitchen wing. The electrical, telephone, and gas utilities are connected to the house along this west wall, as well as equipment associated with the on-site remote surveillance camera system.

The exterior brick walls rest on a native cut stone foundation. The stones are in good condition but are missing mortar at nearly every joint.

The brick masonry of the west wall is laid in a running bond pattern with header rows every tenth course. The top of the gabled wall is lined with a 1x wood barge board that is not original, and was likely replaced in 2000. In general, the bricks are in fair condition, with some of the softer bricks starting to deteriorate. The brick mortar appears to be a combination of original lime mortar and incompatible Portland cement-based mortar where repairs have been made.

There are several cracks throughout the west wall. The crack at the northwest corner is due to foundation settlement and shows signs of previous repairs. This was discussed in the North Elevation section above and is due to foundation settlement. A similar vertical crack is located several feet south of the corner crack. A crack below the second floor window extends almost to the lintel of the first floor window. Another small crack is located below the first floor Window 105. A small crack is also located at the upper right of the kitchen Window 104. The bricks exhibit similar masonry deterioration to the other exterior walls. Mortar is missing and bricks are deteriorated at the southwest corner where the downspout is missing. The bricks spanning the basement window openings are failing due to a lack of a lintels. Mortar is missing along the barge board at the gable end of the wall and in other select locations.

Daylight can be seen through the west wall where the West Parlor 103 fireplace is located. At the smoke shelf, the exterior brick wall is only a single wythe of brick. This area requires both interior and exterior repointing. A large section of deteriorated brick is located below the southwest chimney at the main gable wall.

The masonry wall is in fair to good condition but is missing mortar throughout, containing deteriorated bricks and through-wall cracks.

The cut stone lintels and sills are painted, so they are difficult to assess. They appear to be in good to fair condition. The paint is flaking.

The three wood double hung windows on the west wall are in varying states of disrepair. The kitchen Window 104 is covered with a metal storm window (Figure EX-83). The jambs and sill are deteriorated and the sashes require restoration. The dining room Window 105 is also protected with a metal storm window, although it is open and does not close properly (Figure EX-84). The jambs are deteriorated and the sashes require replacement. Window 200 on the second floor is deteriorated and is not covered by a storm window. This window, jambs and sill are deteriorated. Evidence on the jambs indicate there were once shutters installed on the jambs. In general, the window surrounds (jambs and sills) and sashes on the west elevation have significant deterioration and paint loss. The perimeter joint between the window frame and brick wall is deteriorated. The windows are discussed in the Materials section of this report and documented in the Window Schedule.

The basement Window 100 frame, sill and sash are deteriorated, missing glass and require replacement. The sash opening is covered on the interior by insulation board. The mortar jambs have been pointed with inappropriate mortar and the stone below the window is deteriorated and missing mortar. The adjacent Window 101 is boarded over from the exterior and the interior, so it is difficult to assess. It is assumed it is in similar condition to Window 100. This opening may have once been converted into a coal chute. The bricks spanning the window openings have failed.

A three-inch metal vent pipe extends through the wall to the upper left of the kitchen Window 104. This vent pipe likely ties to the kitchen and bathroom plumbing. A rusting metal roof vent is located in the area above the Bathroom 106.

The 1x wood fascia boards running along the west roof edge at the kitchen wing and along the upper the gable roof line re replacement boards from 2000.[235] These boards are very tall and at the kitchen wing, the board conceals the brick corbeled cornice. At the gable, the board is wider than the original barge board and is not fit flush with the building, leaving a large gap. The original fascia board height and detailing requires further investigation when the gutters are next replaced so that future replacement fascia boards are the historically correct height and do not cover the brick cornice.

The condition of the chimneys, roofing, guttering and downspouts are discussed in the Exterior Materials section of this report. The downspouts are missing from each corner. These missing downspouts are causing significant water damage to the foundation and brick walls. The ground below the missing downspouts is eroded and holds water when it rains. This water is the cause of the settling foundations at the corners of the building.

Figure EX-83. Kitchen Window 104 deteriorated jambs, sill and sashes, west elevation. (Strata 2016)

Figure EX-84. Dining room Window 105 deteriorated jambs, sill and sashes, west elevation. (Strata 2016)

[235] Ohio History Connection Maintenance Schedule, (Ohio SHPO, Ohio History Connection).

Figure EX-85. West elevation. Window 200. (Strata 2016)

Figure EX-86. Basement window opening, west elevation. Basement Window 101. (Strata 2016)

Figure EX-87. Basement window opening, west elevation. Basement Window 100. (Strata 2016)

West Parlor 103, Built-in cabinetry. (STRATA 2016)

1C EXISTING CONDITIONS

MAIN HOUSE INTERIOR

House Interior Existing Conditions

The first floor plan is a center hall plan with a large room in each quadrant. An original rear ell is located in the southwest corner of the first floor. A mid-twentieth century porch addition is located along the east side of the rear ell. The main portion of the house is constructed over shallow foundation, with crawl spaces under a majority of the rooms. Only a small portion of the basement located under the center hall and the dining room were excavated for access and to install mechanical equipment. The section of the basement under the kitchen has a taller foundation, creating a full-height basement area. The second floor contains the central stair hall and a single bedroom on each side with sloped ceilings, end gable windows and front-facing dormer windows. Existing Condition Floor Plan Drawings can be found at the end of the Existing Conditions Section of this report, for reference.

Interior Finishes

Interior Millwork

Almost all original millwork on the first and second floor remain, with very few exceptions. The millwork is a combination of painted or clear finish. The clear finish millwork may have a historic finish that is no longer apparent, perhaps through an oil or wax application or something similar. No contemporary finishes or stains are visible, except where noted in specific locations.

Millwork species may vary throughout the first and second floor, but appears to be consistent, based on random sample testing. The north cabinet in the West Parlor 103, Door 1/101 at the East Parlor 101, and a section of the stair handrail at the second floor were all tested to be butternut, which is sometimes referred to as white walnut.[236] Butternut is a member of the walnut family and is native to the Ross County, Ohio region. As the descriptive name suggests, the graining pattern of butternut can appear much as walnut, while the butternut is overall lighter in color. Butternut is softer than black walnut and was often used for cabinetry and furniture. All other typical cabinetry in the Blackstone House appears to be the same species of wood (Figure EX-88).

The mantelpieces that remain have contemporary finishes, but the millwork appears to be butternut or a similar species of wood, as well; likewise, for the interior doors, door trim and window trim. The staircase to the second floor appears to be a combination of wood species: stair treads and risers may be pine or fir, while the balusters, newels and handrail appear to be butternut. Further testing would need to be done to positively identify these woods.

[236] Regis Miller, Ph.D., Wood Identification & Information Specialist, e-mail report to Angie Geist Gaebler, June 4, 2016. Report included in Appendix F.

Figure EX-88. Detail of butternut cabinetry. (Strata 2016)

Baseboards

First Floor – The existing first floor baseboard is typical throughout the first floor, except where noted minor additions of a shoe molding occur in the east and west parlors and in the dining room (Figure EX-89). The baseboard thickness varies from 1-inch to 1 1/8-inch and is 10 ¼-inches high with squared edges. The baseboards are painted with multiple layers and colors of paint. The original finish was likely clear finish, matching the door and window trim. The paint is peeling in all rooms.

Second Floor – The existing second floor baseboard is 1-inch thick and 7 1/8-inch tall with no profile (Figure EX-90). The original baseboard finish is unknown - whether it was a clear finish or painted. The current baseboard has several layers of paint that are peeling.

Figure EX-89. Typical baseboard on north wall with added 1x3 shoe molding, Parlor 101. (Strata 2016)

Figure Ex-90. Typical baseboard on the first floor, Hall 100. (Strata 2016)

Door and Window Trim

The door and window trim throughout the house is simple with very few subtle details. The trim and jambs for the first floor doors and windows is all clear finish, with no paint. The trim is in various states of condition. Some of the trim is worn and shows its age, while other sections are pristine and appear to be in original condition. There are sections where there are a significant number of staples and nails in the trim from previous weatherstripping, plastic sheeting, curtain rod attachments and other types of hardware installations.

The trim on the first floor is similar in each room, except for the trim in the East Parlor 10. This trim is more detailed with pedimented windows and doors and tapered jamb casework in the Greek Revival style. The first floor typical door trim is comprised of 1-inch by 5 ½-inch thick vertical trim, 1 1/2-inch thick by 7 7/8-inch horizontal header trim (overhanging the side vertical trim on each side), and a 2 1/4-inch thick by 1 ¾-inch tall top cap (Figure EX-91). Each piece of trim gradually thickens as it progresses towards the top of the door. There are no plinths. The window trim is similar to the door trim. The stool is 1-inch thick with a slight overhang at the edges (Figures EX-92). The apron is 1-inch thick and 4 3/8-inches high. The apron aligns with the vertical window trim above.

The Greek Revival style door and window trim in the East Parlor 101 has tapered jamb casework and pedimented heads (Figures Ex-93 and EX-94). The base trim is flat 1-inch thick and is tapered from top to bottom and outlined with a thick flat backband. The cap trim is 3-inches thick and 1 7/8-inches tall and is angled with a small concave profiled bed molding to create the pediment feature.

The second floor door and window trim is also very simple ¾-inches thick by 4-inches wide with a face-applied 1/2-inch by 2-inch backband and is painted (Figure EX-95).

Figure EX-91. Typical first floor door trim, Door 1/102. (Strata 2016)


Figure EX-92. Typical first floor window trim (head and stool), Window 100. White strip is modern weatherstripping. (Strata 2016)

Figure EX-93. East Parlor 101 window trim with pedimeted top and tapered jamb casework. (Sheals 2016)

Figure EX-94. East Parlor 101 door trim with pedimeted top and tapered jamb casework. (Strata 2016)

Figure EX-95. Typical second floor door trim with backband. (Sheals 2016)

Cabinets

Refer to the Cabinet Door Hardware Schedule (Figure EX-103) for condition and hardware assessment.

The built-in cabinets in the house are located on the first floor in Bedroom 102, West Parlor 103 and in the Dining Room 104 (Figures EX-96 – EX-102). These cabinets are original to the construction of the house and are built along exterior walls, adjacent to or flanking the fireplace in each room. These cabinets are constructed of butternut. The cabinets have a face frame of wood but side and back walls are painted plaster directly applied to the brick. In some cases, additional interior wood panels have been added to support shelving installed at a later date. The cabinets are divided into upper and lower sections with pairs of doors in both sections. The lower cabinet is raised off of the finish floor to match the height of the continuous wood baseboard surrounding the room, creating a high dust shelf, as was typical for built-in cabinetry and closets in this period.

Cabinet doors have mortise and tenon joints with squared wood pegs. In all locations, the right door is the primary door and is lipped over the left (secondary) door. Half-mortise locks are installed in the upper right door (Figure EX-99). There are no locks on the lower cabinet doors. Locks are cast iron slide bolt with a brass keyhole insert. Where the keyhole inserts are missing, the opening in the door at the keyhole is damaged and enlarged. This is likely due to continued use of the lock with the key with the insert missing. There doors are operated by a decorative inlaid brass spring latch (Figure EX-100). The latch keeper is overlaid on the face of the door and has a simple decorative pattern which is mimicked in the latch. There are two patterns of latches. The more elegant pattern is in the West Parlor 103 and Bedroom 102, while the Dining Room 104 has a simpler pattern.

Many of the left doors have wood thumb turns on the interior to hold them into place when the doors were locked (Figure EX-101). The wood turn latches are installed at the interior face of the bottom of the doors for the upper doors and on the top of the doors for the lower doors. Trim is simple and matches the door and window details throughout the first floor.

Hinges are cast iron with removable pins (Figure EX-79). They are very simple with no detailing and are painted black. Screws are blunt tip, as would be consistent with 1850s construction. All hinges use a total of six screws, except for one location on the lower hinge of the upper left door of the north cabinet in the Bedroom 102 which uses only four screws. This hinge still appears to be original.

The interiors of the cabinets are painted with multiple coats of paint. Modifications to the cabinets vary per room but may include: installation of new interior wood side walls, shelving supports and shelving; removal of the dividing shelf between the upper and lower cabinet, likely to be able to hang long clothing; or the installation of a wood clothes hanging rod. Several of the cabinet door interior surfaces also have writing in pencil from previous building occupants. The writing is very difficult to read. Some cabinets have wood boards between the cabinet and the back plaster walls to cover gaps where the walls and cabinet have settled away from one another.

Figure EX-96. Bedroom 102, Built-in cabinetry. (Strata 2016)

Figure EX-97. West Parlor 103, Built-in cabinetry. (Strata 2016)

Figure EX-98. Dining Room 104, Built-in cabinetry. (Strata 2016)

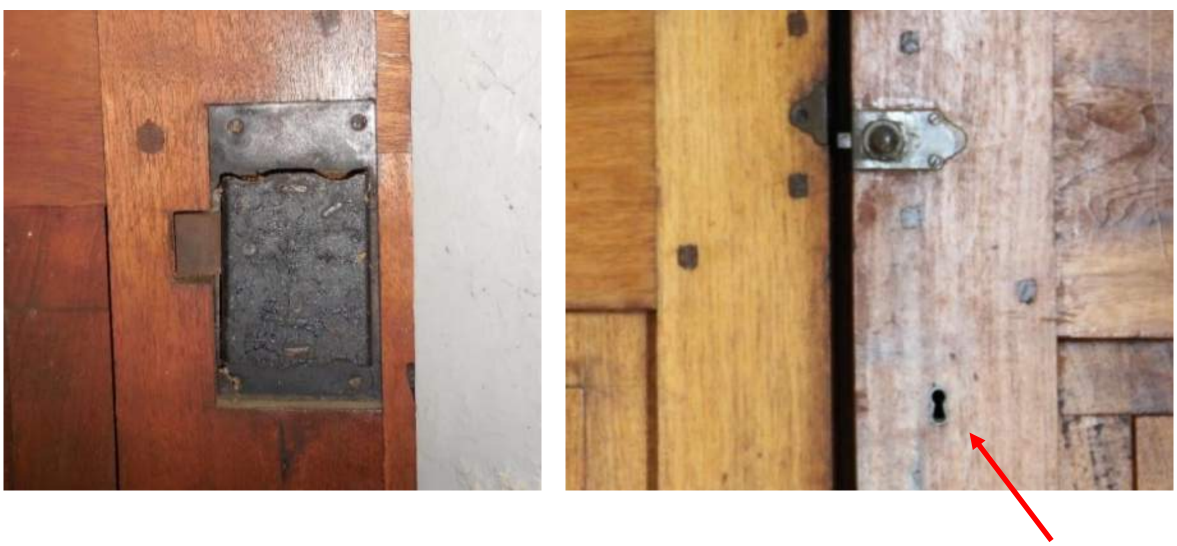

Figure EX-99. Typical cast iron cabinet lock (left) with brass keyhole insert on the front of the door (arrow/right). The brass spring latch is in the upper portion of the right photograph. (Strata 2016, Sheals 2016)

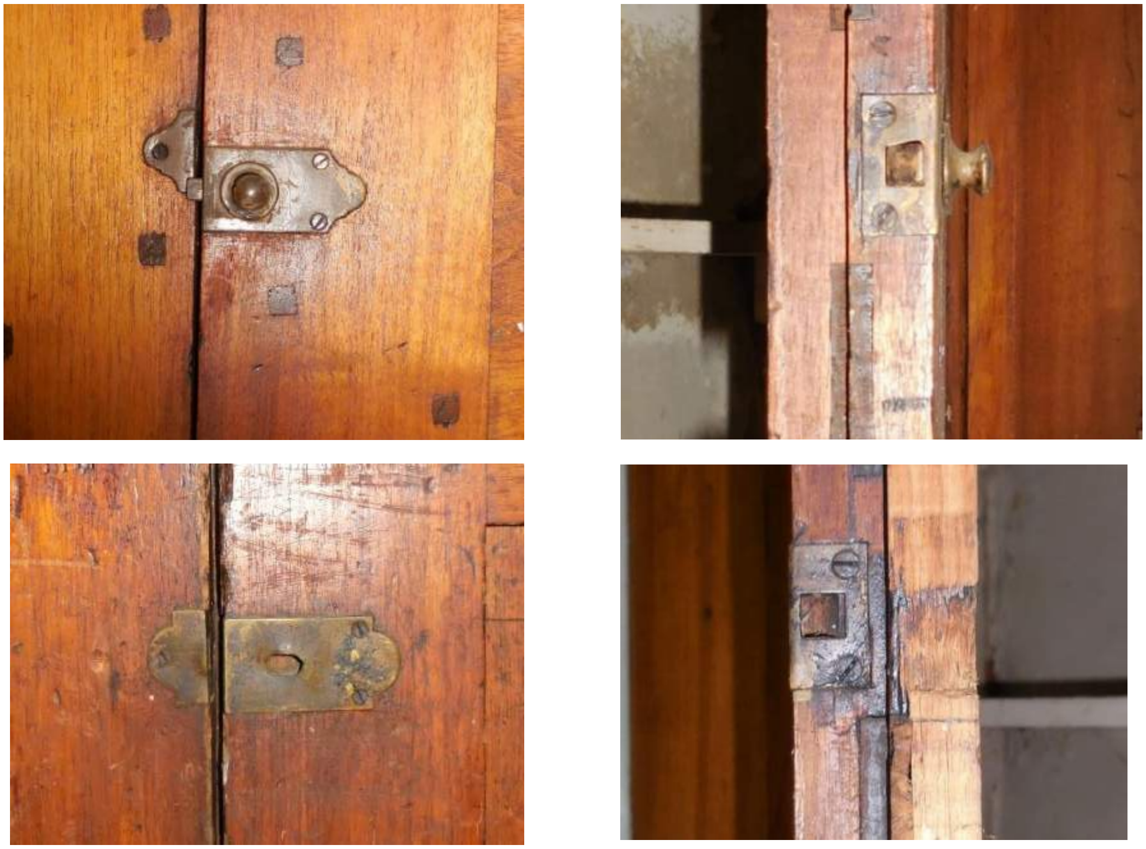

Figure EX-100. Typical brass spring latch details. (Strata 2016)

Figure EX-101. Typical wood thumb turn latch on lower cabinet door. (Strata 2016)

Figure EX-102. Typical cabinet iron hinge. (Strata 2016)

EXISTING BUILT-IN CABINET SCHEDULE							
Room	Cabinet	Doors	Hinges	Lock/ Brass Keyhole Insert	Brass Spring Latch	Wood Turn	Notes
102	North	Upper/right	X	X verify brass keyhole insert	X	X	Doors do not align to close properly. Top of lower doors have been planed. Some damage to top left of lower right door. Lower shelf/base of cabinet is original, as is the dividing shelf. Interior sides of shelving appear to be original, but supports are not. Upper shelving is not original.
		Upper/left	X Bottom left hinge pin is loose				
		Lower/right	X	N/A	X Present but spring and latch are broken	X	
		Lower/left	X				
102	South	Upper	X	Lock and keyhole insert missing	Latch is installed, but knob is missing	N/A	Lower door was not installed. Lower shelf/base of cabinet is original. Interior sides of shelving, including supports and upper shelves are not original. Back portion of cabinet diving shelf is not original.
		Lower	X but missing screws. Door is not installed	N/A	Latch is missing but brass keeper is installed	N/A	
103	North	Upper/right	X	Lock and keyhole insert missing	No spring latch was ever installed on the upper doors	Not present	Lower right door is significantly damaged, is missing hinges and is not installed. Continuous 1x wood filler boards at the interior close to the wall are installed to fill a gap where the outer wall and cabinet have separated. Lower shelf/base and dividing shelf are original. Upper shelf may be original. Intermediate shelf removed. Had a rod installed at one point which has been removed.
		Upper/left	X This hinge is unusual – only 2 screws rather than 3 like the rest of the doors. It does not appear to be a replacement hinge.				
		Lower/right	(2) Hinges missing	N/A	X	X	
		Lower/left	X				
	South	Upper/right	X	Lock and keyhole insert missing	No spring latch was ever installed on the upper doors	Not present	There is some damage to the upper right portion of the lower left door. The dividing shelf between upper and lower cabinet has been removed.
		Upper/left	X Missing a screw in lower hinge				
		Lower/right	X	N/A	X	X	
		Lower/left	X				
104	South	Upper/right	X	Lock present but brass keyhole insert missing	Spring Latch installed, but knob and spring are missing	Not present. No trace of previous installation noticed	The upper doors close fine, but if the spring latch were repaired, would be too offset between the doors to close. Screws in back of lock are missing.
		Upper/left	X				
		Lower/right	X	N/A	Spring Latch installed, but knob and spring are missing	X	
		Lower/left	X				

Figure EX-103. Existing Built-In Cabinet Schedule. (Strata 2016)

Doors

Refer to the Door Schedule (Figure EX-116) for condition and hardware assessment.

All interior doors, with the exception of Hall Door 2/100, Kitchen Door 1/105, Bathroom Door 1/106 and basement Door 3/100 appear to be original to the construction of the house in 1857. The doors on the first floor are left with a clear finish, while the doors on the second floor are painted (Figures EX-104 and EX-105). The doors are a full mortise and tenon construction with squared pegs. The doors have four panels with a shallow raised panel with no profile and a very wide center rail.

Figure EX-104. Typical first floor door, Dining Room 104, Door 1/104. (Strata 2016)

Figure EX-105. Typical second floor door, West Bedroom 202, Door 1/202. (Strata 2016)

The original doors had cast iron rim locks and matching keepers, likely with cast iron, porcelain or brass knobs. One rim lock remains and is installed on the Bedroom Door 1/102 (Figure EX-106). The keepers appear to have been installed in the jambs prior to the installation of the door trim. Only one interior door jamb keeper remains installed at the East Parlor Door 1/101 (Figure EX-107). An example of an antique rim lock similar to those which have been removed from the Blackstone house is shown in Figure EX-110.

Figure EX-106. Portion of an original rim lock currently installed upside down on the Bedroom Door 1/102. This photograph was reversed for the report to turn the rim lock right side up. The original keeper at the jamb is missing. This is an original rim lock but installed in the incorrect location, upside down. Note the similarities between the keyhole style and the edge profile to the example antique rim lock shown in Figure EX-84 below. (Strata 2016)

Figure EX-107. Door 1/101 to the East Parlor. This is the only remaining cast iron door keeper still installed in the house. The brass door strike plate is a more recent installation. (Strata 2016)

The interior door locksets have all been replaced with Dexter brand brass mortise locksets, of an unknown date, but most likely mid-twentieth century (Figures EX-108 and EX-109). The installation of the Dexter locksets on the doors and strike plates on the jambs has damaged the original historic doors by requiring drilled holes through the sides of the doors and chiseling to mortise in the strikes. Various other hardware has been installed on the doors through the years including bolts and locks.

Figure EX-108. Typical interior door existing with more recent mortise lockset. Note the scars on the door (left photograph) from the original rim lock. The keyhole through the door remains. (Strata 2016)

Figure EX-109. Typical interior door existing mortise lockset. This door 1/103 has an original escutcheon which was not removed but is no longer utilized for a key. (Strata 2016)

Figure EX-110. Antique rim lock sold by Historic Home Hardware that shows what the typical rim locks in the Blackstone house may have looked like. Because only the one ceramic knob remains at Door 1/103, the knob types are unknown. www.historichomehardware.com.

The front Door 1/100 currently has a rim lock installed with cast iron knobs, which appear to be original, although the keeper does not match and is likely reused from another location (Figures EX-111 and EX-112). An example of a period restored front door frim lock was found on the internet for sale, which shows what the original installation may have resembled (Figure EX-113).

Figure EX-111. Front Door 1/100 existing rim lock with non-matching keeper. Note, the brass slide bolt knob is missing (Strata 2016)

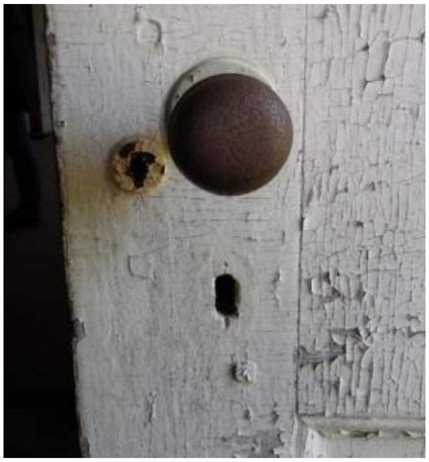

Figure EX-112. Front Door 1/100 existing front door knob from the exterior. Note the lower keyhole below the knob has a shadow of an escutcheon that is no longer installed. (Strata 2016)

Figure EX-113. Antique hardware of similar style to the front door hardware. Listed as 'Large Non-Reversible Early Rim Lock w/keeper.' This is considered a 'rare lockset, one key locks and unlocks deadbolt, the other opens the strike when the night latch is engaged. Inside the knob won't turn if the night latch is engaged. So there is a brass knob that slides to open the door.' This is manufactured by Norwalk Lock Co. This brass knob is similar to other brass knobs on the cabinet door spring latches. Available at www.robinsonantiques.com.

The rim lock on Door 3/100 to the basement is missing and has been replaced with a decorative glazed ceramic Bennington style ceramic knob. The origin of the knob is unknown (Figure EX-114).

Figure EX-114. Door 3/100 Bennington style ceramic swirl knob. Note, the scars are visible from the original rim lock installation. (Strata 2016)

The first floor doors have simple cast iron butt hinges with removable pins (Figure EX-115). Most of the doors retain their original hinges, with very few exceptions. The east bedroom Door 1/201 on the second floor has replacement ball tip hinges, which are installed with contemporary Philips screws (Figure EX-116). These hinges likely date to the late 19th century or later. Door 1/202 to the west bedroom has the typical cast iron butt hinges, similar to the first floor.

Figure EX-115. Typical interior door cast iron butt hinges at first floor. (Strata 2016)

Figure EX-116. Door 1/201 Ball tip hinges. These are very likely replacement hinges from the later 19th century. (Strata 2016)

The back Door 2/100 has an original keeper installed, although the door swing has been reversed. The door also has Eastlake style ball tip hinges and a matching decorative door strike that likely date to the late nineteenth century (Figure EX-117).

Figure EX-117. Door 2/100 Eastlake style ball tip hinges and door strike. (Strata 2016)

EXISTING DOOR SCHEDULE						
Room	Door #	Original Door/ Replacement	Hinges	Existing Hardware	Wood Threshold	Notes
100 Hall	1	Front Door Original	Original	Rim lock with non-matching keeper. Misc. non-original slide bolt hardware installed near top of door.	Date of threshold unknown	Existing Rim Lock may be original to the door but the keeper is likely reused from another location, as it does not match. Metal weatherstripping installed at base of door.
100 Hall	2	Recent Replacement	Replacement Eastlake style hinges	Recent Replacement. Original keeper remains installed in east jamb, but is no longer used.	Date of threshold unknown, appears to be original	This door swing has been reversed from its original swing. The original hinges were installed on the west side of the jamb.
100 Hall	3	Original Door	Original	Existing Bennington style ceramic knob may be original to the house from an unknown location.	Original	This was an original door to a closet under the stairs before the basement stairs were constructed in the 1950s.
101 E. Parlor	1	Original Door	Original	Replacement knob	Original	Original keeper still installed in jamb, but no longer used.
102 Bedroom	1	Original Door	Original	Original rim lock installed upside down – not originally from this door	Original	Rim lock on this door is the only remaining historic interior rim lock in the house and should be used as the pattern for future replacement locks in the house.
103 W. Parlor	1	Original Jamb has several patches	Original	Original keyhole escutcheon. Replacement brass mortise lockset, knobs and strike.	Original	
103 W. Parlor	2	Hole through door for old bolt.	Original	Original keyhole escutcheon. Replacement brass mortise lockset, knobs and strike.	No	Jamb is damaged where old hardware was installed.
104 Dining	1				Original	
104 Dining	2	Door missing	Door missing	N/A	N/A	Hinge locations on west jamb.
105 Kitchen	1	Recent Replacement	N/A	N/A	N/A	N/A
106 Bathroom	1	Recent Installation	N/A	N/A	N/A	N/A
201 E. Bdrm.	1	Original Door	Replacement ball tip hinges	Original keyhole escutcheon. Replacement brass Dexter brand mortise lock	Original	Door damaged (portion missing) in bottom outside corner.
202 W. Bdrm.	1	Original Door	Original	Replacement brass Dexter brand mortise lock	Original	Door damaged (portion missing) in bottom outside corner. Door split at mortise lock.

Figure EX-118. Existing Door Schedule. (Strata 2016)

Mantelpieces

The Blackstone house has five chimneys and originally contained four fireplaces and one kitchen flue. The mantelpiece in the West Parlor 103 was removed from the wall by vandals and left in the house. The mantel is now in park storage and appears to be similar in design and construction to the mantelpiece in the Bedroom 102. The mantelpiece from the East Parlor 101 was stolen within the last twenty years. The HSR team has been searching for early interior photographs of the Blackstone house and will hopefully be able to identify photographs of the missing mantelpiece. The remaining installed mantelpieces are in the Bedroom 102 and Dining Room 104, and measured drawings of these mantels are in the Existing Conditions Drawings at the back of this section of the report.

The species of wood for the mantelpiece remnant in the West Parlor 103 is butternut, matching the adjacent built-in cabinets. The mantelpieces are mortise and tenon construction with squared pegs, similar to the built-in cabinetry. Both remaining mantelpieces have a colored finish that makes them appear to be stained or painted with a 'grained' appearance. This is not a true quality decorative grained finish, but likely an attempt to stain the old wood to create a fresh look during a previous remodel. These were likely not stained or painted when they were originally installed.

The fireplace mantelpiece in Bedroom 102 is installed on the east wall (Figures EX-119 – EX120). The firebox appears to be original and all evidence points to this mantelpiece being original to this location, as well. The wood surround is built of several pieces of flat wood to create a stacked pilaster on either side of the firebox in a very simple composition. Blocks, slightly larger than the vertical pilasters create plinths. The trim spanning the firebox is plain with no detailing and is very tall. The mantel top is flat and projects on either side of the surround. The uneven finish is a dark brown paint or stain. The wood surround has a lot of dents and marks and shows its age.

Figure EX-119. Mantelpiece in Bedroom 102. (Strata 2016)

Figure EX-120. Mantelpiece in Bedroom 102, details. (Strata 2016)

The fireplace mantelpiece in Dining Room 104 is installed on the west wall (Figures EX-121 – EX-122). The firebox and mantelpiece are original to this location. The wood surround is built of several pieces of flat wood to create a stacked pilaster on either side of the firebox in a very simple composition. Blocks, slightly larger than the vertical pilasters create plinths. The trim spanning the firebox is plain with no detailing and is very tall. An angled piece of trim under the mantel shelf, creates a simple cornice molding. The mantel top is flat and projects on either side of the surround. The uneven finish is a dark brown paint or stain. The wood surround has a lot of dents and marks and shows its age.

Figure EX-121. Mantelpiece in Dining Room 104. (Strata 2016)

Figure EX-122. Mantelpiece in Dining Room 104, details. (Strata 2016)

Wood Flooring and Wood Thresholds

Much of the original wood flooring in the house remains (Figures EX-123 – EX126). The wood flooring appears to be fir or pine or a similar type of wood. The random width wood flooring is approximately 1-inch thick and is face nailed. In most rooms, only a single layer of wood flooring is installed over the floor joists. In the Dining Room, a second layer of flooring was installed over the original flooring. The original wood flooring in the rear (kitchen) ell is covered with a layer of plywood and vinyl sheet flooring, so its condition is unknown. The remainder of the first and second floor wood flooring remain and are visible. The wood floors are in good to fair condition. In several of the rooms, intermittent portions of the tops of the wood grooves have broken off, exposing the tongues of the adjacent boards. This is typical of these wide tongue and groove boards and does not affect their use. The wood floors have been painted in most spaces a variety of brown and orange-brown color. There are patches in the wood floor at the front and

back door in Hall 100, where the original wood flooring has been removed and new wood flooring installed. Holes for mechanical ventilation have been installed in nearly every first floor room for ductwork.

Wood thresholds are found between nearly every room (Figure EX-125). These are original to the construction of the house and cover the wood flooring transition between the rooms. The thresholds are nearly one-inch thick and are therefore not in compliance with ADAAG or IBC guidelines.

Figure EX-123. Tongue and groove wood flooring in the East Parlor 101. Note, the perimeter of the floor is painted. (Strata 2016)

Figure EX-124. Tongue and groove wood flooring in the West Parlor 103. (Strata 2016)

Figure EX-125. Wood flooring transition between the West Parlor 103 and the Dining Room 104 where the dining room floor has been overlaid with another layer of wood floor. Note, the wood flooring runs in opposite directions at this transition. (Strata 2016)

Figure EX-126. Typical wood threshold, Door 1/103 between West Parlor 103 and Hall 100. (Strata 2016)

Windows

Refer to the Window Schedule (Figure EX-129) for condition and hardware assessment.

There are eleven wood double-hung windows installed on the first and second floors of the house. All windows openings are original, while window sashes appear to be a combination of original (or early) and replacement.

Windows are six-over-six configuration with a variety of hardware and at least two or three sash construction styles (Figure EX-127). There are essentially two sizes of window openings, the larger openings as seen on the front and sides of the house and a smaller opening in the Dining Room and Kitchen. Typical window section detail drawings are found in the Existing Condition Drawings at the back of this section of the report.

The original or early wood sashes that remain include: Windows 100, 101, 103, 202 and 204. The other windows appear to have replacement sashes. The early windows have thinner muntin profiles and are mortise and tenon construction with squared wood pegs at the joints. These windows have a variety of different hardware, including spring-type sash pins that appear to be original and sash locks that are a later installation (Figure EX-128).

These sashes are in a variety of conditions and require complete restoration. Some sashes have had previous repairs. The original windows appear to have had a clear interior finish, while some repairs have been painted.

Exterior window openings have aluminum storm windows, although they are deteriorated and have broken and missing glass and are no longer functional.

Figure EX-127. Typical interior Window 103 in the Dining Room 104. This is an original window with original sashes. (Strata 2016)

Figure EX-128. Typical brass spring sash pins at Window 101 (with upper sash in place) and Window 103 (with lower sash raised to see the stop). (Strata 2016)

EXISTING WINDOW SCHEDULE					
Room	Window #	Original or Replacement Sashes	Existing Hardware	Metal Storm Window	Condition / Notes
100 W. Parlor	100	Original	Sash pin (upper right) Partial sash lock (not original)	Existing storm window does not close properly	Lower sash has repairs at top portion. Broken glass at top sash, lower, center pane. Sash do not meet properly and cannot close.
101 E. Parlor	101	Original	Sash pin (upper right) Sash lock (not original)	Existing storm window does not close properly	Sash do not meet properly and cannot close.
102 Bedroom	102	Replacement	Sash lock (not original)	Existing storm window	Interior stool appears to be a replacement. Exterior sill is a replacement and is rotten. Exterior jamb is rotten. Interior wood stop is a replacement, likely dating to the installation of the replacement sashes. Broken glass
104 Dining Rm	103	Original	Sash pin (upper right, lower right) Sash lock (not original)		Sash do not meet properly and cannot close. Broken glass
105 Kitchen	104	Replacement (thicker muntins)	Sash lock (not original)		Sashes appear to be in fair condition.
104 Dining Rm	105	Replacement (thicker muntins)	Sash lock (not original)		Interior wood stop is a replacement, likely dating to the installation of the replacement sashes. Exterior wood jambs and sill are deteriorated and require replacement.
201 Bedroom	200	Unable to be assessed due to covering	Unable to be assessed		Jambs and sill are deteriorated and require replacement. Window has had shutters installed, as seen on the exterior jambs.
202 Bedroom	201	Sashes appear to be replacement (thicker muntins)	N/A		Lower portions of jambs and exterior sill are deteriorated.
200 Hall	202	Appears to be original or early	N/A		The lower window has wood rot at the bottom rail and stiles. The sash requires restoration. The interior stool may also require consolidation or restoration.
201 Bedroom	203	Sashes appear to be replacement (thicker muntins)	N/A		The exterior sill and trim is deteriorated and requires complete replacement.
201 Bedroom	204	Sashes appear to be original or early (thicker muntins)	N/A		The window frame is racked in the wall. The wall requires repair and the window frame to be straightened within the wall. Nailer blocks in the tracks hold upper sash in fixed position.

Figure EX-129. Existing Window Schedule. (Strata 2016)

Interior Plaster Walls and Ceilings

All exterior and interior walls on the first floor of the house are double-wythe brick walls with plaster directly applied on the interior surfaces. On the second floor, all north/south walls in the Hall 200 and the bedrooms are also double-wythe brick walls with plaster directly applied. The east/west knee and dormer walls are wood frame with wood lath and plaster. All ceilings throughout the house are also wood lath and plaster.

The plaster coatings on the walls are well adhered to the brick walls, but the plaster is in poor overall condition. The walls have significant cracking due to the shifting of the brick walls from uneven foundation settlement. There are through-wall cracks at the heads of many of the windows and doors and several within the walls in other locations. The plaster walls have many layers of paint which is peeling throughout the house.

The plaster on the ceilings is very thin, appearing to having been installed in a single coat. the ceilings are thin enough that a shadow of the ceiling joist framing is visible along some of the ceilings. The plaster ceilings are in very poor condition with cracking prevalent throughout. The ceilings have many layers of paint which is peeling throughout the house. The ceiling in the kitchen has been overlaid with a single layer of painted gypsum board.

Plastic electrical conduit has been installed throughout the interior of the house, which has caused significant damage to the walls and ceilings (Figures EX-130 and EX-131). The conduit is no longer used.

Figure EX-130. Typical deteriorated lath and plaster ceiling in West Parlor 103. Note the through-wall cracks in the wall above the window. (Strata 2016)

Figure EX-131. Typical installation of conduit on walls and ceilings throughout the house. Note, some of the conduit has been removed, but once was installed from room to room through the hole in the top of the wall (arrow). (Strata 2016)

Basement Existing Conditions

The basement of the house consists of both crawl spaces and rooms. When the house was originally constructed, it appears as if there was only one basement room, which was located under the rear kitchen ell. The remainder of the area below the house was crawl space and was very likely inaccessible. Through the years, the basement has been enlarged by excavating in the crawl space areas and creating openings between the crawl space areas (Figure EX-168). Rooms 000 and 004 are partially accessible through the installation of the retaining walls to create paths. Room 005 is a full basement room. The other crawl spaces, Rooms 001, 002 and 003 are inaccessible and therefore could not be evaluated.

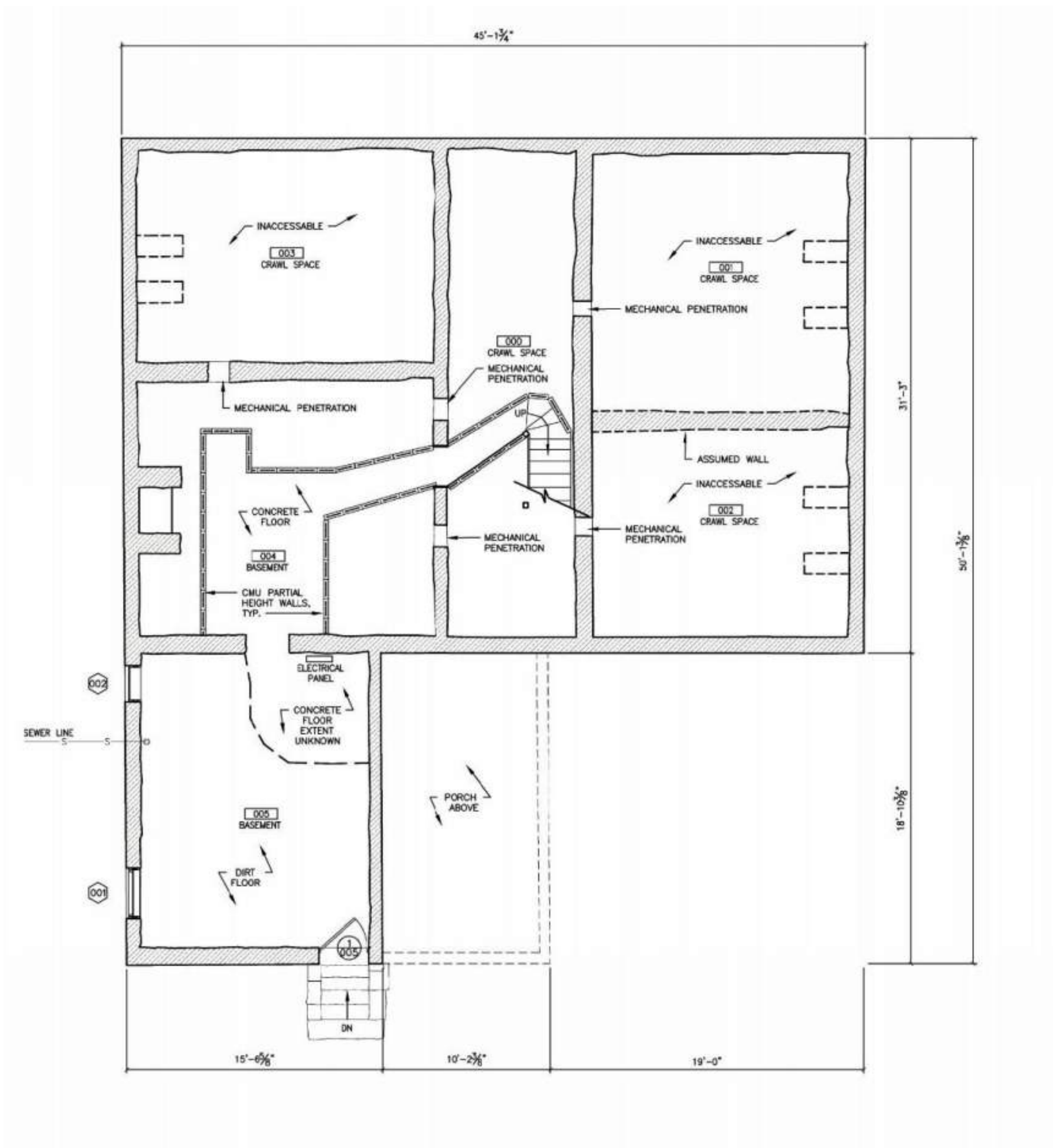

Figure B1. Existing basement plan. (Strata 2016)

The excavations that occurred to create the original basement Room 005 and later the excavations through the original crawl space Rooms 004 and 000 to make them assessable, are within the Hopewell circular earthwork wall. The archeological dig which occurred in Room 005 during the site visit, the team uncovered glacial till only a few inches under the dirt floor, which would indicate virgin soil. This led the archeological team to believe that the excavation for the basement walls was within the earthwork wall, with the bottom of the foundation walls resting on the virgin earth. The excavated portion of the basement Room 005 is within the height of the massing of the earthwork wall. The excavations that have occurred in the basement and crawl space areas may yield important archaeological evidence in the future. Therefore, scatter and debris which appears to be natural soil or aggregate material should not be removed from these areas without the supervision of an archaeologist.

Archaeological excavations by park staff during the May 2016 site visit were able to uncover the depth of the stone foundations at the crawl space and at basement Room 005. One interior excavation was conducted in the northwest corner of Room 005 (Figure S6). The foundation walls were found to end approximately three inches below the finished dirt floor. The full height basement wall in Room 005 was found to be 6'-4" from the bottom of the stone to the top of the stone at the transition to the brick walls above. During the excavation, coal was found within the dirt flooring, as well as at least one layer of what appeared to be white lime. The smell of fuel oil was quite strong and may warrant further soil testing in this area.

A second excavation was conducted at the exterior northeast corner of the house, along the east wall (Figure S3). The crawl space walls are 3'-0" tall from bottom of stone to top of stone at the transition to the brick walls above.

Room 005, which is located under the kitchen, was the original basement room (Figures B2 – B7). This room was originally accessed from the exterior through a small stair and door opening in the south wall which may have been covered with an exterior bulkhead door. This room measures approximately seventeen feet ten inches by thirteen feet nine inches. This room is currently accessed both from the original exterior door opening in the south wall and through an opening in the north wall that was created at an unknown date. The exposed foundation walls are native rubble limestone. The wall appears to have had what appears to be a lime-based whitewash finish, which has mostly worn away. The stone foundation walls transition to soft salmon bricks at the floor joist level. The foundation walls are tuckpointed with a soft lime putty mortar with varying sized aggregate and lime inclusions. This mortar is original to the construction of the house. The foundation wall in the northwest corner of the room requires repointing, as it appears this wall has been taking on water from the old covered coal chute. The remainder of the stone foundation walls are in good overall condition, requiring only spot repointing throughout. There are several deteriorated bricks in the east wall that require replacement at the joist level.

The room has a dirt floor. There appears to be a poured concrete floor in the northeast corner of the room. The extent of the concrete was unable to be determined during the site survey due to the accumulated soil and debris on the floor of the room. Wood shelving and debris line the south wall. The items stored on the shelving should be carefully inspected to determine if there is anything of value to the house.

The height from the dirt floor to the underside of the exposed first floor joists is a little over seven feet one inch. The first floor joists above are an average thickness of 1 ¾-inch. They are spaced approximately sixteen inches on center. The floor joists are pocketed into the stone walls in an unusual way. Each joist is notched approximately one inch and inserted into the stone pocket. Wood shims are installed under the joists to achieve the desired level floor. Several joists are sistered with newer joists (Figure B7). The condition and integrity of the floor joists are discussed in the Structural Section of this report.

There are two openings in the foundation along the top of the west wall; both openings were likely windows originally. The southernmost opening Window 001 has a wood sash that is deteriorated and is covered with plywood. The entire opening is sealed with spray foam insulation. The northernmost opening Window 002 was likely an original window opening which was later converted into a coal chute (Figures B5 and B6). The wood covering is deteriorated, and the perimeter of the wood frame is not sealed. Several inches of coal were found within the dirt floor directly below this window during an archaeological excavation in this area.

Piping from the kitchen and bathroom above are seen across the ceiling. The cast iron waste pipe exists the house in the center of the west wall. This plumbing was likely installed during the 1950s renovation when the bathroom was installed in the house. Additional water piping enters the house through the south wall which was serviced from the well, just south of the house. Overhead ductwork is installed throughout the space to serve the first floor. The electrical panel for the house is installed on the north wall, near the east side of the room. Wiring is exposed throughout the basement which services the basement overhead exposed porcelain light fixtures and the first floor above.

Figure B2. Looking north, Basement Room 005. (Strata 2016)

Figure B3. East wall, Basement Room 005. (DS 2016)

Figure B4. Looking south, Basement Room 005. (Strata 2016)

Figure B5. West wall, Basement Room 005. (DS 2016)

Figure B6. Detail at old coal chute, west wall, Basement Room 005. Note the wood covering is deteriorated and daylight can be seen through the stone wall at the wood frame. (Strata 2016)

Figure B7. Detail first floor joist pocketed into east wall, Basement Room 005. (Strata 2016)

Room 004 is located north of Room 005 and is directly below the first floor dining room (Figures B8 – B15). This space was originally a crawl space when the house was constructed. An opening in the south stone wall into Room 004 to the south was created and the crawl space was partially excavated. Retaining walls, approximately thirty-nine inches in height, were constructed of four-inch unreinforced concrete masonry units to retain the soil, and a small 'room' (approximately ten feet by seven feet) was created to install mechanical equipment and an L-shaped walking path between the Room 004 to the south and Room 000 to the east. A wood post is installed adjacent to the north retaining wall, near the center of the room.

The contemporary air handling unit sits along the west side of this space and is not in working condition. Ductwork, servicing the first and second floor, lines the ceiling. The PVC vent piping associated with the air handling unit are installed to exhaust through the west wall (Figure B13).

Ductwork is run into adjacent crawl space areas, through the original stone foundation walls. no lintels were installed where the penetrations in the walls occur. A wood door frame that leads into the Room 000 was installed in the east wall to brace the first floor framing. The condition and structural integrity of these alterations is further discussed in the Structural Existing Conditions Section of this report.

The floor in the excavated areas is poured concrete. There are no floor drains. The first floor framing is visible above this room and runs in the north/south direction. The first floor fireplace hearth supports are visible from below. Much of this area has been altered in order to vent a preceding coal burning furnace through the original chimney. The pipe from this installation is still installed in the west wall, between the stone fireplace foundations. Older pullies can be seen installed on the floor joists, which likely were used to operate older floor registers from the earlier furnace installation.

The crawl space areas are littered with debris from construction and maintenance work. These need to be cleaned out for better access. Do not alter or remove any of the natural fill materials, as noted in the introduction.

Figure B8. Looking northeast into Basement Room 004. (DS 2016)

Figure B9. Looking northeast, towards the east dividing wall between Rooms 004 and 000. Note the hole through the foundation wall for the duct to pass into Room 004. (Strata 2016)

Figure B10. Looking east, Basement Room 004, southeast corner. Note the hole through the east wall for a duct to pass into Room 000 beyond. (DS 2016)

Figure B11. Looking south, Basement Room 004. Room 005 beyond. Note the lower right stone jamb is not flush. Note, the south wall is a full height stone wall, because Room 005 (beyond) was originally a basement room. (DS 2016)

Figure B12. Detail of opening between Room 004 and Room 005 beyond. Note the wood and brick spanning the opening with no formal lintel. (DS 2016)

Figure B13. Looking west towards foundation wall and fireplace foundations,
Basement Room 004. The pipe between the fireplace foundations, once vented a larger coal burning furnace. (Strata 2016)

Figure B14. Looking west, Basement Room 004. South crawl space foundation wall to the right. The duct through the wall leads to the Crawl Space 003. (DS 2016)

Figure B15. Looking east, Basement Room 004. Room 000 beyond. The dashed red line indicates the approximate bottom of the north/south interior crawl space stone foundation wall before the door opening was cut through and the path excavated. (DS 2016)

Room 000 is under the center Hall 100 and is directly east of Room 004 where the air handling unit is located. Room 000 was also excavated at the same time as Room 004, having originally been an inaccessible crawl space (Figures B16 – B21). The stone foundation walls surrounding this space are only three feet from the bottom of the stone wall to the top of the stone where the wall transitions to brick. The bottom of the stone foundation wall is visible along the east stair wall (Figures B16 and B17).

The staircase from the first floor center hall now lands in this excavated crawl space. The date of construction for the staircase is thought to be the 1950s based on diary entries. The first floor joists over this space were cut and removed where the stair was installed, and the joists are now supported by a north/south beam, which is set on wood posts. This is further discussed in the Structural Existing Conditions Section of this report. The wood joists that were cut to construct the stair opening were re-used to create the new staircase treads (Figure B21). Remnants of linoleum flooring are present on the treads. The wood stairs appear to be stable, but they are steep and have concrete winding stairs at the base which do not meet current residential or commercial building code. The stairs also do not have a handrail. The joist pockets in the east foundation wall remain open where the joists were removed.

The area above this stair was originally a closet for the first floor hall.

The narrow path between Room 004 and the staircase cuts through Room 000, which has continuous unreinforced concrete masonry unit retaining walls on either side of the path. The concrete flooring extends from Room 004 into this space.

Ductwork is installed north and south of the stair. This ductwork penetrates the east foundation wall in two locations to access the crawl spaces below Rooms 101 and 102 on the first floor. There are no lintels installed above these penetrations (Figures B116 and B18). Ductwork is also installed through the wall between Room 000 and Room 04, again with no lintels to support the brick walls above (Figure B20).

Debris and construction materials is present in the crawl spaces that should be cleaned out for access and maintenance.

Figure B16. Looking east at the stair, Room 000. The dashed red line indicated the bottom of the stone foundation wall beyond. The arrow is pointing towards the duct that is penetrating the east wall and serving Room 101 on the first floor, Room 000. (Strata 2016)

Figure B17. Detail of east stone foundation wall. The bottom of the stone is the bottom of the interior foundation wall, Room 000. (Strata 2016)

Figure B18. Room 000, looking southeast. (Strata 2016)

Figure B19. Door opening cut through stone foundation wall. Note there is no formal lintel above the opening to support the brick wall above. The dashed line indicates the approximate bottom of the interior stone foundation walls prior to excavation. Taken from Room 000, looking into Room 005. (Strata 2016)

Figure B20. Detail of north/south stone foundation wall. Note the penetrations through the wall with no lintels supporting the brick structure above. Top left and top right: Note there is only a single stone supporting the wall in this location, which is missing mortar. Bottom right: bricks have fallen from this area, leaving the wall above unsupported. (Strata 2016)

Figure B21. Detail of the stair, Room 000. Note the treads on the stair are repurposed floor joists that were cut from the floor structure to create this stair opening. Remnants of linoleum are installed on the stair treads. (Strata 2016)

First Floor Existing Conditions

The Blackstone house has been vacant since 2003. A major renovation of the house occurred in the 1950s, and another in the 1990s and the house reflects many of these renovations. During the vacancy, vandals have stolen wiring, piping, metals and original historic millwork, such as the east parlor mantel and damaged and/or stolen parts of the staircase. The historic usage of the rooms has been documented through the estate inventory of Thomas Blackstone. The room names indicated throughout the report, with the exception of the parlors, are those noted in the inventory (Figure 1.1). The inventory refers to a parlor and front bedroom.[237] Because directions were not used to indicate which front room was the parlor and which was the bedroom, both front rooms are identified as parlors – the east parlor and the west parlor.

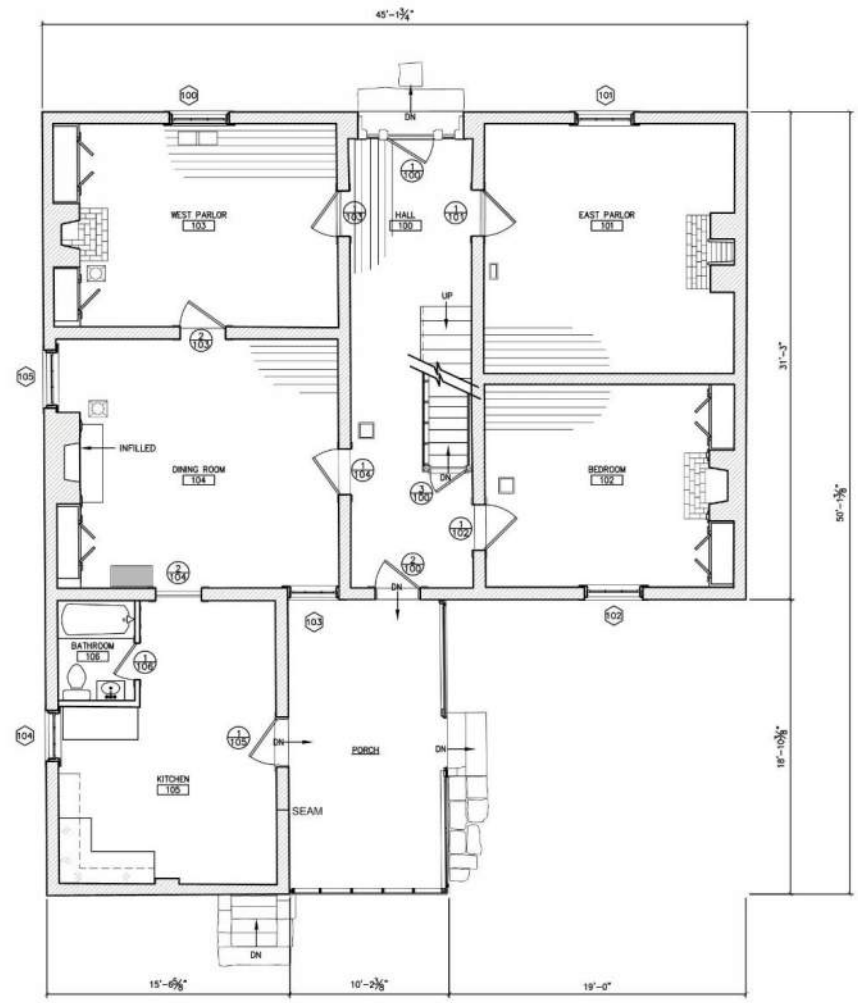

Figure 1.1. First floor, existing plan. (Strata 2016)

237 Ross County Probate Records, 1880-1910, Probate Case Number 1144, 1182, (Ross County, Ohio Courthouse, Probate Archive).

Hall 100

The front door enters Hall 100 from the north side of the house (Figures 1.2 – 1.17). This center hall is eight feet wide by twenty-nine feet long in the north/south direction. The ceiling height is ten feet three inches. The staircase to the second floor runs along the east wall. There are seven doors from the Hall leading to surrounding rooms. The front entry Door 1/100 is located in the north wall, Door 1/101 to the East Parlor is located in the north end of the east wall. Door 1/102 to the southeast Bedroom is located in the south end of the east wall. Door 2/100 in the south wall leads to the back porch. Doors on the west wall include 1/104 into the Dining Room and Door 1/103 into the West Parlor. A seventh Door 3/100 is located under the stairs and leads to the basement stair.

Figure 1.2. Hall 100, looking north towards the front Door 1/100. (Sheals 2016)

Figure 1.3. Front Door 1/100. (Sheals 2016)

Figure 1.4. Hall 100, looking east towards the East Parlor, Door 1/101. (Sheals 2016)

Figure 1.5. Hall 100, looking south. (Sheals 2016)

Figure 1.6. South wall and Door 2/100, Hall 100. (Strata 2016)

Figure 1.7. East wall, looking through Door 1/102 into Bedroom 102, Hall 100. (Strata 2016)

Figure 1.8. Basement stair Door 3/100, Hall 100. (Strata 2016)

Figure 1.9. Stair to basement, looking through Door 3/100 under the hall stair. (Strata 2016)

All four hall walls are brick load bearing walls with plaster installed directly to the brick. The brick walls are cracked in many locations, which have projected through the plaster. The cracks indicate signs of previous footing settlement, as all of these walls rest on shallow stone foundations. The plaster ceiling is in fair condition. The plaster is very thin, and in several locations, the original wood lath and second floor joist patterns can be seen through the thin plaster. The plaster ceiling is cracked throughout and especially at the ceiling transition under the stair landing. The walls and ceiling are painted. The paint is in fair to poor condition. There is a hole through the front (north) wall near the transom and another through the wall above the Door 1/103 in the west wall. These holes were installed to pull conduits from room to room. The wall under the stairs is the only wood frame lath and plaster wall in the hall.

The basement Door 3/100 is original to the construction of the house, although the hardware was changed at a later date (Figure 1.8). This door has a wood threshold that is original. Door 3/100 currently serves as access to the basement stair, but originally this area was a closet under the stairs and had a wood floor continued from the Hall (Figure 1.9).

The back Door 2/100 is a recent replacement door with two panels below and a single pane of glass on top (Figure 1.6). The door swing has been reversed from the original door configuration. The door now swings on Eastlake style hinges and has a matching door strike. The original rim lock keeper is still installed on the west jamb but is no longer used. The door trim on the back door is damaged and there are at least two contemporary slide bolts attached to the west door trim. The wood lintel that spans the back Door 2/100 is visible through the

plaster and is painted (Figure 1.13). This lintel was likely originally covered in plaster. Further investigation should be conducted to determine if this wood lintel is deteriorated.

The floors in the Hall appear to be original and are laid in the north/south direction (Figure 1.10 and 1.11). They are random widths, from 4 ¾" to 6 ½", and are random lengths. The floors are painted an orange-brown color. The species has not been tested, but it appears to be pine, fir or a similar wood. The section of wood flooring in front of the front entry door and the back hall door has been replaced with newer boards that do not match the width of the historic flooring. The wood floors are in fair condition, showing signs typical of their age.

Figure 1.10. Patch in floor at front door, Hall 100. (Sheals 206)

Figure 1.11. Patch in floor at back door, Hall 100. (Sheals 2016)

The baseboard is original to the construction of the house and has been painted. Two small sections of the baseboard in the southeast corner are patched with painted sheet metal (Figure 1.12). The door trim is all original and is clear finish, as is typical throughout the first floor of the house. A majority of the wood trim is in good condition, but there are significant amounts of staples and tacks installed on the face of the door trim.

Figure 1.12. Floor/baseboard sheet metal patches in southeast corner, Hall 100. (Strata 2016)

Figure 1.13. Detail of visible painted wood lintel above the back Door 2/100. (Strata 2016)

Surface mounted conduit is present throughout the hall baseboards, walls and ceiling which was installed during a mid-20th century. The conduit was installed in a sensitive manner with the least amount of destruction to the historic building materials. However, there is resultant damage, where the brick walls were drilled through to install wiring from room to room and also in the floor for wire runs to the basement. There are three ceiling lights installed on the ceiling that appear to date the 1950s rehabilitation or later.

The wooden staircase that leads to the second floor is located along the east wall of Hall 100 (Figures 1.14 – 1.17). The first run is twelve treads. The intermediate landing spans the width of the hall, and the stair returns north along the west wall another three treads. The second floor landing has a three-foot cantilever. The staircase originally had a continuous handrail which rested on the tapered newels, but the railings were partially stolen. The staircase is constructed of a combination of wood species. The treads and risers appear to be pine.

The balusters and handrail are butternut.[238] All of the balusters and handrail are missing from the first floor section of the stairs. The newels are present at the intermediate landing, although the eastern-most newel is significantly damaged, and the balusters and handrail are missing. The balusters and handrail comprising the top section of stairs and at the top landing are extant and are in fair condition, although the handrail at the western-most newel at the landing was slightly damaged when the landing handrail was removed. A small section of the handrail from the landing balustrade is loose and stored on the second floor landing. This can be utilized as a pattern to create a new handrail. A missing baluster is used as a nailer board in the second floor Window 200 and should be salvaged and reinstalled. Two balusters at the landing are replacement pieces. They appear to be pine and are unstained. The baluster spacing at the second floor is 5 ½-inches, which is wider than allowed by code. The balustrade height is thirty-

[238] Blackstone House, Wood Sample Identification. E-mail from Regis B. Miller, PhD., June 4, 2016.

two inches, which is below the code required guardrail height of forty-two inches. The upper section of handrail at the second floor has been covered with wall paint that needs to be removed when the stair is restored.

The intermediate landing is tongue and groove wood boards that match the first floor and are painted the same orange-brown color. The stair treads are very simple with eased edges and a very slight nosing profile. The stringer is an extension of the baseboard and is painted. The balusters are rectangular and are installed two per stair tread. The newels are square and are tapered from 2 1/8-inches at the top to 3 5/8-inches at the bottom. The handrail is simple faceted profile with overall dimensions of approximately 2 1/8-inches in width and height. Other than the broken bottom tread and missing railing on the lower section and intermediate landing, which is a code violation and safety hazard, the staircase is structurally sound.

The design of the millwork, doors and hardware are discussed further in the Materials Section of this report. The condition of the front Door 1/100 decorative wood surround and sidelights is discussed in the Exterior Existing Conditions Section of this report.

Figure 1.14. Stair detail, Hall 100. (Strata 2016)

Figure 1.15. Stair landing, Hall 100. Note, the east newel is damaged and the handrail and balusters are missing. (Strata 2016)

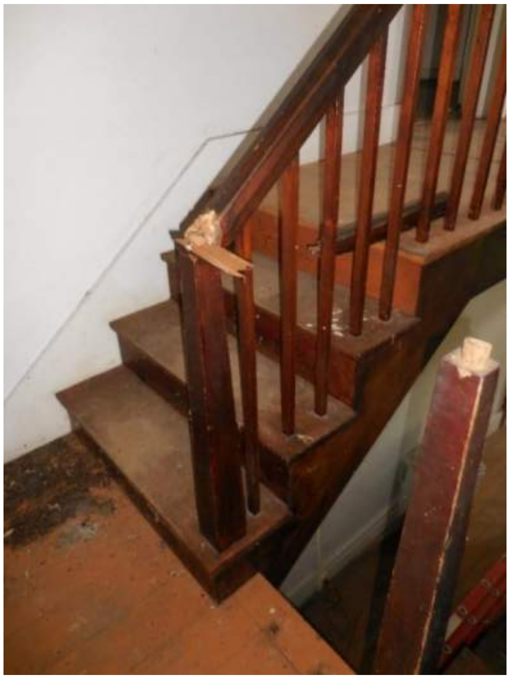

Figure 1.16. Stair landing, Hall 100. Note, the east newel is damaged and the handrail and balusters are missing. (Strata 2016)

Figure 1.17. Stair landing, Hall 200. Note, the arrow points to the two replacement balusters. (Strata 2016)

East Parlor 101

The East Parlor 101 is located in the northeast corner of the first floor and has unique millwork detailing in the Greek Revival style (Figures 1.18 – 1.29). The room is approximately sixteen-feet square with a ceiling height of ten feet three inches and is entered from the center hall by Door 1/101 located in the west wall. The floor in the northeast corner of the room slopes slightly down toward the outside corner of the house, indicating foundation settlement in this area.

A fireplace is centered in the east wall and a window is centered in the north wall. The window and door surrounds in this room have a decorative wood pedimented detail at the tops of the openings and tapered side trim. Otherwise, the millwork in this room matches that of the other first floor rooms and is in good condition. The wood baseboard along the north wall has a sub-base installed that is approximately one-half-inch thick by three inches high. This may be to cover a gap between the floor and the baseboard. A non-original painted wood cornice surrounds the room that was likely installed sometime during a previous renovation to hide wiring or cracking at the ceiling. Door 1/101 is original and is damaged at the lock side of the door, where it has splintered (Figure 1.22). The window sashes in this room appear to be original or very early. The design and condition of the millwork, window, door and hardware are discussed further in the Materials Section of this report.

Figure 1.18. North wall, Window 101, East Parlor 101. (Strata 2016)

Figure 1.19. East wall, East Parlor 101. (Strata 2016)

Figure 1.20. South wall, East Parlor 101. (Strata 2016)

Figure 1.21. West wall and Door 1/101, East Parlor 101. (Strata 2016)

Figure 1.22. Door 1/101 which is damaged at the stile, East Parlor 101. (Strata 2016)

All four walls are brick load bearing walls with plaster installed directly to the brick. The brick walls are cracked in many locations, which have projected through the plaster. The cracks indicate signs of previous footing settlement, as these walls rest on shallow stone foundations. The plaster ceiling is in poor condition and is cracked throughout (Figure 1.23). The walls and ceiling are painted. The paint is peeling and is in poor condition.

Figure 1.23. Plaster ceiling deterioration, East Parlor 101. (Strata 2016)

The original tongue and groove wood floors are random 5 ½-inches to 6 ½-inches and are laid in the east/west direction (Figure 1.24). The perimeter of the wood floor is painted brown, surrounding what was once likely a tacked down carpeting in the center of the room and around a large piece of furniture which sat in the northeast corner of the room. Again, the species of the wood flooring is unknown, but it appears to be pine or another wood with similar characteristics. The wood floor is in good overall condition, although the floor bounces when walked on and several of the top tongues are broken away from the boards. The paint finish on the wood flooring at the perimeter of the room is thin and is worn. A floor vent is installed through the flooring near the west wall, which likely dates to the mid-century furnace installation. Carpet tack strips line the perimeter of the room and the brick hearth.

Figure 1.24. Floor, East Parlor 101, looking southwest. (Strata 2016)

The masonry fireplace mass extends into the room and was once the central feature of this room, but the mantelpiece is missing having been stolen in the last several years. The mantelpiece was likely the most decorative one in the house to match the high style of the surrounding Greek Revival style millwork. The two baseboards that flank the fireplace mass are unfinished on the ends which indicates that the mantelpiece surround overlapped these baseboards. Two voids in the brick wall flanking the firebox remain which were used for wood nailers to attach the mantelpiece. A third void is missing a brick at the north side of the firebox.

The original brick firebox opening is spanned by a rolled iron lintel that is slightly arched (Figures 1.26 – 1.28). The firebox appears to have been modified to receive a decorative cast iron insert with an arched top by installing additional brick side walls and arched top. Bricks on the top arch are missing. The iron insert is missing, but the imprint of the profile of the insert in the mortar is very clear. The narrowness of the firebox indicates this was a coal burning insert. The date this was installed and removed is unknown. A photograph of an example cast iron firebox insert is shown in Figure 1.29 below. The firebox, shelf and chimney interior are missing mortar and the bricks are deteriorated.

The brick hearth is painted and is in poor condition. Several bricks are missing and have been infilled with concrete, and a large void in the southeast corner is open to the crawlspace below. The bricks appear to have been installed over dirt and are not mortared. The brick hearth requires inspection from below in order to determine a stabilization strategy. A vertical crack in the plaster face of the brick fireplace wall extends through a patched thimble where a stove pipe was once installed near the top of the wall. The back wall of the firebox, which is the exterior east wall, is only a single wythe of brick, and daylight can be seen through the back wall.

Figure 1.25. Painted brick hearth and firebox, East Parlor 101. Note the ends of the baseboards flanking the walls are unfinished. There are concrete patches on both side of the hearth. (Strata 2016)

Figure 1.26. Hearth and firebox, East Parlor 101. Note, the ends of the baseboards flanking the fireplace mass are unfinished. The dashed line indicates the arched opening that has fallen. (Strata 2016)

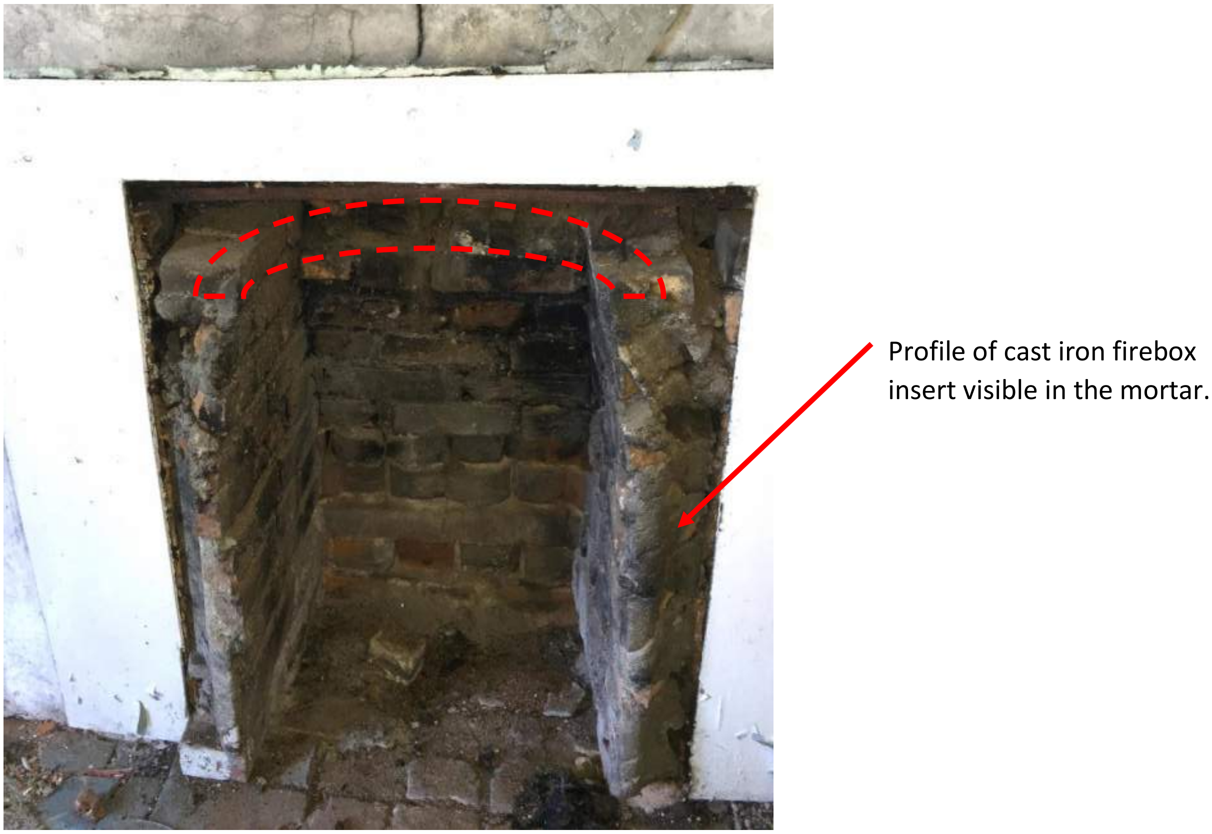

Figure 1.27. Hearth and firebox, East Parlor 101. (Strata 2016)

Figure 1.28. Inside of deteriorated firebox, looking up into the smoke shelf and the chimney, East Parlor 101. Note, the back wall is only a single wythe of brick thick and daylight can be seen through the wall. (Strata 2016)

Figure 1.29. Example of cast iron insert, similar to what may have been installed in the East Parlor 103. (http://www.salvoweb.com/images/userimgs/10756/Original-fireplace-insert_95347_1.jpg)

Exposed conduit is installed throughout the room. The conduit is attached to the baseboard on the north, south and west walls, and along the ceiling to the center light fixture. Receptacles are installed on the baseboards with conduit drilled through the wood floor to the basement on the west wall. The light fixture in the center of the room and all electrical conduit, receptacles and switches likely date to the 1950s renovation. A telephone jack and wiring is located on the west wall baseboard near the door.

Southeast Bedroom 102

The Southeast Bedroom 102 is located in the southeast (rear) corner of the first floor (Figures 1.30 – 1.37). The room measures fourteen feet by thirteen feel with a ceiling height of ten feet three inches. This room was likely used as a bedroom, as it was noted in Thomas Blackstone's inventory and estate sale.

This is one of two rooms on the first floor that contains a fireplace centered on the outside wall with flanking built-in cupboards. The room is entered from the center hall by a door located in the west wall, near the south corner. The south wall has a window centered in the wall. The millwork in this room matches that of the other first floor rooms and is in good condition. The baseboard is painted, including the sections under the wood cupboards. A small section of the wood baseboard on the south wall has a painted metal patch. The window sashes in this room are replacement and are discussed in the Window Section of this report. Duct tape is installed at the perimeter of the window trim, presumably to keep out insects or drafts. Door 1/103 is

original. The design and condition of the millwork, built-in cabinetry, mantelpiece, window, door and hardware are discussed further in the Materials Section of this report.

Figure 1.30. North wall, Bedroom 102. (Strata 2016)

Figure 1.31. East wall, Bedroom 102. (Strata 2016)

Figure 1.32. South wall and Window 102, Bedroom 102. (Strata 2016)

Figure 1.33. West wall and Door 1/102, Bedroom 102. (Strata 2016)

All four walls are brick load bearing walls with plaster installed directly to the brick. The brick walls are cracked in many locations which have projected through the plaster. The cracks indicate signs of previous footing settlement, as all of these walls rest on shallow stone foundations. There is a hole through the top/center of the north wall for conduit installation (Figure 1.34). The plaster ceiling is in fair condition and is cracked throughout. The walls and ceiling are painted. The paint is in fair to poor condition.

Figure 1.34. Ceiling, Bedroom 102. (Strata 2016)

The original tongue and groove wood floors are random 5 ½-inches to 6 ½-inches, are painted a dark brown color, and are laid in the east/west direction (Figure 1.35). Again, the species of the wood flooring is unknown, but it appears to be pine or another wood with similar characteristics. The wood floor is in good overall condition with a few of the top grooves missing at the joints. A floor vent is installed through the flooring near the west wall. This likely dates to the mid-century furnace installation.

Figure 1.35. Painted wood flooring, Bedroom 102. (Strata 2016)

The east fireplace wall retains much of the original historic fabric, including the original wood mantelpiece (Figures 1.36 and 1.37). The mantelpiece has been painted a dark brown color and has a lot of holes and dents but is relatively intact. The fireplace box has been covered with a wood board. A section of the wood board was removed during the assessment which revealed a firebox full of bird nests and debris. The firebox appears to be original and is spanned by a rolled iron lintel that is slightly arched. The firebox surround is plastered on the room face. The firebox itself is in fair condition. Several bricks in the back of the firebox are missing or deteriorated and mortar is missing throughout. A mark in the plaster indicates there may have been a thimble for a stove installed into the chimney flue above the fireplace mantel (Figure 1.36)

The brick hearth is comprised of a series of dry laid bricks that are laid directly over dirt and are not mortared into place (Figure 1.37). The brick hearth has shifted and is in poor condition. Several bricks were removed during the assessment, and contemporary objects, such as an asthma inhaler and 1990s coins were found below the loose bricks. The integrity of this hearth extension is in question, and the hearth within the firebox was unable to be assessed due to the debris. This hearth requires further invasive inspection to determine its foundation from the inaccessible crawl space below in order to determine a stabilization methodology.

Figure 1.36. Fireplace and hearth, Bedroom 102. Arrow points to infilled thimble. (Strata 2016)

Figure 1.37. Deteriorated brick hearth, Bedroom 102. (Strata 2016)

The flanking built-in wood cabinetry is in good condition. The wood species was tested to be butternut. The cabinets have an upper cabinet with a pair of doors and a lower cabinet with a pair of doors. The construction of these cabinets, which are typical throughout the first floor, are discussed in the Millwork Section of this report and in the Cabinetry Schedule. The painted plaster exterior walls are visible inside the cabinets. Hardware is typical for these cabinets. The north cabinet lower right door is not installed and is damaged. The south cabinet has had the interior shelving and intermediate shelving removed in order to install a hanging rod.

Exposed conduit to the center ceiling fixture and light switch were installed in the mid-twentieth century. Additional conduit is installed along the west, north and south baseboards to serve receptacles. There are holes drilled through the floor in the southwest corner of the room that were likely used to run wiring into conduit for this room.

West Parlor 103

The West Parlor 103 is located in the northwest corner of the first floor and is approximately thirteen feet by sixteen and one-half feet with a ceiling height of ten feet four inches (Figures 1.38 – 1.52). The parlor is entered from the hall by Door 1/103, which is centered in the east wall, or though Door 2/103, which is centered in the south wall. The west wall has a fireplace slightly off-centered that is flanked by built-in cabinetry. The north wall has Window 100 centered in the wall.

Figure 1.38. Window 100, West Parlor 103. (Sheals 2016)

Figure 1.39. East wall, Door 1/103, West Parlor 103. (Strata 2016)

Figure 1.40. South wall, Door 2/103, West Parlor 103. (Strata 2016)

Figure 1.41. West wall, Parlor 103. (Sheals 2016)

The four walls are brick load bearing walls with plaster installed directly to the brick. North and south sections of the west wall are lath and plaster, where they surround the built-in cabinets. The plaster at the wood lath shows some deterioration. The brick walls are cracked in many locations which have projected through the plaster. The cracks indicate signs of previous footing settlement, as all of these walls rest on shallow stone foundations. The plaster ceiling is in poor condition and is cracked and deteriorated throughout (Figure 1.42). A small section in the center of the ceiling is missing, exposing the wood lath. The ceiling and walls are painted with several layers of paint which is peeling and is in poor condition. There are holes through the south and east walls, near the ceiling, where conduit was installed between the rooms. Daylight can be seen through the north wall at the upper left section of the window.

Figure 1.42. Deteriorated ceiling, West Parlor 103, looking west. (Strata 2016)

The window and door trim and baseboard in this room match that of the other first floor rooms and are in good condition. The wood baseboard along the north wall has a sub-base installed that is approximately one-half-inch thick by three inches high. This may be to cover a gap between the floor and the baseboard. The base is painted with several layers of paint which is peeling and is in poor condition. The original finish of the base would have been left clear. The window sashes in this room appear to be original or early. Previous drapery hardware and weatherstripping is installed on the surrounding window trim. Door 1/103 and 2/103 are original and are in good condition. The design and condition of the millwork, built-in cabinetry, window, doors and hardware are discussed further in the Materials Section of this report.

The original tongue and groove wood floors are random 5 ½-inches to 6 ¾-inches, are painted an orange-brown color, and are laid in the east/west direction (Figure 1.43). Again, the species of the wood flooring is unknown, but it appears to be pine or another wood with similar characteristics. The wood floor is in good condition, but several of the top grooves where the boards meet have splintered off. A large return air floor vent opening is installed through the flooring near the north wall. The floor joists and crawl space below this room are visible from this

opening (Figure 1.44). A smaller supply vent is installed in the southwest corner of the room, adjacent to the west wall. These vent openings likely date to the mid-century furnace installation.

Figure 1.43. Wood flooring, West Parlor 103. (Strata 2016)

Figure 1.44. Vent through floor along north wall, exposing floor joists, foundation and crawl space, West Parlor 103. (Strata 2016)

The fireplace was once the central feature of this room, but the wood mantelpiece is no longer installed. The mantelpiece was reportedly removed by vandals, and only a small remnant of the back of the wood surround remains attached to the wall. The wood species matches the other millwork throughout the house and was tested to be butternut.[239] The mantelpiece was salvaged by the park staff before it was stolen, and it is now in park storage (Figure 1.45). Based on photographs taken by the park staff, it appears to be very similar in design to the mantelpiece in Bedroom 102. There are two small sections of wood baseboard which are still installed on the fireplace wall, which would have flanked the wood mantelpiece. These are the only profiled baseboard in the house, with an ogee design along the top edge (Figure 1.46).

The firebox is original and is spanned by a rolled iron lintel that is slightly arched (Figures 1.47). The brick firebox is narrow and is beveled towards the back. The interior of the firebox, the smoke shelf and the chimney bricks and mortar are deteriorated. Daylight can be seen through the west wall inside the fireplace at the smoke shelf level. The brick wall at this location is only a single wythe thick (four-inches).

The firebox surround is plastered on the room face. The plaster face of the firebox has a defined paint pattern at the perimeter, which indicates it may have had a cast iron insert at one time that lipped over the face of the opening by several inches.

The brick firebox hearth and extension is painted and has collapsed (Figure 1.49). The bricks appear to be laid directly over dirt and are not mortared into place. Weeds are growing in the hearth. This hearth requires further invasive inspection from the inaccessible crawl space below in order to determine a stabilization methodology.

The central section of the west wall at the fireplace is brick masonry construction and is plastered, while the flanking built-in cabinets have surrounding walls of wood frame, lath and plaster. The plaster wall finish at the transition between the masonry and the wood and lath wall system is slightly recessed and the joint is cracked, as the differing base materials expand and contract differently (Figures 1.48). An old stove pipe thimble is located about mid-way up the wall above the fireplace. This has been covered by a metal plate and duct tape. Remnants of the stovepipe, surrounded by insulation, can be seen part-way up the chimney flue (Figure 1.50).

[239] Blackstone House, Wood Sample Identification. E-mail from Regis B. Miller, PhD., June 4, 2016.

Figure 1.45. Missing mantelpiece from Parlor 103, which is in off-site park storage. (Photograph provided by Brett Ruby, HOCU staff)

Figure 1.46. Profiled base flanking the original fireplace surround, West Parlor 103. (Strata 2016)

Figure 1.47. Fireplace wall, West Parlor 103. (Strata 2016)

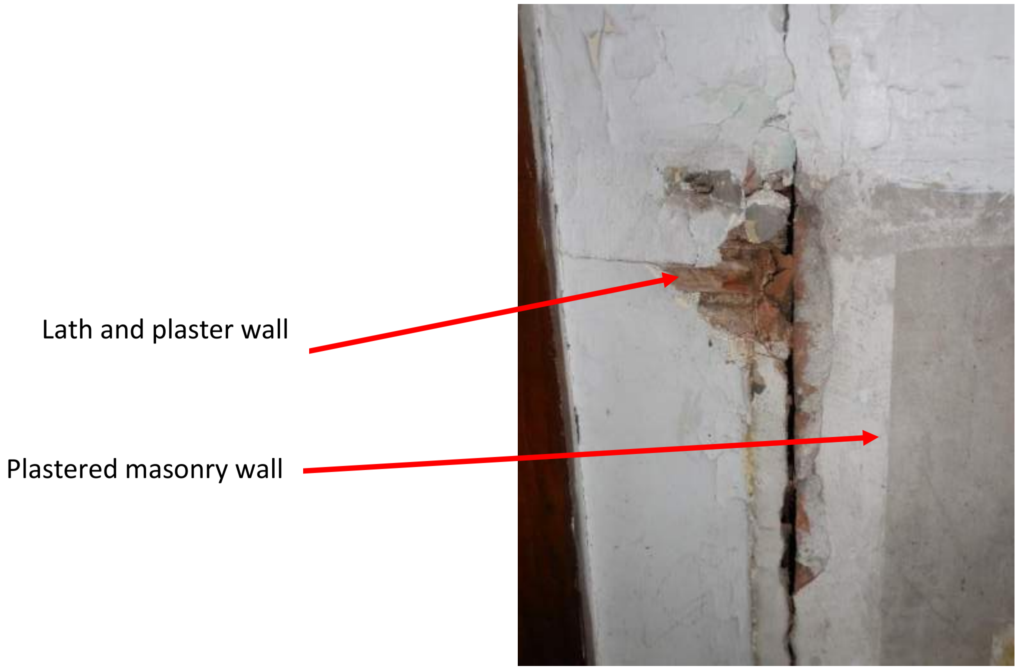

Figure 1.48. Crack at the transition between lath and plaster and masonry walls, West Parlor 103. (Strata 2016)

Figure 1.49. Fireplace painted brick hearth, West Parlor 103. (Strata 2016)

Figure 1.50. Old stovepipe, part way up the chimney, surrounded by insulation, West Parlor 103. (Strata 2016)

The flanking built-in wood cabinetry is in good condition (Figures 1.51 – 1.52). The construction of these cabinets, which is typical throughout the first floor, is discussed in the Millwork Section of this report. The species was tested to be butternut.[240] The south cabinet has an upper and lower cabinet, each with a single door. The lower door has been removed and is resting on the floor nearby. The interior wood shelving and shelving supports and side jambs are not original to the construction of the cabinet. The lower shelf, cabinet ceiling and a portion of the dividing shelf in the center are all original. The historic plastered wall at the back of the cabinet is exposed and is cracked at the corners, exposing the brick walls. The lower door brass spring bolt is missing and the upper cabinet door spring bolt is broken and missing the lever. The cabinet lock and brass escutcheon is missing from the upper door.

The north cabinet has an upper cabinet with a pair of doors and a lower cabinet with a pair of doors. The interior shelving and nailers have been replaced, but the interior painted plaster walls are historic. The interior plaster walls are cracked, especially at the outside corners. The doors retain their lock and brass escutcheon on the upper doors and brass spring locks on both the upper and lower doors. An original wood thumb turn is installed on the left doors which would have been used to keep the doors shut when the cabinet is locked, as these are the secondary doors of the pairs. This is the most intact set of cabinet doors in the house.

Figure 1.51. West Parlor 103, South cabinet. The door is no longer installed, but it is stored nearby. (Sheals and Strata 2016)

[240] Blackstone House, Wood Sample Identification. E-mail from Regis B. Miller, PhD., June 4, 2016.


Figure 1.52. West Parlor 103, North cabinet. (Sheals and Strata 2016)

Exposed conduit is installed throughout the room. It is attached to the baseboard on the north, south and east walls, and along the ceiling to the center light fixture. Receptacles are installed on the baseboards with conduit drilled through the wood floor to the basement on the south and east walls. The light fixture in the center of the room and all electrical conduit, receptacles and switches likely date to the 1950s renovation.

Dining Room 104

The Dining Room 104 is located in the southwest corner of the first floor and is approximately sixteen feet by ten and one-half feet with a ceiling height of ten feet five inches (Figures 1.53 – 1.61). The dining room entered from the hall through Door 1/104 (centered in the east wall), through Door 2/103 in the north wall that leads to the west parlor, and through Door 2/104 in the south wall that leads from the kitchen. The west wall has a fireplace centered on the wall and is flanked by built-in cabinetry on the south side and Window 105 on the north side. The south wall has a smaller Window 103 near the east corner of the room. The window and door trim and baseboard in this room match that of the other first floor rooms and are in good condition. The baseboard is painted with several coats of paint and is peeling. The window sashes in south Window 103 appear to be original or early and the sashes in Window 105 appear to be later replacement sashes. The millwork, built-in cabinetry, windows, doors and hardware are discussed further in the Materials Section of this report.

Figure 1.53. North wall and Door 2/103, Dining Room 104. (Strata 2016)

Figure 1.54. East wall and Door 1/104, Dining Room 104. (Strata 2016)

Figure 1.55. South wall, Window 103 and Door 2/104, Dining Room 104. (Sheals 2016)

Figure 1.56. West wall, Dining Room 104. The dashed line indicates the furred out duct that leads from the basement to the second floor, which was added in the 1950s. (Strata 2016)

The four walls are brick load bearing walls with plaster installed directly to the brick. A small section of the west wall surrounding the built-in cabinet is wood lath and plaster. The brick walls are cracked in many locations, which have projected through the plaster. The cracks indicate signs of previous footing settlement, as all of these walls rest on shallow stone foundations. The plaster ceiling is in fair condition. The plaster is very thin, and in several locations, the original wood lath and second floor joist patterns can be seen through the thin plaster. The plaster is cracked throughout and a section is lost above the west wall window. The walls and ceiling are painted. The paint is in fair to poor condition. There are holes through the north and east walls where conduit was installed between the rooms. A small section of wall to the north of the firebox is furred out to be flush with the fireplace wall (Figures 1.56 and 1.58). This section of wall is finished with gypsum board and conceals a duct from the basement to the second floor. This was likely installed in the 1950s.

Figure 1.57. Ceiling with 'ghosting' of ceiling joists visible, Dining Room 104. (Strata 2016)

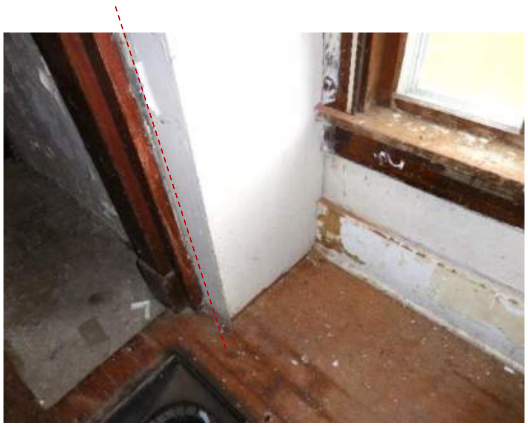

Figure 1.58. Detail of furred duct chase adjacent to the fireplace. Note, the gypsum wallboard is installed around the baseboard. The plaster ceiling and west wall are deteriorated.
Dining Room 104. (Strata 2016)

The original tongue and groove wood floors are laid in the east/west direction, but they have been overlaid with a 3 ¼-inch by 5/8-inch thick wood tongue and groove floor laid in the north/south direction (Figure 1.59). The reasoning for the wood floor overlay is not known. This room has a painted wood shoe molding at the perimeter is some spaces, which was added to cover the gap at the perimeter when the newer wood flooring was installed. There are a few spots where embers from the fireplace have burned holes in the wood floor. Again, the species of the wood flooring is unknown, but it appears to be pine or another wood with similar characteristics. The wood flooring is in good overall condition. A large return air floor vent is installed through the flooring near the south wall and a smaller supply vent is located caddy corner to the fireplace. These vents likely date to the mid-century furnace installation.

Figure 1.59. Overlay wood flooring, concrete hearth extension and floor vent, Dining Room 104. (Strata 2016)

The original mantelpiece is extant and is a very simple, yet elegant design (Figure 1.56). The species appears to match the cabinets, so it would be assumed to be butternut. The brick firebox has been infilled and plastered in order to receive a vent inside the chimney for the basement furnace. The outline of the original firebox is visible in the plaster. There is no access to the firebox. The original hearth has been replaced with a poured concrete material, which is set below the finish floor and is a tripping hazard. No evidence is seen of the original brick hearth. A stove pipe thimble in the wall above the mantel has been covered with a sheet metal plate. The plaster wall between the brick section of the fireplace wall and the wood lath and plaster wall at the wood cabinet is cracked between the two different materials.

The exterior west wall is slightly bowed under Window 105 and a very large crack occurs in the south wall near the west wall. This section of the west wall and adjacent ceiling is deteriorated and shows signs of previous water infiltration. Where the wall has pulled away from the ceiling, newspapers from the 1950s were found in the crack.

The built-in wood cabinetry at the south side of the fireplace is in good condition (Figures 1.60 – 1.61). The cabinet has an upper cabinet with a pair of doors and a lower cabinet with a pair of doors. The construction of these cabinets, which is typical throughout the first floor, is discussed in the Millwork Section of this report. The exterior west painted plaster wall is visible inside the cabinet. The lower shelf, intermediate shelf and first shelf are original. The interior top and northwest corner of the cabinet has been patched with painted metal. Remnants of nests from either mice or other pests can be seen poking out of the metal at the edges. Electronic equipment is located in this cabinet that is related to the security system for the site. A related antenna is installed on the chimney above the roof line. Hardware is typical for these cabinets. The upper cabinet is missing the spring lever and the brass escutcheon; the lower cabinet doors are missing the spring lever, but retains the wood thumb turn.

Figure 1.60. North cabinet, Dining Room 104. (Strata 2016)

Figure 1.61. Metal plate at top of cabinet. Electrical wiring drilled through cabinet, Dining Room 104. (Strata 2016)

Exposed conduit is installed throughout the room. It is attached on the south and east walls to serve switches and to provide service to the adjacent hall, and it was also attached to the ceiling, although it has been removed. Receptacles are installed on the baseboards with conduit drilled through the wood floor to the basement on the south, north and east walls. All electrical conduit, receptacles and switches likely date to the 1950s renovation or later. A telephone jack is installed on the south wall near the receptacle. The baseboard is drilled where the conduit served light switches.

Kitchen 105

The Kitchen 105 is located in the rear ell (southwest corner) of the house and is original to the construction of the house. The L-shaped room is approximately eighteen feet by fourteen feet in the longest directions (Figures 1.62 – 1.66). The ceiling height is ten feet two inches. This is the only portion of the first floor that is constructed over a full height basement. The kitchen can be accessed from Door 2/104 in the north wall that leads to the dining room, or through Door 1/105 in the east wall that leads to the back porch.

Figure 1.62. Looking north towards Door 2/104 into the dining room, Kitchen 105. (Sheals 2016)

Figure 1.63. Looking south and east, Door 1/105 in east wall, Kitchen 105. Arrows point to two thimbles in chimney flue. (Sheals 2016)

Figure 1.64. Looking southwest, Kitchen 105. (Sheals 2016)

Figure 1.65. West wall and Window 104, Kitchen 105. The arrow is pointing to the exposed wood lintel. (Sheals 2016)

All four outside walls are brick load bearing walls with plaster installed directly to the brick. The brick walls are cracked in many locations, which have projected through the plaster. The cracks indicate signs of previous footing settlement, as all of these walls rest on shallow stone foundations. The plaster ceiling has been overlaid with thin gypsum board and has a textured finish (Figure 1.66). The paint on the walls and ceiling is in fair to poor condition.

Figure 1.66. Ceiling, Kitchen 105. (Strata 2016)

The south wall contains a projecting brick chimney flue and two thimbles from old cook stoves (one which has been infilled). The window and door trim and baseboard in this room matches those of the other first floor rooms and are in fair condition. The millwork, window, doors and hardware are discussed further in the Materials Section of this report.

The west wall has a large 6/6 divided lite Window 104 (Figure 1.65). This is an original window opening with replacement sashes that appear to date to the 1950s renovation and are in good condition. The wood lintel above the window is deteriorated and is exposed on the interior. The lintel is typical, in that it is installed only on the interior wythe of brick to span the window opening. This appears to be typical of the construction throughout the house, although only this lintel and the one installed above the east Door 1/105 are visibly deteriorated and the plaster has fallen to expose the lintel.

Door 1/105 that leads to the porch is an exterior recent replacement door in an original historic wood frame. The trim at the east door is damaged and has had some previous repairs and has plastic blank plates installed on the trim. The threshold is comprised of several layers of

deteriorated wood. The door hardware is all new. The trim throughout the kitchen is painted a dark brown color. Several layers of paint are visible under the brown paint. Hinges on the west side of the door to the dining room indicate there was once a door installed between the two rooms.

The original tongue and groove wood floor is laid in the north/south direction, but the floor has been overlaid with thin plywood and linoleum. A small floor air supply vent is installed through the flooring near the east door and another is installed near the door to the dining room.

Cabinets are all late twentieth century and are in deteriorated condition and are no longer usable. They are missing sections of counters and the cabinets are falling apart. The kitchen sink in missing and plumbing and gas piping are exposed. Evidence of previous built-in cabinet installation can be seen on the south and west walls in the southwest corner of the room.

Exposed conduit is installed throughout the room (Figure 1.66). It is attached to the east and north walls and the ceiling to serve switches and the ceiling lighting. There are two ceiling light fixtures that appear to date to the 1950s renovation or later. Receptacles are installed on the baseboards with conduit drilled through the wood floor to the basement on the south and east walls. Washer and dryer hookups, including electrical and a drain are located on the east wall in the north corner of the room. The plumbing service piping is removed. A telephone jack is installed on the north wall, just east of the door to the dining room. A stove receptacle is installed along the west wall.

Bathroom 106

The Bathroom 106 is constructed in the northwest corner of the rear kitchen ell and is approximately six and one-half feet by five feet with a dropped ceiling height of seven feet ten inches (Figure 1.67). This room was constructed in the late 1950s and remodeled again in the 1990s. The bathroom is no longer functional and contains no historic finishes. The south and east walls are modern construction.

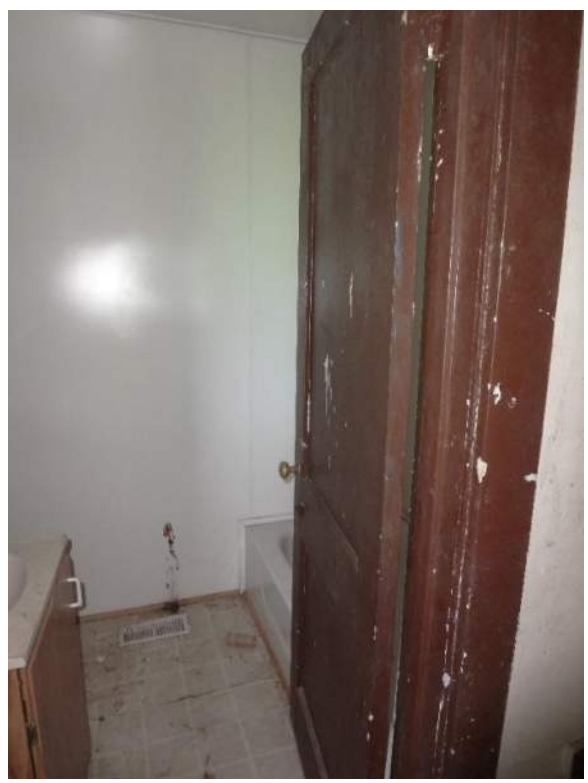

Figure 1.67. Bathroom 106. (Strata 2016)

Second Floor Existing Conditions

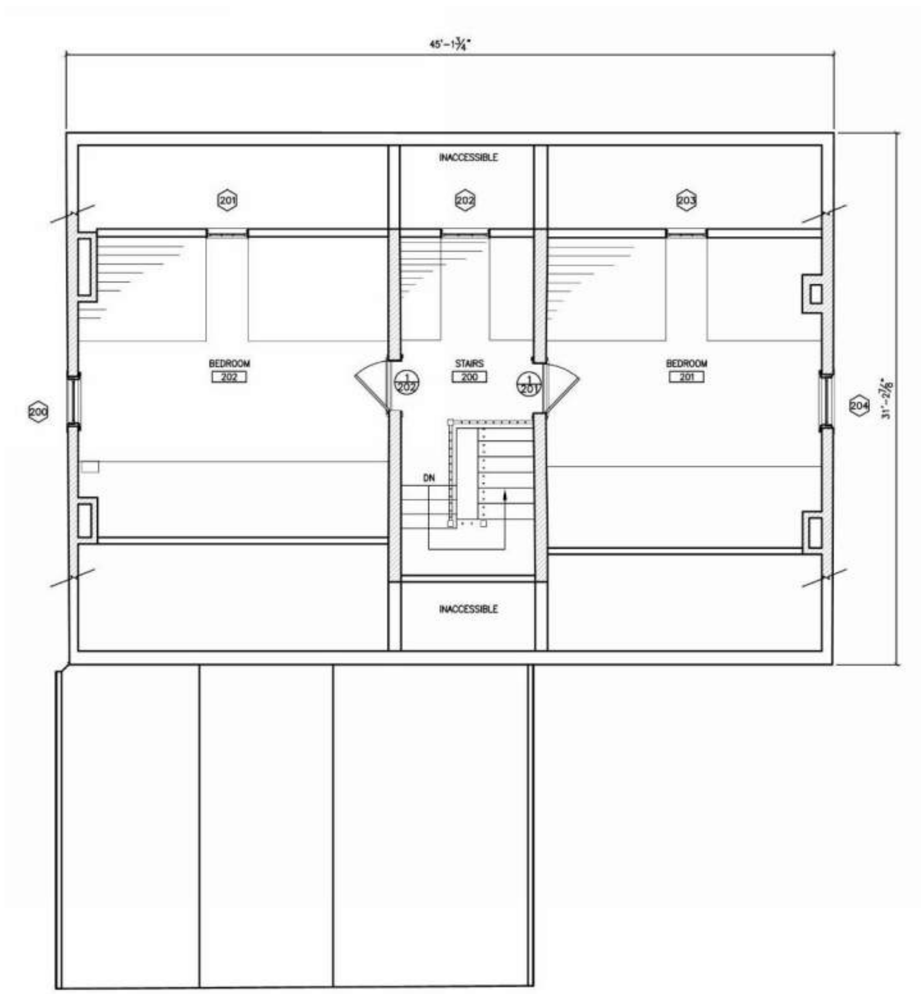

Figure 2.1. Second Floor, existing plan. (Strata 2016)

Hall 200

Hall 200 is the second floor central hall, located at the top of the stairs (Figures 2.2 - 2.8). The hall is seven feet ten inches wide and nearly twenty feet in length. The winding staircase to the first floor is located at the south end of the hall, with an open wood railing at the landing. The ceilings slope towards the north and south, with a knee wall height of three feet at the north wall. There is a small flat section of ceiling in the center of the room, with a height of roughly seven feet five inches. The sloping south ceiling extends over the stairs to the intermediate landing.

The east and west hall walls are load bearing brick walls that have a plaster finish. These walls align directly with the center hall walls below on the first floor. The walls are in good condition with a few through-wall cracks. The north and south walls, as well as the ceiling structure are wood frame with wood lath and plaster finish (Figures 2.6 and 2.7). The paint on the walls and ceiling is in fair to poor condition.

Figure 2.2. Hall 200, looking north. (Sheals 2016)

Figure 2.3. Hall 200, looking east. (Sheals 2016)

Figure 2.4. Hall 200, looking south. (Sheals 2016)

Figure 2.5. Hall 200, looking east. (Sheals 2016)

Figure 2.6. Ceiling, looking south, Hall 200. (Strata 2016)

Figure 2.7. Ceiling, looking east, Hall 200. (Strata 2016)

The original wood floors are random width from four-inches to 6 ½-inches, span east/west and are painted an orange-brown color (Figure 2.8). The floors are in good condition overall. A small section of the landing at the top of the stairs is cantilevered, and this is discussed in the Structural Existing Conditions section of this report.

Figure 2.8. Wood flooring, Hall 200. (Strata 2016)

A 6/6 double-hung dormer Window 202 is centered in the north wall. The wood sashes in this central dormer appear to be original to the construction of the house, as the detailing matches several sash in first floor Windows 100, 101 and 103. The dormer is edged with 1x flat wood trim. The baseboard, door trim and window trim vary from the first floor, but are typical throughout the second floor. All trim and doors on the second floor are painted. The millwork, staircase, window, doors and hardware are discussed further in the Materials Section of this report.

Electrical conduit is run across the ceiling to serve two porcelain socket single-bulb light fixtures. There are two receptacles installed in the hall (one on the east wall and one on the west wall). The electrical service to these is from behind the baseboards. A single light switch in installed at the top landing of the stairs on the east wall. This switch is served from wiring that comes through the east wall from an electrical panel mounted on the west Bedroom 202 wall.

Bedroom 201

Bedroom 201 is located on the east side of the second floor and is approximately eighteen feet by sixteen feet (Figures 2.9 – 2.16). The ceiling slopes to the north and south, with the knee wall at the north side of three feet high and the knee wall at the south side forty-six inches high. The flat portion of the ceiling in the center of the room is seven feet four inches in height. This bedroom is entered from the center hall by Door 1/201 located in the west wall. This door and wood threshold are original to the construction of the house, although the hinges and hardware are later additions. The original keyhole escutcheon remains. The door has some damage in the

bottom outside corner (Figure 2.13). The design and condition of the millwork, windows, doors and hardware are discussed further in the Materials Section of this report.

Figure 2.9. North wall and Window 203, East Bedroom 201. (Sheals 2016)

Figure 2.10. East wall and Window 204, East Bedroom 201. The arrow points to a stove pipe thimble covered with a tin plate. (Sheals 2016)

Figure 2.11. South wall, East Bedroom 201. (Sheals 2016)

Figure 2.12. West wall and Door 1/201, East Bedroom 201. (Sheals 2016)

Figure 2.13. Door 1/201, East Bedroom 201. (Sheals and Strata 2016)

The exterior east wall and the west partition wall are brick load bearing walls with plaster installed directly to the brick. The north and south walls are wood frame with lath and plaster The walls are cracked in many locations, which have projected through the plaster. The cracks and crumbling plaster and bubbles in the wall paint indicate signs of settlement and water infiltration (Figure 2.14).

Two brick flues project into this room along the east wall and are plastered – a chimney in the northeast corner and one in the southeast corner of the room. The flue in the southeast corner has a thimble from an old heating stove installed. The plaster on the east wall is in very poor condition, showing signs of cracking and crumbling, as well as bubbling paint in the area surrounding the window and the southeast chimney, where there are signs of water infiltration. Water infiltration at the northeast chimney is also prevalent (Figure 2.15).

Figure 2.14. East wall, plaster and paint deterioration and detail of racked window frame projecting from the wall at Window 204, East Bedroom 201. (Strata 2016)

The plaster ceiling is in fair condition with cracking throughout. The walls and ceiling are painted. Both the walls and ceilings have plaster repairs, which have been inappropriately repaired with drywall joint tape. The wall and ceiling paint is in fair to poor condition. A hole in the northeast sloped ceiling provides access to measure the roof rafters, view the original wood roof skip sheathing and to also view the lath and plaster ceiling construction (Figure 2.15).

Figure 2.15. Hole in northeast corner ceiling. Note the deterioration is due to water infiltration at the chimney/roof connection, East Bedroom 201. (Strata 2016)

A dormer on the north wall contains Window 203, which is an original window frame, with replacement double-hung 6/6 sashes. The exterior window trim and sill are deteriorated. Window 204 on the east wall is a 6/6 double-hung configuration and appears to be original or early to the construction of the house. The window frame is racked within the wall, as the sill and window frame are projecting into the room.

The windows trim and baseboard in this room match that of the other second floor rooms and are in good to fair condition.

The original tongue and groove wood floors are laid in the east/west direction and are painted a brown color (Figure 2.16). They are between six and seven inches wide. Again, the species of the wood flooring is unknown, but it appears to be pine or another wood with similar characteristics. The wood floor is in good overall condition. There are no mechanical vents installed in the floor of this room.

Figure 2.16. Wood flooring, East Bedroom 201. (Strata 2016)

Exposed conduit to the center celling porcelain socket light fixture and switch were installed in the mid-twentieth century. Additional conduit runs along the east, south, north and west baseboards, supplying receptacles throughout the room.

Bedroom 202

Bedroom 202 is located on the west side of the second floor and is seventeen feet eight inches by eighteen feet three inches (Figures 2.17 – 2.24). The ceiling slopes to the north and south, with the knee wall at the north side at roughly three feet high and the knee wall at the south side a little over four feet high. The flat portion of the ceiling in the center of the room is seven feet four inches in height. Two chimneys project into the room at the outside wall. The bedroom is entered from the center hall by Door 1/202 located in the west wall. This door and wood threshold are original to the construction of the house. The hinges are original to the doors, but the mortise lockset is a more recent addition. The door has some damage in the bottom outside

corner and is split at the mortise lock (Figure 2.22). The millwork, windows, doors and hardware are discussed further in the Materials Section of this report.

The exterior west wall and the east interior partition wall are brick load bearing walls with plaster installed directly to the brick. The north and south walls are wood frame with lath and plaster The masonry walls are cracked in many locations, which have projected through the plaster, as well as cracks throughout the lath and plaster walls and ceiling. The cracks indicate signs of previous settlement. The plaster ceiling is in poor condition with cracking throughout. The walls and ceiling are painted. The paint is in fair to poor condition.

Two brick flues project into this space and are plastered (Figure 2.19). One chimney is located in the southwest corner and the second in the northwest corner of the room. The flue in the southeast corner has a thimble from a former heating stove. The plaster on the east wall is in very poor conditions surrounding the window and the southeast chimney, where there are signs of water infiltration. Water infiltration at the northeast chimney is also prevalent.

Window 200 on the west wall is a 6/6 double-hung configuration. The window is currently covered with plywood from the interior and was not able to be closely inspected, but appears to be very deteriorated from the exterior. The window opening appears be taking on water, as the window frame in the wall and the plaster surrounding the bottom right side of the window are deteriorated and projecting into the room (Figure 2.23). A dormer on the north wall contains Window 201, which is an original window frame, with replacement 6/6 double-hung sashes and is in good condition (Figure 2.21).

Figure 2.17. East wall and Door 1/202, Bedroom 202. (Strata 2016)

Figure 2.18. South wall, Bedroom 202. (Sheals 2016)

Figure 2.19. West wall and Window 200, Bedroom 202. (Sheals 2016)

Figure 2.20. North wall and Window 201, Bedroom 202. (Sheals 2016)

Figure 2.21. Window 201, Bedroom 202. (Sheals 2016)

Figure 2.22. Door 1/202, Bedroom 202. Note the door is split at the mortise lock. (Strata 2016)

Figure 2.23. Window 200, Bedroom 202. Note the plaster wall deterioration around the lower wood frame. (Strata 2016)

The windows trim and baseboard in this room match that of the other second floor rooms and are in good to fair condition.

The original tongue and groove wood floors are laid in the east/west direction and are painted a brown color. They are between six and seven inches wide. Again, the species of the wood flooring is unknown, but it appears to be pine or another wood with similar characteristics. The wood floor is in good overall condition. There is one mechanical vent installed in the floor in the southwest corner of the room (Figure 2.24). This is the only vent on the second floor.

Figure 2.24. Detail of water infiltration at the southwest chimney, Bedroom 202. Note, the floor vent along the west wall is the only mechanical vent in the second floor. (Strata 2016)

An electrical junction box is drilled through the east wall to serve a switch in the adjacent hall (Figure 2.17). Exposed conduit to the center celling porcelain socket light fixture and switch were installed in the mid-twentieth century. Additional conduit runs along the baseboards, supplying receptacles throughout the room.

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Blackstone House – Structural Assessment

The house is a two story brick structure built mostly on a shallow stone masonry foundation (Figure S1). The exterior and interior walls are load bearing brick and the interior floor framing is a wood joist system. The house faces north with an attached kitchen wing and screened porch on the south side of the structure. The house has a side gable roof with the ridge running east-west. Above the kitchen wing is a south facing gable, and the porch roof extends east from the kitchen. Below the kitchen is a basement with exterior access (Figure S2). The basement also has access to the interior central stair by way of a path cut through the crawl space.

Figure S1. Blackstone house, north elevation. (SEA 2016)

Figure S2. Basement Room 005, looking northwest. (SEA 2016)

Stone Foundation

The north portion of the structure is constructed on a shallow masonry foundation. At an exterior excavation near the northeast corner of the house, the masonry foundation measured 36-inches deep from the bottom of the brick (Figure S3). With 12-inches of exposed stone foundation, this results in 24-inches of foundation below grade. No spread footings were observed. Room 000 was originally a crawl space. A portion was excavated at some point to provide a partial basement area and to provide access to basement Rooms 004 and 005. The excavated portion is defined by Concrete Masonry Unit (CMU) walls. Near the bottom of the interior central stair, there is an area where the bottom of the original stone masonry foundation is exposed at the area of excavation. In Room 000 the depth of the original stone foundation measured 36-inches (Figure S4). The basement rooms provide some visibility to the interior of the foundation walls below the north portion of the house. This visibility is limited, however, and there was no physical access to the crawl spaces beneath first floor Rooms 101, 102, and 103. The interior stone foundation walls have penetrations for contemporary ductwork, which allow for direct measurements of thickness. Walls measured between 11-inches and 16-inches wide, with variation due to the nature of the rubblework pattern of the masonry. It is assumed that the depth of footing is consistent throughout the north portion.

Figure S3. Exterior excavation at the east wall, near the north corner of the foundation wall. (SEA 2016)

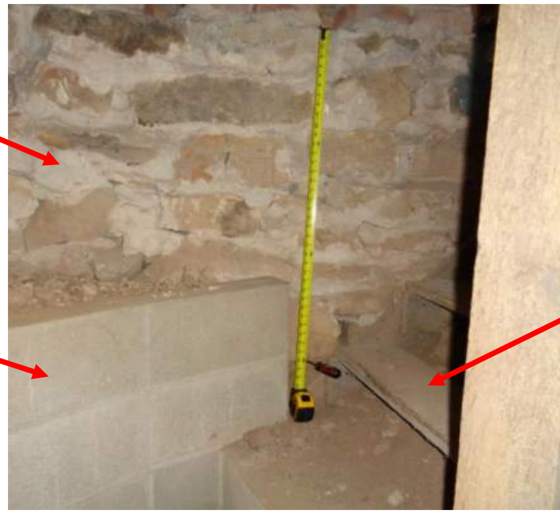

Figure S4. Interior foundation wall at basement stairs, Room 000, looking east. (SEA 2016)

The walls of Room 005 are deeper than the foundation of the rest of the structure, resulting in an original full height basement room. The height of masonry from the floor to the bottom of the joists measures 6-feet 2-inches to 6-feet 4-inches; the variation is due to the uneven dirt floor. The masonry wall extends approximately 3-inches below the existing dirt floor, observed directly at the interior excavation in the northwest corner (Figure S5).

Figure S5. Depth of foundation below basement dirt floor, Room 005. (SEA 2016)

The thickness of the south wall measured 11½-inches at the south exterior door. The thickness of the west wall measured 11½-inches at the infilled coal chute. The interior north wall thickness varies from 10-inches to 14-inches, measured at the door to Room 004. The east wall thickness could not be directly measured. Absence of mortar in places on the face of the masonry

indicates deterioration and/or water intrusion and erosion, especially on the west basement wall (Figure S6).

Figure S6. Interior excavation at the northwest corner foundation wall, Room 005. (SEA 2016)

The interior brick load-bearing walls and wood floor joists bear directly on the stone foundation walls, but at wall penetrations they have insufficient bearing. Where non-original wall penetrations and doors were created through the original stone foundation walls, some problematic connections exist. At the ductwork penetrations, no lintels were installed (Figure S7). The doorways do have wood jambs and lintels, but at the opening between Rooms 000 and 004, the bearing connection is poor (Figure S8) and the jamb is unbraced.

Figure S7. Wall penetration with no lintel to support the floor joist. (SEA 2016)

Figure S8. Lintel detail at opening between Room 000 and Room 004. (SEA 2016)

Construction of the non-original central interior stairs required alteration of four floor joists. They are now supported by two posts and a beam (Figure S9). One of the posts shows signs of deterioration at the base (Figure S10).

Figure S9. Joist support at stairs, Room 000, looking east. (SEA 2016)

Figure S10. Detail of deteriorated post, Room 000, at the stairs. (SEA 2016)

The basement walkway in Rooms 000 and 004 is bounded by stub walls, constructed for retaining the pressure of the soil under the adjacent crawlspace areas. These walls are constructed using unreinforced CMU and measure from 38-inches to 45-inches tall (Figure S11). Certain portions of the wall are between five and ten degrees out of plumb (Figure S12). The rotation of the walls has occurred since they were originally constructed in the 1950s.

Figure S11. CMU basement walls, Room 004 looking east into Room 000. (SEA 2016)

Figure S12. Rotated CMU wall, Room 004. (SEA 2016)

In Room 004, a wood post has been installed near the center of the room (Figure S13). The post does not appear to be structural and may only keep a duct in place. However, the joist that the post attaches to cannot be seen due to ductwork installation, and the post is taking load, so further investigation would be needed to determine the condition of the joist (Figure S13 and S14).


Figure S13. Wood post, Room 004 looking north. (SEA 2016)

Figure S14. Wood post connection detail in Room 004 through duct at ceiling. (SEA 2016)

In Room 004, a fireplace foundation can be seen which supports the fireplace along the west exterior wall in the first floor (Figure S15). The chimney has been modified to accommodate exhaust for a previous furnace. This does not allow for adequate comparisons to the other fireplace foundations that cannot be seen. In Bedroom 102, the hearth extension pad is uneven and shows signs of possible failure of the support system (Figure S16). Additional investigation is needed to understand the cause and magnitude of the problem, as this area is inaccessible for assessment from the basement.

Figure S15. Chimney foundation. (SEA 2016)

Figure S16. Hearth extension pad appears to be failing under the brick hearth in Room 102. (SEA 2016)

Exterior Walls

The exterior walls are double wythe, hand pressed brick. The brick work is laid in a running bond pattern with header courses approximately every tenth course. The interior wythe is pocketed at the masonry foundation for joist bearing. The windows and doorways have stone lintels on the exterior wythe and wood lintels on the interior wythe. The north portion of the house has four chimneys, three of which have been encased in Portland Stucco. The southwest chimney has been rebuilt using newer brick. The chimney on the south end of the house has also been rebuilt.

Each exterior wall of the house shows cracks running along mortar joints and through bricks. The most apparent signs are on the east wall near the north corner of the structure, where previous repairs have highlighted the movement of the brick (Figure S17).

Figure S17. Repaired crack in the east wall near the north corner. (SEA 2016)

The cracks appear to get wider as they move up the structure (Figure S18). While the true measure of the cracks do widen, the movement of the brick is not as pronounced as it may first appear, because more mortar is missing higher in the crack.

Figure S18. Northeast corner. (SEA 2016)

Overall, the cracks on the exterior indicate rotation of the structure, rather than only horizontal or vertical movement. Rotation is caused by corners settling at a more advanced rate than the wall center. This was confirmed with a string line on the north elevation. The string line was placed at the same bed joint at the northeast and northwest corner. When level, the line shows the bed joint approximately 1½-inches higher at the center of the wall than at the corners (Figures S19 and S20).

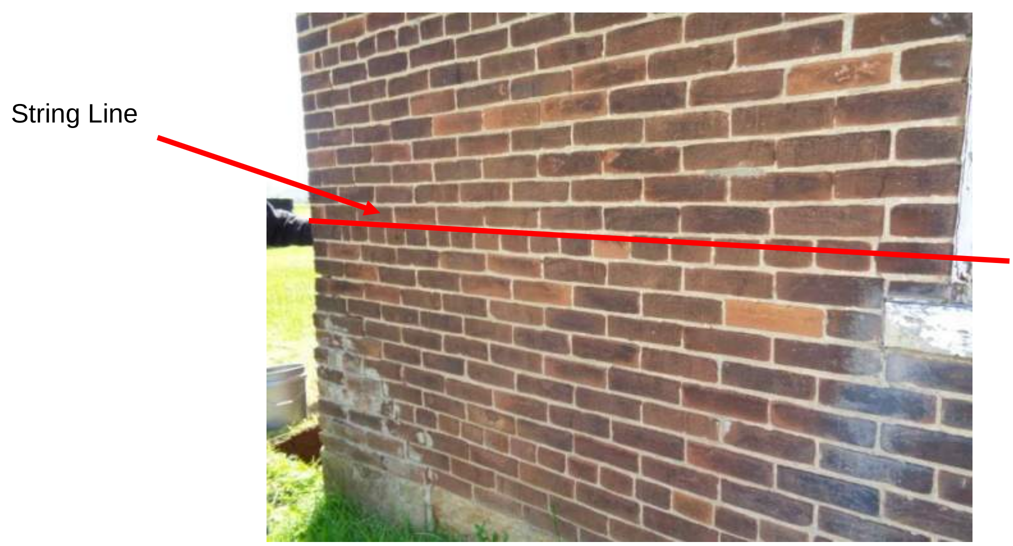

Figure S19. String line at north wall near east corner. (SEA 2016)

Figure S20. String line at front door, north wall. (SEA 2016)

The east and west exterior walls also tilt, demonstrated by a plumb line dropped from the second level windows at the east and west elevation. The east elevation plumb line was 1-inch further from the face of brick than the edge of sill, or 0.4° from plumb. The west elevation plumb line was 2¼-inches further from the face of brick than the sill, or 0.8° from plumb (Figure S21).

Figure S21. Plumb line, west wall. (SEA 2016)

Some exterior bricks have deteriorated in place (Figure S22). The cause is likely from variation in quality of brick. Bricks of the time period were fired in a batch process; bricks at the bottom or outer layer of the kiln (salmon brick) would not achieve the same strength properties as those at

the top of the kiln. Hard-burned brick is darker in color. Masons were aware of this variance and used higher quality bricks for exterior applications. Brick deterioration is present on each face of the structure.

Figure S22. Typical deteriorated brick. (SEA 2016)

Limited mortar repairs have been performed over time. Repairs are typically easily seen due to untidy workmanship and mismatched mortar.

The interior wythe was likely constructed using lower quality bricks, as they are not subjected to the elements. Over time moisture has intruded and deteriorated the interior wythe in places (Figures S23 and S24).

Figure S23. Detail of rotted joist and interior wythe of brick, below the West Parlor 103 at old return air register location, north wall. (SEA 2016)


Figure S24. Detail of rotted joist and interior wythe of brick, Room 005, west wall. (SEA 2016)

Above the first finish floor, the interior wythe of brick is plastered over, so a full study of the brick condition could not be performed. In Kitchen 105, however, the rotted wood window lintel at Window 104 in the brick is visible (Figure S25). This condition is likely present throughout the house.


Figure S25. Rotted wood lintel, Window 104. (SEA 2016)

The plaster throughout the house has cracked, especially at windows and doors (Figures S26 and S27). The cracks observed mirror exterior cracks (through-wall cracks) and are consistent with rotational settlement at many of the locations.

Figure S26. Cracks through plaster and the exterior wall at Window 100, looking north. (SEA 2016)

Figure S27. Cracks through plaster and exterior wall at Window 101, looking north. (SEA 2016)

The door frames and windows were observed. The doors are all operable, indicating that the walls have not settled differently at these locations. The door frames are square and are consistently a rather tight fit (Figure S28).

Figure S28. Door 1/104 in Dining Room 104. (SEA 2016)

Interior Walls

The interior walls are double wythe brick coated in plaster. At the masonry footing, the brick is pocketed for first level floor joists. The brick bond pattern is assumed to be the same as the exterior walls. Lower quality brick is likely used throughout, as salmon brick is seen at the pockets (Figure S29).

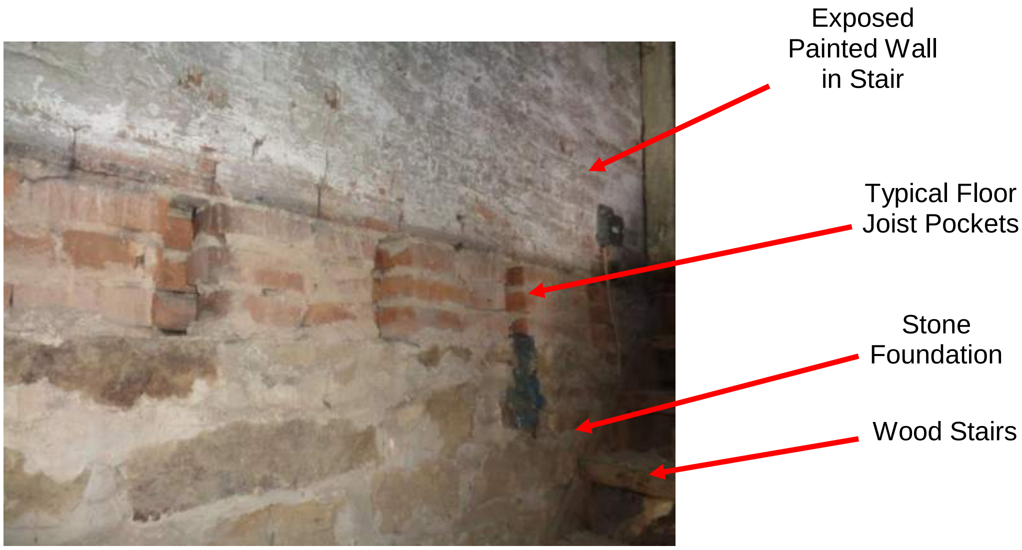

Figure S29. Pocketed brick at stairs where joists were removed, Room 000. (SEA 2016)

The interior walls running north and south extend up through the second floor level. The interior walls running east and west terminate at the second level. The knee walls on the second level are wood studs with plaster and lath finish.

The plaster in the first and second levels is cracked at door openings and wall transitions (Figures S30 and S31).

Figure S30. Crack through plaster, interior wall Hall 100. (SEA 2016)

Figure S31. Cracks through plaster, interior wall Bedroom 102. (SEA 2016)

First Floor Framing

The first floor framing system is exposed in the basement. The floor joists are supported by the stone foundation walls where the brick walls have been pocketed. Joists vary in width and depth but consistently measure at least 2-inch by 9-inch net dimensional lumber. A wood sample was obtained from one of the joists and sent to Regis B. Miller, PhD for species analysis. The sample was identified as yellow-poplar (Liriodendron tulipifera), which has little to moderate rot resistance. The report can be found in Appendix F. All first floor joists are assumed to be the same species.

Where accessible, joist spacing was measured at 18-inches on center. Floor joists in Rooms 000 and 005 spanned east west and joists in Room 004 span north south. Joists in the other crawl spaces span north south, based on the flooring fastener patterns observed in the rooms above.

At bearing, all joists have been notched and shimmed (Figure S32). This technique is uncommon; full joists are typically pocketed into the masonry foundation. Here notches were likely used so the joist would fit into three courses of brick. The shim was then used to level the joist on the uneven masonry. Notches were measured from ½-inch to 1-inch deep. The first two joists at the south entrance to Room 005 have been notched/carved to 7 ½-inches deep for headroom (Figure S33).

Figure S32. Typical notched and shimmed joist at east wall. (SEA 2016)

Figure S33. Joists at basement door, notched for headroom. (SEA 2016)

First floor joists with bearing at exterior walls show rot due to moisture (Figures S23 and S24).

Throughout the basement floor joists, there is evidence of bore holes, very likely from a powder post beetle (Figure S34). The extent of the joist damage is unknown in the inaccessible crawlspaces, although it is very likely the damage is extensive in these spaces. The infestation may or may not still be active. Four joists in Room 005 show considerable beetle damage and have been sistered with 1 ½-inches by 9 ½-inches net dimensional modern lumber (Figure S35). The infestation is assumed to extend to all joists in the other crawl spaces which were inaccessible.

Figure S34. Typical beetle damage. (SEA 2016)

Figure S35. Beetle damaged joist with sister joist in Room 005, looking south. (SEA 2016)

Where joists bear on exterior foundation walls, there is evidence of wood rot. Only a single wythe of brick and mortar protects the joist ends from moisture intrusion (Figures S21 and S22). The original wood flooring in Rooms 100, 104, and 105 was directly measured from below 1 1/8-inches by 5 ¼-inches, 1-inch by 5-½-inches, and 1-inch by 3-inch tongue and groove, respectively (Figure S36). The original wood flooring in Room 105 is now a subfloor for plywood and vinyl, and the flooring in Room 104 is a subfloor for a second layer of wood flooring system.

Figure S36. Flooring for Hall 100. (SEA 2016)

Second Floor Framing

The second floor framing could not be directly observed due to finished spaces. The size, spacing, and layout can only be inferred indirectly. In Dining Room 104, the lath ceiling pieces are faintly visible through the plaster (Figure S37). From the lath pattern, the spacing of the joists appears to be 16-inches on center.

Figure S37. Second floor joist pattern in Room 104. (Deb Sheals 2016)

In the west bedroom 202, the joists were measured from a hole in the ceiling below in Room 103 to be 2-inches by 8 ½-inches at 17 ½-inches on center.

At the stairwell to the second level, the thickness of the floor was measured. From the bottom of the flooring to the edge of plaster is 9 3/8-inches. The joists are approximately 1-½ or 2-inches by 8-½-inches at 18-inches on center and span in the north/south direction.

Roof

Roof rafters could not be directly observed, except at a small opening into the roof of Kitchen 105 from the porch and at a small opening in the northeast corner of the East Bedroom 201 (Figures S38 and S39).


Figure S38. Opening in ceiling at porch. (SEA 2016)


Figure S39. Opening through plaster at roof in Room 201. (SEA 2016)

The south facing gable roof framing above Room 105 was measured at 2-inches by 7 ¾-inches net dimensional lumber at 16-inches on center, spanning east west. The joists rest on a ½-inch thick wood plate at the top of the brick wall. Running perpendicular above the joists is a 1-inch by 9-inch wood plate. The roof rafters extend up from the plate, but the size could not be measured. No tie down connections to the brick walls are visible.

At the opening in Room 201, only two roof rafters are visible, measuring 2-inches x 5-inches placed at 16-inches on center. The forward looking infrared camera (FLIR) was also able to capture the 16-inch rafter spacing in Room 200 (Figure S40).

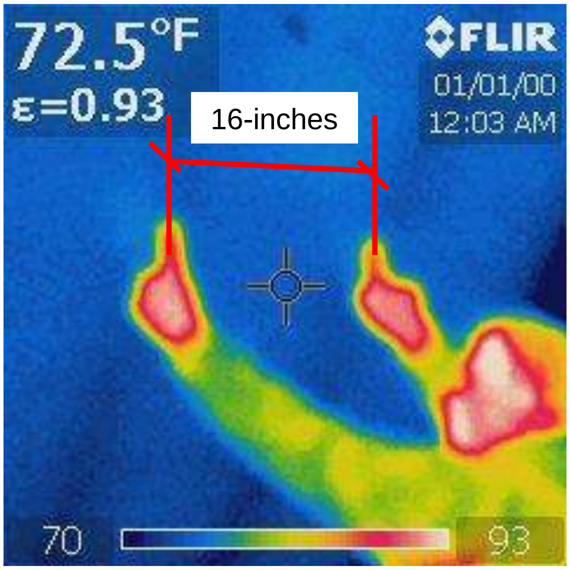

Figure S40. Rafter spacing in Room 200. (SEA 2016)

Porch

The porch is a wooden lean-to type structure over a deteriorated and unreinforced CMU wall foundation and concrete slab. This structure was built in the 1950s. The south wall is wood framed with wood shingle siding. The east wall has wood posts and short wood panels below screen openings. The condition of the east wall is extremely poor. The posts are deteriorated and/or not connected at the concrete slab (Figure S41). The porch roof has a shallower slope than the rest of the structure. The sloped wooden framing for the roof is 2-feet on center and connects to the rest of the structure only at the wooden joists for Room 105. No extensive investigations or calculations on the porch structure were performed.

Figure S41. Porch at south of house. (SEA 2016)

Mechanical, Plumbing and Electrical Existing Conditions

Introduction

The Blackstone house has sat vacant for many years. The most recent mechanical, plumbing and electrical systems were installed ca. 1990-2000. Since that time, vandals have stolen piping, mechanical equipment, fixtures and wiring. Only the bare minimum of electrical service remains. Utilities enter the house from the west side (Figure M1). Utilities include: telephone, propane gas and electrical power. The sanitary waste also enters on this side of the house, but is underground. There is no lightning protection, fire protection or security system in place for the house at this time.

Figure M1. West side of house. In order from left to right: Ground rod; Telephone connection; Propane gas connection; Furnace concentric intake and exhaust; electrical meter and service. (Strata 2016)

Figure M2. Propane tank, west of house. (Strata 2016)

Heating, Cooling and Ventilation Systems

The existing furnace is located in the basement Room 004 (under the dining room) and is consistent with residential type of equipment. This furnace was installed in 2000 and utilizes propane gas for heating (Figure M3 and M4). The furnace is not currently functional. The propane gas piping enters the basement through the west wall. The piping likely runs below grade from the above-ground propane tank to the west wall, however, the pipe has been disconnected from the regulator at the exterior west wall. The propane tank is located west of the house (Figure M2).

There is no air conditioning installed at this time. Sheet metal ductwork from the furnace is routed through the basement and crawl spaces. It serves the first floor and the west second floor Bedroom 202. A vertical ductwork chase was constructed north of the fireplace in the Dining Room 104, to conceal the supply duct riser to the second floor. The ductwork is routed to supply and return air vents installed in the wood floors. There is at least one supply vent in each first floor room. The ductwork throughout the basement is in various states of disrepair (Figures M4-M7). Many of the ducts are rusted through, disconnected and not well supported. The ductwork is not usable for a more contemporary installation. The return air vents in the first floor are not routed to the furnace, but use the crawl space as plenum, which is a code violation. Combustion intake and exhaust for the furnace is provided via PVC vent piping through the west wall (Figure M8). The intake/exhaust is terminated with a concentric fitting. To install ductwork throughout the basement, penetrations through the stone foundation walls were made to access adjacent crawl space areas. Many of these penetrations have undermined the load-bearing brick walls above and require lintels to be installed. This is discussed further in the Structural Existing Conditions Section of this report.

Remnants of previous furnaces are found throughout the basement. This furnace likely dated to the 1950s renovation. The exhaust flue remains installed between the stone fireplace

foundations along the west wall of basement Room 004 (Figure M9). This flue vents through the original historic chimney. In order to install the exhaust, the firebox at the Dining Room 104 fireplace was closed off and plastered over. It is likely that the vent is not capped at the chimney, considering the amount of debris at the bottom of the flue in the basement. Coal remnants found within the dirt floor in Room 005, also suggest that perhaps an even earlier furnace was coal-fired. Other remnants of a previous ventilation system include the pulleys installed on the first floor joists, which are visible from the basement (Figure M10). These were likely used to operate dampers on floor vents.

There are strong fuel smells in the basement that require further investigation and testing to ascertain the source. They may be the result of a previous fuel spill. This is especially prevalent in the basement Room 005.

In addition to the furnace, there are four original, wood burning, masonry fireplaces in the house, three of which remain open. The fireboxes and chimneys are constructed with soft brick and lime putty mortar. The fireboxes and hearths are deteriorated and in poor condition. There are several locations where thimbles are installed at the fireplace chimneys on the first floor and in the East Bedroom 201, where wood stoves likely once exhausted into the chimneys. A thimble also exists at the kitchen chimney, which was likely used for a cooking stove flue. The chimneys are not lined. These fireplaces and chimney flues are no longer safe to use for fires or exhaust ventilation.

Figure M3. Furnace, Basement Room 004, looking north. (DS 2016)

Figure M4. Furnace, Basement Room 004, looking west. (Strata 2016)

Figure M5. Ductwork, Basement Room 004, looking north. (Strata 2016)

Figure M6. Ductwork, Basement Room 004, looking north. (Strata 2016)

Figure M7. Ductwork deterioration, Basement Room 000. (Strata 2016)

Figure M8. Furnace combustion air intake/exhaust out west wall, Basement Room 004, looking southwest. (Strata 2016)

Figure M9. Old furnace flue installed between dining room fireplace foundations, Basement Room 004, looking west. (Strata 2016)

Figure M10. Pulley, remnant of previous ventilation system, Basement Room 004. (Strata 2016)

Plumbing Systems

The water was supplied to the house by the well, (Figures P1 and P2), which is located south and east of the kitchen wing. The well is hand-dug, stone lined, and may be original to the house. The well was capped with concrete by park staff as a safety precaution. The well water was piped underground to the house at some point, and entered the house along the south wall of basement Room 005. Remnants of PVC piping are still found in this location. None of the well pump equipment or tank in the basement remains. The well is no longer serviceable.

Water supply piping is installed only to serve the Kitchen 105 and Bathroom 106, which are located directly above the basement Room 005. No other piping is installed in the house. No water heater is currently installed.

The sanitary waste service for the house is a septic system. The septic system consists of a tank, which is located west of the house. There appears to be some old, galvanized drain lines that tie into the main cast iron service line. The cast iron sanitary waste line exits the house through the west wall of basement Room 005 (Figure P3). There is a main cleanout where the line exits the building. The system was inspected via video in the fall of 2016 by County Sanitary Service. A copy of the inspection video is on file with the park. The inspection showed that the cast iron pipe leaves the house is routed directly west for about four feet. The pipe transitions to PVC and is routed northwest at a 45-degree angle to a grade cleanout, which is visible in the yard. This cleanout is about two feet from the septic tank. The tank is located at that same angle/orientation, with the leach field likely nearby. The pipes are disconnected and offset where the cast iron and PVC meet, by approximately ¼-inch to ½-inch. The size and condition of the tank were not able to be determined from the inspection. The inspector used a probe and was able to determine the tank lies approximately one foot below the surface (Figure P4).

The Kitchen 105 had a kitchen sink installed at one point, which has been removed (Figure P5). Only the water supply and drain piping remain. A washer and dryer hookup was installed along the east wall, in the northeast corner of the kitchen (Figure P6). The supply piping has been partially removed. The Bathroom 106 has a combination bathtub/shower, water closet, and sink

(Figures P7-P8). The water closet has been removed, but the vanity sink and tub/shower are still installed but are not functioning.

The plumbing equipment and distribution systems associated with the house are not functional, nor reusable. Renovation of the house will require installation of all new systems.

Figure P1. Original stone well location. (Photograph provided by the park, 2013)

Figure P2. Original stone well location. (Photograph provided by the park, 2013)

Figure P3. Sanitary waste pipe exiting through west foundation wall, Basement Room 005. (DS 2016)

Figure P4. County Sanitary Service septic inspection, fall 2016.
(Photograph provided by Kathleen Brady, HOCU)

Figure P5. Kitchen sink location, Kitchen 105. (Strata 2016)

Figure P6. Washer and dryer hook-ups. Water service has been removed, but the drain and electrical services remain, east wall, Kitchen 105. (Strata 2016)

Figure P7. Vanity and water closet location, Bathroom 106. (Strata 2016)

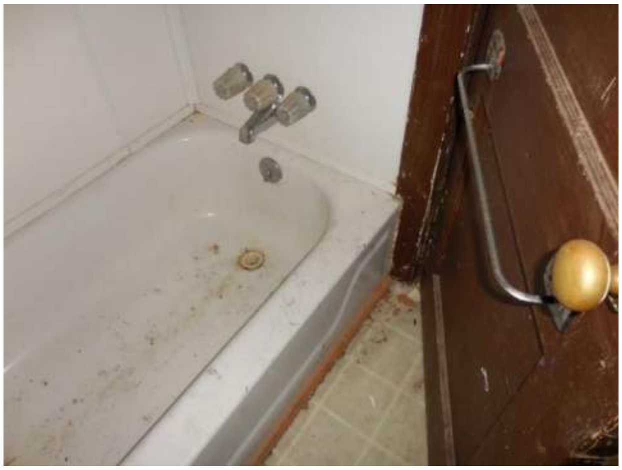

Figure P8. Tub/shower, Bathroom 106. (Strata 2016)

Electrical and Lighting Systems

The electrical service to the property is discussed in the Civil Section of this report. The service is connected into a weatherhead on the west side of the house. There is a pull box and meter on the west face of the house, as seen in Figure M1 (Figure E1). The electrical feed enters the house through the brick wall (Figure E2). The electrical distribution panel is installed in basement Room 005 on the north wall (Figures E3 and E4). This panel is a load center rated at 200 Amp, 240 Volt. The date of installation is unknown, but within the last sixteen years. It was likely installed as part of the remodeling that was done in 2000, which included new wiring, according to the Ohio History Connection.[241] The service is still in use, but serves only a handful of outlets and fixtures in the basement, kitchen and hall at this time, due to previous vandalism. Grounding of the electrical service was not verified.

Electrical distribution throughout the house varies in age and type. Exposed plastic conduit, consistent with midcentury residential wiring, is installed throughout the house (Figure E8). The exposed conduit is installed on walls, ceilings and baseboards. The wiring is distributed in the basement and is brought to the first and second floors through holes drilled in the wood floors and into the conduit. The conduit distributes power throughout the house. Holes drilled through the brick masonry partition walls allow wires to pass between rooms. A majority of this wiring is no longer functional and is partially missing throughout the house due to vandalism. Junction boxes without covers are found in the basement (Figure E5). Newer distribution wiring is found in certain areas, but does not appear to be functioning. Wiring is unsupported throughout much of the basement (Figures E3, E5, E6 and E7). A large junction box is uncovered on the east wall of the second floor Bedroom 201 (Figure E9)

Lighting installed throughout the house is non-functioning and is non-historic. The light fixtures appear to be mostly midcentury surface mounted fixtures (Figure E8) or porcelain sockets with exposed lamps (Figure E9).

Telephone service enters the building on the west wall. The telephone service is no longer functioning. Wiring associated with the previous service is found throughout the basement. No formal distribution panel was found. No data service is installed in the building.

A cable projecting from the west wall extends to the chimney. This serves as the antennae for the surveillance camera system installed on site. The equipment is installed in the built-in cabinet in the Dining Room 104.

It is not recommended to reuse any of the electrical service or distribution system, all service and equipment should be replaced and installed per current code during a future renovation project.

[241] Ohio History Connection Maintenance Schedule, (Ohio SHPO, Ohio History Connection).

Figure E1. Electrical meter and pull box, west side of the house. A ground wiring does exit the box, but it is unknown what it is attached to. (Strata 2016)

Figure E2. Electrical feed from the service panel enters the house along the west wall. It is installed through a hole in the brick wall. (Strata 2016)

Figure E3. Electrical panel, north wall, basement Room 005. Note, this is the only known working outlet (below the panel) installed in the house at this time. (Strata 2016)

Figure E4. Circuit breakers are missing from panel. (Strata 2016)

Figure E5. Uncovered junction box in basement Room 004. (Strata 2016)

Figure E6. View south in basement Room 004. Note the unsupported wiring strewn throughout the space. (Strata 2016)

Figure E7. Wiring supported by clothes rod in the basement stair. (Strata 2016)

Figure E8. Typical conduit installation on walls and ceilings. Typical midcentury surface mount ceiling light fixture. (Strata 2016)

Figure E9. Typical conduit installation on walls and ceilings at the second floor. The lighting is provided by porcelain sockets with exposed incandescent lamps. Note the open junction box on the east wall. (Strata 2016)

Existing House Accessibility Evaluation

The Blackstone house was constructed to serve as a residence and continued in that use until the house was shuttered in 2003. Therefore, many of the current regulations related to the use of this house in a commercial capacity are not accommodated in the house's current configuration.

A review of the ABAAS (Architectural Barriers Act Accessibility Standards) which apply to this existing building condition are included below. For the purposes of this review, the building is assumed to be a *Qualified Historic Building or Facility*, which is a building that is listed in or eligible for listing in the National Register of Historic Places, or designated as historic under an appropriate State of local law.

F202 Existing Buildings and Facilities

F202.6.2 Accessible Route and F206 and F208 and Chapter 4 Accessible Routes

The immediate site surrounding the house does not accommodate for accessible parking nor an accessible route to the building.

F202.6.3

The building does not provide an accessible toilet facility.

F202.6.5.2 and F215 Fire Alarms and 702 Fire Alarm Systems

There are no audible or visual emergency warning systems or alarms.

F206.2.3 Accessible Route (Interior)

There is no accessible way to gain access to the second floor or the basement.

The basement and second floor, if used for private, non-primary (not open to public) purposes, would not be required to be accessible, per F206.2.3 Exception 6.

The basement is not required to have elevator access, per F206.2.3 Exception 1.

F206.4 Entrances

The building has no accessible entrance. There are steps at the front door. There are steps at the back porch and a step up from the back porch into the house.

F206.5 and 404 Doors

Interior and exterior doors at the first floor meet ADA and ABAAS clearance width requirements; however, the existing hardware does not meet requirements and there are steps at all exterior doors and the door to the basement in Hall 100.

Push and pull clearance is fine at all first floor interior doors.

404.2.5 Thresholds

Routes and door widths throughout the first floor of the house meet accessible requirements. Wood thresholds at four of the interior doors are too steep and too tall to meet accessibility threshold requirements and require modification or replacement.

F207 Accessible Means of Egress

There is no accessible egress route for emergencies, nor is there an accessible area of rescue for the second floor.

F216 Signs and 703

The building does not provide signage, per the International Symbol of Accessibility for parking, building and toilet facilities.

F210 and 504 and 505 Stairs and Handrails

The handrails at the existing exterior steps into the house (front and back) do not have handrails and the steps do not meet current building code, rise and run and consistency between riser heights.

The existing stairs to the basement (interior and exterior) do not meet current: rise and run; width; handrail; or stair tread dimension and layout requirements.

The stair to the second floor meets current rise and run requirements, but does not meet the current handrail graspability, continuity, extension or guard railing requirements. A portion of the main stair handrail is missing, and there is no handrail on the wall side of the stairs.

Per 505.10, the main stair historic railing does not have to meet the extension requirement:

Full extension of handrails at stairs shall not be required…where such extensions would be hazardous due to plan configuration.

Stairs do not have non-slip surfaces.

General Review:

Outdoor areaway stone stair to the basement is open with no guard railing.

Both outbuildings have raised thresholds at the entrance doors and are therefore not accessible to entry. There are no accessible paths to the outbuildings.

Accessibility Summary

The existing building does not meet current requirements set forth in the IBC (International Building Code) for life safety requirements, nor does the building meet modern commercial mechanical, electrical or fire safety code requirements for use as a commercial building.

Future rehabilitation of the existing house and immediate site will be required to accommodate building code, life safety and ABAAS accessibility requirements, as the building and site were not designed to meet these modern codes and guidelines. These required building and site alterations with regards to accessibility, building and life safety code are further addressed in the Treatment Recommendations Section of this report, in conjunction with the IBC (International Building Code) and the IEBC (International Existing Building Code) Chapter 12, which is specific for the review of historic buildings.

Blackstone House Character Defining Features

The Blackstone House has retained a significant amount of its original exterior and interior character defining features. The ongoing maintenance and preservation of these unique features and visual aspects of the building ensure the historic integrity of the building and site will survive for future generations.

Exterior Character Defining Features include:

- Retention of original setting
- Overall shape of the building, one and one-half story massing with rear ell
- Greek Revival front door surround
- Pedimented dormer windows
- Handmade brick masonry walls
- Native cut stone foundation, dressed with vertical tooling
- Original window fenestration openings with 6/6 double hung wood windows
- Masonry chimneys
- Cut stone lintels and sills

Interior Character Defining Features

- Center Hall Floor Plan with Rear Ell
- Original Room Layouts
- Original Millwork (trim, baseboards, thresholds, built-in cabinetry, mantelpieces)
- Original Wood Staircase and Balustrade
- Original Window Openings, Trim and (Some) Sashes
- Original Door Openings, Doors and Trim
- Original Fireplaces, Fireboxes and Brick Hearths
- Original Wood Floors
- Original Hardware (cabinetry, windows and doors)

Figure E10. Detail of Blackstone Photograph, August 1, 1927, I. T. Frary. (Photo Collection Number A0957, Folder 6, Ohio History Connection Archeological Collections Facility, Columbus, Ohio.)

Smokehouse and Milk House, looking southwest. (Sheals 2016)

1C EXISTING CONDITIONS
OUTBUILDINGS

Smokehouse Existing Conditions – Architectural

Figure SH.1. Smokehouse, looking southwest. (Sheals 2016)

The Smokehouse is a masonry structure resting on a shallow stone foundation (Figure SH.1). This structure was constructed circa 1857 and is located south of the main house and oriented with the north face of the building facing more northeast.

The structure is approximately 12-feet by 14-feet with an eave side entry which faces north towards the house. The walls are constructed from hand molded bricks that appear to match the house in size and are tuckpointed with a lime putty mortar. Wood rafters span north to south creating a gabled roof that is covered in 3-inch wood skip sheathing and topped with sections of standing seam metal roofing. On the gable end, facing east, is a masonry chimney which is centered and flush with the exterior masonry wall.

The exterior of the building is in fair to poor condition. The brick exterior walls require 35% - 40% repointing and the southwest corner of the brick wall is cracked and settling. On the interior of the structure 25%-30% of the bricks are missing and deteriorated and are structural compromised due to exposure. The historic wood door frame and door are missing as well as the historic window. The half-round gutters have significant amounts of rust and a majority of the downspouts have deteriorated and are missing. The existing metal roof has no protective paint finish. Several of the bricks on the chimney are missing or have been displaced.

The architectural and structural existing conditions are discussed in this section of the report.

Roof

Wood rafters span north/south creating a gabled roof that is covered in 3-inch wide skip sheathing and topped with a standing seam metal roof (Figure SH.1). There is no overhang at the roof edge. On the east elevation at the roof ridge is a masonry chimney that measures approximately 16 inches by 16 inches. The roof is in poor condition with a majority of the deterioration developing from the roof metal being exposed to the elements causing rust and holes throughout the roof. The existing wood skip sheathing suggests that the roof at one time was covered in wood shingles. There are no wood shingles remaining. On the east end of the roof the standing seam metal roof wraps down one-inch, partially covering a wood rake board (Figure SH.7). On the west end of the roof the standing seam metal roof stops and does not wrap the edge. The rake board is missing on the west side (Figure SH.4).

The wood rafters set on the north and south side walls, while the wood skip sheathing sets directly on the gabled east\west masonry walls. Half-round gutters are attached to the roof on the north and south, with twisted metal wire that wrap around the gutter acting as a hanger. The wire hangers are secured back to the roof with nails, penetrating the metal roof (Figure SH.5 and Figure SH.6). The western side of the south gutter is detached from the wall and has significant deterioration. The south downspout is completely missing (Figure SH.7).

Figure SH.2. North elevation, roof detail. (Strata 2016)

Figure SH.3. Metal roofing and flashing at chimney. (Strata 2016)

Figure SH.4. West Elevation, looking up at the soffit and the exposed skip sheathing. (Strata 2015)

Figure SH.5. Smokehouse, north elevation. (Strata 2016)

North Elevation

The North Elevation is visible from the main house and contains the entrance (Figure SH.5). The elevation is in fair condition with a majority of the deterioration at the mortar joints near the base of the wall. The grade is relatively consistent across this wall with a slight slope on the east and west corners. The door opening is located west of center and is missing the wood door frame and door (Figure SH.7). The door threshold is constructed out of stone and concrete that is partially below grade (Figure SH.8). One of the stones within the threshold is cracked.

A steel angle iron spans the door opening and bears on three inches of masonry at each jamb. This lintel was likely added when the wood door jamb was removed or deteriorated. Located east of the door opening, roughly 6’-0” off the grade, are sixteen single ventilation holes that are arranged in a diamond shaped pattern. The holes are created by leaving an approximately 2-inch gap in the masonry pattern. Due to the bricks being soft, two of the bricks that define the vent openings have significant deterioration and two of the bricks are missing (Figure SH.6).

Throughout the masonry wall there are areas of missing or deteriorated lime mortar and cracks in the walls. Along the base of the wall, a significant amount of the mortar is missing and several of the bricks are deteriorated. Approximately 20% of the mortar joints need repointing and 8-10 bricks need replaced.

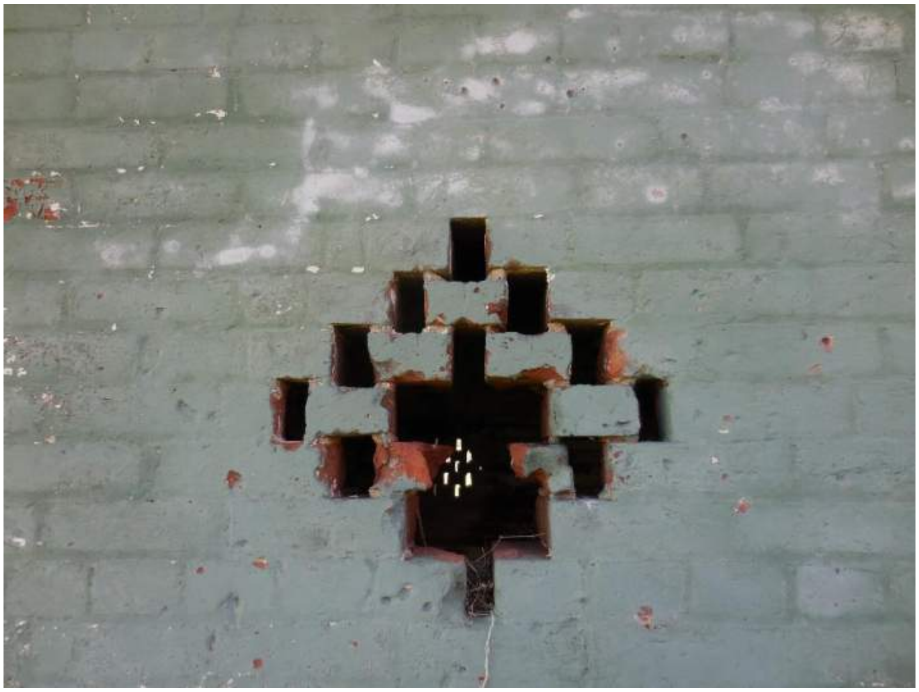

Figure SH.6. North elevation, detail of ventilation holes. (Strata 2016)

Figure SH.7. North elevation, detail at door opening. (Strata 2016)

Figure SH.8. North elevation, detail at door threshold. (Strata 2016)

Figure SH.9. North elevation, detail at door lintel. (Strata 2016)

Figure SH.10. East elevation. (Sheals 2016)

East Elevation

The East Elevation of the smokehouse is not visible from the main house (Figure SH.10). This wall is in fair to good condition with most the deterioration developing at the base of the wall where a significant amount of mortar is missing. The masonry wall is painted, excluding the stone foundation and chimney, and the painted masonry has minor chipping and flaking throughout the elevation. Throughout the masonry wall there are areas of missing mortar and cracks in the wall. At least four of the brick are deteriorated beyond repair. Approximately 20% of the wall requires repointing.

At the top of the wall, on either side of the chimney is a wood 4-inch rake board that is exposed to the elements with no protective finish (Figure SH.13). Along the north edge of the wall is a metal downspout with the lower half detached from the wall (Figure SH.12). The grade gradually slopes to the south, with the lowest elevation at the south corner of the structure (Figure SH.10). A flue opening for the masonry chimney is located centrally in the wall, roughly 3'-0" off the grade (Figure SH.11).

Historic photographs of the smokehouse from the 1920s indicate there may have been a wood frame addition to the east side of the smokehouse (Figure 30 and Figure SH.14). This addition may have served as a wood shed for the wood burning smoker. The evidence of the flue opening through the east exterior walls suggests that some type of apparatus was connected from this side of the structure.

Figure SH.11. East elevation, detail at chimney flue. (Strata 2016)

Figure SH.12. East elevation, detail at downspout. (Strata 2016)

Figure SH.13. East elevation, detail chimney. (Strata 2016)

Figure SH.14. East elevation addition, 1927. (Photo Collection Number A0957, Folder 6, Ohio History Connection Archeological Collections Facility, Columbus, Ohio.)

Figure SH.15. South elevation. (Strata 2016)

South Elevation

The South elevation is the back of the building and is not visible from the main house. This back wall contains two diamond-shaped vent openings (Figure SH.15). The elevation is in fair condition with a majority of the deterioration at the mortar joints near the base of the wall. The brick masonry has been painted and has minor chipped paint throughout the elevation. The grade is relatively consistent across the south elevation with a slight slope towards the west corner.

Two diamond-shaped vents are located in the south wall, one at either end of the wall. These are located approximately 6'-0" above finish grade. The holes are created by leaving an approximately 2-inch to 1-inch gap in the masonry pattern (Figure SH.16). The diamond shape vents on the South Elevation are in good condition, with none of the bricks missing or deteriorated.

Throughout the masonry wall there are areas of missing or deteriorated mortar and cracks through the wall. At the southwest corner is a large vertical crack that extends from the stone foundation through two feet of the masonry wall (Figures SH.17 and 18). The crack indicates signs of settlement issues and is mostly likely caused by the masonry walls resting on a shallow stone foundation, which has rotated. Along the base of the wall, a significant amount of the lime mortar is missing and several of the bricks are deteriorated. Approximately 20% of the mortar joints need repointing and 15 bricks need replaced.

Figure SH.16. South elevation, detail at vent. (Strata 2016)

Figure SH.17. South elevation, detail at southwest corner. (Strata 2016)

Figure SH.18. South and west elevations, detail at southwest corner. (Sheals 2016)

West Elevation

The west elevation is the end gabled wall and is visible from the main house (Figure SH.19). This wall is in fair to poor condition with most the deterioration developing at the base of the wall were roughly twenty bricks have fallen out of the wall creating a large hole. A majority of the missing bricks can be located on the interior of the smokehouse at the base of the hole. The masonry wall is painted, excluding the stone foundation, and the painted masonry has minor chipping and flaking throughout the elevation.

The grade gradually slopes to the south, with the lowest elevation at the south corner of the structure. A window opening is centered in the wall and is approximately one foot six-inches squared (Figure SH.20). The window opening sets roughly four feet five-inches off of grade. Framed by brick and topped with a wood lintel pocketed into the masonry wall, the opening no longer has a wood frame or sash.

At the top of the wall the rake board is missing, exposing the top of the stepped masonry wall. A white ghost line roughly four-inches down from the top of the roof, suggests the outline of where the rake board was originally located (Figure SH.21). Just south of the roof center, two feet eight-inches down from the roof gable, are (4) single ventilation holes that are arranged in a diamond shape pattern. Throughout the masonry wall there are areas of missing or deteriorated mortar, cracks through the bricks, and twenty-five (25) of the brick are deteriorated, missing or cracked. Approximately 20% of the wall requires repointing.

Figure SH.19. West elevation. (Strata 2016)

Figure SH.20. West elevation, detail at window. (Strata 2016)

Figure SH.21. West elevation, detail at roof. (Strata 2016)

Interior

The interior of the Smokehouse measures roughly 12'-8" x 10'-7". All four exterior walls are brick load bearing walls that were once whitewashed (Figures SH.22 – SH.30). The floor is dirt. The 2x4 wood rafters are exposed on the interior and the underside of the skip sheathing and standing metal seam roof is also visible (Figures SH.24 and SH.26).

The north interior wall is in poor condition with major deterioration to more than 30% of the bricks (Figure SH.22). A majority of the brick deterioration is occurring on the lower three-quarters of the wall. Door Opening 1/100 is located in the west side of the north wall. A non-original steel angle has been installed at the head of the door opening most likely to help stabilize the settlement issues that were occurring above the door. The bricks above the door opening have been repointed with incompatible mortar. A through-wall crack extends from the top east corner of the door opening to the top of the masonry wall. Daylight can be seen through the crack. The stone foundation crosses the door opening, creating a threshold with a height of approximately four- to six-inches above the dirt floor. The wood frame and door to the smokehouse is missing, but at the brick jambs, there are nails that once connected the door jambs to the structure (Figure SH.24).

The east interior wall is in poor condition with major deterioration to more than 25% of the bricks (Figure SH.24 and SH.25). Deterioration to the bricks appears to be from the bricks being too soft, combined with water infiltration. In the north corner of the east elevation the lower corner has been reconstructed. The reconstruction is assumed to be from stabilization issues caused by water infiltration and a shallow stone foundation. Centered on the wall, roughly three feet off

the floor, a brick flue extends into the interior space. The flue is one foot six inches wide and has a depth of nine inches from the interior face of the east wall (Figures SH.24 and SH.25). The base of the flue is corbeled to help support the structure above. After the third row of corbeling, three rows of masonry are deteriorated or missing from the flue creating a large hole that opens to the exterior. There was likely some type of hole that vented smoke into the room from the flue, but it is no longer well defined. The flue is also open to the east exterior side of the wall. The flue extends up the full length of the wall and daylights at the roof.

The south interior wall is in poor condition with major deterioration to more than 50% of the interior bricks (Figures SH.26 and SH.27). A majority of the brick deterioration is occurring on the lower half of the wall and a portion of the lower wall has been infilled with concrete blocks filling in where major brick loss or previous holes in the wall were once open. These concrete blocks cannot be seen from the exterior, as they are covered with an outer veneer of brick. A majority of the mortar is missing and what mortar remains is deteriorated. A wood shelf hangs half-way up the wall is supported by two wood boards that are wedged into the lowest brick opening at either of the diamond shaped vents that are built into the wall. Just below the wood shelf is a tiered, free standing wood work table that is spans the entire length of the wall.

The west interior wall is in fair to poor condition with major deterioration to more than 50% of the interior bricks (Figures SH.28 – SH.30). A majority of the brick deterioration is occurring on the lower half of the wall with some deterioration extending higher on the north side of the wall. As mentioned on the exterior assessment, in the southwest corner, a large hole has developed with roughly twenty bricks missing from the wall. There are several other locations throughout the lower half of the wall where bricks are missing or where 80% or more of a brick has deteriorated.

Figure SH.22. Interior North Elevation, looking northwest. (Sheals 2016)

Figure SH.23. Door Opening, detail at east jamb. (Sheals 2016)

Figure SH.24. Interior East Elevation. (Sheals 2016)

Figure SH.25. Interior East Elevation. (Sheals 2016)

Figure SH.26. Interior South Elevation. (Strata 2016)

Figure SH.27. Interior South Elevation. (Strata 2016)

Figure SH.28. Interior West Elevation. (Strata 2016)

Figure SH.29. Interior West Elevation. (Strata 2016)

Figure SH.30. Interior West Elevation. (Strata 2016)

Smokehouse – Structural Assessment

The smokehouse outbuilding is located south of the main house. It is a double wythe load bearing brick structure measuring approximately 12-feet by 14-feet. There is a stone masonry foundation and a dirt floor. The roof is gabled, facing east and west. The roof is wood framed and clad with metal. The door is in the north wall, offset from center. The brick chimney is located on the interior of the east wall. The south wall has two diaper openings and the west wall has a square window opening.

Foundation

The smokehouse has a stone masonry foundation. From the bottom of the lowest brick to the bottom of the stone foundation is 28.9-inches as measured by the National Park Service. The foundation depth was visible through an exterior excavation at the east wall (Figure SH.31). The top of the stone masonry foundation wall is visible above grade around the perimeter of the structure. The top of masonry also acts as the threshold for the door.

Figure SH.31. Foundation excavation at smokehouse, east side. (SEA 2016)

Exterior Walls

The double wythe brick walls are similar in construction to the walls of the house. The exterior wythe is composed primarily of fired brick. The interior brick is mostly of a poorer, lowered-fired quality.

The exterior wythe has been painted. Several through-wall cracks are visible through the coat of paint. The cracks indicate lateral movement of the foundation at the corners. The largest crack is at the southwest corner of the structure (Figure SH.32). It is considered inactive since paint is in the crack. There is also evidence of selective tuck pointing work on the exterior. The south gutter is damaged and has no downspout.

Figure SH.32. South wall of smokehouse. (SEA 2016)

A small percentage of the bricks on the exterior show some deterioration. A large percent of the interior bricks show deterioration. Some partially deteriorated bricks exhibit large inclusions (Figure SH.33). Several bricks have completely deteriorated (Figure SH.34). Brick or CMU has been used to fill in a few places where the original interior wythe is gone.

Figure SH.33. Foreign object, interior wythe of brick, north wall. (SEA 2016)

Figure SH.34. Interior wythe brick wall deterioration. (SEA 2016)

There is a large hole through the west wall just above the masonry foundation (Figure SH.35). It extends through both wythes of brick. There is also a hole through the east wall where the bottom courses of the chimney are missing (Figure SH.36).

Figure SH.35. Hole through west wall. (SEA 2016).

Figure SH.36. Hole in east wall. (SEA 2016)

The door lintel is composed of two non-original steel L1½x1½x¼ angle members. Both wythes of the brick above the door have been reinstalled, which indicates the steel members were likely a replacement for a wood lintel or wood door buck frame. There is a wood lintel over the west window that appears to be in relatively good condition.

Roof

Five timber roof frames support skip sheathing and sheet metal roofing. The frames are composed of 2-inch by 7-inch joists and 2-inch by 3 ¾-inch rafters. The frames are spaced approximately 2-feet 5-inches on center. The easternmost and westernmost frames are located 1-foot 6-inches and 1-foot 3 ¼-inches away from the walls, respectively. The wood sheathing is sized and spaced irregularly.

The roof frame construction style looks similar to the limited roof framing that was visible in the main house (Figure SH.37). The timber framing is deteriorating in several places. The westernmost joist is particularly deteriorated at the north bearing (Figure SH.38). There is also a rafter that has rotted completely through (Figure SH.39).

The roof framing is not visibly tied down to the brick wall.

Figure SH.37. Detail at joist bearing. (SEA 2016)

Figure SH.38. Rotted joist, looking northwest. (SEA 2016)

Figure SH.39. Rotted rafter, looking northwest. (SEA 2016)

Smokehouse Significant Character Defining Features

The smokehouse has retained a significant amount of its original materials and form. Care should be taken to preserve the following significant historic features during routine maintenance and through planning for future rehabilitation projects.

Exterior:

- Massing – One-story with gable roof
- Basic Footprint – Rectangular
- Stonework – Native stone exposed foundation
- Masonry – Hand molded bricks
- Chimney – Original chimney and ventilation holes (interior and exterior on east wall)
- Vents – Masonry diamond shaped ventilation holes
- Window Opening
- Door Opening
- Roof and Guttering – Standing seam metal roof, half-round gutters and round downspouts

Interior:

- Roof Framing – Exposed wood framing
- Interior Finish – Whitewashed walls
- Flooring – Dirt floor

Milk House Existing Conditions – Architectural

Figure MH.1. Milk House. (Sheals 2016)

The Milk House is a one story, rectangular brick structure set on a brick foundation (Figure MH.1). This structure was constructed circa 1857 and is located south of the main house and oriented with the north face of the building facing more northeast.

The structure is approximately 12-feet by 14-feet with a gable facing north towards the house. The walls are constructed from hand molded bricks that match the house and are tuckpointed with lime putty mortar. While the house and smokehouse both rest atop stone foundations, the milk house brick walls extend below grade to an unknown depth. It is not known at this time if there are stone foundations, and if so, what their depth below grade might be. Wood rafters span east to west creating a gabled roof that is covered in 3-inch wood skip sheathing and topped with sections of standing seam metal roofing. The roof overhangs the north elevation, with the wood skip sheathing extending three feet past the north exterior masonry wall to support the roof overhang.

The exterior of the building is currently painted green and is in overall good to fair condition. The brick walls require approximately 30% repointing and a small portion of the brick walls require reconstruction and brick replacement. At the southwest corner biological growth is covering the bricks, just below the deteriorated downspout. The historic wood door frame no longer exists and the wood door and a portion of the frame are currently being stored inside the building. The historic window sash in the east wall is missing. The half-round gutters have significant amounts

of rust and a majority of the downspouts have deteriorated and are missing. The existing metal roof has no protective paint finish and is deteriorated.

While the building is currently painted green, there are remnants of an older white wash finish that can be seen, especially at the top of the south wall gable. Historic photographs from the 1920s show that these outbuildings were painted a light color, likely white.

The current floor is concrete. The date this concrete floor was poured is unknown. Further exploration should be done to determine the depth of the exterior foundation walls and also on the interior of the building. Some milk houses from this time period had lower floors that were set into grade. The lower grade helped to keep the dairy products cooler and may also have allowed for cool water troughs for storage. The well is very close to the milk house, so cool water would have been nearby. With the current concrete floor in place, it is difficult to explore the interior of the buildings.

There are a few nuances in construction techniques employed for the building of the smokehouse and the milk house that make the two buildings slightly different from one another. One being the rafter bearing at the top of the wall and the second being the foundation construction. These differences may indicate the two buildings were built perhaps by different builders and different timeframes.

Figure MH.2. West elevation. (Sheals 2016)

Figure MH.3. South elevation with original diamond-shaped ventilation holes. (Strata 2016)

Roof

Wood rafters span east/west creating a gabled roof that is covered in three-inch wide skip sheathing and topped with a standing seam metal roof (Figures MH.4). The roof is in fair condition with a majority of the deterioration developing from the roof metal being exposed to the elements, causing rust throughout the roof. The existing wood skip sheathing suggests that the roof at one time was covered in wood shingles (Figures MH.23, MH.26 and MH.27). There are no wood shingles remaining. There are sections of the roof skip sheathing that are deteriorated, as well as one roof rafter. On the north end of the roof the standing seam metal roof turns down one inch, partially covering a wood rake board (Figure MH.7). On the south end of the roof the standing seam metal roof wraps down one inch, partially covering a metal rake board (Figures MH.3 and MH.5).

Figure MH.4. East elevation and roof, looking southwest. (Strata 2016)

The wood rafters set on the east/west side walls, while the wood skip sheathing sets directly on the gabled north\south masonry walls. The roof overhangs the north elevation, with the wood skip sheathing extending three feet past the north exterior wall to support the roof overhang. Half-round gutters are attached to the roof with twisted metal wire that wrap around the gutter acting as a hanger. The wire hangers are secured into the metal roof with box nails (Figures MH.5 and MH.6). A deteriorated remnant of a metal downspout is located at the southwest corner. The southeast corner downspout is completely missing (Figure MH.4). A metal light fixture has been abandoned on the north elevation at the roof ridge (Figure MH.7). An old ceramic electrical insulator that holds electrical wiring has been abandoned east of the light figure.

Figure MH.5. Roof, detail looking north towards main house. (Strata 2016)

Figure MH.6. Roof, detail of gutter looking south. (Strata 2016)

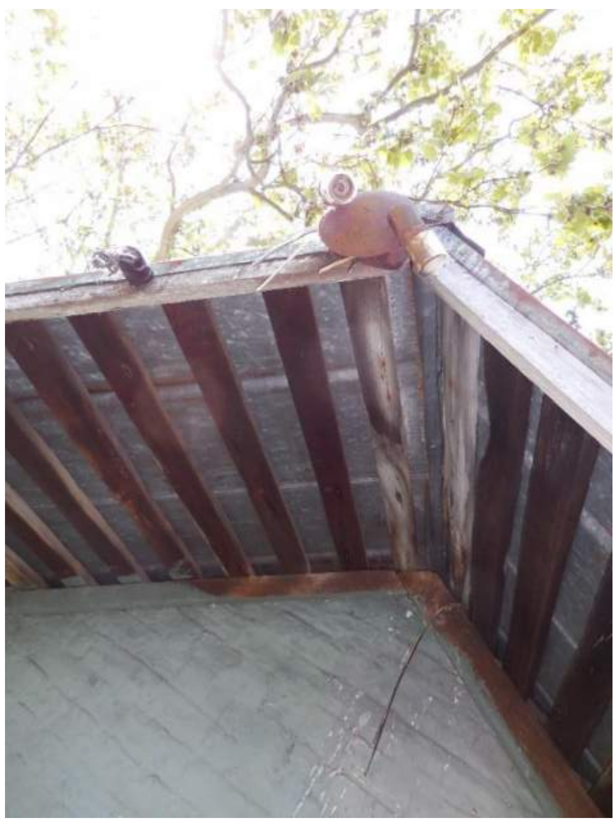

Figure MH.7. Roof, looking south at underside of overhang. (Strata 2016)

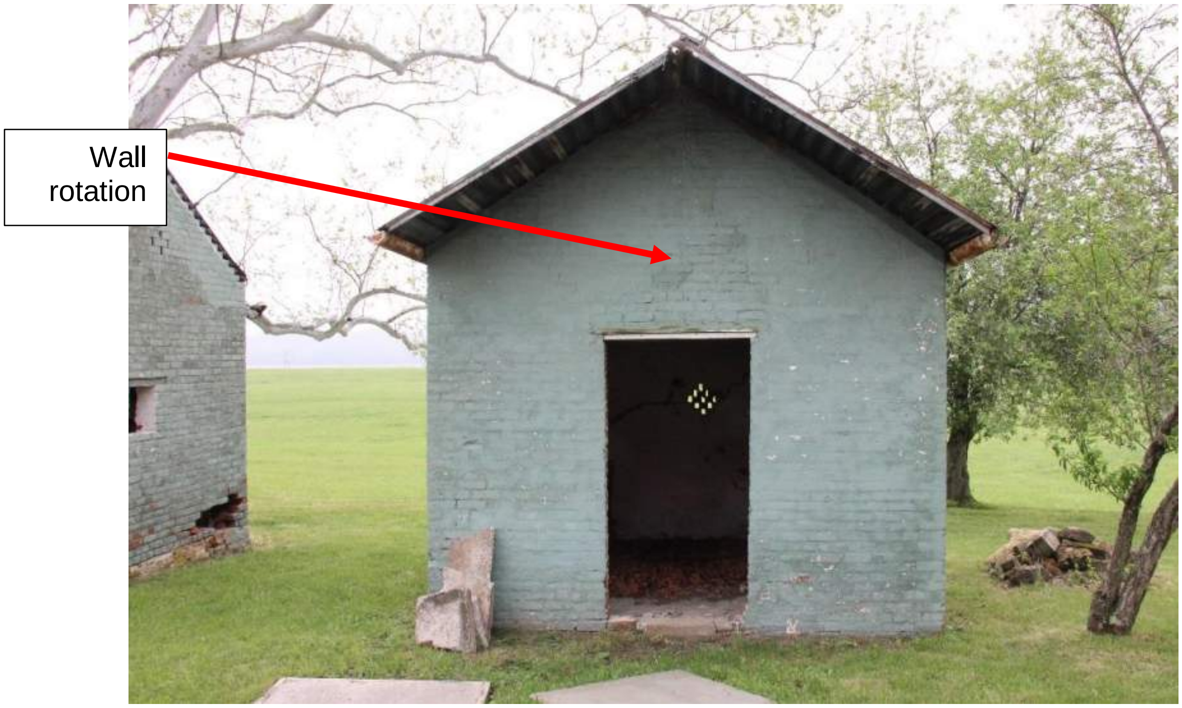

Figure MH.8. North elevation. (Strata 2016)

North Elevation

The north elevation is the gable end of the building and is visible from the main house with a deep roof overhang (Figure MH.8). The door opening is centered in the wall and is missing the wood door frame and door (Figures MH.8 and MH.9). The wood door was stored inside the building during the May 2016 site visit but was gone by August (Figure MH.11). The raised threshold is constructed with brick, which has been patched with concrete. This brick threshold would have been covered with a thick wood door sill that has since deteriorated. The west edge of the concrete threshold patch is cracked (Figure MH.10). The north elevation is in fair condition with a majority of the deterioration at and around the door opening.

A wood lintel spans door opening and is notched into the brick wall. Steel angles were installed on both the interior and exterior of the door opening, just above the wood lintel. The steel was likely added when the wood door frame deteriorated. Cracks and spalls along the mortar joints above the door opening are evidence of previous settlement issues. The extent of the settlement issue above the door could not fully be investigated due to the paint obscuring the condition of the brick, but the wall appears to be stabilized by the installation of the lintels.

The grade is relatively consistent across the north elevation with a slight slope from the west to the east side of the structure, with the lowest elevation being the east corner of the structure (Figure MH.8). The masonry wall is painted and has minor chipping and flaking throughout the elevation. Mortar is missing along the base of the wall. (Figures MH.10).

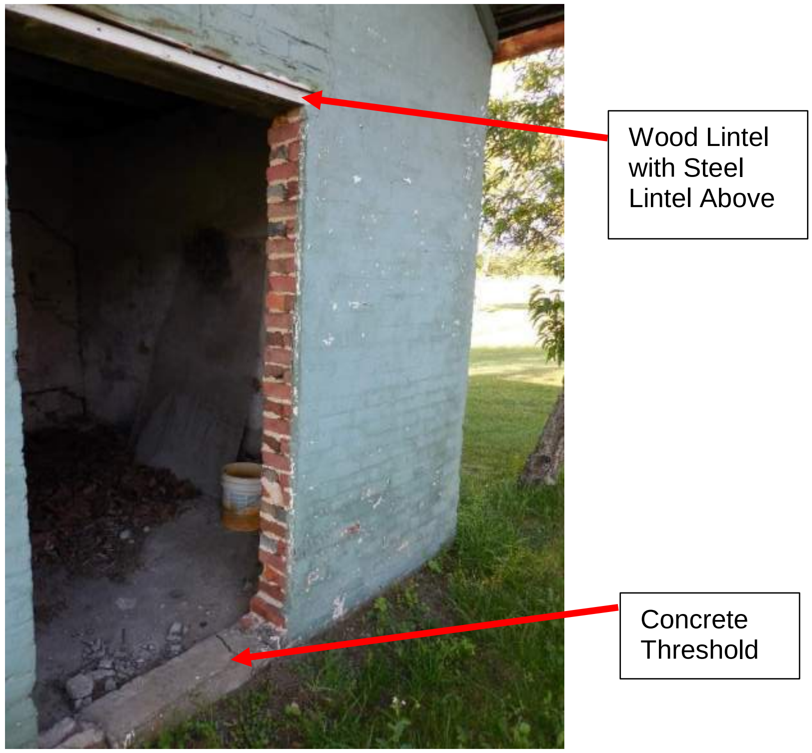

Figure MH.9. East elevation, detail of raised grade at door entry. (Strata 2016)

Figure MH.10. Door opening, detail of threshold. (Strata 2016)

Figure MH.11. Interior, detail looking northeast. (Strata 2016)

East Elevation

The east elevation faces the smokehouse (Figure MH.12). Just south of the center of the wall is a window opening that measures approximately 2’-6” x 2’-2”. The window jambs and sill are deteriorated and partially missing. The wood frame has substantial deterioration and is shifted within the wall, tilting inward (Figures MH.13 – MH.14). There are gaps in the upper rail of the sash that suggest two vertical muntins are missing. The sash has been filled with high-density perforated fiberboard or peg board. It is not clear if the sash is original to the window opening. Further investigation should be completed to examine if the window opening was filled with glazing. Directly above the window opening is a rough-sawn 2x8 wood lintel that shows signs of significant deterioration. The lime mortar is missing just above the wood lintel and the masonry has been repointed with inappropriate Portland mortar. The elevation is in fair condition with a majority of the deterioration surrounding the window opening.

The grade is gradually sloping to the south, with the lowest elevation at the south corner (Figure MH.12). The masonry wall is painted and has minor chipping and flaking throughout the elevation, with a majority of the paint deterioration occurring at the base of the wall. All along the base of the wall mortar is missing (Figures MH.10). Throughout the masonry wall there are a few areas of missing lime mortar, approximately 15% of the mortar joints. In several locations the brick is spalling.

Figure MH.12. East elevation. (Sheals 2016)

Figure MH.13. East elevation, detail of window opening. (Strata 2016)

Figure MH.14. East elevation, detail of lintel at window opening. (Strata 20156)

Figure MH.15. East elevation, detail of sill at window opening. (Strata 2016)

South Elevation

The south elevation is the back of the building and is not visible from the main house (Figures MH.3, MH.16 – MH.18). The elevation is in fair to poor condition with a majority of the deterioration developing at the base of the wall where the deteriorated downspouts directed water onto the masonry. Three-quarters of the masonry wall is painted and has minor chipping and flaking, with major deterioration along the base and at the corners (Figures MH.16 and MH.17). The top quarter of the wall has not been painted with the green paint. Throughout the upper three-quarters of the masonry wall there are areas of missing or cracked lime mortar, approximately 15% of the mortar joints. Along the base of the wall lime mortar is missing and several of the bricks have been displaced at the west corner (Figures MH.10). Heavy biological growth is occurring along the west corner. Approximately 10 bricks in the bottom quarter of the wall are significantly damaged due to spalling.

The grade is gradually sloping to the west, with the lowest elevation at the west corner of the structure. Ventilation holes that are arranged in a diamond-shaped pattern are located centrally in the wall, roughly 6'-0" above grade. The vent holes are created by leaving a 2-inch gap in the masonry pattern. It is interesting to note that the diamond-shaped pattern is slightly off center from the ridge line.

Figure MH.16. South elevation, detail of spalling brick, southeast corner. (Strata 2016)

Figure MH.17. South elevation, detail of southwest corner. (Strata 2016)

Figure MH.18. South elevation, detail of gable wall ridge. Note, there are remnants of old white wash finish that has worn away. (Strata 2016)

Figure MH.19. West elevation. (Sheals 2016)

West Elevation

The West Elevation is not visible from the main house (Figure MH.19). The elevation is in fair condition with a majority of the deterioration developing due to missing mortar or cracks. The masonry wall is painted and has minor chipping and flaking throughout the elevation. Approximately 20% of the mortar joints are deteriorated in this wall. The lower portions of the north and south corners have several bricks displaced due to settlement and moisture damage from deteriorated downspouts. Light biological growth is occurring along the south corner. Approximately two to four bricks in the wall are significantly damaged due to spalling.

The grade is sloping to the south, with the lowest elevation at the south corner of the structure. Ventilation holes that are arranged in a diamond-shaped pattern are located centrally in the wall, roughly 5'-6" above grade (Figure MH.20). The holes are created by leaving a two-inch gap in the masonry pattern.

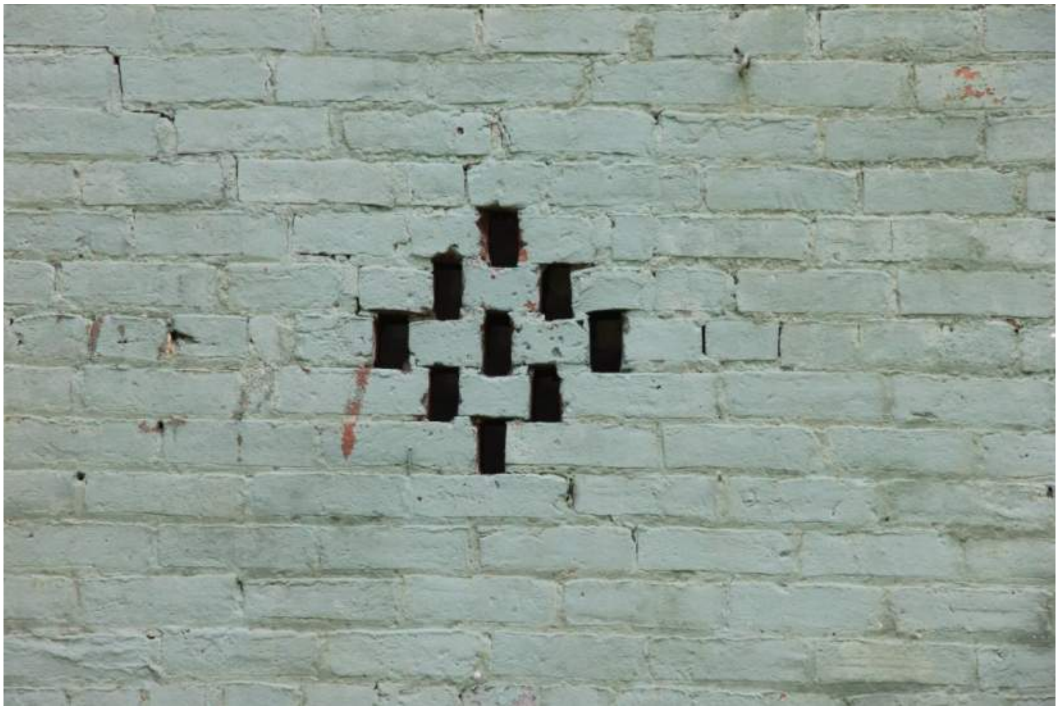

Figure MH.20. West elevation, detail of ventilation holes. (Strata 2016)

Interior

The interior of the Milk House measures roughly 12'-9" x 10'-8". The interior of the masonry walls is covered in a thin parge coating that has been whitewashed (Figure MH.21). The floor is concrete and was poured at an unknown date, but it is not original to the construction of the building. The 2x4 wood rafters are exposed on the interior and the underside of the skip sheathing and metal roof is also visible (Figures MH.23 and MH.26).

Milk houses from this time period typically had parged and white washed walls on the interior for sanitary reasons. The floor may also have been lower, to assist with keeping the items stored in the building cooler.

The north interior wall is in fair to poor condition with minor damage to the parge coating (Figure MH.21). A large section of finish coating is missing, exposing the deteriorated bricks, just above the door opening. There is cracking in the remaining coating above the door and the wall is rotated slightly above the door. A single brick is missing on the left side, above the door opening. A wood lintel is pocketed into the brick and a rusted steel angle that matches the exterior angle, has been installed just above the wood lintel to help stabilize the settlement issues that were occurring above the door.

The east elevation is in poor condition with a large portion of parge coating deteriorated, brick spalling and incompatible mortar patching (Figures MH.22 – MH.24). The parge coating is

thicker on the top three-quarters of the wall, with the bottom quarter being significantly thin allowing more of the brick profile to be seen. There is significant damage to the coating around the window opening with large portions of finish missing just above and below the window opening (Figures MH.22 – MH.24). The area directly above the window has been reconstructed with original bricks and a Portland mortar. In the north lower corner of the elevation the coating has been patched with a cementitious Portland material and the patch has not been white washed. In the north upper corner of the wall a large portion of coating is missing and the exposed bricks are deteriorated. The ceiling wood rafters set directly on top of the masonry wall (Figures MH.23 and MH.27).

The south interior wall is in poor condition with significant parge coating deterioration and masonry wall cracks throughout the wall (Figure MH.21 and Figure MH.24). A large portion of the finish coating is missing in the east corner of the wall. The finish is also missing within the diamond shape of the ventilation holes and just below and to the west of the ventilation holes. Just above the wood rafter tie, the masonry wall is not covered with parge coating, but it is white washed.

The west elevation is in fair condition with minor parge coating deterioration and some brick deterioration (Figure MH.28). Throughout the upper wall there is cracking, with minor flaking occurring all along the upper edge of the wall. In the lower north corner there is a small portion of coating missing and the exposed bricks are deteriorated. The finish coating is also missing within the diamond shape of the ventilation holes. Like the east wall the wood rafters are set directly on top of the masonry wall.

Figure MH.21. Interior, looking north. (Strata 2016)

Figure MH.22. Interior, looking east. The door is now missing. (Strata 2016)

Figure MH.23. Interior, looking east. (Strata 2016)

Figure MH.24. Interior, looking east. (Strata 2016)

Figure MH.25. Interior, looking south. (Strata 2016)

Figure MH.26. Interior, looking south. (Strata 2016)

Figure MH.27. Typical rafter detail at top of brick wall. (Strata 2016)

Figure MH.28. Interior, looking west. (Strata 2016)

Milk House – Structural Assessment

The milk house outbuilding is located south of the main house and west of the smokehouse. It is similar in size and shape to the smokehouse. It is a double wythe brick structure measuring approximately twelve-foot by fourteen-foot. The interior floor and the threshold are concrete. The roof is gabled, facing north and south. The roof is wood framed and clad with metal sheeting. The door is in the north wall, slightly offset from center. The south and west wall each have a diaper window opening and the east wall has a square window.

Foundation

The foundation for the milk house was not observed. The milk house does not have any stone masonry above grade like the smokehouse. The depth of foundation and slab is unknown. No excavations were performed to observe the foundation structure.

Exterior Walls

The double wythe brick walls are similar in construction to the walls of the house and smokehouse. Typically, every sixth stretcher course is followed by a header course.

The exterior wythe has been painted almost completely. Several through-wall cracks are visible through the coat of paint. There is also evidence of selective tuck pointing. The base of the southwest corner shows vertical and horizontal displacement. Most of the bottom half of the south wall has an out of plane bulge (Figure MH. 29). A few exterior bricks show some deterioration. One downspout is mostly rusted away and the other is missing (Figure MH. 29).

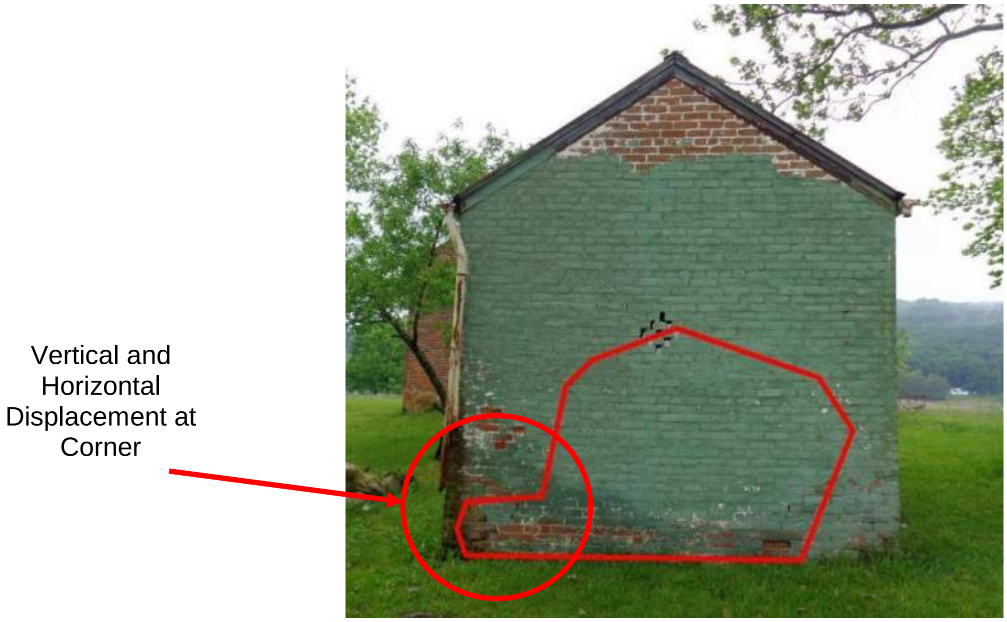

Figure MH. 29. South elevation of milk house bulge. (SEA 2016)

The interior wythe of brick has been plastered up to the roof framing. The condition of the brick cannot be observed except at some deteriorated bricks and repair locations. The bricks above the door and window lintels have been replaced or reinstalled for both wythes.
The door lintel is composed of two non-original steel L2x2x¼ angle members over a 1 ½-inch by 8 ¼-inch wood lintel. There is a wood lintel over the east window that is rotted considerably (Figure MH. 30).

Figure MH. 30. East window opening. (SEA 2016)

Roof

The light wood roof framing has six frames; one at each end with four evenly spaced. There is surface decay on the joists. The northernmost joist is especially affected (Figure MH. 31). The frames support skip sheathing and sheet metal roofing. The sheathing is 1-inch by 3-inch pieces spaced approximately 5½-inches on center. The purlins and roofing cantilever beyond the north wall (Figure MH. 32). The overhang is approximately 3-feet ½-inch from the face of brick.

The connection detail at joist bearing differs in comparison to the smokehouse. There are no wood plates between the brick and joist or joist and rafter. There is also no notching in the joist members. The timber frames are not visibly tied down to the brick wall (Figure MH. 33).

Figure MH. 31. Northernmost roof frame with surface decay. (SEA 2016)

Figure MH. 32. Roof overhang. (SEA 2016)

Figure MH. 33. Detail at joist bearing with no wood plate. (SEA 2016)

Milk House Significant Character Defining Features

Care should be taken to preserve the following significant historic features with routine maintenance and through future rehabilitation projects.

Exterior:

- Massing – One-story with a gable roof, overhanging roof at north side
- Basic Footprint – Rectangular
- Masonry – Hand molded Bricks
- Vents – Masonry diamond-shaped ventilation holes
- Windows – Original window opening
- Door – Original door opening in gable side of building
- Roof and Guttering – Standing seam metal roof, half-round gutters and round downspouts

Interior:

- Roof Framing – Exposed wood framing
- Interior Finish – Plastered walls

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Smoke House, south elevation, detail at vent. (STRATA 2016)

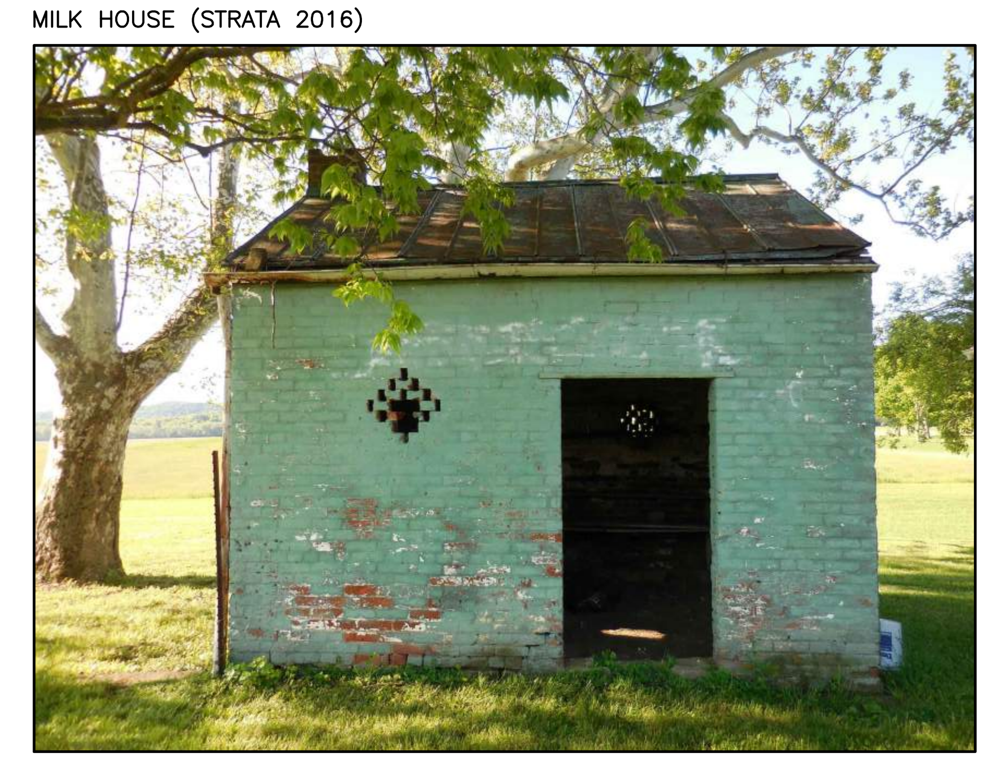
1C EXISTING CONDITION DRAWINGS

HS-37 MAIN HOUSE, MILK HOUSE, & SMOKEHOUSE
HISTORIC STRUCTURES REPORT
BLACKSTONE HOUSE & OUTBUILDINGS
SEIP EARTHWORKS UNIT
HOPEWELL CULTURE NATIONAL HISTORICAL PARK

EXISTING CONDITIONS
BAINBRIDGE, OHIO

HS-37 MAIN HOUSE (STRATA 2016)

MILK HOUSE (STRATA 2016)



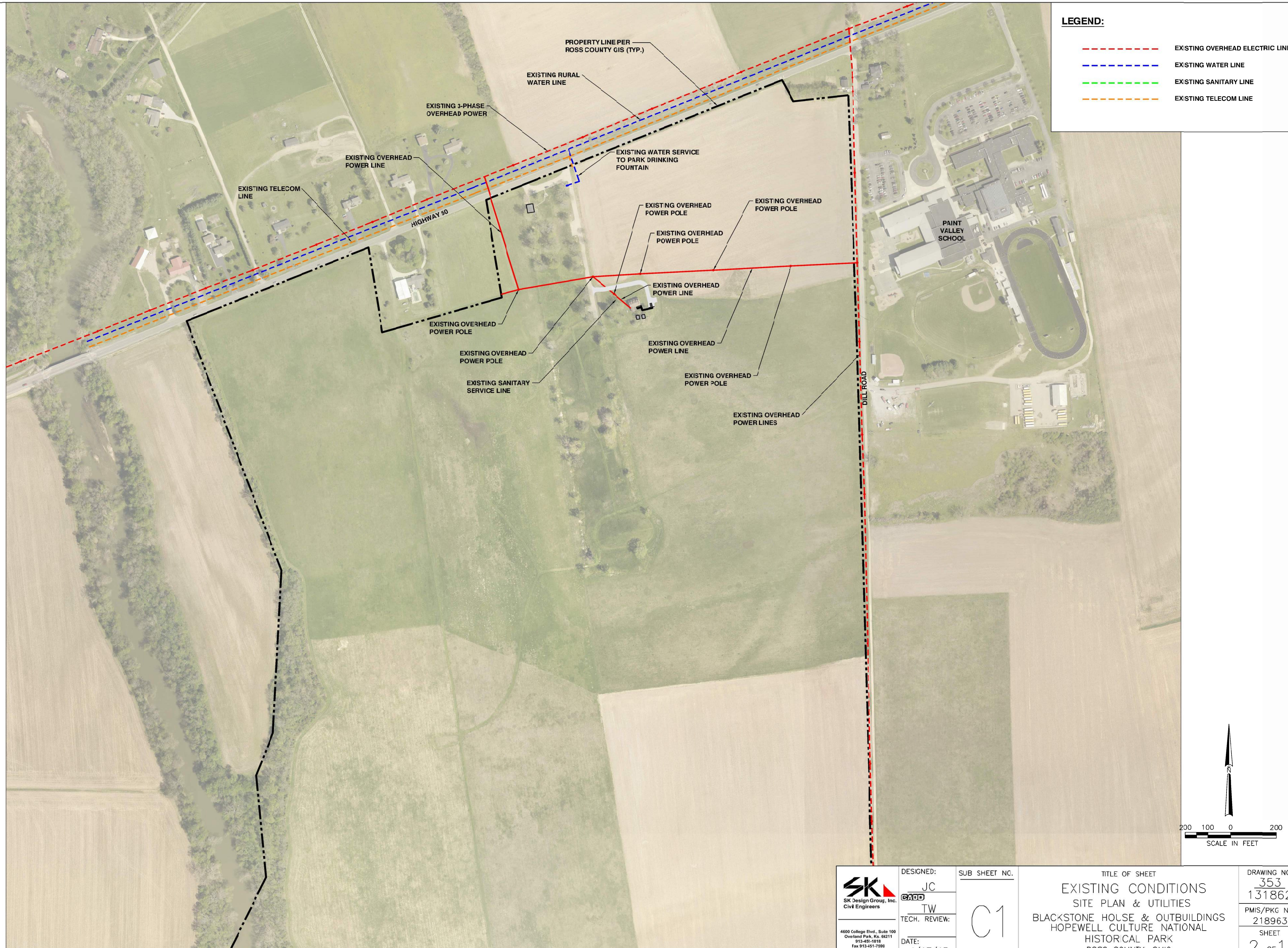
SMOKEHOUSE (STRATA 2016)

INDEX OF DRAWINGS

MEASURED IN MAY 2016

HISTORIC STRUCTURES REPORT UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE DENVER SERVICE CENTER	EXISTING CONDITIONS BLACKSTONE HOUSE & OUTBUILDINGS HOPEWELL CULTURE NATIONAL HISTORICAL PARK REGION: MIDWEST COUNTY: ROSS COUNTY STATE: OHIO	DRAWING NO. 353 131862 PMIS/PKG NO. 218963 SHEET 1 OF 16

xxxx



LEGEND:

- EXISTING OVERHEAD ELECTRIC LINES
- EXISTING WATER LINE
- EXISTING SANITARY LINE
- EXISTING TELECOM LINE

SK Design Group, Inc.
Civil Engineers
4600 College Blvd., Suite 100
Overland Park, Ks. 66211
913-451-1818
Fax 913-451-7599

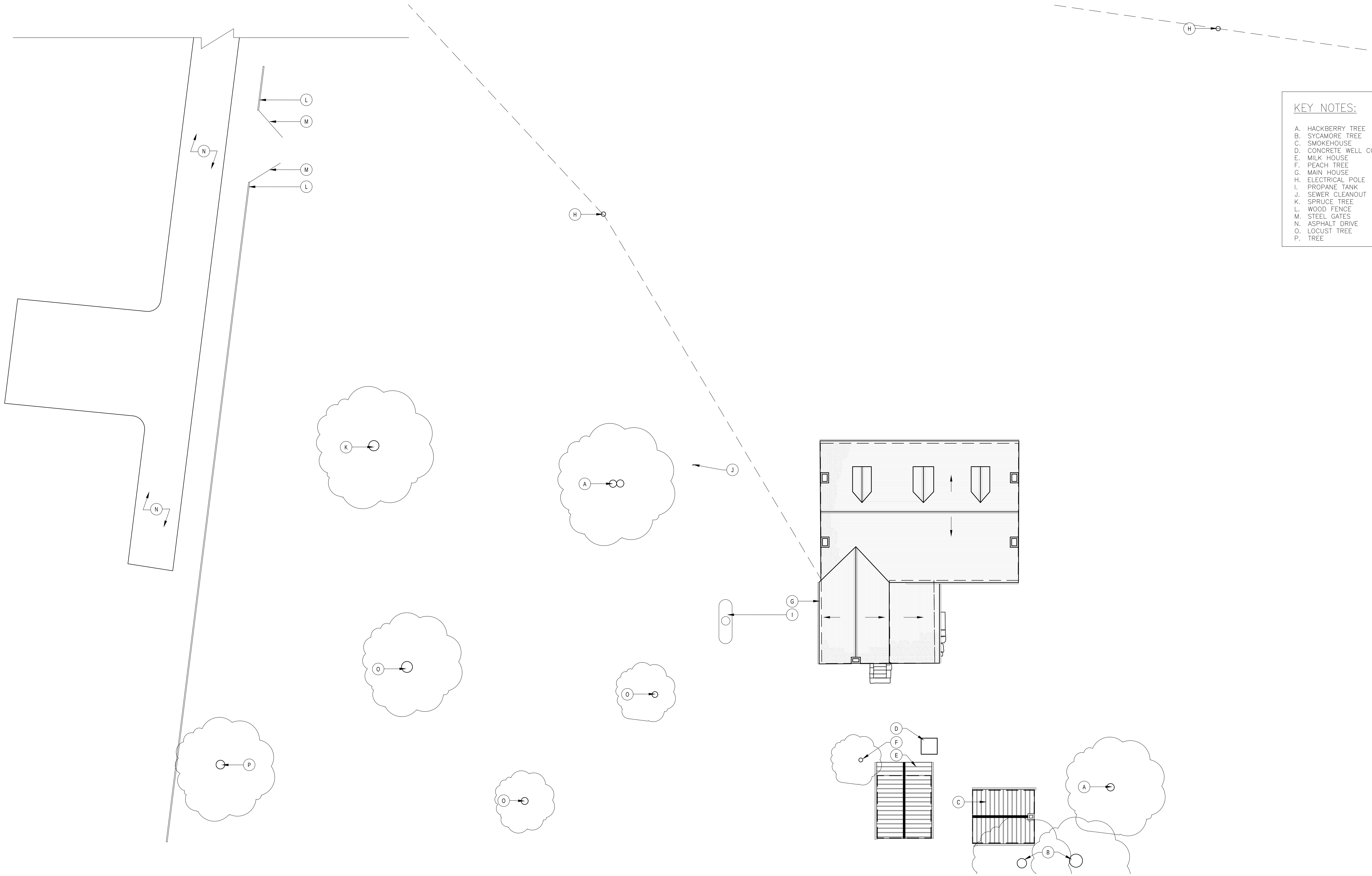
DESIGNED: JC
CADD: TW
TECH. REVIEW:
DATE: 4/17/17

SUB SHEET NO.: C1

TITLE OF SHEET

EXISTING CONDITIONS
SITE PLAN & UTILITIES
BLACKSTONE HOUSE & OUTBUILDINGS
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
ROSS COUNTY, OHIO

DRAWING NO. 353 131862
PMIS/PKG NO. 218963
SHEET 2 OF 16



KEY NOTES:

A. HACKBERRY TREE
B. SYCAMORE TREE
C. SMOKEHOUSE
D. CONCRETE WELL COVER
E. MILK HOUSE
F. PEACH TREE
G. MAIN HOUSE
H. ELECTRICAL POLE
I. PROPANE TANK
J. SEWER CLEANOUT
K. SPRUCE TREE
L. WOOD FENCE
M. STEEL GATES
N. ASPHALT DRIVE
O. LOCUST TREE
P. TREE

1 / A0 EXISTING SITE PLAN
1" = 10'-0"

10 0 10 20
SCALE OF FEET

PROJECT NORTH

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Ph. 816-474-0900
www.strata-arch.com

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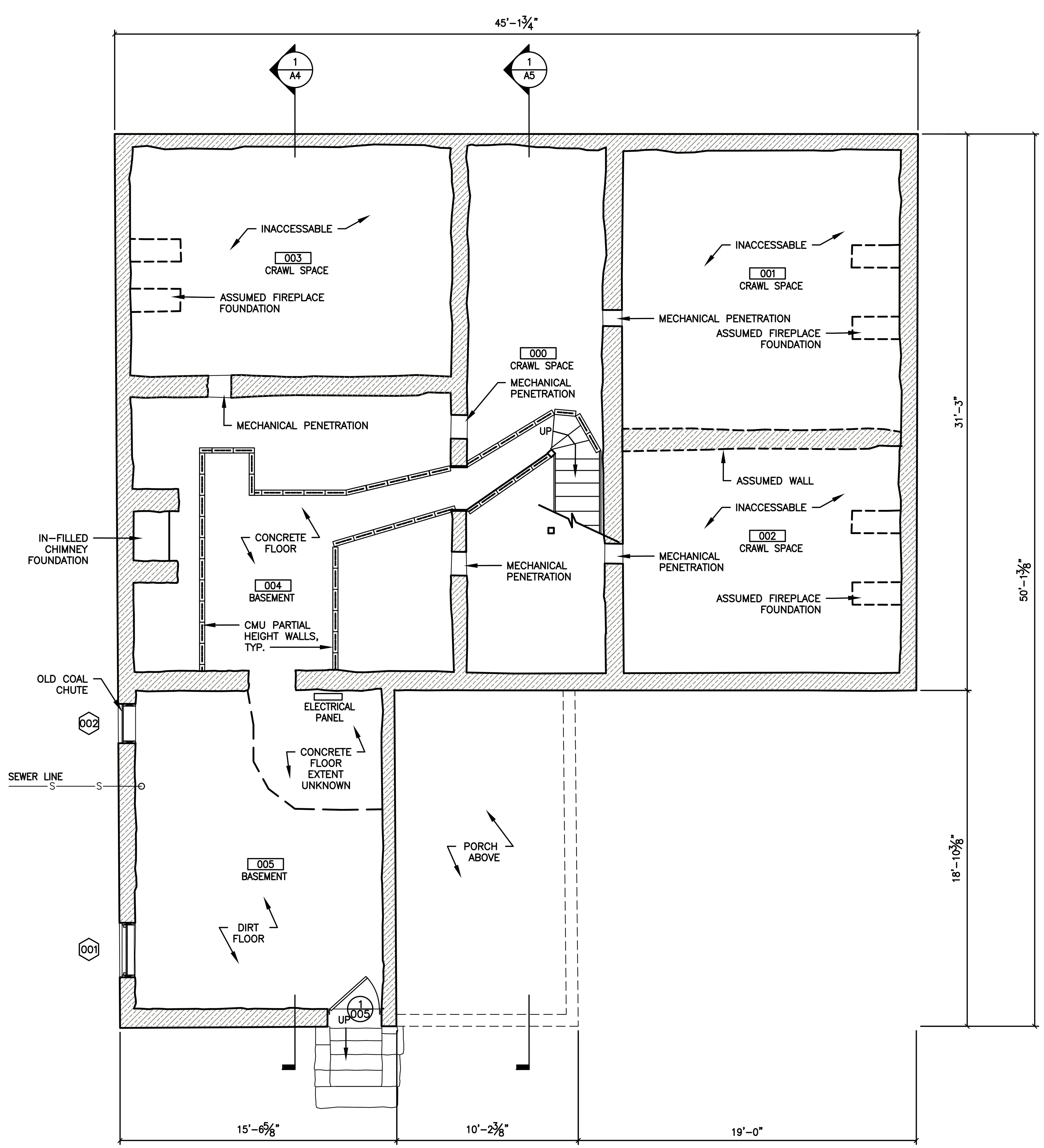
SUB SHEET NO.	A0

EXISTING CONDITIONS

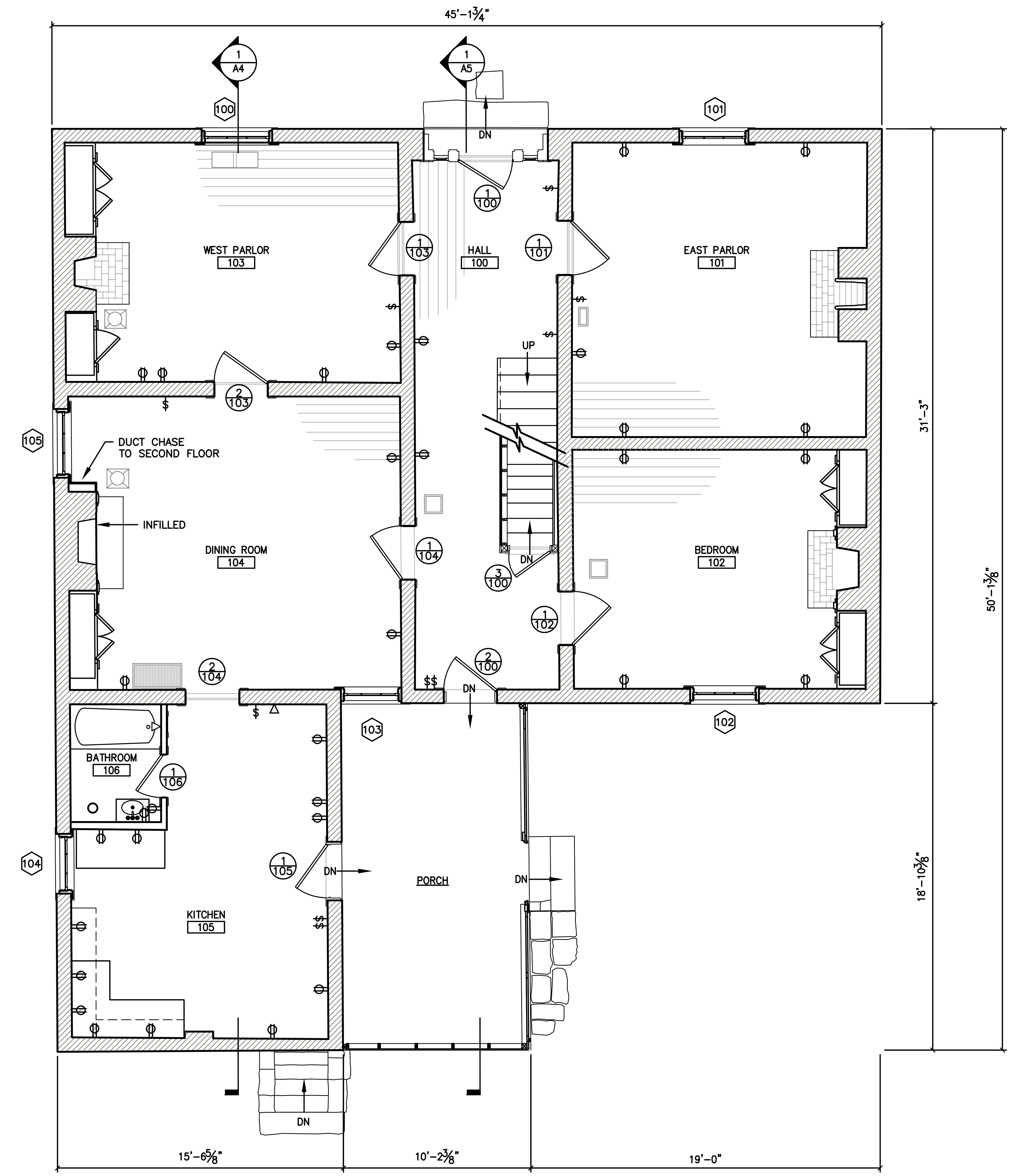
BLACKSTONE HOUSE & OUTBUILDINGS
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
ROSS COUNTY, OHIO

DRAWING NO. 353 131862
PMIS/PKG NO. 218963
SHEET 3 OF 16



1/A1 EXISTING BASEMENT FLOOR PLAN
1/4" = 1'-0"

PROJECT NORTH



2/A1 EXISTING FIRST FLOOR PLAN
1/4" = 1'-0"

PROJECT NORTH

4 0 4 8
SCALE OF FEET

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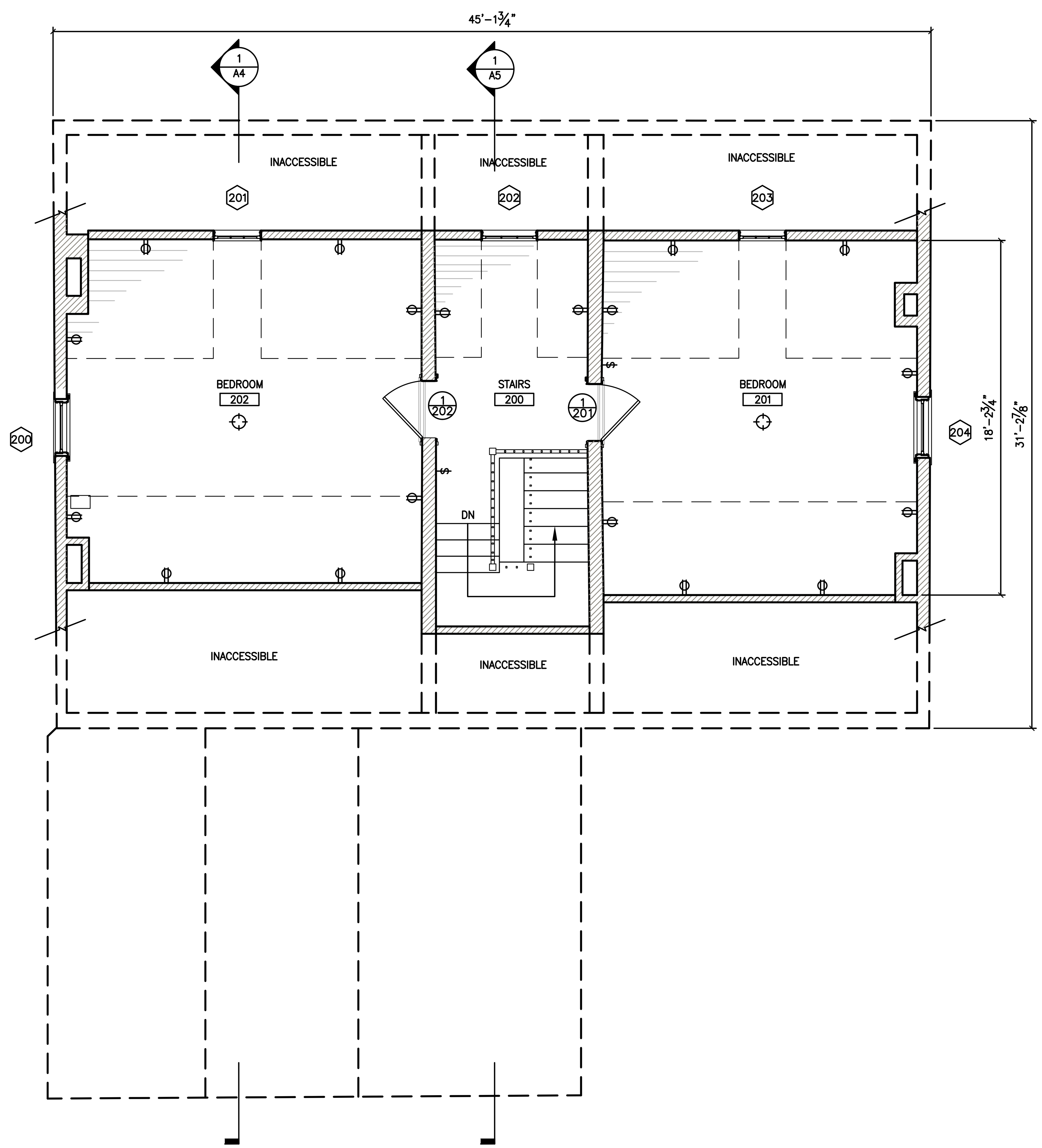

1 A2 EXISTING SECOND FLOOR PLAN
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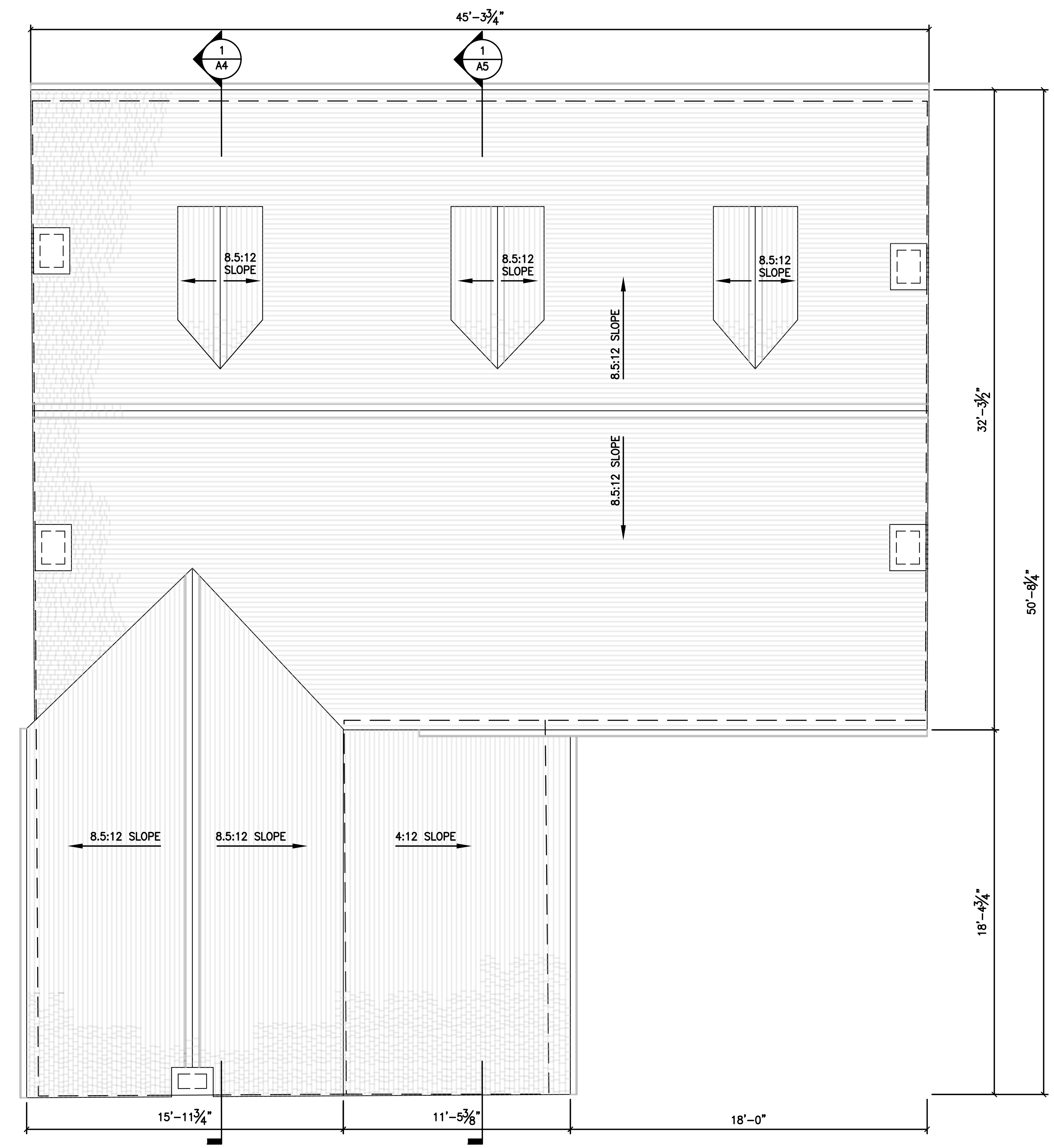
PROJECT NORTH



2 A2 EXISTING ROOF PLAN
1/4" = 1'-0"

PROJECT NORTH

4 0 4 8
SCALE OF FEET

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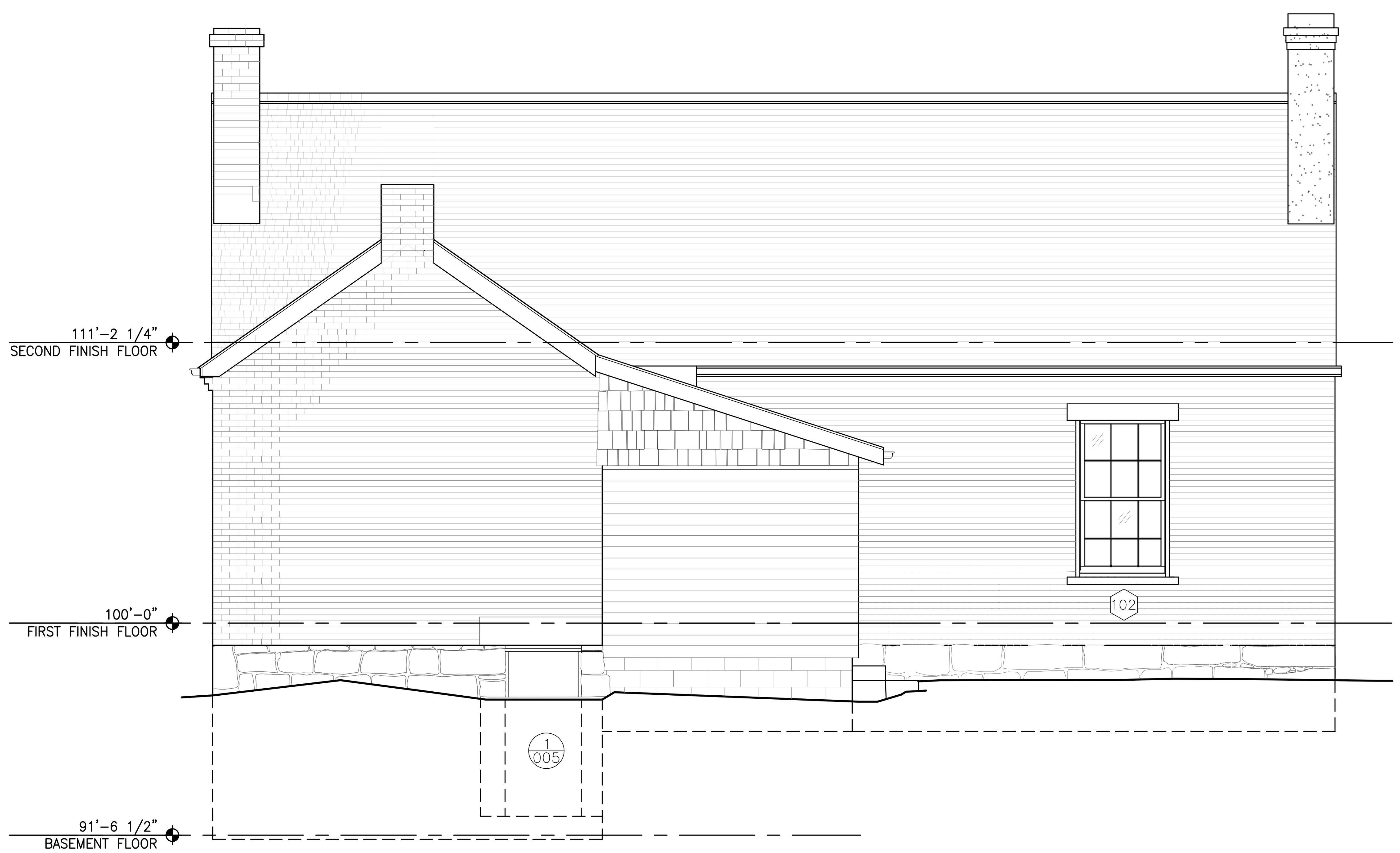
1 A3 EXISTING NORTH ELEVATION
1/4" = 1'-0"

2 A3 EXISTING SOUTH ELEVATION
1/4" = 1'-0"



3 A3 EXISTING EAST ELEVATION
1/4" = 1'-0"

4 A3 EXISTING WEST ELEVATION
1/4" = 1'-0"

4 0 4 8
SCALE OF FEET

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SUB SHEET NO.
A3

EXISTING CONDITIONS
HS-37 MAIN HOUSE
BLACKSTONE HOUSE & OUTBUILDINGS
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
ROSS COUNTY, OHIO

DRAWING NO.
353
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1
A4
EXISTING BUILDING SECTION – LOOKING WEST
1/2" = 1'-0"

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1 A5 EXISTING BUILDING SECTION – LOOKING WEST
1/2" = 1'-0"

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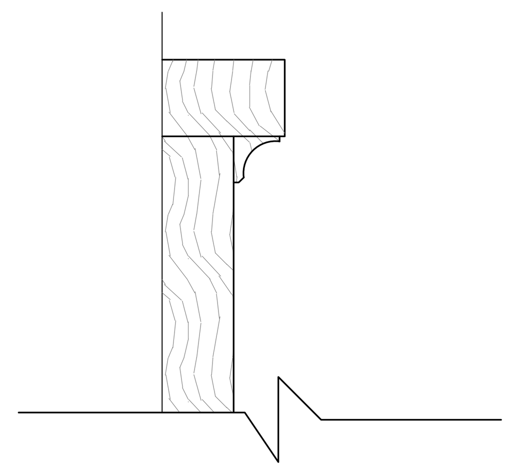
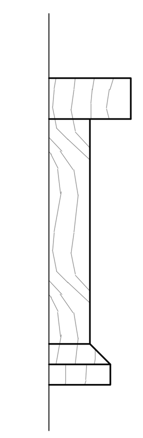
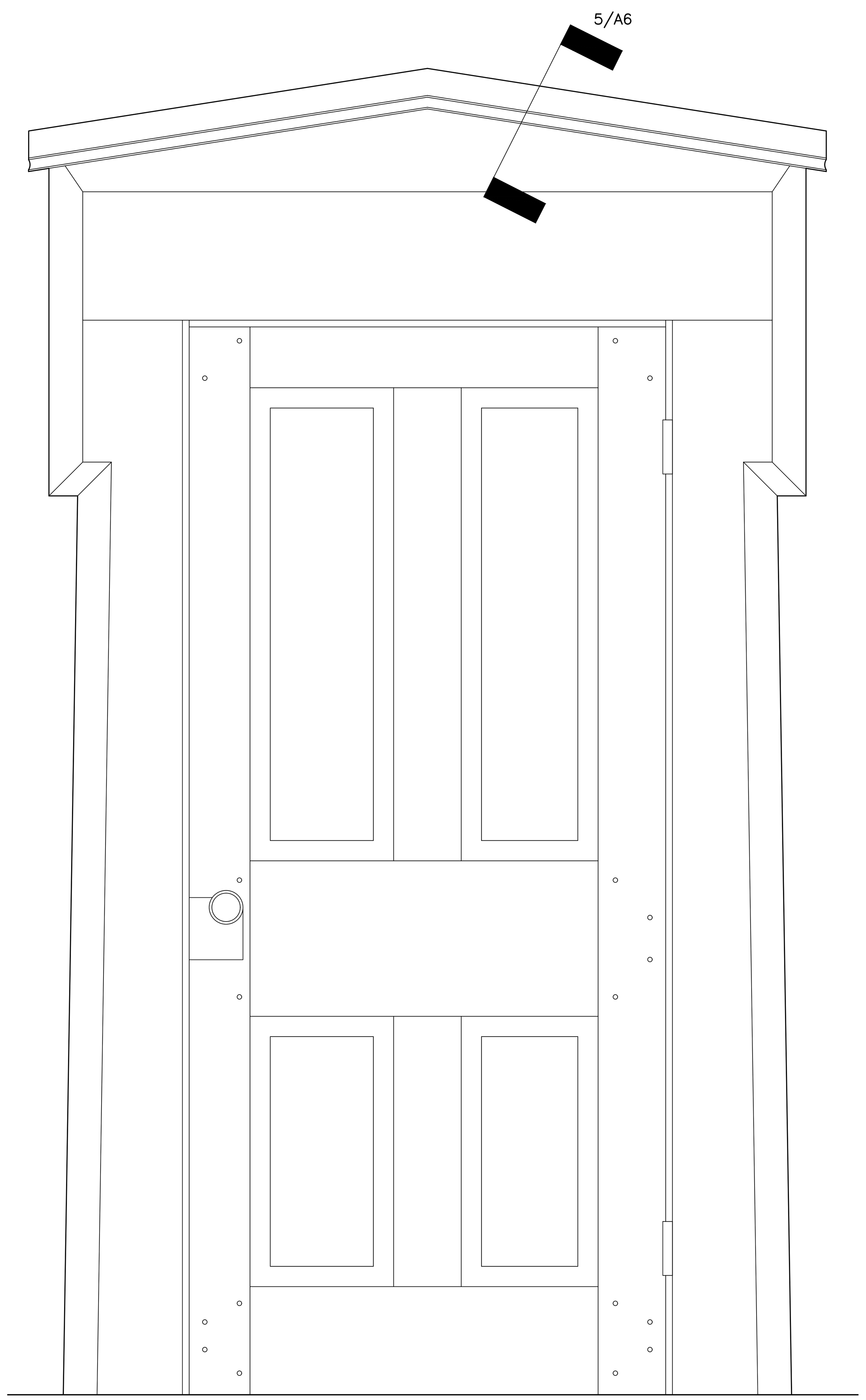


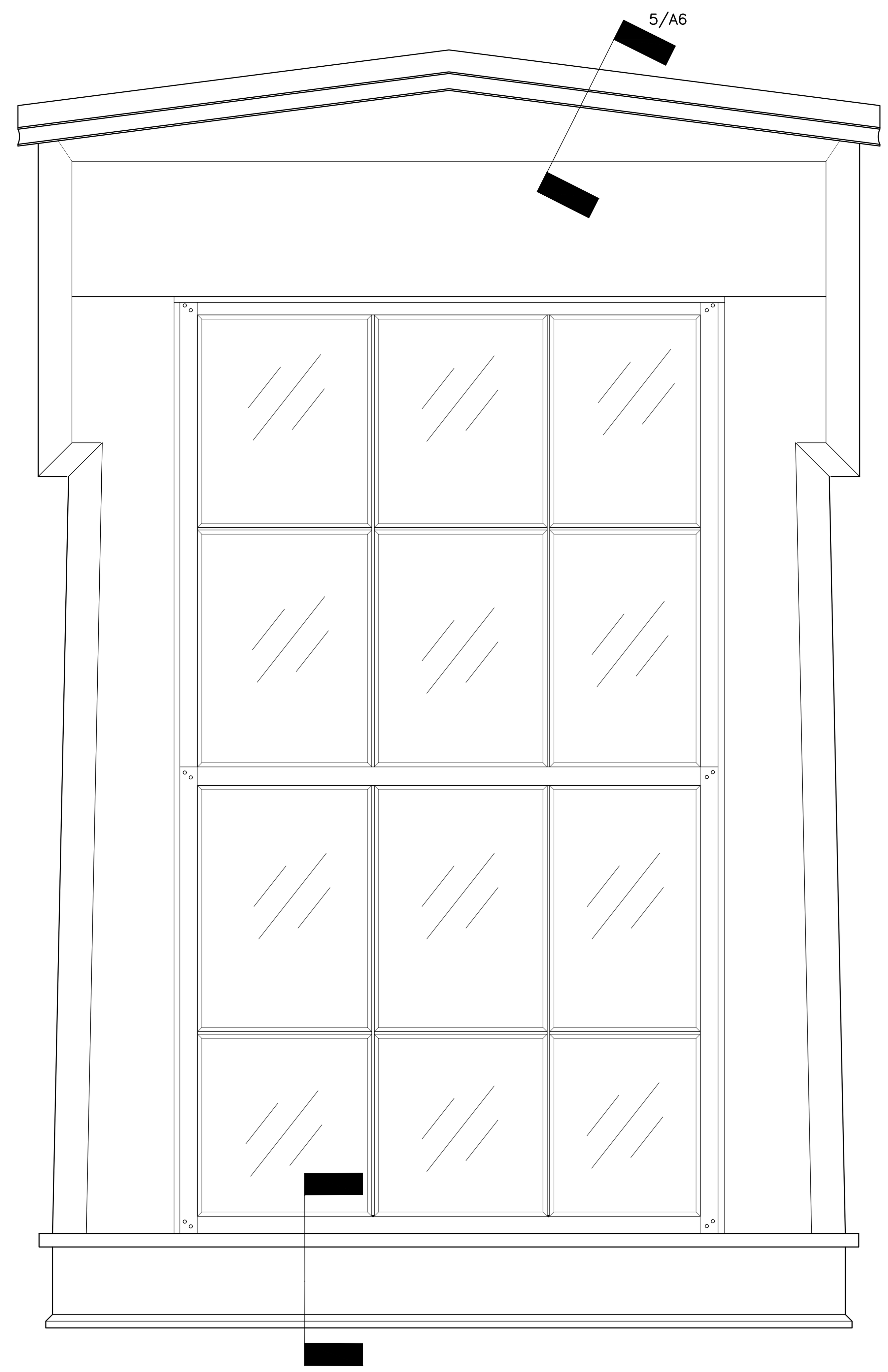
5 DOOR 1/101 HEADER SECTION
A6 3" = 1'–0"



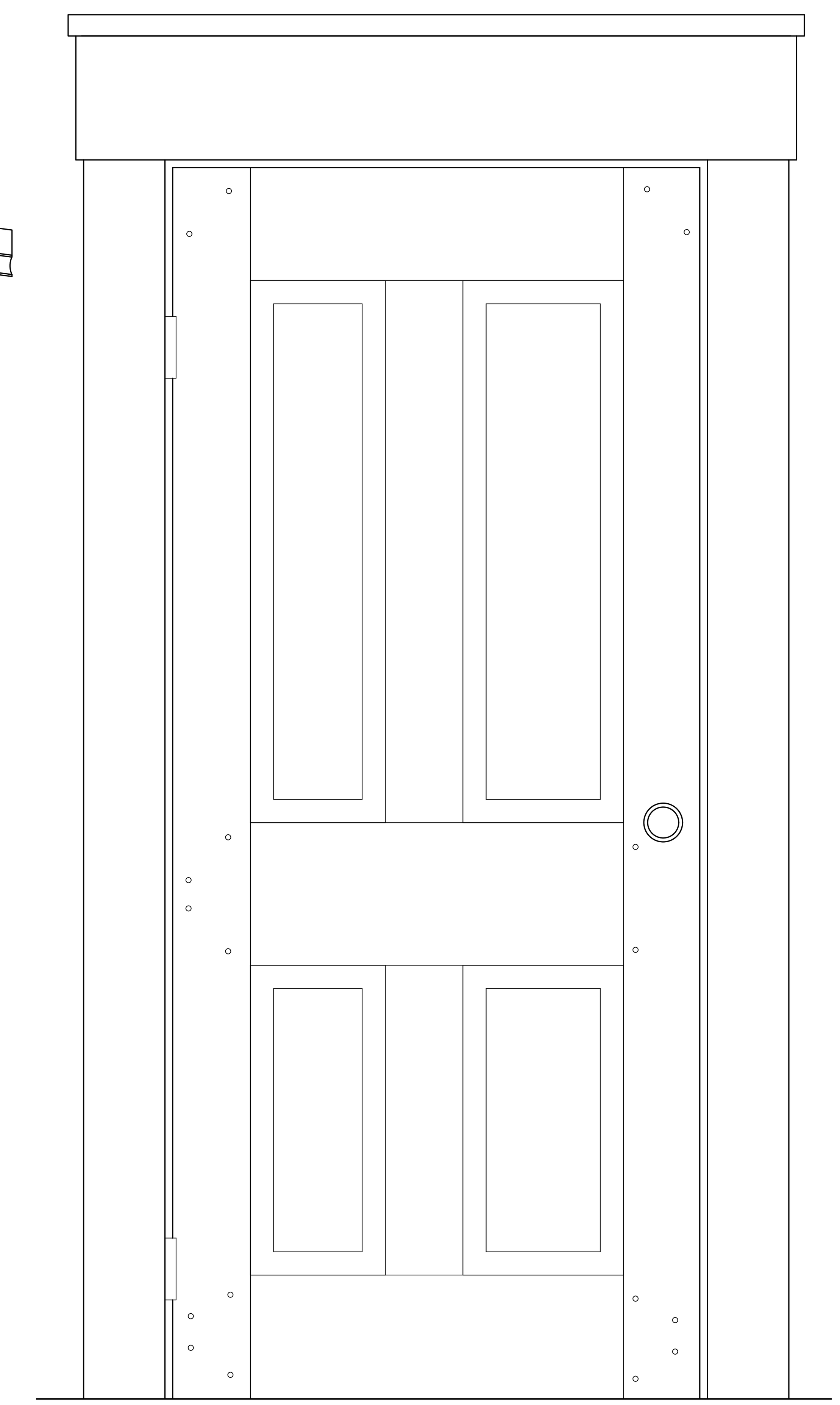
6 WINDOW 101 STOOL SECTION
A6 3" = 1'–0"



1 DOOR 1/101
A6 1 1/2" = 1'–0"



2 WINDOW 101
A6 1 1/2" = 1'–0"



3 DOOR 1/103
A6 1 1/2" = 1'–0"

4 WINDOW 100
A6 1 1/2" = 1'–0"

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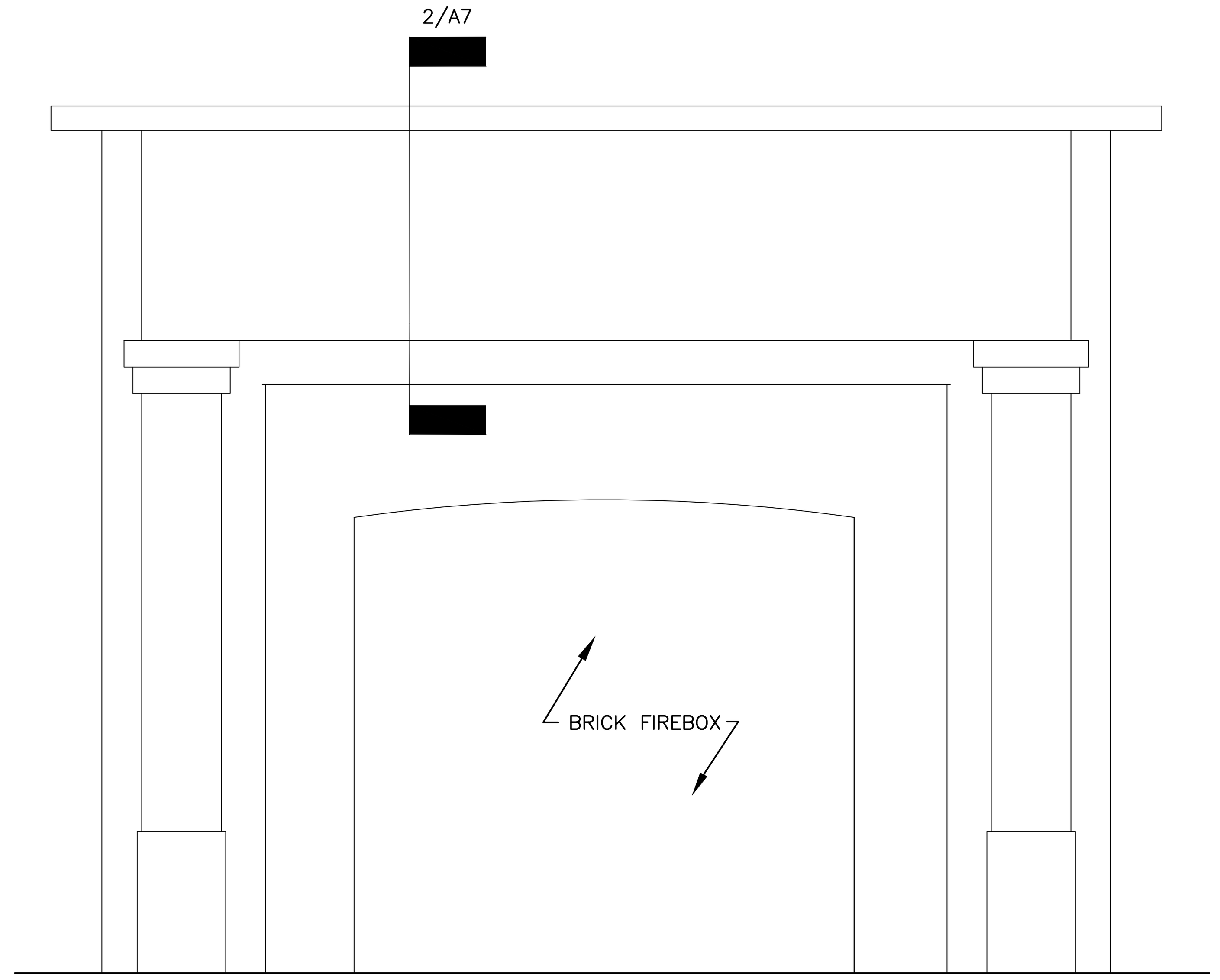
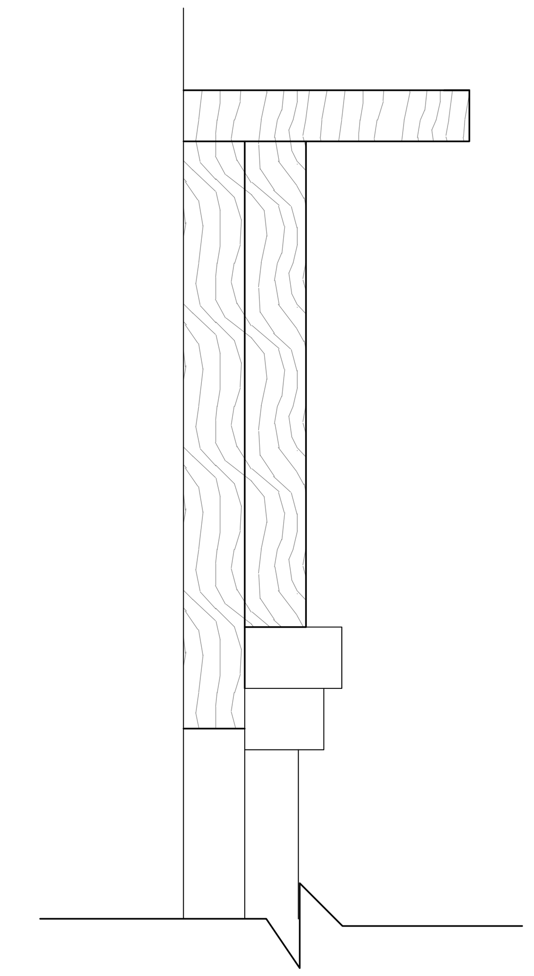
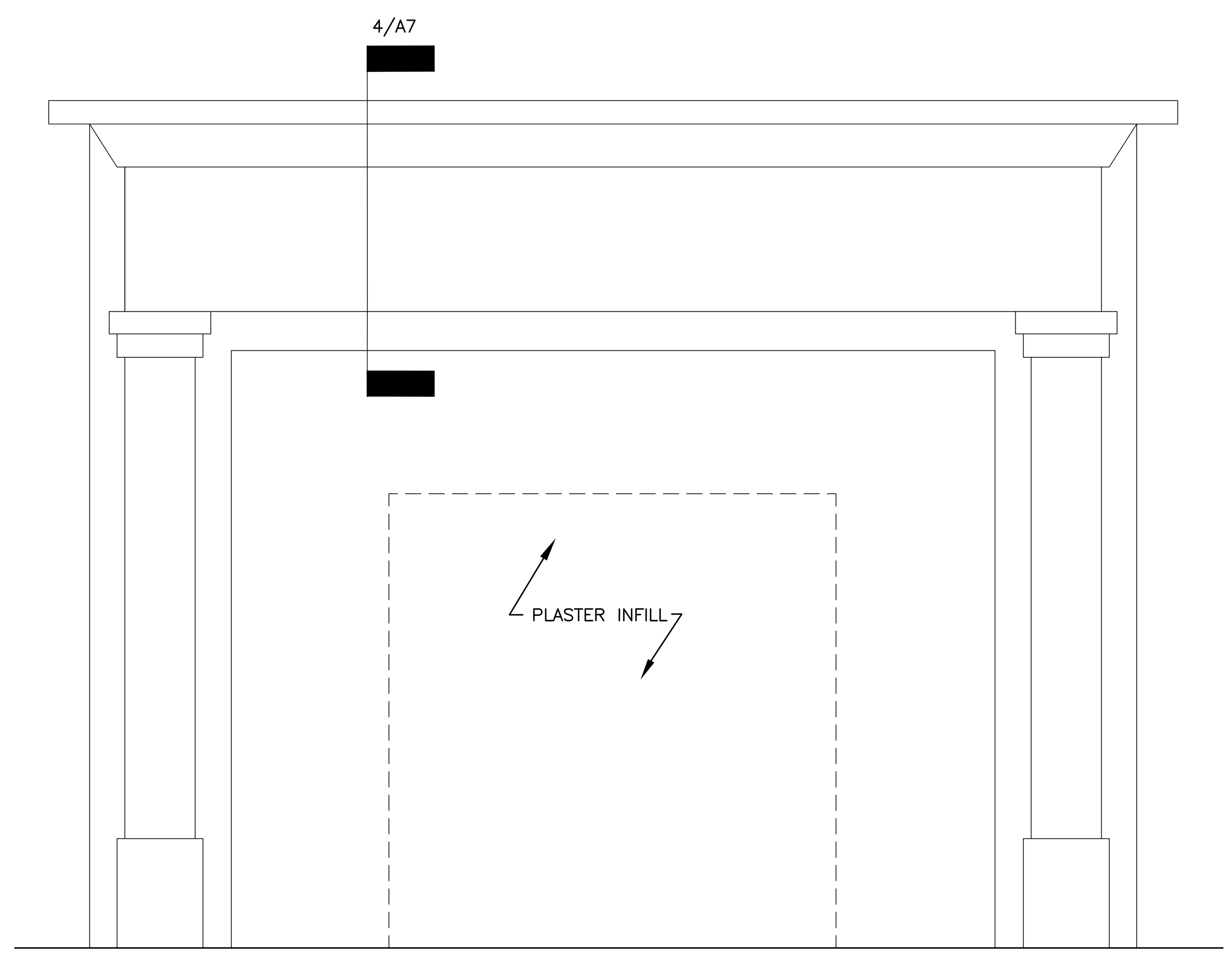


1/A7 ROOM 102 MANTEL
1 1/2" = 1'-0"



2/A7 ROOM 102 MANTEL SECTION
3" = 1'-0"



3/A7 ROOM 104 MANTEL
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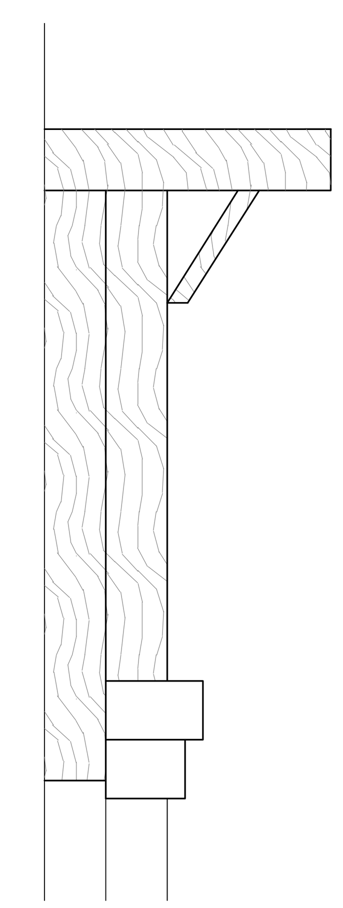

4/A7 ROOM 102 MANTEL SECTION
3" = 1'-0"

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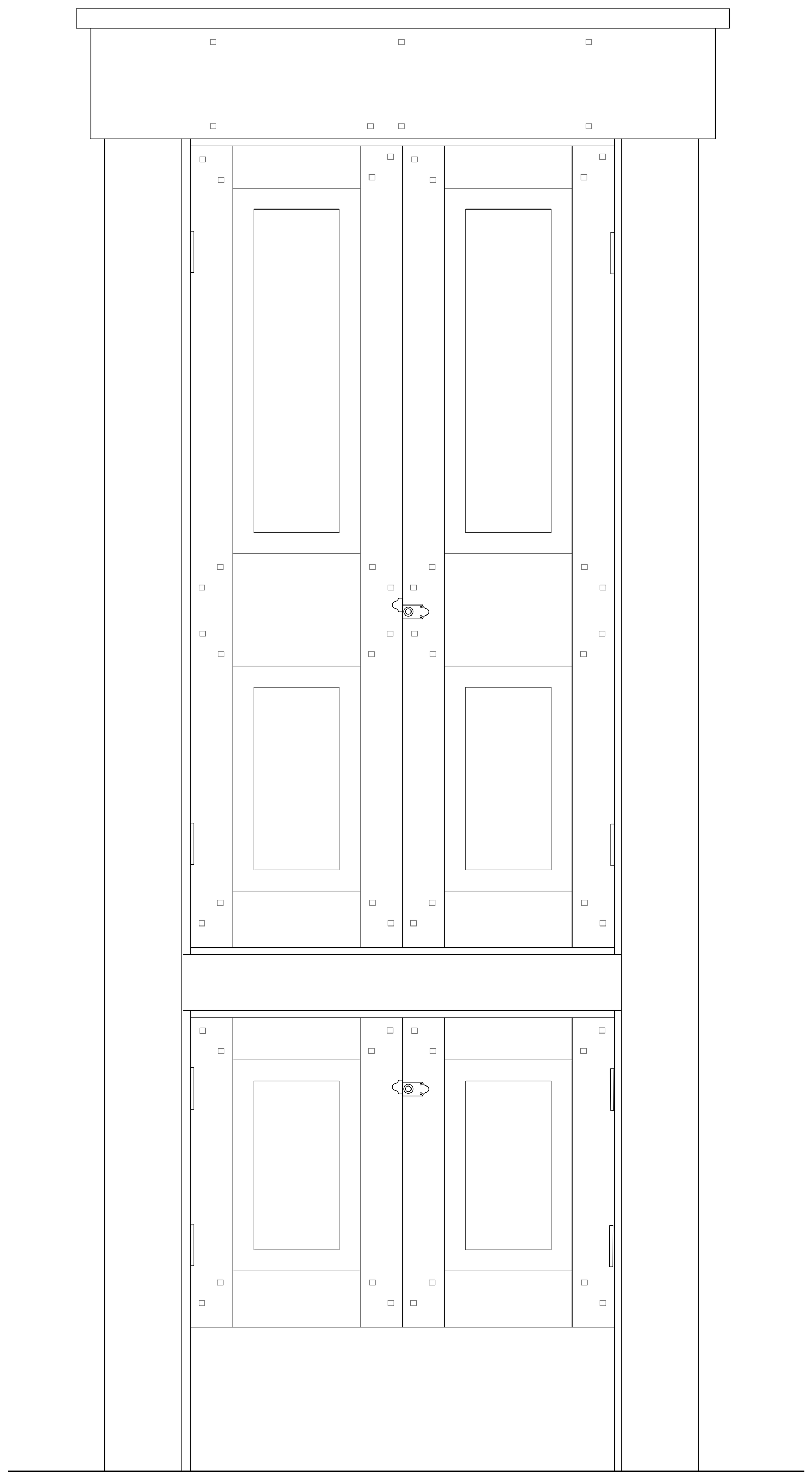
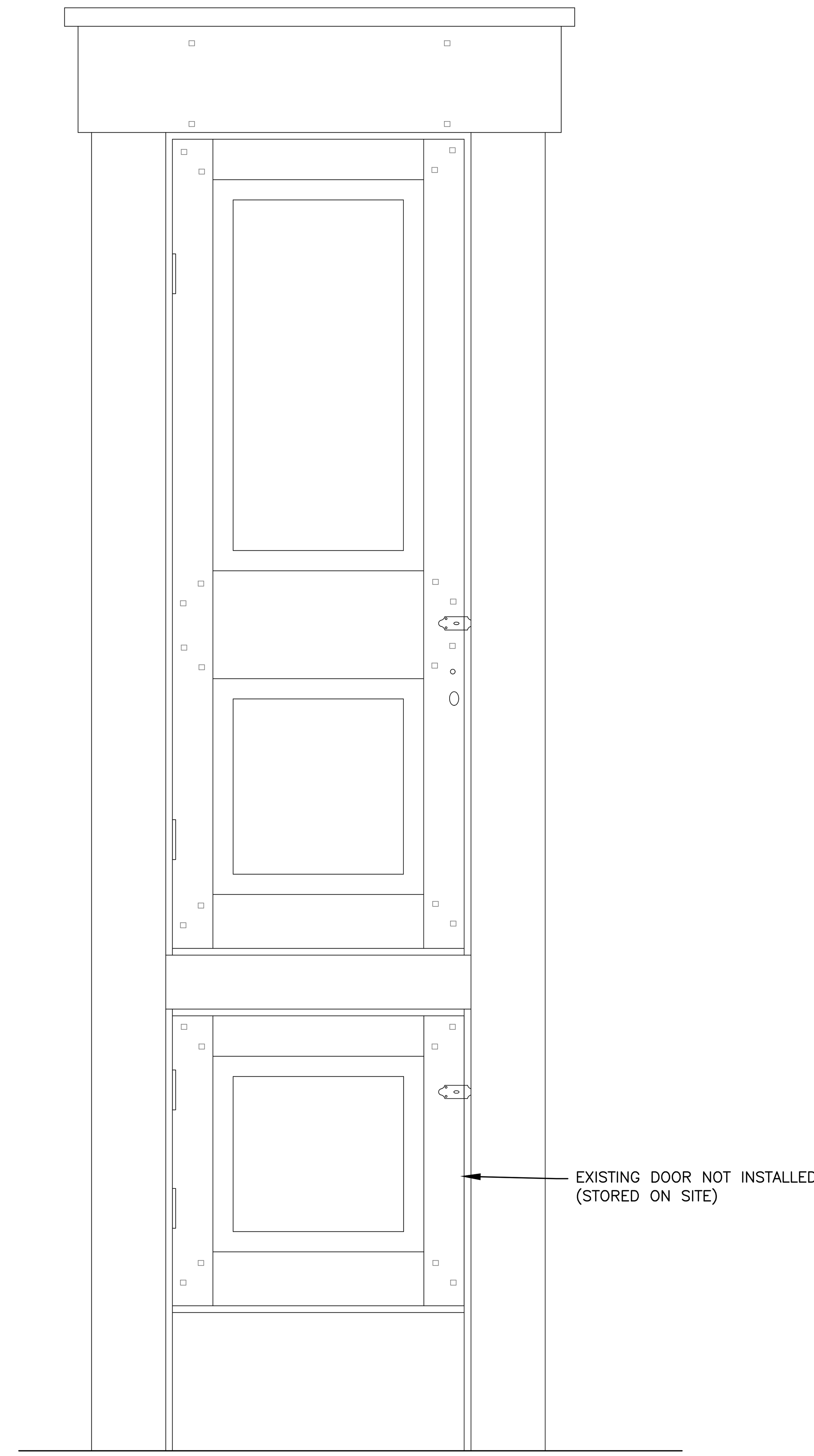
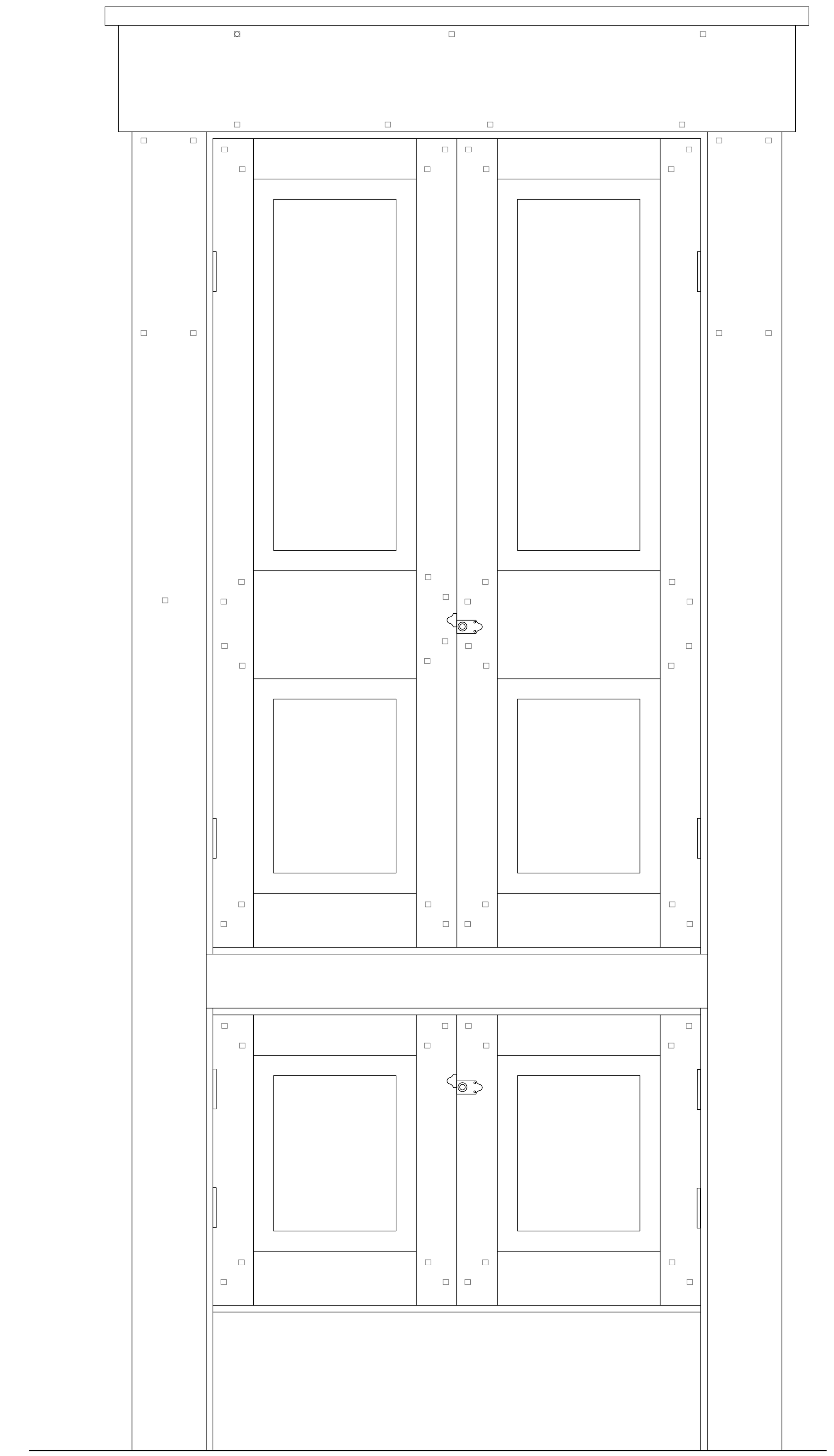


1 / A8 DINING ROOM 104 CABINET
1 1/2" = 1'-0"



2 / A8 PARLOR 103 SOUTH CABINET
1 1/2" = 1'-0"



3 / A8 PARLOR 103 NORTH CABINET
1 1/2" = 1'-0"

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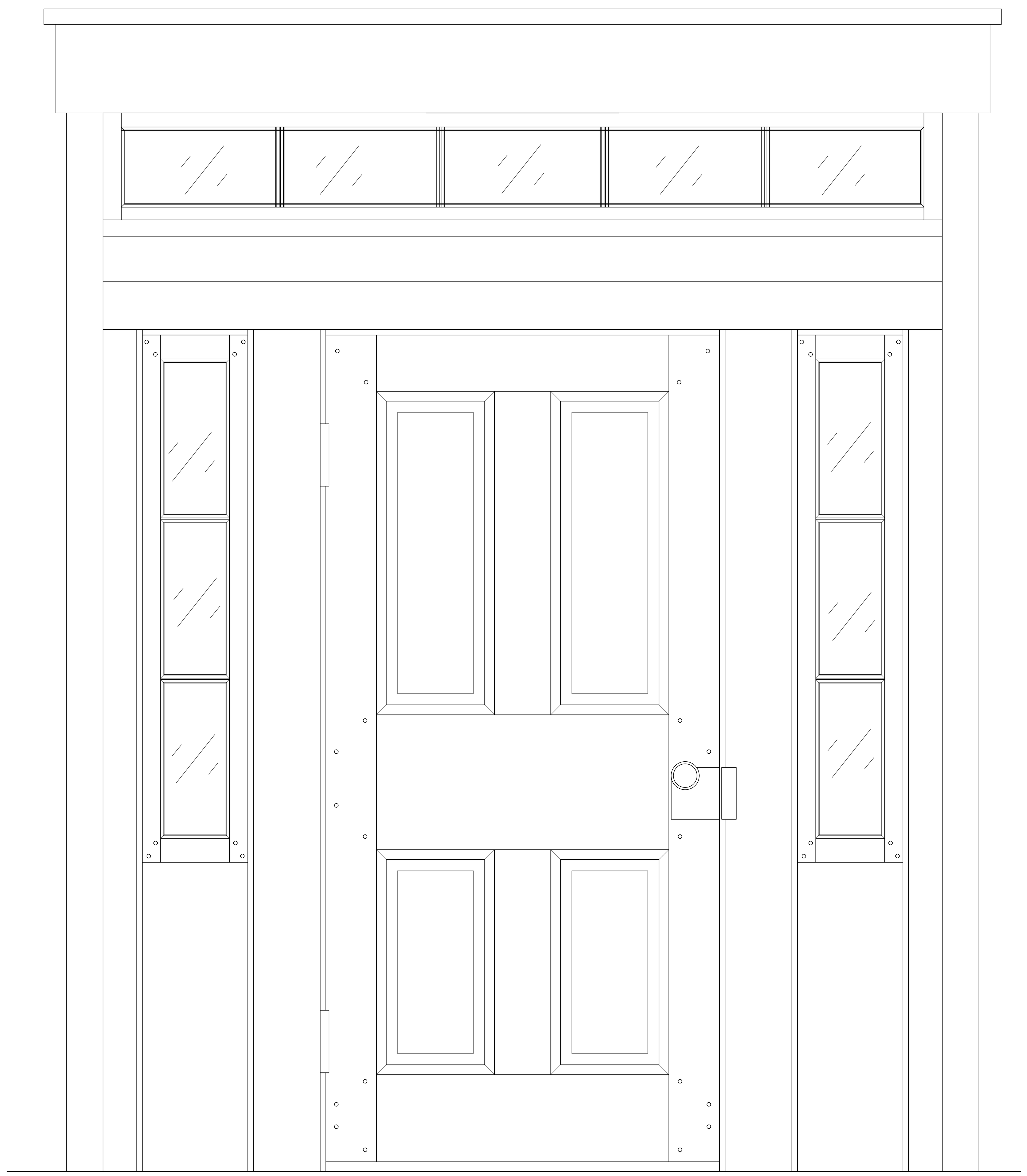

1 / A9 DOOR 1/100 INTERIOR
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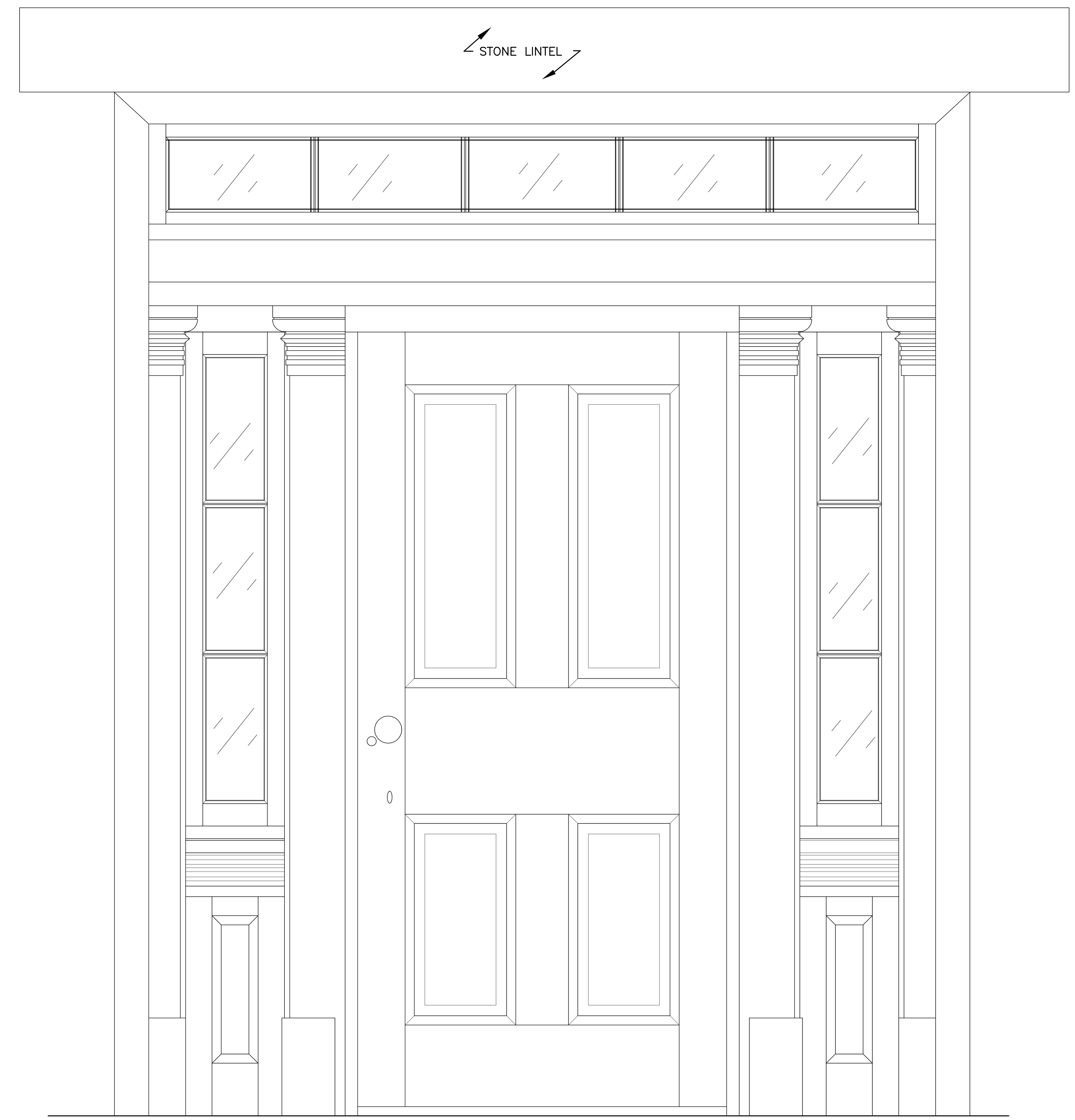

2 / A9 DOOR 1/100 EXTERIOR
1 1/2" = 1'-0"

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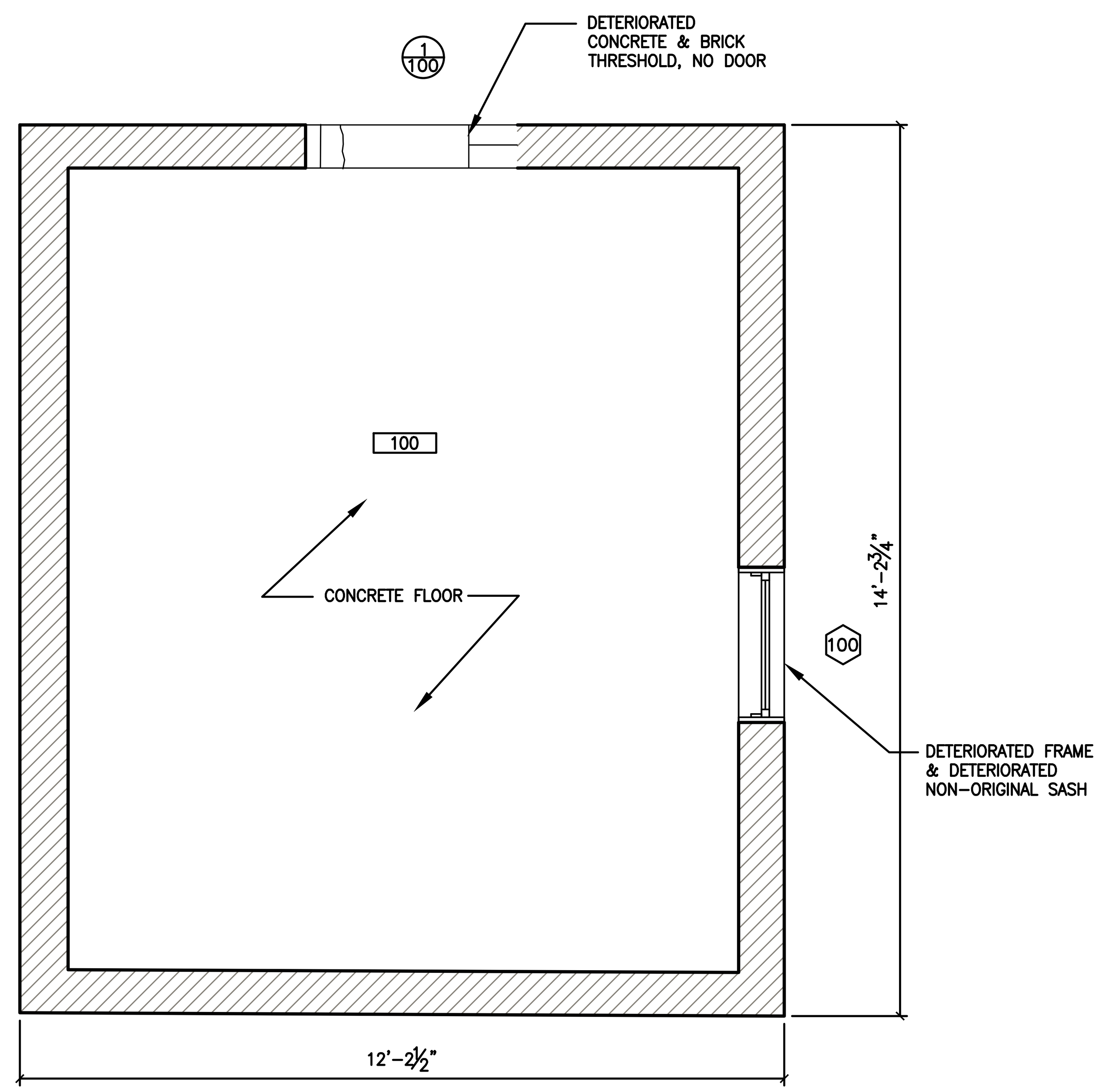
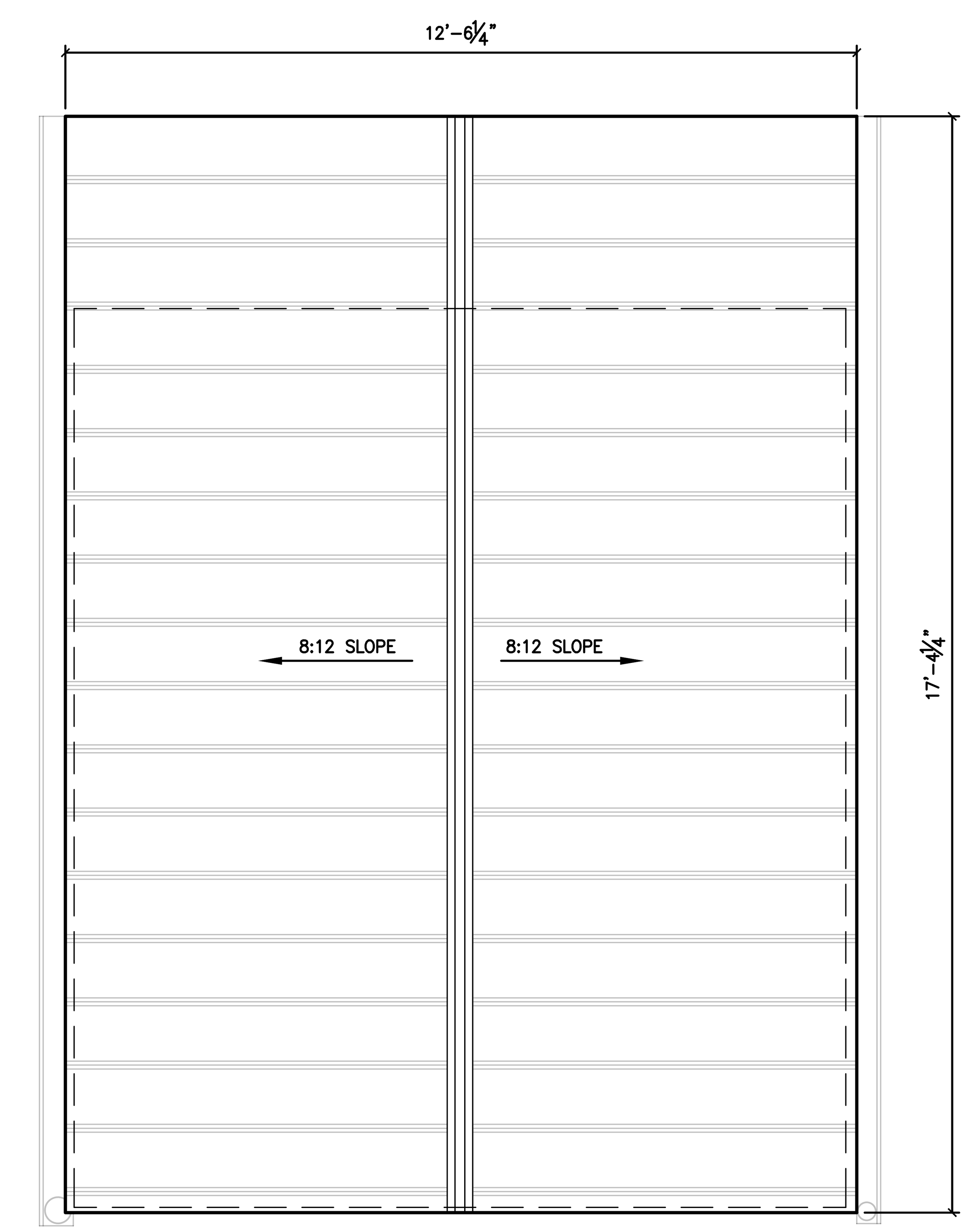


1 A10 EXISTING FIRST FLOOR PLAN
1/2" = 1'-0"

PROJECT NORTH



2 A10 EXISTING ROOF PLAN
1/2" = 1'-0"

PROJECT NORTH

2 0 2 4
SCALE OF FEET

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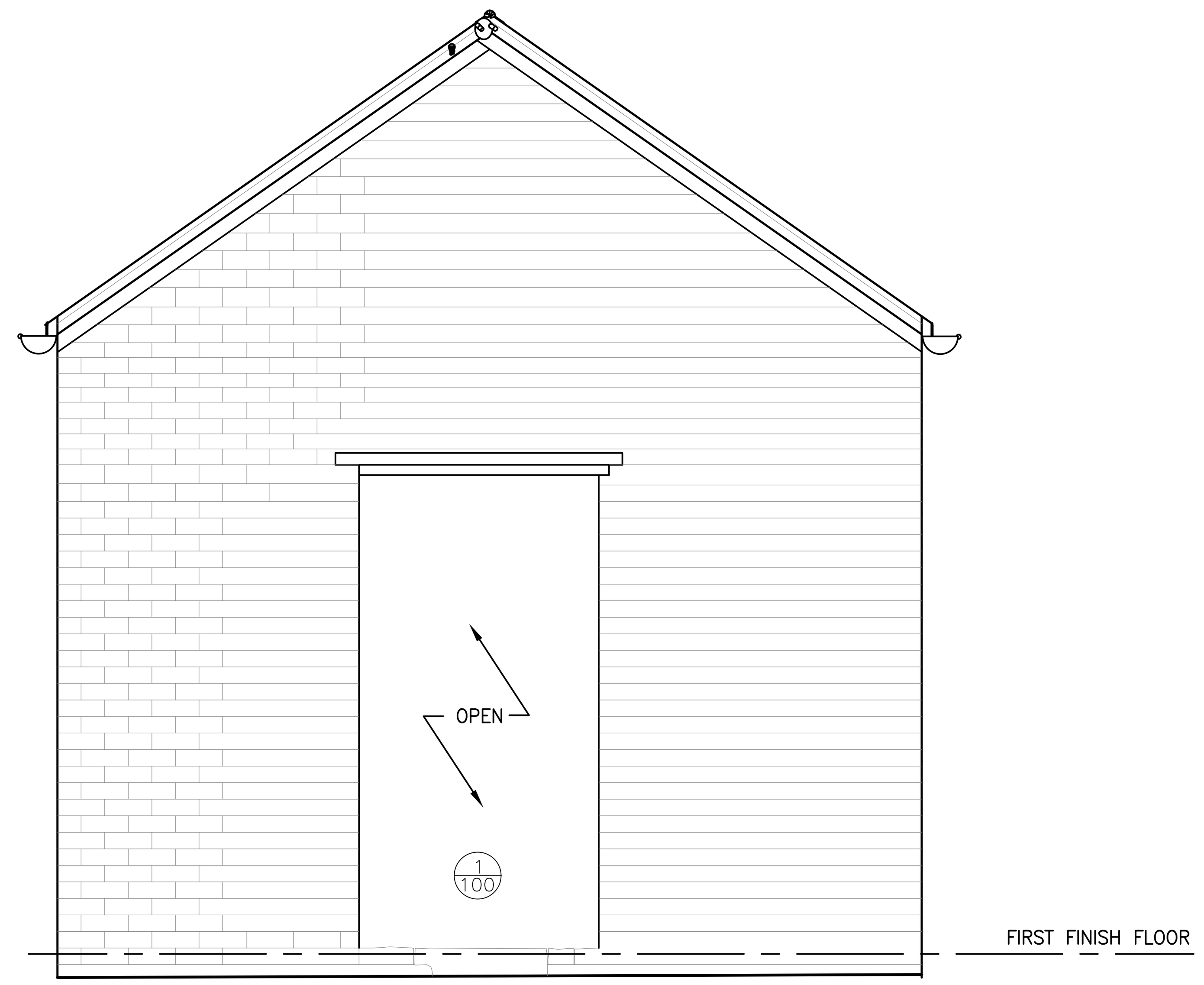

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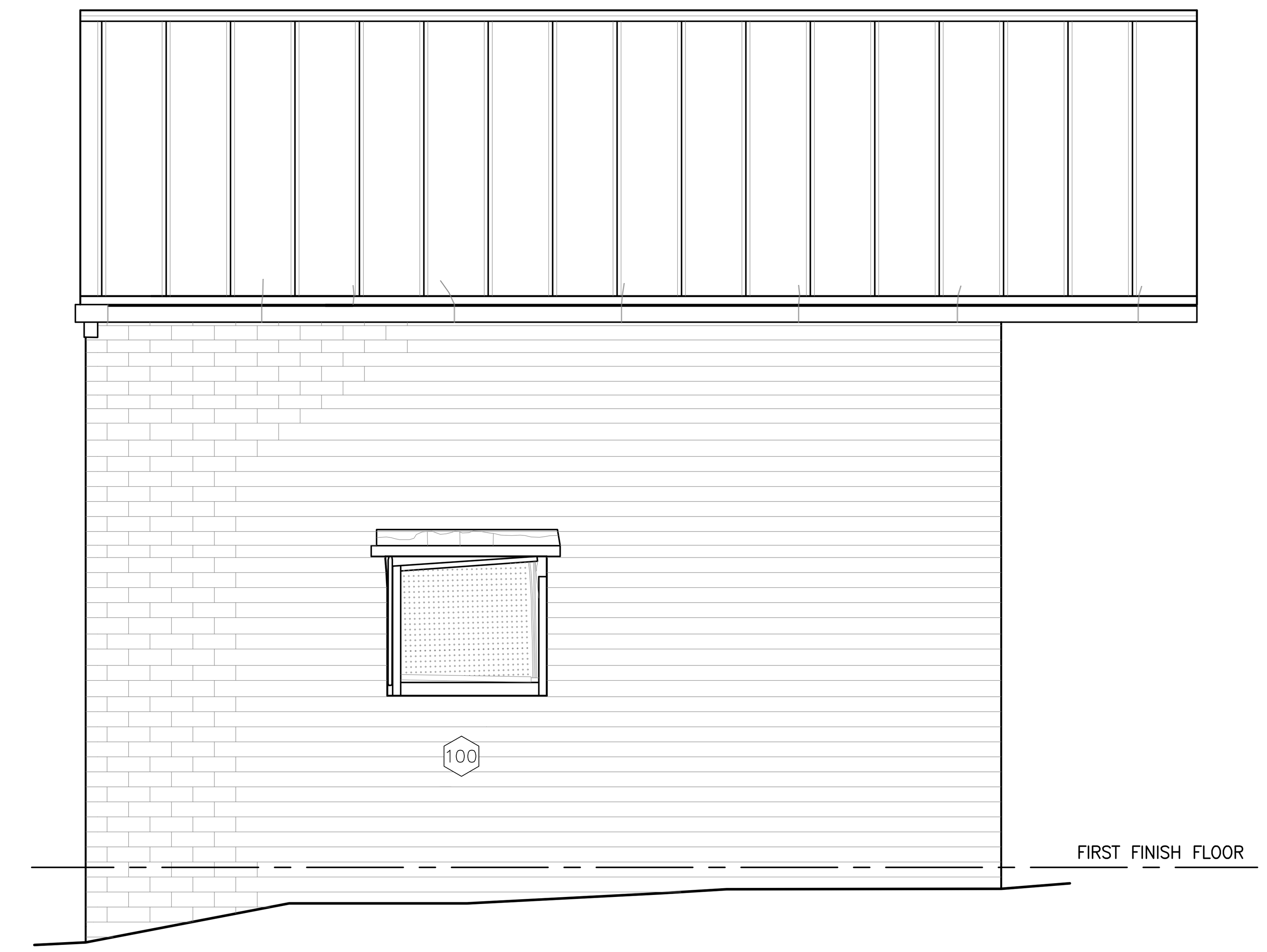
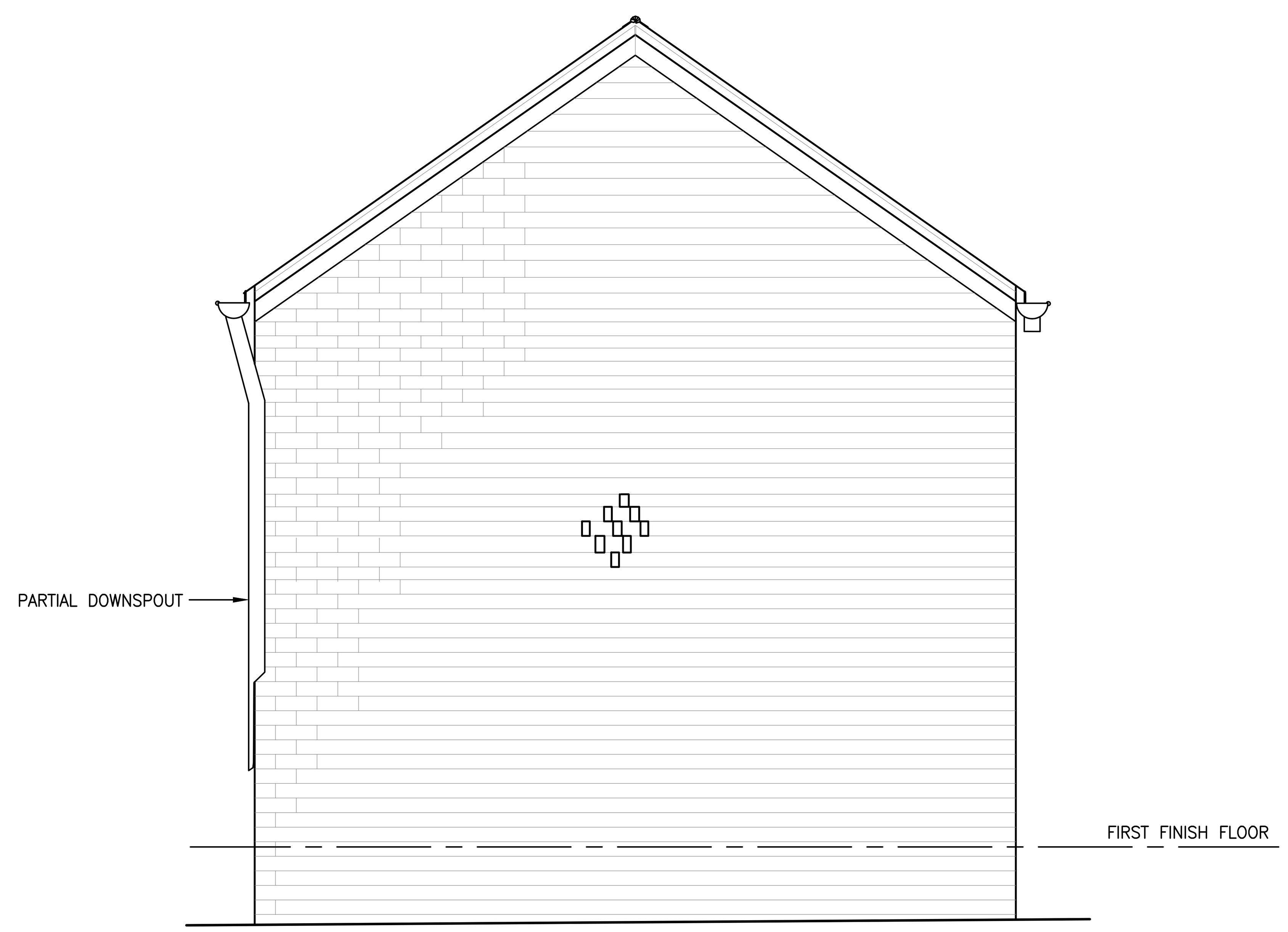
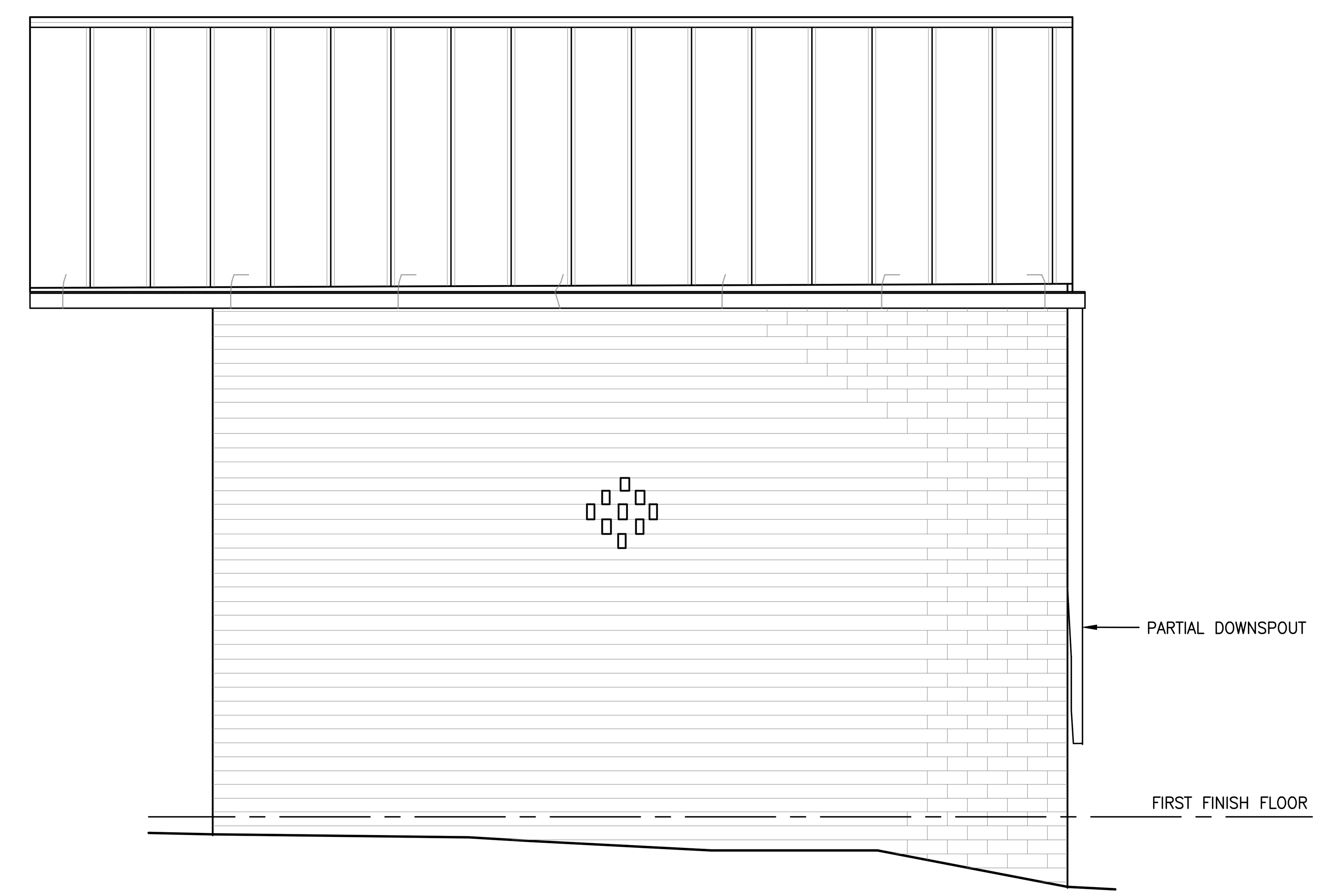


2 A11 EXISTING EAST ELEVATION
1/2" = 1'-0"



3 A11 EXISTING SOUTH ELEVATION
1/2" = 1'-0"



4 A11 EXISTING WEST ELEVATION
1/2" = 1'-0"

2 0 2 4
SCALE OF FEET

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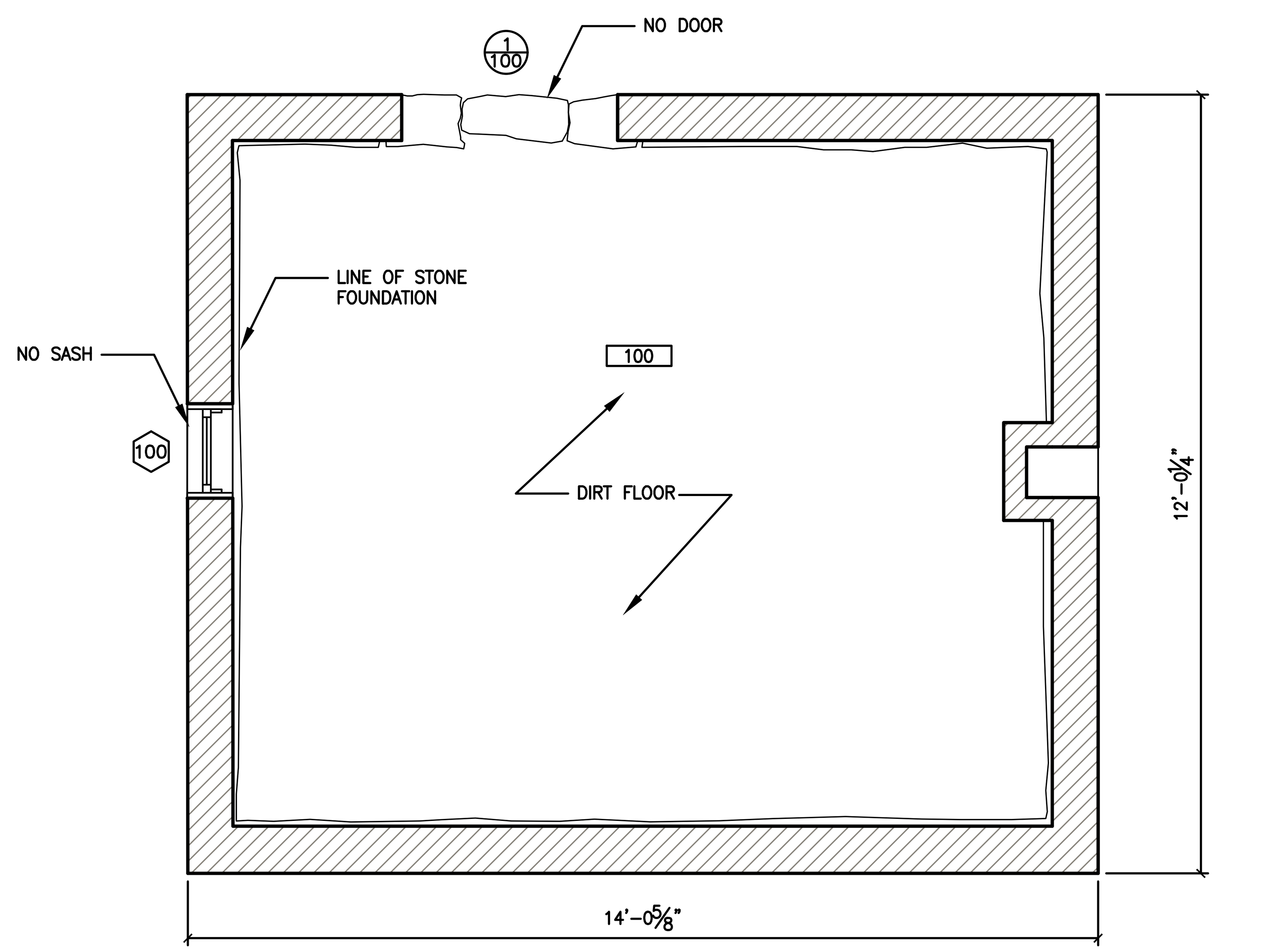
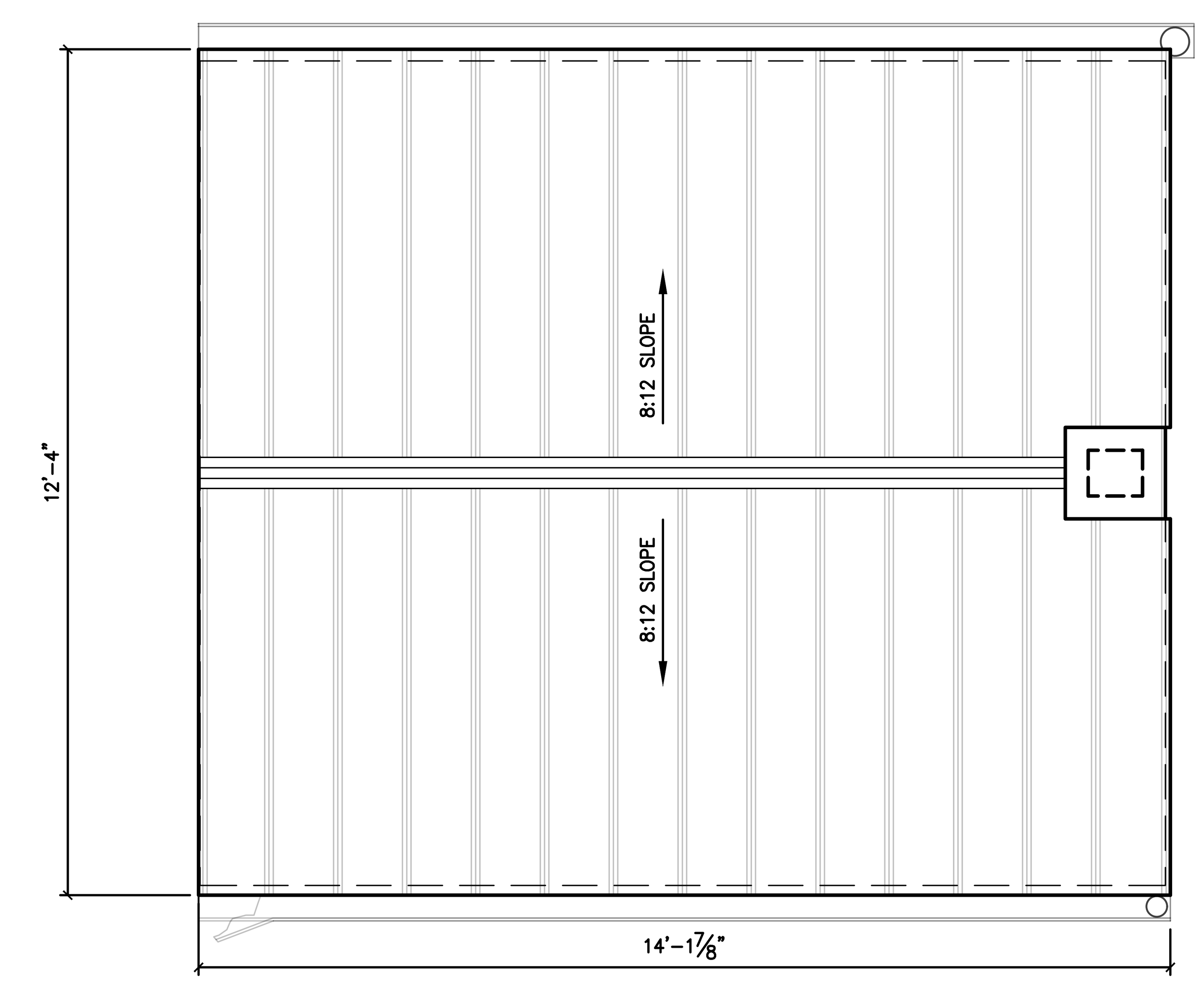


1 EXISTING FIRST FLOOR PLAN
A12 1/2" = 1'-0"

PROJECT NORTH



2 EXISTING ROOF PLAN
A12 1/2" = 1'-0"

PROJECT NORTH

2 0 2 4
SCALE OF FEET

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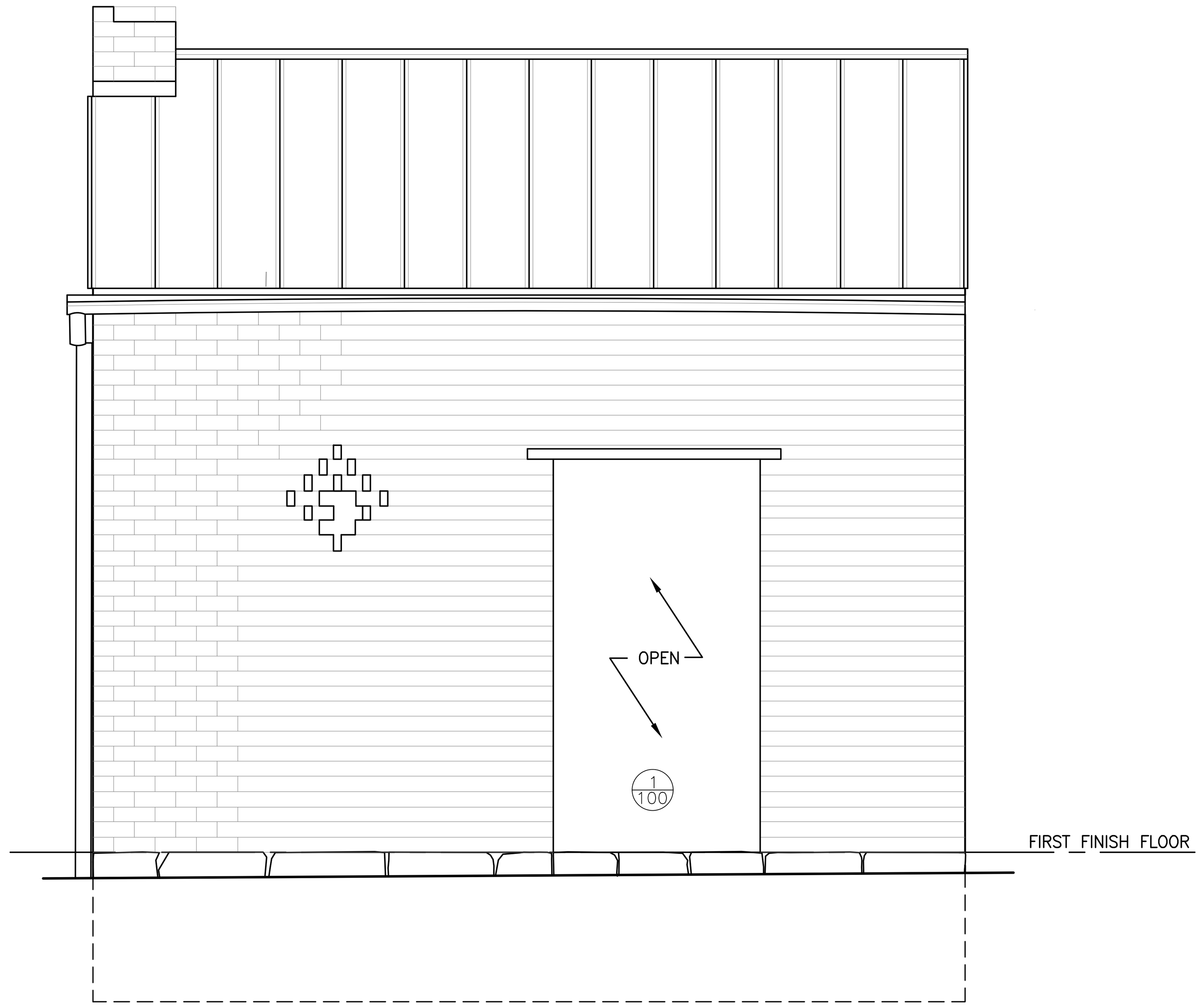
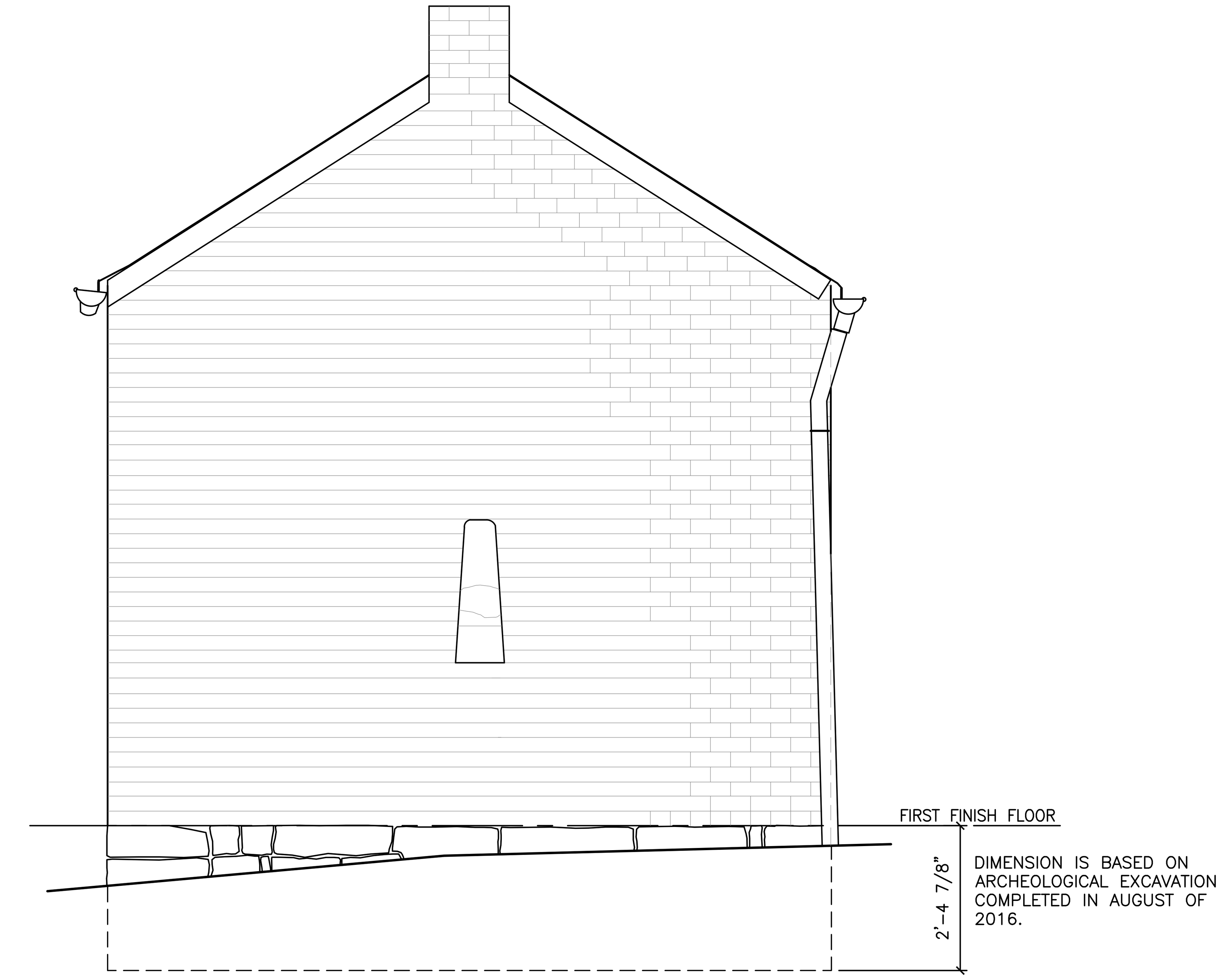
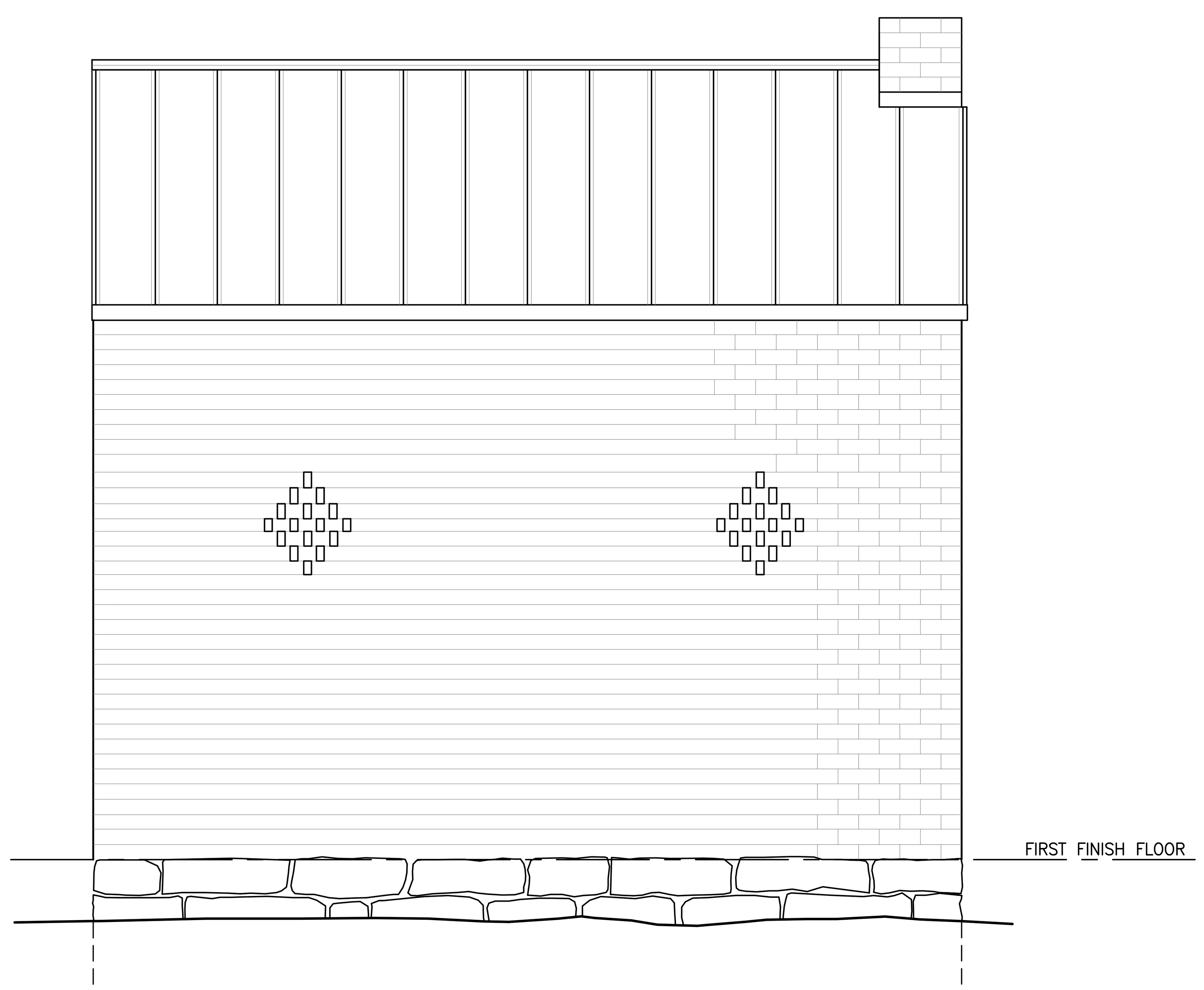


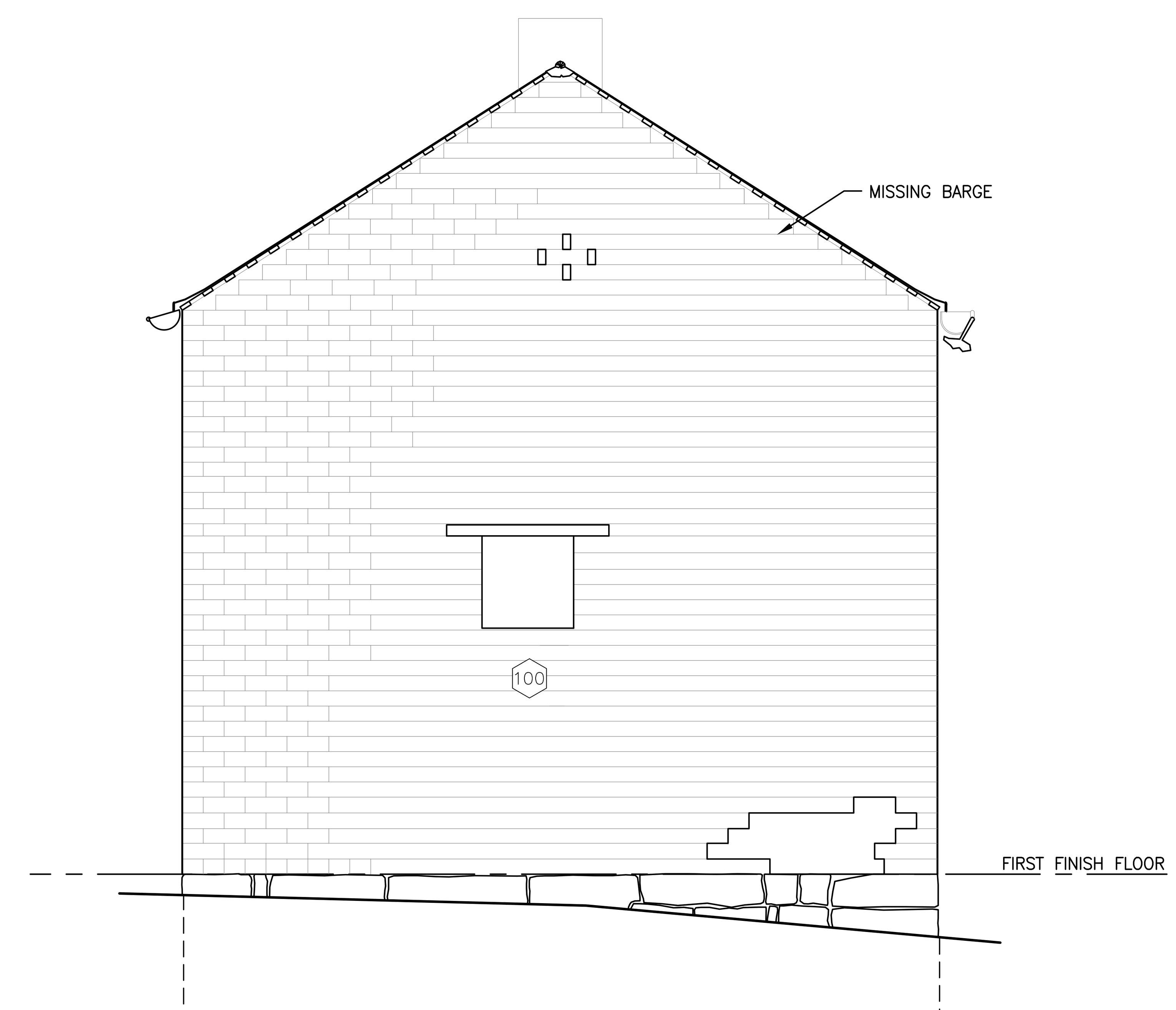
1 A13 EXISTING NORTH ELEVATION
1/2" = 1'-0"



2 A13 EXISTING EAST ELEVATION
1/2" = 1'-0"



3 A13 EXISTING SOUTH ELEVATION
1/4" = 1'-0"



4 A13 EXISTING WEST ELEVATION
1/4" = 1'-0"

2 0 2 4
SCALE OF FEET

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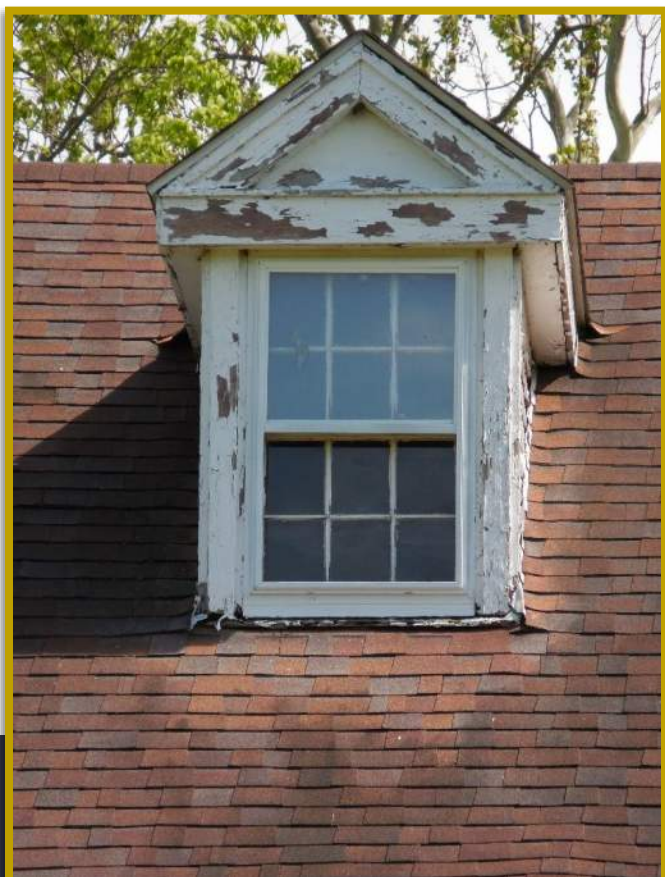
TECH. REVIEW:	AG
DATE:	4/17/17
SUB SHEET NO.	A13

EXISTING CONDITIONS
SMOKEHOUSE
BLACKSTONE HOUSE & OUTBUILDINGS
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
ROSS COUNTY, OHIO

DRAWING NO. 353 131862
PMIS/PKG NO. 218963
SHEET 16 OF 16


Blackstone House ,north elevation, dormer window. (STRATA 2016)

2 TREATMENT RECOMMENDATIONS

Part 2 | Treatment Recommendations and Use

The Treatment Recommendations for the Blackstone House and outbuildings are addressed in this Part 2 section of the report, as follows:

Treatment Recommendations Considerations and Goals

The Blackstone House and outbuildings were constructed ca. 1857 and have been a part of the cultural landscape of the Seip Earthworks site for more than 150 years. The house and outbuildings are located on the northern portion of the large earthwork circle. The buildings and earthworks are very different resources, with periods of significance separated by almost 1500 years. The period of significance of the earthworks is AD 1 to AD 400, while the period of significance for the house and outbuildings is ca. 1857 – 1957. This juxtaposition of the farm buildings with the prehistoric landscape presents an unusual, but far from unique combination of historic and prehistoric resources, as found in comparative analysis of other sites throughout the Eastern portion of the United States.

The portion of the earthworks circle adjacent to the house and outbuildings has been described as potentially one of the most intact sections of the Seip Earthworks site. The presence of these structures may have protected this portion of the large circle from being diminished by continual plowing or excavated for archeological study. However, the construction of the foundations of the buildings undoubtedly disturbed the earthwork wall, as witnessed in the basement and crawl spaces of the house.

Per the Scope of Work for this specific historic structures report, the goal of the Part 2 Treatment Recommendations with regards to the house and outbuildings, is as follows:

> *Determine a range of alternatives for the buildings including demolition, preservation and rehabilitation based on the feasibility of utility access, accessibility requirements, and interior use potential.*
>
> *Determine the impacts to the buildings, and especially archeological features underlying the buildings, as a result of developed treatment alternatives.*

Potential future use and interpretation options for the house and outbuildings were discussed in detail at the Treatment Alternatives Workshop held at HOCU in August 2016 with the NPS representatives and stakeholders. The workshop notes and presentation are included in Appendix H for reference. Interpretation of the Seip Earthworks Site was discussed throughout the workshop. The combination of historic and prehistoric resources at the Seip site naturally gives rise to questions of how to interpret the overall site, as outlined in the original Scope of Work for this historic structures report.

The Hopewell Culture National Historical Park mission statement communicates the park's purpose and goals, which is directly related to how the Seip Earthworks site is interpreted. The park mission statement is below:

> *The park educates the public about the daily lives, contributions, perceived values, and interactions of the Hopewell peoples with other peoples and the environment around them.*
>
> *There are significant sites in the park and related sites are protected and preserved by various means, and the local community feels a sense of stewardship for these and other sites.*
>
> *The visitor leaves the park and related sites with a greater knowledge about the Hopewell culture, an understanding of the relationships between the sites, an admiration of the Hopewell accomplishments, and a cognizance of the need to preserve them.*

To date, the park's mission has been to interpret and educate visitors about the Hopewell culture. This mission does not accommodate for a 'diverse interpretation' of the site from prehistory to more modern farm and archeology use of the property. To actively interpret the Blackstone house and outbuildings, the park mission statement specific for the Seip site may be revised to include a more diverse interpretation of the site, which was discussed at the workshop.

The Cultural Landscape Report for the Seip Earthworks site from 2016 recommended a preferred Action Alternative 2, which includes conserving and revealing earthwork complexes. This alternative was discussed in detail at the workshop. This alternative focuses on preserving the extant below- and above-grade archeological features, while removing non-contributing features, including the Blackstone house, outbuildings, roads, picnic shelter, vehicular access and utilities, regardless of historic eligibility. There were several portions of this alternative that

assume the park will be able to acquire or utilize adjacent land for visitor use and potentially for parking.

The International Committee on Monuments and Sites (ICOMOS) Advisory Mission to the Hopewell Ceremonial Earthworks was made in 2015. The visit was in anticipation of the Seip Earthworks potential listing as a World Heritage Site in conjunction with six other major regional prehistoric sites. No mention of the house or outbuildings was discussed in the site visit report. The only mention of visual intrusions at the Seip site were with regards to the viewshed of the contemporary nearby school.

Per the workshop, the goals of interpretation of the site and outbuildings would include:

- Authentic visitor experience
- Resource protection (prehistory and history). Treatment should balance the protection of the prehistoric earthworks and archeological resources with the preservation of the architectural resources.
- Technology
- Interpretation – visitor orientation gathering area (Visitor Contact Station)
- Clear message/educational resources
- Visitor services – restrooms, drinking water, shelter
- Multi-access park (vehicular, pedestrian, bike, canoe, trails, etc.
- ADA access throughout park and to any visitor facilities

The Blackstone house has been vacant since 2003 and requires maintenance and repairs. In its current condition, the house has limited utilities and accessibility options for an adapted use as a high-use commercial building.

This historic structures report is limited to the study of the historic structures, therefore the overall site interpretation and use are not included in this scope of work. This makes future treatment recommendations for the house and outbuildings challenging, as the house has limited potential for high visitor use due to its limited handicapped accessibility, limited utilities, and its location atop a precious archeological resource. In order for the buildings to be utilized in a meaningful way, future planning efforts must include the development of additional on-site or nearby visitor services and facilities in conjunction with the buildings. The final use of the buildings works hand-in-hand with the access and accommodation for visitors to the site.

Options for potential re-use of the house and outbuildings were explored at the Treatment Alternatives Workshop, as well as the options for moving or demolition of the structures. These options are discussed in detail, along with the pros and cons for each potential option, in the workshop notes in Appendix H.

Treatment Options for the structures presented at the workshop included:

1) Preservation and Maintenance of Existing Structures (Mothballing)
2) Rehabilitation of the Existing Structures with New Use (Assumes additional visitor services are accommodated for on the site)
3) Moving the Existing House and Outbuilding Structures
   (Discussed in detail at the workshop and the attendees agreed this was not a viable option and therefore is not included in the report).
4) Demolish Structures

Based on the Workshop, Immediate and Long Term Treatment Recommendations for the Blackstone House and outbuildings were determined. The *Immediate Interim Preservation and Maintenance* option is based on critical maintenance and repair requirements. The Long Term Treatment is based on a comprehensive rehabilitation of the buildings. Costs associated with the immediate and long term treatment are included in Appendix I. In addition to immediate and long term treatment recommendations, demolition of the house and outbuildings was explored and these costs are also included in Appendix I.

A final long-term use for the Blackstone house has not been recognized at this time. **The NPS has determined the Preferred Treatment for the Blackstone house and outbuildings to be <u>Immediate Interim Preservation and Maintenance</u>.**

The preferred treatment of *Immediate Interim Preservation and Maintenance* would allow for the preservation stabilization of the existing buildings to prevent further deterioration. This would allow time for the NPS to consider other potential uses of the house, as well as the potential for renewed interest in the expanded 'diverse interpretation' of the Seip Earthworks to explore the full continuum of site use and resources.

The re-use of the house may be revisited in the future to explore a comprehensive architectural, site, contextual, and visitor long-term use specific to the Seip Earthworks section of the Hopewell Culture National Historical Park. Once the World Heritage site nomination is completed and visitors begin to utilize the Seip site in greater numbers, future visitor amenities and uses may be better identified.

Architectural, structural, civil, and mechanical Immediate and Long Term Treatment Recommendations are in keeping with the *Secretary of the Interior's Standards for Rehabilitation*. The goal of the treatment recommendations is to promote sensitive preservation and rehabilitation of the historic structures. Work should be designed and orchestrated to retain the original historic materials with the least amount of visible alterations to the structures and the sensitive surrounding archeological site, all while supporting the interpretive use of the buildings and the site.

Historic Treatment Approaches

The identification of the possible four following historic treatments is based upon the *Secretary of the Interior's Standards for the Treatment of Historic Properties*:

> **Preservation:** Sustaining the existing form, integrity, and materials of a property.
>
> **Restoration:** Accurately depicting the form, integrity, and materials of a property as it appeared during a particular period.
>
> **Rehabilitation:** Compatible use of a property through repair, alterations, and additions while preserving significant historical features.
>
> **Reconstruction:** Depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape building, structure, or object at a specific period of time and in its historic location.

Immediate Work Approach

Immediate exterior and interior stabilization work is required to protect the house from further deterioration. For the immediate maintenance work, *Preservation* is the appropriate treatment approach.

Interior Historic Treatment Approach

While the interior of the Blackstone house retains a significant amount of original historic finishes, the interior of the house is in overall fair to poor condition and is not usable by the National Park Service staff or visitors in its current condition. The house was last renovated in 2000 but has suffered from vandalism and deferred maintenance since that renovation. In order to renovate the interior of the house, whether into a museum, exhibit space or for use as volunteer or staff offices, modern amenities will need to be installed. The final interior use of the house is yet to be defined by the National Park Service.

The principal interior spaces and details from the period of significance remain fairly intact (including millwork, doors, trim, flooring and plaster). Overall, the house has seen very few alterations. Typically, a pure *Preservation* approach for the interior would be recommended for significant historic structures. However, because the focus of the park may include utilizing this historic building as an interpretive resource for the park, the building requires modern amenities to make it accessible, conditioned and useful. Therefore, the recommended historic approach for the interior is *Rehabilitation.*

Rehabilitation was selected as the treatment approach to allow for the retention of historic authenticity while accommodating the installation of modern amenities. While rehabilitating the structure, plans should be made to accommodate modern amenities including new utilities,

HVAC, electrical, fire suppression and detection; and ADA barrier free accessibility in a sensitive manner. Great care should be taken to respect the existing historic fabric of the building, a significant portion which dates to the original 1857 construction and to the period of significance (1857-1957).

Exterior Historic Treatment Approach

The exterior of the house is in overall fair condition. While the interior of the house requires upgrades, the exterior of the house requires less-involved rehabilitation work for the house to function as potential visitor contact space or park feature. Because the exterior requires less work, there are two potential historic treatment approaches that are appropriate for the exterior of the building, depending upon the desired use and interpretation of the house as well as available funding.

The first potential historic treatment approach for the exterior of the house is *Preservation*. Preservation would consist of necessary repairs to enable continued use of the house by the National Park Service and visitors. This approach would essentially preserve the house in its existing overall state, without making significant strides towards elaborate exterior renovation efforts.

The second potential historic treatment approach for the exterior of the house is *Rehabilitation*. Rehabilitation is a viable option for the future when funding for a larger project is made available. This approach would allow for the reconstruction of the failing and non-original 1950s back porch structure, allow for the installation of storm windows and will allow for the construction of an accessible ramp and exterior lighting.

Construction and/or Demolition Impact on Archeological Features

Certain recommended construction or demolition activities may impact the grading or soils surrounding the outbuildings, the house and within the house crawl space and basement areas. Required disturbances, including excavations of the soils must be closely coordinated and monitored by a National Park Service archeologist. No demolition, excavation or digging can occur without the required notifications, approvals and documentation. The Seip Earthworks / Blackstone house site is rich in archeological artifacts and features. The house is constructed on one of the only potentially intact sections of the earthwork walls. When the house was initially constructed, excavation for the building's foundations and basement disturbed the earthwork wall, but the presence of the homestead limited additional earthwork wall disturbance in the area immediately surrounding the homestead complex.

Discussion at the August 2016 Treatment Workshop held at the park suggested that to rehabilitate the house there would be select excavation required at the perimeter and interior of the house for foundation stabilization. The park archeologist and the archeologist from the SHPO agreed that the soil most likely to be excavated as related to the rehabilitation lies in areas which have already been disturbed. The excavations would be limited to within several

feet of the perimeter of the house to provide foundation stabilization. Also, the crawl spaces have settlement issues with regards to the interior walls and hearths that require rehabilitation and stabilization. Close coordination with the park archeological staff would be required to conduct the excavations required for a proposed rehabilitation.

Based on the findings during the sample archeological investigations by the field school in May 2016, the consulting tribes identified the need for further archeological investigations of this specific area of the earthwork wall surrounding the house and outbuildings. Disturbed soils in the crawl space, which were excavated for the path in the basement in the 1950s, should also be closely assessed after the building debris and trash is removed from the crawl space areas.

Potential demolition of the house and outbuildings may also require monitored demolition and removal of their foundations. In addition to the foundations of the house and outbuildings, the stone-lined well, below-grade gas piping, sanitary line, and septic tank and fields may be demolished and removed. Close coordination with the park archeological staff would be required to conduct the excavations required for the proposed demolition work an infill.

Hazardous Materials

A *Phase I Environmental Site Assessment* was completed by the park in 2013.[242] This limited study recommended the following in relation to the house and outbuildings:

> *The residence's heating oil tank storage area and fuel storage/filling area are recommended to be investigated for contamination…it is recommended to have the remaining fuel contents removed (if any) and have the product and the tank properly disposed of.*
>
> *Recommended testing the various structures…for asbestos and lead to ensure regulatory compliance for maintenance and/or anticipated demolition…recommended assessments to include a lead-based paint inspection on all structures with paint, a lead based paint risk assessment on the residence, and … and asbestos inspection. An Asbestos Operation and Maintenance Program and Plan are needed for the residence and other structures that will remain in order to assist with compliance and health protection activities.*
>
> *Recommend radon testing within the residential unit if the structure is not slated for demolition.*
>
> *The non-used and unsecured water well...cover should immediately be secured to ensure the well is not a fall-hazard. Recommend … well retirement by plugging or developing a safe drinking water protocol in the event the water system will be used in the future. In the event the residence is developed for the public, the water system could*

[242] "Phase I Environmental Site Assessment, Hopewell Culture National Historic Park." Report, 2013. (Omaha, NE: Marc Environ Services).

> *be defined as a public water system and significant requirements exist per 40 CFR Part 141. If the drinking water system remains in use at the Site…protocol for maintenance, water testing, and management of the system will be required to provide compliance with the regulations and ensure safe drinking water.*
>
> *The septic system at the Site is recommended to be addressed. Recommend either the system be abandoned according to Ross County regulations or the system be inspected to ensure it is functioning adequately.*

This report notes that if the sewage treatment system is abandoned, that the owner shall notify the board of health in writing that the system has been properly abandoned or removed. The "Ohio Department of Health's Private Water System Rules…requires that the owner of property on which a permanently out of service well is located shall be responsible for the plugging and sealing of the well."[243]

In summary, the house and outbuildings have not had had comprehensive hazardous materials inspections and testing, which will be required prior to maintenance and rehabilitation work. In addition, there is a strong smell of fuel oil in the basement, which should be investigated and tested. Before maintenance and rehabilitation work can begin, the structures should have a comprehensive assessment by a qualified environmental testing company.

An abatement and treatment plan should be assembled, based on the findings, and as required for a maintenance and rehabilitation of these historic structures. All abatement methodologies and materials used for removal must be approved by the National Park Service, prior to the start of any work. Test areas for paint removal products should be conducted. The selected removal products must not affect the historic materials and must be able to be completely removed, so that compatibility of new coatings is not an issue. Where interior and/or exterior paint is to be abated, extensive historic paint sampling of al painted surfaces, including duplicates, should be accomplished by an experienced historic paint professional, prior to removal. These samples should be tested and historic paint layers identified. The duplicate samples should be carefully catalogued and placed in the park archives for record. Once the historic paint abated, there is no chance to acquire additional paint samples and the historic record is lost.

[243] "Phase I Environmental Site Assessment," 2.

Building Code / Life Safety / Zoning / Accessibility Evaluation

The Blackstone house was originally constructed ca. 1857, prior to modern day life safety codes. Though the house witnessed renovations in the 1950s and again in 1999-2000, the house retains its original room configuration and a significant amount of its historic building materials and character defining features. The building has been used since the turn of the 20th century as a house or support structure for the ongoing archeological investigation efforts.

The National Park Service may eventually open the building to the public, although the final interpretation and use are not yet established. The goals for a proposed rehabilitation would include full and equal enjoyment of the building and immediate site, including removal of barriers and providing alternatives for access and interpretation, while preserving the important historic character defining features of the property. A sensitive rehabilitation must be undertaken which would consider the preservation of the significant details and materials and that the proposed work or alterations be reversible.

For the purposes of this study, the building code and accessibility review is based on the Blackstone house being used as a supplemental structure to a separate Visitor Contact Station. The building would be used for museum/exhibits, volunteer staff office space, and limited support spaces, such as restroom for staff only and kitchenette facilities. This new use is in a commercial capacity, which is reviewed differently than a residence.

The applicable codes and accessibility standards for a proposed rehabilitation project include:

- 2012 International Building Code (IBC)
- 2012 International Existing Building Code (IEBC)
- 2012 International Energy Conservation Code (IECC)
- 2012 International Mechanical Code (IMC)
- 2011 National Electric Code (NEC)
- 2012 International Plumbing Code (IPC)
- 2012 International Private Sewage Disposal Code
- National Fire Protection (NFPA)
    - 2013 Standard for the Installation of Sprinkler Systems (NFPA 13)
    - 2013 National Fire alarm and Signaling Code (NFPA 72)
    - 2012 Life Safety Code (NFPA 101)
- 2015 Architectural Barriers Act Accessibility Standards (ABAAS)
- National Park Service, *Preservation Brief 32: Making Historic Properties Accessible* by Thomas C. Jester and Sharon C. Park, 1993.

Alterations to historic buildings, such as the Blackstone House, are required to comply with the same building and life safety code standards as alterations to other types of existing buildings to the maximum extent feasible, per ABAAS F201.1 and F202. The intended commercial use requires that the entire structure be analyzed under current life safety code and ABAAS accessibility requirements. Because accessibility upgrades can be expensive and may require

permanent irreversible alterations to historic buildings and significant features, the ABAAS provides alternate standards for historic structures under F202, Existing Buildings and Facilities.[244]

ABA F202.3 Alterations.

> *Where existing elements or spaces are altered, each altered element or space shall comply with the applicable requirements…*
>
> *2. In alterations, where compliance with applicable requirements is technically infeasible, the alteration shall comply with the requirements to the maximum extent feasible.*

ABA F202.5 Alterations to Qualified Historic Buildings and Facilities

> EXCEPTION to F202.3 and F202.4: *Where the State Historic Preservation Officer or Advisory Council on Historic Preservation determines that compliance with the requirements for accessible routes, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the exceptions for alterations to qualified historic buildings or facilities for that element shall be permitted.*
>
> These exceptions include: *accessible routes; entrances and toilet facilities.*

For design and planning purposes, the rehabilitated building would be considered:

- Paxton Township has no zoning regulations at the time of this report.
- Type VB Construction, Currently Unsprinklered, but assumed to be Sprinklered for the rehabilitation. The NPS requirements for fire suppression installation are further discussed in the Mechanical Treatment Recommendations section of this report.
- The proposed new use requires a change of occupancy from a residence to a museum, visitor's center or park office, all of which are considered a 'B' Business occupancy with 'A' Assembly occupancy mixed use. 'B' Occupancy is used for an occupancy load of less than 50 persons. The Occupant Load is based on mixed use occupancy, with an Assembly use at 30 SF per person (museum/exhibit on first floor) and Business at 100 SF per person (second floor).
- If a meeting room is desirable for the first floor, then the occupancy shall be re-calculated at 15 SF per person.
- First floor egress is compliant, as there are three exits that lead directly outside. However, the egress is not ADA compliant.
- There is no emergency egress lighting. This will be required.
- It is the intention to install new fires suppression and fire alarm/smoke detection systems on all three levels of the house.

[244] Architectural Barriers Act Standards, 2015. www.access-board.gov/attachments/article/1029/ABAstandards.pdf

- A small restroom for staff only will be provided in the rehabilitation, which will be ADA accessible. Restrooms for visitors to the building will be provided in a separate nearby Visitor Contact Station.
- The current approach to the house and the access into the house are not ADA compliant. The approach and interior must be made compliant on the first floor.

Code Assessment – Group B Occupancy – Future Use

Floor Area:

Basement	353 net square feet
First Floor	1,700 gross square feet (not including porch)
Second Floor	708 net square feet

Building Height: Approximately 21 feet
Use Group B
Construction Type – 5B (Sprinklered)

Allowable Height, Table 503 (B)	2 St. 40’
Allowable Floor Area, Table 503 (B)	9,000 SF/Floor
Ext. Load Bearing Walls	
Ext. Non-Load Bearing Walls	
Fire Separation Assemblies	1 Hour
Required Between Floors, per Section 508.4	
Occupant Load	

Basement		1 person
Accessory	353 / 300	1 person
First Floor		34 persons
Assembly (101, 102, 103 and 104)	919 / 30	30 persons
Business (Office 105, Hall 100)	256 + 192 / 100	4 persons
Second Floor		7 persons
Business	708/100	7 persons

The 2012 International Existing Building Code, Chapter 12 addresses code requirements for existing Historic Buildings, in order to provide for their preservation. Repairs to any portion of a historic structure are permitted (IEBC-2012.1) to be made with original or like materials and methods of construction. Since the provisions of the IEBC are to be utilized for this project, the building code or person having jurisdictional authority may require a report from the registered design professional to address compliance issues. The report should recognize compliance with Chapter 12, identifying each safety feature that is not in full compliance, and describe how the intent of the provisions are complied with by establishing an equivalent level of protection.

Accessible Routes

- Accessibility requirements are addressed in the IEBC, Chapter 12, and state that in historic buildings, per Section 1012.8 (Accessibility in change of occupancies), the building must comply with Level 1 Alterations, as well as the requirements of IEBC 1012.8.2. Alterations Level 1 addresses the removal and replacement of existing materials or fixtures, and the alterations do not require that the building be provided with an accessible means of egress. Given the potential future use as museum/exhibit for park visitors, every effort should be made to provide an accessible pathway for full use of the first floor of the building. Per ABA F206.2.3, EXCEPTION 6, alterations to qualitied historic buildings are not required to have an accessible route to stories located above or below the accessible story. This means the basement and second floors are not required to be accessible.
- Accessible emergency egress must be provided, per ABA F207.
- Accessible site parking and route to the house back porch entry is required, as is a new ramp, per ABA F202.6.2 and a new ramp, per ABA Section 405.
- Newly constructed interior accessible route and emergency egress elements must comply with IBC requirements and ABA for door widths and clearances. Existing door and stairway widths are allowed to remain, provided they officer: sufficient width and height for a person’s safe passage through the opening; that there is adequate capacity; and that it meets the occupancy loading requirements. Future rehabilitation design documents should include an egress analysis to illustrate exiting adequacy and compliance.

ABA F206 and IEBC Section 1012.8.2 requires that the property provide the following:

- Assessable parking
- At least one accessible route connecting assessable parking to an accessible entrance
- At least one accessible passenger loading zone where loading zones are provided
- At least one accessible entrance
- At least one accessible route from an accessible building entrance to primary function areas
- Signage complying with Section 1110 of the IBC and F216 and 703 of the ABA.

ABA F210 and 504 and 505 Stairs

- The existing stairs to the basement (interior and exterior) do not meet current rise and run, tread layout or handrail requirements. These stairs are grandfathered and are not required to be upgraded, per Section F210.1 Exception 1… stairs that are not located in public use areas shall not be required to comply with 504.
- The stair to the second floor meets current rise and run requirements, but does not meet the current handrail graspability and guard railing and extension requirements. These are grandfathered and are not required to be upgraded, per Section F210.1 Exception 1… stairs that are not located in public use areas shall not be required to comply with 504. The second floor will not be accessible for public use.

Door Hardware and Thresholds

- Interior and exterior doors at the first floor meet ADA and ABA clearance requirements; however, the existing hardware does not meet accessibility requirements.
- Thresholds, per ABA 404.2.5 Exception, must be ¾" high maximum that have a beveled edge on each side with a slope not steeper than 1:2. There are several types of wood raised and flush thresholds installed on the first floor. These are to be addressed individually, in order to meet this ABA requirement. Some thresholds may remain, while others must be replaced to meet this bevel and slope requirement.

ABA F202.6.3 Accessible Toilet

- The building does not currently provide an accessible toilet facility. A new multi-use, single accessible water closet will be constructed on the rear porch, which is a reconstructed portion of the house. This new restroom would serve the on-site staff. Visitor restrooms would be located in a nearby Visitor Contact Station. This is permitted by F202.6.3 and F213.2.

ABA F206.4 Entrances

- Per Section 206.4 Exception 2, alterations to qualified historic buildings or facilities are permitted by F202.5, no more than one public entrance shall be required. The rear porch entry will become the primary building entrance for staff and visitors. This entry will be accessible by a new ramp and reconstruction of the porch to be flush with the first finish floor level.

Building Code and Accessibility Summary

The existing house has many significant alterations required for the successful rehabilitation into a commercial or visitor support facility. Even as a 'support' structure with restrooms and supplemental visitor services in a nearby Visitor Contact Station, the house and immediate site require major modifications to make them accessible and safe for enjoyment by all.

Great care shall be taken in the development of the design for the alterations, to be certain that the historic integrity and character defining features of the building and site are maintained and that the least amount of damage and irreversible alterations are specified.

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Treatment Option 1 – Immediate
Interim Preservation and Maintenance Recommendations
This is the Preferred Treatment Option

Refer to the Cost Estimate for Immediate Work in Appendix I.

The Blackstone house has been unoccupied since the last renovation in 2000. As such, the house has continued to deteriorate and has had only emergency repairs and basic maintenance. This lack of attention has caused the building to further deteriorate and attract vandals.

The goal of the Immediate Interim Preservation and Maintenance Recommendations is to help stabilize the house and outbuildings and to preserve the historic materials until a future long-term use can be identified and a larger rehabilitation project may be undertaken. The recommendation is for this work to begin immediately. The work will focus on the preservation, stabilization and maintenance of damaged or unstable materials, and security, rather than intensive rehabilitation.

The building would not be open to the public, so there is no immediate need for upgraded utilities or accessibility to the house. With exterior maintenance, the building would be more attractive to visitors when they visit the site. There are currently deferred maintenance items on all three buildings that make the structures appear as an eyesore.

A useful reference for small building caretakers is the National Park Service, *Preservation Brief 47: Maintaining the Exteriors of Small and Medium Size Buildings* by Sharon C. Park, FAIA. This brief outlines example maintenance schedules and checklists, as well as making recommendations for the maintenance of building components. Another useful guide is *Preservation Brief 31: Mothballing Historic Buildings*, also by Sharon C. Park. This brief serves as a guideline for the temporary protection and stabilization of a building, while planning for a future project.

Maintaining the exterior envelope of the Blackstone buildings is the most important objective in preserving the integrity of the historic structures. Regular inspections will help to discover deficiencies as they occur. Water infiltration is the number one source of deterioration for structures. Preventing water infiltration, allowing for ventilation and protecting the historic materials will keep the building safe and secure for future rehabilitation and interpretation efforts.

Security of all exterior fenestration and doors is important to prevent vandalism and theft of significant interior features. Security of the house and the outbuildings is important. There has been a history of theft and vandalism on this property in the last several years. Millwork on the interior of the house has been damaged and stolen (main staircase) and one of the mantels has been stolen. The original milk house wood door and frame had become unstable and were stored in the milk house. The door and frame were stolen between the May 2016 and August 2016 site visits. Also, a beautiful and unique inclusion in the handmade brick in the smokehouse

was stolen during this same time. The outbuildings are currently open and should be immediately secured to prevent further theft or vandalism.

Interim Preservation and Maintenance Recommendations are listed below, starting with general, followed by architectural, structural, civil, mechanical and electrical recommendations. Estimated costs associated with these items can be found in Appendix I.

General Immediate Treatment Recommendations:

1) Prior to maintenance and repair work, conduct a comprehensive hazardous materials investigation and report for the house and outbuildings (lead based paint, asbestos, fuel oil and other potential contaminants). Prepare recommendations, guidelines and potential costs for abatement.
2) Remove the above-ground propane tank and associated piping west of the house. See recommended testing in the *Phase I Environmental Site Assessment* report.[245] Removal of the tank and piping will require archeological monitoring.
3) Regularly scheduled site inspections of both the exterior and the interior of the buildings will ensure that deficiencies are caught and addressed promptly.
4) Because the existing sewage treatment system is abandoned, the park should notify the board of health in writing that the system has been properly abandoned and that there are plans for its removal (tank).
5) Prevent animal and pest intrusion into the buildings. An inspection of the exteriors of the buildings should be conducted to identify holes and crevices where pests can enter the house. Treat the house for pests, as required.

Exterior Immediate Treatment Recommendations:

6) Repair the roof, flashings and drainage, as required, to prevent further water infiltration to the interior and deterioration of the exterior masonry walls.
    a. Thoroughly inspect the roofing.
    b. Remove existing non-effective flashing at the chimneys and installing new flashing and counter-flashing.
    c. Installing temporary flashing to cover the large gap at the west elevation where the upper roof meets the lower roof at the eave.
    d. Install new sealant, as a temporary measure, along the top of the existing wall flashing at the rear porch.
    e. Install downspouts that positively drain away from the house and a minimum of three feet to five feet from the house. Clean existing gutters and ensure they are sloping to drain properly and in good working order.
    f. Infill divots in the soil where the lack of downspouts has been eroding the soil at the corners of the building.

[245] "Phase I Environmental Site Assessment," 2.

7) Masonry:
   a. Spot repointing of the masonry is required at cracks and where mortar is missing from the joints. Great care shall be taken to emulate the historic lime putty mortar. Lime putty mortar should only be installed by a trained historic masonry professional.
8) House Windows:
   a. Remove existing ineffective storm windows.
   b. Paint all existing exposed wood jambs and sills.
   c. Replace broken glass in existing wood sashes, as a temporary protection. Full restoration of the wood sashes will be in the long term plan.
   d. Install new prefinished white aluminum storm windows. Caulk at the top and sides and the bottom, but allow for water to drain from the bottom weeps.
   e. Install backer rod and caulking at the perimeter of all window openings.
9) Basement Windows and Masonry:
   a. Carefully remove the infill from basement Windows 001 and 002. Salvage the wood frames and store in the park archive for later reference. Install new wood frames and solid wood exterior grade sheathing. Paint all exposed surfaces with exterior grade paint.
   b. Repair the bricks in the masonry wall above the basement windows. Reinstall existing bricks and supply at least one new brick, after the temporary wood window frame is installed. Explore installing a galvanized steel angle behind the first course of stone.
10) Basement Exterior Door:
   a. Paint the existing plywood door and frame to prevent further deterioration. Make repairs as required to keep door secure and prevent animal and pest intrusion.
11) Front Exterior Door and Surround:
   a. Remove existing and install a new white aluminum storm door. The existing door does not close properly
   b. Prep, prime and paint the entire door surround and front door. (In the future, this door surround and door should be stripped, repaired, primed and painted).
12) Exterior Wood:
   a. Prime and paint all exposed exterior wood, including fascia, barge boards, siding, dormers and porch walls.
   b. Install backer rod and sealant at the open joint at the ridge at the east elevation barge board.
13) Chimneys:
   a. Install caps on all chimneys.
   b. Inspect chimneys for missing mortar and patch cementitious finish, as required, in order to prevent water infiltration and further deterioration.
14) Porch:
   a. The back porch should be temporarily shored to prevent failure of the wood structure. This requires a wood framed wall to be constructed just inside of the

existing exterior east wall to directly support the triangular roof frames. A second wood framed wall should also be constructed along the west portion of the porch against the brick exterior wall so that the triangular roof frames are supported from each end.

15) Install temporary outdoor motion-activated lighting to prevent vandals from loitering on the property.
16) Remove PVC furnace vent pipe from west foundation wall. Patch repair the foundation stones with appropriate Jahn patching mortar where the pipe is removed.
17) One large hole in the eave in the center of the west elevation where the rooflines meet requires a cover.

Interior Immediate Treatment Recommendations:

18) Basement:
    a. The wood lintel and jambs for the doorway between Rooms 000 and 004 require bracing. A second door jamb should be installed interior to the existing north jamb.

Mechanical/Plumbing/Electrical/Fire Protection Recommendations:

The purpose of the immediate recommendations is to address critical items to provide reasonably stable interior environmental conditions, to preserve the integrity of the structure, and to limit further deterioration. The immediate recommendations are not intended to be final design recommendations for the future use of the building. They are temporary corrections for immediate concerns. All immediate actions should be mindful of the historic building’s value and significance and should not cause further damage to the building or its contents.

19) HVAC Systems: The building has not been consistently conditioned and has suffered from high humidity. HEI recommends installing a portable dehumidifier in the basement and leaving the basement door open to the remainder of the house to help reduce indoor humidity in the summer. The drain line from the humidifier will need to be gravity drained to a small condensate pump and pumped out to grade.

20) Plumbing Systems: There are no functioning plumbing systems in place in the house at this time. None are required or recommended.

21) Intrusion Alarm: A minimal intrusion alarm system should be provided to deter theft or damage to the building and contents. Camera on the exterior of the building to view the immediate site would be beneficial.

22) Fire Protection System: There is no existing fire alarm or fire sprinkler system in place for the house at this time. A new security alarm with a smoke detection system is recommended for the house.

23) Electrical Systems:
    a. The electrical grounding system should be inspected by a qualified, licensed electrician. All grounding should be in accordance with 2011 NEC Article 250.
    b. The existing panel should be provided with appropriate covers to conceal exposed bus.
    c. New circuit breakers shall be provided in the existing panel and new wiring shall be installed (in raceway) as needed to serve new equipment (refer to HVAC and Plumbing Systems section above for equipment).
24) Telephone System: The telephone system should be inspected and tested by a qualified technician. The system should be placed in operation or repaired in order to allow the fire alarm system and intrusion detection system to dial out to notify National Park Service personnel of troubled conditions. Otherwise, a cellular service can be installed.

Additional Short-Term Mechanical Recommendations

25) HVAC Systems: In the near future, it is recommended to install temporary heat for the heating season. This will help stabilize the house and protect against continued deterioration. A portable electric heater could be installed in the main hallway. Power would need to be supplied from existing/new breakers in the main electrical panel. A separate optional cost is listed in the cost estimate for this installation.

Outbuildings Immediate Treatment Recommendations:

26) Smokehouse
    a. Install temporary painted wood frame and wood door and lock the outbuilding.
    b. Install temporary painted wood frame and plywood covering at window.
    c. West Wall - Repair large hole in west brick wall with existing bricks on site. Additional bricks will need to be sourced to match the historic handmade soft bricks. A traditional lime putty mortar should be used and should be installed by a trained mason.
    d. The existing metal roof is deteriorated and is leaking. Immediate replacement is required.
        i. The existing roof should be well documented, including taking samples of the roofing, seaming, half-round gutters and downspouts and save for park archives.
        ii. Roof framing: The first roof frame on the west side has a joist with extensive rot and the second roof frame from the west side has a rafter that has extensive rot. Both frame members should be sistered or replaced, in kind.
        iii. The existing roof skip sheathing is deteriorated in several places and should be replaced, as required, matching the original sheathing thickness and installation.
        iv. Install a new temporary asphalt shingle roof to match the house.

v. Install new flashings, as required, including flashing and counter flashing at the brick chimney.
vi. Install new galvanized (but paintable) half-round gutters and round downspouts. Match the installation of the existing gutters with the twisted wire connections, if possible. Downspouts extensions should direct water at minimum of three feet away from the building.

e. Install new barge boards, as required. Back prime and paint white. Measure paint lines on the existing bricks to determine the size of the new barge boards.
f. Repair and cap the brick chimney
g. The vent holes in the smokehouse can be infilled with an aluminum screening that can balled up and inserted carefully into the holes. The screening can be pushed back two inches from the face of the wall, so that they are not readily noticeable.

27) Milk House
   a. Install temporary painted wood frame and wood door and lock the outbuilding.
   b. Install temporary painted wood frame and plywood covering at milk house window. Salvage existing wood frame and sash from the milk house window opening and store in park archive for future reference.
   c. Sister or replace the north roof joist.
   d. Roof:
      i. Patch any leaks.
      ii. The gutters and downspouts should be replaced, in kind. Downspout outlets should divert water a minimum of three feet away from the structure.
      iii. Optional: Prep, prime and paint roof for further protection.
   e. The vent holes in the milk house can be infilled with an aluminum screening that can balled up and inserted carefully into the holes. The screening can be pushed back two inches from the face of the wall, so that they are not readily noticeable.

Treatment Option 2
Long Term Rehabilitation Treatment Recommendations

Refer to the Part 2 Treatment Recommendation Drawings following this section and the Cost Estimate for Long Term Work in Appendix I.

A final preferred long term treatment and use for the Blackstone house and outbuildings was not identified at the August 2016 Treatment Alternatives Workshop. However, a direction which includes the preservation and maintenance with a potential for future rehabilitation of the house and outbuildings was identified as a Long Term treatment option. With the Blackstone house and outbuildings assumed to be eligible for listing in the National Register of Historic Places, a renewed interest in the potential future expanded 'diverse interpretation' of the Seip Earthworks site is a possibility in the near future.

For the Long Term Rehabilitation Treatment Recommendations, a generic rehabilitation design for the house and outbuildings has been explored and developed in order to assist with future planning efforts and understanding of magnitude of costs associated with a comprehensive rehabilitation project. This long term treatment design includes the interior and exterior rehabilitation of the main house into a potential museum/exhibit and office space for volunteers. It was clear during the workshop that the park is not planning to staff the house at this time, and therefore, a use which could be organized and run by volunteers or with limited staff would suffice for future long term planning efforts. Exploration of this long term option identifies the required upgrades and alterations to the house and outbuildings to enable the structures to be open to the public. By identifying the basic rehabilitation requirements, budgeting for rehabilitation work can be estimated for a generic future use.

The long term treatment assumes an ***Interior Rehabilitation*** *and* ***Exterior Rehabilitation*** approach to the design and construction of the house and outbuildings. Although a final use for the house has not been determined, it is assumed the first floor will be open to the public, that the second floor may be used only as offices for volunteers (not storage), and that the basement is unoccupied. To support the volunteer staff, minimal accessible restroom and fresh water/kitchen facilities are included in the design.

This rehabilitation design use assumes that a separate (unstaffed) visitor contact station, which would include restrooms, minimum shelter, fresh drinking water and some interpretive materials would be constructed in proximity to the Blackstone house. Without this visitor contact station, the Blackstone buildings cannot be open to the public for any greater use because the structures and earthworks are too historically and archeologically sensitive to install the required utilities to provide the basic restroom and water services required for a high-use type of building.

Scope of Rehabilitation Work

Site and Handicapped Access

The site planning for parking layout and accessible route to the house is not in this scope of work, however two options are presented in order to visualize the magnitude of the effort to gain handicapped access to the building. This programming and site planning work will be critical to the future design and use of the house. This future design work should be undertaken by a historical landscape architect with regards for the historic context and archeological resources.

The existing back porch east wooden frame wall is failing structurally. This porch was constructed in the 1950s, replacing an earlier partially-enclosed porch in this same location. The reconstruction of the back porch offers an opportunity to assist with the handicapped access into the house. The current porch floor is approximately eight and one-half inches below the finish floor of the house. By reconstructing the back porch within the historic footprint, a new concrete slab can be poured to be flush with the interior of the house. A new accessible ramp can be constructed to access the new porch. Also, the reconstructed porch can accommodate a new accessible restroom, alleviating the need to install a new compliant restroom within the historic structure.

Exterior Restoration

The exterior of the house would be repaired and deteriorated features, such as the chimneys, would be carefully reconstructed with in-kind materials. The exterior windows would be restored and new wood storm windows would be installed. The roof would be replaced, and the masonry would be carefully cleaned and repointed to match the existing historic mortar.

Interior Rehabilitation

The existing kitchen and bathroom in Room 105 would be demolished in their entirety, as well as non-historic interior finishes, such as the flooring in Room 105 and all conduit and mechanical and electrical throughout the house.

The four first floor rooms off the center hall would serve as potential interpretive exhibit and meeting room space. The existing Room 105 would be converted into a small office and kitchenette for staff.

Once the back porch and ramp are constructed, the first floor is made accessible without excessive alterations. All interior doors meet current width/clearance requirements. Several door thresholds do not meet ADA requirements and must be replaced with compliant thresholds.

The interiors of the first floor would be repaired and restored, including the plaster, wood flooring, millwork, cabinetry, and plaster walls and ceilings. The center hall staircase would be restored. The second floor would be converted into private staff office use and

would not be open to the public. All new mechanical, electrical, plumbing, fire suppression and alarm systems would be installed in a sensitive manner throughout the house.

Impact of Rehabilitation on the Historic Structures

The goal for a successful rehabilitation of the overall site and buildings would be to retain the character defining features and original historic materials to the greatest extent possible. Maintenance and replacement materials should match the historic original materials, in kind. Alterations should be reversible, and cleaning and maintenance work should be by the gentlest means possible.

In the 1950s and through 2000, the house underwent major modifications for installation of new HVAC, plumbing and electrical systems. This work included the installation of the new kitchen, bathroom, HVAC equipment and electrical conduit throughout the house. These modifications are fairly discreet in the front portion of the house, while they are more apparent in the kitchen/bathroom and in the basement. Some of these modifications are irreversible, such as HVAC grilles cut through the floors and conduit drilled through walls and historic trim, but their overall effect is not damaging to the overall historic character of the interiors.

Interior demolition of deteriorated finishes is required for the house rehabilitation, such as the lath and plaster ceilings. The demolition of the ceilings throughout the house will allow for the installation of contemporary electrical and sprinkler distribution. New HVAC systems can be installed in concealed spaces, with most of the equipment located in the basement. A new chase to the second floor will be required and is recommenced to be installed in the northwest corner of Room 105, where the bathroom currently is installed. The ductwork would be run in the concealed spaces behind the second floor knee walls. First floor distribution would be through existing floor grilles with ductwork in the basement and crawl space areas. Many of the remaining interior finishes, such as the millwork, wood doors, wood flooring, cabinetry and plaster walls can be retained and restored.

Long Term Rehabilitation Treatment Recommendations are listed below.
Refer to the Treatment Drawings at the back of this section and the cost estimate in Appendix I.

General Long Term Treatment Recommendations

1) If not completed prior to rehabilitation project planning, conduct a comprehensive hazardous materials investigation and report for the house and outbuildings (lead based paint, asbestos, fuel oil, and other contaminants). Prepare recommendations and guidelines for abatement.
2) Provide a comprehensive paint analysis on the interior and exterior of all structures (including the metal roofing).

3) Provide a thorough masonry mortar analysis, as well as analysis of the parge coating and whitewash at the main house back porch and in the milk house.
4) Provide pest inspection and treatment.

Exterior Treatment Recommendations

5) Foundation –
    a. Refer to the structural recommendations for the work associated with the stabilization of the stone foundations.
    b. Repoint 100% of the face of the stone foundations with lime putty mortar to match the existing historic mortar.
6) Masonry (to be completed AFTER foundation stabilization)–
    a. All deteriorated bricks with more than 50% of the face plane missing require removal and replacement with reproduction bricks matching size, color and texture of the existing historic bricks.
    b. All bricks that are cracked at vertical wall crack locations require removal and replacement (interior and exterior face of wall).
    c. Spot repointing should be performed on the whole exterior, with concentrated areas at 100%. Care must be taken in the selection of the pointing mortar to match the historic lime putty mortar (hardness, color, aggregate size and color and tooling). Work should be performed by a qualified mason trained in historic lime putty mortar installation.
    d. Crack stitching should be performed on the exterior and interior wythes of brick. Stitching should utilize helical shaped stainless steel anchors in the bed joint of every fourth course of brick along a crack.
    e. The length of the cracks should be grout injected.
    f. Clean brick and stone exterior walls with appropriate cleaning materials.
    g. Remove nails, plumbing vents, piping, utility connections and other accessories throughout the exterior masonry walls. Patch the mortar and/or brick, as required.
    h. Inspect and replace deteriorated interior (wood) door and window headers at Door 2/100, Door 1/105 and at Window 104. Repair/replace, as required. Repair plaster, as required.
7) Chimneys –
    a. Document existing historic chimneys through photography and measurements during deconstructions.
    b. Carefully deconstruct the chimneys to the roof line or to stable masonry. Salvage all usable bricks.
    c. Reconstruct brick chimneys per historical photographs and evidence of existing chimneys, including offsets and brick patterns.
    d. Cap all new chimneys
    e. Install new copper flashing and counter flashing at all chimneys.
    f. Utilize reproduction or salvaged bricks to match bricks on the house.

8) Roof –
    a. Demolish existing asphalt shingle roof.
    b. Repair/replace skip sheathing to match the existing, as required.
    c. Install new fire treated wood shingle roof and all new flashings.
    d. Install new galvanized half round gutters and downspouts. Install concealed leaf guard on gutters. Install concrete splash blocks at downspouts, if required.
9) Back Porch –
    a. Document existing porch through photography during demolition.
    b. Carefully demolish existing porch and roof structure in its entirety, including the CMU foundation.
    c. Install new concrete foundation and construct new wood frame porch structure. New concrete porch slab to be flush with the interior of the first floor house.
    d. Install new ADA compliant ramp and stairs to the porch. This entrance will become the primary entry for staff and visitors. Install sign at front door to let visitors know the main and accessible entrance is at the rear porch.
    e. Install new ADA compliant restroom at south end of porch. Install all required plumbing to the restroom.
    f. Install a new exterior hose bibb at south wall of porch.
    g. After abatement (if required), whitewash exposed masonry walls inside porch to match existing condition and as seen in the 1920s Figure 30 historic photograph.
10) Doors –
    a. Rotted wood sills at exterior doors should be replaced at Door 2/100, 1/105 and 1/100. Coordinate with barrier free accessibility guidelines.
    b. Install reproduction wood doors and hardware at 2/100, 1/105 and 1/105. Prep, prime and paint. Reverse the swing of Door 2/100 to match historic swing. Repair jambs, as required.
    c. Strip, repair and restore front Door 1/100 and surround. Prep, prime and paint exterior. Replace glazing. Restore interior finish. Repair existing rim lock and install reproduction supplemental hardware for front door, as required.
11) Windows –
    a. Install reproduction wood frame, sill and window sashes at basement Windows 001 and 002.
    b. Rehabilitate all existing windows (11 total), including sashes, jambs, sills and trim. Replace glazing putty, replace broken glass with reproduction glass, paint exterior and restore interior finishes, replace rail and stile
    c. Assumed new metal storm windows were installed during the Interim/Immediate Work above. If not, install new prefinished aluminum storm windows.
    d. Remove existing Windows 200 and 204, including sashes, frames and sills. Repair masonry walls and repair or replace wood lintel at window. Install new window frames, sills and restore existing sashes. Reinstall replacement storm windows, or install new storm windows, as required.

12) Repair/replace deteriorated exterior millwork at the dormers, fascia, and barge boards. Back prime all replacement wood. Utilize exterior grade Western red cedar, or approved equal.
13) Prep, prime and paint all exterior exposed exterior millwork at the dormers, fascia, and barge boards.
14) Install new reproduction galvanized and painted handrail at front door step.

Interior Treatment Recommendations

Basement *(Refer also to the Structural and MEP Recommendations)*

15) Install crawl space access to each crawl space cell that is not accessible. Combine with ductwork penetrations. Install new lintels and frame supports, as required.
16) Level existing crawl spaces (archeological monitoring required).
17) Install vapor barrier with pea gravel to control moisture and potential radon from entering building occupied spaces.
18) Install crawl space work lighting throughout the basement.
19) Insulate first floor joists.
20) Repoint interior of stone foundation, as required.
21) Ventilate crawl space, per code.
22) Install new handrail at stairs.
23) Install new areaway drain at base of exterior basement stairs.
24) Coordinate documentation, partial demolition and reconstruction of the exterior basement stairs as required for the new foundation stabilization footing and underpinning.
25) Demolish all existing ductwork, plumbing and electrical distribution and equipment, as required. Prepare for the installation of all new utilities.

First Floor and Second Floors *(Refer also to the Structural and MEP Recommendations)*

26) Demolish all piping, ductwork and mechanical and electrical wiring, conduit and equipment in their entirety. Prepare for installation of all new utilities, distribution and equipment.
27) Demolish the existing Bathroom 106 fixtures, plumbing, cabinetry, lowered ceiling structure and partitions in their entirety. Demolish cabinetry, plumbing and fixtures in Kitchen 105 in their entirety.
28) Remove existing tongue and groove wood finish floor in Rooms 101, 102 and 103. Carefully remove and label each floor board for reinstallation in their original locations. Clean and inspect crawl space. Inspect all floor joists and replace deteriorated floor joists, in kind. Stabilize, as required, per structural. Reinstall floor boards in their original locations.
29) Refinish wood flooring throughout the house, strip paint and install satin finish. Supply old growth boards where flooring is too deteriorated or damaged to be retained. Patch floor vent in second floor Bedroom 202.

30) Restore all interior plaster walls. Where vertical cracks exist, after foundation stabilization, stitch new bricks and repair plaster.
31) Demolish all existing plaster ceilings at first and second floors and install new blue board with two skim coats to emulate the historic plaster. Install furring strips to match the existing historic lath and plaster thickness.
32) Refinish all baseboards on the first floor to have a natural finish.
33) Repair all damaged built-in cabinets door and repair to working condition. Replace missing hardware with custom reproduction hardware.
34) Install new rim locks on all historic doors to match the original installations.
35) Existing thresholds throughout the house are approximately 1” high. These do not meet building code or ADAAG access requirements. These can be carefully removed, labeled on the bottom side and placed in park storage. Replacement thresholds can be custom made of a similar wood, but of a thickness that meets the ADAAG and code guidelines for accessibility. Refer to drawings for specific work at each threshold.
36) After abatement of lead-containing paint, paint all first floor walls and ceilings. Paint second floor walls, ceilings, trim and doors.
37) Restore historic natural finishes on millwork throughout the house, including baseboards, cabinets, mantels and doors.
38) Restore existing staircase to the second floor. Replicate missing balusters, newels, and handrail. Refinish stairs.
39) Repoint interior of all fireboxes and stabilize/reconstruct brick hearths. Remove metal flues and insulation from chimneys. Restore the brick hearth in the Dining Room 104.
40) Install reproduction wood door with reproduction hardware at Door 2/104 between the kitchen and dining room.
41) Coordinate installation of new duct chase from basement to the second floor in the northwest corner of the Kitchen 105 where the bathroom is demolished.
42) Repair damaged Doors 1/101, 1/201 and 1/202 with old growth butternut at the rails and stiles.
43) Insulate attic, second floor ceilings, second floor knee walls and new bathroom partitions.

Structural Treatment Recommendations

44) Foundation –
    a. In order to stabilize the house foundation and reduce the probability of future differential settlement, the foundation must be augmented. The entire stone masonry foundation, both shallow and deep areas, requires 100% grout injection. The face of the stone foundation wall should be repointed and coated with a low strength cementitious parge coat (below grade). Bentonite waterproofing sheets should be applied to the face of the parge coat with a protection board. An open graded crushed stone rock chimney should be backfilled against the bentonite sheets and should be wrapped in filter fabric. The balance of the backfill can

consist of soil. Soil should be compacted to 95% of a standard proctor (ASTM D-698).

b. A footing drain may be incorporated into the "rock chimney" and daylighted at a lower elevation on the property. Every effort should be made to utilize the existing trenches to run the drains. Backfill should be performed with light equipment and in such a manner to ensure compaction without imparting excessive force on the masonry walls. Drainage at the base of the foundation wall is needed to relieve pressure on the wall. As the water table rises following a rainfall or flood event, the lateral earth pressures due to the surrounding soil decrease and the hydrostatic pressures increase. This results in a net total increase in horizontal pressure acting on the foundation wall. Friction forces between the bottom of the wall and the soil are reduced too, since the friction force is a function of the lateral earth pressure. All drains to daylight must be carefully coordinated with the archeologist.
c. Additional investigation into the condition of the inaccessible floor framing areas and the three fireplace foundations is also recommended before pursuing either of the options below. This will require selective exploratory demolition. The floors in Rooms 101, 102 and 103 should be carefully removed, labeled, numbered in order and salvaged for reinstallation in their original locations. This will give access to inspect the joists in the crawl spaces and to work within the crawl space areas.
d. Option 1 – Grade Beam and Helical Piers or Push Piers

   This option is the most favorable because the methods are commonly used, minimum excavation is required, and future differential settlement will be minimized.

   i. Excavate below existing stone masonry foundation and pour a grade beam approximately 16-inches wide and 16-inches deep. This process is done in stages, with two foot lengths of grade beam being constructed at a time. A threaded rebar splicing system will need to be utilized for continuity of the grade beam reinforcing steel.
   ii. Install helical piers or push piers at the bottom of the new grade beam at approximately four feet on center. The piers should be installed from the exterior of the house where the foundation is shallow and from the interior to the house where the foundation is deep. The piers should extend down to a more stable layer of soil.
   iii. An underpinning contractor who has performed pier installation in the Chillicothe region reported that push piers are most common for stabilization of existing buildings. Push piers, however, rely on the weight of the structure for resistance, and may induce adverse loads or movement in the structure. Push piers work well if the existing foundation is able to properly transfer loads. The existing stone foundation walls will need to be grout injected and tuck pointed prior to

the installation of any piers. Helical piers do not rely on the structure for resistance and will not induce adverse loads or movement. The decision to use helical piers or push piers will also depend on the results of a geotechnical report. A geotechnical study will perform testing by sampling soil at multiple boring locations. Borings may require a depth of up to 70-feet to 100-feet below the surface of the soil to retrieve the required information. Helical piers would be the preferred option; however, the presence of glacial till in the soil may preclude its usage.

e. Option 2 – Grade Beam Only
    i. Construct a grade beam as indicated in Option 1; however, the beam should be made 36-inches deep to increase its bending capacity.
    ii. This option to construct the beam alone has a lower confidence level of accommodation for differential settlement. The new grade beam will be able to span across some localized areas of settlement if the soil below the foundation continues to settle, but it will not have sufficient capacity to restrict all potential differential settlement. Soil consolidation is a time dependent process.
    iii. This option provides a viable solution but provides a lower confidence level than Option 1 that it will accommodate all potential soil consolidation. This option requires more excavation than the first option.

45) The CMU retaining walls in Rooms 000 and 004 are unreinforced and rotating. The walls should be removed and replaced with an 8-inch deep basement concrete slab and 8-inch wide reinforced CMU walls. The new slab should have vertical reinforcing steel bars doweled into it for the construction of the new reinforced CMU walls.

46) The foundation for the hearth in Room 102 appears to be failing. Investigation into the condition of the hearth foundations in Rooms 101, 102, and 103 is recommended. Floor boards around the hearth in those rooms must be removed for investigation. A probable solution for each hearth is likely going to be a shallow concrete mat foundation poured below the existing hearth foundation.

47) First Floor Framing
   a. Powder post beetle damage was visible on wood joists and framing throughout all of the accessible basement spaces during inspection. It is assumed that this damage extends to the inaccessible areas. Further investigation into the extent of the beetle damage is recommended. Conditions of the joists in the other crawlspaces, as well as the joist in Room 004 hidden by ductwork, should be investigated. This would include probing all joists with a sharp tool to confirm the depth of infestation. Investigations are also needed to discover if the infestation is active.
   b. Room 104 has a calculated floor live load capacity of 38 psf, provided that all existing joists are in good condition. The minimum for residential occupancy is 40 psf. The future use of the structure has been identified as Museum Space. The International

Building Code (IBC) does not identify a usage of "Museum" in table 1607.1 Minimum Uniformly Distributed Live Loads. However, corridors (first floor) require a live load capacity of 100 psf. Lobbies, Moveable Seats and Other Assembly Areas also require a live load capacity of 100 psf.

    i. In order to assure that the live load capacity of the first floor meets the minimum for residential occupancy, the existing joists with beetle damage or rot should be sistered with modern dimensional lumber. It is estimated that at least 30% of all joists will require remediation.
    ii. In order to further increase the live load capacity, more structural improvements are required, in addition to sistering rotted joists. Two common methods for this are to install additional joists between the existing joists or to install a drop beam below the joists to shorten their span.

c. Below Rooms 101 and 104, the recommended solution to increase the live load capacity is to reduce the span to 10-feet 6-inches, or less, by installing a glulam 6 ¾-inch by 15-inch drop beam. The drop beam would be supported by steel posts and new concrete footings. The other, smaller Rooms 102 and 103 may use this same solution, or have new joists of 1 ¾-inch by 11 ¼-inch Timberstrand LSL installed at 18-inches on center. For rooms with crawl space beneath, the best construction method would involve temporarily removing the existing flooring and floor boards. This would aid in the investigation of existing conditions for joists and fireplace foundations.
d. A joist in the inaccessible crawlspace area was visible through a floor penetration in Room 103. The joist showed rot from moisture at its bearing location. Further investigation is needed into the extent of joist rot at bearing locations.
    i. In order to remediate this condition, a 2-inch by 8-inch ledger may be installed at the top of the inside face of the stone foundation. In places where rot extends well beyond an additional ledger, the joist would require sistering out to an area without any rot.
e. The wood post supporting the cut joists in Room 000 near the bottom of the steps should be replaced.
f. At wall penetrations for ductwork, add short timber lintels to support floor joists, where needed.

48) Second Floor Framing
a. Further investigations into the joist size, species, and condition is recommended.
b. Calculations performed were based on assumed size, species, and condition of wood joists. The joists in Rooms 201 and 202 are adequate for a 40 psf live load if the design assumptions can be confirmed. The IBC gives a minimum live load of 30 psf for residential occupancy in habitable attics and sleeping areas. The minimum live load is 40 psf for private rooms and corridors serving them. For Rooms 201 and 202 to be used as office space, the minimum live load needed is 50 psf. This does not include the weight of partition walls. In order to increase the live load capacity to 50 psf, all existing floor joists must be supplemented with 2-inch by 8-inch modern

dimensional lumber at 16-inches on center. Lumber should be Southern Pine No. 2 or better. The recommended approach for this remediation would be to sister the existing joists from below, making access through the existing first floor ceiling. The additional members are not required to be “pocketed” into the existing walls, but should extend to within one foot of the supporting walls. The first floor ceilings are slated for demolition and replacement due to their condition and the need to install new electrical and fire suppression systems.

c. The framing layout for Room 200 and the stairs were indirectly observed by the nailing patterns in the flooring. Further investigation into the connections and member sizes is needed in order to calculate the load capacity and make recommendations for this area.

49) Roof
   a. Further investigation into the rafter size, species, and condition is recommended.
   b. Calculations performed were based on assumed size, species, and condition of timber rafters. The joists are adequate for wind, snow, and rain loads if the assumptions can be confirmed.
   c. Tie down straps should be installed at the connections of roof rafters to second floor framing joists. This is necessary unless further investigations reveal that connection detail is sufficient to resist uplift.

50) Porch
   a. The existing concrete pad, and deteriorated and unreinforced CMU support walls, should be removed and a new shallow concrete strip footing should be installed. The footing will support concrete walls and a new porch slab. The space below the slab should be composed of compacted fill or gravel. The finish elevation of the slab should match the elevation of the flooring inside the house at the doorway. A new concrete ramp should also be constructed to meet accessibility entrance requirements. It is important that all foundation repair work adjacent to the porch area be completed prior to construction of the new porch.
   b. Demolition is recommended for the existing wood framed porch walls and roof. Reconstruction of the porch should be performed to match the historic time period of the structure.

Civil Engineering/Utilities Treatment Recommendations

51) Pedestrian Circulation and Parking:

Pedestrian circulation will be required to access the Blackstone house. The primary entrance into the rehabilitated house would be through the new ADA accessible back porch entrance for both staff and visitors.

A new ADA parking area will be required near the house. The main parking area for visitors will remain near the highway or new visitor contact station. The site access from the main parking area to the house and the visitor contact station must remain barrier free and universally accessible. Additional design for site access issues is beyond the scope of this project.

- Construct new ADA compliant ramp at the back porch.
- Construct new ADA parking near the house.
- Construct a new ADA compliant pedestrian path to the ADA compliant parking near the house.
- Construct new ADA compliant path between the main parking area, the visitor contact station (main restroom building) and the house.

52) Heating:

- There are two options available to heat the Blackstone House.
    - The existing propane gas fired furnace could be repaired or replaced and gas service provided from the existing propane tank located on the west side of the house. The propane tank impacts the visual character of the house, so this is not a preferred option.
    - Preferred Option – Remove existing propane tank and non-functional furnace. Install electric furnace system.

53) Water:

- Water service to the north portion of the site is provided by Ross County Rural Water located at 663 Fairgrounds Rd, Chillicothe, OH. 45601; website rosscowater.org; Ph. (740) 774-4117. Contact: Kristy Alderman, Assistant Office Manager

- There is an existing 6” PVC rural water line running east-west along the north side of Highway 50 providing service to the site. New domestic water service to the Blackstone house requires a new 5/8” tap on the 6” main, a service line bored under the highway and new water meter set on the south side of the highway next to the east side of the driveway, see Drawing Sheet C1 Treatment Recommendations. The new water service line from the meter to the house would be installed under the east side of the existing driveway.

- The driveway construction has previously disturbed this area. From the driveway to the house the water service line alignment follows the alignment of the previous sanitary sewer system so it may be located in a previously disturbed area. The distance from the proposed water meter location to the house is approximately 775 feet. The one-inch service line from the meter to the house could be high density polyethylene (HDPE) or copper. The cost of the HDPE pipe is less than copper.

- To provide sprinklered protection for the Blackstone House a four-inch combined domestic and fire protection water service line is required. The service would be split inside the house to provide the separate domestic and fire protection lines. A back-flow preventer is required on the fire protection line after the split. The service requires a top on the 6” rural water line on the north side of Highway 50 and a directional bore under the highway to a new four-inch meter set on the south side of the highway next to the

east side of the driveway to the house. The four-inch service line from the meter to the house could be HDPE or PVC pipe.

- All water line installation should be closely monitored by an archeologist.

54) Electric:

- According to South Central Power records the E-W power lines across the Park property were installed sometime in the 1930s or 40s. The power company would like to see the E-W overhead lines across the Park property removed, see sheet C1 Existing Conditions for the removal limits of the overhead electric lines. There may be an easement for the E-W overhead power lines. If there is an easement, it could be vacated with the new underground electrical service from the system on the north side of Highway 50.

- The new electrical service to the Blackstone house would be provided from the overhead three-phase power lines on the north side of Highway 50. The new service includes the drop from the overhead power, bore under the highway and new service line on the primary side from the drop to the new transformer location. There are two options for the location of the pad mount transformer. Option one sets the transformer on the east side of the driveway near Highway 50, see Drawing Sheet C1 Treatment Recommendations. Option two locates the transformer behind a potential new visitor contact station to help screen its location. A single 36”x36”x30” transformer on a poly-pad is required to serve the contact station and house. The power company requires easement on the primary side from the drop to the pad mount transformer outside of the highway right-of-way. The minimum separation from other utilities is five (5) feet for water, one (1) foot for telecom and five (5) feet for sanitary. The direction bore under the highway requires three-inch rigid conduit. Once outside of highway right-of -way the electric service line will be installed in three-inch schedule 40 PVC conduit.

- All electrical utility installation work from the service pole to the house should be closely monitored by an archeologist.

55) Telecom:

- New service to the house requires a drop from the overhead system on the north side of Highway 50, bore under the highway and set a new telecom service box on the south side of the Highway. A new service line from the service box to the house would be installed in the shared trench with other utility services to the House located in the eastern half of the asphalt drive to the house (Drawing Sheet C1 Treatment Recommendations).

- Telecom and internet service is available to the site and is provided by Horizons Telecom located at 68 E Main Street Chillicothe, OH 45601 and by Time Warner located

at 32 Enterprise Pl. Chillicothe. Ohio 45601. Both have systems located along the north side of US Highway 50 along the north boundary of the Seip Earthworks site.
Horizons Telecom - Alex Smith Ph. (740) 772-8528. Time Warner: 1-800 892-2253

56) Directional Boring for Utilities

- Directional boring may be used for the installation of all the utility service lines. A ten-foot separation is required between the domestic/fire protection water service line and the sanitary sewer service line. Directional boring requires greater separation between utilities than open trench installation. With an open trench the telecom and electric services may be installed with one-foot separation. Boring requires a minimum four-foot separation between utilities. The separation may be horizontal or vertical.

57) Sanitary Sewer:
There is no City sewer available to serve the property. Any new sanitary septic tank and absorption field sanitary system to serve the Blackstone house would be reviewed and permitted by the Ross County Health District (RCHD) located at 150 E. Second Street, Chillicothe, OH 45601, website ehrosscountyhealth.com. Contact: Ben Avery, Director; Ph. (740) 775-1158

- There are three potential options to address sanitary sewer service for the Blackstone house:

  Option One – Evaluate the condition and size of the existing septic tank and absorption field using ground penetration radar and determine if there is sufficient capacity based on current Health District design requirements for reuse. Video taken of the existing service line shows the PVC line from the House to the septic tank to be in serviceable condition, although the cast iron pipe and PVC pipe connection is currently offset and requires replacement. If the existing septic system is undersized a new septic tank and absorption field could be expanded and installed in the current locations limiting site disturbance to previously disturbed areas, (Figure T1).

  The following information is required for the design and installation of a new septic system:

  a. Obtain an onsite soil evaluation from a professional soil scientist.
  b. Based on the soils report the designer or registered installer will prepare a design plan.
  c. Submit the design plan and soils report to RCHD for review.
  d. Layout the system in the field where it is reviewed by RCHD staff.
  e. Site review is approved and is valid for 5 years
  f. Applicant purchases the installation permit and operation permit. The system must be installed by a registered installer.

- RCHD permits residential sanitary systems only and all other sanitary systems are reviewed and permitted by the EPA. The Ohio EPA contact for the Southeast District is Dan Messerly; Ph. (740) 380-5218; email Daniel.Messerly@epa.ohio.gov

- The RCHD is willing to review and permit a sanitary sewer system for the Blackstone House even though it technically does not fall into a residential use.

- The reuse of the existing tank system and field is not a desired solution. There are many issues associated with the utilization of a tank and field within an archeologically sensitive area.

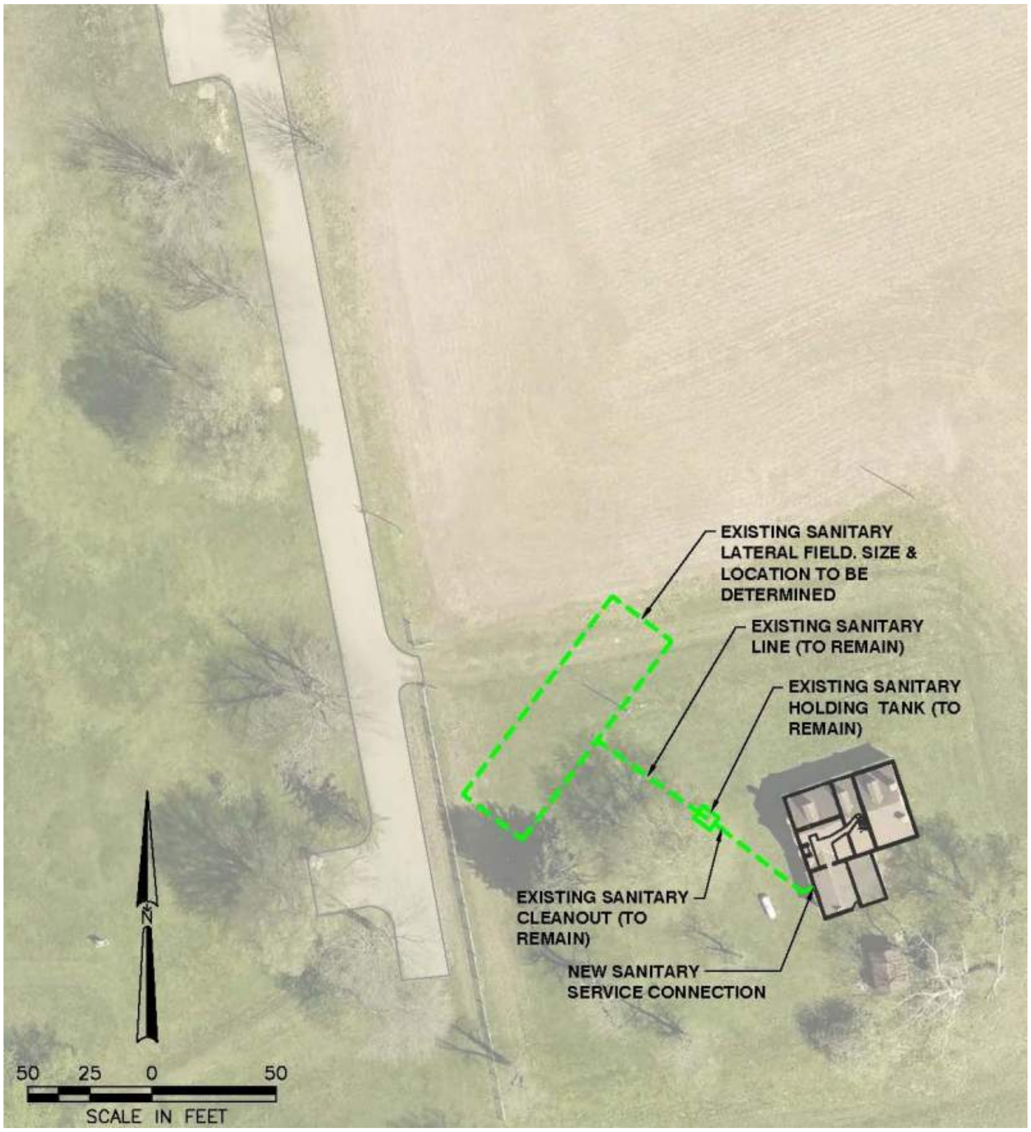

Figure T1. Sanitary Option 1. (SKDG 2016)

Option Two (Preferred Option) – Install a 1/2 horsepower grinder pump system with small holding tank in the basement of the House. The 1-1/2” discharge force main line leaving the house could follow the alignment of the existing sanitary service line, tank and field in order to be installed in previously disturbed areas. The force main might be pulled through some of the existing service line further minimizing site disturbance. A new concrete holding tank could be installed in the existing asphalt drive on the extension of the existing sanitary service line. The holding tank location provides easy access for pumping out the tank and would be located in an area previously disturbed by driveway construction (Figure T2). The holding tank needs to be concrete due to its location in a drive area. The tank can be equipped with a fill alarm for notification of required servicing. Along with this recommendation, would be the complete removal of the existing tank and piping.

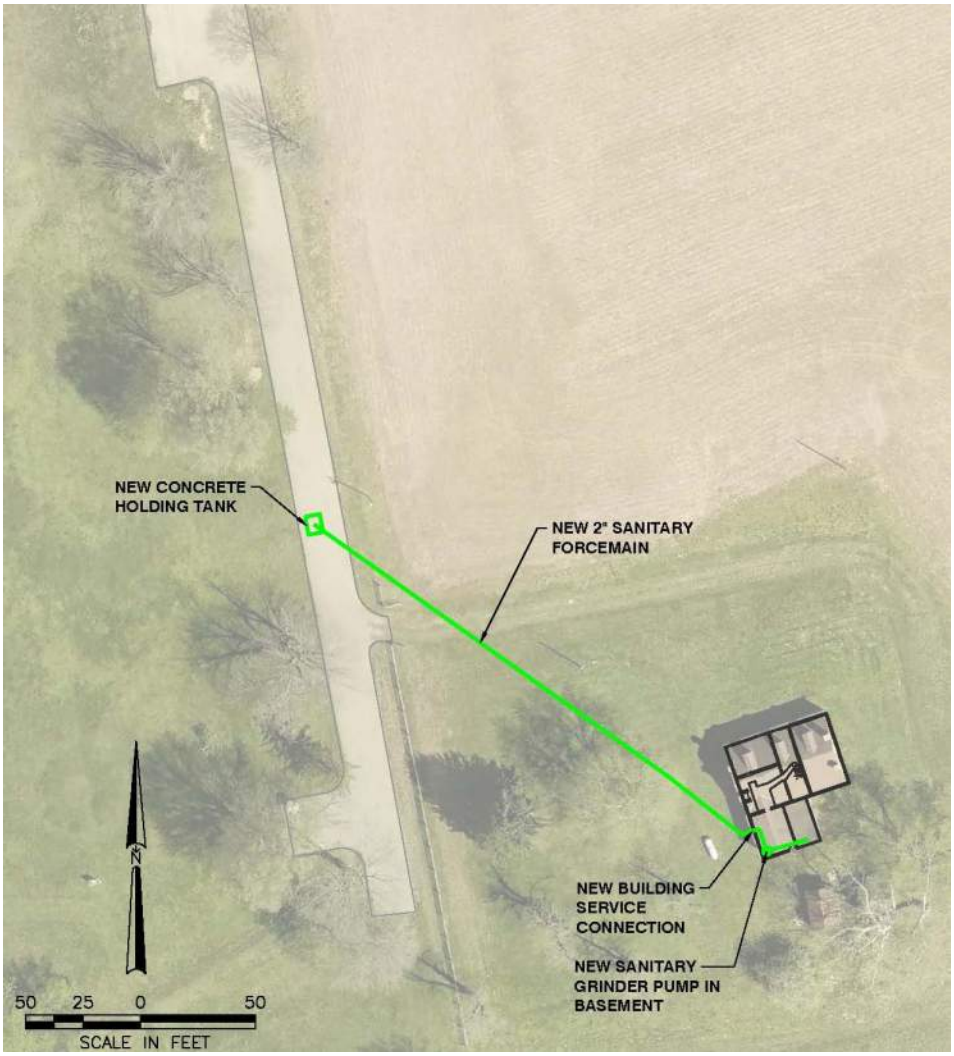

Figure T2. Sanitary Option 2. (SKDG 2016)

Option Three – If a Visitors Contact Station is desired the grinder pump system described in option two would be used to pump to a holding tank next to the Contact Station (Figure T3). The tank would need to be sized to accommodate the flows from the House and Contact Station. The Contact Station would be slab on grade construction and the service line to the tank would be a gravity service line. The holding tank could be fiberglass due to its location outside of a pavement area.

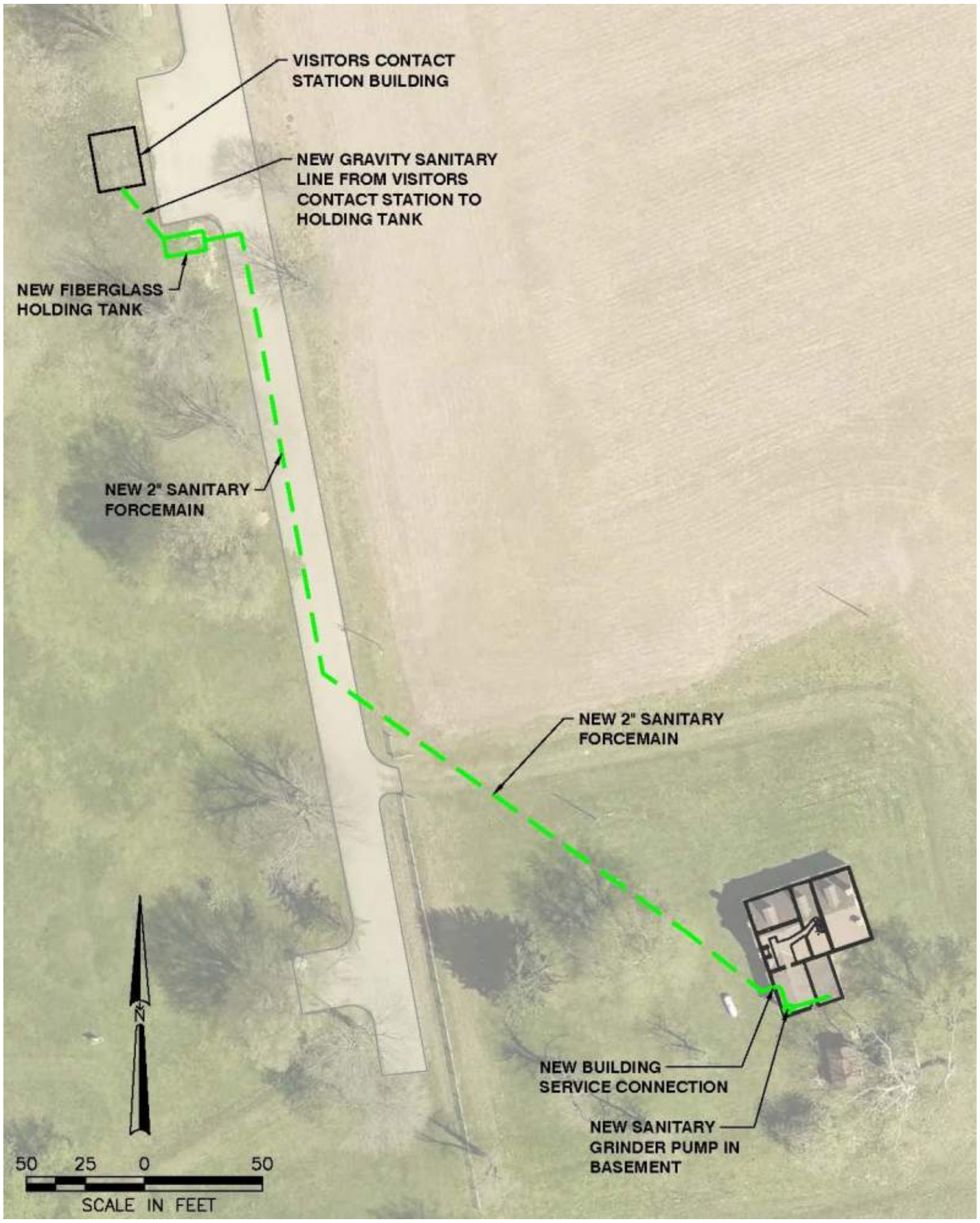

Figure T3. Sanitary Option 3. (SKDG 2016)

Mechanical/Plumbing/Electrical and Fire Protection Treatment Recommendations

Future recommendations are those needed for the long term use of the building. These include providing the following components:

- Ventilation for occupants.
- Space conditioning HVAC equipment.
- Appropriate plumbing for the future use.
- New electrical service.
- Adequate normal and emergency lighting levels to suit the building's future use.
- Fire protection systems for regularly occupied buildings as required by the National Park Service.
- Lightning protection system.

Modifications to the building will require coordination with the Architect, the National Park Service, and existing conditions to conceal as much of the MEP systems from view as possible and to maximize usable space for the future occupancy.

58) HVAC Systems:
The existing HVAC equipment should be replaced. It has no cooling capability and the furnace is inoperable. The new units can be located in the basement. These units would serve the first and second floors. A ground source heat pump system is not recommended for the building, due to the sensitive archeological nature of the surrounding site. Therefore, the following systems are recommended:
   a. Air source heat pump with electric supplemental heat.
   b. Dedicated outdoor air ventilation unit with enthalpy energy recovery wheel.

Heat Pump:
The heat pump would consist of an indoor unit with a blower, filters, coil, and electric supplemental heater. A matched heat pump unit would be located outdoors, on the south side of the house between the new ADA ramp and the house. This is the least visible location.

Air from the heat pump would be ducted to all rooms on the first floor. Openings in the crawl spaces would need to be enlarged to accommodate the new ductwork and maintenance access. The openings should be properly designed with a lintel so as to not threaten the structural integrity of the load bearing walls. The existing floor grill locations on the first floor would be reused. Programmable thermostats should be installed for control of the respective split systems.

A chase(s) will need to be created to allow a duct to be routed to the second floor to serve the two second floor rooms. One location for a potential chase would be in the

northwest corner of Room 105 where the existing bath tub is located. This area has already been altered and would provide access to the basement and into the attic space above for routing behind the second floor knee walls.

Dedicated Outdoor Air Ventilation Unit:
We recommend installing a dedicated outdoor air ventilation unit with enthalpy heat recovery wheel, along with supplemental heating and cooling provided from a second small heat pump. This unit would be located in the basement and would supply ventilation air to the house. The ventilation air would be ducted separately from the heating/cooling air but would follow the same path and be supplied in a similar fashion. This unit would keep the house positively pressurized. It would also be used to exhaust the restroom.

The design for the outside air intake and exhaust hood will require careful coordination with the Architect and the National Park Service to minimize impact on the building's historic integrity.

Distribution:
In addition to new HVAC equipment, we recommend that new ductwork and diffusers be installed. Much of the existing ductwork is in disrepair. New ductwork would provide good air distribution, help maintain temperature control, and can be designed to blend more effectively with the building's historic features. The return air should be fully ducted to the HVAC units to improve indoor air quality.

59) Plumbing:
New hot and cold domestic water piping and sanitary waste piping should be routed from a new main service entrance to the new plumbing fixtures on the first floor. New vent piping should be installed including a new vent through the reconstructed porch roof.

A new, electric, tank-type hot water heater should be installed to supply hot water for the new plumbing fixtures. If hands-free faucets are used, thermostatic mixing valves must be installed to temper hot water supply to 110 degrees F. The hot water heater should be located in the basement. Install an exterior hose bibb at new porch wall. New branch piping should be installed to supply all new plumbing fixtures.

60) Fire Protection Systems:
Install a new fire alarm and fire suppression –
The building currently has no fire alarm system or fire suppression system installed. Per Chapter 7, Appendix A of the National Park Service Reference Manual 58, Structural Fire Protection of Cultural Resources in the National Park Service; and Director's Order #58: Structural Fire Management, a fire alarm system is required to be installed and a fire suppression system is recommended to be installed. Using the Historic Property

Assessment Matrix in Chapter 7 of the Reference Manual 58 yields a score for the structure between 22 and 25.

The scoring recommendations in Chapter 7 for a building scoring 22 – 28 are, "Fire alarm system required; Park should Install a Fire Suppression System in this Structure (variance request would be required if no system installed)."

If a fire suppression system is going to be installed, a new fire water service line will need to be installed. This work is discussed above. The domestic water service main size and location shall be evaluated prior to starting work. A flow test should also be conducted to test for adequate water pressure and capacity. If a new domestic water service is to be brought to the building, a combined water and fire service entry may be installed if approved by the Authority Having Jurisdiction. This would require significant excavation and site disruption, but should be able to be coordinated with sanitary and other required trenching, as discussed in the Civil Recommendations. As mentioned above, the fire protection service line would be provided with an approved backflow prevention device. The new line would be a 4" combined service line and it would be split in the basement between the domestic and fire suppression services.

The sprinkler system serving all conditioned areas of the house should be a wet pipe system designed per NFPA. The pipe should be schedule 40 steel with threaded fittings for piping 2" and smaller. Schedule 10 pipe would be used for piping 2 ½" and larger utilizing grooved fittings. Unheated areas will be served by a dry pipe sprinkler system.

Due to the sensitive nature of the historic structure and the presence of solid masonry walls with no cavities, it will be important to ensure that the piping and sprinkler layout is carefully coordinated and reviewed by the National Park Service. A fire protection engineer should be retained to provide a full sprinkler system design including pipe layout, sizing and sprinkler layouts. This will require that the system design is engineered to ensure that the installation does as little harm to the building as possible. The ceilings on the first and second floors are recommended for replacement due to deteriorated plaster conditions and also for access to install new electrical distribution. Therefore, the ceilings will be open for the installation of a new sprinkler system. The location of the risers will require further investigation and coordination with the historic masonry walls and built-in cabinetry, so that they are not exposed.

A code compliant fire alarm system is required to be installed when the building is rehabilitated.

A variance request would be required if either the fire alarm system or suppression system are not installed.

61) Electrical Systems and Lighting

All existing utility power poles and wires across the property should be removed in addition to the existing weather head on the side of the building. A new electrical service consisting of an underground service entrance extending from the existing utility power poles on the north side of Highway 50 to a new ground mounted transformer located near the building (exact location TBD). The service will then route below grade to the meter and into the building.

The existing main panel should be replaced with a new panel in the current location. New wiring will be provided from the new panel to serve devices throughout the house. All existing surface mounted raceway and devices will be removed and all new devices will be recessed in walls/ceilings and wiring will be routed concealed in walls or above ceilings.

An exterior wall sconce will be located adjacent to each of the two main back porch exit doors. A new light will be installed above the front (north) door where the previous light fixture was installed. These fixtures will be controlled by a photocell for dusk to dawn operation. No additional exterior site lighting is anticipated.

Emergency egress lighting will be provided for illuminating the egress paths. Code required emergency egress lighting levels will be achieved by utilizing emergency ballasts/drivers within the general lighting fixtures. Emergency egress lighting in the basement, if needed, will be achieved by utilizing surface mounted emergency lighting units mounted to the walls or ceilings. Internally illuminated LED exit signs will be provided at the exits.

The existing interior lighting will be replaced throughout. The basement lighting will consist of basic fluorescent (or LED) strip fixtures. In general, first floor spaces will be illuminated from the perimeter with no light fixtures in the center of the space. The second floor spaces will utilize fixtures in the ceiling as well as additional accent lighting where needed. Additional lighting will be provided as needed based on the final layout and usage of the space (i.e. task or decorative lighting).

Local switches will be provided for control of all basement and second floor spaces. All lighting on the first floor will be routed through a new lighting control relay panel that will be located adjacent to the main panel in the basement. These relays will be controlled by low voltage switches that are located in the kitchen area.

62) Lightning Protection

A UL 96A Master Labeled lightning protection system is recommended to be installed for the structure. This system would include air terminals on the roof, grounding electrodes

and interconnecting conductors, and bonding of mechanical equipment, structure, and other metal objects.

63) Security System
A security system is recommended for the building. Extents of the system to be determined based on use of the building.

64) Solar Panels
The National Park Service has published information available on their website with guidance for the installation of solar panels on historic properties, while meeting the *Secretary of the Interior's Standards for Rehabilitation*.[246] Solar panels might be able to be installed on the south-facing portion of the roof, but would be highly visible from the mound, so this is not recommended. In addition, there may not be enough coverage in that area with the correct exposure to warrant a solar panel installation.

65) Site Handicapped Parking and Access to the House
To provide handicapped access to the house, nearby parking must be accommodated, as well as compliant walkways, meeting all required slopes. Due to the steep site, two options were evaluated. More options should be explored, in conjunction with future site development, including visitor contact station location; parking; waysides and other required visitor facilities and amenities.

- Options 1 and 2 (Figure T4) – Hiding the parking on the 'back' side of the of the earthwork wall, so it is not visible from the road.
  Pros: Not visible from the road
  Cons: Highly visible from the center of the earthworks and from the mound; Back side parking is set lower than the house, requiring extensive walkways; significant impact to the site.
- Option 3 (Figure T5) – Road follows exiting mown path. Parking at top of earthwork wall, east of the house and outbuildings.
  Pros: Accommodates easy and nearby access to the house
  Cons: Highly visible from the road; requires installation of a road in front of the house.

[246] "Installing Solar Panels and Meeting the Secretary of the Interior's Standards," Technical Preservation Services, NPS, accessed February 19, 2107, https://www.nps.gov/tps/sustainability/new-technology/solar-on-historic.htm

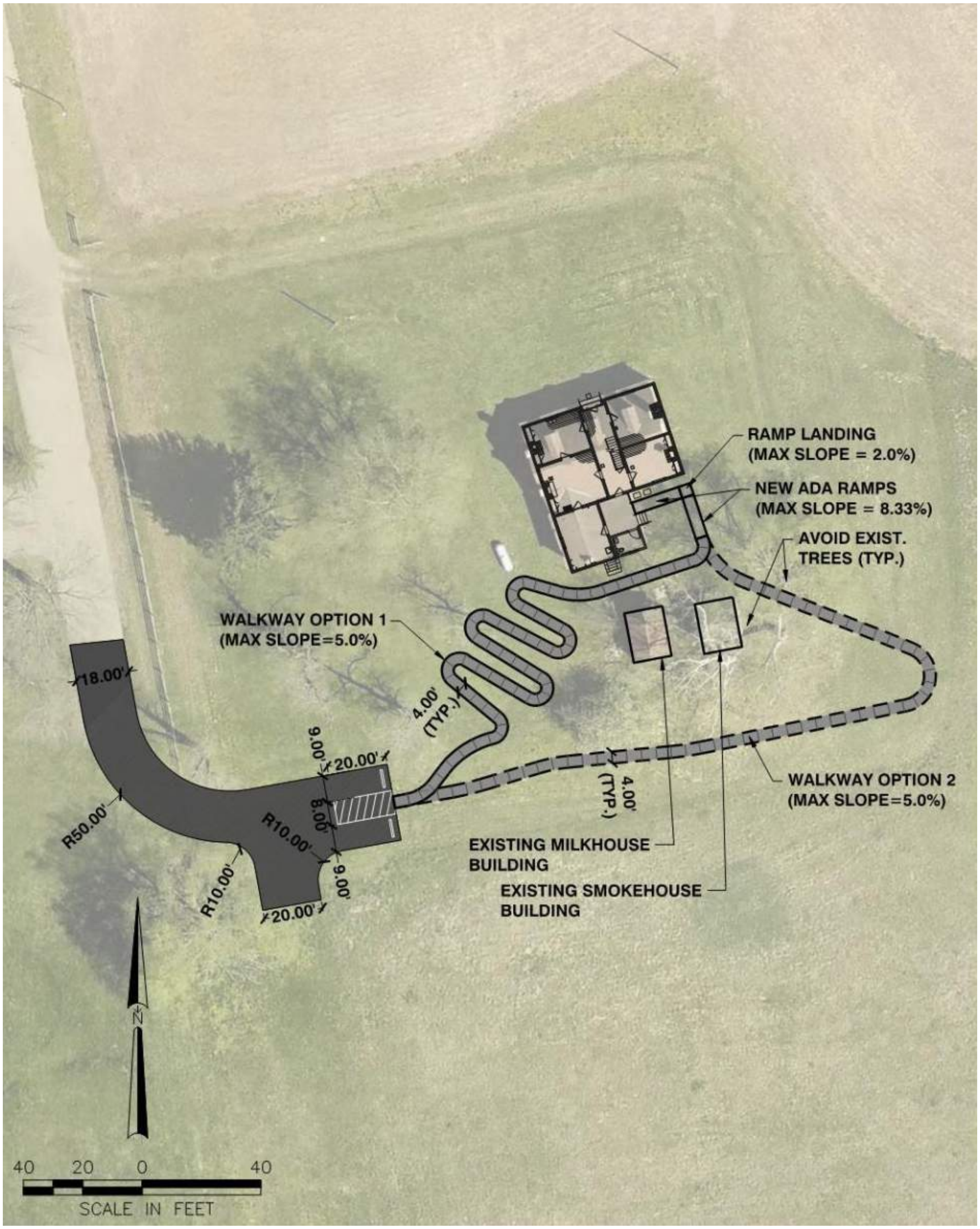

Figure T4. Site Handicapped Access – Options 1 and 2. (SKDG 2017)

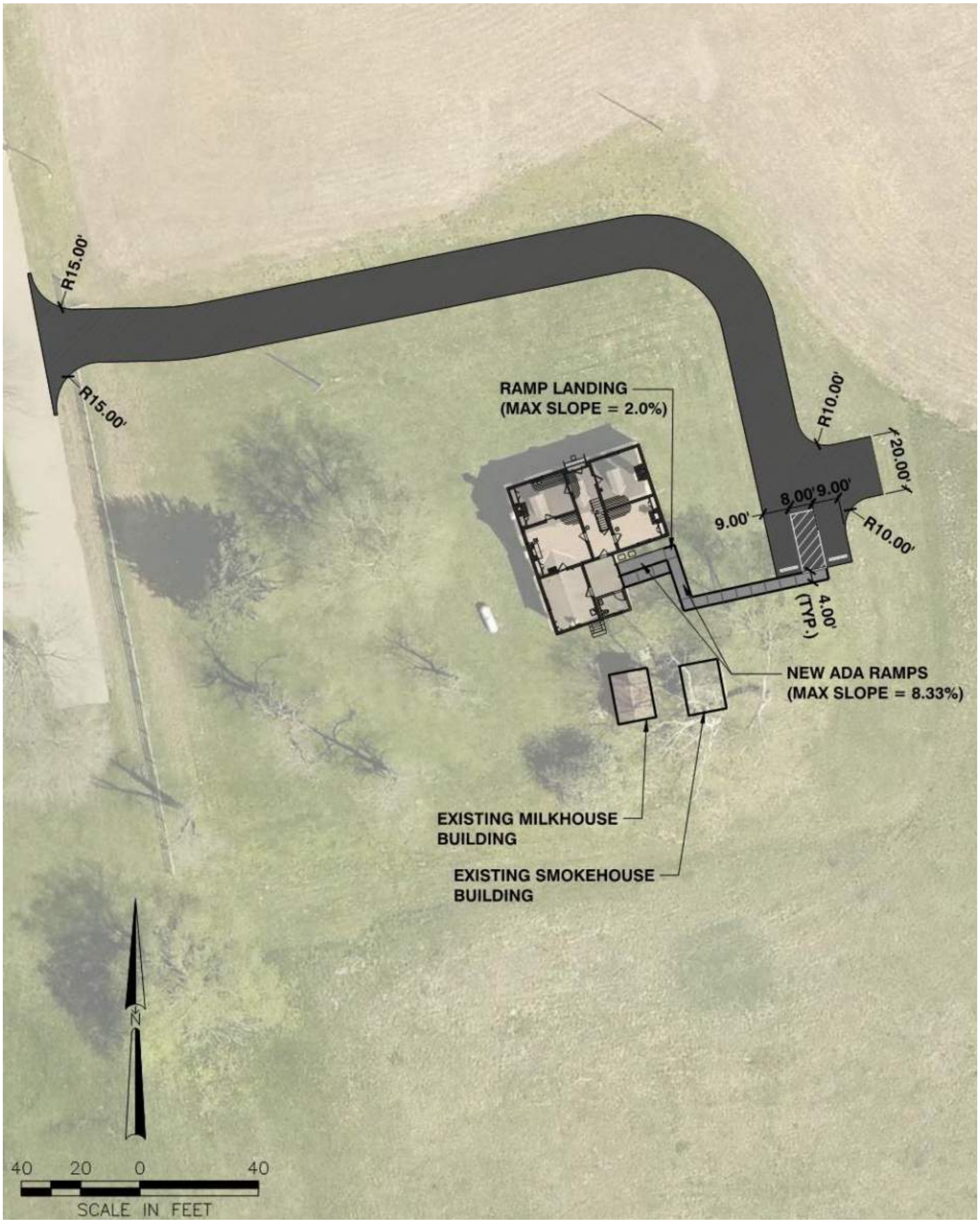

Figure T5. Site Handicapped Access – Option 3. (SKDG 2017)

Outbuildings Long Term Treatment Recommendations

The existing smokehouse and milk house buildings are approximately 168 square feet. There is currently no utility service (electrical or water) to either building. Currently, the raised masonry thresholds, which are original, prevent accessible entry into the buildings.

Several potential new uses for the smokehouse and milk house buildings were contemplated with the understanding that the small floor plate of the buildings limits the possibilities. The buildings could be restored on the interiors and used for period smokehouse and milk house interpretation, with viewing from the open doors only (no public access). One or both buildings could be renovated into restroom facilities for visitors. This option was dismissed due to the significant impact that renovating the buildings would have on the historic buildings and the immediate site. In order to renovate the buildings to become accessible, and to provide the utilities, fixtures and finishes suitable for a compliant restroom, irreversible alterations would likely be required. This would also require further site trenching for utilities and accessible pathways throughout the read yard to each of the buildings. The buildings could also be secured and used for park storage and site maintenance use.

It was determined that the exterior of the buildings would be restored and the interiors stabilized for use for park storage and site maintenance use. The building interiors could later be rehabilitated and used for public interpretation, if desired.

Smokehouse Long Term Treatment Recommendations

1. Foundation

   Option 1 – Grade Beam and Helical Piers
   - Excavate below existing stone masonry foundation and pour a grade beam approximately 16-inches wide and 16-inches deep. This process is done in stages, with two foot lengths of grade beam being constructed at a time. A threaded rebar splicing system will need to be utilized for continuity of the grade beam reinforcing steel.
   - Install helical piers at the bottom of the new grade beam at approximately four feet on center. The piers will be installed from the exterior of the smokehouse.

   Option 2 – Grade Beam Only
   - Construct a grade beam as indicated in Option 1.
   - This option to construct the beam alone has a lower confidence level of accommodation for differential settlement. The soil below the foundation will potentially continue to settle. The new grade beam will be able to span across some localized areas of settlement, but will not have sufficient capacity to restrict all potential differential settlement. Soil consolidation is a time dependent process.

- This option provides a viable solution but provides a lower confidence level than Option 1 that it will accommodate all potential soil consolidation. This option requires more excavation than the first option.

Option 3 – Down Stack and Reconstruct

- Due to the small size of the structure, need for nearly 100% repointing, and high percentage of bricks requiring replacement, the most economical option may be to carefully deconstruct and rebuild the entire structure.

- Once deconstructed, the stone foundation may be removed and replaced with a 36-inch deep concrete foundation. Attention will need to be paid to the foundation design to replicate the existing exposed stone foundation at the interior and exterior as closely as possible.

2. Exterior Walls
   a. All deteriorated and missing brick should be replaced.
   b. Variable repointing of the exterior should be performed for the exterior and nearly 80% of the interior of the structure.
   c. Remove existing CMU infill and replace with brick.
   d. Replacement bricks may be reproduction or salvaged bricks to match the dimension, hardness and texture of the historic bricks.
   e. Mortar shall be lime putty mortar and shall match the existing historic mortar.
   f. Reconstruct top of chimney to historic height and cap.
   g. Restore the chimney flue.

3. Roof
   a. Severely deteriorated joists and rafters not replaced in the Interim Treatment Recommendations should be replaced with new lumber of the same dimensions. The new lumber is to be rough sawn to match the existing wood. Lumber should be treated with an aging agent to gray out the wood so that it will match the historic framing.
   b. Install new timber roof framing in accordance with current building codes and with sufficient tie downs to brick walls.
   c. Install fire treated wood shingle roof and all related flashings.
   d. Install reproduction half round gutters and downspouts, unless this was accomplished in the Interim/Immediate Work.

4. Windows and Doors
   a. Install reproduction wood jamb, sill and window sash in west wall. Prime and paint.
   b. Repair or treat the existing wood lintel above window.
   c. Remove existing steel lintels over the door.
   d. Install new thick buck frame for door, including jambs and sloped sill.

e. Install reproduction vertical tongue and groove board door with reproduction hardware.

Milk House Long Term Treatment Recommendations

1. Foundation

Further investigation of the existing foundation should be performed. The existing foundation type and depth is unknown and excavations must be performed.

After excavations are performed, three options below are likely:

Option 1 – Grade Beam and Helical Piers

- Excavate below existing stone masonry foundation and pour a grade beam approximately 16-inches wide and 16-inches deep. This process is done in stages, with two foot lengths of grade beam being constructed at a time. A threaded rebar splicing system will need to be utilized for continuity of the grade beam reinforcing steel.
- Install helical piers at the bottom of the new grade beam at approximately four feet on center. The piers will be installed from the exterior of the milk house.

Option 2 – Grade Beam Only

- Construct a grade beam as indicated in Option 1.
- This option to construct the beam alone has a lower confidence level of accommodation for differential settlement. The soil below the foundation will potentially continue to settle. The new grade beam will be able to span across some localized areas of settlement, but will not have sufficient capacity to restrict all potential differential settlement. Soil consolidation is a time dependent process. This option provides a viable solution but provides a lower confidence level than Option 1 that it will accommodate all potential soil consolidation. This option requires more excavation than the first option.

Option 3 – Down Stack and Reconstruct

- Due to the small size of the structure and need for 100% repointing, the most economical option may be to carefully deconstruct and rebuild the entire structure.
- Once deconstructed, the foundation may be removed and replaced with a 36-inch deep concrete foundation, below grade. This will need to be designed along with the potential for lowering the floor in the milk house, so that the new foundation is not exposed on the interior or exterior of the building.

2. Exterior Walls

a. All deteriorated and missing brick should be replaced.

b. Variable repointing of the exterior should be performed for the exterior and nearly 50% of the interior of the structure.
c. Replacement bricks may be reproduction or salvaged bricks to match the dimension, hardness and texture of the historic bricks.
d. Mortar shall be lime putty mortar and shall match the existing historic mortar.

3. Roof
   a. Severely deteriorated joists and rafters that are not replaced in the Interim Treatment Recommendations should be replaced with new lumber of the same dimensions. The new lumber is to be rough sawn to match the existing wood. Lumber should be treated with an aging agent to gray out the wood so that it will match the historic framing.
   b. Install new timber roof framing in accordance with current building codes and with sufficient tie downs to brick walls.
   c. Install fire treated wood shingle roof and all related flashings.
   d. Install reproduction half round gutters and downspouts, unless this was accomplished in the Interim/Immediate Work.

4. Window and Door
   a. Replace deteriorated wood lintel of the window.
   b. Install reproduction wood jamb, sill and window sash in west wall. Prime and paint.
   c. Remove existing steel lintels over the door.
   d. Install new thick buck frame for door, including jambs and sloped sill.
   e. Install reproduction vertical tongue and groove board door with reproduction hardware.

5. Interior
   a. Demolish existing concrete floor.
   b. Perform archeological and architectural investigation to determine depth of the original milk house floor and any historic features related to cooling dairy products.
   c. Perform testing for parge coating and whitewash. Install reproduction parge coating and whitewash on the interior after the masonry restoration work is completed.

Treatment Option 3
Demolition of the House and Outbuildings

Refer to the Cost Estimate for Deconstruction Work in Appendix I.

The approaches for removal of the house and outbuildings from the site was discussed in detail during the Treatment Alternatives Workshop. This was not the preferred treatment option, as the attendees expressed that the house and buildings may eventually become an active part of the interpretation of the Seip Earthworks site. The consensus was that if these structures were removed, there would inevitably be a need for new construction to address visitor services at the site at some point in the near future. The removal options for the buildings that were discussed at the workshop included:

- Moving the buildings off site
- Full or partial demolition of the buildings (potential for leaving and infilling stone foundations below grade)
- Full or partial careful deconstruction and salvaging of the buildings and materials (potential for leaving and infilling stone foundations below grade)

Demolition of the buildings or the potential to move the buildings by selling or donating them to another potential owner for relocation off site were discussed. Moving the buildings off site was not a viable option, due to cost and the historic nature of the buildings. While moving the buildings off site may provide preservation of the structures, they lose their historic integrity and would no longer be eligible to be listed in the National Register of Historic Places. Moving the structures would also still damage the site. In order to move the buildings, extensive excavations at the building perimeter must be performed to needle large beams under the first floor structure.

In order to demolish an eligible park structure, it must first be listed in the National Register of Historic Places. Based on the research associated with this Historic Structures Report, the Blackstone house and outbuildings are currently eligible to be listed. Moving the buildings would make them ineligible to be listed. Section 106 review of the demolition would result in an adverse effect.

Demolition may allow for archeological investigations either during the demolition or at a future date. Demolition of the structures may also reduce the soil disturbance versus a comprehensive rehabilitation. This approach is also in keeping with the 2016 Cultural Landscape Report, which recognized Action Alternative 2, Conserving and Revealing Earthwork Complexes, at the Preferred Treatment Alternative. This recommendation includes the removal of all non-contributing features, including the Blackstone house, outbuildings, roads, picnic shelter, vehicular access and utilities, regardless of their historic eligibility. The thought is that the removal of the structures may improve the Pre-Columbian viewshed.

Demolition of the structures would result in the loss of local and perhaps regional cultural significance, as well as the ability to interpret the site through the continuum (prehistory through history). There are also environmental impacts to the demolition of a historic structure that

embodies materials and energy. As an alternative to disposal, there may be a desire to reclaim historic materials, where practical. There is a market for historic salvage, including cabinetry, mantels, trim, flooring, window sashes, lumber, bricks and cut stone. These materials are significant, because they have historic value, great workmanship, and are no longer made or are constructed of old growth woods.

The materials that embody the Blackstone house and outbuildings are historic resources. The act of recycling these historic materials is very labor intensive, but can be fruitful for use in the restoration of like structures at other historic sites, with a clear provenance of these items made available by a reputable dealer in historic materials. Deconstruction must be done carefully, by hand, in order to result in usable historic materials. The EPA has resources available for sustainable management of construction and demolition materials with recommendations and opportunities for salvaged items.[247] The Department of Defense also provides guidance on the reuse of historic materials.[248] By compiling a detailed approach to the demolition of an historic structure, a significant reduction in the waste stream can be accomplished. There are many available online and regional resources available for deconstruction and salvaging of historic building materials.

The Advisory Council for Historic Preservation recommends:

> Another requirement for federal agencies in the Sustainability Order is "…identifying opportunities to consolidate and dispose of existing assets…" This obligation is echoed in E.O. 13327, "Federal Real Property Asset Management," which establishes policy and procedure for promoting efficient and economical use and management of federal real property assets, including active disposal of excess and surplus assets. Disposal methods include transfer, donation, or sale but may be related to decisions regarding demolition, deconstruction, and off-site removal of assets.[249] Asset business plans should identify historic federal buildings and discuss appropriate considerations for disposal candidates. Building or facility specific studies assessing retention and disposal options should recommend alternatives for minimizing adverse effects to the historic property. The National Historic Preservation Act requires agencies to give first

[247] "Sustainable Management of Construction and Demolition Materials," United States EPA, accessed February 19, 2017, https://www.epa.gov/smm/sustainable-management-construction-and-demolition-materials and "Reuse and Recycling Opportunities and Demolition," United States EPA, accessed February 19, 2017, https://www.epa.gov/large-scale-residential-demolition/reuse-and-recycling-opportunities-and-demolition.

[248] "Procurement Guidelines for the Reuse of Historic Building Materials," Department of Defense Legacy Resource Management Program, PDF accessed February 19, 2017. http://www.denix.osd.mil/cr/historicbuildingsstructures/technicalguidance/summary/procurement-guidelines-for-the-reuse-of-historic-building-materials-legacy-06-316/

[249] "Sustainability and Historic Federal Buildings" *Advisory Council on Historic Preservation,* (May 2, 2001), accessed February 19, 2017. http://www.achp.gov/docs/SustainabilityAndHP.pdf

> consideration to using available historic properties (See sidebar on Section 110 of the NHPA on page 12)….
>
> Federal agencies should consider options and alternatives for the reuse of underutilized or vacant historic buildings, as was discussed previously in this guidance. If a federal agency determines that a particular building is excess, then the property is made available to other federal agencies. The opportunity for one federal agency to utilize historic buildings that may be excess for another federal agency is an opportunity to meet historic preservation and sustainability goals concurrently….
>
> For assets lacking a viable reuse and where demolition is anticipated, agencies may consider deconstruction and architectural salvage and should consult with stakeholders through the Section 106 process to determine if salvage is in the public interest.

Deconstruction and salvaging is a time-consuming process and will inevitably increase the costs of demolition. Deconstruction results in jobs, reduces environmental impact, recycles the embodied energy of the historic materials to be recycles, reduces the requirement for landfill space and reduces the need to produce new materials. While the cost of this approach may be higher than traditional demolition, the careful deconstruction of the buildings would likely result in the least amount of damage to archeological resources in comparison with other treatment alternatives. Costs associated with the selective deconstruction are found in the Appendix I.

Due to the archeological significance of the site, the stone foundation walls lie within the Hopewell earthwork wall structure, which makes the removal of the stone walls a somewhat delicate process. All demolition work should be closely coordinated with the NPS HOCU park archeologists. All work must be closely monitored.

Recommendations for demolition would include the selective deconstruction of the main house structure and outbuildings above the stone foundation walls. All three structures should be documented and metal pins installed at the corners for later reference.

There are options for the demolition or retention of the stone foundations and interior retaining walls. If there is not time to accurately document and provide the required archeological monitoring and excavations, the entire basement and crawlspace structure of the main house could be infilled with either gravel or virgin soils from off site. The foundations could be carefully dismantled to just a few inches below the top of the soil, so that the mowers and maintenance of the site are not hampered by the stone foundations. This was desirable by park staff. Foundations left exposed have been a maintenance issue for the park at another site, where it requires weed eating at the perimeter of the foundations and other maintenance issues. If the staffing is available, the stone foundation walls could be carefully dismantled and the required archeological monitoring made available. The site would be required to be secured with fencing. The smokehouse foundations are stone, but are very shallow. These should be able to be removed without great effort and the areas infilled with virgin soils.

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Potential Further Research

As with any research project, not all areas of interest are able to be explored or are within the scope of the project. Throughout this project, the HSR team has compiled a list of potential further research that may be of interest to the overall historic site, whether for archeological research, or related to the rehabilitation of the buildings.

1) Section Cut Trench through existing mound at Blackstone House location to determine original breadth, height and authenticity of the existing earthworks surrounding the house and outbuildings.
2) Locate all non-extant outbuildings (barns, sheds, outhouses). Overlay these findings with a current GIS site plan and also with the most recent magnetic survey study.
3) TV the septic clean-out west of the house to determine what type of septic system is installed. (This was completed by the park since the Treatment Alternative Workshop. The septic tank was visible, but the layout and materiality for the lateral field have not yet been identified).
4) Milk House: Remove concrete floor in milk house and investigate original floor depth and material and foundation depth and construction methodology. Look for and any historic features related to cooling dairy products.
5) New National Register Nomination, per discussions with the SHPO/NPS.
6) Paint and Finish Analysis: A comprehensive exterior and interior paint and finish analysis study should be conducted for the house and outbuildings. This could include paint, varnishes, plaster, parging (outhouses), white wash (porch and outbuildings), roof finish (outbuildings) and any other finishes.
7) Mortar Analysis: A mortar analysis of the historic lime putty mortar may help determine the formula for a successful mortar match, including lime inclusions, aggregate coloring and sizing, and any other characteristics.
8) Archeological investigation of the scatter in the existing basement. Scatter from the excavation of the basement crawl spaces for accessibility is found in the crawl space areas and may yield archeological findings. This scatter would be material that was used to construct the earthwork wall.
9) Archeological investigation of the extent and features associated with the non-extant wood frame addition to the east of the brick smokehouse.
10) Archeological investigation of potential addition structure east and north of the smokehouse. What appears to be a gable board of a structure can be seen in the historic photograph below. This may be an outhouse.

Figure T6. Blackstone House and Outbuildings. Note there appears to be a potential gable in the distance, beyond the smokehouse, east and south of the main house. This also shows in other photographs taken from the back of the house. This may be worthy of archeological investigation, as the outhouse location has not been determined. Photo by I. T. Frary. The back of the image has a handwritten label which reads “Old Seip Home, rear, August 1, 1927” and a stamp that reads “Photograph by I. T. Frary, Cleveland, Ohio.” (Photo Collection Number A0957, Folder 6, Ohio History Connection Archeological Collections Facility, Columbus, Ohio.)

11) Site Survey: Conduct a comprehensive site survey with topographic information. Coordinate closely with archeologist. Site survey is critical when designing drainage and accessibility.
12) Hazardous Materials Assessment: Provide comprehensive hazardous materials inspection and testing by a qualified environmental testing company. Prepare an abatement and treatment plan, based on the findings, and include a cost estimate for the proposed work for budgeting. Testing should include, but is not limited to: lead containing paints and finishes; asbestos containing materials; radon; and fuel oil.
13) Research:
    a. Are there other houses in the Virginia Military District with this form?
    b. What more can be learned about the stewardship of the earthworks by the Seip family?
    c. Were other area residents interested in preserving the earthworks of the region?
    d. What other outbuildings were in use during the period of significance?

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Blackstone House, east elevation, Window 204. (STRATA 2016)

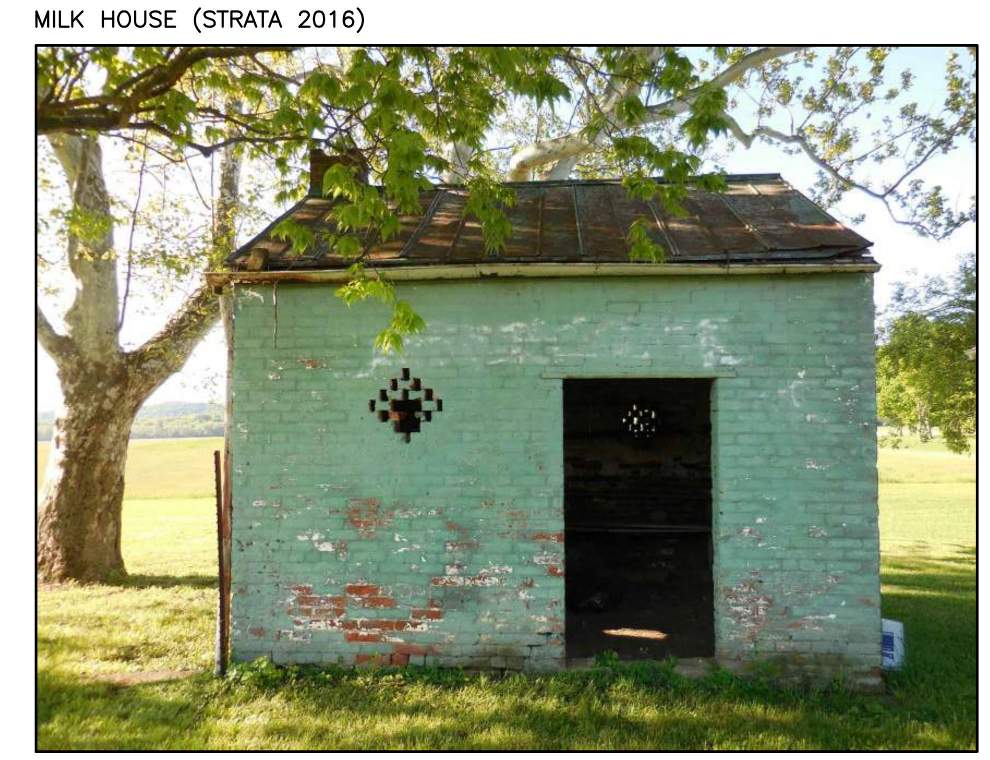
2 TREATMENT RECOMMENDATIONS DRAWINGS

HS-37 MAIN HOUSE, MILK HOUSE, & SMOKEHOUSE
HISTORIC STRUCTURES REPORT
BLACKSTONE HOUSE & OUTBUILDINGS
SEIP EARTHWORKS UNIT
HOPEWELL CULTURE NATIONAL HISTORICAL PARK

LONG TERM TREATMENT RECOMMENDATIONS
BAINBRIDGE, OHIO


HS-37 MAIN HOUSE (STRATA 2016)

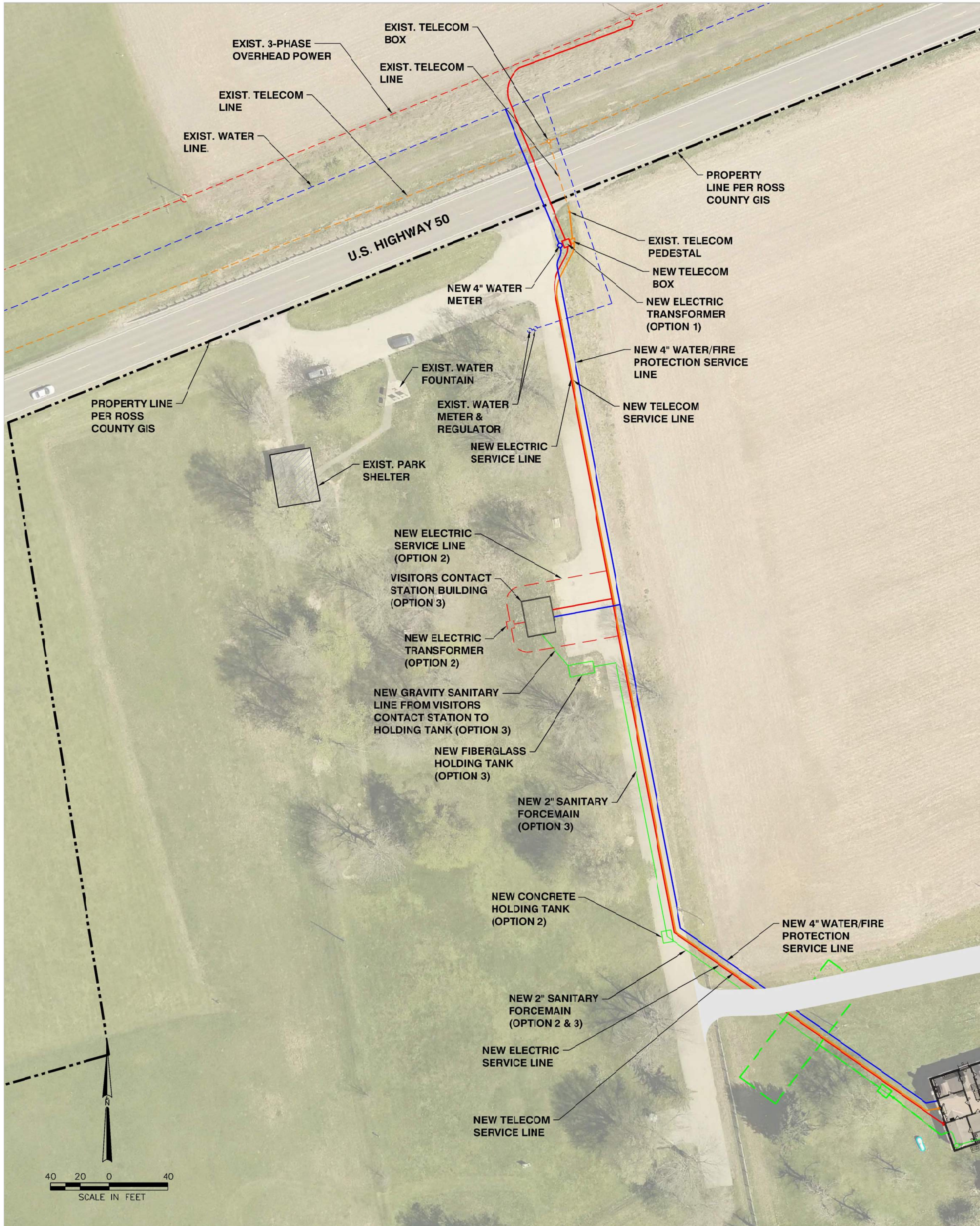

MILK HOUSE (STRATA 2016)

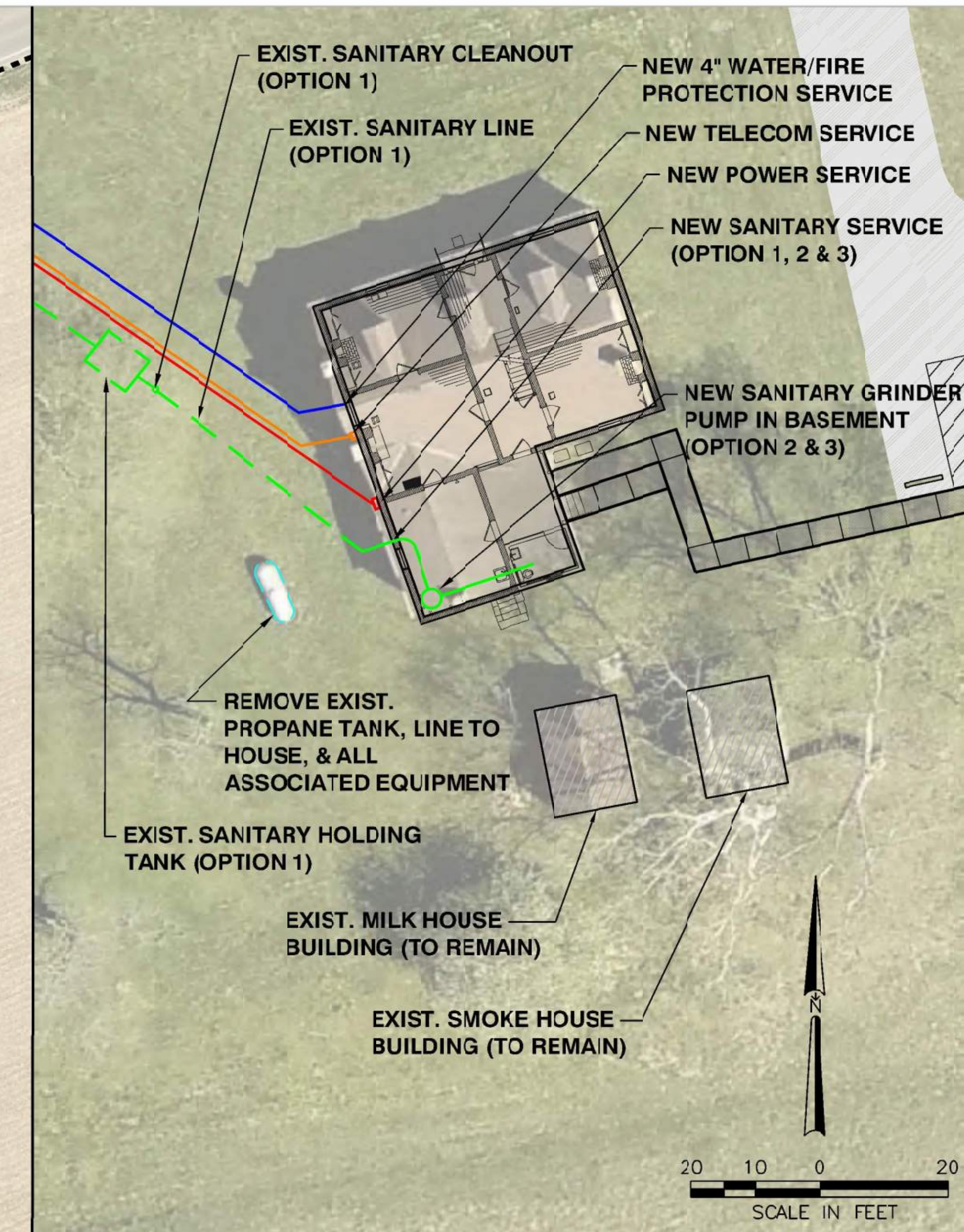

SMOKEHOUSE (STRATA 2016)

INDEX OF DRAWINGS

HISTORIC STRUCTURES REPORT UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE DENVER SERVICE CENTER	TREATMENT RECOMMENDATIONS BLACKSTONE HOUSE & OUTBUILDINGS HOPEWELL CULTURE NATIONAL HISTORICAL PARK		DRAWING NO. 353 132875
	REGION MIDWEST	COUNTY ROSS COUNTY	STATE OHIO
		PMIS/PKG NO. 218963	SHEET 1 OF 16

XXXX

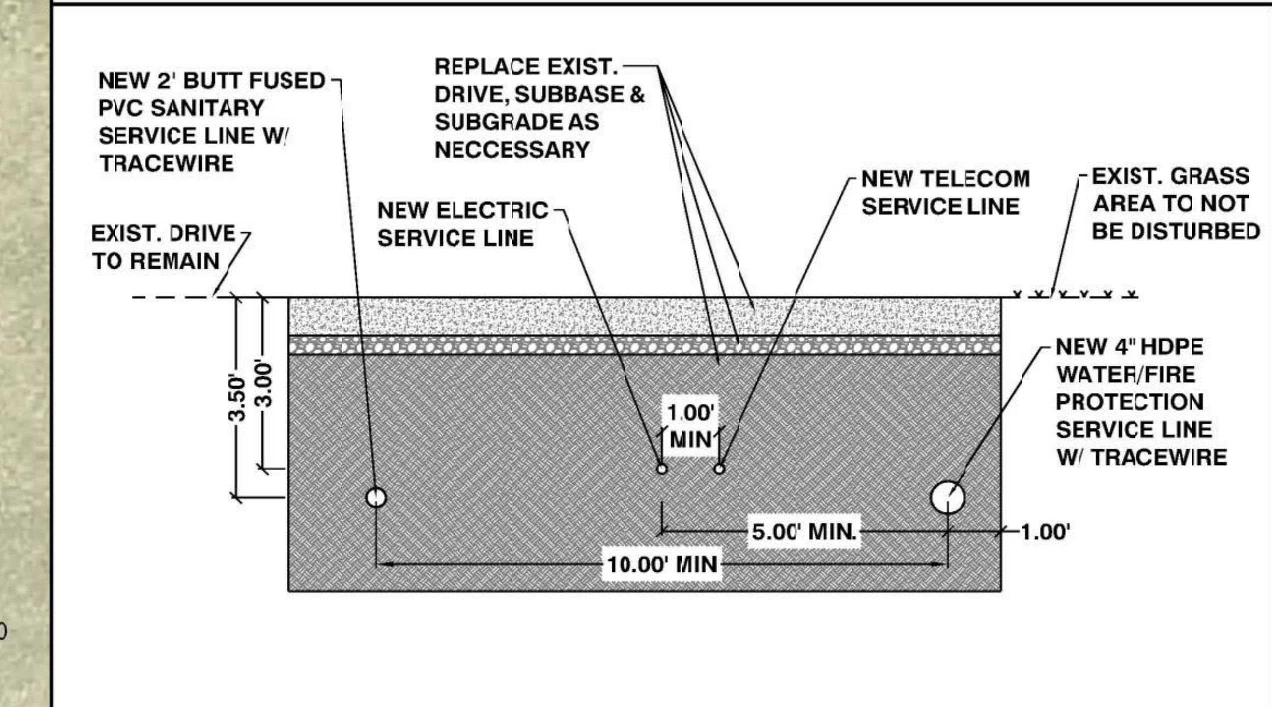




1 ENLARGED BUILDING UTILITY CONNECTION VIEW
1"=20'

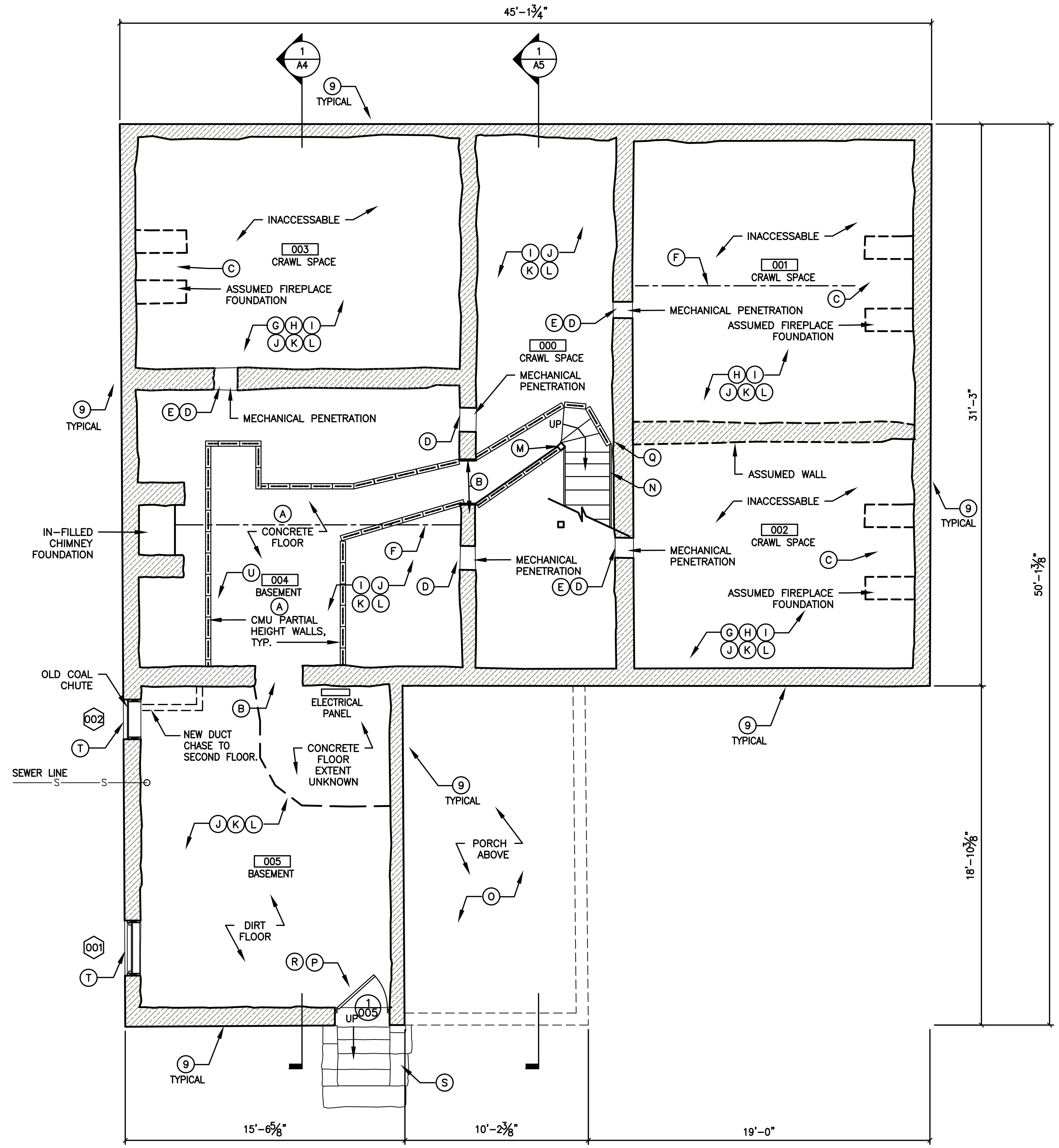
LEGEND:

red solid line	PROPOSED ELECTRIC SERVICE (OPTION 1)
red dashed line	PROPOSED ELECTRIC SERVICE (OPTION 2)
orange solid line	PROPOSED TELECOM SERVICE
blue solid line	PROPOSED 4" HDPE WATER/FIRE PROTECTION SERVICE W/ TRACEWIRE
green solid line	PROPOSED 2" BUTT FUSED PVC FORCEMAIN W/ TRACEWIRE (OPTION 2 & 3)
green dashed line	PROPOSED 2" BUTT FUSED PVC FORCEMAIN W/ TRACEWIRE (OPTION 3)
green fine dashed line	EXISTING SANITARY LINE (OPTION 1)
blue dashed line	EXISTING WATER LINE
orange dashed line	EXISTING TELECOM LINE
red fine dashed line	EXISTING OVERHEAD ELECTRIC LINES



2 PROPOSED UTILITY DEPTH SECTION
Not to Scale

SK Design Group, Inc. Civil Engineers 4600 College Blvd., Suite 100 Overland Park, Ks. 66211 913-451-1818 Fax 913-451-7599	DESIGNED: JC CADD: TW TECH. REVIEW: DATE: 4/17/17	SUB SHEET NO. C1	TITLE OF SHEET TREATMENT RECOMMENDATIONS SITE PLAN & UTILITIES BLACKSTONE HOUSE & OUTBUILDINGS HOPEWELL CULTURE NATIONAL HISTORICAL PARK ROSS COUNTY, OHIO	DRAWING NO. 353 132875 PMIS/PKG NO. 218963 SHEET 2 OF 16



1 A0 BASEMENT FLOOR TREATMENT PLAN
1/4" = 1'-0"

4 0 4 8
SCALE OF FEET

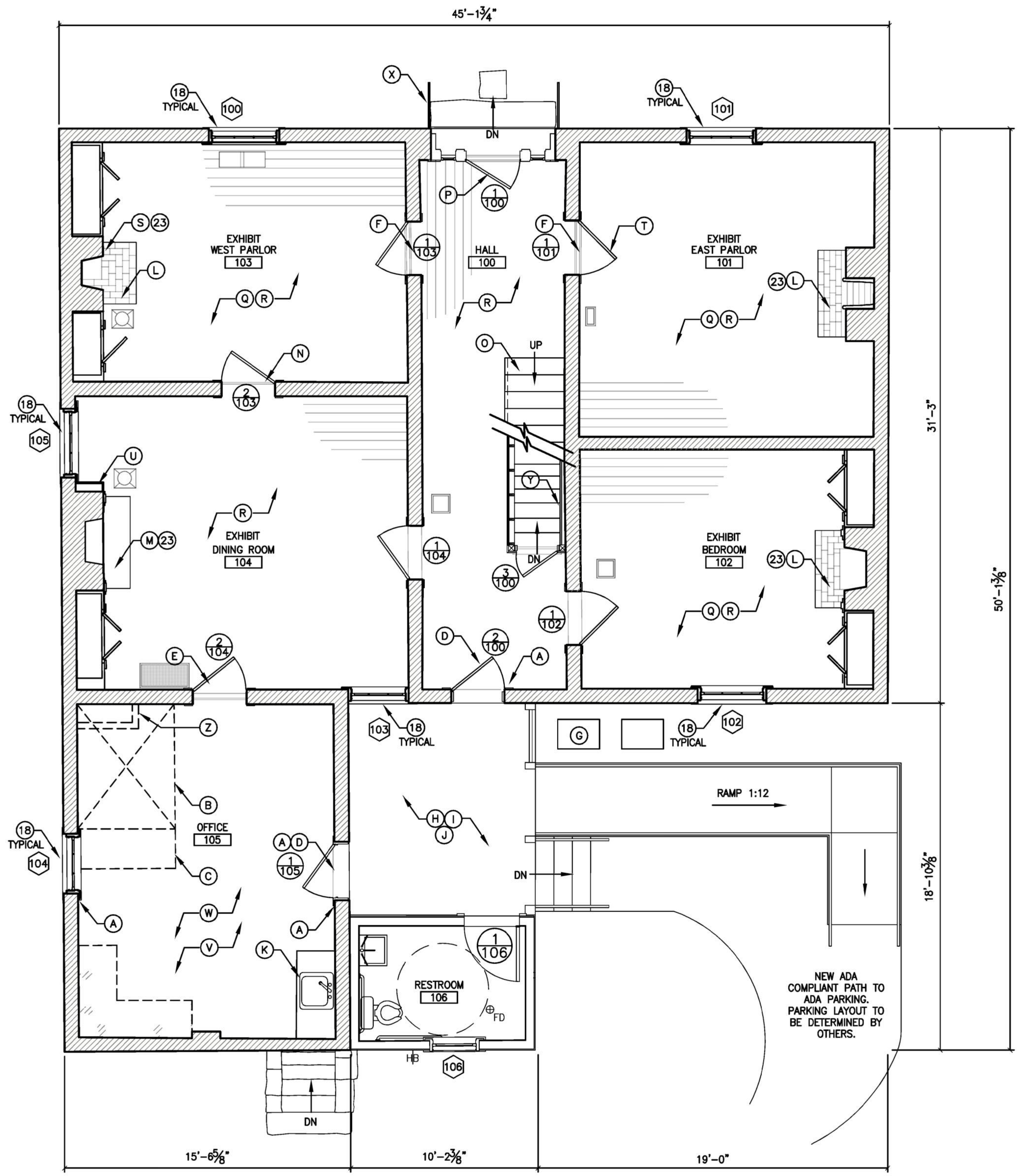
GENERAL NOTES:

1. PERFORM HAZARDOUS MATERIALS TESTING AND REQUIRED ABATEMENT BEFORE INITIATING ANY WORK.
2. REMOVE ALL UNUSED PIPING, DUCTWORK AND MECHANICAL AND ELECTRICAL WIRING, CONDUIT AND EQUIPMENT IN THEIR ENTIRETY. PREPARE FOR INSTALLATION OF NEW EQUIPMENT.
3. INSTALL NEW ELECTRICAL SERVICE, DISTRIBUTION AND LIGHTING THROUGHOUT THE HOUSE.
4. INSTALL NEW MECHANICAL AND VENTILATION THROUGHOUT THE HOUSE. UTILIZE EXISTING FLOOR VENT LOCATIONS FOR SUPPLY AND RETURN AIR.
5. INSTALL NEW SECURITY SYSTEM.
6. INSTALL NEW FIRE SUPPRESSION AND ALARM SYSTEM.
7. INSTALL NEW SANITARY SEWER AND RELATED PLUMBING SYSTEMS AND FIXTURES.
8. PERFORM PEST INSPECTION AND TREAT THE HOUSE, AS REQUIRED. THERE ARE SIGNS OF PREVIOUS BEETLE INFESTATION OF FIRST FLOOR JOISTS. CONFIRM THIS IS NO LONGER ACTIVE.
9. THE ENTIRE PERIMETER OF THE FOUNDATION OF THE HOUSE REQUIRES UNDERPINNING. REFER TO THE STRUCTURAL DRAWINGS FOR UNDERPINNING SEQUENCE AND FOUNDATION WATERPROOFING, DRAINAGE AND DETAILS.

KEY NOTES:

A. REFER TO STRUCTURAL DRAWINGS FOR EXTENT OF WORK: REMOVE EXISTING CMU WALLS AND CONCRETE SLAB FLOORING IN ROOMS 000 AND 004. POUR NEW REINFORCED CONCRETE FLOOR SLAB AND INSTALL NEW REINFORCED CONCRETE STUB WALLS.
B. STABILIZE ENDS OF STONE FOUNDATION WALLS AT TRANSITION. INSTALL NEW JAMB AT DOOR OPENING.
C. REFER TO STRUCTURAL DRAWINGS. STABILIZE BRICK HEARTHS. POUR NEW CONCRETE HEARTH SUPPORT AND REINSTALL BRICKS IN THEIR ORIGINAL LOCATIONS.
D. REFER TO STRUCTURAL DRAWINGS. INSTALL NEW WOOD LINTELS ACROSS MECHANICAL PENETRATIONS.
E. INSTALL NEW CRAWL SPACE ACCESS THROUGH STONE FOUNDATION WALL. EITHER ENLARGE EXISTING WALL PENETRATION OR INSTALL NEW OPENING. INSTALL NEW LINTEL ABOVE OPENING.
F. REFER TO STRUCTURAL DRAWINGS. INSTALL NEW DROP BEAM, STEEL POSTS AND FOOTINGS TO SUPPORT FLOOR JOISTS.
G. REFER TO STRUCTURAL DRAWINGS. INSTALL NEW DROP BEAM, STEEL POSTS AND FOOTINGS TO SUPPORT FLOOR JOISTS OR ADD ENGINEERED LUMBER JOISTS AT 18" O.C.
H. REMOVE EXISTING FIRST FLOOR FINISHED FLOORING. CAREFULLY REMOVE AND LABEL EACH FLOOR BOARD FOR REINSTALLATION IN THEIR ORIGINAL LOCATIONS. CLEAN AND INSPECT CRAWL SPACE. INSPECT ALL FLOOR JOISTS AND REPLACE DETERIORATED FLOOR JOISTS, IN KIND.
I. LEVEL EXISTING CRAWL SPACE AND PROVIDE A MINIMUM OF 12" CLEAR SPACE FROM BOTTOM OF JOIST TO FINISH SOIL. INSTALL NEW VAPOR BARRIER AND WRAP UP SIDE STONE WALLS. TAPE ALL SEAMS AND AT PERIMETER. INSTALL PEA GRAVEL OVER VAPOR BARRIER OR WEIGHT BARRIER DOWN. INSTALL CRAWL SPACE WORK LIGHTING, PER CODE.
J. INSULATE FIRST FLOOR JOISTS WITH FIBERGLASS INSULATION.
K. VENTILATE CRAWL SPACE AND BASEMENT AREAS, PER BUILDING CODE.
L. REPOINT INTERIOR OF STONE FOUNDATION WHERE MISSING MORTAR OCCURS, TYPICAL.
M. REFER TO STRUCTURAL DRAWINGS. REPLACE DETERIORATED POST.
N. INSTALL NEW HANDRAIL AT STAIRS.
O. DEMOLISH EXISTING PORCH STRUCTURE AND RECONSTRUCT NEW PORCH WITH CONCRETE FOOTING AND WALLS AND NEW PORCH STEPS AND RAMP.
P. REMOVE TEMPORARY WOOD DOOR AND FRAME. INSTALL REPRODUCTION WOOD BUCK AND VERTICAL TONGUE AND GROOVE DOOR. PAINT WHITE.
Q. REINFORCE BOTTOM OF STONE FOUNDATION WALL WHEN NEW CONCRETE STUB WALL IS CONSTRUCTED.
R. EXPLORE INSTALLATION OF NEW AREAWAY FLOOR DRAIN AT BASE OF STAIRS AND CONNECT INTO NEW PERIMETER DRAIN.
S. COORDINATE DOCUMENTATION, PARTIAL DEMOLITION AND RECONSTRUCTION OF EXTERIOR BASEMENT STAIRS, AS REQUIRED, TO INSTALL FOUNDATION UNDERPINNING. INSTALL GUARD RAILING AND STAIR RAILING.
T. REFER TO EXTERIOR ELEVATIONS FOR WORK TO BASEMENT WINDOWS.
U. NEW FURNACE TO BE LOCATED IN THE GENERAL AREA OF THE EXISTING FURNACE.

STRATA ARCHITECTURE + PRESERVATION 1701 Oak Street, Suite 100 Ph. 816-474-0900 www.strata-arch.com	DESIGNED: AG CADD: CA TECH. REVIEW: AG DATE: 4/17/17	SUB SHEET NO. A0	LONG TERM TREATMENT RECOMMENDATIONS MAIN HOUSE BLACKSTONE HOUSE & OUTBUILDINGS HOPEWELL CULTURE NATIONAL HISTORICAL PARK ROSS COUNTY, OHIO	DRAWING NO. 353 132875 PMIS/PKG NO. 218963 SHEET 3 OF 16



1 A1 FIRST FLOOR TREATMENT PLAN
1/4" = 1'-0"

4 0 4 8
SCALE OF FEET

PROJECT NORTH

GENERAL NOTES:

1. PERFORM HAZARDOUS MATERIALS TESTING AND REQUIRED ABATEMENT BEFORE INITIATING ANY WORK.
2. REMOVE ALL UNUSED PIPING, DUCTWORK AND MECHANICAL AND ELECTRICAL WIRING, CONDUIT AND EQUIPMENT IN THEIR ENTIRETY. PREPARE FOR INSTALLATION OF NEW EQUIPMENT.
3. INSTALL NEW ELECTRICAL SERVICE, DISTRIBUTION AND SENSITIVELY INSTALLED LIGHTING THROUGHOUT THE HOUSE. LIMIT SWITCHING THROUGHOUT THE HOUSE AND ADD CENTRALIZED SWITCH PANEL IN OFFICE 105 AREA.
4. INSTALL NEW EMERGENCY EGRESS LIGHTING, INCLUDING EXTERIOR. INSTALL NEW EXIT SIGNS.
5. INSTALL NEW MECHANICAL AND VENTILATION THROUGHOUT THE HOUSE. UTILIZE EXISTING FLOOR VENT LOCATIONS FOR SUPPLY AND RETURN AIR.
6. INSTALL NEW SECURITY SYSTEM.
7. INSTALL NEW FIRE SUPPRESSION AND ALARM SYSTEM.
8. INSTALL NEW SANITARY SEWER AND RELATED PLUMBING SYSTEMS AND FIXTURES.
9. PERFORM PEST INSPECTION AND TREAT THE HOUSE, AS REQUIRED. THERE ARE SIGNS OF PREVIOUS BEETLE INFESTATION OF FIRST FLOOR JOISTS. CONFIRM THIS IS NO LONGER ACTIVE.
10. THE ENTIRE PERIMETER OF THE FOUNDATION OF THE HOUSE REQUIRES UNDERPINNING. REFER TO THE STRUCTURAL DRAWINGS FOR UNDERPINNING SEQUENCE AND FOUNDATION WATERPROOFING, DRAINAGE AND DETAILS.
11. REPAIR BRICK AND PLASTER WALLS WHERE CONDUIT PENETRATIONS BETWEEN ROOMS WERE INSTALLED.
12. RESTORE ALL INTERIOR PLASTER WALLS. WHERE VERTICAL CRACKS EXIST, AFTER FOUNDATION STABILIZATION, STITCH IN NEW BRICKS AND REPAIR PLASTER.
13. DEMOLISH ALL EXISTING PLASTER CEILINGS AND INSTALL NEW BLUE BOARD WITH TWO SKIM COATS TO EMULATE HISTORIC PLASTER. FURR BOARD TO MATCH EXISTING HISTORIC LATH AND PLASTER THICKNESS.
14. LIGHTLY SAND AND REFINISH ALL WOOD FLOORS ON THE FIRST AND SECOND FLOOR. INSTALL NEW SATIN FINISH FOR EASE OF MAINTENANCE.
15. REFINISH ALL BASEBOARDS ON FIRST FLOOR TO HAVE CLEAR FINISH.
16. REPAIR ALL BUILT-IN CABINETS TO WORKING CONDITION, PER THE EXISTING CONDITIONS SCOPE OF WORK IN THE HSR REPORT. REPRODUCTION HARDWARE TO BE CUSTOM MANUFACTURED WHERE MISSING.
17. INSTALL NEW RIM LOCKS ON ALL HISTORIC DOORS TO MATCH THE ORIGINAL INSTALLATIONS.
18. RESTORE ALL HISTORIC WINDOWS. RESTORE/REPLACE JAMBS, SILLS, SASHES, REPLACE GLAZING PUTTY, REPLACE BROKEN GLASS WITH REPRODUCTION GLASS, RESTORE HARDWARE. INTERIOR TO BE NATURAL FINISH TO MATCH THE HOUSE. EXTERIOR TO BE PRIMED AND PAINTED. WEATHERSTRIP WINDOWS.
19. INSTALL LIGHTNING PROTECTION SYSTEM AT ROOF.
20. CONDUCT HISTORIC INTERIOR PAINT AND FINISH ANALYSIS AND PROVIDE HISTORICALLY ACCURATE RECOMMENDATIONS FOR INTERIOR FINISHES AND COLORS.
21. PAINT ALL INTERIOR WALLS, CEILINGS, AND TRIM (WHERE APPLICABLE), PER HISTORIC FINISHES REPORT RECOMMENDATIONS.
22. RESTORE HISTORIC CLEAR FINISH MILLWORK THROUGHOUT THE INTERIOR OF THE HOUSE, INCLUDING TRIM, DOORS, BASEBOARDS, BUILT-IN CABINETS AND MANTELS. MANTELS MAY REQUIRE STRIPPING, AS ADDITIONAL FINISHES HAVE BEEN ADDED. FURTHER INVESTIGATION IS REQUIRED.
23. REPOINT INTERIOR OF ALL FIREBOXES TO STABILIZE THE INTERIOR BRICKS. REMOVE NON-ORIGINAL METAL FLUES AND INSULATION FROM CHIMNEY FLUE.

KEY NOTES:

A. INSPECT WOOD LINTEL ABOVE WINDOW OR DOOR AND REPLACE, AS REQUIRED.
B. DEMOLISH EXISTING BATHROOM, INCLUDING THE FIXTURES, FINISHES, CEILING STRUCTURE, AND EAST AND SOUTH WALLS BACK TO HISTORIC STRUCTURE AND FINISHES, AS REQUIRED. PATCH REPAIR FLOOR, AS REQUIRED.
C. DEMOLISH ALL EXISTING KITCHEN CABINETRY AND ALL RELATED ACCESSORIES, PLUMBING AND ELECTRICAL, AS REQUIRED, BACK TO ORIGINAL HISTORIC FINISHES.
D. INSTALL NEW EXTERIOR WOOD PANELED DOOR TO REPLICATE THE EXISTING HISTORIC DOORS AT THE HOUSE. REPAIR JAMBS. INSTALL NEW REPRODUCTION HINGES TO MATCH THE REST OF THE HOUSE. INSTALL NEW CYLINDER LOCK. FOR DOOR 2/100, REVERSE SWING OF DOOR TO ORIGINAL DOOR SWING. INSTALL REPRODUCTION FLUSH WOOD THRESHOLD TO CREATE BARRIER FREE ACCESSIBILITY AT DOOR FROM NEW FLUSH PORCH FLOOR.
E. INSTALL REPRODUCTION DOOR 2/104 BETWEEN THE KITCHEN AND DINING ROOM. MATCH HISTORIC HARDWARE.
F. REMOVE EXISTING THRESHOLD THAT DOES NOT MEET ACCESSIBILITY CODE REQUIREMENTS. SALVAGE, LABEL AND STORE IN PARK ARCHIVES. INSTALL LOWER REPRODUCTION THRESHOLD TO MEET ACCESSIBILITY REQUIREMENTS. INSTALL NEW ADA COMPLIANT TRANSITION STRIP FOR 3/4" RISE FOR 9" DEEP TRANSITION.
G. INSTALL NEW CONDENSING UNITS FOR HEAT PUMP.
H. DEMOLISH EXISTING PORCH STRUCTURE IN ITS ENTIRETY. DOCUMENT PORCH THROUGH PHOTOGRAPHY DURING CONSTRUCTION. RECONSTRUCT BACK PORCH, PER NEW CONFIGURATION. INSTALL NEW CONCRETE FOUNDATION, PER STRUCTURAL. NEW CONCRETE PORCH SLAB TO BE FLUSH WITH FIRST FINISH FLOOR AND SLOPE TO DRAIN. INSTALL NEW CONCRETE RAMP WITH RAILINGS AND NEW STONE STEPS TO THE PORCH WITH RAILINGS. CONSTRUCT NEW ACCESSIBLE RESTROOM AT SOUTH END OF PORCH. CONNECT SANITARY TO GRINDER PUMP IN BASEMENT, PER CIVIL. INSTALL HOSE BIBB ON SOUTH WALL OF PORCH FOUNDATION.
I. INSTALL NEW PORCH LIGHTING.
J. WHITEWASH MASONRY AND WOOD PORCH WALLS.
K. POTENTIAL LOCATION FOR KITCHENETTE AND SINK.
L. RECONSTRUCT BRICK HEARTHS WITH NEW CONCRETE FOUNDATION, PER STRUCTURAL. REUSE HISTORIC BRICKS IN THEIR ORIGINAL LOCATIONS.
M. RECONSTRUCT BRICK HEARTH TO MATCH THE OTHER ROOMS. REMOVE INFILL AND RESTORE FIREBOX.
N. CUT BACK FLOOR THROUGH DOOR JAMB OPENING AND INSTALL ADA COMPLIANT FLOOR TRANSITION. DOOR 2/103 1⅛" RISE FOR 12 ⅛" DEEP TRANSITION.
O. INSTALL REPRODUCTION NEWEL, RAILING AND BALUSTERS. REPAIR RAILING AT LANDING. REFINISH ALL STAIR COMPONENTS.
P. RESTORE INTERIOR OF DOOR 1/100 SURROUND AND ALSO DOOR. EPOXY REPAIR WOOD DETERIORATION. CLEAN AND OIL HINGES. INSTALL ANTIQUE KEEPER TO MATCH THE RIM LOCK. RESTORE RIM LOCK, KNOB AND ADD MISSING NIGHT LATCH KNOB. RESTORE ESCUTCHEON ON EXTERIOR. PROVIDE KEYS. INSTALL NEW THRESHOLD. RESTORE GLAZING PUTTY IN SIDELIGHTS. CLEAR FINISH ON THE INTERIOR.
Q. REMOVE EXISTING WOOD FLOORING. CAREFULLY REMOVE AND LABEL EACH FLOOR BOARD FOR REINSTALLATION IN THEIR ORIGINAL LOCATIONS. CLEAN AND INSPECT CRAWL SPACE. INSPECT ALL FLOOR JOISTS AND REPLACE DETERIORATED FLOOR JOISTS, IN KIND.
R. DETERIORATED LATH AND PLASTER CEILINGS ARE TO BE DEMOLISHED IN THEIR ENTIRETY. INSTALL SUPPLEMENTAL SECOND FLOOR FRAMING, PER STRUCTURAL RECOMMENDATIONS.
S. REPAIR AND REINSTALL ORIGINAL MANTELPIECE THAT IS IN STORAGE. STRIP ADJACENT DECORATIVE BASEBOARD.
T. REPAIR DAMAGED DOOR. UTILIZE OLD GROWTH BUTTERNUT FOR DUTCHMAN REPAIRS TO RAIL AND STILE.
U. DEMOLISH CONTEMPORARY DUCT CHASE.
V. DEMOLISH EXISTING FLOORING MATERIALS. REPAIR TONGUE AND GROOVE WOOD SUBFLOOR. INSTALL NEW TONGUE AND GROOVE WOOD FLOORING. PROVIDE TRANSITION STRIP IF REQUIRED AT DOOR 2/104.
W. DEMOLISH EXISTING MULTI-LAYER CEILING AND INSTALL NEW CEILING WITH SKIM COATING.
X. NEW HANDRAIL AT STAIRS. DO NOT ANCHOR INTO BUILDING.
Y. INSTALL NEW HANDRAIL AT BASEMENT STAIRS.
Z. NEW CHASE TO ROUTE HVAC FROM BASEMENT TO SECOND FLOOR ATTIC SPACE.

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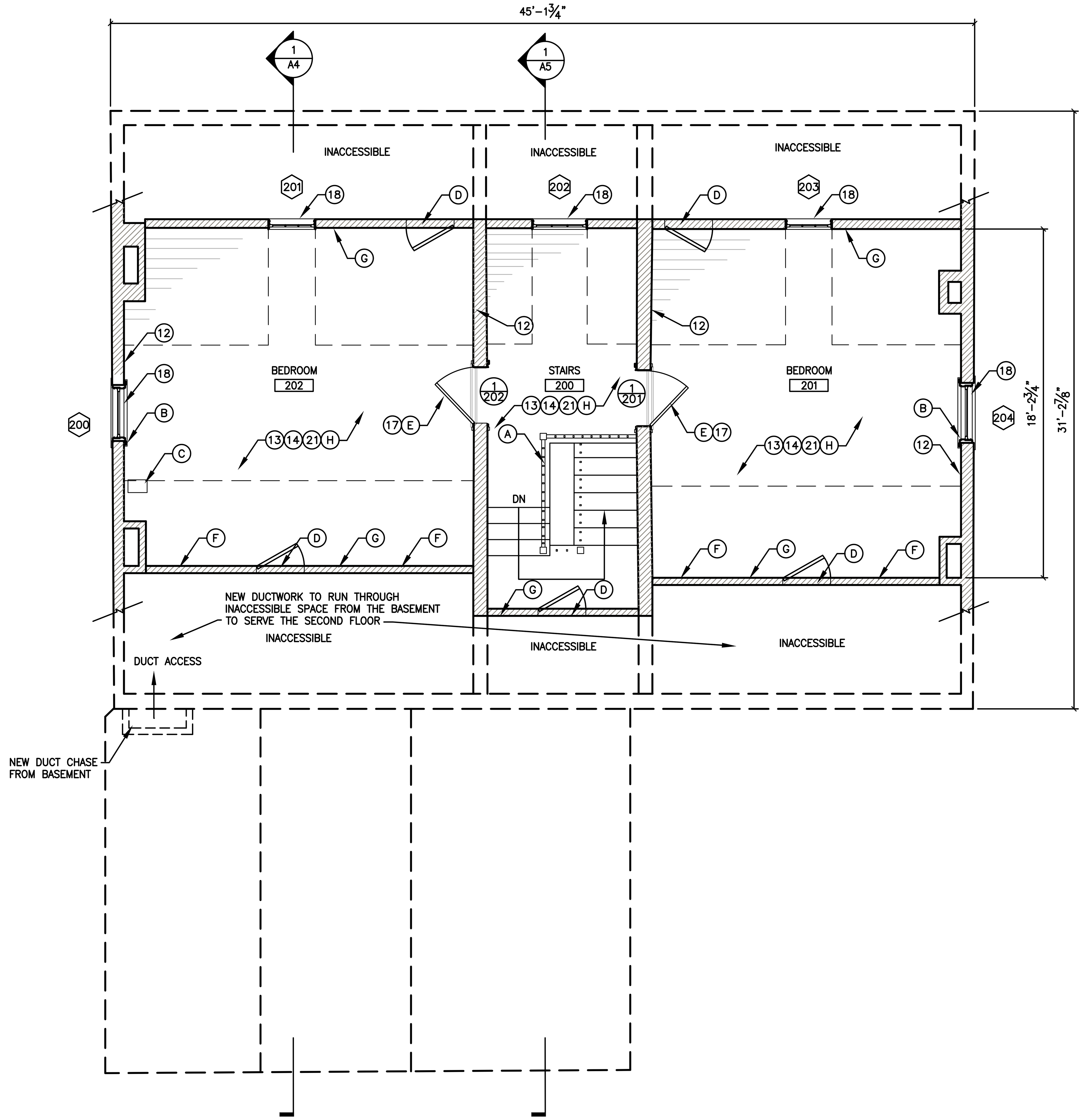
DESIGNED: AG
CADD: CA
TECH. REVIEW: AG
DATE: 4/17/17

SUB SHEET NO. A1

LONG TERM TREATMENT RECOMMENDATIONS
MAIN HOUSE
BLACKSTONE HOUSE & OUTBUILDINGS
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
ROSS COUNTY, OHIO

DRAWING NO. 353 132875
PMIS/PKG NO. 218963
SHEET 4 OF 16



1 / A2 SECOND FLOOR TREATMENT PLAN
1/4" = 1'-0"

4 0 4 8
SCALE OF FEET

GENERAL NOTES:

1. PERFORM HAZARDOUS MATERIALS TESTING AND REQUIRED ABATEMENT BEFORE INITIATING ANY WORK.
2. REMOVE ALL UNUSED PIPING, DUCTWORK AND MECHANICAL AND ELECTRICAL WIRING, CONDUIT AND EQUIPMENT IN THEIR ENTIRETY. PREPARE FOR INSTALLATION OF NEW EQUIPMENT.
3. INSTALL NEW ELECTRICAL SERVICE, DISTRIBUTION AND SENSITIVELY INSTALLED LIGHTING THROUGHOUT THE HOUSE. LIMIT SWITCHING THROUGHOUT THE HOUSE AND ADD CENTRALIZED SWITCH PANEL IN OFFICE 105 AREA.
4. INSTALL NEW EMERGENCY EGRESS LIGHTING, INCLUDING EXTERIOR. INSTALL NEW EXIT SIGNS.
5. INSTALL NEW MECHANICAL AND VENTILATION THROUGHOUT THE HOUSE. UTILIZE EXISTING FLOOR VENT LOCATIONS FOR SUPPLY AND RETURN AIR.
6. INSTALL NEW SECURITY SYSTEM.
7. INSTALL NEW FIRE SUPPRESSION AND ALARM SYSTEM.
8. INSTALL NEW SANITARY SEWER AND RELATED PLUMBING SYSTEMS AND FIXTURES.
9. PERFORM PEST INSPECTION AND TREAT THE HOUSE, AS REQUIRED. THERE ARE SIGNS OF PREVIOUS BEETLE INFESTATION OF FIRST FLOOR JOISTS. CONFIRM THIS IS NO LONGER ACTIVE.
10. THE ENTIRE PERIMETER OF THE FOUNDATION OF THE HOUSE REQUIRES UNDERPINNING. REFER TO THE STRUCTURAL DRAWINGS FOR UNDERPINNING SEQUENCE AND FOUNDATION WATERPROOFING, DRAINAGE AND DETAILS.
11. REPAIR BRICK AND PLASTER WALLS WHERE CONDUIT PENETRATIONS BETWEEN ROOMS WERE INSTALLED.
12. RESTORE ALL INTERIOR PLASTER WALLS. WHERE VERTICAL CRACKS EXIST, AFTER FOUNDATION STABILIZATION, STITCH IN NEW BRICKS AND REPAIR PLASTER.
13. DEMOLISH ALL EXISTING PLASTER CEILINGS AND INSTALL NEW BLUE BOARD WITH TWO SKIM COATS TO EMULATE HISTORIC PLASTER. FURR BOARD TO MATCH EXISTING HISTORIC LATH AND PLASTER THICKNESS.
14. SAND AND REFINISH ALL WOOD FLOORS ON THE FIRST AND SECOND FLOOR. INSTALL NEW SATIN FINISH FOR EASE OF MAINTENANCE.
15. REFINISH ALL BASEBOARDS ON FIRST FLOOR TO HAVE CLEAR FINISH.
16. REPAIR ALL BUILT-IN CABINETS TO WORKING CONDITION, PER THE EXISTING CONDITIONS SCOPE OF WORK IN THE HSR REPORT. REPRODUCTION HARDWARE TO BE CUSTOM MANUFACTURED WHERE MISSING.
17. INSTALL NEW RIM LOCKS ON ALL HISTORIC DOORS TO MATCH THE ORIGINAL INSTALLATIONS.
18. RESTORE ALL HISTORIC WINDOWS. RESTORE/REPLACE JAMBS, SILLS, SASHES, REPLACE GLAZING PUTTY, REPLACE BROKEN GLASS WITH REPRODUCTION GLASS, RESTORE HARDWARE. INTERIOR TO BE NATURAL FINISH TO MATCH THE HOUSE. EXTERIOR TO BE PRIMED AND PAINTED. WEATHERSTRIP WINDOWS.
19. INSTALL LIGHTNING PROTECTION SYSTEM AT ROOF.
20. CONDUCT HISTORIC INTERIOR PAINT AND FINISH ANALYSIS AND PROVIDE HISTORICALLY ACCURATE RECOMMENDATIONS FOR INTERIOR FINISHES AND COLORS.
21. PAINT ALL INTERIOR WALLS, CEILINGS, AND TRIM (WHERE APPLICABLE), PER HISTORIC FINISHES REPORT RECOMMENDATIONS.
22. RESTORE HISTORIC CLEAR FINISH MILLWORK THROUGHOUT THE INTERIOR OF THE HOUSE, INCLUDING TRIM, DOORS, BASEBOARDS, BUILT-IN CABINETS AND MANTELS. MANTELS MAY REQUIRE STRIPPING, AS ADDITIONAL FINISHES HAVE BEEN ADDED. FURTHER INVESTIGATION IS REQUIRED.
23. REPOINT INTERIOR OF ALL FIREBOXES TO STABILIZE THE INTERIOR BRICKS. REMOVE UNORIGINAL METAL FLUES AND INSULATION FROM CHIMNEY FLUE.

KEY NOTES:

A. RESTORE AND REPAIR EXISTING STAIR HANDRAIL, AS REQUIRED.
B. REFER TO EAST EXTERIOR ELEVATION DRAWING FOR RECONSTRUCTION OF WINDOW WITHIN WALL.
C. PATCH FLOOR WHERE FLOOR VENT WAS LOCATED.
D. INSTALL NEW PAINTED AND INSULATED WOOD ACCESS PANELS INTO INACCESSIBLE SPACE BEHIND SOUTH WALL FOR DUCTWORK ACCESS (5 TOTAL). INSTALL KEYED LOCKS ON ACCESS PANELS.
E. REPAIR DAMAGED HISTORIC DOORS. DUTCHMAN PATCH RAILS AND STILE WITH OLD GROWTH BUTTERNUT. RESTORE DOORS AND REPAINT.
F. NEW HVAC VENT IN KNEE WALL.
G. INSULATE KNEE WALLS AT SECOND FLOOR, TYPICAL.
H. INSULATE CEILING AT SECOND FLOOR, TYPICAL.

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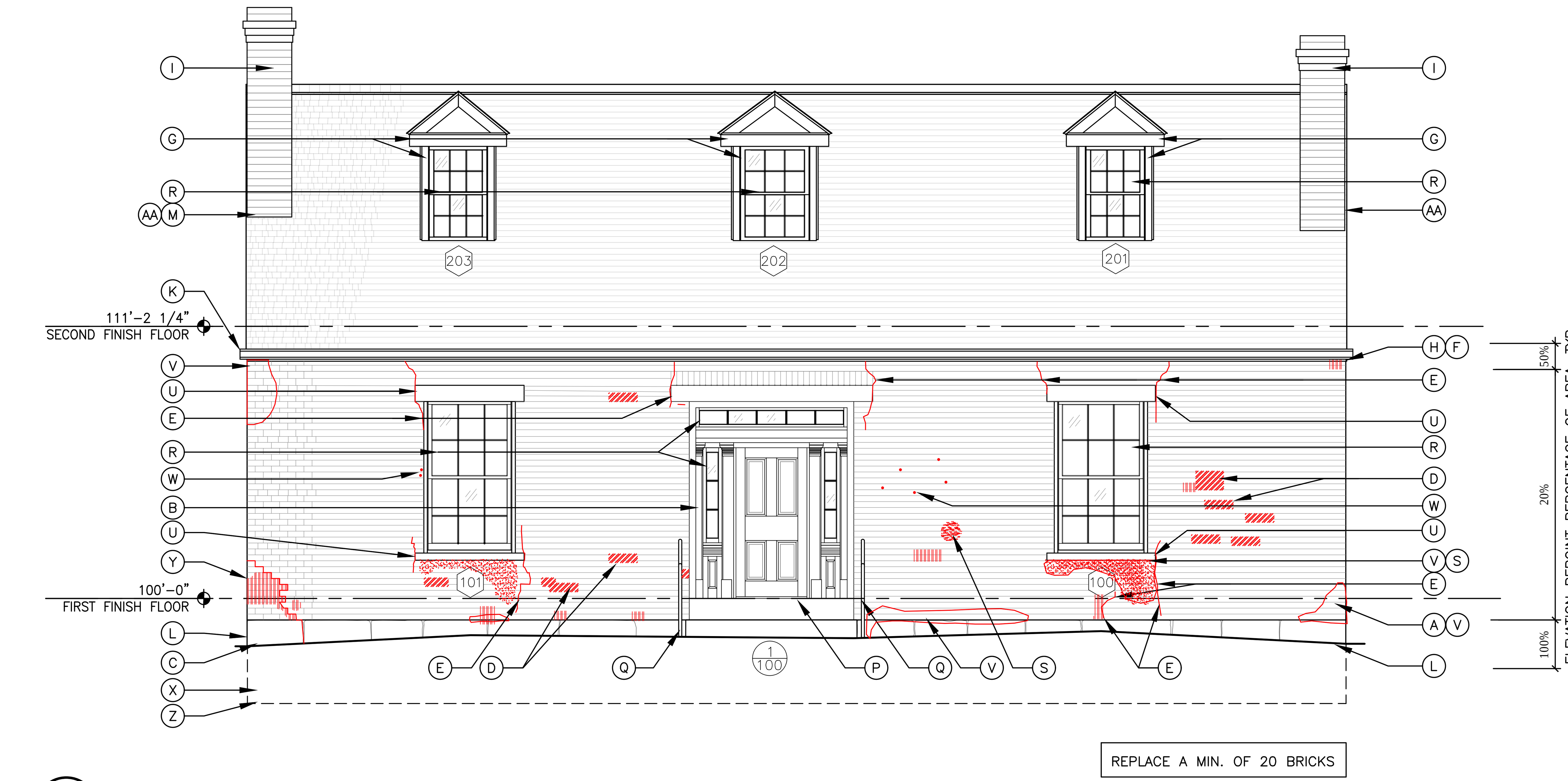
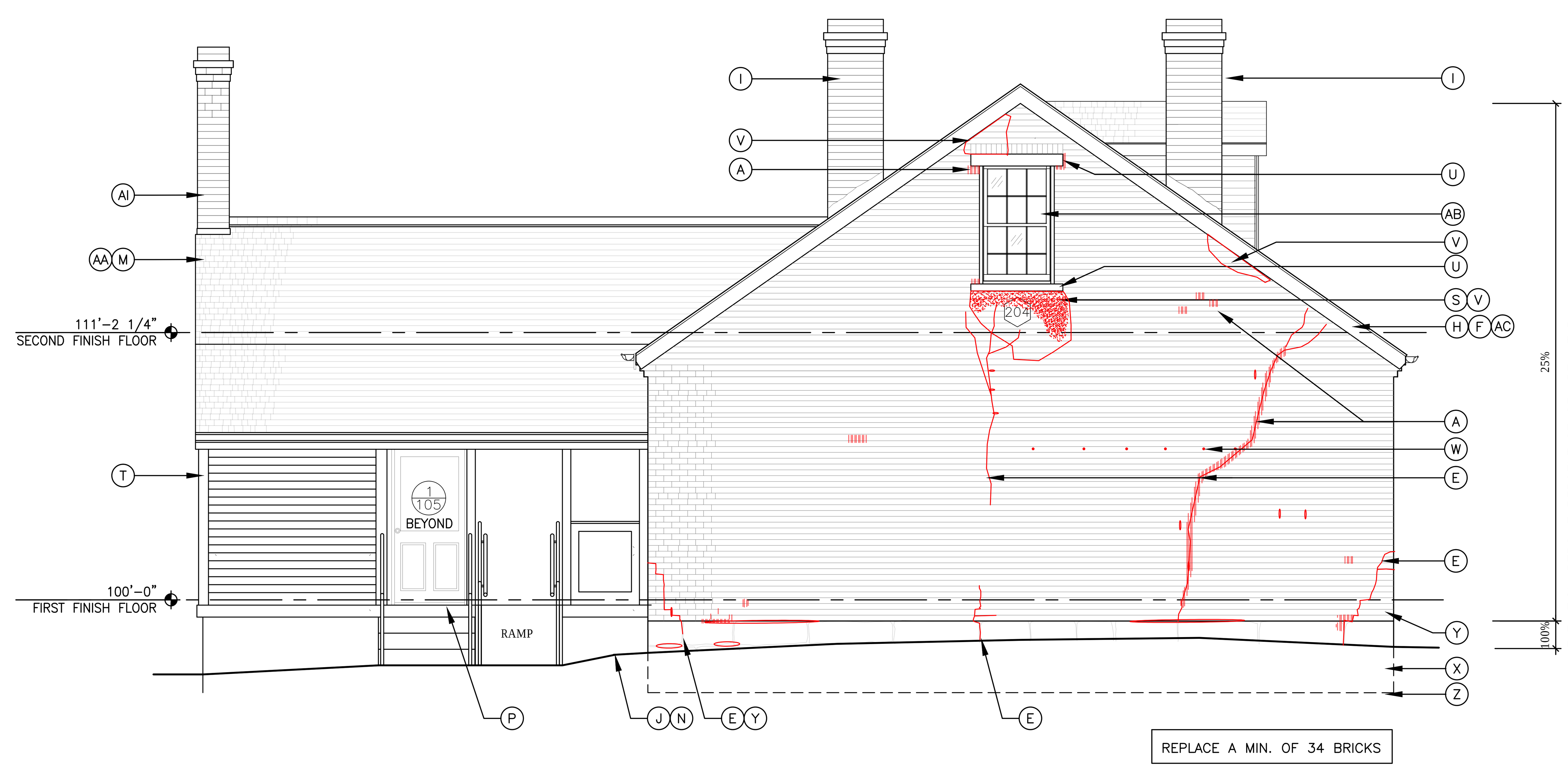
DESIGNED: AG	SUB SHEET NO.	LONG TERM TREATMENT RECOMMENDATIONS	DRAWING NO. 353 / 132875
CADD: CA	A2	MAIN HOUSE	PMIS/PKG NO. 218963
TECH. REVIEW: AG		BLACKSTONE HOUSE & OUTBUILDINGS HOPEWELL CULTURE NATIONAL HISTORICAL PARK	SHEET
DATE: 4/17/17		ROSS COUNTY, OHIO	5 OF 16



1 A3 NORTH ELEVATION TREATMENT
1/4" = 1'-0"



2 A3 EAST ELEVATION TREATMENT
1/4" = 1'-0"

4 0 4 8
SCALE OF FEET

GENERAL NOTES:

1. PERFORM HAZARDOUS MATERIALS TESTING AND REQUIRED ABATEMENT BEFORE INITIATING ANY WORK.
2. SPOT REPOINT AS REQUIRED. NEW MORTAR SHOULD MATCH EXISTING IN COMPOSITION, COLOR, TEXTURE AND PROFILE.
3. CLEAN ALL MASONRY TO REMOVE DIRT AND BIOLOGICAL GROWTH.
4. DOWNSPOUTS NOT SHOWN FOR CLARITY OF DRAWINGS.

KEY NOTES:

A. RAKE JOINT BACK TO REMOVE IMPROPER MORTAR, REPOINT WITH COMPATIBLE MORTAR.
B. WOOD WORK IS TO BE REPAIRED, CONDITIONED AND PREPPED FOR NEW PRIME AND PAINT FINISH.
C. REMOVE VEGETATION THAT IS GROWING DIRECTLY AGAINST THE FOUNDATION, TYPICAL.
D. INSPECT DETERIORATED BRICK AND IF THERE IS MINIMAL DETERIORATION, PATCH WITH A JAHN MORTAR COMPOUND. IF MORE THAN 50% OF THE FACE HAS DETERIORATED, REMOVE DETERIORATED BRICK AND REPLACE IN-KIND.
E. PATCH AND REPAIR CRACK IN MORTAR JOINT. REPLACE ANY CRACKED BRICKS.
F. PREP, PRIME AND PAINT 100% WOOD TRIM.
G. CAREFULLY REMOVE ALL DETERIORATED WOOD TRIM AND DETERIORATED WOOD FASCIA. REPLACE WITH IN-KIND MATERIAL AND PAINT TO MATCH EXISTING. TOUCH-UP PAINT ON EXISTING WOOD TRIM AND FASCIA TO PREVENT WOOD ROT. REPLACE ENTIRE LENGTH OF BOARD, DO NOT INSTALL SMALL DUTCHMAN REPAIRS. EXTERIOR TRIM REPAIRS SHALL BE EXTERIOR GRADE WESTERN RED CEDAR, OR APPROVED EQUAL. PRIME ALL EDGES PRIOR TO INSTALLATION.
H. EXISTING WOOD FASCIA BOARD DOES NOT MEET AT THE RIDGE AND BARGE BOARD IS TO TALL. FASCIA AND BARGE BOARD SHOULD BE REMOVED AND FURTHER INVESTIGATION SHOULD BE DONE TO DETERMINE THE SIZE OF THE ORIGINAL FASCIA/BARGE BOARD. INSTALL NEW WOOD FASCIA/BARGE BOARD TO MATCH ORIGINAL.
I. CHIMNEY TO BE REBUILT. DISASSEMBLE, CATALOG, AND SALVAGE BRICK FROM EXISTING CHIMNEY. ARCHITECT TO BE ON SITE DURING DISASSEMBLY TO DOCUMENT EXISTING CHIMNEY, SIZE, PROFILE, OFFSETS, AND DIMENSIONS.
J. REMOVE EXISTING VEGETATION FOR INSTALLATION OF NEW RAMP.
K. INSTALL 5" GALVANIZED HALF ROUND GUTTERS AND DOWNSPOUTS. PROVIDE ALL REQUIRED GUTTER HANGERS, END CAPS, DOWNSPOUT ELBOWS AND ANY OTHER REQUIRED ACCESSORIES FOR COMPLETE INSTALLATION. SLOPE GUTTERS TO DRAIN. PROVIDE 4-FOOT EXTENSIONS TO DRAIN AWAY FROM HOUSE. INSTALL EZ-LOCK SMALL HOLE POWDER-COATED STEEL SCREEN LEAF GUARD SYSTEM ON ALL GUTTERS, OR APPROVED EQUAL. NOT SHOWN ON DRAWINGS.
L. INSTALL CONCRETE SPLASH BLOCK AT BASE OF DOWNSPOUT.
M. REPLACE EXISTING ASPHALT SHINGLES WITH NEW COMPOSITE SHAKE SHINGLES OR FIRE TREATED WOOD SHINGLES. REMOVE EXISTING DETERIORATED SHEATHING AND REPLACE WITH EXTERIOR RATED OSB SHEATHING TO MATCH THE EXISTING SHEATHING THICKNESS. REPLACE FULL SECTIONS BETWEEN RAFTERS TO ENSURE STRUCTURAL UNIFORMITY. INSTALL SELF-ADHERING WATER AND ICE BARRIER FROM EDGE OF FASCIA TO WITHIN 36-INCHES OF INTERIOR FACE OF EXTERIOR WALL. ASSUME 10% REQUIRED SHEATHING REPLACEMENT.
N. RE-GRADE ON THE SOUTH ENOUGH TO PROVIDE A LEVEL AREA TO INSTALL THE NEW CONDENSING UNIT PAD.
O. INSTALL NEW WOOD WINDOW AT 001 AND 002. REPLACE EXISTING DETERIORATED TRIM, AS REQUIRED. PAINT NEW INSTALLATION.
P. REPLACE DOOR THRESHOLD.
Q. INSTALL NEW GALVANIZED PAINTED HANDRAIL.
R. REHABILITATE ALL EXISTING DETERIORATED WINDOWS AND RELATED TRIM. REHABILITATION INCLUDES WOOD ROT REPAIR, ADJUSTING TO OPERATE PROPERLY, RE-GLAZING (AS REQUIRED), PAINTING, AND CLEANING. REPLACEMENT WOOD TRIM, JAMBS, AND SILLS SHALL MATCH THE EXISTING WOOD TRIM IN PROFILE, DIMENSION AND INSTALLATION. PAINT EXTERIOR OF ALL WINDOWS AND EXTERIOR TRIM. INSTALL NEW PREFINISHED METAL STORMS.
S. REMOVE PAINT, CEMENTITIOUS MATERIAL, OR ANY NON-ORIGINAL FINISH COATING MASONRY.
T. CAREFULLY REMOVE PORCH, INCLUDING PORCH ROOF, WALLS, CONCRETE SLAB, AND CMU FOUNDATION. CONSTRUCT NEW PORCH AND RAMP. INSTALL SHALLOW CONCRETE STRIP FOOTING, FOUNDATION WALLS, AND CONCRETE SLAB. INSTALL NEW WOOD FRAMING AND ROOF BASED ON TREATMENT DRAWINGS.
U. REMOVE ANY NON-ORIGINAL FINISHES ON STONE AFTER ABATEMENT.
V. MISSING MORTAR, REPOINT WITH COMPATIBLE MORTAR.
W. REMOVE NAILS AND PATCH WITH APPROPRIATE MATERIAL. BRICKS TO GET JAHN MORTAR PATCH. MORTAR JOINTS SHOULD GET NEW COMPATIBLE MORTAR.
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AB. REMOVE AND RECONSTRUCT WOOD WINDOW TO A FLUSH CONDITION. INSTALL NEW SILL AND JAMBS.
AC. REPOINT ALL ALONG EXISTING BARGE BOARD, TYPICAL.
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AI. RECONSTRUCT CHIMNEY TO MATCH HISTORIC CHIMNEY.
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CAREFULLY CLEAN BRICK TO REMOVE NON-ORIGINAL STAINING

REMOVE INCOMPATIBLE MORTAR. REPLACE WITH NEW COMPATIBLE MORTAR.

REPLACE DETERIORATED BRICK

REPAIR CRACKS

CONCENTRATED AREA OF MISSING MORTAR. REPOINT WITH COMPATIBLE MORTAR.

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DESIGNED: AG
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SUB SHEET NO. A3

LONG TERM
TREATMENT RECOMMENDATIONS
MAIN HOUSE
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HOPEWELL CULTURE NATIONAL
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ROSS COUNTY, OHIO

DRAWING NO. 353 132875
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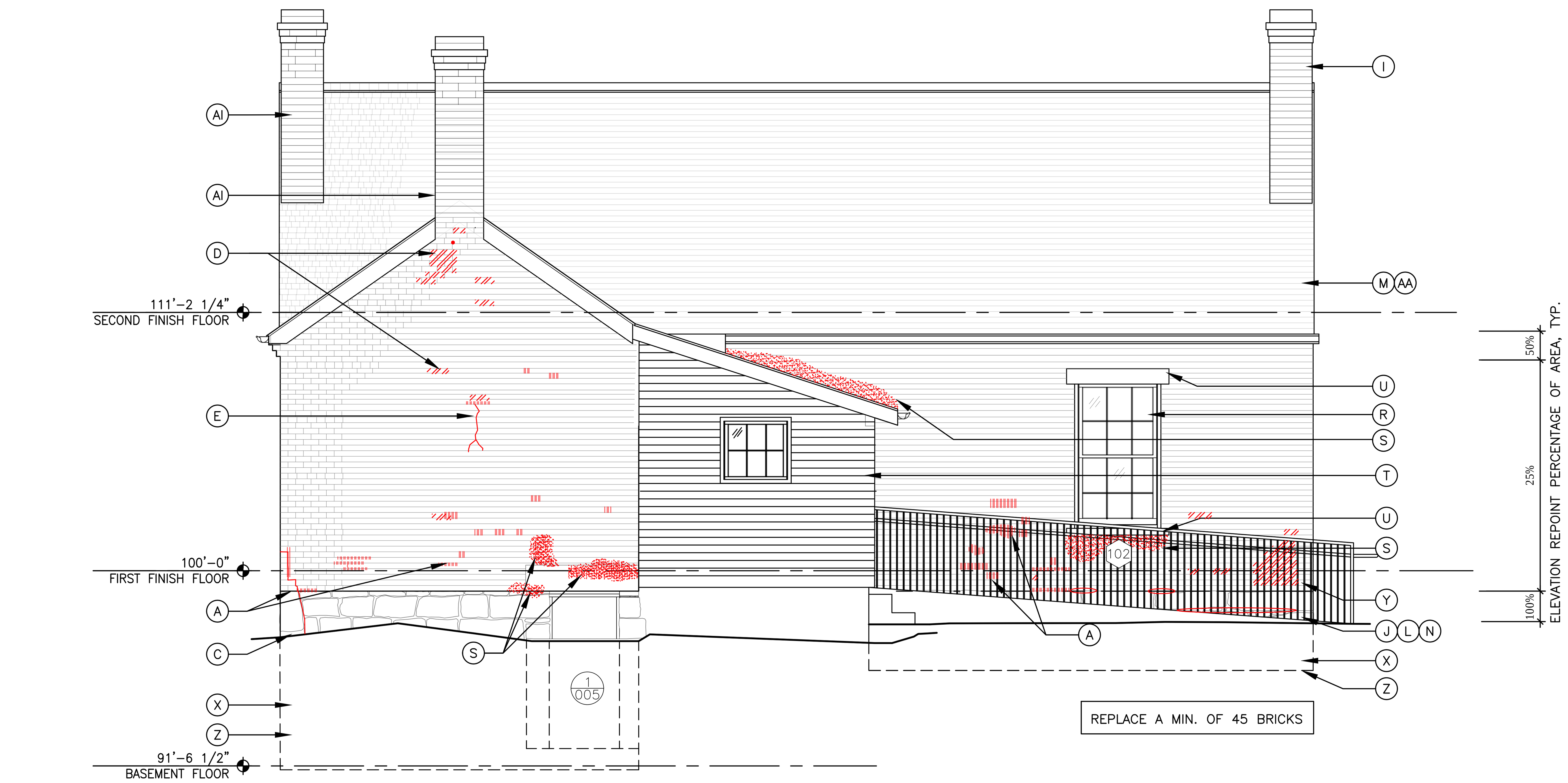
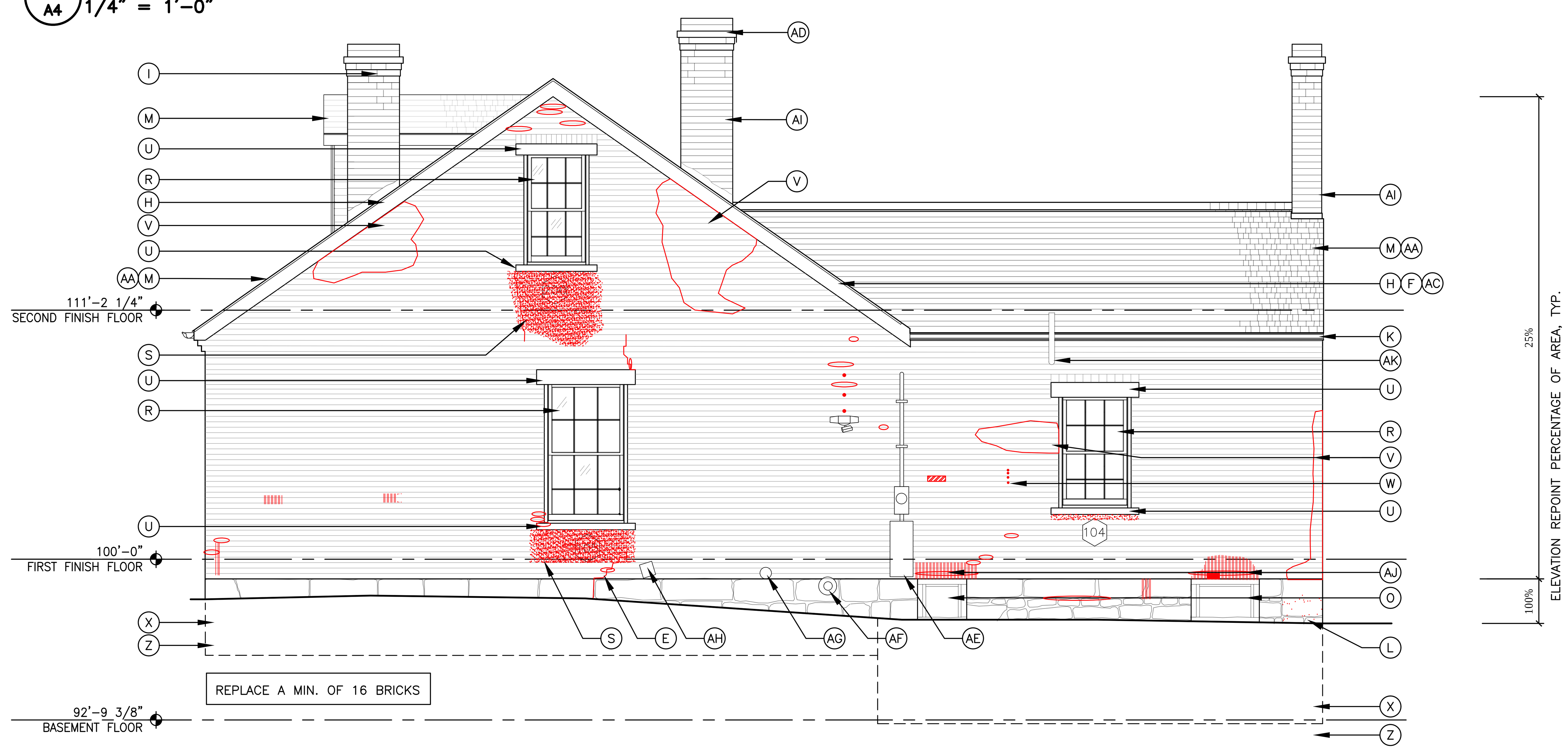
SHEET 6 OF 16



1 / A4 SOUTH ELEVATION TREATMENT
1/4" = 1'-0"



2 / A4 WEST ELEVATION TREATMENT
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4 0 4 8
SCALE OF FEET

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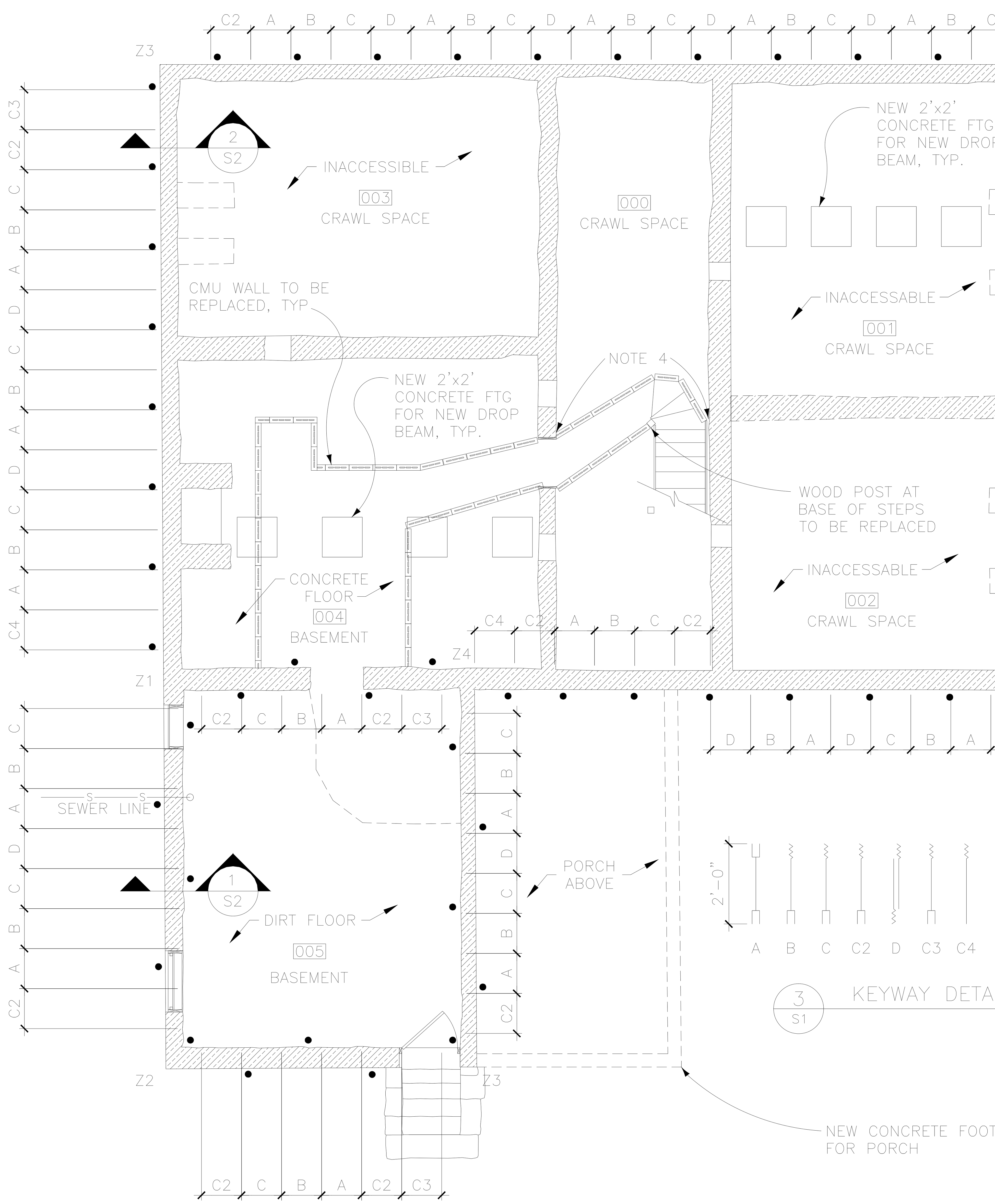
DESIGNED:	AG
CADD	CA
TECH. REVIEW:	AG
DATE:	4/17/17

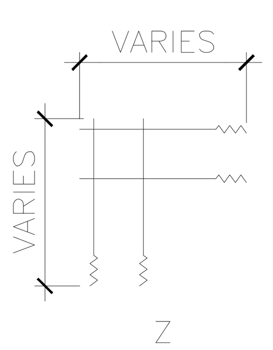
SUB SHEET NO. A4

LONG TERM
TREATMENT RECOMMENDATIONS
MAIN HOUSE
BLACKSTONE HOUSE & OUTBUILDINGS
HOPEWELL CULTURE NATIONAL
HISTORICAL PARK
ROSS COUNTY, OHIO

DRAWING NO. 353 132875
PMIS/PKG NO. 218963
SHEET 7 OF 16

PROCESS: 1. DIG OUT FOUNDATION AT "A" LOCATIONS.
2. PLACE NEW FOOTING AND ALLOW TO REACH 3000PSI CONCRETE STRENGTH.
3. THEN DIG OUT "B" LOCATIONS AND PLACE NEW FOOTINGS.
4. REPEAT WITH "C" AND "D" AREAS





3 S1 KEYWAY DETAIL

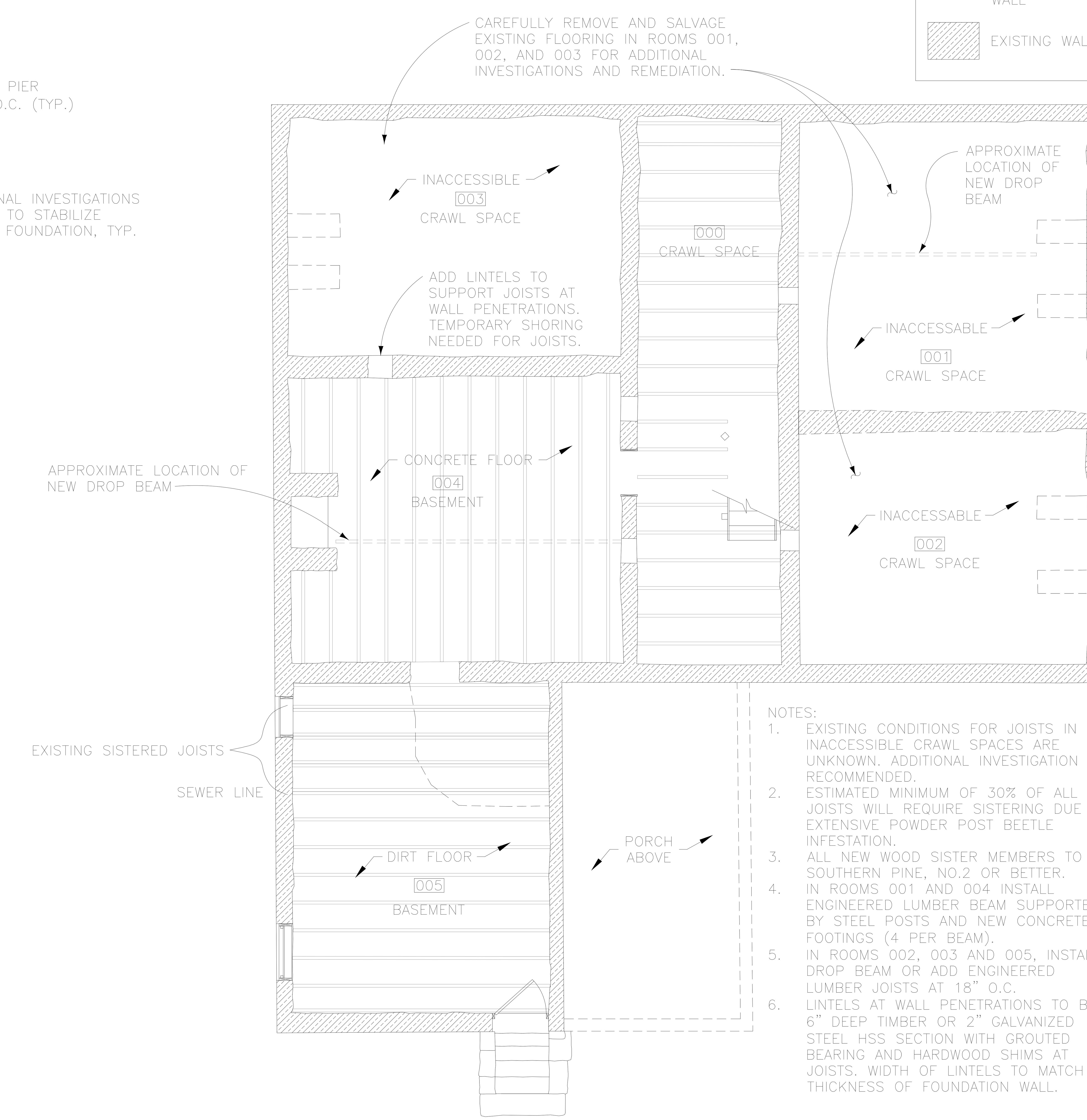
NOTES:
1. ALL CONCRETE TO BE 5000 PSI. WELL GRADED AGGREGATE. 4" SLUMP.
2. CONCRETE FLOOR IN ROOMS 000 AND 004 TO BE REPLACED AND CONSTRUCTED TO SUPPORT NEW CMU WALLS.
3. NEW CMU WALLS TO BE CONTINUOUS THOUGH DOORWAY. COORDINATE TEMPORARY SHORING FOR DOOR JAMBS.
4. TEMPORARY SHORING REQUIRED AT SHALLOW FOUNDATIONS FOR REMOVAL AND REPLACEMENT OF CMU WALLS.
5. NEW FOOTINGS FOR DROP BEAMS TO BE INSTALLED 1'-6" BELOW EXISTING GRADE, TYP.

2 S1 FOUNDATION PLAN UNDERPIN SEQUENCE

LEGEND

EXISTING CMU WALL

EXISTING WALL



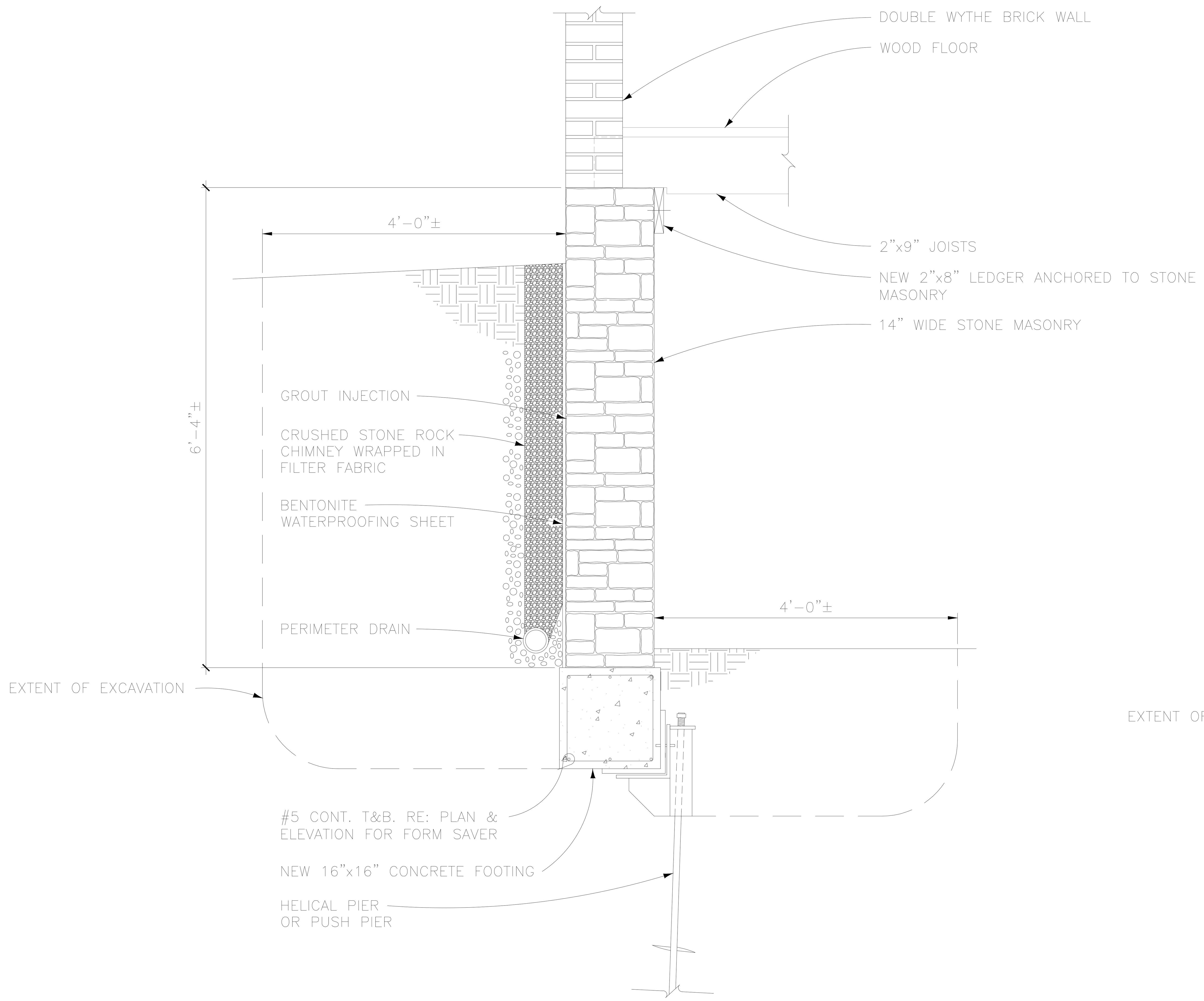
NOTES:
1. EXISTING CONDITIONS FOR JOISTS IN INACCESSIBLE CRAWL SPACES ARE UNKNOWN. ADDITIONAL INVESTIGATION IS RECOMMENDED.
2. ESTIMATED MINIMUM OF 30% OF ALL JOISTS WILL REQUIRE SISTERING DUE TO EXTENSIVE POWDER POST BEETLE INFESTATION.
3. ALL NEW WOOD SISTER MEMBERS TO BE SOUTHERN PINE, NO.2 OR BETTER.
4. IN ROOMS 001 AND 004 INSTALL ENGINEERED LUMBER BEAM SUPPORTED BY STEEL POSTS AND NEW CONCRETE FOOTINGS (4 PER BEAM).
5. IN ROOMS 002, 003 AND 005, INSTALL DROP BEAM OR ADD ENGINEERED LUMBER JOISTS AT 18" O.C.
6. LINTELS AT WALL PENETRATIONS TO BE 6" DEEP TIMBER OR 2" GALVANIZED STEEL HSS SECTION WITH GROUTED BEARING AND HARDWOOD SHIMS AT JOISTS. WIDTH OF LINTELS TO MATCH THICKNESS OF FOUNDATION WALL.

1 S1 FIRST FLOOR FRAMING PLAN

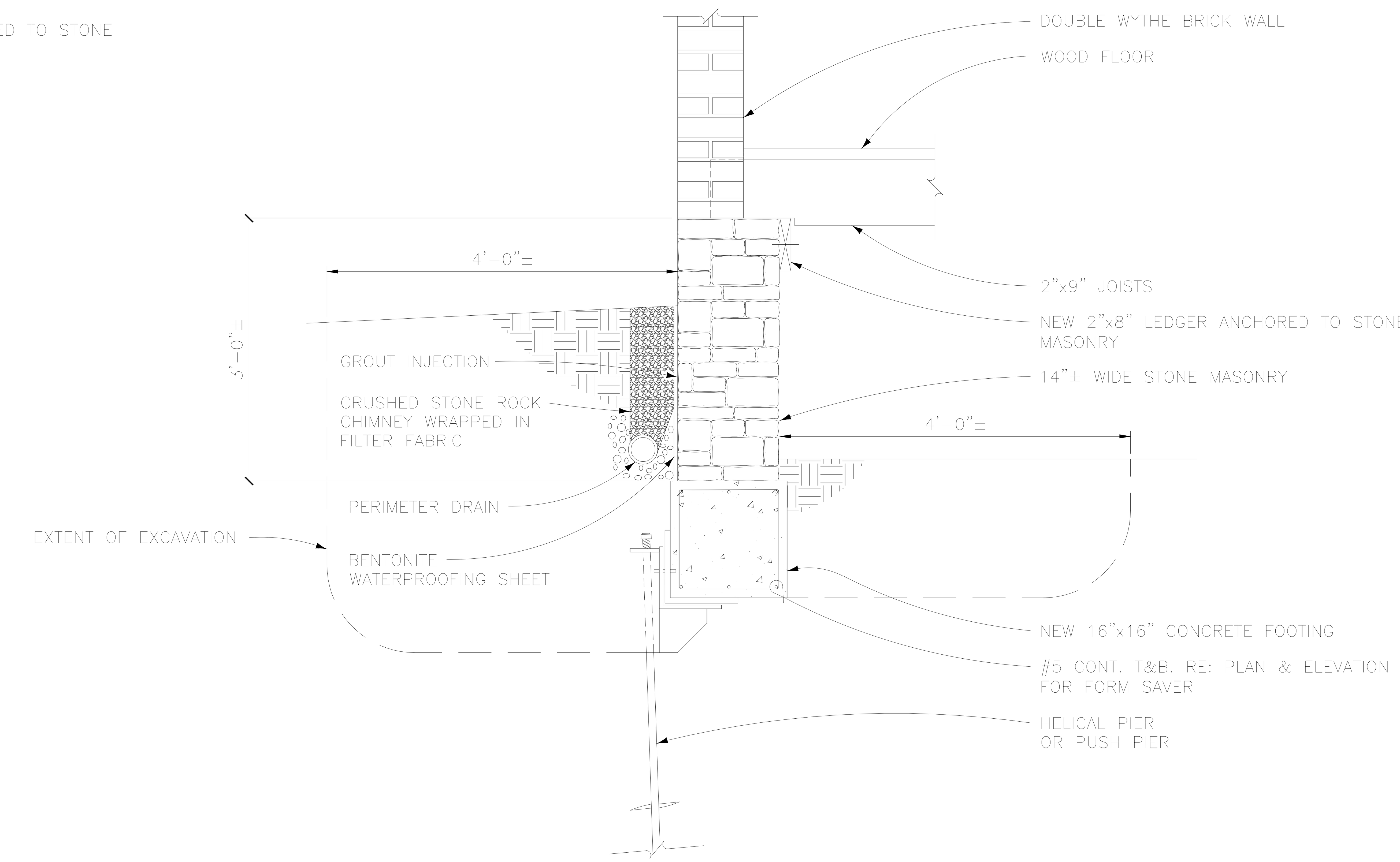
4 0 4 8
SCALE OF FEET

STRUCTURAL ENGINEERING ASSOCIATES, INC.
1000 WALNUT SUITE 1570 KANSAS CITY, MO 64106
Ph. 816-421-1042
Fax 816-421-1061

DESIGNED: PDS	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD TJC	S1	TREATMENT RECOMMENDATIONS HS-37 MAIN HOUSE	353 132875
TECH. REVIEW:		BLACKSTONE HOUSE & OUTBUILDINGS HOPEWELL CULTURE NATIONAL HISTORICAL PARK	PMIS/PKG NO. 218963
DATE: 04/17/17		ROSS COUNTY, OHIO	SHEET 8 OF 16



1/S2 FOUNDATION REPAIR SECTION CUT



2/S2 FOUNDATION REPAIR SECTION CUT

NOTES:
1. WHERE JOISTS HAVE ROTTED AT BEARING ON MASONRY, PARTIAL SISTERING OF JOIST IS REQUIRED.
2. EXTERIOR OF STONE MASONRY FOUNDATION TO HAVE PARGE COATING AND ROCK CHIMNEY PER STRUCTURAL RECOMMENDATIONS.
3. PERIMETER DRAINS TO BE DAYLIGHTED AT A LOWER ELEVATION ON THE PROPERTY.
4. LOCATION OF PIERS IN SECTION 1 TO ALTERNATE AT DEEP FOUNDATION WALLS. SEE PLAN.
5. COORDINATE OPTIONAL PERIMETER DRAIN INSTALLATION WITH TOPOGRAPHICAL INFORMATION AND ARCHEOLOGIST TO DAYLIGHT AT NORTH OR SOUTH OF EARTHWORK WALL.

1 0 1 2
SCALE OF FEET

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1000 WALNUT SUITE 1570 KANSAS CITY, MO 64106
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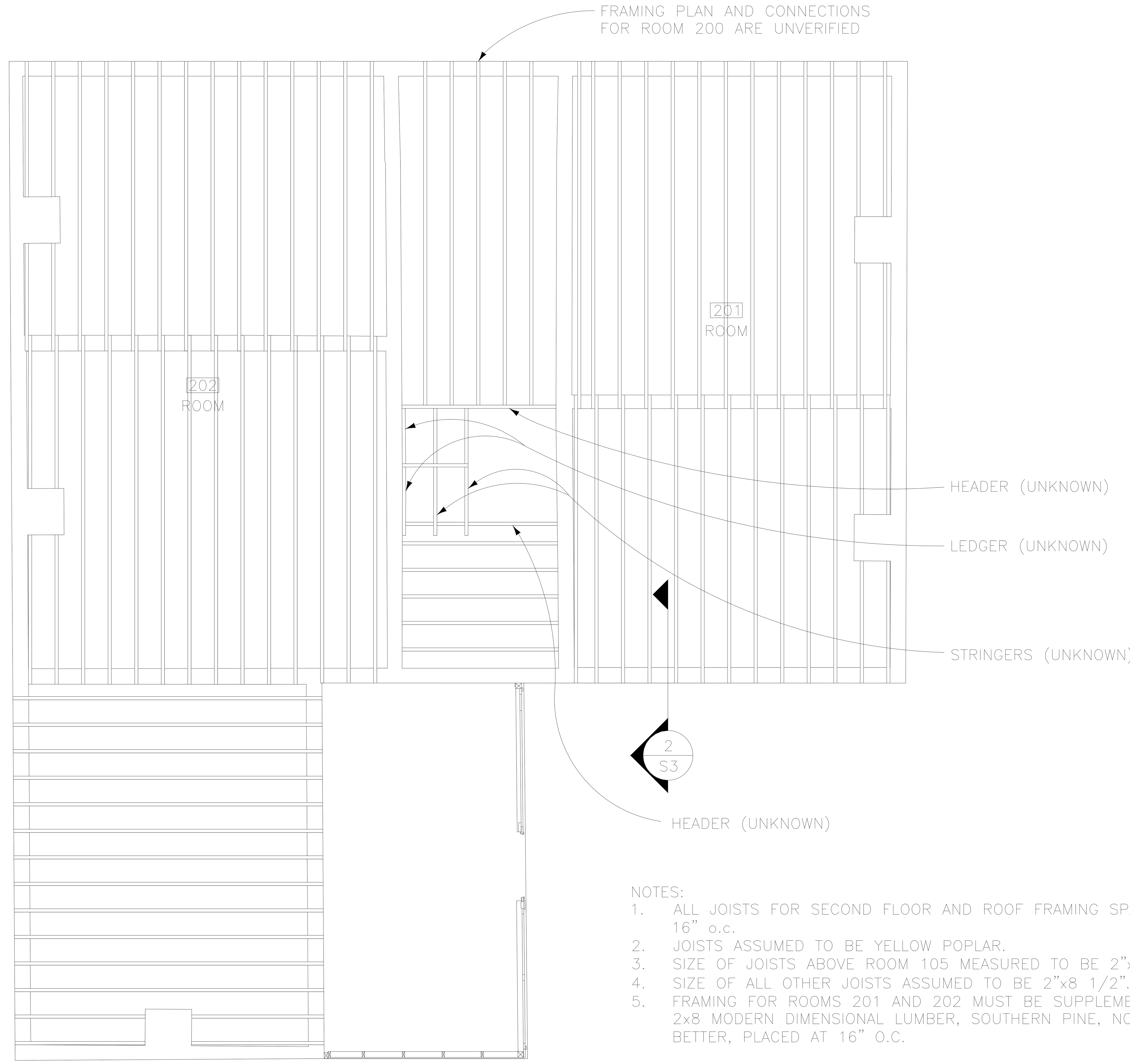
DESIGNED: PDS
CADD: TJC
TECH. REVIEW:
DATE: 04/17/17

SUB SHEET NO. S2

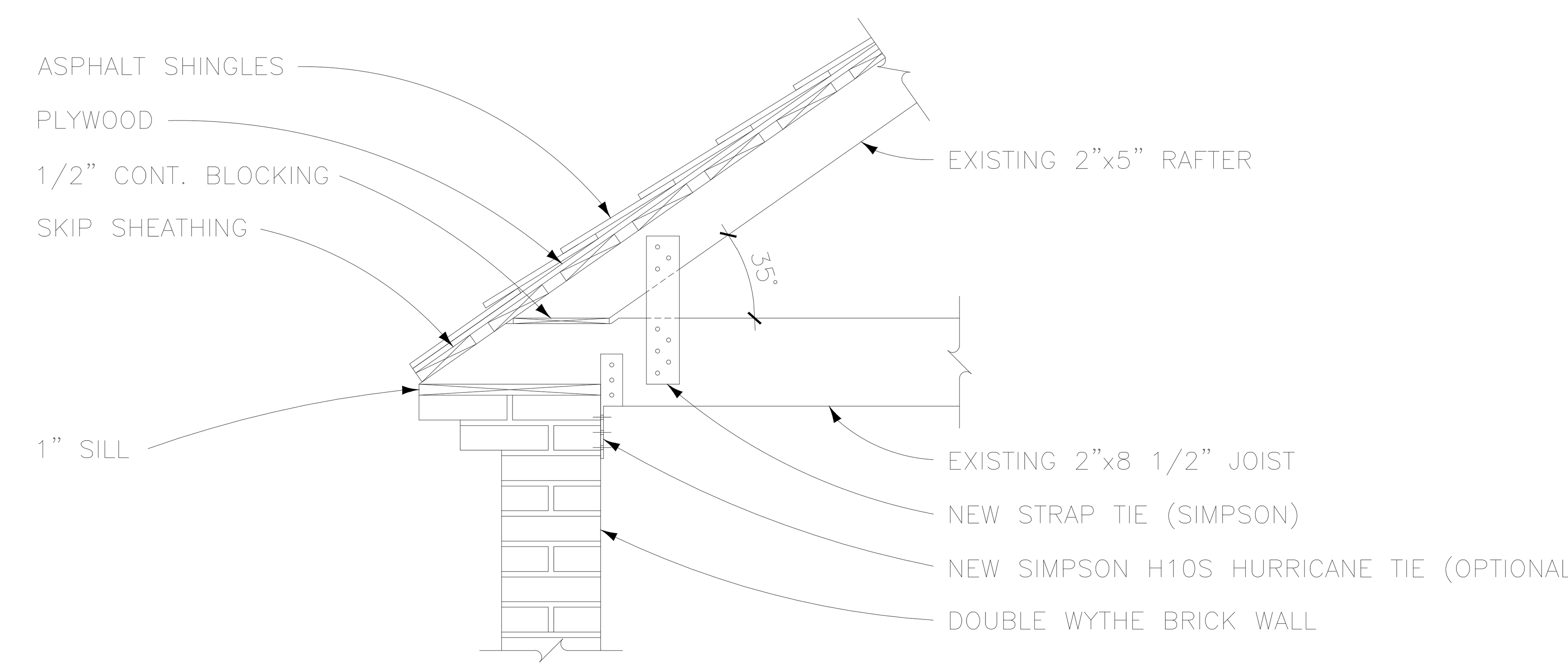
TITLE OF SHEET
TREATMENT RECOMMENDATIONS
HS-37
MAIN HOUSE
BLACKSTONE HOUSE & OUTBUILDINGS
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
ROSS COUNTY, OHIO

DRAWING NO. 353 / 132875
PMIS/PKG NO. 218963
SHEET 9 OF 16



NOTES:
1. ALL JOISTS FOR SECOND FLOOR AND ROOF FRAMING SPACED AT 16" o.c.
2. JOISTS ASSUMED TO BE YELLOW POPLAR.
3. SIZE OF JOISTS ABOVE ROOM 105 MEASURED TO BE 2"x7 3/4".
4. SIZE OF ALL OTHER JOISTS ASSUMED TO BE 2"x8 1/2".
5. FRAMING FOR ROOMS 201 AND 202 MUST BE SUPPLEMENTED WITH 2x8 MODERN DIMENSIONAL LUMBER, SOUTHERN PINE, NO.2 OR BETTER, PLACED AT 16" O.C.

1/S3 SECOND FLOOR AND ROOF FRAMING PLAN



2/S3 ROOF REPAIR SECTION CUT

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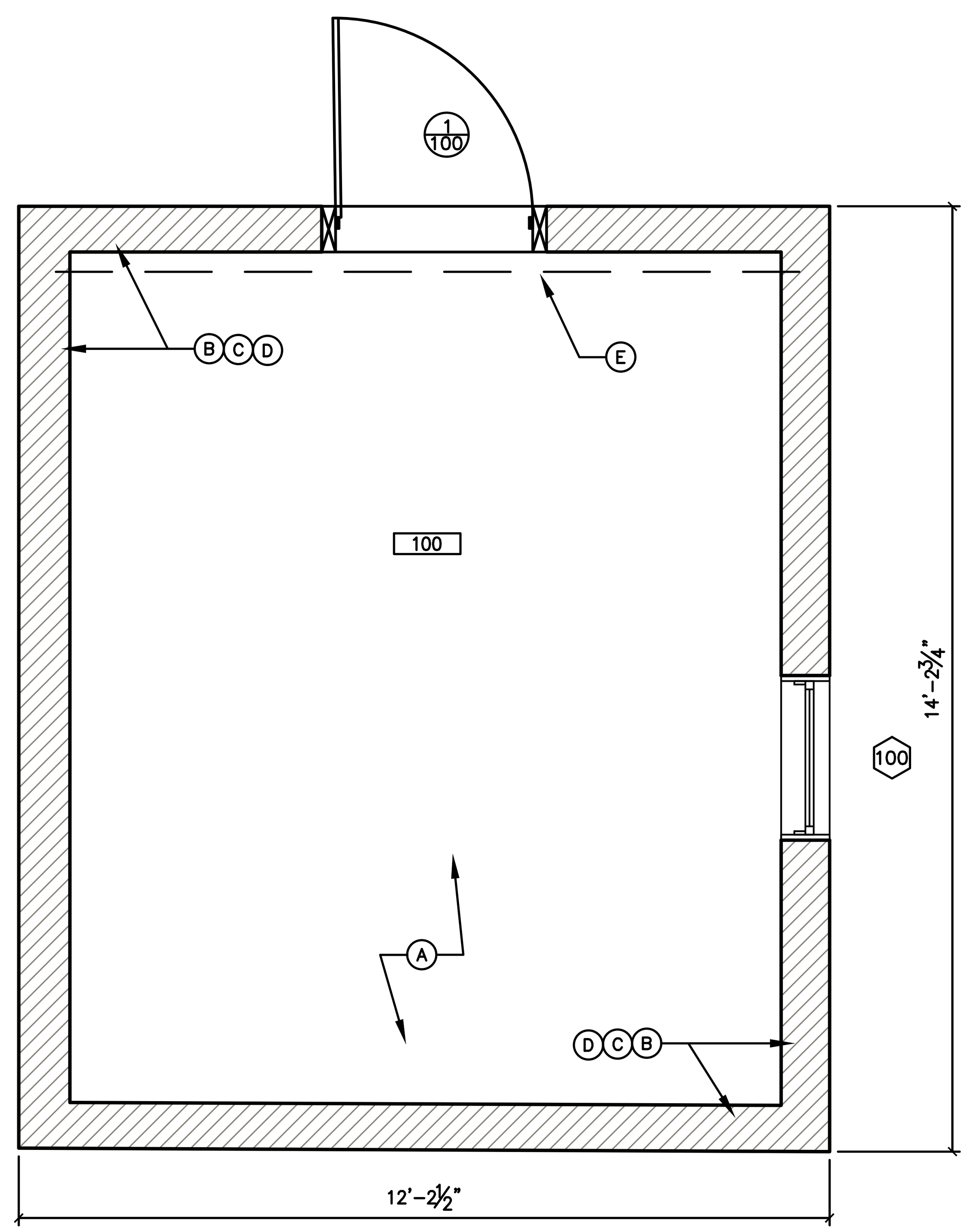
TECH. REVIEW:
DATE: 04/17/17

SUB SHEET NO. S3

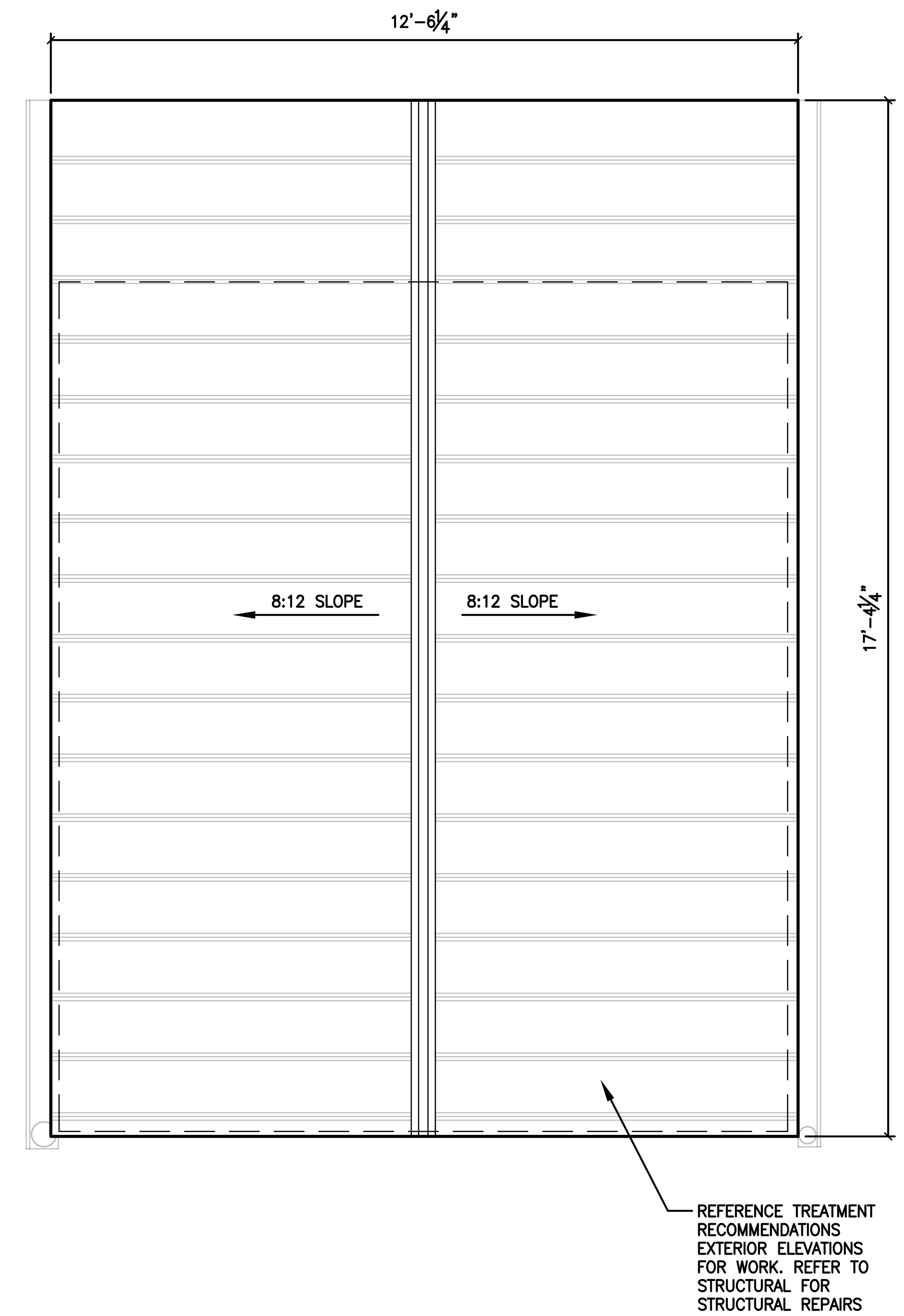
TITLE OF SHEET
TREATMENT RECOMMENDATIONS
HS-37
MAIN HOUSE
BLACKSTONE HOUSE & OUTBUILDINGS
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
ROSS COUNTY, OHIO

DRAWING NO. 353 132875
PMIS/PKG NO. 218963
SHEET 10 OF 16



1 FLOOR TREATMENT PLAN
A5 1/2" = 1'-0"

PROJECT NORTH



2 ROOF TREATMENT PLAN
A5 1/2" = 1'-0"

PROJECT NORTH

2 0 2 4
SCALE OF FEET

GENERAL NOTES:

1. PERFORM HAZARDOUS MATERIALS TESTING AND REQUIRED ABATEMENT BEFORE INITIATING ANY WORK.
2. SPOT REPOINT AS REQUIRED. NEW LIME PUTTY MORTAR SHOULD MATCH EXISTING IN COMPOSITION, COLOR, TEXTURE AND PROFILE.
3. CLEAN ALL MASONRY TO REMOVE DIRT AND BIOLOGICAL GROWTH
4. REMOVE ALL UNUSED ELECTRICAL WIRING, CONDUIT AND EQUIPMENT IN THEIR ENTIRETY.
5. THE ENTIRE MILK HOUSE FOUNDATION PERIMETER REQUIRES UNDERPINNING. REFER TO THE STRUCTURAL DRAWINGS FOR UNDERPINNING SEQUENCE AND FOUNDATION WATERPROOFING, DRAINAGE AND DETAILS.

KEY NOTES:

A. DEMO CONCRETE FLOOR. UPON DEMOLITION FURTHER ARCHEOLOGICAL INVESTIGATION SHOULD BE COMPLETED TO INVESTIGATE DEPTH AND CONSTRUCTION OF ORIGINAL MILK HOUSE FLOORING.
B. REMOVE INCOMPATIBLE MORTAR. REPOINT WITH APPROPRIATE MORTAR. ASSUME 50% REPOINT OF INTERIOR. MORTAR TO MATCH ORIGINAL IN TEXTURE, TOOLING, COLOR AND COMPRESSIVE STRENGTH.
C. 100% REPOINT AT PERIMETER WALL LOWER 24" BELOW FLOOR.
D. TEST PARGING AND PAINT FINISH. UPON FINISHING MASONRY REPAIRS INSTALL PARGING THAT MATCHES HISTORIC AND PAINT WITH COMPATIBLE PAINT.
E. REPLACE DETERIORATED ROOF JOIST AND EAST RAFTER.

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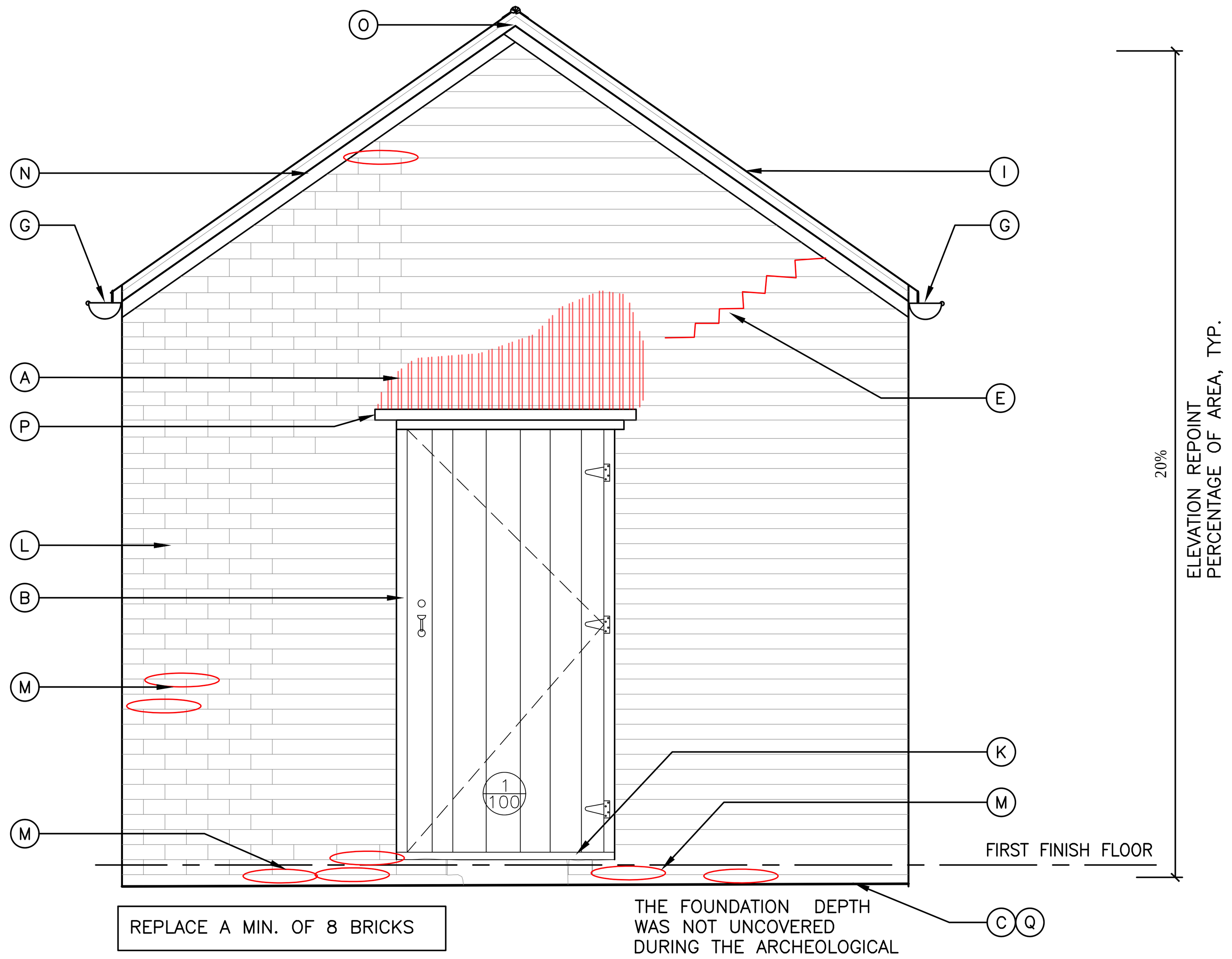
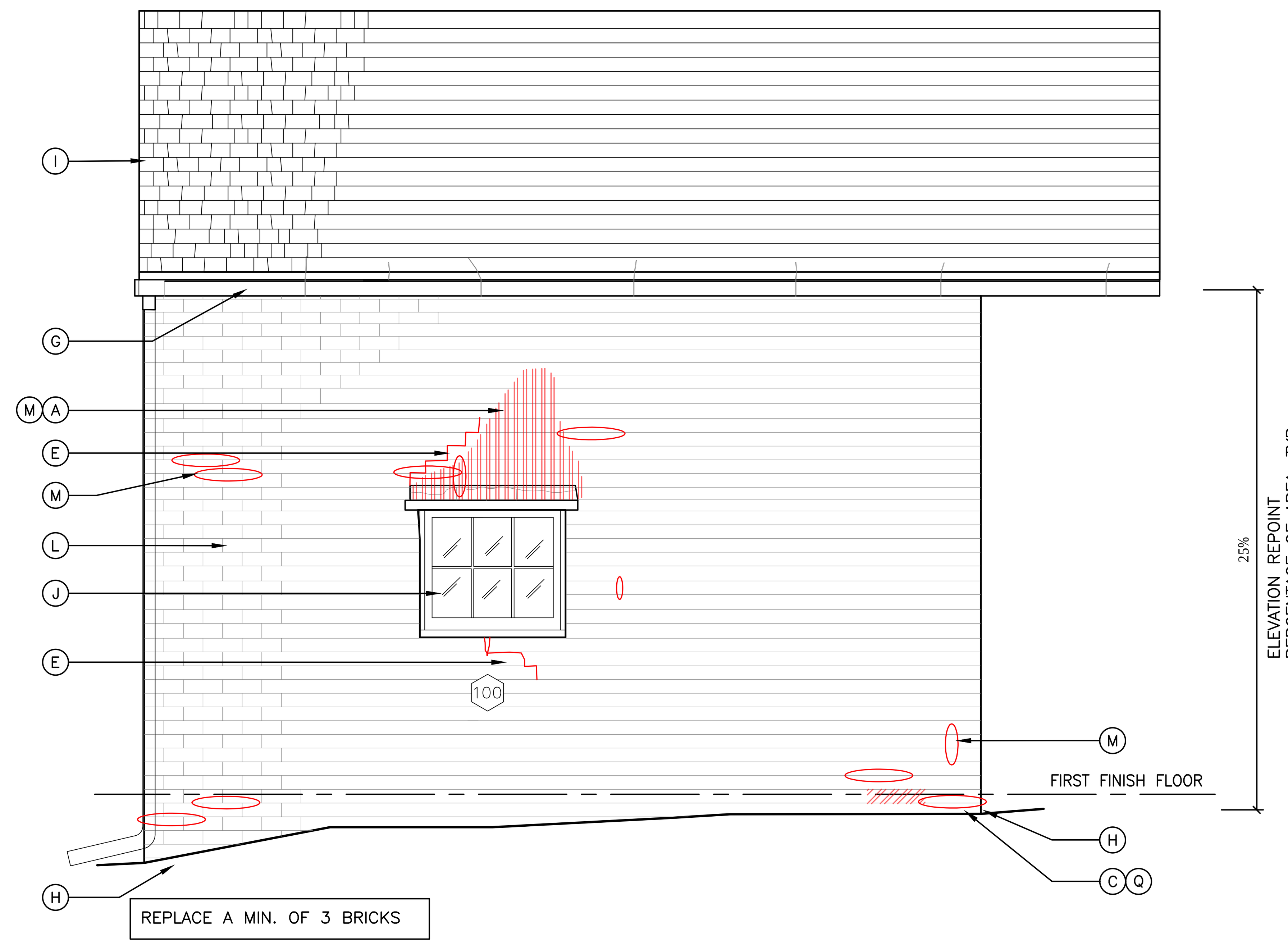
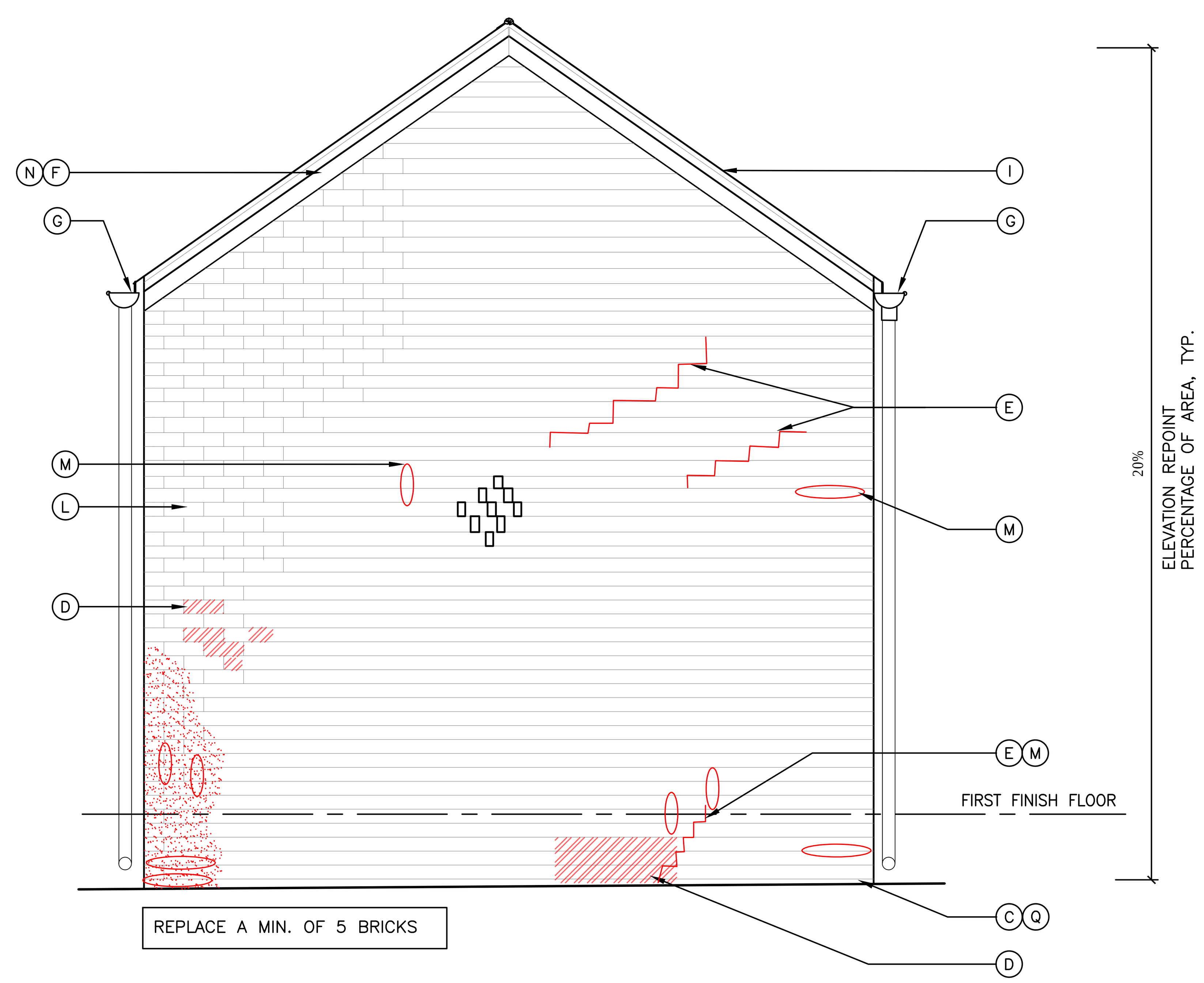
DESIGNED:	SUB SHEET NO.		DRAWING NO.
CA		TREATMENT RECOMMENDATIONS	353 / 132875
CADD: CA	A5	MILK HOUSE	PMIS/PKG NO. 218963
TECH. REVIEW: AG		BLACKSTONE HOUSE & OUTBUILDINGS HOPEWELL CULTURE NATIONAL HISTORICAL PARK	SHEET
DATE: 4/17/17		ROSS COUNTY, OHIO	11 OF 16



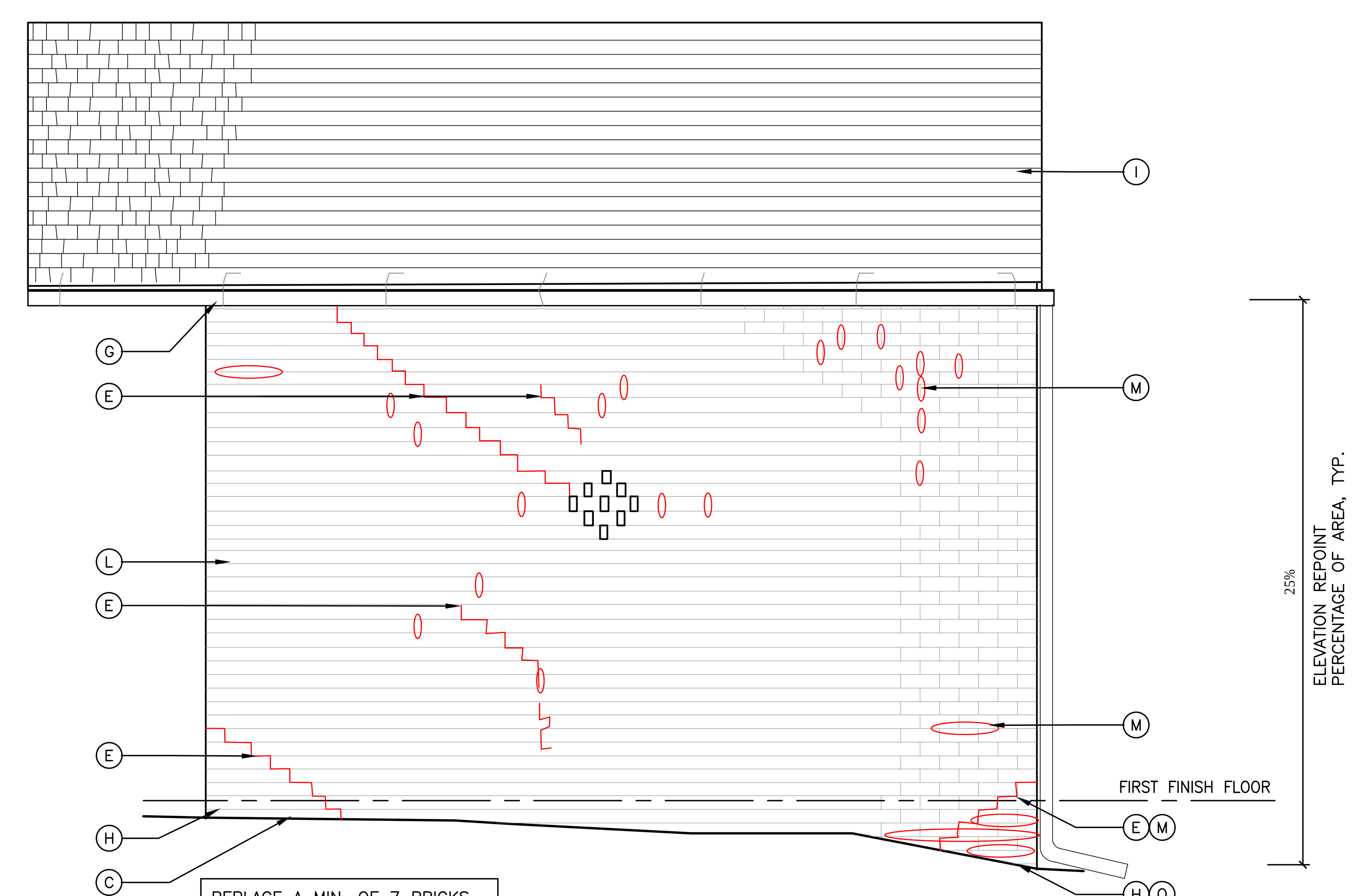
1 / A6 NORTH ELEVATION TREATMENT
1/2" = 1'-0"



2 / A6 EAST ELEVATION TREATMENT
1/2" = 1'-0"



3 / A6 SOUTH ELEVATION TREATMENT
1/2" = 1'-0"



4 / A6 WEST ELEVATION TREATMENT
1/2" = 1'-0"

2 0 2 4
SCALE OF FEET

GENERAL NOTES:

1. PERFORM HAZARDOUS MATERIALS TESTING AND REQUIRED ABATEMENT BEFORE INITIATING ANY WORK.
2. SPOT REPOINT AS REQUIRED. NEW MORTAR SHOULD MATCH EXISTING IN COMPOSITION, COLOR, TEXTURE AND PROFILE.
3. CLEAN ALL MASONRY TO REMOVE DIRT AND BIOLOGICAL GROWTH

KEY NOTES:

A. RAKE JOINT BACK TO REMOVE IMPROPER MORTAR, REPOINT WITH COMPATIBLE MORTAR
B. INSTALL NEW DOOR BUCK FRAME, SILL AND DOOR. WOOD WORK IS TO BE PREPPED FOR NEW PRIME AND PAINT FINISH. DOOR INSTALLATION SHOULD INCLUDE NEW LOCKING/SECURITY HARDWARE.
C. REMOVE VEGETATION THAT IS GROWING DIRECTLY AGAINST THE FOUNDATION, TYPICAL.
D. INSPECT DETERIORATED BRICK AND IF THERE IS MINIMAL DETERIORATION, PATCH WITH A JAHN MORTAR COMPOUND. IF MORE THAN 50% OF THE FACE HAS DETERIORATED, REMOVE DETERIORATED BRICK AND REPLACE IN-KIND.
E. PATCH AND REPAIR CRACK IN MORTAR JOINT. REPLACE ANY CRACKED BRICKS.
F. CAREFULLY REMOVE DETERIORATED METAL BARGE BOARD. REPLACE WITH WOOD BARGE BOARD. EXTERIOR TRIM REPAIRS SHALL BE EXTERIOR GRADE WESTERN RED CEDAR, OR APPROVED EQUAL. PRIME ALL EDGES PRIOR TO INSTALLATION.
G. INSTALL 5" GALVANIZED HALF ROUND GUTTERS AND DOWNSPOUTS. PROVIDE ALL REQUIRED GUTTER HANGERS, END CAPS, DOWNSPOUT ELBOWS AND ANY OTHER REQUIRED ACCESSORIES FOR COMPLETE INSTALLATION. SLOPE GUTTERS TO DRAIN. INSTALL EZ-LOCK SMALL HOLE POWDER-COATED STEEL SCREEN LEAF GUARD SYSTEM ON ALL GUTTERS, OR APPROVED EQUAL.
H. INSTALL CONCRETE SPLASH BLOCK AT BASE OF DOWNSPOUT.
I. REPLACE EXISTING METAL ROOF WITH NEW COMPOSITE SHAKE SHINGLES OR FIRE TREATED WOOD SHINGLES. REMOVE EXISTING DETERIORATED SKIP SHEATHING AND REPLACE IN-KIND. REPLACE FULL SECTIONS BETWEEN RAFTERS TO ENSURE STRUCTURAL UNIFORMITY. ASSUME 50% REQUIRED SHEATHING REPLACEMENT.
J. INSTALL NEW WOOD WINDOW AT 100. REPLACE EXISTING DETERIORATED TRIM, AS REQUIRED. PAINT NEW INSTALLATION.
K. INSTALL NEW WOOD THRESHOLD. REPAIR MASONRY BELOW.
L. REMOVE PAINT, CEMENTITIOUS MATERIAL, OR ANY NON-ORIGINAL FINISH COATING MASONRY. AFTER REMOVING PAINT, REASSESS BRICK. ON THE INTERIOR OF MILK HOUSE INSTALL NEW WHITE WASH COATING.
M. MISSING MORTAR, REPOINT WITH COMPATIBLE MORTAR.
N. REPOINT ALL ALONG EXISTING BARGE BOARD, TYP.
O. REMOVE EXISTING ELECTRICAL HARDWARE AND ALL ASSOCIATED EQUIPMENT. PATCH WOOD AS REQUIRED.
P. REMOVE STEEL LINTELS AND INSTALL NEW WOOD LINTEL POCKETED INTO MASONRY.
Q. EXCAVATE BELOW EXISTING MASONRY FOUNDATION AND POUR A GRADE BEAM APPROXIMATELY 16-INCHES WIDE AND 16 INCHES DEEP. INSTALL HELICAL PEIRS AT THE BOTTOM OF THE NEW GRADE BEAM AT APPROXIMATELY FOUR FEET ON CENTER. SEE STRUCTURAL RECOMMENDATIONS.

CAREFULLY CLEAN BRICK TO REMOVE NON-ORIGINAL STAINING

REMOVE INCOMPATIBLE MORTAR. REPLACE WITH NEW COMPATIBLE MORTAR.

REPLACE DETERIORATED BRICK

REPAIR CRACKS

CONCENTRATED AREA OF MISSING MORTAR. REPOINT WITH COMPATIBLE MORTAR.

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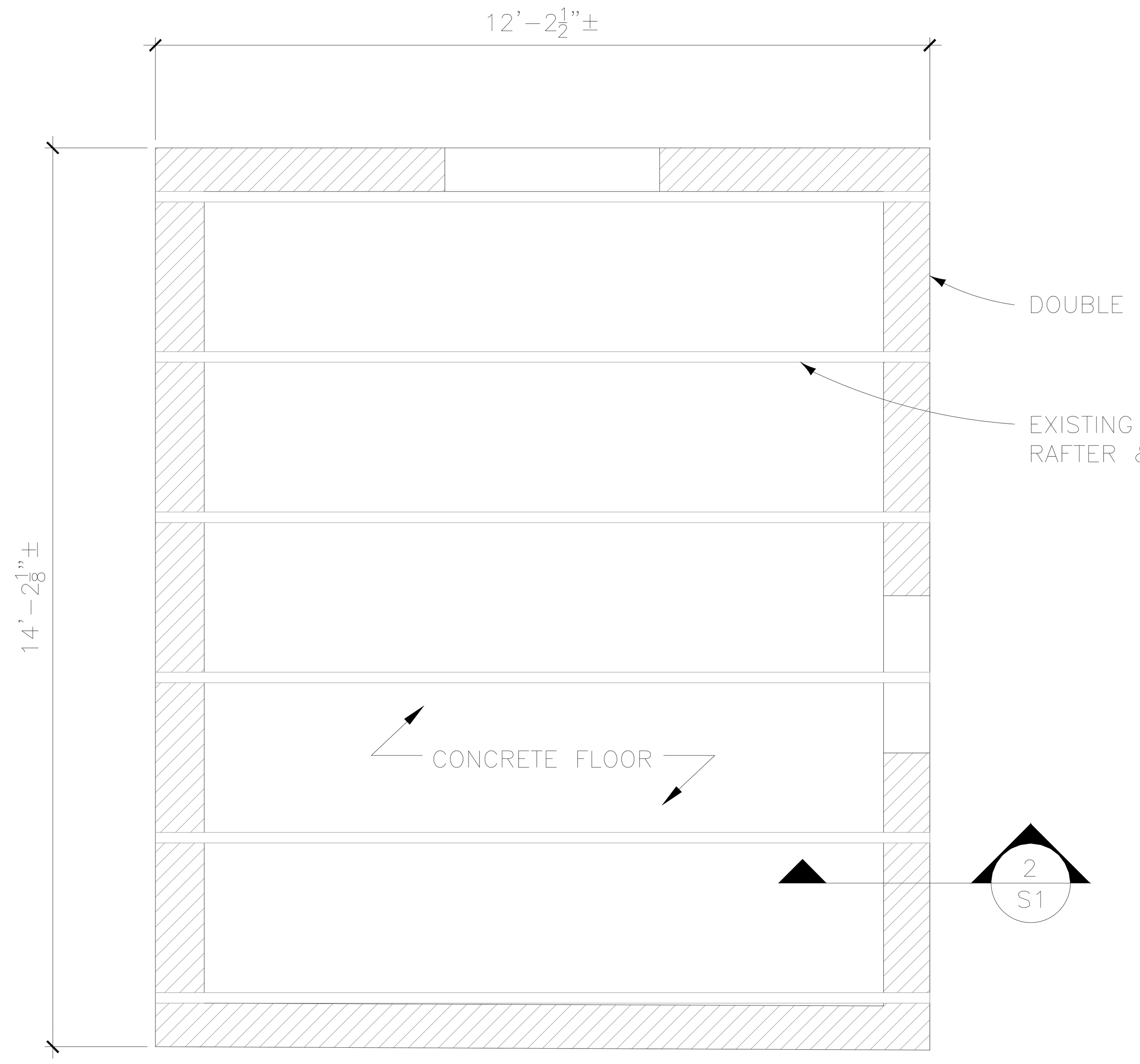
DATE:	4/17/17

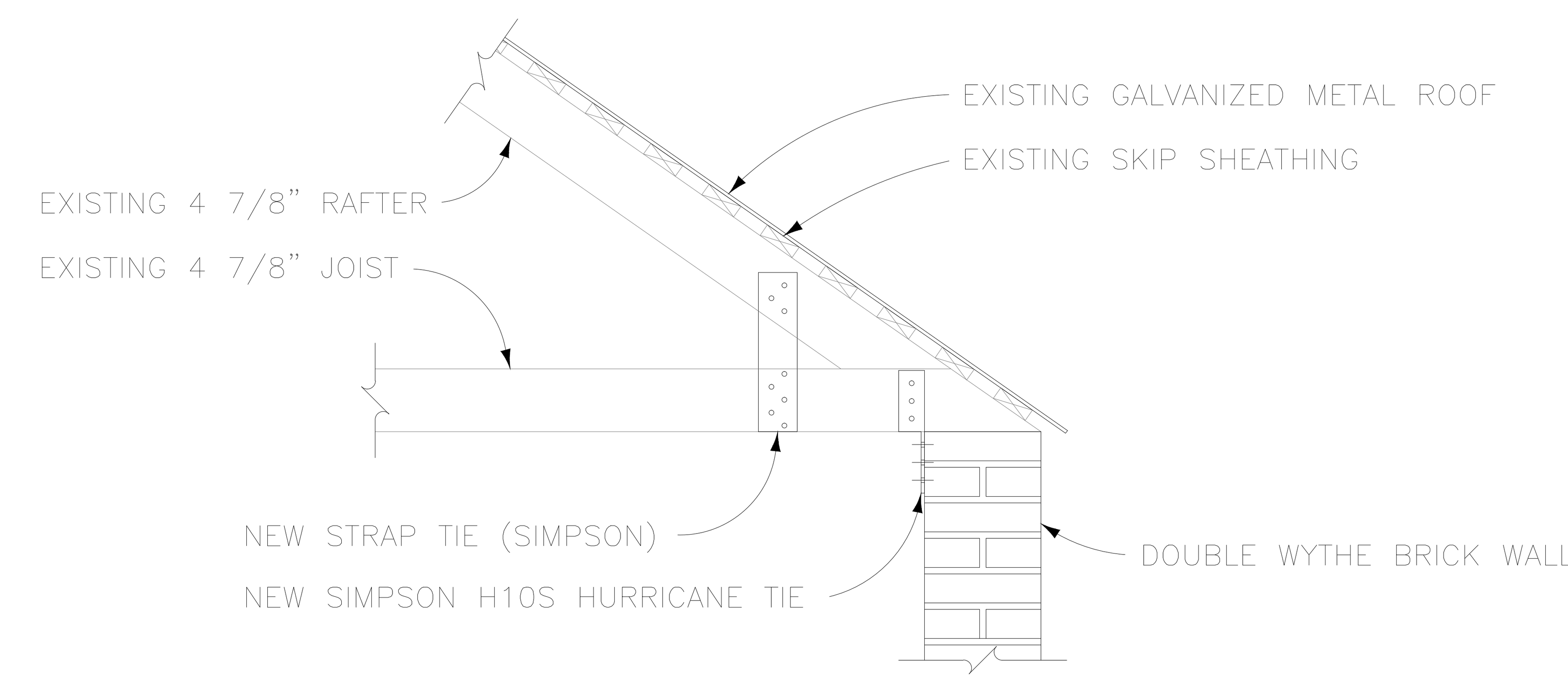
SUB SHEET NO. A6

TREATMENT RECOMMENDATIONS
MILK HOUSE
BLACKSTONE HOUSE & OUTBUILDINGS
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
ROSS COUNTY, OHIO

DRAWING NO. 353 132875
PMIS/PKG NO. 218963
SHEET 12 OF 16



1 S1 MILKHOUSE ROOF FRAMING PLAN



2 S1 ROOF FRAMING SECTION, TYP

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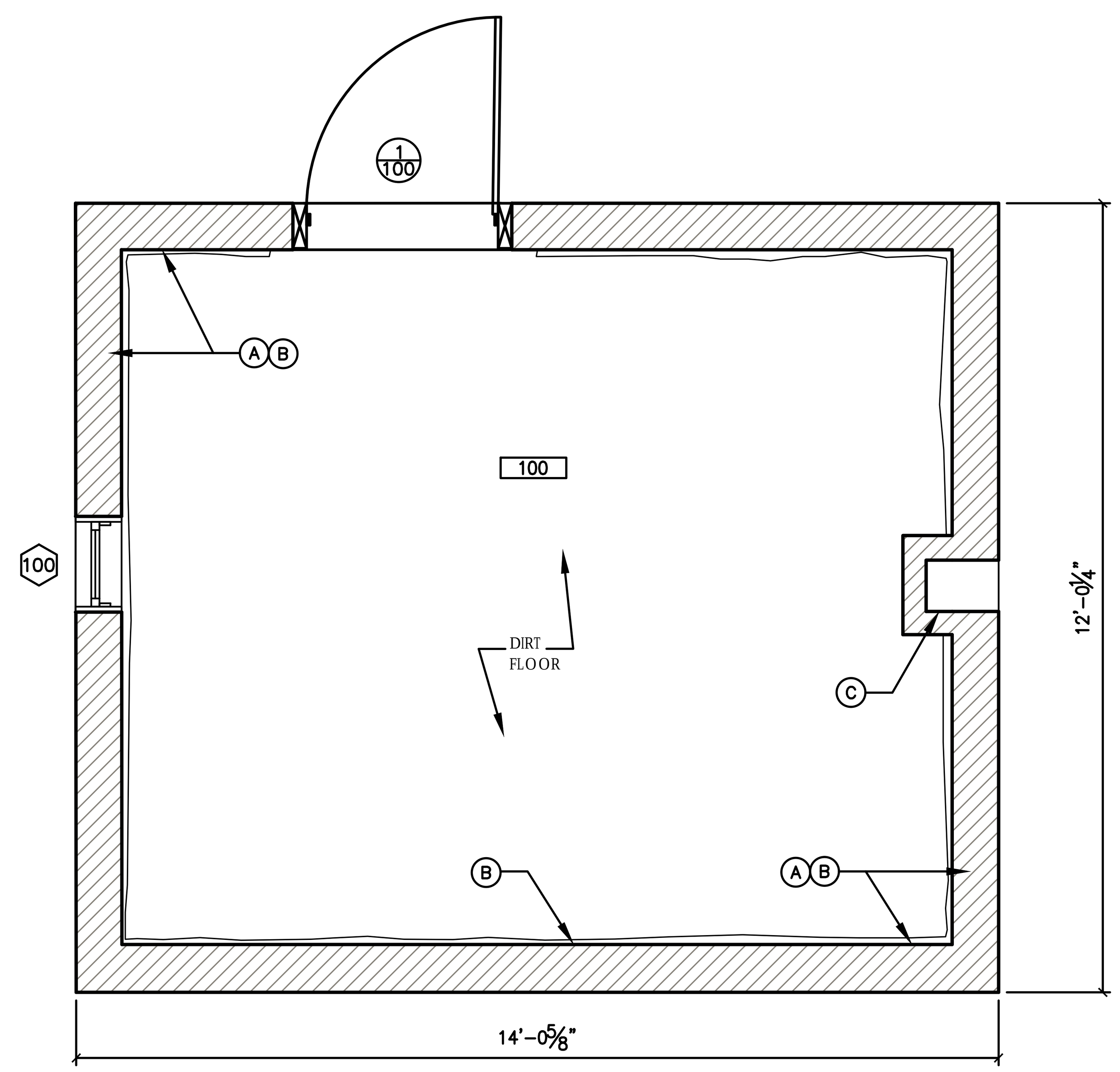
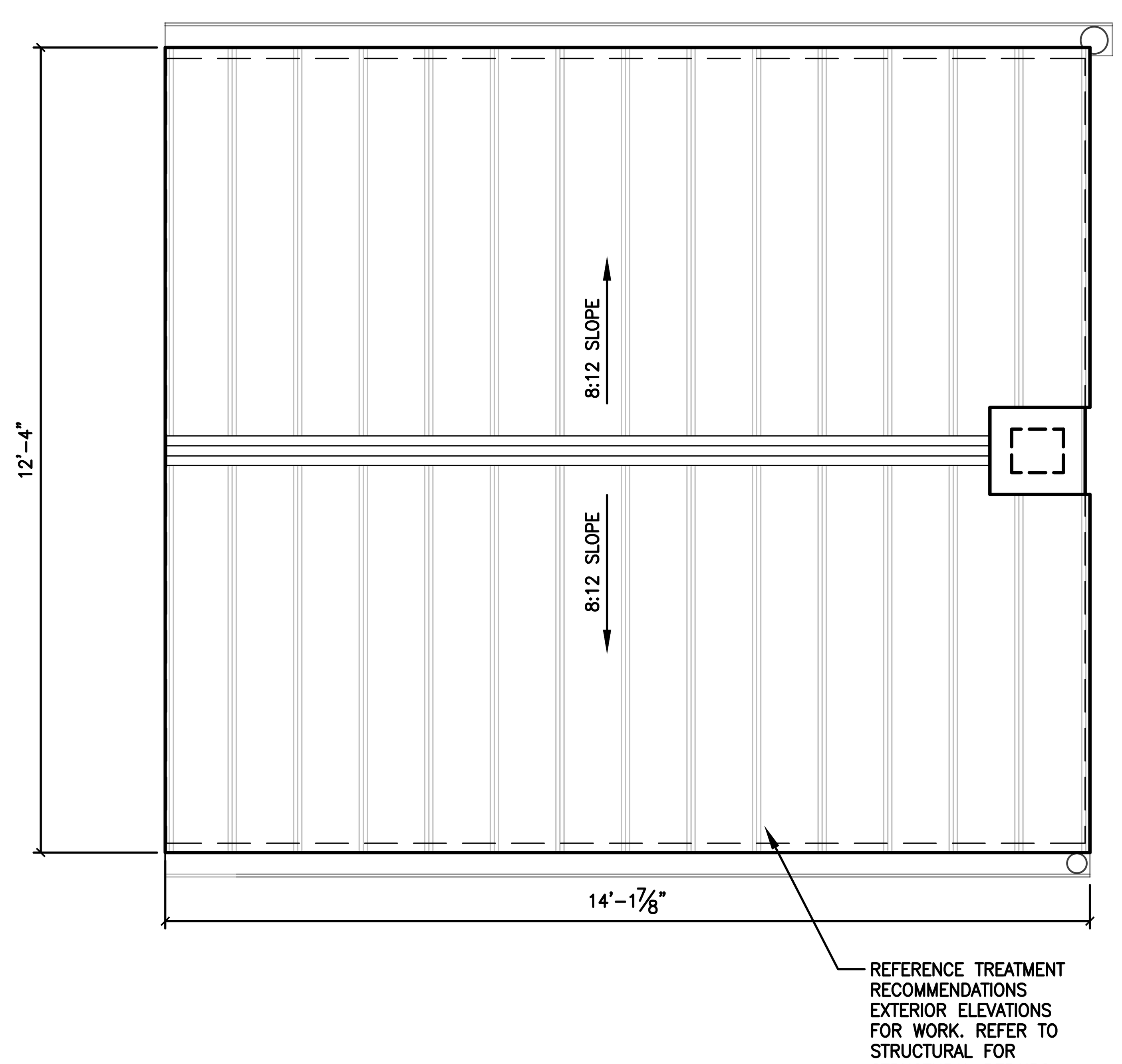
Fax 816-421-1061

DESIGNED: PDS	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 353 132875
CADD TJC	S4	TREATMENT RECOMMENDATIONS MILKHOUSE BLACKSTONE HOUSE & OUTBUILDINGS HOPEWELL CULTURE NATIONAL HISTORICAL PARK ROSS COUNTY, OHIO	PMIS/PKG NO. 218963
TECH. REVIEW:			SHEET
DATE: 04/17/17			13 OF 16



1 FLOOR TREATMENT PLAN
A7 1/2" = 1'-0"

PROJECT NORTH



2 ROOF TREATMENT PLAN
A7 1/2" = 1'-0"

PROJECT NORTH

2 0 2 4
SCALE OF FEET

GENERAL NOTES:

1. PERFORM HAZARDOUS MATERIALS TESTING AND REQUIRED ABATEMENT BEFORE INITIATING ANY WORK.
2. SPOT REPOINT AS REQUIRED. NEW MORTAR SHOULD MATCH EXISTING IN COMPOSITION, COLOR, TEXTURE AND PROFILE.
3. CLEAN ALL MASONRY TO REMOVE DIRT AND BIOLOGICAL GROWTH.
4. THE ENTIRE SMOKEHOUSE FOUNDATION PERIMETER REQUIRES UNDERPINNING. REFER TO THE STRUCTURAL DRAWINGS FOR UNDERPINNING SEQUENCE AND FOUNDATION WATERPROOFING, DRAINAGE AND DETAILS.

KEY NOTES:

A. REMOVE INCOMPATIBLE MORTAR. REPOINT WITH APPROPRIATE MORTAR. ASSUME 50% REPOINT OF INTERIOR. MORTAR TO MATCH ORIGINAL IN TEXTURE, TOOLING, COLOR AND COMPRESSIVE STRENGTH.
B. 80% BRICK REPLACEMENT THROUGHOUT INTERIOR. IN LOCATIONS WHERE MASONRY WALL HAS BEEN PATCHED WITH CMU, REMOVE CMU AND REBUILD MASONRY WALL.
C. SMOKEHOUSE FLUE VENT TO BE REPAIRED, REPOINTED, AND PARGED.

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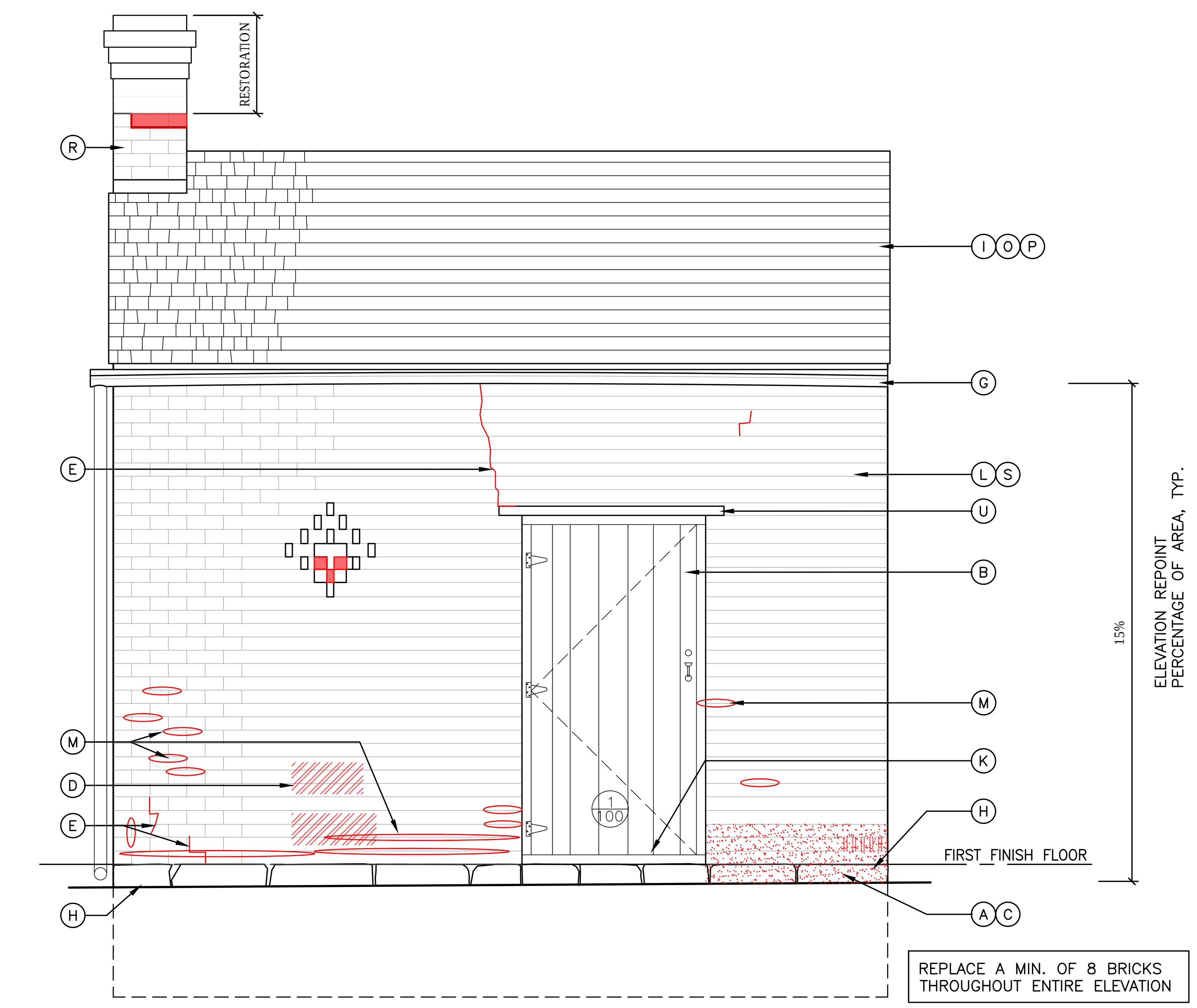
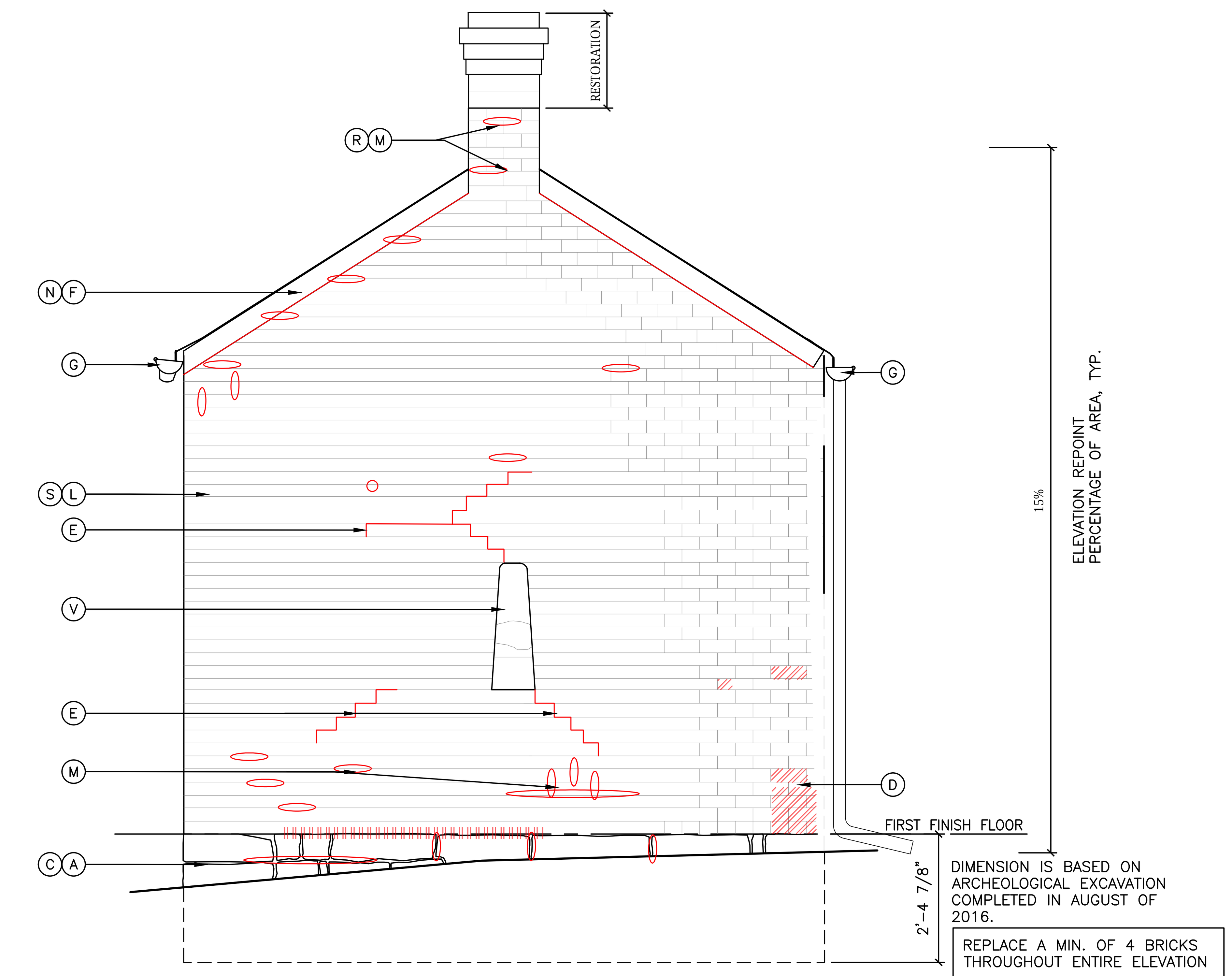
SUB SHEET NO. A7

TREATMENT RECOMMENDATIONS
SMOKEHOUSE
BLACKSTONE HOUSE & OUTBUILDINGS
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
ROSS COUNTY, OHIO

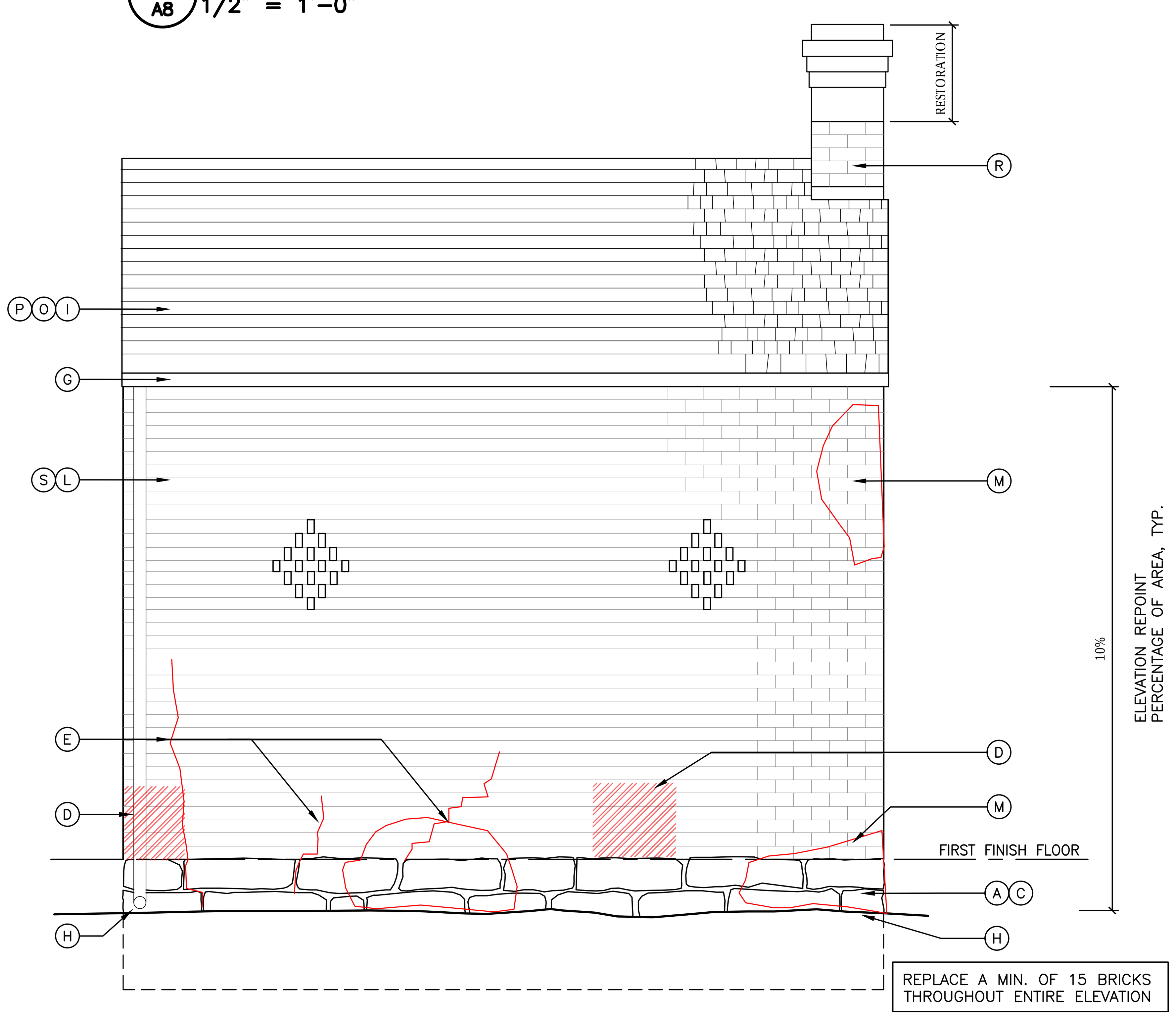
DRAWING NO. 353 / 132875
PMIS/PKG NO. 218963
SHEET 14 OF 16



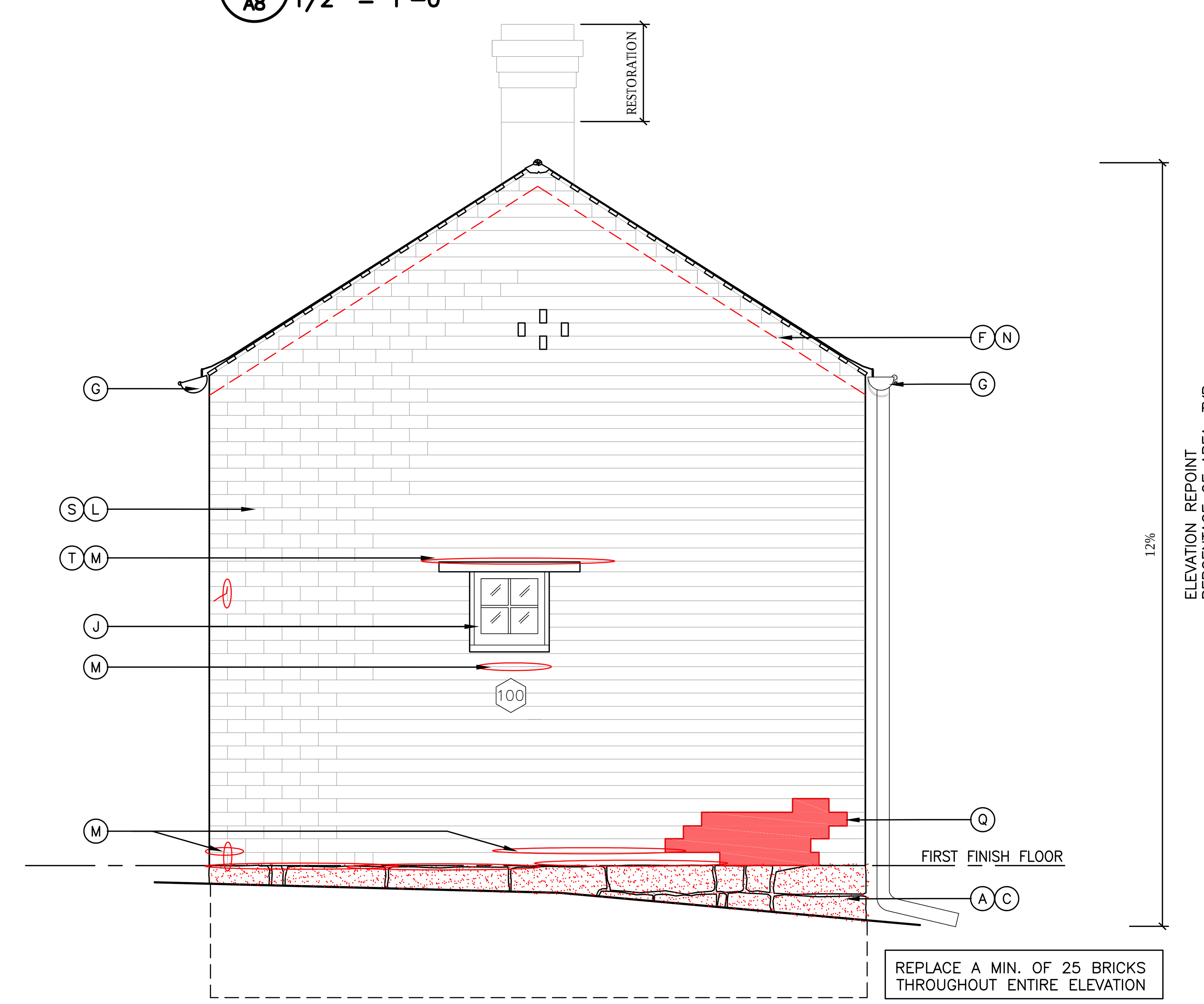
1 NORTH ELEVATION TREATMENT
A8 1/2" = 1'-0"



2 EAST ELEVATION TREATMENT
A8 1/2" = 1'-0"



3 SOUTH ELEVATION TREATMENT
A8 1/2" = 1'-0"



4 WEST ELEVATION TREATMENT
A8 1/2" = 1'-0"

2 0 2 4
SCALE OF FEET

GENERAL NOTES:

1. PERFORM HAZARDOUS MATERIALS TESTING AND REQUIRED ABATEMENT BEFORE INITIATING ANY WORK.
2. SPOT REPOINT AS REQUIRED. NEW MORTAR SHOULD MATCH EXISTING IN COMPOSITION, COLOR, TEXTURE AND PROFILE.
3. CLEAN ALL MASONRY TO REMOVE DIRT AND BIOLOGICAL GROWTH
4. THE ENTIRE SMOKEHOUSE FOUNDATION PERIMETER REQUIRES UNDERPINNING. REFER TO THE STRUCTURAL DRAWINGS FOR UNDERPINNING SEQUENCE AND FOUNDATION WATERPROOFING, DRAINAGE AND DETAILS.

KEY NOTES:

A. EXCAVATE BELOW EXISTING STONE MASONRY FOUNDATION AND POUR A GRADE BEAM APPROXIMATELY 16-INCHES WIDE AND 16-INCHES DEEP. INSTALL HELICAL PIERS AT THE BOTTOM OF THE NEW GRADE BEAM AT APPROXIMATELY FOUR FEET ON CENTER. REPOINT 100% OF STONE FOUNDATION.
B. INSTALL NEW DOOR BUCK FRAME AND DOOR. WOOD WORK IS TO BE PREPPED FOR NEW PRIME AND PAINT FINISH. DOOR INSTALLATION SHOULD INCLUDE NEW LOCKING/SECURITY HARDWARE.
C. REMOVE VEGETATION THAT IS GROWING DIRECTLY AGAINST THE FOUNDATION, TYPICAL.
D. INSPECT DETERIORATED BRICK AND IF THERE IS MINIMAL DETERIORATION, PATCH WITH A JAHN MORTAR COMPOUND. IF MORE THAN 50% OF THE FACE HAS DETERIORATED, REMOVE DETERIORATED BRICK AND REPLACE IN-KIND.
E. PATCH AND REPAIR CRACK IN MORTAR JOINT. REPLACE ANY CRACKED BRICKS.
F. CAREFULLY REMOVE DETERIORATED WOOD BARGE BOARD. REPLACE WITH WOOD BARGE BOARD. WHERE BARGE BOARD IS MISSING, INSTALL NEW WOOD BARGE BOARD. EXTERIOR TRIM REPAIRS SHALL BE EXTERIOR GRADE WESTERN RED CEDAR, OR APPROVED EQUAL. PRIME ALL EDGES PRIOR TO INSTALLATION.
G. INSTALL 5" GALVANIZED HALF ROUND GUTTERS AND DOWNSPOUTS. PROVIDE ALL REQUIRED GUTTER HANGERS, END CAPS, DOWNSPOUT ELBOWS AND ANY OTHER REQUIRED ACCESSORIES FOR COMPLETE INSTALLATION. SLOPE GUTTERS TO DRAIN. INSTALL EZ-LOCK SMALL HOLE POWDER-COATED STEEL SCREEN LEAF GUARD SYSTEM ON ALL GUTTERS, OR APPROVED EQUAL.
H. INSTALL CONCRETE SPLASH BLOCK AT BASE OF DOWNSPOUT.
I. REPLACE EXISTING METAL ROOF WITH NEW FIRE TREATED WOOD SHINGLES. REMOVE EXISTING DETERIORATED SKIP SHEATHING AND REPLACE IN-KIND. REPLACE FULL SECTIONS BETWEEN RAFTERS TO ENSURE STRUCTURAL UNIFORMITY. ASSUME 50% REQUIRED SHEATHING REPLACEMENT.
J. INSTALL NEW WOOD WINDOW FRAME, SILL, AND WINDOW AT 100.
K. INSTALL NEW SLOPED WOOD THRESHOLD
L. REMOVE PAINT, CEMENTITIOUS MATERIAL, OR ANY NON-ORIGINAL FINISH COATING MASONRY. AFTER REMOVING PAINT, REASSESS BRICK TO VERIFY IF IT NEEDS WATERPROOFING.
M. MISSING MORTAR, REPOINT WITH COMPATIBLE MORTAR.
N. REPOINT ALL ALONG EXISTING BARGE BOARD, TYP.
O. SEVERELY DETERIORATED JOISTS AND RAFTERS SHOULD BE REPLACED WITH NEW LUMBER OF THE SAME DIMENSIONS. THE NEW LUMBER IS TO BE ROUGH SAWN TO MATCH IN-KIND TO THE EXISTING WOOD. LUMBER SHOULD BE TREATED WITH AN AGING AGENT OR WOOD STAIN TO GRAY OUT THE WOOD SO THAT IT WILL MATCH THE HISTORIC FRAMING.
P. INSTALL NEW TIMBER ROOF FRAMING IN ACCORDANCE WITH CURRENT BUILDING CODES AND WITH SUFFICIENT TIE DOWNS TO BRICK WALLS.
Q. MASONRY CORNER NEEDS TO BE REBUILT AFTER FOUNDATION STABILIZATION HAS OCCURRED
R. REBUILD MASONRY CHIMNEY TO HISTORICAL HEIGHT. CAP CHIMNEY.
S. AFTER ABATEMENT INSTALL WHITE WASH PAINT COATING ON EXTERIOR.
T. TREAT EXISTING WOOD LINTEL WITH WOOD PRESERVATIVES.
U. REMOVE STEEL LINTELS AND INSTALL NEW WOOD LINTEL POCKETED INTO MASONRY.
V. SMOKEHOUSE FLUE VENT TO BE REPAIRED, REPOINTED AND PARGED.

CAREFULLY CLEAN BRICK TO REMOVE NON-ORIGINAL STAINING

REMOVE INCOMPATIBLE MORTAR. REPLACE WITH NEW COMPATIBLE MORTAR.

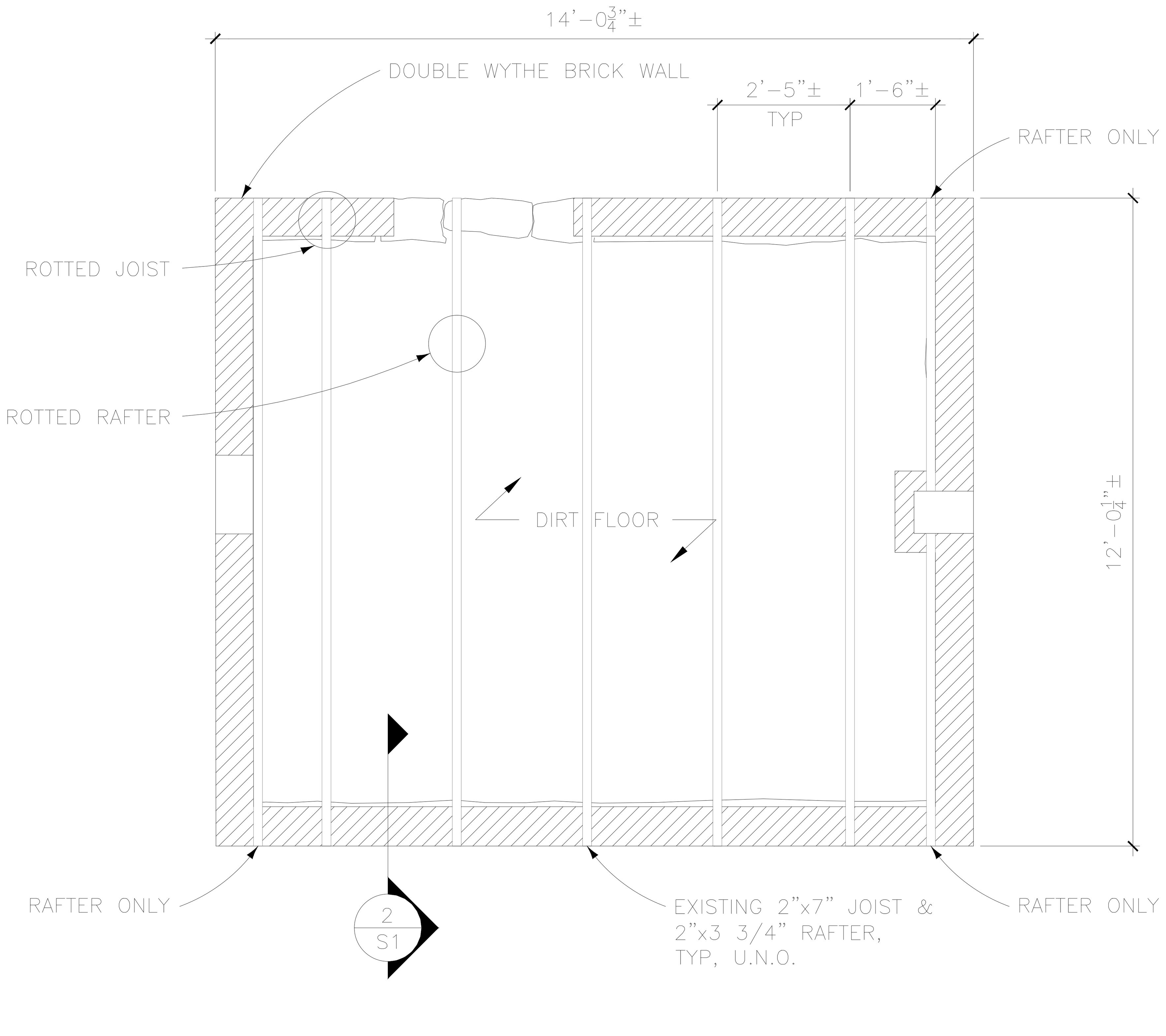
REPLACE DETERIORATED BRICK

MISSING MASONRY, REBUILD MASONRY WALL.

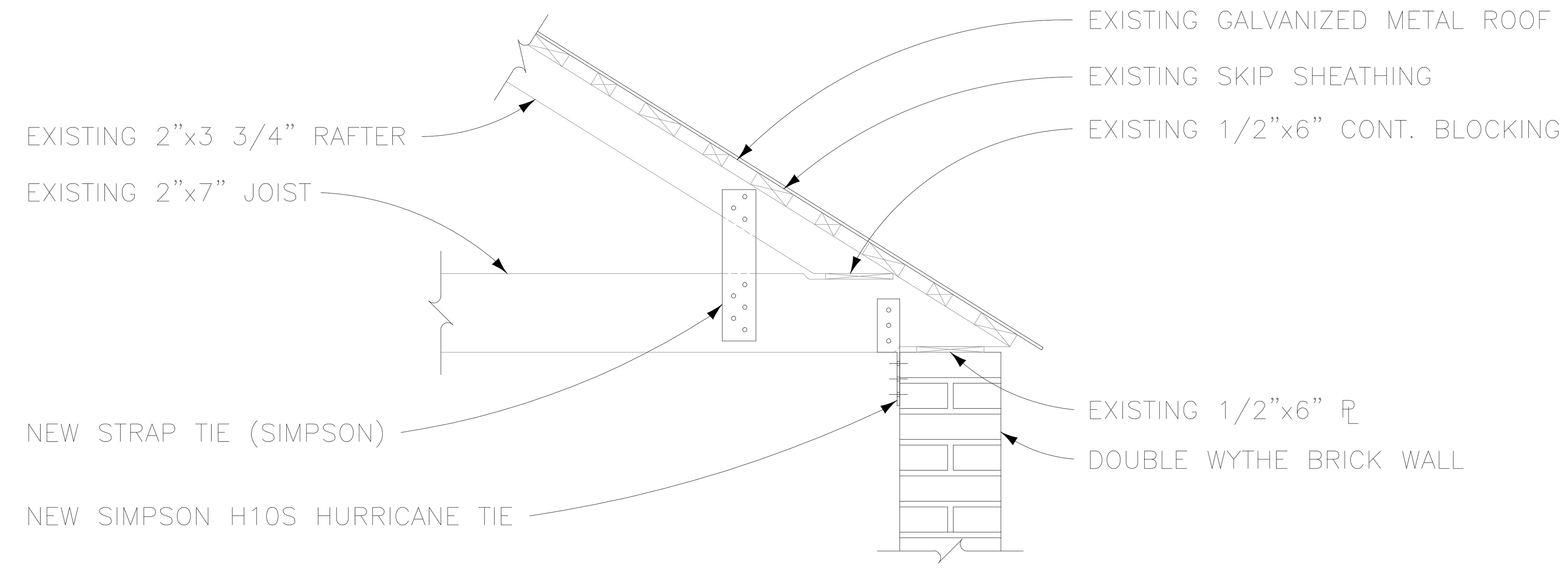
REPAIR CRACKS

CONCENTRATED AREA OF MISSING MORTAR. REPOINT WITH COMPATIBLE MORTAR.

STRATA ARCHITECTURE + PRESERVATION 1701 Oak Street, Suite 100 Ph. 816-474-0900 www.strata-arch.com	DESIGNED: CA CADD: CA TECH. REVIEW: AG DATE: 4/17/17
SUB SHEET NO.	A8
TREATMENT RECOMMENDATIONS SMOKEHOUSE BLACKSTONE HOUSE & OUTBUILDINGS HOPEWELL CULTURE NATIONAL HISTORICAL PARK ROSS COUNTY, OHIO	DRAWING NO. 353 132875 PMIS/PKG NO. 218963 SHEET 15 OF 16



1 S1 SMOKEHOUSE ROOF FRAMING PLAN



2 S1 ROOF FRAMING SECTION, TYP

1 0 1 2
SCALE OF FEET

2 0 2 4
SCALE OF FEET

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SUB SHEET NO. S5

TITLE OF SHEET
TREATMENT RECOMMENDATIONS
SMOKEHOUSE
BLACKSTONE HOUSE & OUTBUILDINGS
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
ROSS COUNTY, OHIO

DRAWING NO. 353 132875
PMIS/PKG NO. 218963
SHEET 16 OF 16


Front Door 1/100 existing rim lock with non-matching keeper. (STRATA 2016)

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[With location of sources]

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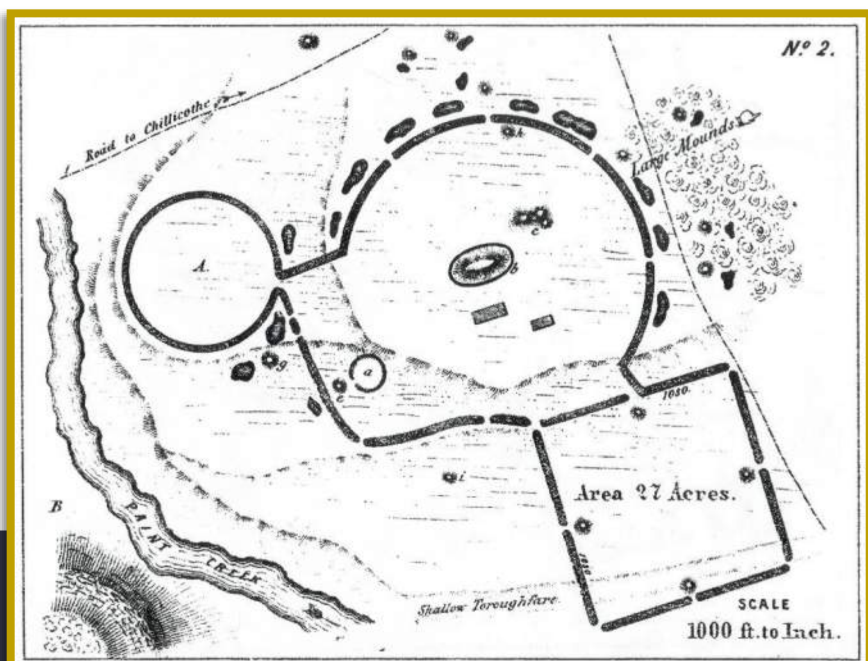
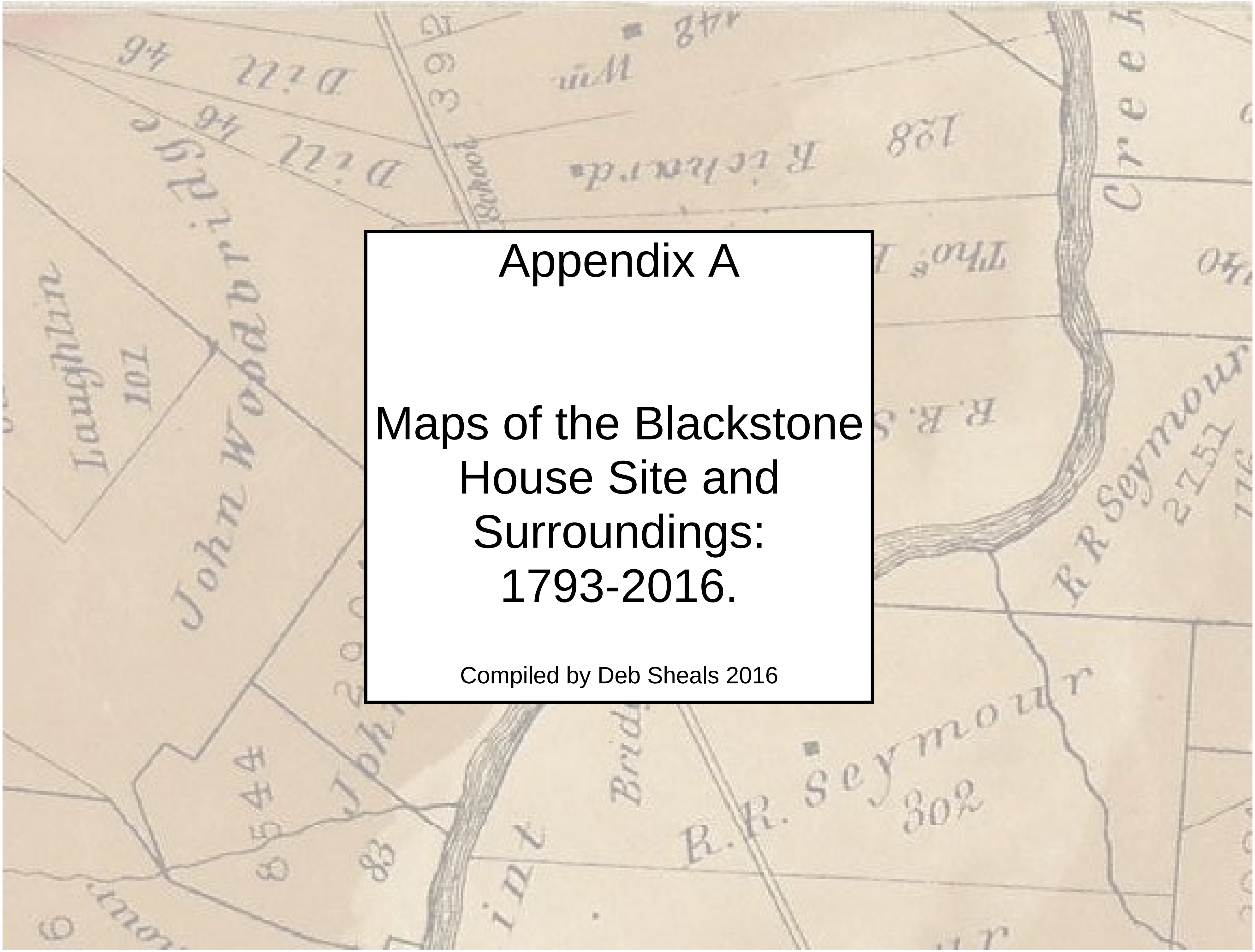
Hespen, Chris. Superintendent, Pere Marquette State Park, August 9, 2016. Telephone interview with Deb Sheals.



Map of what is now known as the Seip Earthworks, published in 1848. (E. G. Squier, A.M., and E. H. Davis, *Smithsonian Contributions to Knowledge, Vol 1. Ancient Monuments of the Mississippi Valley: Comprising the Results of Extensive Original Surveys and Explorations,* New York: Smithsonian Institution, 1848, Plate 21, 57-59.)

APPENDIX A

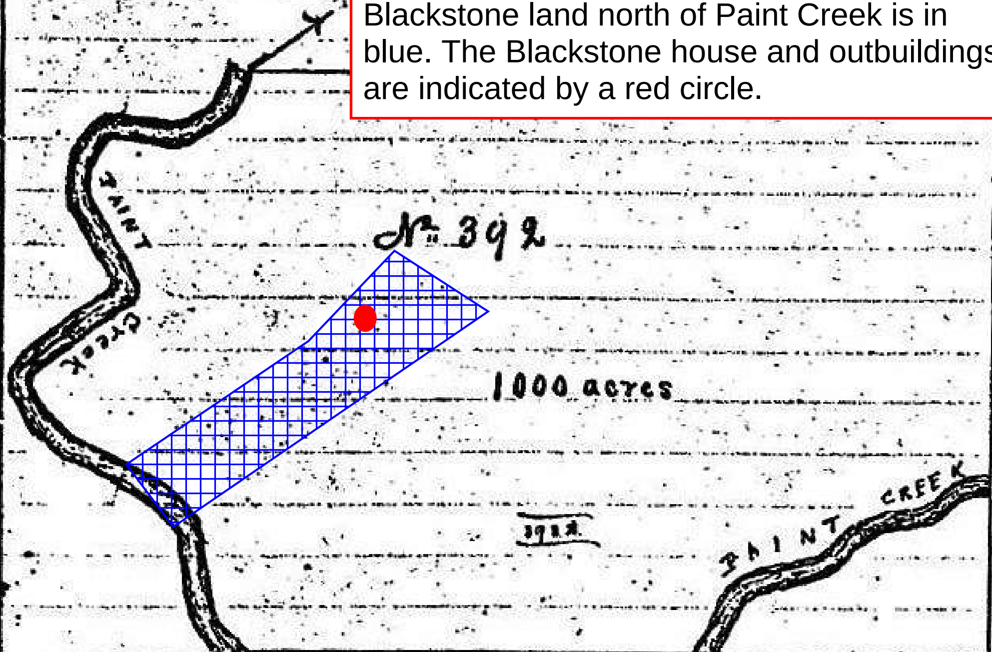
MAPS OF THE PROPERTY: 1794 - 2016



Appendix A

Maps of the Blackstone House Site and Surroundings: 1793-2016.

Compiled by Deb Sheals 2016



Original Survey of VMS 392-1793. Blackstone land north of Paint Creek is in blue. The Blackstone house and outbuildings are indicated by a red circle.

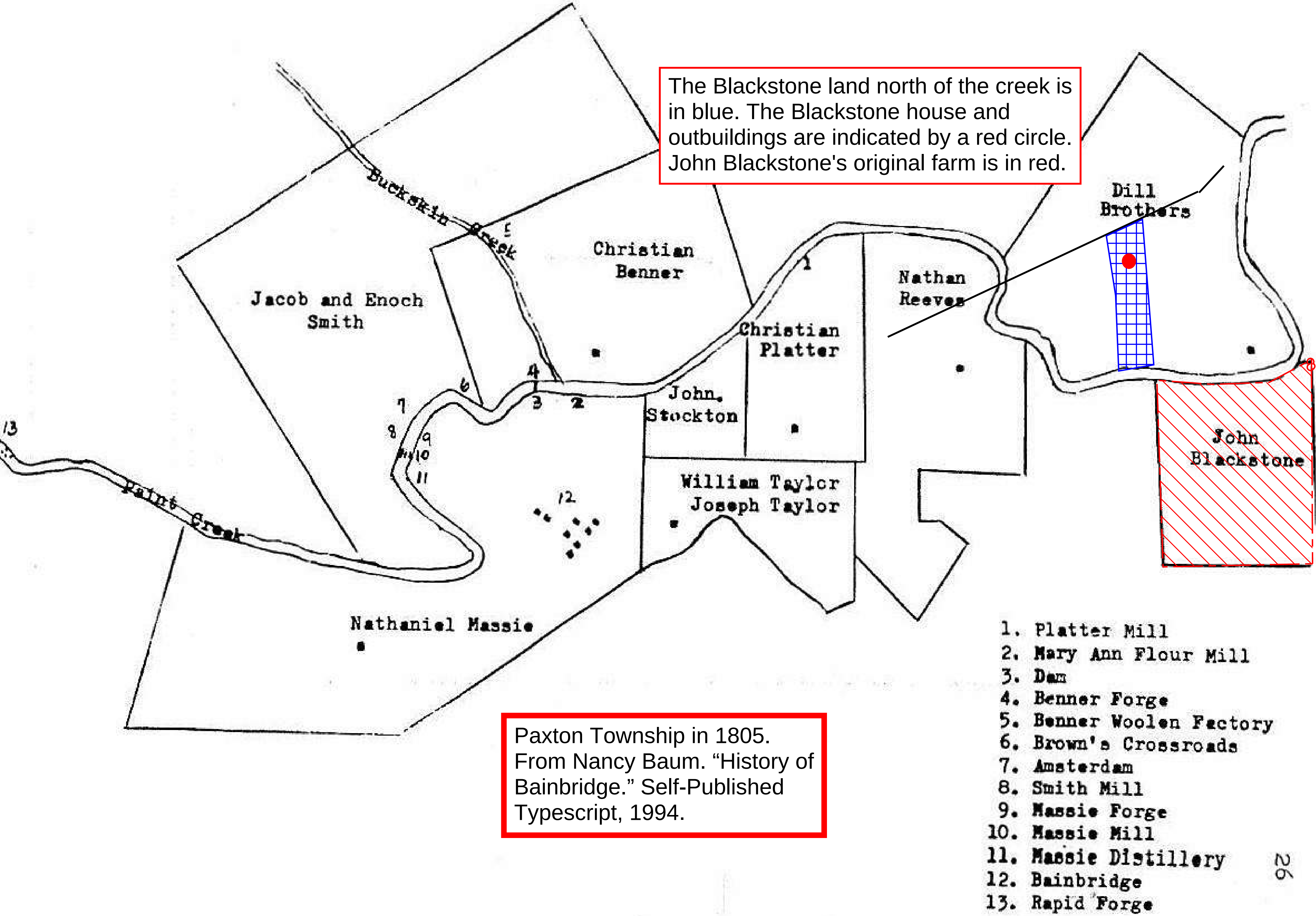
Surveyed for Simon Morgan 1000 acres of land on part of a Military Warrant No 2629. on Paint Creek; Beginning at a Walnut, Hackberry and Honeylocust, on the North bank of the Creek two hundred poles above where Todd's road crosses, on a straight line, thence N 37 E 430 poles to a Hickory and five Poplars, near a drain, thence S 53 E 350 poles, crossing the Creek at 230 poles to two Hackberries and two Buckeyes, thence S 37 W 430 poles, crossing the Creek at 160 poles to a Beech, White Oak and Ash, on the bank of the Creek, thence up the Creek and binding thereon S 82 W 20 poles N 67 W 56. S 85 W 37. S 68 W 72. N 81 W 13. S 73 W 8. N 11 W 32 poles, crossed Todd's road at 20, thence N 4 W 50, N 72 W 77. N 14 W 12. N 40 E 42. N 6 E 33. N 30 W 29 poles to the beginning —

1793.

Duncan McCarty } C.C.
Duncan McKinzie

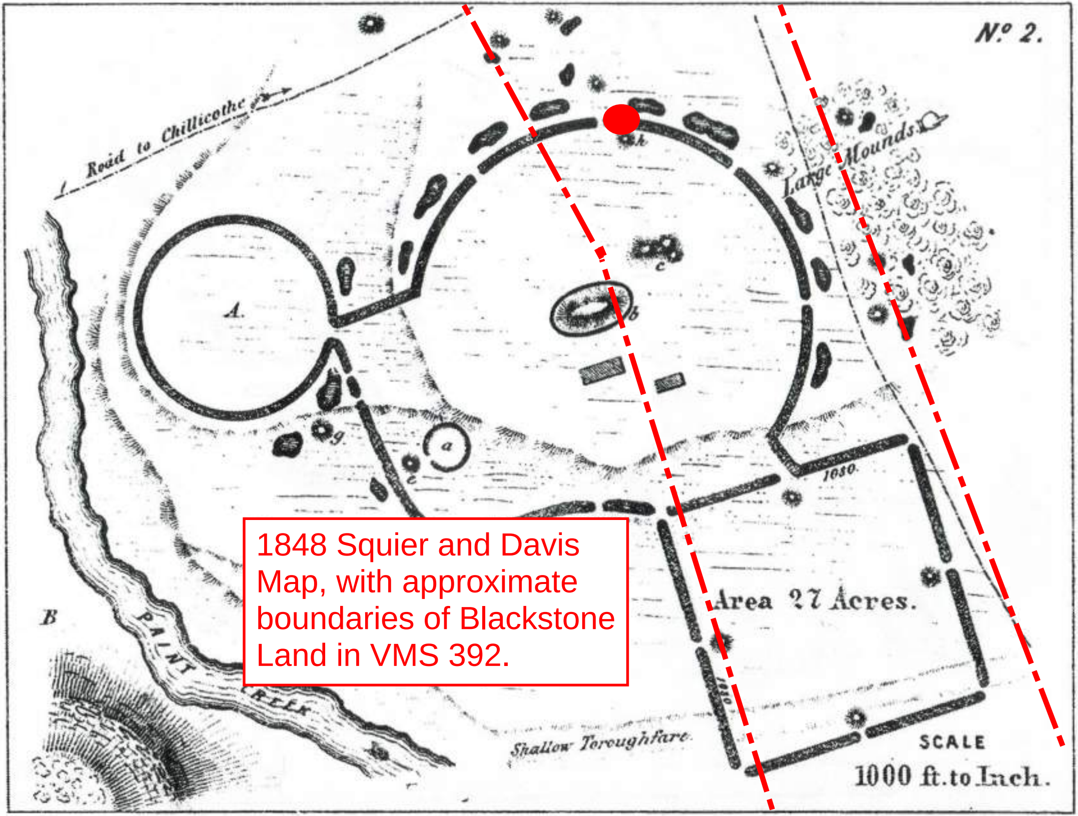
Zedekiah Mackland } M.

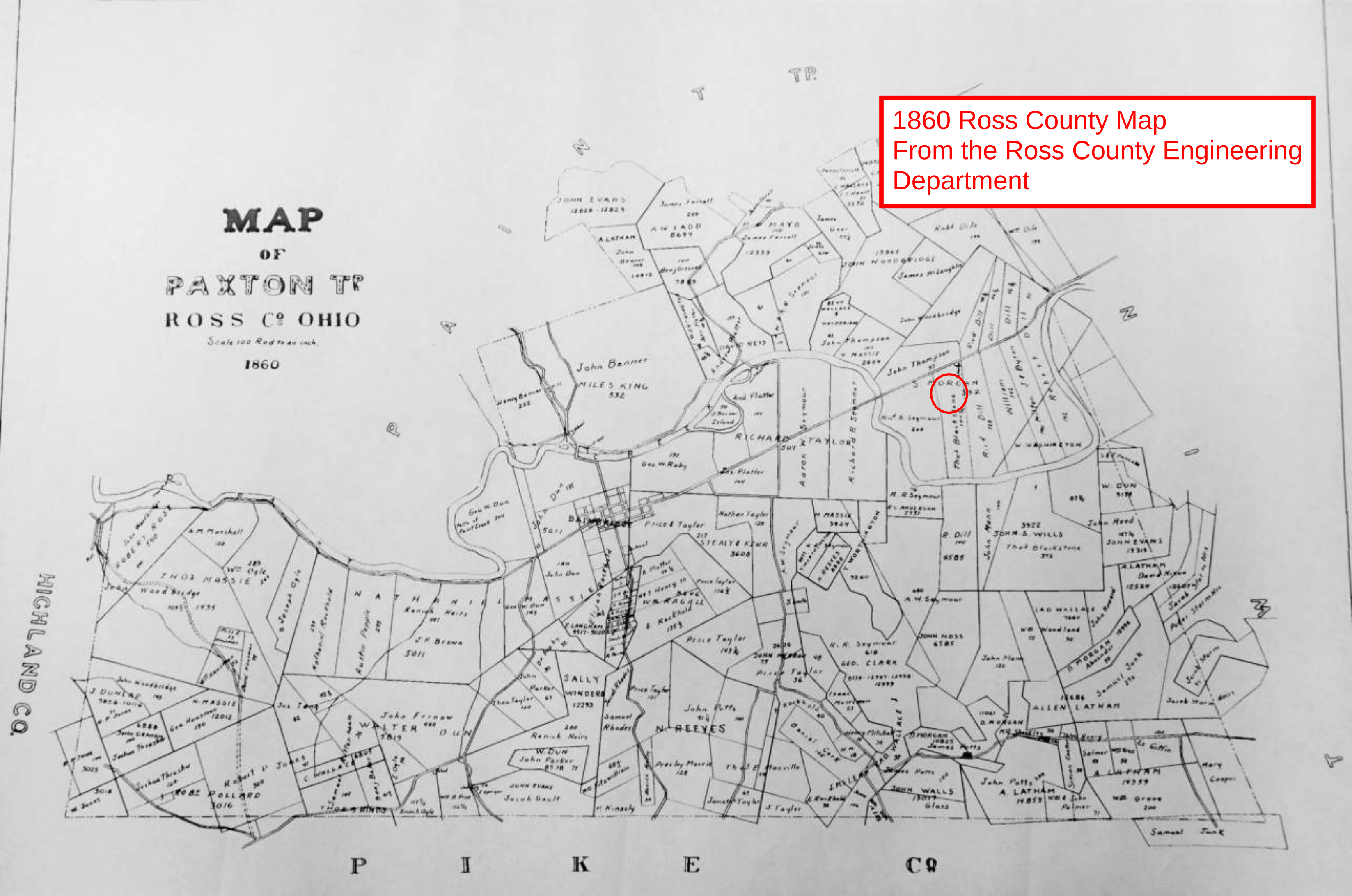
Nathl Massie D.S.
October 11th 1793.
March 13. 1794.



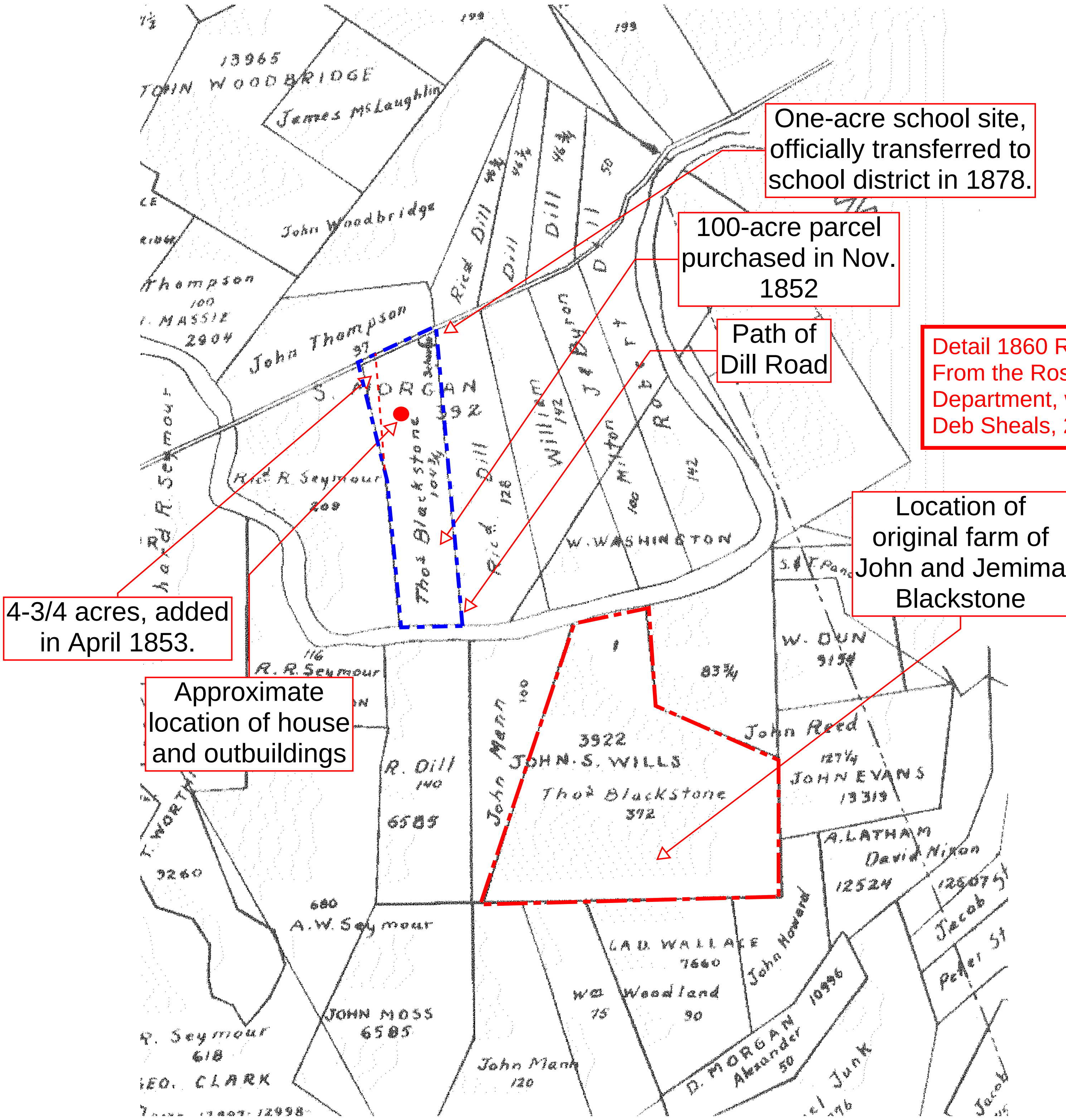
The Blackstone land north of the creek is in blue. The Blackstone house and outbuildings are indicated by a red circle. John Blackstone's original farm is in red.

Paxton Township in 1805. From Nancy Baum. "History of Bainbridge." Self-Published Typescript, 1994.

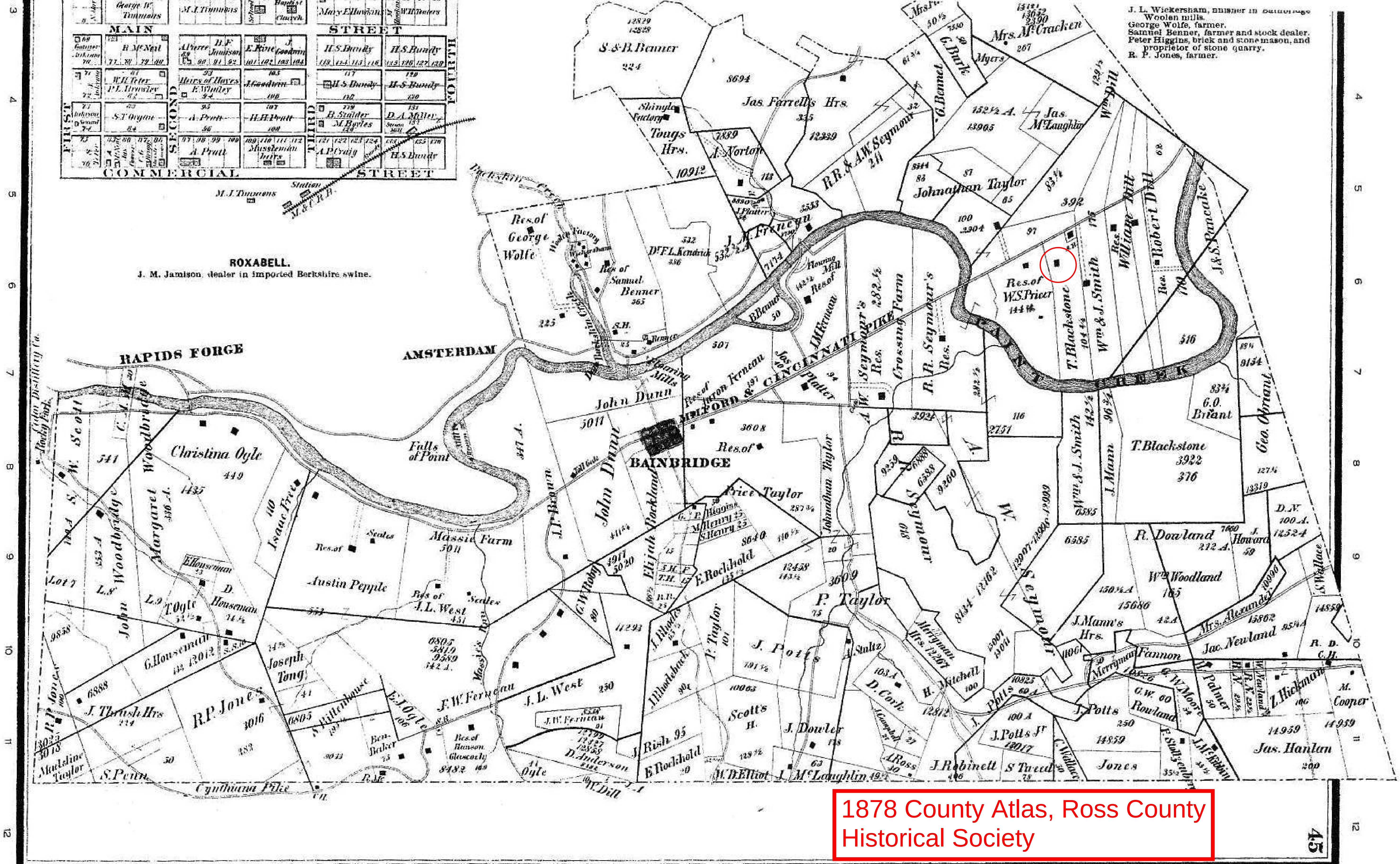

No. 2.
Road to Chillicothe
Large Mounds
A.
B
a
b
c
e
g
h
1050.
1080
Area 27 Acres.
PAINT CREEK
Shallow Toroughfare.
SCALE
1000 ft. to Inch.
1848 Squier and Davis Map, with approximate boundaries of Blackstone Land in VMS 392.



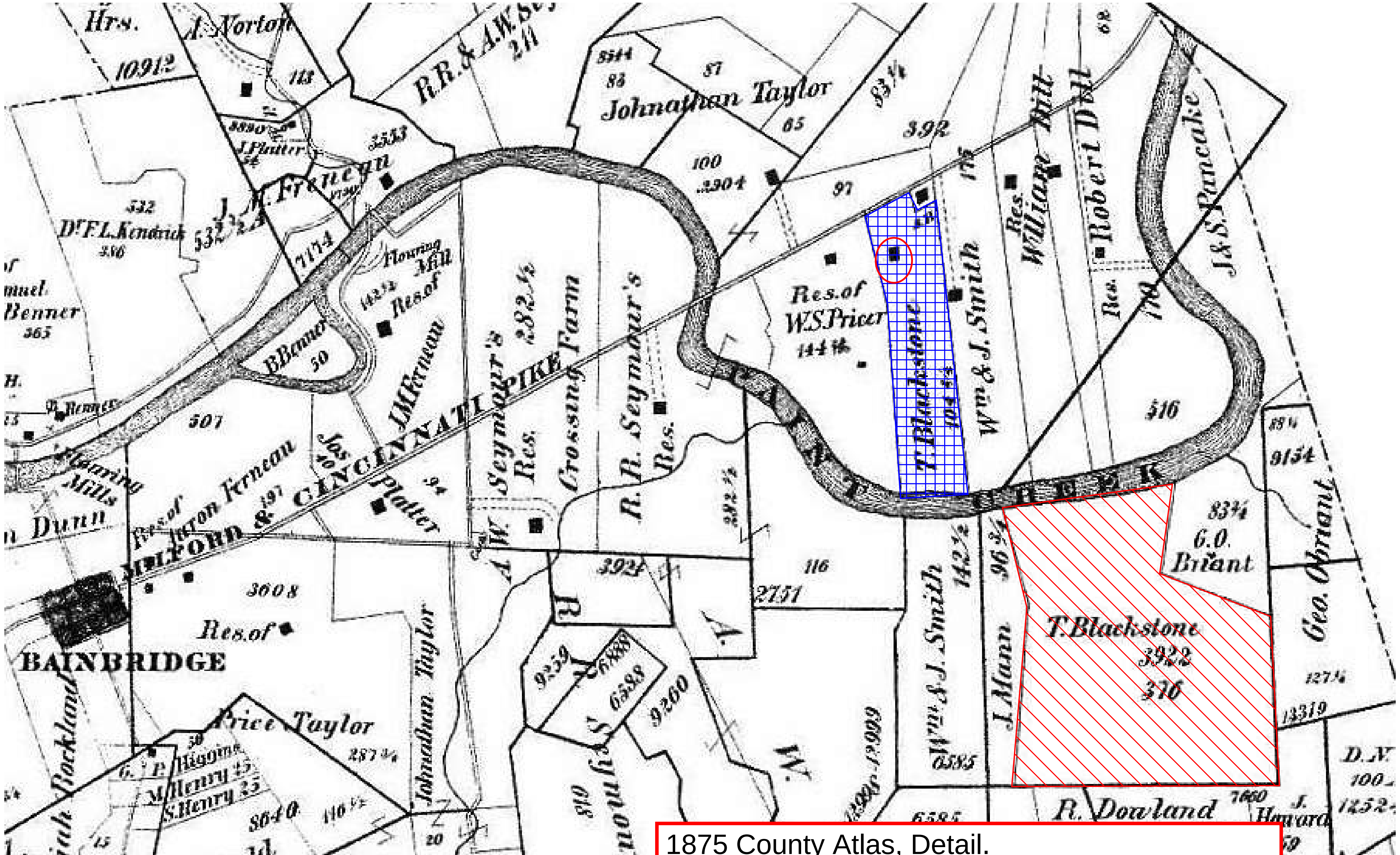
1860 Ross County Map
From the Ross County Engineering Department



Detail 1860 Ross County Map From the Ross County Engineering Department, with notes added by Deb Sheals, 2016.

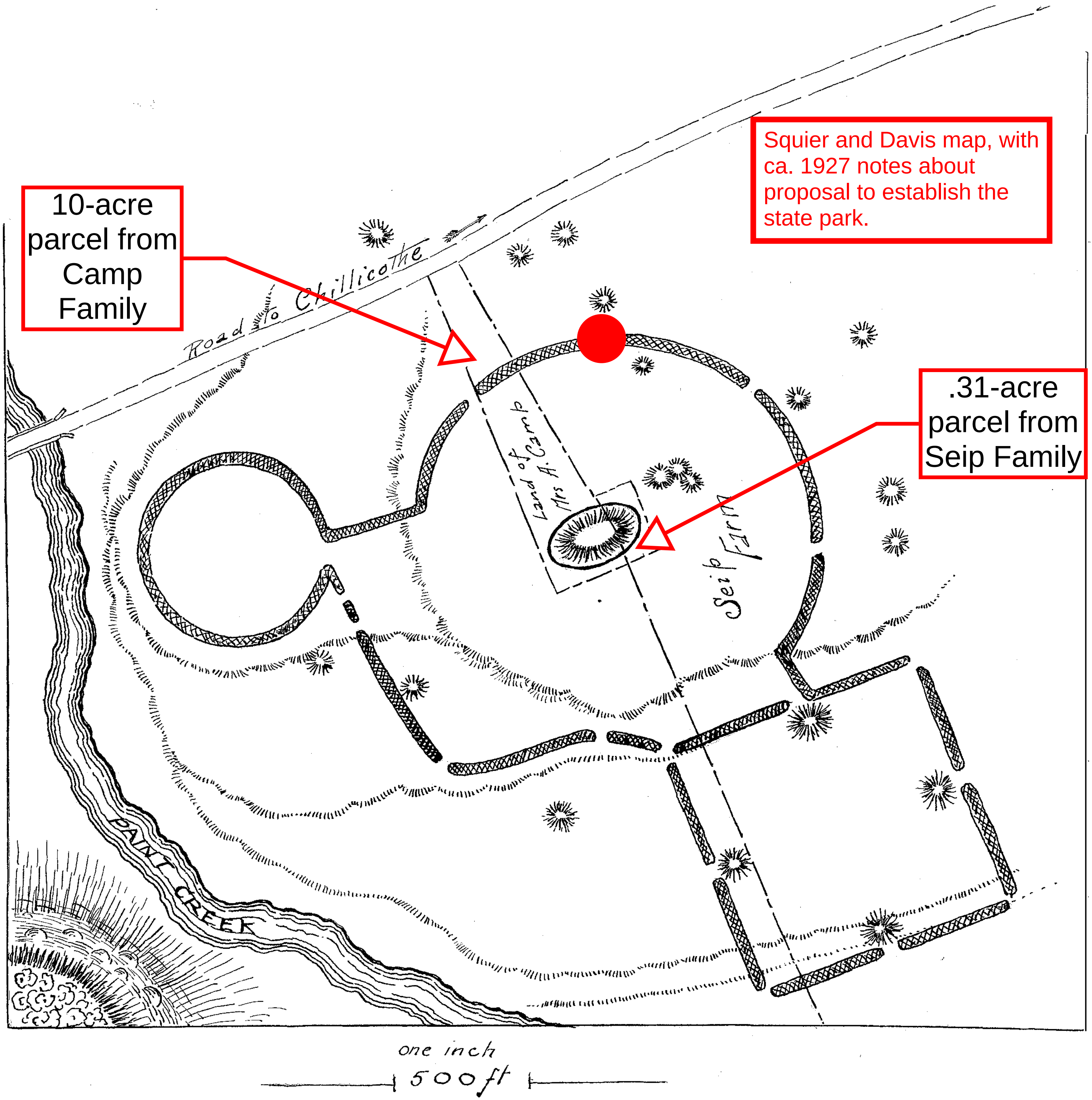


1878 County Atlas, Ross County Historical Society



1875 County Atlas, Detail.
The Blackstone land north of the creek is in blue. The Blackstone house and outbuildings are indicated by a red circle. The portion of John Blackstone's original farm owned by Thomas Blackstone is in red.

1915 Topo Map
Piketon Quadrangle

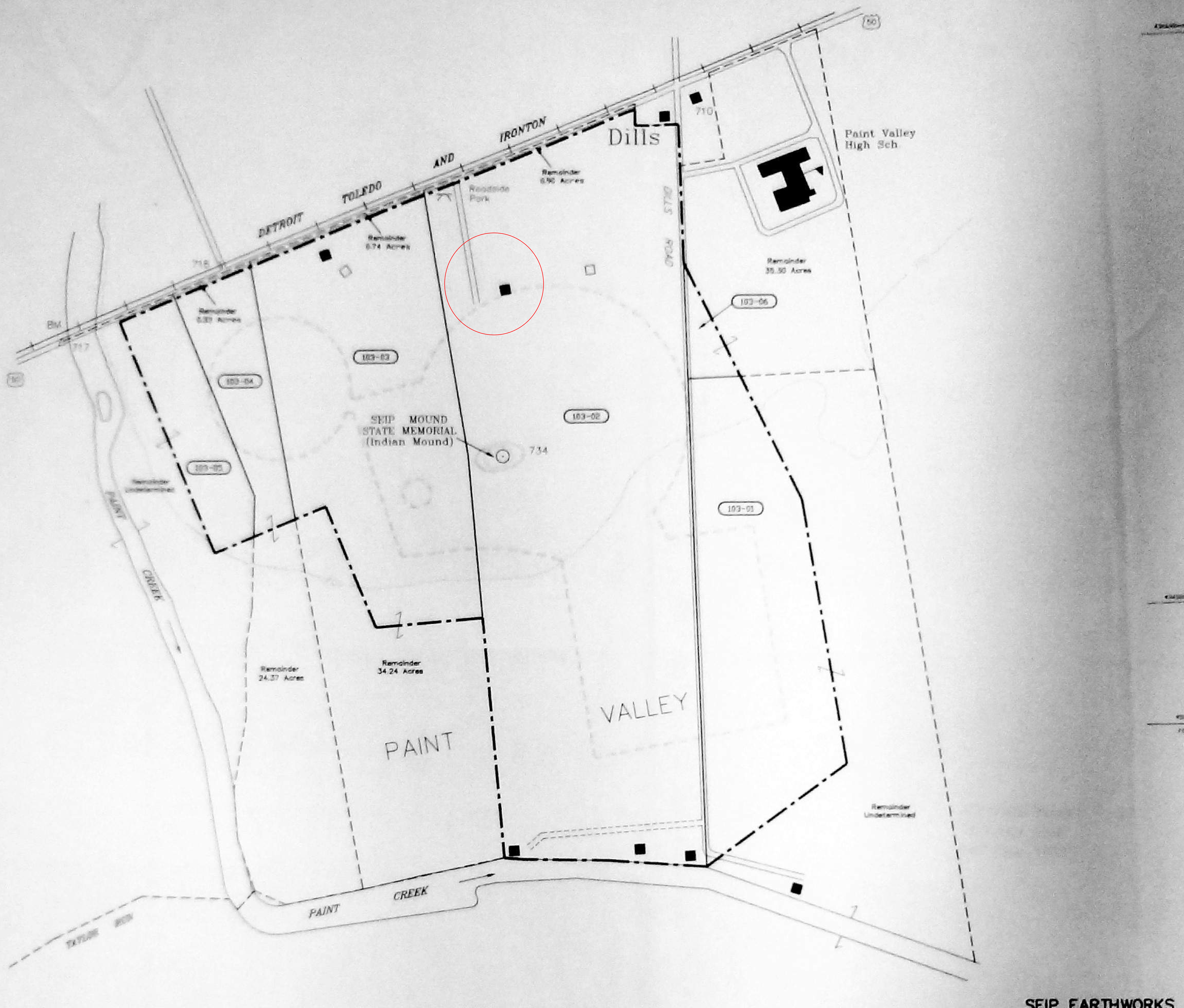


Squier and Davis map, with ca. 1927 notes about proposal to establish the state park.
10-acre parcel from Camp Family
.31-acre parcel from Seip Family
Road to Chillicothe
Land of Mrs A. Camp
Seip Farm
PAINT CREEK
one inch
500 ft


TOLEDO
Dills
Paint Valley
High Sch
Roadside
Park
DILLS
ROAD
716
710
BM
700
734
PAINT
CREEK
1961 on later report
Park Archives

1993 Park Archives

DEED	TRACT	OWNER	ACRES	INT
	103-01	LANDRUM, MARY M., ET AL	38.25	FEE
	103-02	OHIO HISTORICAL SOCIETY	122.50	FEE
	103-03	CHARLES W. SHOUP, ET UX	56.56	FEE
	103-04	MARTHA D. RITTER (R.O.) CHARLES W. SHOUP, ET UX (C.P.)	11.05	FEE
	103-05	MARTHA T. AICHHOLZ	11.19	FEE
	103-06	THE BOARD OF EDUCATION OF THE PAINT VALLEY LOCAL SCHOOL DISTRICT	2.29	FEE
		TOTAL	235.73	



LEGEND

- PRIVATE LAND
- FEDERAL LAND (FEE)
- FEDERAL LAND (LESS THAN FEE)
- PUBLIC LAND
- TRACT NUMBER
- PARK BOUNDARY
- TRACT BOUNDARY
- OWNERSHIP OUTSIDE BOUNDARY
- ARCHAEOLOGICAL FEATURE (APPROXIMATE LOCATION)

GENERAL NOTES

1. Property ownership data compiled from deeds, plats, surveys, and other source data are shown on this base. This is not an engineering quality drawing and should be used for general scaling purposes only. Acreages have been derived from deeds, surveys, and office compilations.
2. Base map digitized from USGS topographic map Morgantown, Ohio, 1961.

ESTABLISHED: MAY 27, 1992
BOUNDARY CHANGE:

DATE DRAWN: NOVEMBER 16, 1993
DATE REVISED:

MAPPED BY: LAND RESOURCES DIVISION MIDWEST REGION

N

VIRGINIA MILITARY DISTRICT

300 0 300 600 900 1200 FEET

1 INCH = 300 FEET = 91.44 METERS

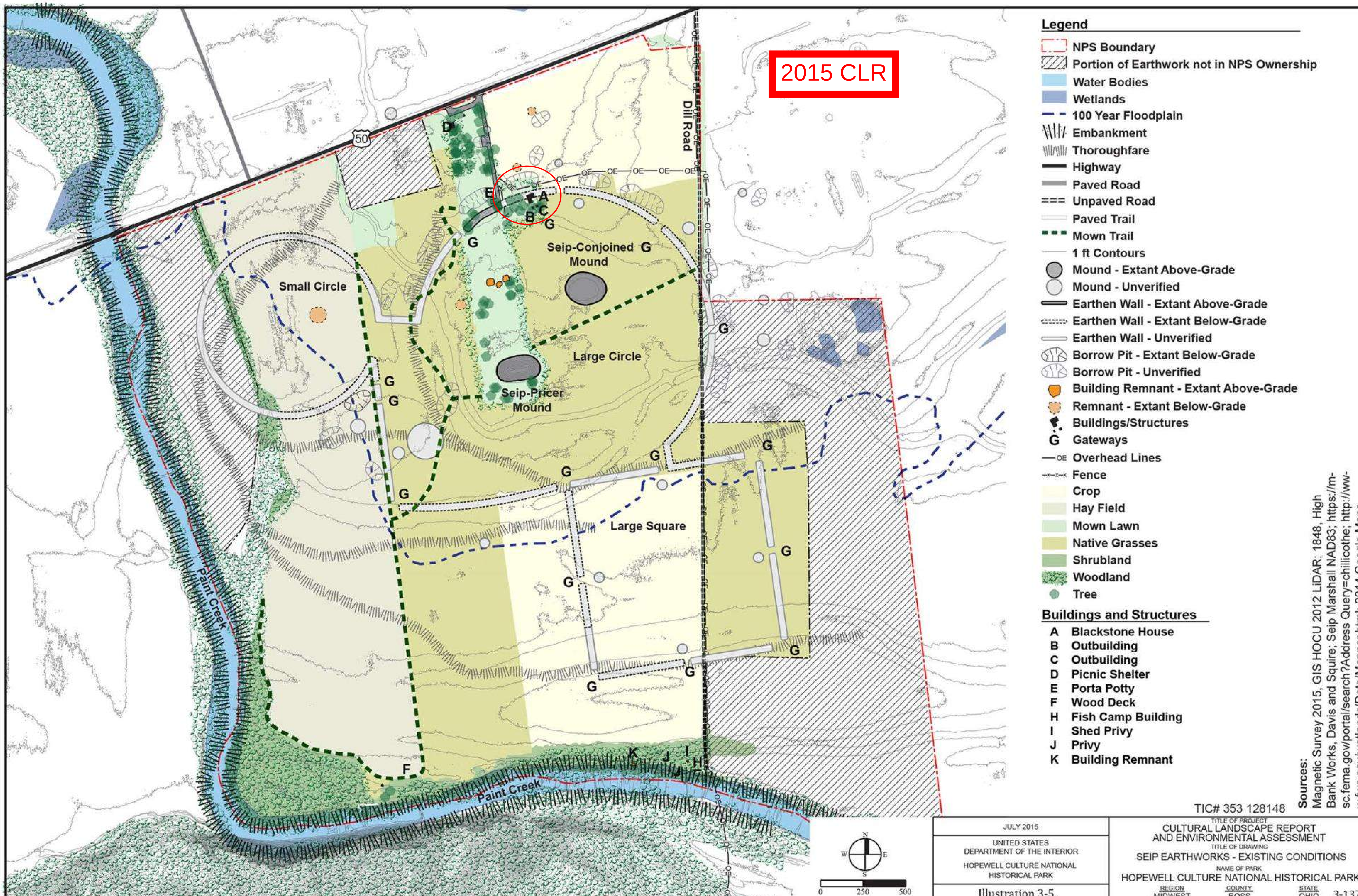
DN BY: KJM CK BY: DLB
APPR BY: FLM
REGION: MIDWEST
DRAWING NO: 353 80,042
SHEET 4 OF 5

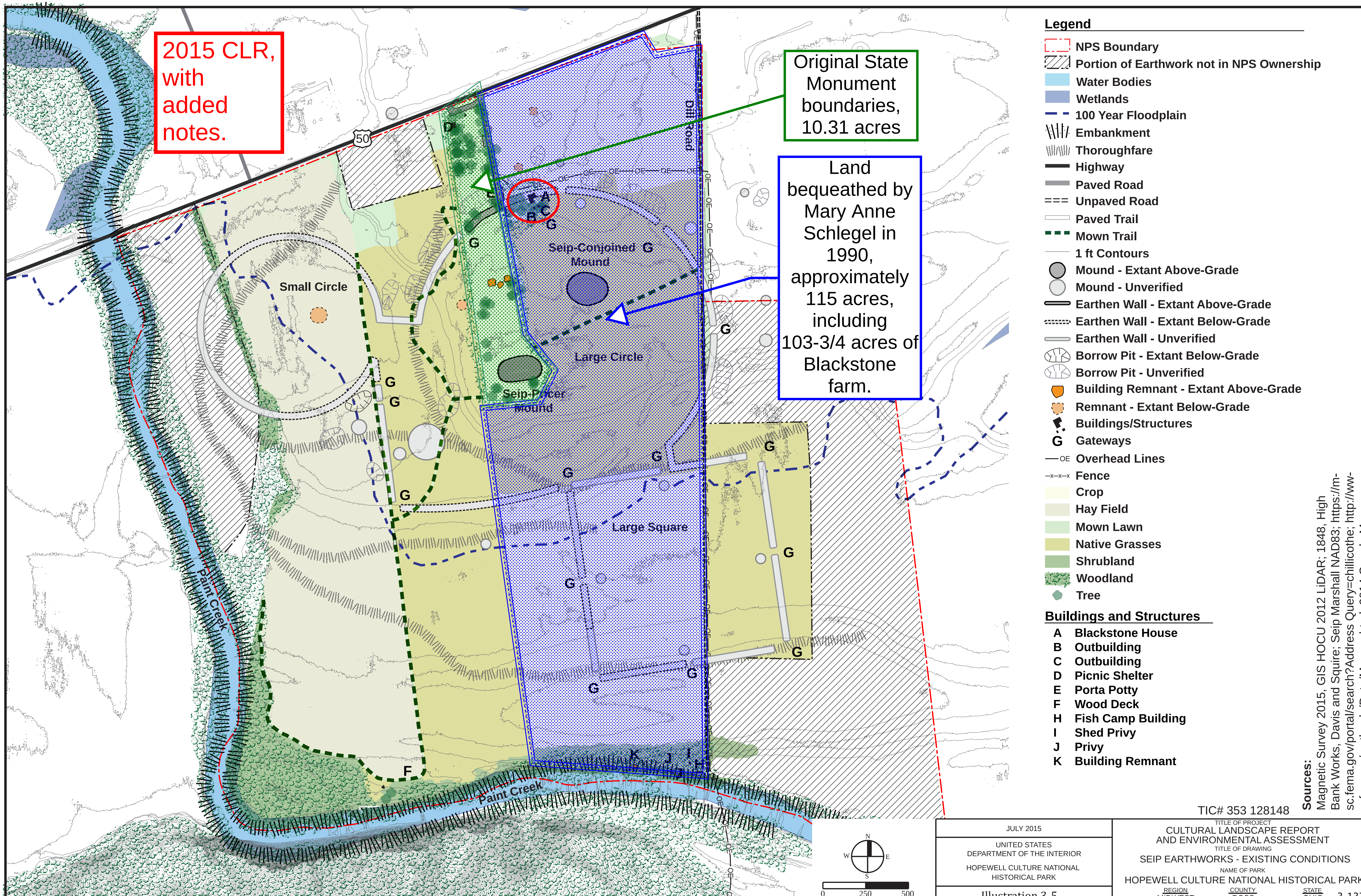
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DIVISION OF LAND RESOURCES

HOPEWELL CULTURE NATIONAL HISTORICAL PARK
ROSS COUNTY
OHIO

SEGMENT 103 SEIP

1997 Atlas, County Library


2015 CLR
Legend
NPS Boundary
Portion of Earthwork not in NPS Ownership
Water Bodies
Wetlands
100 Year Floodplain
Embankment
Thoroughfare
Highway
Paved Road
Unpaved Road
Paved Trail
Mown Trail
1 ft Contours
Mound - Extant Above-Grade
Mound - Unverified
Earthen Wall - Extant Above-Grade
Earthen Wall - Extant Below-Grade
Earthen Wall - Unverified
Borrow Pit - Extant Below-Grade
Borrow Pit - Unverified
Building Remnant - Extant Above-Grade
Remnant - Extant Below-Grade
Buildings/Structures
G Gateways
Overhead Lines
Fence
Crop
Hay Field
Mown Lawn
Native Grasses
Shrubland
Woodland
Tree
Buildings and Structures
A Blackstone House
B Outbuilding
C Outbuilding
D Picnic Shelter
E Porta Potty
F Wood Deck
H Fish Camp Building
I Shed Privy
J Privy
K Building Remnant
Sources:
Magnetic Survey 2015, GIS HOCU 2012 LiDAR; 1848, High Bank Works, Davis and Squire; Seip Marshall NAD83; https://msc.fema.gov/portal/search?Address Query=chillicothe; http://www.fws.gov/wetlands/Data/Mapper.html; 2014 Google Maps
50
Dill Road
Small Circle
Seip-Conjoined Mound
Large Circle
Seip-Pricer Mound
Large Square
Paint Creek
TIC# 353 128148
JULY 2015
UNITED STATES DEPARTMENT OF THE INTERIOR
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
Illustration 3-5.
TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT AND ENVIRONMENTAL ASSESSMENT
TITLE OF DRAWING
SEIP EARTHWORKS - EXISTING CONDITIONS
NAME OF PARK
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
REGION MIDWEST
COUNTY ROSS
STATE OHIO
3-137
0 250 500


2015 CLR, with added notes.
Original State Monument boundaries, 10.31 acres
Land bequeathed by Mary Anne Schlegel in 1990, approximately 115 acres, including 103-3/4 acres of Blackstone farm.
50
Dill Road
Small Circle
Seip-Conjoined Mound
Large Circle
Seip-Pricer Mound
Large Square
Paint Creek
Paint Creek
Legend
NPS Boundary
Portion of Earthwork not in NPS Ownership
Water Bodies
Wetlands
100 Year Floodplain
Embankment
Thoroughfare
Highway
Paved Road
Unpaved Road
Paved Trail
Mown Trail
1 ft Contours
Mound - Extant Above-Grade
Mound - Unverified
Earthen Wall - Extant Above-Grade
Earthen Wall - Extant Below-Grade
Earthen Wall - Unverified
Borrow Pit - Extant Below-Grade
Borrow Pit - Unverified
Building Remnant - Extant Above-Grade
Remnant - Extant Below-Grade
Buildings/Structures
G Gateways
OE Overhead Lines
x x x Fence
Crop
Hay Field
Mown Lawn
Native Grasses
Shrubland
Woodland
Tree
Buildings and Structures
A Blackstone House
B Outbuilding
C Outbuilding
D Picnic Shelter
E Porta Potty
F Wood Deck
H Fish Camp Building
I Shed Privy
J Privy
K Building Remnant
Sources: Magnetic Survey 2015, GIS HOCU 2012 LiDAR; 1848, High Bank Works, Davis and Squire; Seip Marshall NAD83; https://msc.fema.gov/portal/search?AddressQuery=chillicothe; http://www.fws.gov/wetlands/Data/Mapper.html; 2014 Google Maps
TIC# 353 128148
N S E W
0 250 500
JULY 2015
UNITED STATES DEPARTMENT OF THE INTERIOR
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
Illustration 3-5.
TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT AND ENVIRONMENTAL ASSESSMENT
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HOPEWELL CULTURE NATIONAL HISTORICAL PARK
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COUNTY ROSS
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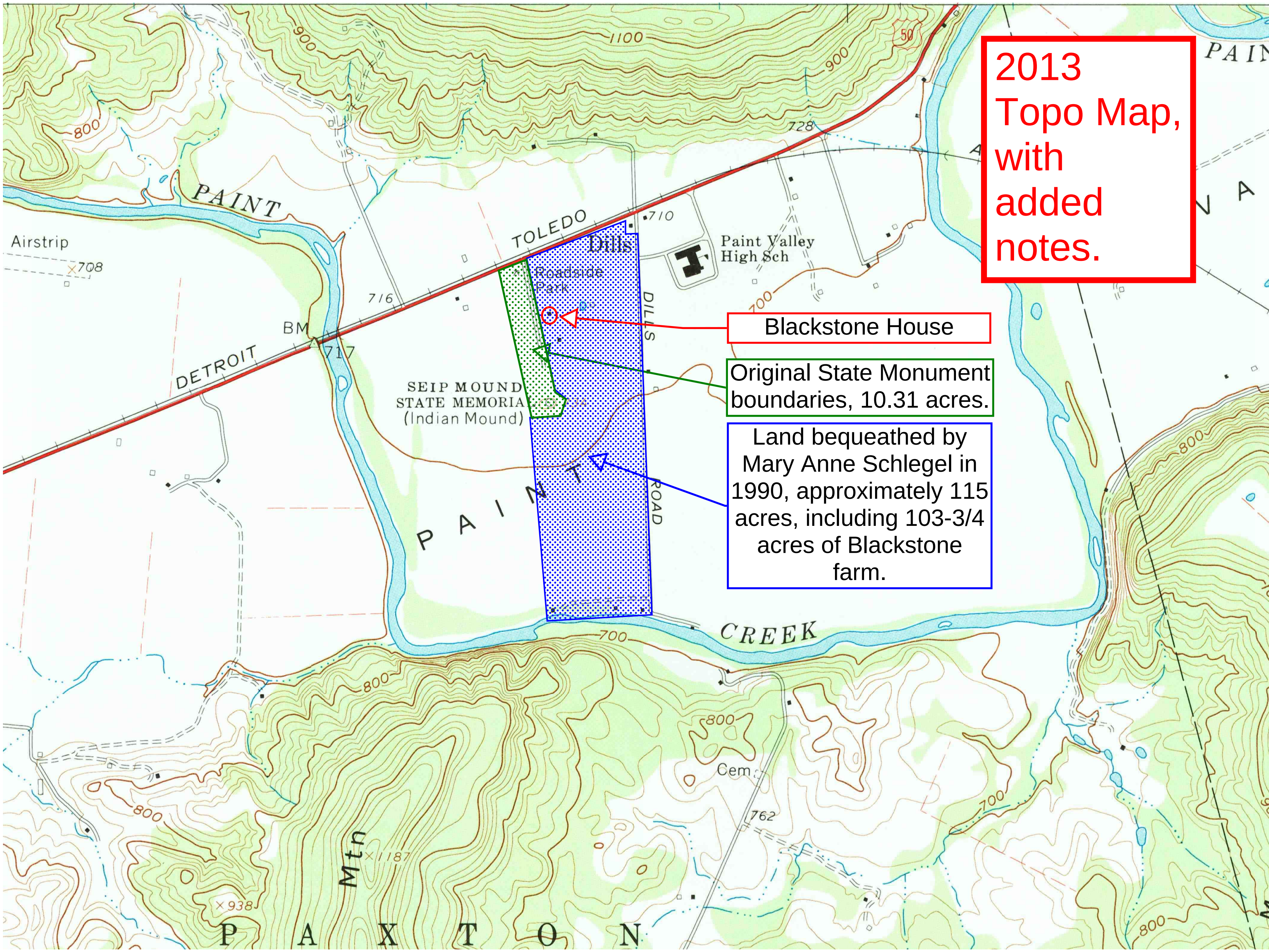
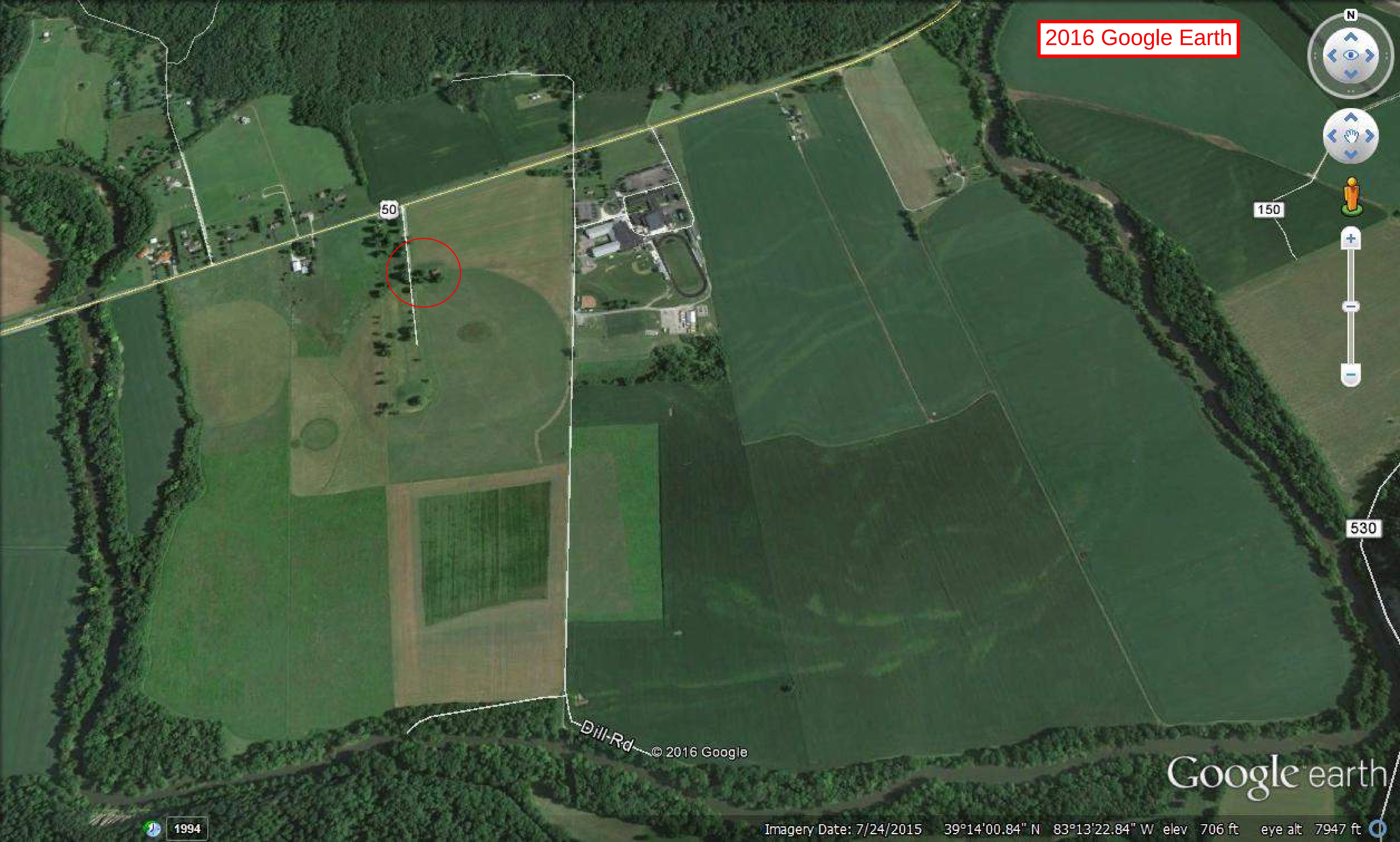
3-137



2013 Topo Map, with added notes.
Blackstone House
Original State Monument boundaries, 10.31 acres.
Land bequeathed by Mary Anne Schlegel in 1990, approximately 115 acres, including 103-3/4 acres of Blackstone farm.
PAINT
Airstrip
DETROIT
TOLEDO
Dills
Roadside Park
Paint Valley High Sch
DILLS ROAD
SEIP MOUND STATE MEMORIAL (Indian Mound)
PAINT
CREEK
Cem
Mtn
PAXTON



2016 Google Earth
50
150
530
Dill Rd
© 2016 Google
Google earth
1994
Imagery Date: 7/24/2015
39°14'00.84" N
83°13'22.84" W
elev 706 ft
eye alt 7947 ft

East Parlor 101 Door. (STRATA 2016)

APPENDIX B

THOMAS BLACKSTONE INVENTORY

Appendix B

Transcription: Inventory and Appraisement. Estate of Thomas Blackstone Sr. Deceased. Schedule D. Personal Goods and Chattels.

Transcription, with spelling and capitalization used in the original document.
Ross County Probate Records. 1880-1910. Ross County, Ohio Courthouse, Probate Archives.

Description of Articles Appraised	Appraised Value
One Sorrel Mare “Kate”	125.00
One Black Horse “Joe”	130.00
One Black Horse “Charley”	170.00
One spotted cow “Beauty”	45.00
One spotted cow “ Bille”	45.00
One cow & calf	50.00
One Heifer	40.00
Five fat Hogs	90.00
Two calves	25.00
One field of standing corn – about 17 acres	560.00
Lot of wheat, about 578 bushels	520.00
Lot of corn, about 100 bushels	75.00
One new wagon & bed	55.00
One Old wagon & Bed	20.00
One Buggy. Buggy, Harness & Blanket	135.00
One set wagon Harness	10.00
One Reaper & mower	30.00
One set Plow Harness	3.00
One Breaking Plow	4.00
Two cultivators	4.00
One Harrow	5.00
One corn marker	2.00
One pr [pair] double trees	2.50
One Roller	4.00
One Fanning Mill	1.00
continued __ ___	21.50.50 [sic]
One saddle bridle	25.00
Twenty five Grain sacks	2.50
Four sides Bacon	22.50
Four Hams	10.00
Two shoulders	4.00
One Barrel vinegar	8.00
One Tierce lard	10.00
One Empty Lard can	1.00
One wheelbarrow	3.00
Crocks in Milk House	3.00

One carpet. front Bed Room	10.00
One Rag carpet	5.00
One Rag carpet	6.00
One plain walnut Bed & Bedstead	12.00
One plain Walnut Bed &Bedstead	12.00
One Maple Bed & Bedstead	12.00
One set Dining Room chairs (round tops)	3.00
One set Dining Room chairs (sharp at tops of posts)	3.00
One set Parlor chairs with Rocker	11.00
One center Table, marble top	15.00
One settee in parlor	12.00
One large Rocking chair	3.00
One cherry Table half leaf	2.00
One cherry Table half leaf. Broken.	1.00
One cherry stand in bed Room	1.00
One dining table	1.00
One stove – bed Room	6.00
One stove & kettles in wash Room	8.00
Two scythes	2.00
Four Kettles	6.00
One Book case	1.00
Additional Items Inventoried at Public Sale:	
One Lot of Lumber	4.25 sold
One Grind Stone	1.10 sold
One Lot Tools	1.45 sold
One Plow	1.10 sold
Three Wagon Wheels	1.00 sold

Inventory and Appraisement Belonging to Mary Blackstone from Estate of Thomas Blackstone Sr.

One Bed and Bedding - Front Bed Room
One carpet – Dining Room
One carpet – Each Bed Room up stairs
One Rocking chair – cane bottom –
One Bureau
One wash stand
One clock
One Mirror
Two Brass kettles

Note in file: *The above property belonged to Mrs. Blackstone before she was married to Thos Blackstone.*

Photo of the house and outbuildings, looking north, ca. 1927. (Photo Collection Number A0957, Folder 6, Ohio History Connection Archeological Collections Facility, Columbus, Ohio)

APPENDIX C

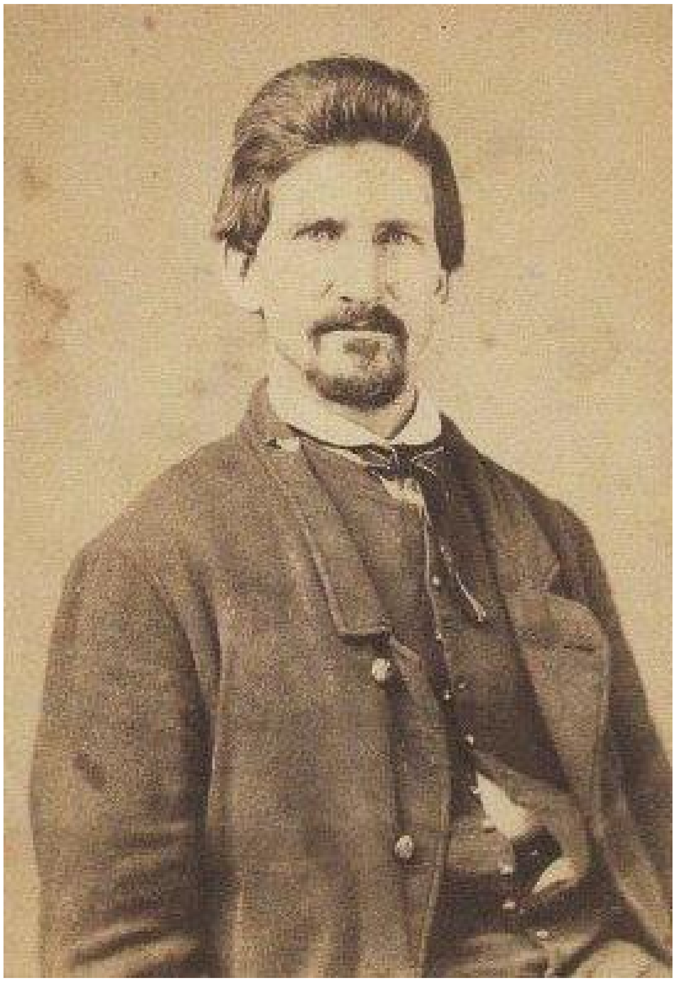
FAMILY PROFILES:
BLACKSTONE AND SEIP-SCHLEGEL FAMILIES

Appendix C
Family History
from Ancestry.com

Compiled by Deb Sheals 2016

Profiles Included Here:

John Blackstone
William Blackstone
Thomas Blackstone
Mary Ida Seip (With Charles Seip)
Charles G. Schlegel
Mary Anne Schlegel



A photo of Thomas and Hannah Blackstone's oldest son, Abe Blackstone, taken ca. 1865. (Tom Blackstone, "Abe Blackstone: A Window to the Past," Chenowith Family Newsletter (March 2012), accessed July 15, 2016, http://www.chenowethsite.com/newsletter/nlvol11-1.htm#past.)

ancestry

John Blackstone

BIRTH 09 MARCH 1772 • Kent County, Maryland, USA
DEATH 18 JUL 1844 • Paxton, Ross, Ohio, United States

Facts

Age 0 — **Birth**
09 March 1772 • Kent County, Maryland, USA

Age 24 — **Birth of Son William Blackstone** (1796–1879)
24 May 1796 • Botetourt County, Virginia, USA

Age 24 — **Marriage**
1796 • Botecourt, Virginia, United States

Jemima King (1773–1848)

Age 27 — **Birth of Son James Blackstone** (1800–)
Abt. 1800

Age 27 — **Birth of Daughter Harriet Blackstone** (1800–1844)
ABT 1800 • Ohio, U.S.A.

Age 27 — **Birth of Daughter Elizabeth Blackstone** (1800–1885)
06 Mar 1800 • Virginia, United States

Age 31 — **Birth of Son John Blackstone** (1804–)
Abt. 1804

Age 33 — **Birth of Daughter Rebecca Blackstone** (1806–)
Abt. 1806

Age 35 — **Birth of Son Thomas Blackstone Sr.** (1808–1882)
22 jan 1808 • Ohio

Age 39 — **Birth of Son Hiram Blackstone** (1812–)
Abt. 1812

Age 43 — **Birth of Daughter Irene Jemima Blackstone** (1815–1899)
18 Jun 1815 • Pike County, Ohio

Age 72 — **Death**
18 Jul 1844 • Paxton, Ross, Ohio, United States

Death of Daughter Harriet Blackstone (1800–1844)
BET 1844 AND 1851 • Unknown

Family

Parents

Thomas Blackstone 1747–

Elizabeth Hall 1748–

Spouse & Children

Jemima King 1773–1848

- **William Blackstone** 1796–1879
- **James Blackstone** 1800–
- **Harriet Blackstone** 1800–1844
- **Elizabeth Blackstone** 1800–1885
- **John Blackstone** 1804–
- **Rebecca Blackstone** 1806–
- **Thomas Blackstone Sr.** 1808–1882
- **Hiram Blackstone** 1812–
- **Irene Jemima Blackstone** 1815–1899

Sources

Ancestry Sources

Ancestry Family Trees

ancestry

William Blackstone

Facts

Age 0 — **Birth**
25 May 1796 • Botetourt, Virginia, United States

Birth *(Alternate)*
1796 • Bottetourt Co, Virginia, United States

Age 3 — **Birth of Sister Harriet Blackstone** (1800–1844)
ABT 1800 • Indiana, United States

Age 3 — **Birth of Sister Elizabeth Blackstone** (1800–1885)
6 Mar 1800 • Roanoke, Virginia, United States

Age 7 — **Birth of Brother John Blackstone** (1804–)
Abt. 1804

Age 11 — **Birth of Brother Thomas Blackstone** (1808–1882)
22 Jan 1808 • Ohio

Age 27 — **Marriage**
28 APR 1824 • Ross Co., OH
Julia Musser Blackstone (1806–1884)

Age 29 — **Birth of Son Benjamin Doddridge Blackstone** (1825–1902)
11 August 1825 • Clarksville, OH

Age 30 — **Birth of Son John King Blackstone** (1827–1898)
12 February 1827

Age 32 — **Birth of Daughter Julia Musser Blackstone** (1829–1872)
1829 • Ohio, USA

Age 35 — **Birth of Daughter Adeline O. Blackstone** (1832–1833)
7 February 1832

Age 37 — **Death of Daughter Adeline O. Blackstone** (1832–1833)
8 July 1833

Age 40 — **Birth of Son William Blackstone** (1837–1837)
23 January 1837

Age 41 — **Death of Son William Blackstone** (1837–1837)
22 December 1837

Age 42 — **Birth of Daughter E. Lillian Blackstone** (1839–1852)
March 1839

Age 48 — **Death of Father John Blackstone** (1772–1844)
17 July 1844 • Paxton, Ross, Ohio, United States

Age 48 — **Death of Sister Harriet Blackstone** (1800–1844)
BET 1844 AND 1851 • Unknown

Age 49 — **Birth of Son William Victor Blackstone** (1846–1849)
February 1846

Age 52 — **Death of Mother Jemima King** (1773–1848)
16 Dec 1848 • Ross, Ohio, United States

Age 52 — **Death of Son William Victor Blackstone** (1846–1849)
30 March 1849

Age 56 — **Death of Daughter E. Lillian Blackstone** (1839–1852)
26 June 1852

Age 76 — **Death of Daughter Julia Musser Blackstone** (1829–1872)
1872 • Indianapolis, Marion County, Indiana, USA

Family

Parents

John Blackstone 1772–1844

Jemima King 1773–1848

Spouse & Children

Julia Musser Blackstone 1806–1884

- **Benjamin Doddridge Blackstone** 1825–1902
- **John King Blackstone** 1827–1898
- **Julia Musser Blackstone** 1829–1872
- **Adeline O. Blackstone** 1832–1833
- **William Blackstone** 1837–1837
- **E. Lillian Blackstone** 1839–1852
- **William Victor Blackstone** 1846–1849

Sources

Ancestry Sources

Ancestry Family Trees

U.S., Find A Grave Index, 1600s-Current

Age 82 — **Death**
17 Mar 1879 • Athens, Athens, Ohio, United States

Burial
Athens, Athens County, Ohio, USA

ancestry

Thomas Blackstone Sr.

BIRTH 22 JAN 1808 • Ohio
DEATH 20 JULY 1882 • Bainbridge, Ross County, Ohio, USA

Facts

Age 0 — **Birth**
22 jan 1808 • Ohio

Age 3 — **Birth of Brother Hiram Blackstone** (1812–)
Abt. 1812

Age 7 — **Birth of Sister Irene Jemima Blackstone** (1815–1899)
18 Jun 1815 • Pike County, Ohio

Age 24 — **Marriage**
12/30/1832 • Ohio, U.S.A.

Hannah Chenoweth (1806–1868)

Age 25 — **Birth of Son William C Blackstone** (1833–)
11 Oct 1833 • Pike, Ohio, USA

Age 26 — **Birth of Son John Blackstone** (1834–)
24 Dec 1834 • Pike, Ohio, USA

Age 28 — **Birth of Daughter Rebecca Blackstone** (1836–)
2 Apr 1836 • Pike, Ohio, USA

Age 29 — **Birth of Son Abraham Blackstone** (1837–)
30 Nov 1837 • Pike, Ohio, USA

Age 31 — **Birth of Daughter Jemima Blackstone** (1839–1840)
20 Mar 1839 • Pike, Ohio, USA

Age 32 — **Death of Daughter Jemima Blackstone** (1839–1840)
10 May 1840 • Pike, Ohio, USA

Age 33 — **Birth of Daughter Susannah Blackstone** (1841–1866)
4 Feb 1841 • Pike, Ohio, USA

Age 35 — **Birth of Daughter Harriet Blackstone** (1843–)
2 May 1843 • Pike, Ohio, USA

Age 36 — **Death of Father John Blackstone** (1772–1844)
18 Jul 1844 • Paxton, Ross, Ohio, United States

Age 36 — **Death of Sister Harriet Blackstone** (1800–1844)
BET 1844 AND 1851 • Unknown

Age 37 — **Birth of Son Gideon Blackstone** (1845–)
15 Feb 1845 • Pike, Ohio, USA

Age 39 — **Birth of Son Thomas Blackstone Jr.** (1847–1912)
22 Jan 1847 • Pike, Ohio, USA

Age 40 — **Death of Mother Jemima King** (1773–1848)
16 Dec 1848 • Ross County, Ohio

Age 42 — **Birth of Son Hiram Blackstone** (1850–1850)
3 May 1850 • Pike, Ohio, USA

Age 42 — **Death of Son Hiram Blackstone** (1850–1850)
9 Aug 1850 • Pike, Ohio, USA

Age 42 — **Residence**
1850 • Paxton, Ross, Ohio, USA

Age 44 — **Bought land in VMS392**
11/13/1852 • Bainbridge, Ross County, Ohio, USA
Purchased 100 acres. Deed book 53, p. 510, and the next April added 4.75 acres. B. 55, p. 14.

Age 52 — **Residence**
1860 • Paxton, Ross, Ohio, USA

Age 58 — **Death of Daughter Susannah Blackstone** (1841–1866)
10 May 1866

Age 59 — **Death of Wife Hannah Chenoweth** (1806–1868)
3 Jan 1868 • Ross, Ohio, USA

Age 61 — **Marriage**
Abt. 1869 • Ohio, U.S.A.
Was Mrs. Mary J. Dungan before she married Thomas Blackstone. Blackstone's first wife died in 1868, and he was married to Mary by 1870.

Mary J. Dungan (1821–1886)

Age 62 — **Residence**
1870 • Paxton, Ross, Ohio, USA
Post Office: Bainbridge

Age 71 — **Death of Brother William Blackstone** (1796–1879)
17 Mar 1879 • Athens, Athens, Ohio, USA

Age 72 — **Residence**
1880 • Paxton, Ross, Ohio, USA
Marital status: Married; Relation to Head of House: Self

Family

Parents

John Blackstone 1772–1844

Jemima King 1773–1848

Spouse & Children

Hannah Chenoweth 1806–1868

- **William C Blackstone** 1833–
- **John Blackstone** 1834–
- **Rebecca Blackstone** 1836–
- **Abraham Blackstone** 1837–
- **Jemima Blackstone** 1839–1840
- **Susannah Blackstone** 1841–1866
- **Harriet Blackstone** 1843–
- **Gideon Blackstone** 1845–
- **Thomas Blackstone Jr.** 1847–1912
- **Hiram Blackstone** 1850–1850

Spouse

Mary J. Dungan 1821–1886

Sources

Ancestry Sources

- **1850 United States Federal Census**
- **1860 United States Federal Census**
- **1870 United States Federal Census**
- **1880 United States Federal Census**
- **Ancestry Family Trees**
- **U.S., Find A Grave Index, 1600s-Current**

Age 74 — **Death**
20 july 1882 • Bainbridge, Ross County, Ohio, USA

Burial
Bainbridge, Ross County, Ohio, USA

ancestry

Mary Ida Seip

BIRTH APRIL 12, 1853 • Chillicothe, Ross, Ohio USA
DEATH SEPT. 2, 1941 • Chillicothe, Ross, Ohio USA

Facts

Age 0 — **Birth**
April 12, 1853 • Chillicothe, Ross, Ohio USA

Age 1 — **Birth of Sister Charlotte Seip** (1854–1935)
15 Aug 1854

Age 5 — **Birth of Brother John Seip** (1858–)
16 Apr 1858

Age 6 — **Death of Brother Charles Seip** (–1859)
19 Nov 1859

Age 8 — **Birth of Brother David Seip** (1861–1938)
13 Dec 1861

Age 12 — **Birth of Sister Elizabeth Seip** (1866–1952)
20 Mar 1866

Age 17 — **Residence**
1870 • Mohican, Ashland, Ohio

Age 24 — **Marriage**
8 Nov 1877 • Chillicothe, Ross, Ohio, United States
Charles Frederick Schlegel (1853–1938)

Age 25 — **Birth of Son Albert J Schlegel** (1878–1961)
15 Aug 1878 • Chillicothe, Ross, Ohio, United States

Age 26 — **Birth of Son Charles George Schlegel** (1880–1962)
1880 • Ohio, United States

Age 27 — **Residence**
1880 • Chillicothe, Ross, Ohio, United States

Age 31 — **Birth of Son Edwin Frederick Schlegel** (1884–1963)
Oct. 2, 1884 • Ohio

Age 33 — **Birth of Daughter Alma Schlegel** (1887–1890)
1887 • Chillicothe, Ross, Ohio, United States

Age 37 — **Death of Daughter Alma Schlegel** (1887–1890)
1890 • Chillicothe, Ross, Ohio, United States

Age 47 — **Death of Mother Charlotte Erich** (1831–1900)
15 Jun 1900 • Chillicothe, Ross, Ohio, United States

Age 49 — **Death of Father Charles Seip** (1821–1902)
5 Jun 1902 • Moore, Northampton, Pennsylvania, United States

Age 57 — **Residence**
1910 • Chillicothe Ward 1, Ross, Ohio

Age 67 — **Residence**
1920 • Chillicothe Ward 1, Ross, Ohio

Age 82 — **Death of Sister Charlotte Seip** (1854–1935)
11 Aug 1935

Age 84 — **Death of Husband Charles Frederick Schlegel** (1853–1938)
March 3,1938 • Chillicothe, Ross, Ohio USA

Age 85 — **Death of Brother David Seip** (1861–1938)
11 Dec 1938

Age 88 — **Death**
Sept. 2, 1941 • Chillicothe, Ross, Ohio USA

Sources

Ancestry Sources

1870 United States Federal Census

1880 United States Federal Census

1910 United States Federal Census

1920 United States Federal Census

Ancestry Family Trees

Ohio, Deaths, 1908-1932, 1938-2007

Family

Parents

Charles Seip 1821–1902

Charlotte Erich 1831–1900

Spouse & Children

Charles Frederick Schlegel 1853–1938

- **Albert J Schlegel** 1878–1961
- **Charles George Schlegel** 1880–1962
- **Edwin Frederick Schlegel** 1884–1963
- **Alma Schlegel** 1887–1890

ancestry

Charles George Schlegel

BIRTH 1880 • Ohio, United States

DEATH 5 DEC 1962 • Chillicothe, Ross, Ohio, United States

Facts

Age 0 — **Birth**
1880 • Ohio, United States

Age 4 — **Birth of Brother Edwin Frederick Schlegel** (1884–1963)
Oct. 2, 1884 • Ohio

Age 7 — **Birth of Sister Alma Schlegel** (1887–1890)
1887 • Chillicothe, Ross, Ohio, United States

Age 10 — **Death of Sister Alma Schlegel** (1887–1890)
1890 • Chillicothe, Ross, Ohio, United States

Age 20 — **Residence**
1900 • Chillicothe Ward 2, Ross, Ohio

Age 58 — **Death of Father Charles Frederick Schlegel** (1853–1938)
March 3,1938 • Chillicothe, Ross, Ohio USA

Age 61 — **Death of Mother Mary Ida Seip** (1853–1941)
Sept. 2, 1941 • Chillicothe, Ross, Ohio USA

Age 81 — **Death of Brother Albert J Schlegel** (1878–1961)
11 Oct 1961 • Chillicothe, Ross, Ohio, United States

Age 82 — **Death**
5 Dec 1962 • Chillicothe, Ross, Ohio, United States

Sources

Ancestry Sources

1900 United States Federal Census

Ancestry Family Trees

Family

Parents

Charles Frederick Schlegel 1853–1938

Mary Ida Seip 1853–1941

Siblings

Albert J Schlegel 1878–1961

Edwin Frederick Schlegel 1884–1963

Alma Schlegel 1887–1890

Spouse

Mary Anne Schlegel

in the 1930 United States Federal Census

VIEW

View blank form

Add alternate information

Report issue

Name:	Mary Anne Schlegel
Birth Year:	abt 1915
Gender:	Female
Race:	White
Birthplace:	Ohio
Marital Status:	Single
Relation to Head of House:	Daughter
Home in 1930:	Chillicothe, Ross, Ohio
Map of Home:	View Map
Street address:	High St.
Ward of City:	1st
House Number in Cities or Towns:	194
Dwelling Number:	213
Family Number:	217
Attended School:	Yes
Able to Read and Write:	Yes
Father's Birthplace:	Ohio
Mother's Birthplace:	Ohio
Able to Speak English:	Yes
Neighbors:	View others on page
Household Members:	

Name	Age
Charles G Schlegel	49
Anne E Schlegel	45
Mary Anne Schlegel	15

SAVE Cancel

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Provided in association with National Archives and Records Administration

Suggested Records

1940 United States Federal Census
Mary Anne Schlegel

U.S., Find A Grave Index, 1600s-Current
Mary Anne Schlegel

U.S., Social Security Applications and Claims Index, 1936-2007
Mary Anne Schlegel

Ohio, Rutherford B. Hayes Presidential Center Obituary Index, 1810s-2013
Mary Anne Schlegel

U.S. Public Records Index, 1950-1993, Volume 1
Mary Schlegel

Ohio, Birth Index, 1908-1964
Mary Schlegel

Show More

Write a comment

Make a Connection

Find others who are researching Mary Anne Schlegel in Public Member Trees

Source Citation

Year: *1930*; Census Place: *Chillicothe, Ross, Ohio*; Roll: *1865*; Page: *8B*; Enumeration District: *0020*; Image: *74.0*; FHL microfilm: *2341599*

Source Information

Ancestry.com. *1930 United States Federal Census* [database on-line]. Provo, UT, USA: Ancestry.com Operations Inc, 2002.

Original data: United States of America, Bureau of the Census. *Fifteenth Census of the United States, 1930*. Washington, D.C.: National Archives and Records Administration, 1930. T626, 2,667

Blackstone House basement stairs. (STRATA 2016)

APPENDIX D

AREA CONSTRUCTION WORKERS ACTIVE IN THE MID-NINETEENTH CENTURY

Appendix D Construction Professionals Working in the Area at the time the Blackstone House was Constructed.

Brick makers from Bainbridge

From Dorothy Countryman, "Houses in the Valley: 1805-1980." Bainbridge Ohio: Bainbridge Historical Society, 1980.

Price Taylor, 1830s-1850s
John Wroten, 1859-1880

From 1850 Census Records:

Paint Township

James McIntosh 58, "nail maker" owned/operated a boarding house, with the following tenants:

- William Cunningham, 22, millwright
- Harry or Harvey Hendrick, 24, laborer
- John Hooker, 20, blacksmith
- William Crosby, 24, blacksmith
- Absolem Clover, 40 laborer
- Joseph Stone, 45, Carpenter
- Abraham Sawyers?, 25, laborer
- Andrew Bales, 30, brick layer
- John Meyers, 27, laborer

Joseph Kerns, 24, sawyer
Andrew Jet, 44, carpenter
Wiliam H? Horkins?, 39, carpenter
William Sayers, 28, carpenter
Jacob Warnicke, 21, carpenter

(All listed here were white)

Paxton Township

Benjamin Brown, 24, carpenter born in Ohio
Samuel Garner, 43 carpenter

- James Garner, 19, carpenter
- William Garner, 15, laborer

Noah Abbot, 42, carpenter
Benjamin Brown, 26, carpenter born in Delaware

(All listed here were white)

Builders who worked with Madison Heming in the 1830s-40s in Pike County and Chillicothe:

From "Memoirs of Madison Hemmings," PBS Frontline, Accessed June 24, 2016. http://www.pbs.org/wgbh/pages/frontline/shows/jefferson/cron/1873march.html.

Micajab Hinson
John J. Kellison
Joseph Sewell
George Wolf Senior

Cabinet Maker working in Bourneville

From J. Rodney Gragg, "The History of Bourneville." Chillicothe, Ohio, 1963, (1977 typescript reprint).

Patrick Keran was described by Gragg as a "First-rate cabinet maker" from Bourneville, but no date was given, and he was not found in census records.

Photo of Seip Mound #2 (Seip Conjoined Mound), taken during the investigations by William Mills. View from the back yard of the Blackstone House, looking south. (Ohio History Connection, Collection SP54, B1, F1. No. 26.)

APPENDIX E

PARK COMPARISON STUDY GROUP

Park Study Group

State	City or County	Property Name	Onwer-ship	Type	Notes	Link	Contact name
Alabama	Hillsboro	Pond Spring--The Genral Joe Wheeler House	State or local NPF	History Dominates	Mounds in yard of house, information about the house mentions that the site was home to Native Americans in prehistory.	http://www.preserveala.org/pondspringwheeler.aspx	Stacye Hathorn
Alabama	Danville	Oakville Indian Mounds State Park--Old Settler's Cemetery	County	Prehistory Dominates	19th c. cemetery at mound site. Park is interpreted for mounds but cemetery is preserved.	http://www.oakvilleindianmounds.com/	Stacye Hathorn
Florida	Oak Hill	Seminole Rest-Canaveral National Seashore	National	Diverse Interpretation	Two late 19th century houses built on top of a prehistoric shell mound. Houses recognized as having helped to preserve the mounds.	http://www.nbbd.com/godo/cns/SeminoleRest/index.html	Al O'Bright, et. al.
Illinois	Grafton	Pere Marquette State Park-McAdams Peak Shelter	State	Diverse Interpretation	CCC shelter on edge of small mounds in a state park used largely for recreation.	http://www.dnr.illinois.gov/Parks/Pages/PereMarquette.aspx	Chris Hespen Site Superintendent
Indiana	Laurel	Laurel Mound (12 FR18)	City	Diverse Interpretation	Adena mound topped with a bandstand, located in a city park.	http://moundbuilder.blogspot.com/2014/08/ancient-adena-burial-mound-in-laurel.html	Amy Lynn Johnson
Indiana	Anderson	Mounds State Park	State	Diverse Interpretation	Mounds and a historic house in the same park, but house not on a mound.	http://www.in.gov/dnr/parklake/2977.htm	Amy Lynn Johnson
Iowa	Harper's Ferry	Effigy Mounds Natl Monument Visitors Center	National	Prehistory Dominates	Visitor's center of the park is likely built on a mound site, per Bill Whittaker, state archaeologist. Mound was not visible when it was built.	https://www.nps.gov/efmo/index.htm	Bill Whittaker
Georgia	White County	Nacoochee Mound	Private	Diverse Interpretation	Reconstructed platform mound topped with a 19th century gazebo. On private property but visible from public land.	http://www.georgiaencyclopedia.org/articles/history-archaeology/nacoochee-mound	Bryan Tucker

Kentucky	Ballard County	Wickliff Mounds State Park	State	Prehistory Dominates	One 1920s park building is on a mound, and they recently removed a building from another mound.	http://parks.ky.gov/parks/historicsites/wickliffe-mounds/	Carla Hilderbrand
Michigan	Garden	Fayette Historic State Park	State	History Dominates	19th c. iron smelting town on a small harbor, with known prehistoric resources.	http://www.michigandnr.com/parksandtrails/details.aspx?id=417&type=SPRK	Dean Anderson
Minnesota	Mendota	Sibley Historic Site	County	History Dominates	State archaeologist noted mounds at site but there is no mention in website history.	http://sites.mnhs.org/historic-sites/sibley-historic-site	Amanda Gronhovd, MS, RPA
Mississippi	Sharkey County	Mt Helena	Probalby Private	History Dominates	Large antebellum house on mound. Privately owned, mentions mound in promotional material.	http://www.monthelena.com/history.html	Sigrid Arnott
North Dakota	Fort Ransom	Fort Ransom State Park	State	History Dominates	Mound builders mentioned in history section of website. David Maki used Lidar to show this is on a mound site.	http://www.parkrec.nd.gov/parks/frsp/frsp.html	Sigrid Arnott NOTE: She and David Maki had done a lot of work on this property type.
South Dakota	Britton	Fort Sisseton Historic State Park	State	History Dominates	No mention of prehistory on website. Upcoming article for Historical Archaeology about historic forts on mound sites by Sigrid Arnott and David Maki.	https://gfp.sd.gov/state-parks/directory/fort-sisseton/	Sigrid Arnott
Tennessee	Kingston	Fort Southwest Point State Park	State	History Dominates	18th century fort being reconstructed. No mention of mounds in online history.	http://www.southwestpoint.com/	Mike C. Moore
Wisconsin	Prairie du Chien	Villa Louis	State	History Dominates	Nineteenth century mansion and gardens built on a mound.	http://villalouis.wisconsinhistory.org/About/History.aspx	Al O'Bright et. al.

Cabinetry brass spring latch detail. (STRATA 2016)

APPENDIX F

WOOD SPECIES IDENTIFICATION

STRUCTURAL ENGINEERING ASSOCIATES, INC.

Est. 1909

May 24, 2016

Regis B. Miller, Ph.D.
Wood Identification & Information Specialist
23 Mountain Ash Trail
Madison, WI 53717-1508

Re: Blackstone House / Seip Earthworks
Hopewell Culture National Historic Park, Ohio

Dear Dr. Miller:

Please find the four enclosed wood samples for identification. The samples were taken from a structure located within the Hopewell Culture National Historic Park in Ohio, in the course of a project for the National Park Service. The structure is a house built circa 1850 in close proximity to ancient earthworks. We need to identify the species in order to perform structural calculations on the floor framing and to match existing architectural features for repair and restoration. The sample identification is as follows:

Sample 1 – Joist (taken from east end of joist, sixth joist from south, room 003)

Sample 2 – Balustrade (taken from railing, room 200)

Sample 3 – Door 1/101 (taken from door rail, room 101)

Sample 4 – Cabinet (taken from back of south cabinet at south jamb casing, room 103)

Please provide a report on the four species including photos of the samples identified, the methods used for identification, and your results. We request this level of information so that we may include it with our report to the National Park Service.

Let me know if the samples are of adequate size. If you have any questions, you can reach me by phone at (816) 595-5594 or by email at psteed@seassociates.com.

Sincerely,

Philip D. Steed, PE

Philip Steed

From: REGIS B MILLER [rmiller1@wisc.edu]
Sent: Saturday, June 04, 2016 1:52 PM
To: Philip Steed
Subject: Re: Wood ID

Dear Mr. Steed,

The four wood specimens that you submitted for identification have been identified as follows:

1. Yellow-poplar (*Liriodendron tulipifera*)
2. Butternut (*Juglans cinerea*)
3. Butternut (*Juglans cinerea*)
4. Butternut (*Juglans cinerea*)

I examined each of the specimens with a 14X hand lens and light microscope at various magnifications. Initially I smooth the transverse surface of the specimens with a microtome or utility knife. I examine the surface with the hand lens, observed several features, and oriented the pieces to cut thin sections from the radial and tangential surfaces. The thin section were placed on a glass slide, a few drops of glycerine/alcohol solution added, and covered with a cover slip. The hand sections were observed under a light microscope. After observing various features with the naked eye, hand lens and light microscope, I identified the specimens. I did not take any photos.

Best regards.

Regis

Regis B. Miller, Ph.D.
Wood Identification & Information Specialist
23 Mountain Ash Trail
Madison, WI 53717-1508

Phone: 608-833-4121
Mobile: 608-213-3217
Email: rmiller1@wisc.edu

Typical notched and shimmed floor joists. (SEA 2016)

APPENDIX G
STRUCTURAL CALCULATIONS

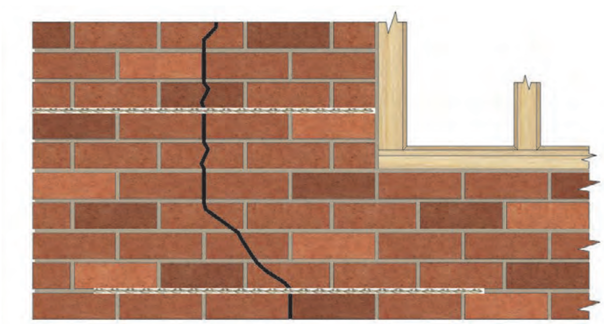
HELIFIX
SUSTAINABLE STRUCTURAL SOLUTIONS

Crack Stitching

A reliable and cost-effective means of repairing and stabilizing cracked masonry

Applications

- Rapid and permanent solution to cracked masonry
- Suitable for all forms of masonry structures



Features

- Fully concealed, non-disruptive repair solution
- More reliable than crack injection methods
- HeliBond cementitious grout is injectable and rapidly produces high compressive strength
- HeliBars and HeliBond grout combine to create excellent tensile strength within the masonry
- No additional stresses are introduced during installation
- Masonry remains flexible enough to accommodate normal building movement
- Tensile loads are redistributed
- Reduces likelihood of further cracking nearby
- Avoids costly and disruptive taking down and rebuilding

HeliBar is inserted into the HeliBond grout within the cut slot

For full Product Information, Case Studies and downloadable Repair Details, giving specifications for many common structural faults, go to:
www.helifix.com/products/retrofit-products/crack-stitching-2/

PRODUCT DATA SHEET – PDS/CS01

Installation Procedures

1. HeliBar to be long enough to extend a minimum of 20" either side of the crack or 20" beyond the outer cracks if two or more adjacent cracks are being stitched using one rod.
2. Where a crack is less than 20" from the end of a wall or an opening the HeliBar is to be continued for at least 4" around the corner and bonded into the adjoining wall or bent back and fixed into the reveal, avoiding any Damp Proof Course.
3. For solid masonry in excess of 12" and in a cavity wall where both wythes are cracked, the wall must be crack stitched on both sides.
4. If there is stucco, this thickness must be added to the depth of slot. Crack stitching must be installed in the masonry and never in the stucco.
5. In hot conditions ensure the masonry is well wetted or primed to prevent premature drying of the HeliBond due to rapid de-watering. Ideally additional wetting of the slot should be carried out just prior to injecting the HeliBond grout.
6. Do not use HeliBond when the air temperature is 40°F and falling or apply over ice. In all instances the slot must be thoroughly damp or primed prior to injection of the HeliBond grout.

1. Rake out or cut slots into the horizontal mortar beds, a minimum of 20" either side of the crack.

2. Clean out slots and flush with clean water and thoroughly soak the substrate within the slot.

3. Using the Helifix Pointing Gun Kit, inject a bead of HeliBond along the back of the slot.

4. Using the brick jointer, or similar, push one HeliBar into the grout to obtain good coverage.

5. Insert a further bead of HeliBond over the exposed HeliBar, finishing 1/2" from the face, and 'iron' into the slot using the brick jointer.

6. Re-point the mortar bed and make good the vertical crack with CrackBond TE3.

Slot Depth and Spacing

	Single skin/ Cavity wall	Solid Masonry		
		Up to 4"	4" to 9"	Over 9"
Depth of slot	1" – 1 1/4"		1" – 1 1/2"	1" – 1 1/2" On both sides
Vertical Spacing	Every 4 – 6 courses, 12" – 18"			

Technical Specifications

Material:	Austenitic stainless steel Grade 304 or 316
Diameter:	6mm (or 4.5mm for thin mortar joints)
Tensile strength:	192ksi (1325 N/mm^2)
0.1% Proof stress:	140ksi (965 N/mm^2)
0.2% Proof stress:	159ksi (1100 N/mm^2)
Length:	Cut lengths up to 80"
Width of slot:	1/2"
Bonding agent:	HeliBond cementitious grout. 1 x 3ltr HeliBond = 32 linear feet of crack stitching
RECOMMENDED TOOLING	
For cutting slot up to 1 1/2" deep:	Twin-bladed cutter with vacuum attachment or angle grinder or hammer and mortar chisel
For mixing HeliBond grout:	3-jaw-chuck drill with mixing paddle
For injection of HeliBond into slots:	Helifix Pointing Gun CS with mortar nozzle
For smoothing pointing:	Standard finger trowel
For inserting HeliBar:	HeliBar Insertion Tool

HELIFIX
SUSTAINABLE STRUCTURAL SOLUTIONS

A division of HALFEN USA Inc. • P.O. Box 547
Converse, TX 78109 • inquiry@helifix.com
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HALFEN
YOUR BEST CONNECTIONS

October 2013

STRUCTURAL ENGINEERING ASSOCIATES, INC.

Est. 1909

National Park Service / STRATA
Blackstone House
Near Chillicothe Ohio
Structural Calculations 2016

Project Overview:

Client has retained Structural Engineering Associates (SEA) to perform structural calculations for the Blackstone House and outbuildings at the Seip Earthworks location of the Hopewell Culture National Historic Park in Ohio. The structure components requiring calculation are the timber members in the house and outbuildings, as well as any foundation stabilization system that is recommended.

References:

National Design Specification For Wood Construction (NDS 2012)
Building Code Requirements for Structural Concrete (ACI 318-08)
International Building Code (IBC 2015)

Table of Contents:

WOOD MEMBER DESIGN/ANALYSIS

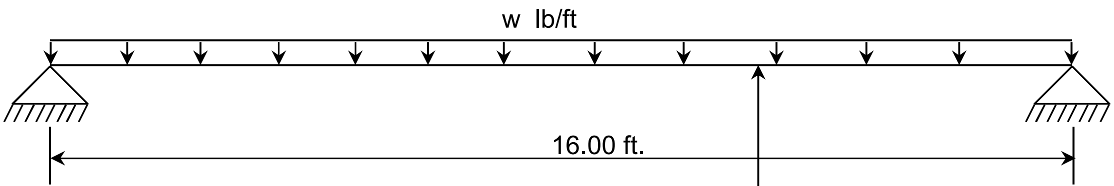
Project:	NPS - Blackstone House	**Date:**	6/20/2016
Project #	2016046.00	**Engineer:**	PDS
Description:	Floor Joist Analysis		

FRAMING CAPACITY ASSESMENT FOR BLACKSTONE HOUSE

1) DETERMINE EXISTING FLOOR JOIST CAPACITY

ANALYSIS ASSUMPTIONS:

i) Wood Joist species is Yellow Poplar, No. 2



DETERMINE ACTUAL EXISTING DL: 2in x 9in Floor Joist at 18 in o.c.

Yellow Poplar wood Density =	27	lb/ft^3			
2" x 9" x 1'-0" Volume =	0.1250	ft^3			
Per ft. weight =	3.38	lb/ft	Spaced at	18"	o.c.
Per Sq. ft. weight =	2.25	psf			

Flooring is wood strip flooring over 1 x 6 Tongue and Groove floor

Assume 1/2" wood strip floor, wt. =	1.5	psf
1"x5" Tongue and Groove floor, wt. =	3	psf
Total existing floor DL (Factored) =	**8.10**	psf

A) *FLEXURE ANALYSIS*

Joist Span, L =	16.00	ft
Joist Spacing =	18"	o.c.
Joist Width, b =	2"	
Joist Depth, d =	9"	
Area, b.d =	18"	in^2
Section Modulus, Sx =	27.000	in^3
Moment of Inertia, I_x =	121.500	in^4
F_b =	700	psi

FLEXURAL ADJUSTMENT FACTORS

C_M =	1.00	Wet service factor (Refer NDS Table 4A, footnote, Page #30)
C_t =	1.0	Temperature factor
C_L =	1.0	Beam stability factor (Joists braced by flooring)
C_F =	1.15	Size factor (Refer NDS Table 4A, Page #30)
C_i =	1.0	Incising factor
C_r =	1.15	Repetative member factor
K_F =	2.54	Format Conversion Factor
Φ =	0.85	Resistance Factor
λ =	0.80	Time Effect Factor

$F'_b = C_M\ C_t\ C_L\ C_F\ C_i\ C_r\ K_F\ \Phi\ \lambda$
$= \underline{1599}$ psi

ULTIMATE MOMENT CAPACITY

$M = S_X\ F'_b$
$=$ 43,171.80 lb.in
$=$ 3,597.65 lb.ft

$$M = \frac{w\,L^2}{8}$$

$w\,L^2/8 =$ 3,597.65 lb.ft
$w =$ 112.43 lb/ft

JOIST SPACING IS 18" O.C.

ULTIMATE TOTAL LOAD PER SQ. FT = **74.95** psf

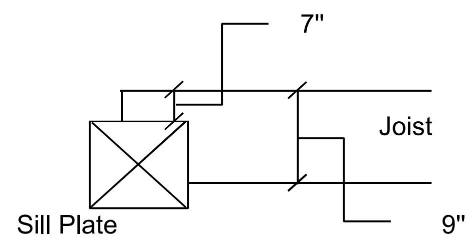
LIVE LOAD CAPACITY OF FLOOR DUE TO BENDING (UNFACTORED) = **41.78** psf

B) *SHEAR ANALYSIS*

SHEAR ADJUSTMENT FACTORS

F_v =	145	psi
C_M =	1.00	Wet service factor (Refer NDS Table 4A, Page #30)
C_t =	1.0	Temperature factor
C_i =	1.0	Incising factor
K_F =	2.88	Format Conversion Factor
Φ =	0.75	Resistance Factor
λ =	0.80	Time Effect Factor

$F'_v = F_v\ C_M\ C_t\ C_i\ K_F\ \Phi\ \lambda$
$= \underline{250.56}$ psi



Joist Width, b = 2"
Joist Depth, d = 9"
Depth of remaining at notch, d_n = 7"

$$V'_r = \left[\frac{F'_v\ b d_n}{1.5}\right]\left[\frac{d_n}{d}\right]^2 \quad \text{(NDS 3.4.3.2, Eq. 3.4-3)}$$

$V'_r = \underline{1414.684}$ lb

$$V = \frac{w\,L}{2}$$

$w\,L/2 =$ 1414.684 lb
$w =$ 176.84 lb/ft

JOIST SPACING IS 18" O.C.

ULTIMATE TOTAL LOAD PER SQ. FT = **117.89** psf

LIVE LOAD CAPACITY OF FLOOR DUE TO SHEAR (UNFACTORED) = **68.62** psf

C) *DEFLECTION ANALYSIS*

MODULUS OF ELASTICITY ADJUSTMENT FACTORS

E =	1,300,000	psi
C_M =	1.00	Wet service factor (Refer NDS Table 4A, Page #30)
C_t =	1.0	Temperature factor
C_i =	1.0	Incising factor

E' = $E\ C_M\ C_t\ C_i$

= 1,300,000 psi

Joist Width, b =	2"	
Joist Depth, d =	9"	
Moment of Inertia, I_x =	121.500	in^4

Deflection, $\Delta = \dfrac{5\ w\ L^4}{384\ EI}$

Maximum allowable LL deflection, $\Delta_{LL} = \dfrac{L}{360}$

= 0.5333 inch

Maximum allowable total deflct, $\Delta_{TL} = \dfrac{L}{240}$

= 0.8000 inch

0.53" = $\dfrac{5\ w\ L^4}{384\ EI}$

w_{LL} = 57.129 lb/ft

w_{TL} = 85.693 lb/ft

w_{LL} = 57.128906 lb/ft
w_{TL} = 85.693 lb/ft

JOIST SPACING IS 18" O.C.

MAXIMUM ALLOWABLE LIVE LOAD PER SQ. FT = **38.09** psf

MAXIMUM ALLOWABLE TOTAL LOAD PER SQ. FT = **57.13** psf
MAXIMUM ALLOWABLE LIVE LOAD PER SQ. FT = **49.03** psf

Deflection for existing DL, Δ_{DL}= 0.113"
Deflection for existing DL, Δ_{DL}= $\frac{L}{1693}$

TOTAL LIVE LOAD CAPACITY OF FLOOR DUE TO DEFLECTION = **38.09** psf

MAX. LIVE LOAD CAPACITY DUE TO BENDING/SHEAR/DEFLECTION = 38.09 psf

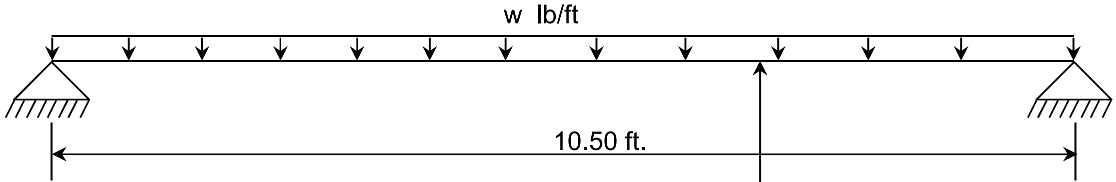
WOOD MEMBER DESIGN/ANALYSIS

Project:	NPS - Blackstone House	**Date:**	6/20/2016
Project #	2016046.00	**Engineer:**	PDS
Description:	Floor Joist Analysis		

FRAMING CAPACITY ASSESMENT FOR BLACKSTONE HOUSE

1) DETERMINE EXISTING FLOOR JOIST CAPACITY

ANALYSIS ASSUMPTIONS:
i) Wood Joist species is Yellow Poplar, No. 2



DETERMINE ACTUAL EXISTING DL:

Yellow Poplar wood Density =	27	lb/ft^3			
2" x 9" x 1'-0" Volume =	0.1250	ft^3			
Per ft. weight =	3.38	lb/ft	Spaced at	18"	o.c.
Per Sq. ft. weight =	2.25	psf			

Flooring is wood strip flooring over 1 x 6 Tongue and Groove floor

Assume 1/2" wood strip floor, wt. =	1.5	psf
1"x5" Tongue and Groove floor, wt. =	3	psf
Total existing floor DL (Factored) =	**8.10**	psf

A) *FLEXURE ANALYSIS*

Joist Span, L =	10.50	ft
Joist Spacing =	18"	o.c.
Joist Width, b =	2"	
Joist Depth, d =	9"	
Area, b.d =	18"	in^2
Section Modulus, Sx =	27.000	in^3
Moment of Inertia, I_x =	121.500	in^4
F_b =	700	psi

FLEXURAL ADJUSTMENT FACTORS

C_M =	1.00	Wet service factor (Refer NDS Table 4A, footnote, Page #30)
C_t =	1.0	Temperature factor
C_L =	1.0	Beam stability factor (Joists braced by flooring)
C_F =	1.15	Size factor (Refer NDS Table 4A, Page #30)
C_i =	1.0	Incising factor
C_r =	1.15	Repetative member factor
K_F =	2.54	Format Conversion Factor
Φ =	0.85	Resistance Factor
λ =	0.80	Time Effect Factor

$F'_b = C_M\, C_t\, C_L\, C_F\, C_i\, C_r\, K_F\, \Phi\, \lambda$
$= \underline{1599}$ psi

ULTIMATE MOMENT CAPACITY

$M = S_X F'_b$
$=$ 43,171.80 lb.in
$=$ 3,597.65 lb.ft

$$M = \frac{w L^2}{8}$$

$w L^2/8 =$ 3,597.65 lb.ft
$w =$ 261.05 lb/ft

JOIST SPACING IS 18" O.C.

ULTIMATE TOTAL LOAD PER SQ. FT = **174.04** psf

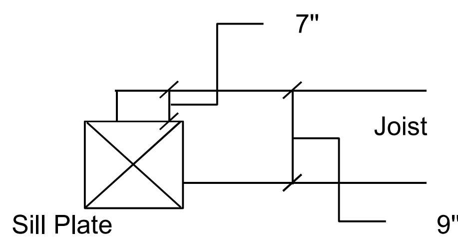
LIVE LOAD CAPACITY OF FLOOR DUE TO BENDING (UNFACTORED) = **103.71** psf

B) *SHEAR ANALYSIS*

SHEAR ADJUSTMENT FACTORS

F_v =	145	psi
C_M =	1.00	Wet service factor (Refer NDS Table 4A, Page #30)
C_t =	1.0	Temperature factor
C_i =	1.0	Incising factor
K_F =	2.88	Format Conversion Factor
Φ =	0.75	Resistance Factor
λ =	0.80	Time Effect Factor

$F'_v = F_v\, C_M\, C_t\, C_i\, K_F\, \Phi\, \lambda$
$= \underline{250.56}$ psi



Joist Width, b = 2"
Joist Depth, d = 9"
Depth of remaining at notch, d_n = 7"

$$V'_r = \left[\frac{F'_v\, b d_n}{1.5}\right] \left[\frac{d_n}{d}\right]^2$$ (NDS 3.4.3.2, Eq. 3.4-3)

$V'_r = \underline{1414.684}$ lb

$$V = \frac{w L}{2}$$

$w L/2 =$ 1414.684 lb
$w =$ 269.46 lb/ft

JOIST SPACING IS 18" O.C.

ULTIMATE TOTAL LOAD PER SQ. FT = **179.64** psf

LIVE LOAD CAPACITY OF FLOOR DUE TO SHEAR (UNFACTORED) = **107.21** psf

C) *DEFLECTION ANALYSIS*

MODULUS OF ELASTICITY ADJUSTMENT FACTORS

E = 1,300,000 psi
C_M = 1.00 Wet service factor (Refer NDS Table 4A, Page #30)
C_t = 1.0 Temperature factor
C_i = 1.0 Incising factor

$E' = E\, C_M\, C_t\, C_i$
= 1,300,000 psi

Joist Width, b = 2"
Joist Depth, d = 9"
Moment of Inertia, I_x = 121.500 in^4

Deflection, $\Delta = \frac{5 w L^4}{384 EI}$

Maximum allowable LL deflection, $\Delta_{LL} = \frac{L}{360}$
= 0.3500 inch

Maximum allowable total deflct, $\Delta_{TL} = \frac{L}{240}$
= 0.5250 inch

⇒ $0.35" = \frac{5 w L^4}{384 EI}$

⇒ w_{LL} = 202.138 lb/ft
w_{TL} = 303.207 lb/ft

w_{LL} = 202.138 lb/ft
w_{TL} = 303.207 lb/ft

JOIST SPACING IS 18" O.C.

MAXIMUM ALLOWABLE LIVE LOAD PER SQ. FT = **134.76** psf

MAXIMUM ALLOWABLE TOTAL LOAD PER SQ. FT = **202.14** psf
MAXIMUM ALLOWABLE LIVE LOAD PER SQ. FT = **194.04** psf

Deflection for existing DL, Δ_{DL}= 0.021"
Deflection for existing DL, Δ_{DL}= $\frac{L}{5989}$

TOTAL LIVE LOAD CAPACITY OF FLOOR DUE TO DEFLECTION = **134.76** psf

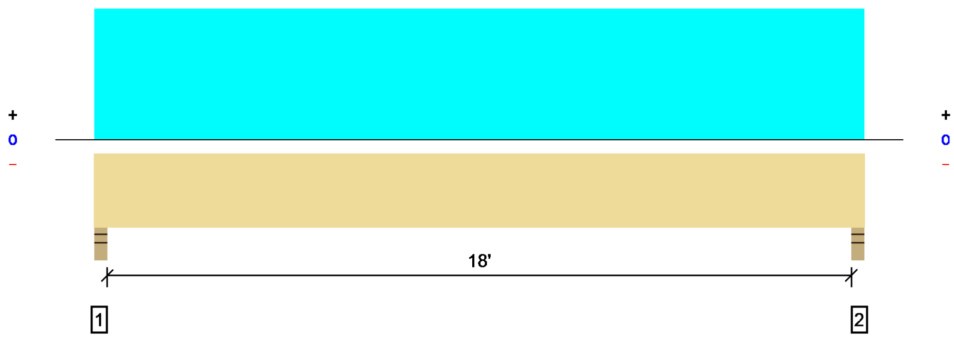
MAX. LIVE LOAD CAPACITY DUE TO BENDING/SHEAR/DEFLECTION = 103.71 psf

FORTE MEMBER REPORT *Level, Floor: Drop Beam*

PASSED

1 piece(s) 6 3/4" x 15" 24F-V4 DF Glulam

Overall Length: 18' 7"



All locations are measured from the outside face of left support (or left cantilever end).All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	8554 @ 2"	10041 (3.50")	Passed (85%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	7135 @ 1' 6 1/2"	17888	Passed (40%)	1.00	1.0 D + 1.0 L (All Spans)
Pos Moment (Ft-lbs)	38328 @ 9' 3 1/2"	48844	Passed (78%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.584 @ 9' 3 1/2"	0.608	Passed (L/375)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.672 @ 9' 3 1/2"	0.913	Passed (L/326)	--	1.0 D + 1.0 L (All Spans)

System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2015
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Bracing (Lu): All compression edges (top and bottom) must be braced at 18' 7" o/c unless detailed otherwise. Proper attachment and positioning of lateral bracing is required to achieve member stability.
- Critical positive moment adjusted by a volume factor of 0.96 that was calculated using length L = 18' 3".
- The effects of positive or negative camber have not been accounted for when calculating deflection.
- The specified glulam is assumed to have its strong laminations at the bottom of the beam. Install with proper side up as indicated by the manufacturer.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Stud wall - SPF	3.50"	3.50"	2.98"	1121	7433	8554	None
2 - Stud wall - SPF	3.50"	3.50"	2.98"	1121	7433	8554	None

Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 18' 7"	N/A	24.6		
1 - Uniform (PSF)	0 to 18' 7" (Front)	8'	12.0	100.0	Residential - Living Areas

Weyerhaeuser Notes

SUSTAINABLE FORESTRY INITIATIVE

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The product application, input design loads, dimensions and support information have been provided by Forte Software Operator

Forte Software Operator	Job Notes
Philip Steed Structural Engineering Associates (816) 421-1042 psteed@seassociates.com	

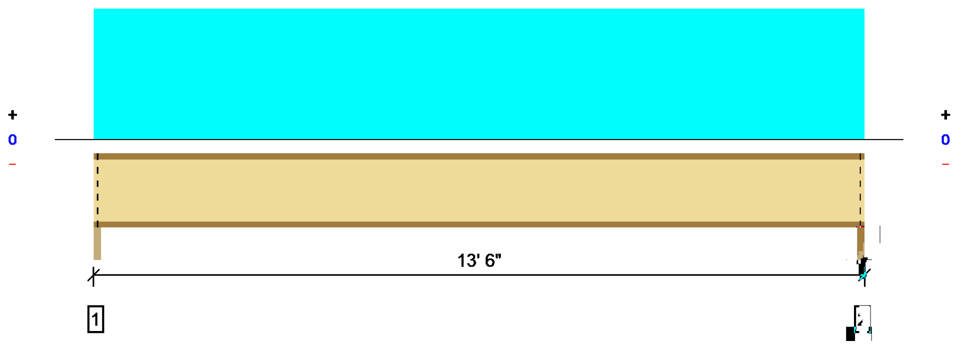
9/21/2016 6:37:59 PM
Forte v5.1, Design Engine: V6.5.1.1
BLACKS~1.4TE

MEMBER REPORT *Level, Floor: Joist*

PASSED

1 piece(s) 11 7/8" TJI® 230 @ 18" OC

Overall Length: 13' 6"



All locations are measured from the outside face of left support (or left cantilever end).All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1134 @ 1"	1121 (2.00")	Passed (101%)	1.00	1.0 D + 1.0 L (All Spans)
Shear (lbs)	1106 @ 2"	1655	Passed (67%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	3733 @ 6' 9"	4215	Passed (89%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.332 @ 6' 9"	0.333	Passed (L/482)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.372 @ 6' 9"	0.667	Passed (L/430)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	52	Any	Passed	--	--

System : Floor
Member Type : Joist
Building Use : Residential
Building Code : IBC 2015
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Bracing (Lu): All compression edges (top and bottom) must be braced at 3' 10 1/16" o/c unless detailed otherwise. Proper attachment and positioning of lateral bracing is required to achieve member stability.
- A structural analysis of the deck has not been performed.
- Deflection analysis is based on composite action with a single layer of 23/32" Weyerhaeuser Edge™ Panel (24" Span Rating) that is nailed down.
- Additional considerations for the TJ-Pro™ Rating include: None

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Ledger on masonry - SPF	2.00"	2.00"	2.05"	122	1012	1134	Blocking
2 - Ledger on masonry - SPF	2.00"	2.00"	2.05"	122	1012	1134	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Loads	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 13' 6"	18"	12.0	100.0	Museum

Weyerhaeuser Notes

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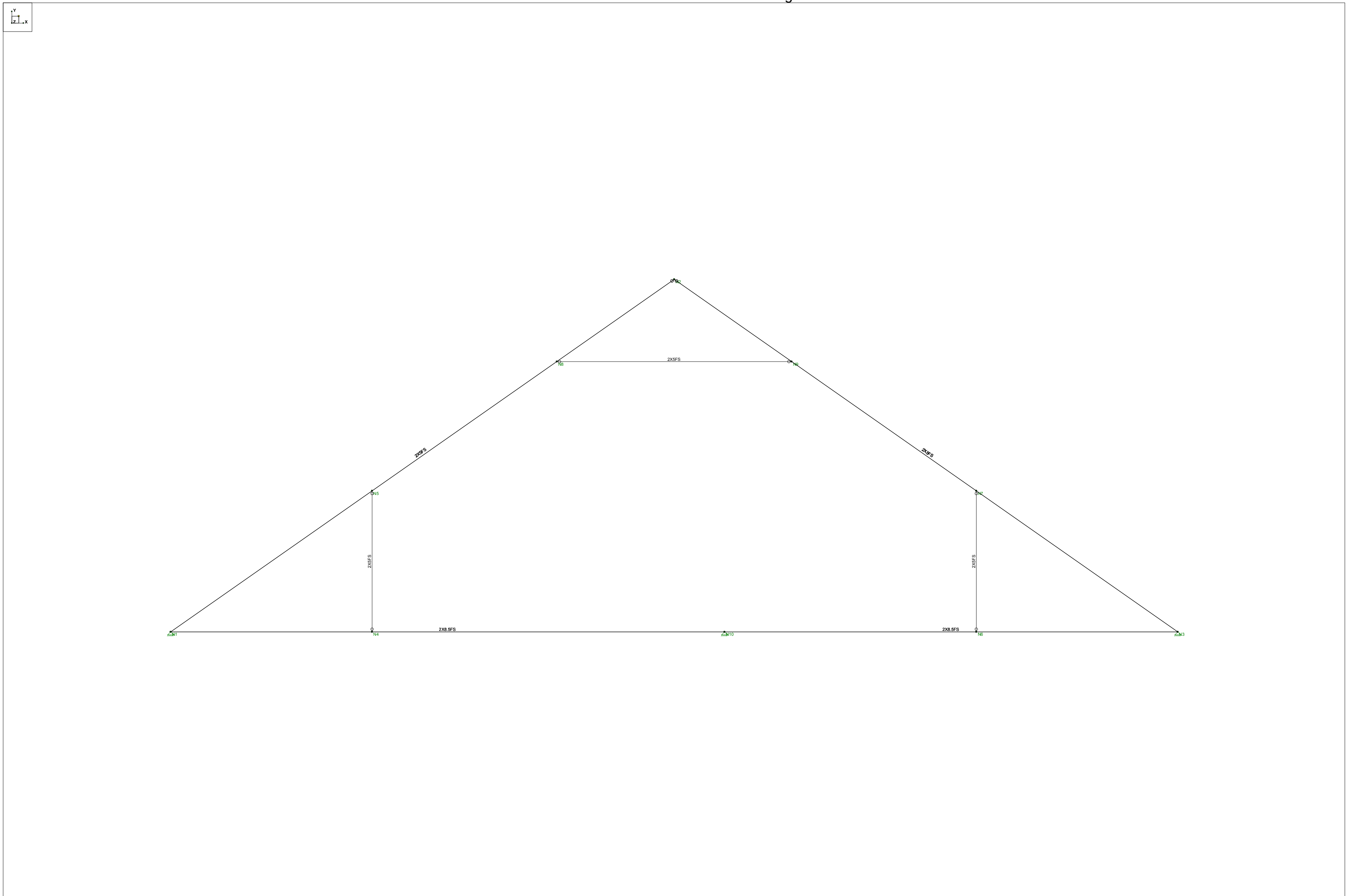
The product application, input design loads, dimensions and support information have been provided by Forte Software Operator

SUSTAINABLE FORESTRY INITIATIVE

Forte Software Operator	Job Notes
Philip Steed Structural Engineering Associates (816) 421-1042 psteed@seassociates.com	

9/21/2016 6:37:19 PM
Forte v5.1, Design Engine: V6.5.1.1
BLACKS~1.4TE



Solution: Envelope

Structural Engineering Associates, I...	Rafter Analysis	SK - 2
Philip Steed, PE		June 23, 2016 at 11:09 AM
2016064.00		Roof Frame Blackstone ASD.r2d

Project:	Blackstone House	**Date:**	6/21/2016
Project #	2016046.00	**Engineer:**	PDS

WIND PRESSURES FOR COMPONENTS AND CLADDING BY METHOD-1 (SIMPLIFIED):

DESIGN CRITERIA:

Basic Design Wind Pressure [$q_h = 0.00256*(V)^2*k_h*k_{zt}*k_d*I_w$]:	q_h =	15.5	psf
Wind Velocity (3-second Gust) [V]:	V =	90	mph
Wind Exposure Classification:	Exposure	C	
Velocity Pressure Exposure Coefficient [k_h (evaluated @ z = h)]:	k_h =	0.8821	
Building Classification [I, II, III, or IV]:	B Class =	II	
Topographic Factor [$k_{zt} = (1+(k_1*k_2*k_3))^2$]:	k_{zt} =	1.00	
Multiplier to obtain k_{zt} [k_1]:	k_1 =	0.00	
Multiplier to obtain k_{zt} [k_2]:	k_2 =	1.00	
Multiplier to obtain k_{zt} [k_3]:	k_3 =	1.00	
Wind Directionality Factor [k_d]:	k_d =	0.85	
Height/Exposure Adjustment Factor [λ]:	λ =	1.2580	
Importance Factor [I_w]:	I_w =	1.00	

WIDTH OF PRESSURE COEFFICIENT ZONE:

Width of Pressure Coefficient Zone [a = (0.1*LHD<0.4*h)>(0.04*LHD>3 ft.)]:	a =	3.1	ft
Least Horizontal Dimension [LHD]:	LHD =	31	ft
10% LHD:	0.1*LHD =	3.1	ft
4% LHD:	0.04*LHD =	1.2	ft
Mean Roof Height [h]:	h =	18.00	ft
40% h:	0.4*h =	7.2	ft
Roof Pitch [(__" RISE) / (12" RUN)]:	RISE =	8.40	in
Roof Angle [degrees off of Horizontal]:	θ, Angle =	35.0	degrees

The Engineer shall use an "a" value of: 4 ft. from all building corners.

ZONE 1 - ROOF PRESSURES:

AREA OF ROOF IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:			NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{1\text{-}10(+)}$ =	16.7	psf	$q_{1\text{-}10(-)}$ =	-18.4	psf
20 FT^2	$q_{1\text{-}20(+)}$ =	16.4	psf	$q_{1\text{-}20(-)}$ =	-17.4	psf
50 FT^2	$q_{1\text{-}50(+)}$ =	15.7	psf	$q_{1\text{-}50(-)}$ =	-16.1	psf
100 FT^2	$q_{1\text{-}100(+)}$ =	15.2	psf	$q_{1\text{-}100(-)}$ =	-15.2	psf

ZONE 2 - ROOF PRESSURES:

AREA OF ROOF IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:			NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{2\text{-}10(+)}$ =	16.7	psf	$q_{2\text{-}10(-)}$ =	-21.4	psf
20 FT^2	$q_{2\text{-}20(+)}$ =	16.4	psf	$q_{2\text{-}20(-)}$ =	-20.5	psf
50 FT^2	$q_{2\text{-}50(+)}$ =	15.7	psf	$q_{2\text{-}50(-)}$ =	-19.2	psf
100 FT^2	$q_{2\text{-}100(+)}$ =	15.2	psf	$q_{2\text{-}100(-)}$ =	-18.4	psf

ZONE 2 - OVERHANG ROOF PRESSURES:

AREA OF ROOF IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:			NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{2\text{-}OH\text{-}10(+)}$ =	N/A		$q_{2\text{-}OH\text{-}10(-)}$ =	-31.1	psf
20 FT^2	$q_{2\text{-}OH\text{-}20(+)}$ =	N/A		$q_{2\text{-}OH\text{-}20(-)}$ =	-30.2	psf
50 FT^2	$q_{2\text{-}OH\text{-}50(+)}$ =	N/A		$q_{2\text{-}OH\text{-}50(-)}$ =	-28.9	psf
100 FT^2	$q_{2\text{-}OH\text{-}100(+)}$ =	N/A		$q_{2\text{-}OH\text{-}100(-)}$ =	-27.9	psf

ZONE 3 - ROOF PRESSURES:

AREA OF ROOF IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:			NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{3-10(+)}$ =	16.7	psf	$q_{3-10(-)}$ =	-21.4	psf
20 FT^2	$q_{3-20(+)}$ =	16.4	psf	$q_{3-20(-)}$ =	-20.5	psf
50 FT^2	$q_{3-50(+)}$ =	15.7	psf	$q_{3-50(-)}$ =	-19.2	psf
100 FT^2	$q_{3-100(+)}$ =	15.2	psf	$q_{3-100(-)}$ =	-18.4	psf

ZONE 3 - OVERHANG ROOF PRESSURES:

AREA OF ROOF IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:			NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{3-OH-10(+)}$ =	N/A		$q_{3-OH-10(-)}$ =	-31.1	psf
20 FT^2	$q_{3-OH-20(+)}$ =	N/A		$q_{3-OH-20(-)}$ =	-30.2	psf
50 FT^2	$q_{3-OH-50(+)}$ =	N/A		$q_{3-OH-50(-)}$ =	-28.9	psf
100 FT^2	$q_{3-OH-100(+)}$ =	N/A		$q_{3-OH-100(-)}$ =	-27.9	psf

ZONE 4 - WALL PRESSURES:

AREA OF WALL IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:			NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{4-10(+)}$ =	18.4	psf	$q_{4-10(-)}$ =	-19.9	psf
20 FT^2	$q_{4-20(+)}$ =	17.5	psf	$q_{4-20(-)}$ =	-19.0	psf
50 FT^2	$q_{4-50(+)}$ =	16.4	psf	$q_{4-50(-)}$ =	-18.0	psf
100 FT^2	$q_{4-100(+)}$ =	15.6	psf	$q_{4-100(-)}$ =	-17.1	psf
500 FT^2	$q_{4-500(+)}$ =	13.7	psf	$q_{4-500(-)}$ =	-15.2	psf

ZONE 5 - WALL PRESSURES:

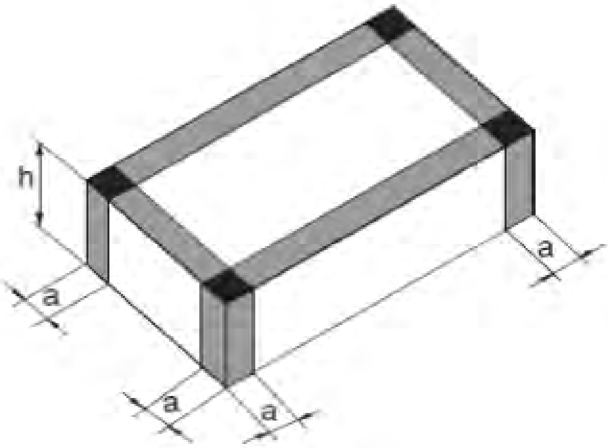
AREA OF WALL IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:			NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{5-10(+)}$ =	18.4	psf	$q_{5-10(-)}$ =	-24.5	psf
20 FT^2	$q_{5-20(+)}$ =	17.5	psf	$q_{5-20(-)}$ =	-22.9	psf
50 FT^2	$q_{5-50(+)}$ =	16.4	psf	$q_{5-50(-)}$ =	-20.8	psf
100 FT^2	$q_{5-100(+)}$ =	15.6	psf	$q_{5-100(-)}$ =	-19.0	psf
500 FT^2	$q_{5-500(+)}$ =	13.7	psf	$q_{5-500(-)}$ =	-15.2	psf

PARAPET WIND PRESSURES FOR EDGE ZONE:

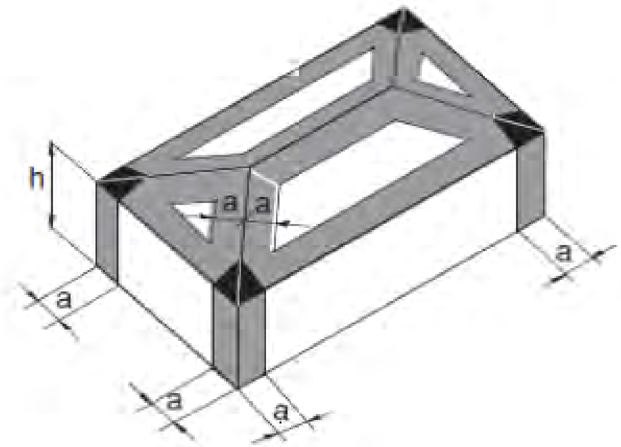
AREA OF WALL IN CONSIDERATION:	LOAD CASE A:			LOAD CASE B:		
10 FT^2	$q_{4-10(+)}-q_{2-10(-)}$=	34.2	psf	$q_{4-10(+)}-q_{4-10(-)}$=	32.6	psf
20 FT^2	$q_{4-20(+)}-q_{2-20(-)}$=	32.4	psf	$q_{4-20(+)}-q_{4-20(-)}$=	30.9	psf
50 FT^2	$q_{4-50(+)}-q_{2-50(-)}$=	30.0	psf	$q_{4-50(+)}-q_{4-50(-)}$=	28.7	psf
100 FT^2	$q_{4-100(+)}-q_{2-100(-)}$=	28.4	psf	$q_{4-100(+)}-q_{4-100(-)}$=	27.1	psf

PARAPET WIND PRESSURES FOR CORNER ZONE:

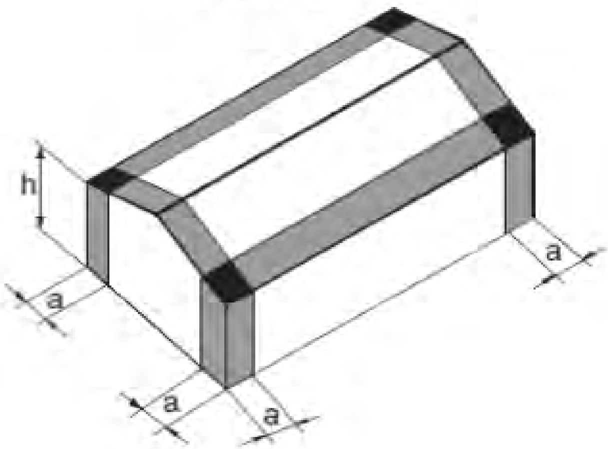
AREA OF WALL IN CONSIDERATION:	LOAD CASE A:			LOAD CASE B:		
10 FT^2	$q_{5-10(+)}-q_{3-10(-)}$=	34.2	psf	$q_{5-10(+)}-q_{5-10(-)}$=	37.3	psf
20 FT^2	$q_{5-20(+)}-q_{3-20(-)}$=	32.4	psf	$q_{5-20(+)}-q_{5-20(-)}$=	34.8	psf
50 FT^2	$q_{5-50(+)}-q_{3-50(-)}$=	30.0	psf	$q_{5-50(+)}-q_{5-50(-)}$=	31.5	psf
100 FT^2	$q_{5-100(+)}-q_{3-100(-)}$=	28.4	psf	$q_{5-100(+)}-q_{5-100(-)}$=	29.0	psf



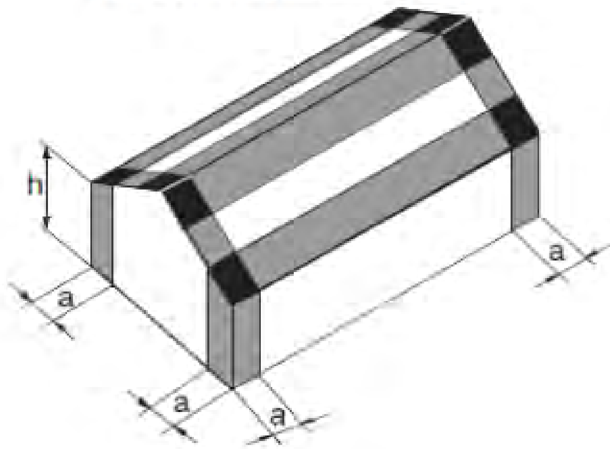
Flat Roof



Hip Roof ($7° < \theta \leq 27°$)



Gable Roof ($\theta \leq 7°$)



Gable Roof ($7° < \theta \leq 45°$)

Interior Zones
Roofs - Zone 1/Walls - Zone 4

End Zones
Roofs - Zone 2/Walls - Zone 5

Corner Zones
Roofs - Zone 3

Notes:

1. Pressures shown are applied normal to the surface, for exposure B, at h = 30 ft (9.1m), I = 1.0, and K_{zt} = 1.0. Adjust to other conditions using Equation 6-2.
2. Plus and minus signs signify pressures acting toward and away from the surfaces, respectively.
3. For hip roofs with $\theta \leq 25°$, Zone 3 shall be treated as Zone 2.
4. For effective wind areas between those given, value may be interpolated, otherwise use the value associated with the lower effective wind area.
5. Notation:
   a: 10 percent of least horizontal dimension or 0.4h, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m).
   h: Mean roof height, in feet (meters), except that eave height shall be used for roof angles <10°.
   θ: Angle of plane of roof from horizontal, in degrees.

Loads to Risa for Roof Framing Calculation
Blackstone House
2016046
Roof is asphalt shingles with plywood over original skip sheathing

Asphalt shingles, wt. =	2	psf
Plywood, wt =	3	psf
Wood sheathing, wt. =	2.25	psf
Lath and plaster ceiling, wt. =	5	psf
Assume 1/2" wood strip floor, wt. =	1.5	psf
1"x5" Tongue and Groove floor, wt. =	3	psf

DL

Member	PSF		PLF	
M1	7.3	x 16"/12"	10	Shingles, Plywood, Sheathing
M2	7.3	x 16"/12"	10	Shingles, Plywood, Sheathing
M1	5	x 16"/12"	7	Lath and Plaster Ceiling
M2	5	x 16"/12"	7	Lath and Plaster Ceiling
M3	5	x 16"/12"	7	Lath and Plaster Ceiling
M4	5	x 16"/12"	7	Lath and Plaster Ceiling
M5	5	x 16"/12"	7	Lath and Plaster Ceiling
M6	5	x 16"/12"	7	Lath and Plaster Ceiling
M7	5	x 16"/12"	7	Lath and Plaster Ceiling
M6	4.5	x 16"/12"	6	Flooring
M7	4.5	x 16"/12"	6	Flooring

RLL

M1	20	x 16"/12"	27	IBC 2016
M2	20	x 16"/12"	27	IBC 2016

WL1

M1	15.2	x 16"/12"	20	Wind load spreadsheet Zone 1 Negative, 100ft2
M2	15.2	x 16"/12"	20	Wind load spreadsheet Zone 1 Negative, 100ft2
M1	18.4	x 16"/12"	25	Wind load spreadsheet Zone 2 Negative, 100ft2
M2	18.4	x 16"/12"	25	Wind load spreadsheet Zone 2 Negative, 100ft2

WL2

M2	15.2	x 16"/12"	20	Wind load spreadsheet Zone 1 Negative, 100ft2
M1	15.2	x 16"/12"	20	Wind load spreadsheet Zone 1 and 2 Positive, 100ft2
M2	18.4	x 16"/12"	25	Wind load spreadsheet Zone 2 Negative, 100ft2

SL

M1	20	x 16"/12"	27	ASCE 7-05
M2	20	x 16"/12"	27	ASCE 7-05

LL

M6	40	x 16"/12"	53	IBC 2016
M7	40	x 16"/12"	53	IBC 2016

Global

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automaticly Iterate Stiffness for Walls?	Yes
Maximum Iteration Number for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	AISI NAS-04: ASD
Wood Code	AF&PA NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building

Number of Shear Regions	4
Region Spacing Increment (in)	4
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

Assumed wood species, grade, good condition

Wood Material Properties

	Label	Type	Database	Species	Grade	Cm	Emod	Nu	Therm (\1E5 F)	Dens[k/ft^3]
1	DF/SPine	Solid Sa...	Visually ...	Com Species G...	No.1		1	.3	.3	.035
2	HF/Spruce Fir	Solid Sa...	Visually ...	Com Species G...	No.1		1	.3	.3	.035
3	DF	Solid Sa...	Visually ...	Douglas Fir-Lar...	No.1		1	.3	.3	.035
4	SP	Solid Sa...	Visually ...	Southern Pine	No.1		1	.3	.3	.035
5	HF	Solid Sa...	Visually ...	Hem-Fir	No.1		1	.3	.3	.035
6	SPF	Solid Sa...	Visually ...	Spruce-Pine-fir	No.1		1	.3	.3	.035
7	24F-1.8E D...	Glulam	Table 5A	24F-1.8E_DF_...	na		1	.3	.3	.035
8	24F-1.8E D...	Glulam	Table 5A	24F-1.8E_DF_...	na		1	.3	.3	.035
9	24F-1.8E S...	Glulam	Table 5A	24F-1.8E_SP_...	na		1	.3	.3	.035
10	24F-1.8E S...	Glulam	Table 5A	24F-1.8E_SP_...	na		1	.3	.3	.035
11	W11	Solid Sa...	Visually ...	Yellow Poplar	No.2		1	.3	.3	.027
12	Red Oak No...	Solid Sa...	Visually ...	Red Oak	No.1		1	.3	.3	.047
13	LVL-PRL C...	Custom	N/A	LVL_PRL_2.0E...	na		1	.3	.3	.035

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Temp [F]
1	N1	0	0	0
2	N2	15	10.5	0
3	N3	30	0	0

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Temp [F]
4	N4	6	0	0
5	N5	6	4.2	0
6	N6	24	0	0
7	N7	24	4.2	0
8	N8	11.5	8.05	0
9	N9	18.5	8.05	0
10	N10	16.5	0	0

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Rotation[k-ft/rad]	Footing
1	N1	Reaction	Reaction		
2	N2				
3	N3	Reaction	Reaction		
4	N10	Reaction	Reaction		

Wood Design Parameters

	Label	Shape	Length[...	Le-out[ft]	Le-in[ft]	le-bend top[ft]	le-bend b...	K-out	K-in	CV	Cr	Out sw...	In sway
1	M1	2X5FS	18.31	2		2					Yes		
2	M2	2X5FS	18.31	2		2					Yes		
3	M3	2X5FS	4.2										
4	M4	2X5FS	4.2										
5	M5	2X5FS	7										
6	M6	2X8.5FS	16.5								Yes		
7	M7	2X8.5FS	13.5								Yes		

Member Distributed Loads (BLC 1 : DL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.01	-.01	0	0
2	M2	Y	-.01	-.01	0	0
3	M1	Y	-.007	-.007	7.3	14
4	M2	Y	-.007	-.007	4.3	11
5	M3	Y	-.007	-.007	0	0
6	M4	Y	-.007	-.007	0	0
7	M5	Y	-.007	-.007	0	0
8	M6	Y	-.007	-.007	0	0
9	M7	Y	-.007	-.007	0	0
10	M6	Y	-.006	-.006	6	0
11	M7	Y	-.006	-.006	0	7.5

Member Distributed Loads (BLC 2 : RLL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.027	-.027	0	0
2	M2	Y	-.027	-.027	0	0

Member Distributed Loads (BLC 3 : WL1)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	y	.02	.02	4.88	0
2	M2	y	.02	.02	0	13.43
3	M1	y	.025	.025	0	4.88
4	M2	y	.025	.025	13.43	0

Company : Structural Engineering Associates, Inc.		Sept 21, 2016
Designer : Philip Steed, PE		10:09 AM
Job Number : 2016064.00	Rafter Analysis	Checked By:_____

Member Distributed Loads (BLC 4 : WL2)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M2	y	.02	.02	0	13.43
2	M1	y	-.02	-.02	0	0
3	M2	y	.025	.025	13.43	0

Member Distributed Loads (BLC 5 : SL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.027	-.027	0	0
2	M2	Y	-.027	-.027	0	0

Member Distributed Loads (BLC 6 : LL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M6	Y	-.053	-.053	6	0
2	M7	Y	-.053	-.053	0	7.5

Load Combinations

	Description	Solve	PD...	SR...	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	IBC 16-8	Yes			DL	1														
2	IBC 16-9	Yes			DL	1	LL	1												
3	IBC 16-10 (a)	Yes			DL	1	RLL	1												
4	IBC 16-10 (b)	Yes			DL	1	SL	1												
5	IBC 16-11 (a)	Yes			DL	1	LL	.75	RLL	.75										
6	IBC 16-11 (b)	Yes			DL	1	LL	.75	SL	.75										
7	IBC 16-12 (a)	Yes			DL	1	3	1												
8	IBC 16-12 (b)	Yes			DL	1	4	1												
9	IBC 16-13 (a)	Yes			DL	1	3	.75	LL	.75	RLL	.75								
10	IBC 16-13 (b)	Yes			DL	1	3	.75	LL	.75	SL	.75								
11	IBC 16-13 (c)	Yes			DL	1	4	.75	LL	.75	RLL	.75								
12	IBC 16-13 (d)	Yes			DL	1	4	.75	LL	.75	SL	.75								
13	IBC 16-15 (a)	Yes			DL	.6	3	1												
14	IBC 16-15 (b)	Yes			DL	.6	4	1												

Max Shear 744 lbs

Low Uplift

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Moment [k-ft]	LC
1	N1	max	.598	3	.849	11	0	1
2		min	-.031	14	-.02	13	0	1
3	N3	max	-.078	13	.717	3	0	1
4		min	-.744	12	-.026	13	0	1
5	N10	max	0	11	1.13	2	0	1
6		min	0	13	.057	13	0	1
7	Totals:	max	0	13	2.536	5		
8		min	-.434	8	.011	13		

Envelope Member Section Forces

	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
1	M1	1	max	.839	3	.211	11	.202	11
2			min	.037	14	-.071	13	-.079	13
3		2	max	.737	3	.046	2	.052	13
4			min	.018	14	-.01	14	-.33	11
5		3	max	.729	3	.062	14	.003	13
6			min	-.059	13	-.053	2	-.343	11
7		4	max	.608	3	.034	13	.247	5
8			min	-.088	13	-.198	11	-.165	14

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
9		5	max	-.004	3	.03	2	0	1
10			min	-.104	8	-.088	14	0	1
11	M2	1	max	.05	14	-.005	3	0	1
12			min	-.049	2	-.126	8	0	1
13		2	max	.634	11	.167	11	.532	12
14			min	-.088	13	-.035	13	-.036	13
15		3	max	.737	11	.099	8	.041	14
16			min	-.058	13	-.006	3	-.111	5
17		4	max	.873	12	.006	3	.057	13
18			min	.026	13	-.043	8	-.174	5
19		5	max	.958	12	.073	13	.139	3
20			min	.045	13	-.14	3	-.081	13
21	M3	1	max	.292	8	0	1	0	1
22			min	-.087	13	0	1	0	1
23		2	max	.283	8	0	1	0	1
24			min	-.092	13	0	1	0	1
25		3	max	.273	8	0	1	0	1
26			min	-.098	13	0	1	0	1
27		4	max	.264	8	0	1	0	1
28			min	-.103	13	0	1	0	1
29		5	max	.255	8	0	1	0	1
30			min	-.109	13	0	1	0	1
31	M4	1	max	.242	3	0	1	0	1
32			min	-.219	14	0	1	0	1
33		2	max	.233	3	0	1	0	1
34			min	-.224	14	0	1	0	1
35		3	max	.223	3	0	1	0	1
36			min	-.23	14	0	1	0	1
37		4	max	.214	3	0	1	0	1
38			min	-.235	14	0	1	0	1
39		5	max	.205	3	0	1	0	1
40			min	-.241	14	0	1	0	1
41	M5	1	max	.625	11	.031	8	0	1
42			min	-.111	13	.019	13	0	1
43		2	max	.625	11	.016	8	-.024	13
44			min	-.111	13	.009	13	-.041	8
45		3	max	.625	11	0	1	-.033	13
46			min	-.111	13	0	1	-.054	8
47		4	max	.625	11	-.009	14	-.024	13
48			min	-.111	13	-.016	1	-.041	8
49		5	max	.625	11	-.019	14	0	1
50			min	-.111	13	-.031	1	0	1
51	M6	1	max	0	1	.299	11	.079	13
52			min	0	1	.012	13	-.202	11
53		2	max	0	1	.257	11	.08	13
54			min	0	1	-.013	13	-1.347	11
55		3	max	0	1	.04	13	0	13
56			min	0	1	-.164	11	-1.584	11
57		4	max	0	1	0	13	.049	3
58			min	0	1	-.395	11	-.432	11
59		5	max	0	1	-.04	13	1.671	11
60			min	0	1	-.625	11	-.003	13
61	M7	1	max	0	1	.527	2	1.671	11
62			min	0	1	-.005	14	-.003	13
63		2	max	0	1	.333	5	.535	12
64			min	0	1	-.038	14	-.006	13
65		3	max	0	1	.188	3	.67	14

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
66			min	0	1	-.071	14	-.596	5
67		4	max	0	1	.124	14	.379	14
68			min	0	1	-.092	3	-.509	3
69		5	max	0	1	.104	14	.081	13
70			min	0	1	-.127	3	-.139	3

Envelope Member Section Stresses

	Member	Sec		Axial[ksi]	LC	Shear[ksi]	LC	Top Bending[k...	LC	Bottom Bendin...	LC
1	M1	1	max	.084	3	.032	11	.114	13	.29	11
2			min	.004	14	-.011	13	-.29	11	-.114	13
3		2	max	.074	3	.007	2	.475	11	.075	13
4			min	.002	14	-.002	14	-.075	13	-.475	11
5		3	max	.073	3	.009	14	.493	11	.004	13
6			min	-.006	13	-.008	2	-.004	13	-.493	11
7		4	max	.061	3	.005	13	.237	14	.355	5
8			min	-.009	13	-.03	11	-.355	5	-.237	14
9		5	max	0	3	.005	2	0	1	0	1
10			min	-.01	8	-.013	14	0	1	0	1
11	M2	1	max	.005	14	0	3	0	1	0	1
12			min	-.005	2	-.019	8	0	1	0	1
13		2	max	.063	11	.025	11	.052	13	.765	12
14			min	-.009	13	-.005	13	-.765	12	-.052	13
15		3	max	.074	11	.015	8	.159	5	.059	14
16			min	-.006	13	0	3	-.059	14	-.159	5
17		4	max	.087	12	0	3	.25	5	.082	13
18			min	.003	13	-.006	8	-.082	13	-.25	5
19		5	max	.096	12	.011	13	.117	13	.2	3
20			min	.004	13	-.021	3	-.2	3	-.117	13
21	M3	1	max	.029	8	0	1	0	1	0	1
22			min	-.009	13	0	1	0	1	0	1
23		2	max	.028	8	0	1	0	1	0	1
24			min	-.009	13	0	1	0	1	0	1
25		3	max	.027	8	0	1	0	1	0	1
26			min	-.01	13	0	1	0	1	0	1
27		4	max	.026	8	0	1	0	1	0	1
28			min	-.01	13	0	1	0	1	0	1
29		5	max	.025	8	0	1	0	1	0	1
30			min	-.011	13	0	1	0	1	0	1
31	M4	1	max	.024	3	0	1	0	1	0	1
32			min	-.022	14	0	1	0	1	0	1
33		2	max	.023	3	0	1	0	1	0	1
34			min	-.022	14	0	1	0	1	0	1
35		3	max	.022	3	0	1	0	1	0	1
36			min	-.023	14	0	1	0	1	0	1
37		4	max	.021	3	0	1	0	1	0	1
38			min	-.024	14	0	1	0	1	0	1
39		5	max	.02	3	0	1	0	1	0	1
40			min	-.024	14	0	1	0	1	0	1
41	M5	1	max	.062	11	.005	8	0	1	0	1
42			min	-.011	13	.003	13	0	1	0	1
43		2	max	.062	11	.002	8	.059	8	-.035	13
44			min	-.011	13	.001	13	.035	13	-.059	8
45		3	max	.062	11	0	1	.078	8	-.047	13
46			min	-.011	13	0	1	.047	13	-.078	8
47		4	max	.062	11	-.001	14	.059	8	-.035	13
48			min	-.011	13	-.002	1	.035	13	-.059	8

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	Shear[ksi]	LC	Top Bending[k...	LC	Bottom Bendin...	LC
49		5	max	.062	11	-.003	14	0	1	0	1
50			min	-.011	13	-.005	1	0	1	0	1
51	M6	1	max	0	1	.026	11	.1	11	.04	13
52			min	0	1	.001	13	-.04	13	-.1	11
53		2	max	0	1	.023	11	.671	11	.04	13
54			min	0	1	-.001	13	-.04	13	-.671	11
55		3	max	0	1	.004	13	.789	11	0	13
56			min	0	1	-.014	11	0	13	-.789	11
57		4	max	0	1	0	13	.215	11	.024	3
58			min	0	1	-.035	11	-.024	3	-.215	11
59		5	max	0	1	-.004	13	.001	13	.833	11
60			min	0	1	-.055	11	-.833	11	-.001	13
61	M7	1	max	0	1	.047	2	.001	13	.833	11
62			min	0	1	0	14	-.833	11	-.001	13
63		2	max	0	1	.029	5	.003	13	.267	12
64			min	0	1	-.003	14	-.267	12	-.003	13
65		3	max	0	1	.017	3	.297	5	.334	14
66			min	0	1	-.006	14	-.334	14	-.297	5
67		4	max	0	1	.011	14	.254	3	.189	14
68			min	0	1	-.008	3	-.189	14	-.254	3
69		5	max	0	1	.009	14	.069	3	.041	13
70			min	0	1	-.011	3	-.041	13	-.069	3

Envelope Member Section Deflections

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
1	M1	1	max	0	1	0	1	NC	1
2			min	0	1	0	1	NC	1
3		2	max	0	14	.022	13	NC	13
4			min	-.003	3	-.486	11	455.265	11
5		3	max	0	13	.008	13	NC	13
6			min	-.006	3	-.615	11	361.443	11
7		4	max	0	13	-.003	13	NC	13
8			min	-.009	3	-.354	8	630.953	8
9		5	max	0	13	0	13	NC	13
10			min	-.01	3	-.014	11	NC	11
11	M2	1	max	.011	11	0	13	NC	13
12			min	0	13	-.014	3	NC	3
13		2	max	.01	11	.328	8	663.555	8
14			min	0	13	.007	13	NC	13
15		3	max	.007	12	.259	14	845.399	14
16			min	0	13	-.1	3	2348.462	3
17		4	max	.004	12	.127	14	1719.977	14
18			min	0	13	-.132	3	1708.292	3
19		5	max	0	1	0	1	NC	1
20			min	0	1	0	1	NC	1
21	M3	1	max	.009	13	0	1	NC	1
22			min	-.501	11	0	1	NC	1
23		2	max	.009	13	.002	13	NC	13
24			min	-.501	11	-.087	11	NC	11
25		3	max	.009	13	.003	13	NC	13
26			min	-.501	11	-.173	11	NC	11
27		4	max	.009	13	.005	13	NC	13
28			min	-.502	11	-.26	11	NC	11
29		5	max	.01	13	.007	13	NC	13
30			min	-.502	11	-.346	11	NC	11
31	M4	1	max	.155	14	0	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
32			min	-.106	3	0	1	NC	1
33		2	max	.155	14	.017	3	NC	3
34			min	-.107	3	-.028	14	NC	14
35		3	max	.155	14	.034	3	NC	3
36			min	-.107	3	-.056	14	NC	14
37		4	max	.155	14	.052	3	NC	3
38			min	-.107	3	-.084	14	NC	14
39		5	max	.155	14	.069	3	NC	3
40			min	-.107	3	-.112	14	NC	14
41	M5	1	max	.19	8	-.003	13	NC	13
42			min	.002	13	-.276	8	NC	8
43		2	max	.19	8	-.009	13	NC	13
44			min	.003	13	-.158	11	6659.682	11
45		3	max	.189	8	-.01	13	7908.372	13
46			min	.003	13	-.037	3	4745.023	3
47		4	max	.189	8	.115	14	NC	14
48			min	.003	13	-.012	3	6659.682	3
49		5	max	.188	8	.258	8	NC	8
50			min	.003	13	.005	13	NC	13
51	M6	1	max	0	1	0	1	NC	1
52			min	0	1	0	1	NC	1
53		2	max	0	1	.01	13	NC	13
54			min	0	1	-.402	11	492.753	11
55		3	max	0	1	.003	13	NC	13
56			min	0	1	-.514	11	384.988	11
57		4	max	0	1	-.006	13	NC	13
58			min	0	1	-.296	11	668.569	11
59		5	max	0	1	0	1	NC	1
60			min	0	1	0	1	NC	1
61	M7	1	max	0	1	0	1	NC	1
62			min	0	1	0	1	NC	1
63		2	max	0	1	.115	14	1404.029	14
64			min	0	1	-.038	3	4241.641	3
65		3	max	0	1	.158	14	1028.173	14
66			min	0	1	-.101	3	1611.199	3
67		4	max	0	1	.107	14	1510.795	14
68			min	0	1	-.087	3	1855.911	3
69		5	max	0	1	0	1	NC	1
70			min	0	1	0	1	NC	1

Envelope Wood Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	LC	Fc'[ksi]	Ft'[ksi]	Fb'[ksi]	Fv'[ksi]	Eqn
1	M1	2X5FS	.620	5.531	5	.169	13.923	5	.189	.644	1.291	.167	3.9-3
2	M2	2X5FS	.860	4.387	11	.156	4.387	4	.193	.896	1.564	.232	3.9-3
3	M3	2X5FS	.064	0	8	.000	0	1	.458	.644	1.119	.167	3.6.3
4	M4	2X5FS	.053	0	4	.000	0	1	.458	.644	1.119	.167	3.6.3
5	M5	2X5FS	.297	0	11	.036	0	1	.21	.896	1.538	.232	3.6.3
6	M6	2X8.5FS	.956	16.5	2	.367	16.5	2	.039	.44	.822	.145	3.9-3
7	M7	2X8.5FS	.933	0	2	.321	0	2	.058	.44	.842	.145	3.9-3

Members OK based on assumed member sizes, condition

Global

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automaticly Iterate Stiffness for Walls?	Yes
Maximum Iteration Number for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	AISI NAS-04: ASD
Wood Code	AF&PA NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building

Number of Shear Regions	4
Region Spacing Increment (in)	4
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

Wood Material Properties

	Label	Type	Database	Species	Grade	Cm	Emod	Nu	Therm (\1E5 F)	Dens[k/ft^3]
1	DF/SPine	Solid Sa...	Visually ...	Com Species G...	No.2		1	.3	.3	.035
2	HF/Spruce Fir	Solid Sa...	Visually ...	Com Species G...	No.1		1	.3	.3	.035
3	DF	Solid Sa...	Visually ...	Douglas Fir-Lar...	No.1		1	.3	.3	.035
4	SP	Solid Sa...	Visually ...	Southern Pine	No.1		1	.3	.3	.035
5	HF	Solid Sa...	Visually ...	Hem-Fir	No.1		1	.3	.3	.035
6	SPF	Solid Sa...	Visually ...	Spruce-Pine-fir	No.1		1	.3	.3	.035
7	24F-1.8E D...	Glulam	Table 5A	24F-1.8E_DF_...	na		1	.3	.3	.035
8	24F-1.8E D...	Glulam	Table 5A	24F-1.8E_DF_...	na		1	.3	.3	.035
9	24F-1.8E S...	Glulam	Table 5A	24F-1.8E_SP_...	na		1	.3	.3	.035
10	24F-1.8E S...	Glulam	Table 5A	24F-1.8E_SP_...	na		1	.3	.3	.035
11	W11	Solid Sa...	Visually ...	Yellow Poplar	No.2		1	.3	.3	.027
12	Red Oak No...	Solid Sa...	Visually ...	Red Oak	No.1		1	.3	.3	.047
13	LVL-PRL C...	Custom	N/A	LVL_PRL_2.0E...	na		1	.3	.3	.035

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Temp [F]
1	N1	0	0	0
2	N2	15	10.5	0
3	N3	30	0	0

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Temp [F]
4	N4	6	0	0
5	N5	6	4.2	0
6	N6	24	0	0
7	N7	24	4.2	0
8	N8	11.5	8.05	0
9	N9	18.5	8.05	0
10	N10	16.5	0	0

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Rotation[k-ft/rad]	Footing
1	N1	Reaction	Reaction		
2	N2				
3	N3	Reaction	Reaction		
4	N10	Reaction	Reaction		

Wood Design Parameters

	Label	Shape	Length[...	Le-out[ft]	Le-in[ft]	le-bend top[ft]	le-bend b...	K-out	K-in	CV	Cr	Out sw...	In sway
1	M1	2X5FS	18.31	2		2					Yes		
2	M2	2X5FS	18.31	2		2					Yes		
3	M3	2X5FS	4.2										
4	M4	2X5FS	4.2										
5	M5	2X5FS	7										
6	M6	2X8.5FS	16.5								Yes		
7	M7	2X8.5FS	13.5								Yes		
8	M10	2X8	16.5										
9	M11	2X8	13.5										

Member Distributed Loads (BLC 1 : DL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.01	-.01	0	0
2	M2	Y	-.01	-.01	0	0
3	M1	Y	-.007	-.007	7.3	14
4	M2	Y	-.007	-.007	4.3	11
5	M3	Y	-.007	-.007	0	0
6	M4	Y	-.007	-.007	0	0
7	M5	Y	-.007	-.007	0	0
8	M6	Y	-.007	-.007	0	0
9	M7	Y	-.007	-.007	0	0
10	M6	Y	-.006	-.006	6	0
11	M7	Y	-.006	-.006	0	7.5

Member Distributed Loads (BLC 2 : RLL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.027	-.027	0	0
2	M2	Y	-.027	-.027	0	0

Member Distributed Loads (BLC 3 : WL1)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	y	.02	.02	4.88	0
2	M2	y	.02	.02	0	13.43
3	M1	y	.025	.025	0	4.88
4	M2	y	.025	.025	13.43	0

Member Distributed Loads (BLC 4 : WL2)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M2	y	.02	.02	0	13.43
2	M1	y	-.02	-.02	0	0
3	M2	y	.025	.025	13.43	0

Member Distributed Loads (BLC 5 : SL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.027	-.027	0	0
2	M2	Y	-.027	-.027	0	0

Member Distributed Loads (BLC 6 : LL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M6	Y	-.067	-.067	6	0
2	M7	Y	-.067	-.067	0	7.5

Load Combinations

	Description	Solve	PD...	SR...	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	IBC 16-8	Yes			DL	1														
2	IBC 16-9	Yes			DL	1	LL	1												
3	IBC 16-10 (a)	Yes			DL	1	RLL	1												
4	IBC 16-10 (b)	Yes			DL	1	SL	1												
5	IBC 16-11 (a)	Yes			DL	1	LL	.75	RLL	.75										
6	IBC 16-11 (b)	Yes			DL	1	LL	.75	SL	.75										
7	IBC 16-12 (a)	Yes			DL	1	3	1												
8	IBC 16-12 (b)	Yes			DL	1	4	1												
9	IBC 16-13 (a)	Yes			DL	1	3	.75	LL	.75	RLL	.75								
10	IBC 16-13 (b)	Yes			DL	1	3	.75	LL	.75	SL	.75								
11	IBC 16-13 (c)	Yes			DL	1	4	.75	LL	.75	RLL	.75								
12	IBC 16-13 (d)	Yes			DL	1	4	.75	LL	.75	SL	.75								
13	IBC 16-15 (a)	Yes			DL	.6	3	1												
14	IBC 16-15 (b)	Yes			DL	.6	4	1												

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Moment [k-ft]	LC
1	N1	max	.568	3	.868	11	0	1
2		min	-.046	14	-.007	13	0	1
3	N3	max	-.083	13	.709	3	0	1
4		min	-.708	12	-.015	13	0	1
5	N10	max	0	11	1.416	2	0	1
6		min	0	13	.081	13	0	1
7	Totals:	max	0	7	2.799	5		
8		min	-.434	14	.059	13		

Envelope Member Section Forces

	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
1	M1	1	max	.794	3	.191	11	.189	11
2			min	.011	14	-.07	13	-.082	13
3		2	max	.692	3	.036	2	.045	13
4			min	-.007	14	-.023	14	-.254	11
5		3	max	.704	3	.075	14	-.002	13
6			min	-.055	13	-.039	2	-.261	12
7		4	max	.584	3	.031	13	.202	5
8			min	-.084	13	-.173	11	-.164	14

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
9		5	max	.014	3	.023	7	0	1
10			min	-.089	8	-.089	14	0	1
11	M2	1	max	.055	14	.008	3	0	1
12			min	-.037	2	-.113	8	0	1
13		2	max	.601	12	.151	12	.454	11
14			min	-.084	13	-.032	13	-.028	13
15		3	max	.709	3	.093	14	.013	14
16			min	-.054	13	-.022	3	-.088	5
17		4	max	.826	11	.013	3	.049	13
18			min	.033	13	-.043	14	-.141	5
19		5	max	.911	11	.072	13	.138	3
20			min	.051	13	-.133	3	-.084	13
21	M3	1	max	.33	8	0	1	0	1
22			min	-.091	13	0	1	0	1
23		2	max	.321	8	0	1	0	1
24			min	-.097	13	0	1	0	1
25		3	max	.312	8	0	1	0	1
26			min	-.102	13	0	1	0	1
27		4	max	.302	8	0	1	0	1
28			min	-.108	13	0	1	0	1
29		5	max	.293	8	0	1	0	1
30			min	-.114	13	0	1	0	1
31	M4	1	max	.271	3	0	1	0	1
32			min	-.217	14	0	1	0	1
33		2	max	.262	3	0	1	0	1
34			min	-.222	14	0	1	0	1
35		3	max	.253	3	0	1	0	1
36			min	-.228	14	0	1	0	1
37		4	max	.244	3	0	1	0	1
38			min	-.234	14	0	1	0	1
39		5	max	.234	3	0	1	0	1
40			min	-.239	14	0	1	0	1
41	M5	1	max	.563	11	.031	8	0	1
42			min	-.103	13	.019	13	0	1
43		2	max	.563	11	.016	8	-.024	13
44			min	-.103	13	.009	13	-.041	8
45		3	max	.563	11	0	1	-.033	13
46			min	-.103	13	0	1	-.054	8
47		4	max	.563	11	-.009	14	-.024	13
48			min	-.103	13	-.016	1	-.041	8
49		5	max	.563	11	-.019	14	0	1
50			min	-.103	13	-.031	1	0	1
51	M6	1	max	0	1	.238	11	.056	13
52			min	0	1	.017	13	-.117	11
53		2	max	0	1	.196	11	.039	13
54			min	0	1	-.008	13	-1.013	11
55		3	max	0	1	.052	2	-.015	13
56			min	0	1	-.094	8	-1.204	11
57		4	max	0	1	-.007	13	.013	3
58			min	0	1	-.329	11	-.408	11
59		5	max	0	1	-.047	13	1.529	2
60			min	0	1	-.631	2	.042	13
61	M7	1	max	0	1	.525	2	1.412	12
62			min	0	1	.017	14	.031	13
63		2	max	0	1	.265	5	.351	8
64			min	0	1	-.016	14	-.006	13
65		3	max	0	1	.122	3	.435	14

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
66			min	0	1	-.048	14	-.402	3
67		4	max	0	1	.079	14	.238	14
68			min	0	1	-.068	5	-.365	3
69		5	max	0	1	.058	14	.057	13
70			min	0	1	-.102	5	-.083	3
71	M10	1	max	0	1	.128	11	.026	13
72			min	0	1	.004	13	-.072	11
73		2	max	0	1	.117	11	.024	13
74			min	0	1	-.003	13	-.579	11
75		3	max	0	1	.007	13	-.008	13
76			min	0	1	-.139	11	-.688	11
77		4	max	0	1	0	13	.034	3
78			min	0	1	-.15	11	-.119	14
79		5	max	0	1	-.006	13	.546	11
80			min	0	1	-.16	11	-.013	13
81	M11	1	max	0	1	.148	5	.646	11
82			min	0	1	-.005	14	-.001	13
83		2	max	0	1	.139	5	.276	11
84			min	0	1	-.011	14	.005	13
85		3	max	0	1	.13	5	.241	14
86			min	0	1	-.016	14	-.305	5
87		4	max	0	1	.045	14	.139	14
88			min	0	1	-.04	5	-.205	3
89		5	max	0	1	.04	14	.027	13
90			min	0	1	-.049	5	-.056	3

Envelope Member Section Stresses

	Member	Sec		Axial[ksi]	LC	Shear[ksi]	LC	Top Bending[k...	LC	Bottom Bendin...	LC
1	M1	1	max	.079	3	.029	11	.119	13	.272	11
2			min	.001	14	-.011	13	-.272	11	-.119	13
3		2	max	.069	3	.005	2	.366	11	.064	13
4			min	0	14	-.003	14	-.064	13	-.366	11
5		3	max	.07	3	.011	14	.375	12	-.003	13
6			min	-.005	13	-.006	2	.003	13	-.375	12
7		4	max	.058	3	.005	13	.237	14	.291	5
8			min	-.008	13	-.026	11	-.291	5	-.237	14
9		5	max	.001	3	.003	7	0	1	0	1
10			min	-.009	8	-.013	14	0	1	0	1
11	M2	1	max	.006	14	.001	3	0	1	0	1
12			min	-.004	2	-.017	8	0	1	0	1
13		2	max	.06	12	.023	12	.04	13	.654	11
14			min	-.008	13	-.005	13	-.654	11	-.04	13
15		3	max	.071	3	.014	14	.127	5	.018	14
16			min	-.005	13	-.003	3	-.018	14	-.127	5
17		4	max	.083	11	.002	3	.203	5	.071	13
18			min	.003	13	-.006	14	-.071	13	-.203	5
19		5	max	.091	11	.011	13	.121	13	.199	3
20			min	.005	13	-.02	3	-.199	3	-.121	13
21	M3	1	max	.033	8	0	1	0	1	0	1
22			min	-.009	13	0	1	0	1	0	1
23		2	max	.032	8	0	1	0	1	0	1
24			min	-.01	13	0	1	0	1	0	1
25		3	max	.031	8	0	1	0	1	0	1
26			min	-.01	13	0	1	0	1	0	1
27		4	max	.03	8	0	1	0	1	0	1
28			min	-.011	13	0	1	0	1	0	1

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	Shear[ksi]	LC	Top Bending[k...	LC	Bottom Bendin...	LC
29		5	max	.029	8	0	1	0	1	0	1
30			min	-.011	13	0	1	0	1	0	1
31	M4	1	max	.027	3	0	1	0	1	0	1
32			min	-.022	14	0	1	0	1	0	1
33		2	max	.026	3	0	1	0	1	0	1
34			min	-.022	14	0	1	0	1	0	1
35		3	max	.025	3	0	1	0	1	0	1
36			min	-.023	14	0	1	0	1	0	1
37		4	max	.024	3	0	1	0	1	0	1
38			min	-.023	14	0	1	0	1	0	1
39		5	max	.023	3	0	1	0	1	0	1
40			min	-.024	14	0	1	0	1	0	1
41	M5	1	max	.056	11	.005	8	0	1	0	1
42			min	-.01	13	.003	13	0	1	0	1
43		2	max	.056	11	.002	8	.059	8	-.035	13
44			min	-.01	13	.001	13	.035	13	-.059	8
45		3	max	.056	11	0	1	.078	8	-.047	13
46			min	-.01	13	0	1	.047	13	-.078	8
47		4	max	.056	11	-.001	14	.059	8	-.035	13
48			min	-.01	13	-.002	1	.035	13	-.059	8
49		5	max	.056	11	-.003	14	0	1	0	1
50			min	-.01	13	-.005	1	0	1	0	1
51	M6	1	max	0	1	.021	11	.058	11	.028	13
52			min	0	1	.001	13	-.028	13	-.058	11
53		2	max	0	1	.017	11	.505	11	.019	13
54			min	0	1	0	13	-.019	13	-.505	11
55		3	max	0	1	.005	2	.6	11	-.007	13
56			min	0	1	-.008	8	.007	13	-.6	11
57		4	max	0	1	0	13	.203	11	.007	3
58			min	0	1	-.029	11	-.007	3	-.203	11
59		5	max	0	1	-.004	13	-.021	13	.762	2
60			min	0	1	-.056	2	-.762	2	.021	13
61	M7	1	max	0	1	.046	2	-.015	13	.703	12
62			min	0	1	.002	14	-.703	12	.015	13
63		2	max	0	1	.023	5	.003	13	.175	8
64			min	0	1	-.001	14	-.175	8	-.003	13
65		3	max	0	1	.011	3	.2	3	.217	14
66			min	0	1	-.004	14	-.217	14	-.2	3
67		4	max	0	1	.007	14	.182	3	.118	14
68			min	0	1	-.006	5	-.118	14	-.182	3
69		5	max	0	1	.005	14	.041	3	.029	13
70			min	0	1	-.009	5	-.029	13	-.041	3
71	M10	1	max	0	1	.018	11	.066	11	.024	13
72			min	0	1	0	13	-.024	13	-.066	11
73		2	max	0	1	.016	11	.529	11	.022	13
74			min	0	1	0	13	-.022	13	-.529	11
75		3	max	0	1	0	13	.628	11	-.007	13
76			min	0	1	-.019	11	.007	13	-.628	11
77		4	max	0	1	0	13	.109	14	.031	3
78			min	0	1	-.021	11	-.031	3	-.109	14
79		5	max	0	1	0	13	.011	13	.498	11
80			min	0	1	-.022	11	-.498	11	-.011	13
81	M11	1	max	0	1	.02	5	.001	13	.59	11
82			min	0	1	0	14	-.59	11	-.001	13
83		2	max	0	1	.019	5	-.005	13	.252	11
84			min	0	1	-.001	14	-.252	11	.005	13
85		3	max	0	1	.018	5	.278	5	.22	14

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	Shear[ksi]	LC	Top Bending[k...	LC	Bottom Bendin...	LC
86			min	0	1	-.002	14	-.22	14	-.278	5
87		4	max	0	1	.006	14	.187	3	.127	14
88			min	0	1	-.006	5	-.127	14	-.187	3
89		5	max	0	1	.005	14	.051	3	.025	13
90			min	0	1	-.007	5	-.025	13	-.051	3

Envelope Member Section Deflections

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
1	M1	1	max	0	1	0	1	NC	1
2			min	0	1	0	1	NC	1
3		2	max	0	14	.014	13	NC	13
4			min	-.003	3	-.367	11	604.819	11
5		3	max	0	13	0	13	NC	13
6			min	-.006	3	-.474	11	470.063	11
7		4	max	0	13	-.004	13	NC	13
8			min	-.009	3	-.289	8	775.973	8
9		5	max	0	13	0	13	NC	13
10			min	-.009	3	-.013	11	NC	11
11	M2	1	max	.01	11	0	13	NC	13
12			min	0	13	-.013	3	NC	3
13		2	max	.01	12	.266	8	816.939	8
14			min	0	13	.006	13	NC	13
15		3	max	.007	12	.186	14	1173.492	14
16			min	0	13	-.073	3	3287.465	3
17		4	max	.004	12	.08	14	2742.754	14
18			min	0	13	-.096	3	2358.873	3
19		5	max	0	1	0	1	NC	1
20			min	0	1	0	1	NC	1
21	M3	1	max	.002	13	0	1	NC	1
22			min	-.377	11	0	1	NC	1
23		2	max	.002	13	0	13	NC	13
24			min	-.378	11	-.065	11	NC	11
25		3	max	.002	13	0	13	NC	13
26			min	-.378	11	-.13	11	NC	11
27		4	max	.002	13	.001	13	NC	13
28			min	-.378	11	-.195	11	NC	11
29		5	max	.002	13	.002	13	NC	13
30			min	-.379	11	-.261	11	NC	11
31	M4	1	max	.101	14	0	1	NC	1
32			min	-.075	3	0	1	NC	1
33		2	max	.101	14	.012	3	NC	3
34			min	-.075	3	-.019	14	NC	14
35		3	max	.101	14	.024	3	NC	3
36			min	-.075	3	-.037	14	NC	14
37		4	max	.101	14	.035	3	NC	3
38			min	-.076	3	-.056	14	NC	14
39		5	max	.101	14	.047	3	NC	3
40			min	-.076	3	-.075	14	NC	14
41	M5	1	max	.156	8	-.003	13	NC	13
42			min	.002	13	-.226	8	NC	8
43		2	max	.155	8	-.009	13	NC	13
44			min	.002	13	-.134	11	6659.682	11
45		3	max	.155	8	-.01	13	7908.372	13
46			min	.003	13	-.036	3	4745.023	3
47		4	max	.154	8	.092	14	NC	14
48			min	.003	13	-.016	3	6659.682	3

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
49		5	max	.154	8	.209	8	NC	8
50			min	.003	13	.004	13	NC	13
51	M6	1	max	0	1	0	1	NC	1
52			min	0	1	0	1	NC	1
53		2	max	0	1	.003	13	NC	13
54			min	0	1	-.302	11	654.84	11
55		3	max	0	1	-.003	13	NC	13
56			min	0	1	-.392	11	505.425	11
57		4	max	0	1	-.008	13	NC	13
58			min	0	1	-.231	11	858.451	11
59		5	max	0	1	0	1	NC	1
60			min	0	1	0	1	NC	1
61	M7	1	max	0	1	0	1	NC	1
62			min	0	1	0	1	NC	1
63		2	max	0	1	.076	14	2124.529	14
64			min	0	1	-.027	3	6084.566	3
65		3	max	0	1	.103	14	1577.296	14
66			min	0	1	-.071	3	2288.795	3
67		4	max	0	1	.069	14	2335.649	14
68			min	0	1	-.062	3	2624.72	3
69		5	max	0	1	0	1	NC	1
70			min	0	1	0	1	NC	1
71	M10	1	max	0	1	0	1	NC	1
72			min	0	1	0	1	NC	1
73		2	max	0	1	.003	13	NC	13
74			min	0	1	-.302	11	655.135	11
75		3	max	0	1	-.002	13	NC	13
76			min	0	1	-.38	11	520.513	11
77		4	max	0	1	-.005	13	NC	13
78			min	0	1	-.208	11	953.898	11
79		5	max	0	1	0	1	NC	1
80			min	0	1	0	1	NC	1
81	M11	1	max	0	1	0	1	NC	1
82			min	0	1	0	1	NC	1
83		2	max	0	1	.077	14	2104.478	14
84			min	0	1	-.025	3	6378.681	3
85		3	max	0	1	.103	14	1575.746	14
86			min	0	1	-.071	3	2292.674	3
87		4	max	0	1	.07	14	2330.669	14
88			min	0	1	-.061	3	2634.58	3
89		5	max	0	1	0	1	NC	1
90			min	0	1	0	1	NC	1

Envelope Wood Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	LC	Fc'[ksi]	Ft'[ksi]	Fb'[ksi]	Fv'[ksi]	Eqn
1	M1	2X5FS	.488	5.15	5	.151	13.923	5	.189	.644	1.291	.167	3.9-3
2	M2	2X5FS	.727	4.387	12	.141	4.387	4	.193	.896	1.564	.232	3.9-3
3	M3	2X5FS	.072	0	8	.000	0	1	.458	.644	1.119	.167	3.6.3
4	M4	2X5FS	.059	0	4	.000	0	1	.458	.644	1.119	.167	3.6.3
5	M5	2X5FS	.268	0	11	.036	0	1	.21	.896	1.538	.232	3.6.3
6	M6	2X8.5FS	.927	16.5	2	.384	16.5	2	.039	.44	.822	.145	3.9-3
7	M7	2X8.5FS	.829	0	2	.320	0	2	.058	.44	.842	.145	3.9-3
8	M10	2X8	.883	6.016	11	.100	16.5	2	.028	1.056	1.025	.28	3.9-3
9	M11	2X8	.567	0	2	.105	0	2	.041	.66	.96	.175	3.9-3

STRUCTURAL ENGINEERING ASSOCIATES
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JOB BLACKSTONE HOUSE
SHEET NO. ______ OF ______
CALCULATED BY PDS DATE 6/30/16
CHECKED BY ______ DATE ______
SCALE ______

ROOF REACTION (RISA) 800 lbs (12/16) = 600 lb

BRICK SAY 120 PCF × 10.75 × 0.75 = 968 lb

FLOOR DL 6.75 PSF (8 FT)
LL 40 PSF (8 FT) } = 374 lb

STONE FDN. 150 PCF × 3' × 1' = 450 lb

2392 lb

SAY 2.5 k

$M = \frac{2.5\,k/ft\,(4\,ft)^2}{8} = 5\,k\cdot ft$

$V = 2.5\,(4\,ft) = 10\,k$

REACTION AT NORTH SIDE OF STRUCTURE CALCULATED FOR HELICAL PILES SPACED AT 4 FT ON CENTER. REACTIONS FOR OTHER LOCATIONS ON HOUSE ARE CONSIDERED TO BE SIMILAR

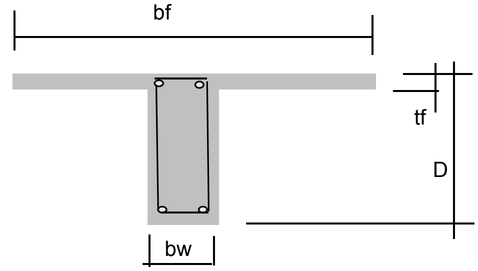
Project	Blackstone House	**Date**	7/14/2016
Project No.	2016046.00	**Engineer**	PDS
Description:	Grade beam below existing stone foundation with helical piers at 4' o.c.	**Sheet**	1

BEAM ANALYSIS WORKSHEET FOR SHEAR AND FLEXURE

Based on ACI 318 - 08

Input

Concrete strength, f'c	4	ksi
Steel yield strength, fy	60	ksi
Bending factor, ϕb	0.9	
Shear factor, ϕv	0.75	
Top Reinforcing (As')	0.93	in^2
Bot Reinforcing (As)	0.93	in^2
Shear Reinforcing	0.22	in^2/ft



Typical Beam Profile

Member Geometry

Stem Width, bw	16.0	in.
Total Depth, D	12.0	in.
Eff Slab Width, bf	16.0	in.
Slab Thickness, tf	0.0	in.
Top Reinf Cover to CG	3	in.
Bot Reinf Cover to CG	3	in.
Cover to CG of Stirrup	1.50	in.

BEAM CAPACITY

Positive Moment Flexural Capacity

Flex Reinf, As	**0.93** in.^{2}	Effective Depth, d_{bot}	9 in.
	a	1.03 in	
	PhiMn	**426.2 kip-in**	**35.5 kip-ft**

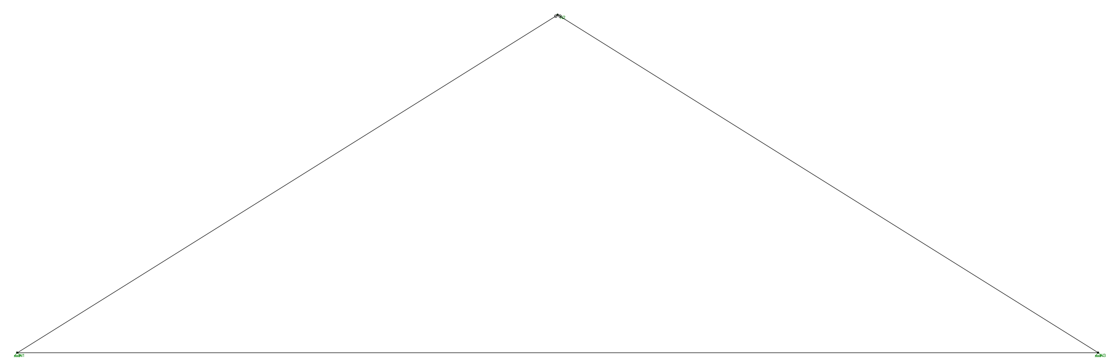
Negative Moment Flexural Capacity

Flex Reinf, As	**0.93** in.^{2}	Effective Depth, d_{bot}	9 in.
	a	1.03 in	
	PhiMn	**426.2 kip-in**	**35.5 kip-ft**

Shear Capacity

PhiVc	18.21 kips	**(11-3)**
PhiVs	7.43 kips	**(11-15)**
PhiVn	**25.64 kips**	

Use 16" deep minimum beam for constructability purposes (two layers of steel with 3" cover and shear tie bar reinforcing). Use 5000 psi concrete mix.



Solution: Envelope

Structural Engineering Ass...	Rafter Analysis	SK - 1
Philip Steed, PE		July 18, 2016 at 10:27 AM
2016064.00		Roof Frame Smokehouse ASD.r2d

Project:	Blackstone House (Smokehouse/Milk House Calculation)	**Date:**	7/18/2016
Project #	2016046.00	**Engineer:**	PDS

WIND PRESSURES FOR COMPONENTS AND CLADDING BY METHOD-1 (SIMPLIFIED):

DESIGN CRITERIA:

Basic Design Wind Pressure [q_h = 0.00256*$(V)^2$*k_h*k_{zt}*k_d*I_w]:	q_h =	15.0	psf
Wind Velocity (3-second Gust) [V]:	V =	90	mph
Wind Exposure Classification:	Exposure	C	
Velocity Pressure Exposure Coefficient [k_h (evaluated @ z = h)]:	k_h =	0.8500	
Building Classification [I, II, III, or IV]:	B Class =	II	
Topographic Factor [k_{zt} = $(1+(k_1*k_2*k_3))^2$]:	k_{zt} =	1.00	
Multiplier to obtain k_{zt} [k_1]:	k_1 =	0.00	
Multiplier to obtain k_{zt} [k_2]:	k_2 =	1.00	
Multiplier to obtain k_{zt} [k_3]:	k_3 =	1.00	
Wind Directionality Factor [k_d]:	k_d =	0.85	
Height/Exposure Adjustment Factor [λ]:	λ =	1.2100	
Importance Factor [I_w]:	I_w =	1.00	

WIDTH OF PRESSURE COEFFICIENT ZONE:

Width of Pressure Coefficient Zone [a = (0.1*LHD<0.4*h)>(0.04*LHD>3 ft.)]:	a =	3.0	ft
Least Horizontal Dimension [LHD]:	LHD =	12	ft
10% LHD:	0.1*LHD =	1.2	ft
4% LHD:	0.04*LHD =	0.5	ft
Mean Roof Height [h]:	h =	11.00	ft
40% h:	0.4*h =	4.4	ft
Roof Pitch [(__" RISE) / (12" RUN)]:	RISE =	8.40	in
Roof Angle [degrees off of Horizontal]:	θ, Angle =	35.0	degrees

The Engineer shall use an "a" value of: 3 ft. from all building corners.

ZONE 1 - ROOF PRESSURES:

AREA OF ROOF IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:			NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{1-10(+)}$ =	16.1	psf	$q_{1-10(-)}$ =	-17.7	psf
20 FT^2	$q_{1-20(+)}$ =	15.7	psf	$q_{1-20(-)}$ =	-16.7	psf
50 FT^2	$q_{1-50(+)}$ =	15.1	psf	$q_{1-50(-)}$ =	-15.5	psf
100 FT^2	$q_{1-100(+)}$ =	14.6	psf	$q_{1-100(-)}$ =	-14.6	psf

ZONE 2 - ROOF PRESSURES:

AREA OF ROOF IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:			NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{2-10(+)}$ =	16.1	psf	$q_{2-10(-)}$ =	-20.6	psf
20 FT^2	$q_{2-20(+)}$ =	15.7	psf	$q_{2-20(-)}$ =	-19.7	psf
50 FT^2	$q_{2-50(+)}$ =	15.1	psf	$q_{2-50(-)}$ =	-18.5	psf
100 FT^2	$q_{2-100(+)}$ =	14.6	psf	$q_{2-100(-)}$ =	-17.7	psf

ZONE 2 - OVERHANG ROOF PRESSURES:

AREA OF ROOF IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:		NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{2-OH-10(+)}$ =	N/A	$q_{2-OH-10(-)}$ =	-29.9	psf
20 FT^2	$q_{2-OH-20(+)}$ =	N/A	$q_{2-OH-20(-)}$ =	-29.0	psf
50 FT^2	$q_{2-OH-50(+)}$ =	N/A	$q_{2-OH-50(-)}$ =	-27.8	psf
100 FT^2	$q_{2-OH-100(+)}$ =	N/A	$q_{2-OH-100(-)}$ =	-26.9	psf

ZONE 3 - ROOF PRESSURES:

AREA OF ROOF IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:			NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{3\text{-}10(+)}$ =	16.1	psf	$q_{3\text{-}10(-)}$ =	-20.6	psf
20 FT^2	$q_{3\text{-}20(+)}$ =	15.7	psf	$q_{3\text{-}20(-)}$ =	-19.7	psf
50 FT^2	$q_{3\text{-}50(+)}$ =	15.1	psf	$q_{3\text{-}50(-)}$ =	-18.5	psf
100 FT^2	$q_{3\text{-}100(+)}$ =	14.6	psf	$q_{3\text{-}100(-)}$ =	-17.7	psf

ZONE 3 - OVERHANG ROOF PRESSURES:

AREA OF ROOF IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:			NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{3\text{-}OH\text{-}10(+)}$ =	N/A		$q_{3\text{-}OH\text{-}10(-)}$ =	-29.9	psf
20 FT^2	$q_{3\text{-}OH\text{-}20(+)}$ =	N/A		$q_{3\text{-}OH\text{-}20(-)}$ =	-29.0	psf
50 FT^2	$q_{3\text{-}OH\text{-}50(+)}$ =	N/A		$q_{3\text{-}OH\text{-}50(-)}$ =	-27.8	psf
100 FT^2	$q_{3\text{-}OH\text{-}100(+)}$ =	N/A		$q_{3\text{-}OH\text{-}100(-)}$ =	-26.9	psf

ZONE 4 - WALL PRESSURES:

AREA OF WALL IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:			NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{4\text{-}10(+)}$ =	17.7	psf	$q_{4\text{-}10(-)}$ =	-19.1	psf
20 FT^2	$q_{4\text{-}20(+)}$ =	16.8	psf	$q_{4\text{-}20(-)}$ =	-18.3	psf
50 FT^2	$q_{4\text{-}50(+)}$ =	15.7	psf	$q_{4\text{-}50(-)}$ =	-17.3	psf
100 FT^2	$q_{4\text{-}100(+)}$ =	15.0	psf	$q_{4\text{-}100(-)}$ =	-16.5	psf
500 FT^2	$q_{4\text{-}500(+)}$ =	13.2	psf	$q_{4\text{-}500(-)}$ =	-14.6	psf

ZONE 5 - WALL PRESSURES:

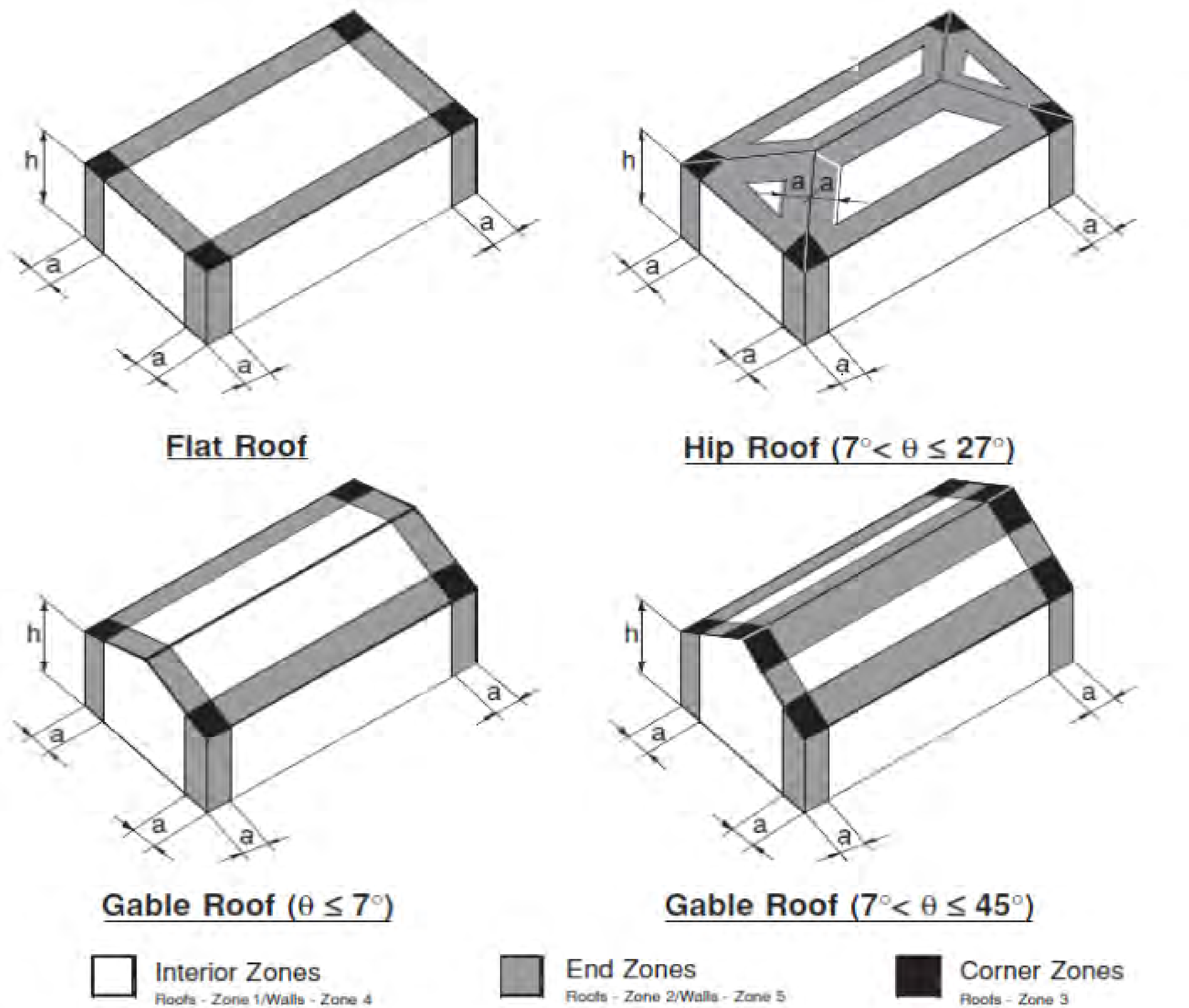
AREA OF WALL IN CONSIDERATION:	POSITIVE (INWARD) PRESSURE:			NEGATIVE (OUTWARD) PRESSURE:		
10 FT^2	$q_{5\text{-}10(+)}$ =	17.7	psf	$q_{5\text{-}10(-)}$ =	-23.6	psf
20 FT^2	$q_{5\text{-}20(+)}$ =	16.8	psf	$q_{5\text{-}20(-)}$ =	-22.0	psf
50 FT^2	$q_{5\text{-}50(+)}$ =	15.7	psf	$q_{5\text{-}50(-)}$ =	-20.0	psf
100 FT^2	$q_{5\text{-}100(+)}$ =	15.0	psf	$q_{5\text{-}100(-)}$ =	-18.3	psf
500 FT^2	$q_{5\text{-}500(+)}$ =	13.2	psf	$q_{5\text{-}500(-)}$ =	-14.6	psf

PARAPET WIND PRESSURES FOR EDGE ZONE:

AREA OF WALL IN CONSIDERATION:	LOAD CASE A:			LOAD CASE B:		
10 FT^2	$q_{4\text{-}10(+)}\text{-}q_{2\text{-}10(-)}$=	32.8	psf	$q_{4\text{-}10(+)}\text{-}q_{4\text{-}10(-)}$=	31.4	psf
20 FT^2	$q_{4\text{-}20(+)}\text{-}q_{2\text{-}20(-)}$=	31.1	psf	$q_{4\text{-}20(+)}\text{-}q_{4\text{-}20(-)}$=	29.7	psf
50 FT^2	$q_{4\text{-}50(+)}\text{-}q_{2\text{-}50(-)}$=	28.8	psf	$q_{4\text{-}50(+)}\text{-}q_{4\text{-}50(-)}$=	27.6	psf
100 FT^2	$q_{4\text{-}100(+)}\text{-}q_{2\text{-}100(-)}$=	27.3	psf	$q_{4\text{-}100(+)}\text{-}q_{4\text{-}100(-)}$=	26.1	psf

PARAPET WIND PRESSURES FOR CORNER ZONE:

AREA OF WALL IN CONSIDERATION:	LOAD CASE A:			LOAD CASE B:		
10 FT^2	$q_{5\text{-}10(+)}\text{-}q_{3\text{-}10(-)}$=	32.8	psf	$q_{5\text{-}10(+)}\text{-}q_{5\text{-}10(-)}$=	35.9	psf
20 FT^2	$q_{5\text{-}20(+)}\text{-}q_{3\text{-}20(-)}$=	31.1	psf	$q_{5\text{-}20(+)}\text{-}q_{5\text{-}20(-)}$=	33.4	psf
50 FT^2	$q_{5\text{-}50(+)}\text{-}q_{3\text{-}50(-)}$=	28.8	psf	$q_{5\text{-}50(+)}\text{-}q_{5\text{-}50(-)}$=	30.3	psf
100 FT^2	$q_{5\text{-}100(+)}\text{-}q_{3\text{-}100(-)}$=	27.3	psf	$q_{5\text{-}100(+)}\text{-}q_{5\text{-}100(-)}$=	27.9	psf



Notes:

1. Pressures shown are applied normal to the surface, for exposure B, at h = 30 ft (9.1m), I = 1.0, and K_{zt} = 1.0. Adjust to other conditions using Equation 6-2.
2. Plus and minus signs signify pressures acting toward and away from the surfaces, respectively.
3. For hip roofs with θ ≤ 25°, Zone 3 shall be treated as Zone 2.
4. For effective wind areas between those given, value may be interpolated, otherwise use the value associated with the lower effective wind area.
5. Notation:
   a: 10 percent of least horizontal dimension or 0.4h, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m).
   h: Mean roof height, in feet (meters), except that eave height shall be used for roof angles <10°.
   θ: Angle of plane of roof from horizontal, in degrees.

Loads to Risa for Roof Framing Calculation
Smokehouse
2016046
Roof is asphalt shingles with plywood over original skip sheathing

Galvanized Metal Roof, wt. =	2.65	psf	16 Gauge Assumed
Wood sheathing, wt =	2.25	psf	

DL

Member	PSF		PLF	
M1	4.9	x 2.5'	12	Roof and sheathing
M2	4.9	x 2.5'	12	Roof and sheathing

RLL

M1	20	x 2.5'	50	IBC 2016
M2	20	x 2.5'	50	IBC 2016

WL1

M1	20.6	x 2.5'	52	Wind load spreadsheet Zone 3 Negative, 10ft2
M2	20.6	x 2.5'	52	Wind load spreadsheet Zone 3 Negative, 10ft3

WL2

M1	16.1	x 2.5'	40	Wind load spreadsheet Zone 3 Positive, 10ft3
M2	20.6	x 2.5'	52	Wind load spreadsheet Zone 3 Negative, 10ft3

SL

M1	20	x 2.5'	50	ASCE 7-05
M2	20	x 2.5'	50	ASCE 7-05

Global

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automaticly Iterate Stiffness for Walls?	Yes
Maximum Iteration Number for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	AISI NAS-04: ASD
Wood Code	AF&PA NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building

Number of Shear Regions	4
Region Spacing Increment (in)	4
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

Wood Material Properties

	Label	Type	Database	Species	Grade	Cm	Emod	Nu	Therm (\1E5 F)	Dens[k/ft^3]
1	DF/SPine	Solid Sa...	Visually ...	Com Species G...	No.1		1	.3	.3	.035
2	HF/Spruce Fir	Solid Sa...	Visually ...	Com Species G...	No.1		1	.3	.3	.035
3	DF	Solid Sa...	Visually ...	Douglas Fir-Lar...	No.1		1	.3	.3	.035
4	SP	Solid Sa...	Visually ...	Southern Pine	No.1		1	.3	.3	.035
5	HF	Solid Sa...	Visually ...	Hem-Fir	No.1		1	.3	.3	.035
6	SPF	Solid Sa...	Visually ...	Spruce-Pine-fir	No.1		1	.3	.3	.035
7	24F-1.8E D...	Glulam	Table 5A	24F-1.8E_DF_...	na		1	.3	.3	.035
8	24F-1.8E D...	Glulam	Table 5A	24F-1.8E_DF_...	na		1	.3	.3	.035
9	24F-1.8E S...	Glulam	Table 5A	24F-1.8E_SP_...	na		1	.3	.3	.035
10	24F-1.8E S...	Glulam	Table 5A	24F-1.8E_SP_...	na		1	.3	.3	.035
11	W11	Solid Sa...	Visually ...	Yellow Poplar	No.2		1	.3	.3	.027
12	Red Oak No...	Solid Sa...	Visually ...	Red Oak	No.1		1	.3	.3	.047
13	LVL-PRL C...	Custom	N/A	LVL_PRL_2.0E...	na		1	.3	.3	.035

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Temp [F]
1	N1	0	0	0
2	N2	6	3.75	0
3	N3	12	0	0

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Rotation[k-ft/rad]	Footing
1	N1	Reaction	Reaction		
2	N2				
3	N3	Reaction	Reaction		

Wood Design Parameters

	Label	Shape	Length[...	Le-out[ft]	Le-in[ft]	le-bend top[ft]	le-bend b...	K-out	K-in	CV	Cr	Out sw...	In sway
1	M1	2X3.75FS	7.075	2		2					Yes		
2	M2	2X3.75FS	7.075	2		2					Yes		
3	M3	2X7FS	12								Yes		

Member Distributed Loads (BLC 1 : DL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.012	-.012	0	0
2	M2	Y	-.012	-.012	0	0

Member Distributed Loads (BLC 2 : RLL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.05	-.05	0	0
2	M2	Y	-.05	-.05	0	0

Member Distributed Loads (BLC 3 : WL1)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	y	.052	.052	0	0
2	M2	y	.052	.052	0	0

Member Distributed Loads (BLC 4 : WL2)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	y	-.042	-.042	0	0
2	M2	y	.052	.052	0	0

Member Distributed Loads (BLC 5 : SL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.05	-.05	0	0
2	M2	Y	-.05	-.05	0	0

Member Distributed Loads (BLC 6 : LL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M3	Y	0	0	0	0

Load Combinations

	Description	Solve	PD...	SR...	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	IBC 16-8	Yes			DL	1														
2	IBC 16-9	Yes			DL	1	LL	1												
3	IBC 16-10 (a)	Yes			DL	1	RLL	1												
4	IBC 16-10 (b)	Yes			DL	1	SL	1												
5	IBC 16-11 (a)	Yes			DL	1	LL	.75	RLL	.75										
6	IBC 16-11 (b)	Yes			DL	1	LL	.75	SL	.75										
7	IBC 16-12 (a)	Yes			DL	1	3	1												
8	IBC 16-12 (b)	Yes			DL	1	4	1												
9	IBC 16-13 (a)	Yes			DL	1	3	.75	LL	.75	RLL	.75								

Load Combinations (Continued)

	Description	Solve	PD...	SR...	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
10	IBC 16-13 (b)	Yes			DL	1	3	.75	LL	.75	SL	.75								
11	IBC 16-13 (c)	Yes			DL	1	4	.75	LL	.75	RLL	.75								
12	IBC 16-13 (d)	Yes			DL	1	4	.75	LL	.75	SL	.75								
13	IBC 16-15 (a)	Yes			DL	.6	3	1												
14	IBC 16-15 (b)	Yes			DL	.6	4	1												

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Moment [k-ft]	LC
1	N1	max	.296	3	.464	3	0	1
2		min	-.146	14	-.246	13	0	1
3	N3	max	.051	13	.464	3	0	1
4		min	-.364	11	-.246	13	0	1
5	Totals:	max	0	7	.929	3		
6		min	-.353	8	-.491	13		

Envelope Member Section Forces

	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
1	M1	1	max	.489	3	.316	11	.365	11
2			min	-.178	13	-.189	13	-.209	13
3		2	max	.43	3	.184	11	.055	13
4			min	-.186	13	-.11	13	-.077	11
5		3	max	.37	3	.052	11	.178	13
6			min	-.193	13	-.03	13	-.285	11
7		4	max	.311	3	.05	13	.16	13
8			min	-.201	13	-.081	11	-.259	11
9		5	max	.251	3	.13	13	0	1
10			min	-.208	13	-.213	11	0	1
11	M2	1	max	.251	3	.157	3	0	1
12			min	-.208	13	-.13	13	0	1
13		2	max	.311	3	.062	3	.16	13
14			min	-.201	13	-.05	13	-.194	3
15		3	max	.37	3	.036	14	.178	13
16			min	-.193	13	-.033	3	-.219	3
17		4	max	.43	3	.116	14	.055	13
18			min	-.186	13	-.128	3	-.076	3
19		5	max	.489	3	.196	14	.235	3
20			min	-.178	13	-.223	3	-.257	14
21	M3	1	max	0	1	.016	1	.209	13
22			min	0	1	-.034	14	-.365	11
23		2	max	0	1	.008	1	.188	13
24			min	0	1	-.039	14	-.303	11
25		3	max	0	1	0	1	.181	13
26			min	0	1	-.043	8	-.282	3
27		4	max	0	1	-.005	13	.188	13
28			min	0	1	-.051	8	-.27	3
29		5	max	0	1	-.009	13	.257	14
30			min	0	1	-.059	8	-.235	3

Envelope Member Section Stresses

	Member	Sec		Axial[ksi]	LC	Shear[ksi]	LC	Top Bending[k...	LC	Bottom Bendin...	LC
1	M1	1	max	.065	3	.063	11	.536	13	.934	11
2			min	-.024	13	-.038	13	-.934	11	-.536	13
3		2	max	.057	3	.037	11	.197	11	.141	13

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	Shear[ksi]	LC	Top Bending[k...	LC	Bottom Bendin...	LC
4			min	-.025	13	-.022	13	-.141	13	-.197	11
5		3	max	.049	3	.01	11	.729	11	.456	13
6			min	-.026	13	-.006	13	-.456	13	-.729	11
7		4	max	.041	3	.01	13	.664	11	.409	13
8			min	-.027	13	-.016	11	-.409	13	-.664	11
9		5	max	.034	3	.026	13	0	1	0	1
10			min	-.028	13	-.043	11	0	1	0	1
11	M2	1	max	.034	3	.031	3	0	1	0	1
12			min	-.028	13	-.026	13	0	1	0	1
13		2	max	.041	3	.012	3	.496	3	.409	13
14			min	-.027	13	-.01	13	-.409	13	-.496	3
15		3	max	.049	3	.007	14	.561	3	.456	13
16			min	-.026	13	-.007	3	-.456	13	-.561	3
17		4	max	.057	3	.023	14	.196	3	.141	13
18			min	-.025	13	-.026	3	-.141	13	-.196	3
19		5	max	.065	3	.039	14	.658	14	.601	3
20			min	-.024	13	-.045	3	-.601	3	-.658	14
21	M3	1	max	0	1	.002	1	.268	11	.154	13
22			min	0	1	-.004	14	-.154	13	-.268	11
23		2	max	0	1	0	1	.222	11	.138	13
24			min	0	1	-.004	14	-.138	13	-.222	11
25		3	max	0	1	0	1	.207	3	.133	13
26			min	0	1	-.005	8	-.133	13	-.207	3
27		4	max	0	1	0	13	.198	3	.138	13
28			min	0	1	-.005	8	-.138	13	-.198	3
29		5	max	0	1	-.001	13	.172	3	.189	14
30			min	0	1	-.006	8	-.189	14	-.172	3

Envelope Member Section Deflections

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
1	M1	1	max	0	1	0	1	NC	1
2			min	0	1	0	1	NC	1
3		2	max	0	13	.073	13	1176.463	13
4			min	0	3	-.113	12	761.311	12
5		3	max	0	13	.125	13	685.331	13
6			min	-.002	3	-.198	12	433.42	12
7		4	max	.001	13	.099	13	875.844	13
8			min	-.002	3	-.158	12	548.909	12
9		5	max	.002	13	.003	13	NC	13
10			min	-.003	3	-.005	3	NC	3
11	M2	1	max	.003	3	.003	13	NC	13
12			min	-.002	13	-.005	3	NC	3
13		2	max	.002	3	.099	13	875.844	13
14			min	-.001	13	-.124	3	709.363	3
15		3	max	.002	3	.125	13	685.331	13
16			min	0	13	-.157	3	550.06	3
17		4	max	0	3	.073	13	1176.463	13
18			min	0	13	-.093	3	923.488	3
19		5	max	0	1	0	1	NC	1
20			min	0	1	0	1	NC	1
21	M3	1	max	0	1	0	1	NC	1
22			min	0	1	0	1	NC	1
23		2	max	0	1	.059	13	2453.865	13
24			min	0	1	-.085	3	1686.568	3
25		3	max	0	1	.078	13	1852.101	13
26			min	0	1	-.115	3	1255.837	3

Company : Structural Engineering Associates, Inc.
Designer : Philip Steed, PE
Job Number : 2016064.00

Rafter Analysis

July 18, 2016
10:28 AM
Checked By:_____

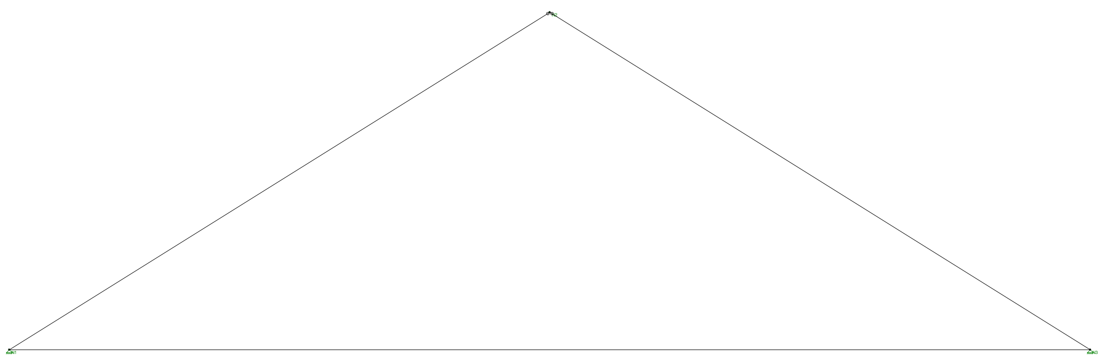
Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
27		4	max	0	1	.059	13	2453.865	13
28			min	0	1	-.085	3	1686.568	3
29		5	max	0	1	0	1	NC	1
30			min	0	1	0	1	NC	1

Envelope Wood Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	LC	Fc'[ksi]	Ft'[ksi]	Fb'[ksi]	Fv'[ksi]	Eqn
1	M1	2X3.75FS	.526	0	11	.274	0	8	.602	.96	1.898	.232	3.9-3
2	M2	2X3.75FS	.494	7.075	4	.268	7.075	4	.526	.69	1.372	.167	3.9-3
3	M3	2X7FS	.195	6	4	.038	12	8	.074	.552	1.064	.167	3.9-3

Members OK based on assumed lumber type, in good condition



Solution: Envelope

Structural Engineering Ass...	Rafter Analysis	SK - 1
Philip Steed, PE		July 18, 2016 at 10:46 AM
2016064.00		Roof Frame Milk House ASD.r2d

Loads to Risa for Roof Framing Calculation
Milk House
2016046
Roof is asphalt shingles with plywood over original skip sheathing

Galvanized Metal Roof, wt. =	2.65	psf	16 Gauge Assumed
Wood sheathing, wt =	2.25	psf	

DL

Member	PSF		PLF	
M1	4.9	x 2.8'	14	Roof and sheathing
M2	4.9	x 2.8'	14	Roof and sheathing

RLL

M1	20	x 2.8'	56	IBC 2016
M2	20	x 2.8'	56	IBC 2016

WL1

M1	20.6	x 2.8'	58	Wind load spreadsheet Zone 3 Negative, 10ft2
M2	20.6	x 2.8'	58	Wind load spreadsheet Zone 3 Negative, 10ft3

WL2

M1	16.1	x 2.8'	45	Wind load spreadsheet Zone 3 Positive, 10ft3
M2	20.6	x 2.8'	58	Wind load spreadsheet Zone 3 Negative, 10ft3

SL

M1	20	x 2.8'	56	ASCE 7-05
M2	20	x 2.8'	56	ASCE 7-05

Global

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automaticly Iterate Stiffness for Walls?	Yes
Maximum Iteration Number for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	AISI NAS-04: ASD
Wood Code	AF&PA NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building

Number of Shear Regions	4
Region Spacing Increment (in)	4
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

Wood Material Properties

	Label	Type	Database	Species	Grade	Cm	Emod	Nu	Therm (\1E5 F)	Dens[k/ft^3]
1	DF/SPine	Solid Sa...	Visually ...	Com Species G...	No.1		1	.3	.3	.035
2	HF/Spruce Fir	Solid Sa...	Visually ...	Com Species G...	No.1		1	.3	.3	.035
3	DF	Solid Sa...	Visually ...	Douglas Fir-Lar...	No.1		1	.3	.3	.035
4	SP	Solid Sa...	Visually ...	Southern Pine	No.1		1	.3	.3	.035
5	HF	Solid Sa...	Visually ...	Hem-Fir	No.1		1	.3	.3	.035
6	SPF	Solid Sa...	Visually ...	Spruce-Pine-fir	No.1		1	.3	.3	.035
7	24F-1.8E D...	Glulam	Table 5A	24F-1.8E_DF_...	na		1	.3	.3	.035
8	24F-1.8E D...	Glulam	Table 5A	24F-1.8E_DF_...	na		1	.3	.3	.035
9	24F-1.8E S...	Glulam	Table 5A	24F-1.8E_SP_...	na		1	.3	.3	.035
10	24F-1.8E S...	Glulam	Table 5A	24F-1.8E_SP_...	na		1	.3	.3	.035
11	W11	Solid Sa...	Visually ...	Yellow Poplar	No.2		1	.3	.3	.027
12	Red Oak No...	Solid Sa...	Visually ...	Red Oak	No.1		1	.3	.3	.047
13	LVL-PRL C...	Custom	N/A	LVL_PRL_2.0E...	na		1	.3	.3	.035

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Temp [F]
1	N1	0	0	0
2	N2	6	3.75	0
3	N3	12	0	0

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Rotation[k-ft/rad]	Footing
1	N1	Reaction	Reaction		
2	N2				
3	N3	Reaction	Reaction		

Wood Design Parameters

	Label	Shape	Length[...	Le-out[ft]	Le-in[ft]	le-bend top[ft]	le-bend b...	K-out	K-in	CV	Cr	Out sw...	In sway
1	M1	2X4.875FS	7.075	2		2					Yes		
2	M2	2X4.875FS	7.075	2		2					Yes		
3	M3	2X4.875FS	12								Yes		

Member Distributed Loads (BLC 1 : DL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.014	-.014	0	0
2	M2	Y	-.014	-.014	0	0

Member Distributed Loads (BLC 2 : RLL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.056	-.056	0	0
2	M2	Y	-.056	-.056	0	0

Member Distributed Loads (BLC 3 : WL1)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	y	.058	.058	0	0
2	M2	y	.058	.058	0	0

Member Distributed Loads (BLC 4 : WL2)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	y	-.045	-.045	0	0
2	M2	y	.058	.058	0	0

Member Distributed Loads (BLC 5 : SL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.056	-.056	0	0
2	M2	Y	-.056	-.056	0	0

Member Distributed Loads (BLC 6 : LL)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,%]	End Location[ft,%]
1	M3	Y	0	0	0	0

Load Combinations

	Description	Solve	PD...	SR...	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	IBC 16-8	Yes			DL	1														
2	IBC 16-9	Yes			DL	1	LL	1												
3	IBC 16-10 (a)	Yes			DL	1	RLL	1												
4	IBC 16-10 (b)	Yes			DL	1	SL	1												
5	IBC 16-11 (a)	Yes			DL	1	LL	.75	RLL	.75										
6	IBC 16-11 (b)	Yes			DL	1	LL	.75	SL	.75										
7	IBC 16-12 (a)	Yes			DL	1	3	1												
8	IBC 16-12 (b)	Yes			DL	1	4	1												
9	IBC 16-13 (a)	Yes			DL	1	3	.75	LL	.75	RLL	.75								

Load Combinations (Continued)

	Description	Solve	PD...	SR...	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
10	IBC 16-13 (b)	Yes			DL	1	3	.75	LL	.75	SL	.75								
11	IBC 16-13 (c)	Yes			DL	1	4	.75	LL	.75	RLL	.75								
12	IBC 16-13 (d)	Yes			DL	1	4	.75	LL	.75	SL	.75								
13	IBC 16-15 (a)	Yes			DL	.6	3	1												
14	IBC 16-15 (b)	Yes			DL	.6	4	1												

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Moment [k-ft]	LC
1	N1	max	.382	3	.519	3	0	1
2		min	-.157	14	-.274	13	0	1
3	N3	max	.09	13	.519	3	0	1
4		min	-.441	11	-.274	13	0	1
5	Totals:	max	0	7	1.038	3		
6		min	-.386	8	-.548	13		

Envelope Member Section Forces

	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
1	M1	1	max	.593	3	.32	11	.194	11
2			min	-.225	13	-.191	13	-.098	13
3		2	max	.526	3	.174	11	.161	13
4			min	-.234	13	-.102	13	-.243	11
5		3	max	.458	3	.027	11	.263	13
6			min	-.243	13	-.014	13	-.421	11
7		4	max	.391	3	.074	13	.21	13
8			min	-.252	13	-.119	12	-.34	11
9		5	max	.324	3	.163	13	0	1
10			min	-.26	13	-.265	11	0	1
11	M2	1	max	.324	3	.202	3	0	1
12			min	-.26	13	-.163	13	0	1
13		2	max	.391	3	.095	3	.21	13
14			min	-.252	13	-.074	13	-.263	3
15		3	max	.458	3	.026	14	.263	13
16			min	-.243	13	-.013	3	-.335	3
17		4	max	.526	3	.114	14	.161	13
18			min	-.234	13	-.121	3	-.216	3
19		5	max	.593	3	.202	14	.093	3
20			min	-.225	13	-.229	3	-.181	14
21	M3	1	max	0	1	.011	3	.098	13
22			min	0	1	-.023	14	-.194	11
23		2	max	0	1	.005	3	.084	13
24			min	0	1	-.026	14	-.153	11
25		3	max	0	1	0	1	.079	13
26			min	0	1	-.029	8	-.126	3
27		4	max	0	1	-.003	13	.084	13
28			min	0	1	-.035	8	-.118	3
29		5	max	0	1	-.007	13	.181	14
30			min	0	1	-.04	8	-.093	3

Envelope Member Section Stresses

	Member	Sec		Axial[ksi]	LC	Shear[ksi]	LC	Top Bending[k...	LC	Bottom Bendin...	LC
1	M1	1	max	.061	3	.049	11	.149	13	.294	11
2			min	-.023	13	-.029	13	-.294	11	-.149	13
3		2	max	.054	3	.027	11	.368	11	.243	13

Envelope Member Section Stresses (Continued)

	Member	Sec		Axial[ksi]	LC	Shear[ksi]	LC	Top Bending[k...	LC	Bottom Bendin...	LC
4			min	-.024	13	-.016	13	-.243	13	-.368	11
5		3	max	.047	3	.004	11	.638	11	.399	13
6			min	-.025	13	-.002	13	-.399	13	-.638	11
7		4	max	.04	3	.011	13	.515	11	.318	13
8			min	-.026	13	-.018	12	-.318	13	-.515	11
9		5	max	.033	3	.025	13	0	1	0	1
10			min	-.027	13	-.041	11	0	1	0	1
11	M2	1	max	.033	3	.031	3	0	1	0	1
12			min	-.027	13	-.025	13	0	1	0	1
13		2	max	.04	3	.015	3	.398	3	.318	13
14			min	-.026	13	-.011	13	-.318	13	-.398	3
15		3	max	.047	3	.004	14	.507	3	.399	13
16			min	-.025	13	-.002	3	-.399	13	-.507	3
17		4	max	.054	3	.018	14	.327	3	.243	13
18			min	-.024	13	-.019	3	-.243	13	-.327	3
19		5	max	.061	3	.031	14	.274	14	.141	3
20			min	-.023	13	-.035	3	-.141	3	-.274	14
21	M3	1	max	0	1	.002	3	.294	11	.149	13
22			min	0	1	-.003	14	-.149	13	-.294	11
23		2	max	0	1	0	3	.232	11	.127	13
24			min	0	1	-.004	14	-.127	13	-.232	11
25		3	max	0	1	0	1	.191	3	.119	13
26			min	0	1	-.004	8	-.119	13	-.191	3
27		4	max	0	1	0	13	.179	3	.127	13
28			min	0	1	-.005	8	-.127	13	-.179	3
29		5	max	0	1	-.001	13	.141	3	.274	14
30			min	0	1	-.006	8	-.274	14	-.141	3

Envelope Member Section Deflections

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
1	M1	1	max	0	1	0	1	NC	1
2			min	0	1	0	1	NC	1
3		2	max	0	13	.062	13	1383.003	13
4			min	0	3	-.097	11	885.225	11
5		3	max	0	13	.092	13	933.03	13
6			min	-.002	3	-.146	12	588.99	12
7		4	max	.001	13	.069	13	1273.09	13
8			min	-.002	3	-.109	11	798.213	11
9		5	max	.002	13	.003	13	NC	13
10			min	-.003	3	-.005	3	NC	3
11	M2	1	max	.003	3	.003	13	NC	13
12			min	-.002	13	-.005	3	NC	3
13		2	max	.002	3	.069	13	1273.09	13
14			min	-.001	13	-.089	3	999.565	3
15		3	max	.002	3	.092	13	933.03	13
16			min	0	13	-.119	3	727.23	3
17		4	max	0	3	.062	13	1383.003	13
18			min	0	13	-.081	3	1062.34	3
19		5	max	0	1	0	1	NC	1
20			min	0	1	0	1	NC	1
21	M3	1	max	0	1	0	1	NC	1
22			min	0	1	0	1	NC	1
23		2	max	0	1	.077	13	1871.359	13
24			min	0	1	-.111	3	1299.213	3
25		3	max	0	1	.102	13	1417.603	13
26			min	0	1	-.149	3	963.335	3

Company	: Structural Engineering Associates, Inc.		July 18, 2016
Designer	: Philip Steed, PE		10:47 AM
Job Number	: 2016064.00	Rafter Analysis	Checked By:_____

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
27		4	max	0	1	.077	13	1871.359	13
28			min	0	1	-.111	3	1299.213	3
29		5	max	0	1	0	1	NC	1
30			min	0	1	0	1	NC	1

Envelope Wood Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	LC	Fc'[ksi]	Ft'[ksi]	Fb'[ksi]	Fv'[ksi]	Eqn
1	M1	2X4.875FS	.414	3.759	4	.213	0	8	.615	.644	1.291	.167	3.9-3
2	M2	2X4.875FS	.414	3.317	4	.211	7.075	4	.615	.644	1.291	.167	3.9-3
3	M3	2X4.875FS	.214	12	8	.037	12	8	.074	.644	1.256	.167	3.9-3

Members OK based on assumed lumber type, in good condition

South elevation and back porch. (STRATA 2016)

APPENDIX H

TREATMENT ALTERNATIVES WORKSHOP NOTES

STRATA
ARCHITECTURE + PRESERVATION

WORKSHOP NOTES

Blackstone House Treatment Alternatives Workshop
Hopewell Culture National Historical Park, Ohio
Blackstone House Historic Structures Report Project
IDIQ # P14PC00446 / Project # P16PD00461

August 21, 2016
9:00 AM, EST, Workshop

Greetings and Introductions

Workshop Attendees
Dean Alexander, NPS HOCU, Superintendent
Rick Perkins, NPS HOCU, Chief Ranger
Dr. Bret Ruby, NPS HOCU, Chief, Resource Management
Dr. Kathy Brady, NPS HOCU, Curator
Bill Harlow, NPS Midwest Regional Office, Chief, Historic Architecture and Landscapes
Al O'Bright, NPS Midwest Regional Office, Historical Architect
Marla McEnaney, NPS Midwest Regional Office, Historical Landscape Architect (Phone)
Dave Snyder, Ohio SHPO, Archaeology Reviews Manager
Lisa Adkins, Ohio SHPO, Architecture Reviews Manager
Dee Stevenson, Friends of Hopewell Culture NHP
Angie Gaebler, STRATA Architecture + Preservation
Claire Ashbrook, STRATA Architecture + Preservation

Workshop Focus and Goals
These meeting notes document the treatment alternatives work session held on August 21, 2016 at Hopewell Cultural National Historical Park (HOCU). The purpose of the workshop was to review the relevant historic and comparative information, review schematic treatment recommendation options for the existing Blackstone house and outbuildings, discuss treatment concepts, and develop a preferred treatment alternative option from the schematic options.

Review of report draft and project progress
Angie Gaebler provided a brief introduction to the workshop, which included: site orientation; a summary of the consulting work completed to date; documentation of physical conditions of the house and outbuildings; research of the history of the Blackstone property, landscape and buildings; and analysis of integrity of the landscape from the 2016 Cultural Landscape Report.

Project Scope and Issues
Review of the Project Scope of Work objectives. Refer to slide.

World Heritage Site Pending Nomination
The status of the World Heritage Site pending nomination was discussed. The group also discussed the effect the nomination may have on the HOCU park and specifically the potential for a sharp increase in the number of visitors to the Seip site and what the required visitor infrastructure might entail. Rick thought that the estimated capacity mentioned of almost 300,000 visitors would be more or less distributed between each of the sites.

Site History
Maps of the property development and ownership were shown, as well as a timeline of historical events and historic photographs of the house and site. The findings provide a foundation for developing treatment alternatives for the location and use of the property, the main house and the outbuildings.

In addition to the dates outlined on the maps and history found to date, the following was discussed:

- Lisa had copies from *The Great Big Book of Everything*, as she called it. She gave our team copies. There was a document in there from Mrs. Camp that indicates the purchase of the property where the Seip Mound is located.
- Lisa said there were bridges crossing Paint Creek and that Camp Sherman has been documenting that information.
- Team has identified that the Blackstone house is an older style for the date that is was built and we believe that the builder must have come from Virginia. There were several Virginia families in the area and none of them built Virginia style homes. Lisa noted that this is a prestigious style of house, but that it does not have the imposing size.
- Dee noted that William Martell was building in Chillicothe in 1830 and 1840 and built her grandfather's house. He was from Virginia. Our team has been looking into builders, but have not found much information related to the Blackstone property.
- The facilities division of the SHPO might have interior photographs of the Blackstone house.

Comparative Properties
Angie reviewed research the HSR team has compiled of comparative public properties in the Eastern United States. Twenty SHPOs were contacted and the team received responses from fifteen. Sixteen sites were identified in fifteen Eastern states that contain prehistoric earthworks <u>and</u> 19^{th} or 20^{th} century architecture. The properties were broken down into three categories by interpretive emphasis.

- Type One was identified as Prehistory Dominates – Visitors come for archaeological significance. Historic and modern buildings and feature are considered intrusions and target for removal.
- Type Two was History Dominates – Visitors expect to be interested in historic resources, such as architecture. Prehistoric resources are often mentioned only in passing, if at all.
- The final category, Type Three was identified as Diverse Interpretation – Site explores full continuum of use, with information about both prehistoric and historic resources.

The site most closely related to HOCU is Seminole Rest Historic Site in Florida. Our team has contacted them for further information, specifically, how utilities were supplied to the buildings located on the shell mounds.

Blackstone House and Outbuildings Existing Conditions Analysis
Angie Gaebler reviewed the existing conditions assessment for the Blackstone house and outbuildings, which included civil (utilities), structural, and architectural analysis of the site. These will be further discussed in the report.

2016 Cultural Landscape Treatment Alternatives
Angie Gaebler reviewed treatment alternatives highlighted in the 2016 Cultural Landscape Report.

- o Action Alternative 1 – Preserving Earthwork Complexes: Focus on preserving the earthwork complexes, better delineate archeological features and spaces to make them more visible, and provide a visitor experience in sync with earthwork preservation. This option retains non-contributing features that do not impact the visitor's ability to interpret the archaeological features – including the Blackstone house and outbuildings. In this approach, they recommend using the Blackstone house as a potential visitor orientation area with parking closer to the house. Fences, power lines and the propane tank would be removed.
  - o Since this alternative was developed, GPR in the area to the north of the house has located significant archeological features and therefore, the parking lot cannot be located where it is indicated in this plan.
  - o Also, this option shows Dill Road being removed. This cannot happen, as the owner to the east uses this road to access their fields.
- o Action Alternative 2 – Conserving and Revealing Earthwork Complexes: Focus on preserving extant below and above-grade archeological features, clearly delineate archeological features and spaces, balance removal of non-contributing features with earthwork preservation, and provide visitor experiences and management tailored to the individual character of each park unit. At Seip Earthworks, the focus would be to delineate non-extent archeological features (mounds, earthen walls, etc.). All non-contributing features would be demolished, including the Blackstone house and outbuildings. A small visitor orientation area is located to the north and east of the house, adjacent to Dill road.

Mission Statement
The HOCU park mission statement clearly focuses on the interpretation and stewardship of the archaeological features associated with the Hopewell peoples. The group agreed that the mission statement for the Seip site could be expanded, specifically to include the preservation and interpretation of the 19th and 20th century architecture and archeological investigations associated with the site, including the house and outbuildings. Because there is little documentation of the early site, interpretation as an evolved landscape is a possibility. More work would need to be done to establish a final mission statement for this site.

How to Interpret the Seip Earthworks?
Periods of significance of earthworks is AD 1 to AD 400, while POS for Blackstone house and outbuildings is ca. 1857-1957. These histories are intertwined.

External Factors Related to Potential Building Programming
The group reviewed project goals.

- o While the construction of the foundation of the Blackstone House disturbed the earthwork wall, the very presence of the house and outbuildings on the site has helped preserve the earthworks through the years.
- o Visitor Use/Experience/Needs/Expectation:
  1. Multi-Access to park. Vehicular, pedestrian, bike, canoe, trails, etc.
  2. ADA Access throughout park and to any visitor facilities.
  3. Visitor Facilities –

        - Restrooms (Require significant utilities)
        - Drinking Water (external)
        - Shelter
    4. Interpretation
        - Visitor Orientation Gathering Area – With or Without a Visitor Center
        - Clear Message/Educational Resources
    5. Technology
    6. Resource Protection
    7. Authentic Visitor Experience
- Potential World Heritage Listing = Increase in Visitors and Visitor Expectations and Sophistication

Potential Further Research

1. Section Cut Trench through existing mound at Blackstone House location to determine original breadth, height and authenticity of the existing earthworks surrounding the house and outbuildings.
2. Locate all non-extant outbuildings (barns, sheds, outhouses). Overlay these findings with a current GIS site plan and also with the most recent GPR study.
3. TV the septic clean-out west of the house to determine what type of septic system is installed. *(This was completed by the park since the workshop)*.
4. Remove concrete floor in milk house and investigate original floor depth and material.
5. National Register Nomination update or new, per discussions with the SHPO/NPS.

National Register Nomination

This discussion happened in conjunction with discussion of the treatment alternatives. The current National Register Nomination is multi-faceted. The first nomination was completed in 1971 and focused on the Seip Earthworks. A subsequent National Register Nomination focused on the Dill Earthworks District. The National Register nominations are not clear. The boundaries are not clear. The Blackstone house and outbuildings are not mentioned in the nomination. In the current nominations, the house and outbuildings are invisible.

To date, no formal eligibility for the Blackstone house and outbuildings has been filed. It is safe to assume it is eligible. Another site, Hopewell Mounds, has similar issues, as that it contains historic barns. The NPS identified the house as potentially eligible by listing it in the LCS (List of Classified Structures).

Follow-up conversations with the SHPO on a potential NR filing should occur in conjunction with this project. The need to re-address the existing NR nomination for ‘ancient’ earthworks needs updating. The HSR team is not currently contracted to prepare a NR. We had given a cost to do this, but that only included the house and outbuildings, not the earthworks. There is potential for updating the current NR or filing one or two new NR nominations (one for the house and one for the earthworks, or possibly combining them). There is a story to tell with the evolution of the site. Surveyed by VA Military District, telling the story of Western European farming, who was moving into the area, etc. The house was potentially used during the archaeological excavations as a storage and office facility *(Also later proven through a letter found to have been written by Mary Schlegel)*. Centuries later, re-assembling the land to join the earthworks. The 1970s NR nominations only looked at the earthworks, as the site is continued to be

interpreted for the next 40 years, it may be more important to see the house and outbuildings as part of the site. The period of significance needs to account for the amount of change. Looking at or potentially utilizing the World Heritage Nomination may be a possibility.

Other Sidebar Discussions that Occurred with the Alternative Options Discussion:
The consulting tribes were given the schedule for archaeology investigations for Blackstone this summer.

Arizona State had a field school who lived in this house in 2005. They took a lot of video. It might be worth our team or the park trying to track these videos down. They might show some of the missing mantels and different interior/exterior conditions of the buildings.

The park may have one of the missing mantels in storage. They will look into this. *(Since the workshop, the mantel for the West Parlor 103 has been located)*.

Previous hazardous materials survey of the site is available and will be shared with the team. The park seems to recall only minor asbestos was found within the house. *(Since the workshop, this document has been shared with the team)*.

When trees within the earthworks die, they are removed. Trees on the earthworks are removed and not replanted. The park may plant new trees within the earthworks where there are no archaeological findings, in order to provide shade for visitors.

The Seip Earthworks may be the best site the park owns for teaching and interpreting the mortuary burial mounds. In addition, there is archaeology everywhere, based on the recent magnetic study.

Current NPS climate may allow for more funding for existing structures versus new structures.

If the house is used, it may affect the park API, but Bill mentioned that if the house is a WIFI space, it could help make it higher.

Treatment Alternative Options General Discussion
The group reviewed potential Treatment Alternatives and discussed options, including pros and cons for each alternative.

Items to think about related to the treatment alternatives is budgeting (project $ versus operations $). The long term operational cost of reusing the buildings. Where would this $ come from? How would it be staffed?

All treatment alternatives should include that a nearby visitor contact station is constructed on site or on an adjacent site, which will be either staffed or un-staffed and will include restrooms, drinking water and Seip Earthworks site interpretation. One location that was discussed would be to locate the visitor contact station near the school, which has a packaged sewer treatment system that could be potentially shared between the school and park visitor center. This has not been discussed with the school district.

One of the questions that was asked was, "Does the potential use of the house give greater benefit than the impact of the installation of the required utilities?"

In terms of the house and outbuildings, several general observations were made for pros and cons for the retention of the buildings, versus their removal, which apply to all treatment alternatives, which include the following:

Pros:

- Some people think the house is a diversion to visitors of the Seip Earthworks. Others think that the massing of the house compared to the mass of the mounds is so small, that it is a non-issue. The mass of the high school is much greater and much more of a visual disturbance.
- Leaving the house and outbuildings allows for future new site interpretation and site stewardship. There are many possibilities when it comes to this new interpretation, including the continuum of the occupancy of the site; the impact of modern into a prehistoric site; the impact of agriculture on prehistoric sites; the impact of the site on the archaeology preservation and investigation, etc.
- The house provides a human perspective on the earthworks wall.

Cons:

- Some people think the house is a diversion to visitors of Seip Earthworks. Others think that the massing of the house compared to the mass of the mounds is so small, that it is a non-issue. The mass of the high school is much greater and much more of a visual disturbance.
- If the house and outbuildings are kept, you lose the opportunity for archaeological excavations in these specific locations.

Option 1: Preservation & Maintenance of Existing Structures (Interim Preservation and Maintenance)

There could be levels of mothballing. The mothballing terminology was not well received by the workshop attendees, who preferred to use a different term, since mothballing can be a negative term. Therefore, the term Interim Preservation and Maintenance is used. Basic interim preservation may only include passive ventilation with no utilities, while a more holistic approach may include installation of new ventilation systems to condition the building.

- Pros:
    - Preserving the house in the existing location buys time to contemplate future uses and opportunities and to reach out to other constituencies.
    - Gives time to fundraise, garner support and put together outreach. For instance, Friends of HOCU could help engage SCOPS (South Central Ohio Preservation Society).
    - This part of the state of Ohio has not been well documented architecturally. This may allow time for further research. There are information gaps, with no context document or historic survey. Has the capability to discuss more history of the area (Western Expansion, Reconstruction of the Mounds, etc.).
    - Mothballing cost less than fully operating the building.
    - Would make basic repairs to the buildings, which would make them more presentable to the visitors who come to the site. Right now, there are deferred maintenance items on all structures and they are an eyesore.
    - No need for immediate upgraded utilities to the buildings.

    - It is considered to be more sustainable to preserve the house than to demolish it.

- Cons:
    - Paying to heat/condition the building, but not using the structure. Still paying for visitor operations at another site.
    - It is currently not maintained and if mothballed and immediate repairs not made, it will remain an eyesore. As an eyesore, the house is more of a distraction to the visitor who comes to the site to interrupt the site of Hopewell Mounds.
    - By passively preserving the house, visitors to the site still want to visit and enter and learn about the house. There is a continued need for security of the house and outbuildings.
    - <u>Active</u> interpretation of the house is much better than <u>passive</u> existence of the house. Mothballing the structure makes it lose its importance, because people are not using the building.

Option 2: Rehabilitation of Existing Structures with New Use
This option contemplates a sensitive rehabilitation of the house, along with very limited utilities and visitor services. In this approach, the higher level visitor services, such as restrooms and drinking fountains, would be located in a nearby facility, such as an un-manned visitor contact station. Due to the archaeological sensitivity of the site, visitor services, such as large quantities of restrooms and such, will be not appropriate for placement within this building or the adjacent site. Even limited use of the building, such as by volunteers, will require basic utility services, including at least one functioning restroom facility.

Several potential uses were discussed, but this conversation will continue further in coming months. These uses included:
- Friends of HOCU NHP offices – This would include staff offices and would be open during certain hours and manned by Friends volunteers. Limited interpretation of the site would occur in the house, along with exhibits on the main floor. This would require a restroom for volunteer staff and ADA access to the house, along with adjacent ADA parking. Offices may or may not be located on the second floor. This facility would support interpretation of the mounds along with the Blackstone/Seip families.
- ODOT Stop/Interpretive Center – The group decided this was not appropriate for the house. This could be in conjunction with the un-staffed Visitor Contact station.
- Youth Hostel – The code requirements and restroom facilities for this type of use would not support a sensitive rehabilitation of the historic structure and therefore was not an option.
- Field School – The house could be used for day use for a field school, but overnight in the house is again, not a good fit due to the required utilities. Housing of any type is not a good option.
- Land lab or research station for adjacent schools. This facility could be used to partner with the local schools to provide laboratory space to explore archaeology, soils, etc. Programming for this type of use would be limited to provide very basic utilities, again, only one restroom and limited water distribution.
- Historic Leasing this house to a vendor who would be responsible for the rehabilitation of the house would lessen the maintenance requirements of the NPS. The cons associated with this is that it would introduce another party to the site. This was not a preferred arrangement for the park staff. A historic lease could require that the NPS provide the

rehabilitation costs, or that the lessee provide the rehabilitation. Leasing allows income to the park that is less restricted than other income.

The rehabilitation of the building could be done in stages, addressing the most significant issues first and per the available funding.

- Pros:
  - Limiting use to provide basic visitor services, limits the amount of utilities required to serve large numbers of visitors.
  - By limiting use, this limits the extent of the overall rehabilitation required of the historic buildings.
  - Due to the requirement of the foundation stabilization, excavation at the perimeter of the house and potentially in the basement is required. Brett was not concerned about the need for immediate excavation surrounding the house, even with the use of a back hoe. The tribes have acknowledged that further excavations at the earthworks is warranted, to determine any additional information that may be relevant to the findings from this summer 2016. Excavation required for the placement of the required new footings and piers would provide this opportunity. This excavation may also be able to include a full section cut of the earthworks to determine the full extent of the original earthworks, versus potential fill for the construction of the buildings.
  - House would no longer be an eyesore.
  - Active use of the house will allow for visitor access to the historic structure.

- Cons:
  - Will require utilities be brought to the house, including at least one restroom for staff or volunteers.
  - Will require excavation at the building perimeter and potentially within the basement, in order to stabilize the stone foundation walls, which are settling. A diagram of this solution of underpinning and installation of piers was presented and discussed in great detail. Design of piers and system will require geo-tech boring.
  - The potential impact of a fire suppression system may be great. This will need to be further explored.
  - Will require exterior ADA access to the house, which will be visible.
  - May require exterior mechanical equipment, which will be visible.
  - Active use of the house and outbuildings = greater maintenance.

Side Note: Al wants the team to explore removal of interior floors in order to complete the foundation stabilization and underpinning from the interior, rather than the exterior. The crawl spaces and floor joists likely require replacement and stabilization, so the interior floors will be required to be temporarily removed for access. Essentially, this would kill two birds with one stone. There is still excavation, but may be less noticeable from the interior. Also, explore solar panels on the house.

Option 3: Moving Existing House and Outbuilding Structures to an On Site Location

The workshop group decided that moving the house to another location on the property was not an option. Moving the structures would change the original architectural context and erase the story of the Blackstone house with the earthworks. Moving the structures would

require significant excavation for shoring and would also disturb possible archeologically significant sites. This costs would be very high. In order to move an eligible park structure, it must first be listed in the National Register. A new house could be built to look like this house for less than the cost of the move. There may be no good location on site to move the structures, because there is archaeology everywhere on the site. There were no benefits noted. This was not discussed any further.

Option 4: Demolish Structure

The workshop attendees did not prefer this option, but it was discussed in great detail. This discussion centered around general demolition of the structures and also the potential to move the buildings by selling or donating them to another potential owner for relocation off site.

- Moving the building off site was not an option (see reasons listed above). While moving the building off site may relieve guilt, it loses its integrity and still damages the site. One attendee suggested that NPS could potentially help fund the move, as a mitigation effort.
- In order to demolish an eligible park structure, it must first be listed in the National Register. Moving the building would make it ineligible for the NR after the move.
- Demolition would recommend that foundations remain in place, but be removed to at least six inches below the surface of the earth, so that mowing and maintenance of the earthworks is not hindered by the foundations. The foundations could be infilled with gravel for ease of removal. Leaving the foundations may be an issue with the tribes.
- Pros:
    - Demolition of the building would allow for archaeology investigations either during the demolition (which would be a very slow process) or at a future date.
    - Demolition of the building would improve the Pre-Columbian viewshed, although no one knows exactly what that viewshed would have been, so this is only one interpretation. May be preferred alternative for tribes.
    - Demolition reduces the resources that would have been utilized for the building maintenance and operation.
    - Demolition may reduce the soil disturbance versus rehabilitation.
- Cons:
    - Reduced authenticity of the site as interpreted through the continuum. Future interpretation of the site may benefit from having the house and outbuildings present. Lose opportunity to interpret Native American removal from this region.
    - Exposing foundation is a maintenance issue.
    - Loss of historic resources.
    - Irreversible.
    - Loss of authenticity – erasing a chapter of the site history and pretending it did not happen.
    - Demolition of these structures may entail the need to build something else in the future that may disturb other resources and may not be harmonious with the site.
    - Not considered to be sustainable to demolish these resources.

Treatment Alternatives Workshop Summary

A final preferred single treatment of the Blackstone house and outbuildings was not identified at this workshop. However, a clear direction, which includes the preservation and maintenance with a potential for future rehabilitation of the house and outbuildings was clearly identified as an outcome. With the Blackstone house and outbuildings assumed to be eligible for listing in

the National Register of Historic Places, a renewed interest in the potential future expanded interpretation of the Seip Earthworks site is a possibility.

Treatment recommendations that present a tiered approach to the preservation and maintenance of the Blackstone house and outbuildings will be prepared as part of the overall Historic Structures Report. In comparison, a cost and approach for demolition will also be discussed and provided, due to the atypical nature of this specific project.

The hope is that this project will be revisited in the near future, or within the next five years, in order to discuss all-encompassing architectural, site, contextual and visitor usage issues specific to the Seip Earthworks section of the HOCU National Historical park. Once the World Heritage site nomination is completed and visitors begin to utilize the site in greater numbers, future visitor amenities and uses may be better identified.

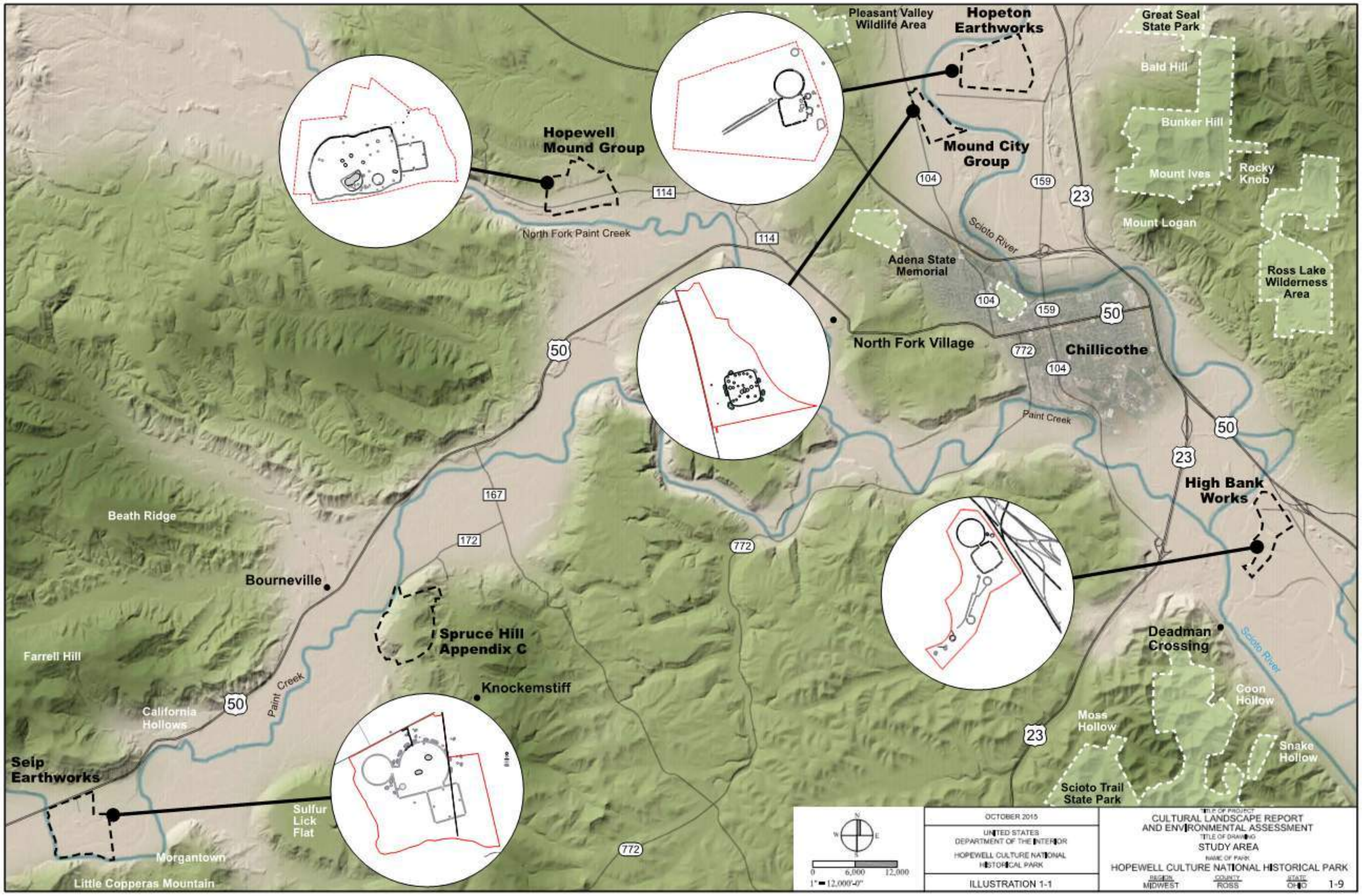
Blackstone House Treatment Alternatives Workshop

August 2016

Welcome to the Treatment Alternatives Workshop

WORK TO DATE: *Our Design Team has completed the on-site survey which includes measuring, documenting and assessing the structures and site utilities. Our team is currently working on the 80% draft Historic Structures Report.*

WORKSHOP FOCUS: *Discuss schematic treatment alternatives and determine a preferred treatment.*



Site Map from Cultural Landscape Report, 2016

Figure 3-10. Seip Earthworks was constructed on 236 acres in the shape of two immense circles and a precise square with astronomical alignments. The Seip-Pricer Mound was used for ceremonies and burials, and is the third largest burial mound the Ohio Hopewell are known to have built. (Digital reconstruction courtesy Center for the Electronic Reconstruction of Historical and Archaeological Sites, University of Cincinnati)

Site Map from Cultural Landscape Report, 2016

THE GOALS OF THE HISTORIC STRUCTURES REPORT FOR THE BLACKSTONE HOUSE AND TWO OUTBUILDINGS ARE AS FOLLOWS:

1. *Document the buildings through a history study and measured drawings;*
2. *Determine the condition of each building and the impact of that condition on treatment alternatives;*
3. *Determine a range of alternatives for the buildings including demolition, preservation and rehabilitation based upon the feasibility of utility access, accessibility requirements, and interior use potential;*
4. *Determine the impacts to the buildings, and especially archeological features underlying the buildings, as a result of developed treatment alternatives.*

Project Goals

1. **Potential Use or Fate of House and Outbuildings:** The Blackstone complex is considered the linchpin to how visitors could use the site if the buildings remain. All three buildings will be considered as a single complex. If the house is demolished, then all buildings would be demolished. If the house is rehabilitated, then all buildings would be rehabilitated.
2. **Archeological versus Historic Structure Concerns:** The Blackstone House is constructed directly over what is thought to be an undisturbed portion of the Seip Earthworks large circle mound. Most of the original mound has been degraded by agricultural activity and twentieth-century archeological excavations that led to eventual reconstruction of the mound. Understandably there has been considerable discussion as to whether the archeological features or the buildings are more significant to the unit.
3. **Comparative Analysis**: There are other examples of structures (some historic) built over pre-historic mounds. Provide a comparative analysis of other similar site examples to develop a sense of potential treatments for the Blackstone House complex.
4. **Structural Assessment:** Assess the structural condition of foundations, floor, wall, and roof systems that are exposed to inspection a sense of overall structural condition and repair costs. Of particular attention is whether the foundation can be repaired without gross excavations that may degrade archeological features.
5. **MEP Systems:** It is assumed that should an interior use be developed for the salvaged Blackstone House, all MEP systems will need to be replaced. Explore heating, cooling, and plumbing alternatives given available utilities to the Blackstone House.
6. **Civil Engineering:** The Blackstone House has a septic system installed a number of decades ago approximately southwest of the building. The condition of that system is unknown although it is assumed the system should be abandoned in place to prevent further disturbance of archeological features. If the building is slated to be salvaged and a need for MEP services is required for a rehabilitated interior, the challenge will be to potentially install subsurface electrical, gas, water and sanitary sewer service from Highway 50 to the house with as little ground disturbance as possible. Since the long-established driveway between Highway 50 and the house has already degraded the archeological record, the drive provides a convenient conduit for service lines. Recent archeological investigations that discovered significant subsurface archeological features on land each side of the drive concentrates service installation only at the drive. Contact local utility companies to locate available utilities along the Highway 50 right of way and determine the viability to access those utilities for the Blackstone House.
7. **Accessibility Analysis:** This project will identify the challenges of providing accessibility into the Blackstone House with regard to interior use/rehabilitation alternatives.

Significant Project Issues

Blackstone House Workshop
August 2016

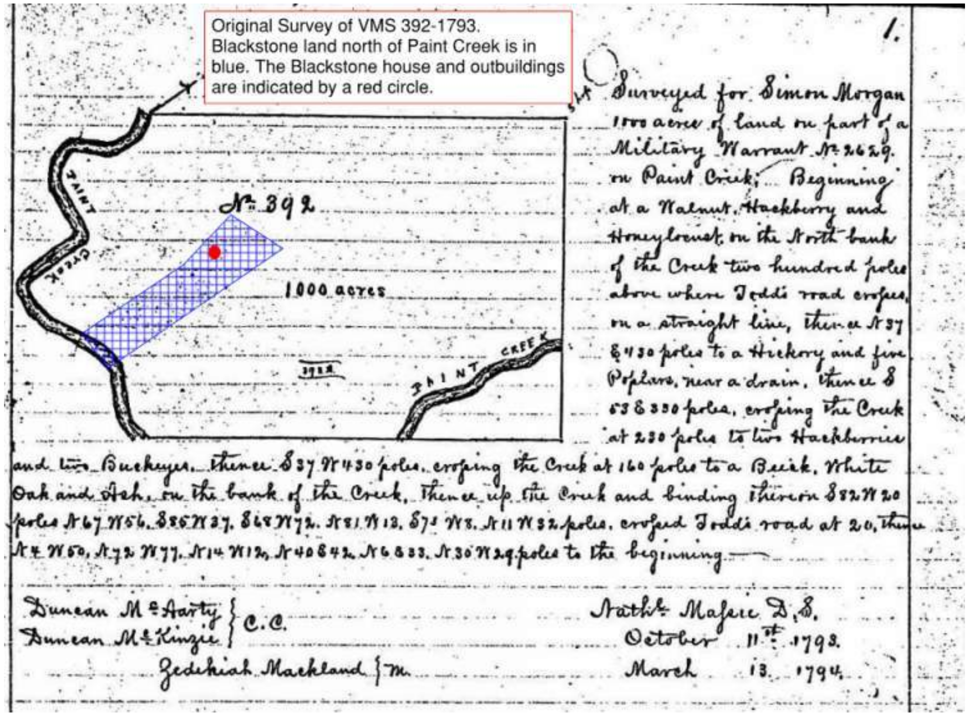
WORLD HERITAGE SITE – PENDING NOMINATION

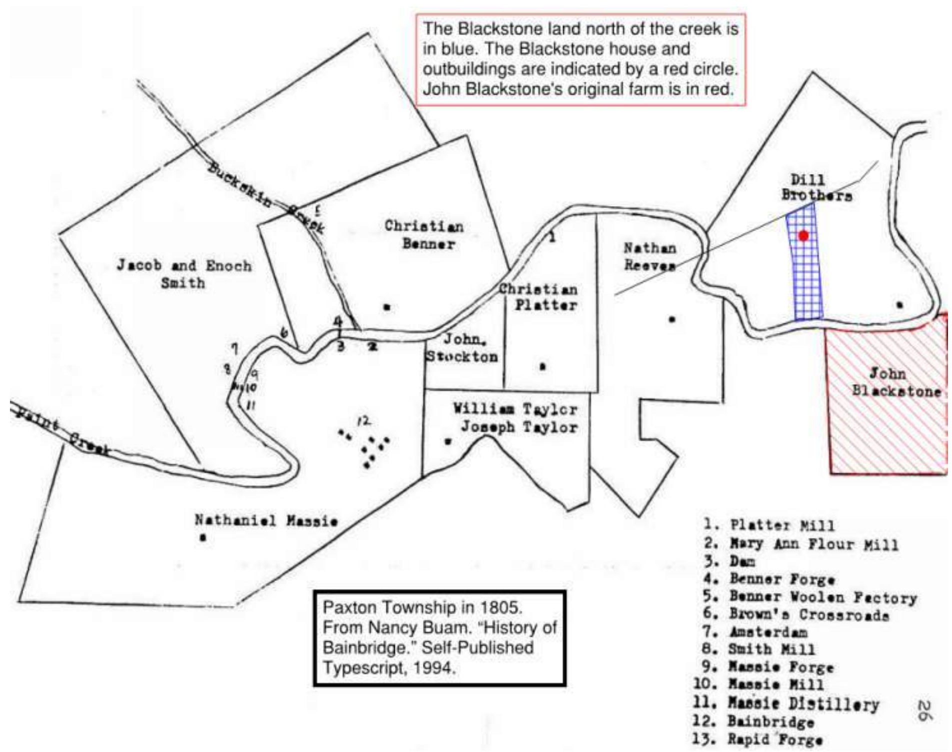
- World Heritage Sites are to identify and preserve the most important sites in the world.
- Out of the 800+ sites, 21 are in the United States.
- The pending nomination process will include the Hopewell Ceremonial Earthworks, which encompasses seven major regional sites, including Seip Earthworks.
- Currently, the Secretary of the Interior is expected to formally authorize the nomination in 2017.
- Following an evaluation by the International Council on Monuments and Sites (ICOMOS) and its International Committee on Archaeological Heritage Management (ICAHM), the World Heritage Committee will decide whether to inscribe the property in June 2019.
- Listing as a World Heritage Site may increase the visitor numbers exponentially. Increase of visitors also increases the needs for visitor infrastructure at historic sites.

WORLD HERITAGE SITE – PENDING NOMINATION

SITE VISIT FINDINGS:

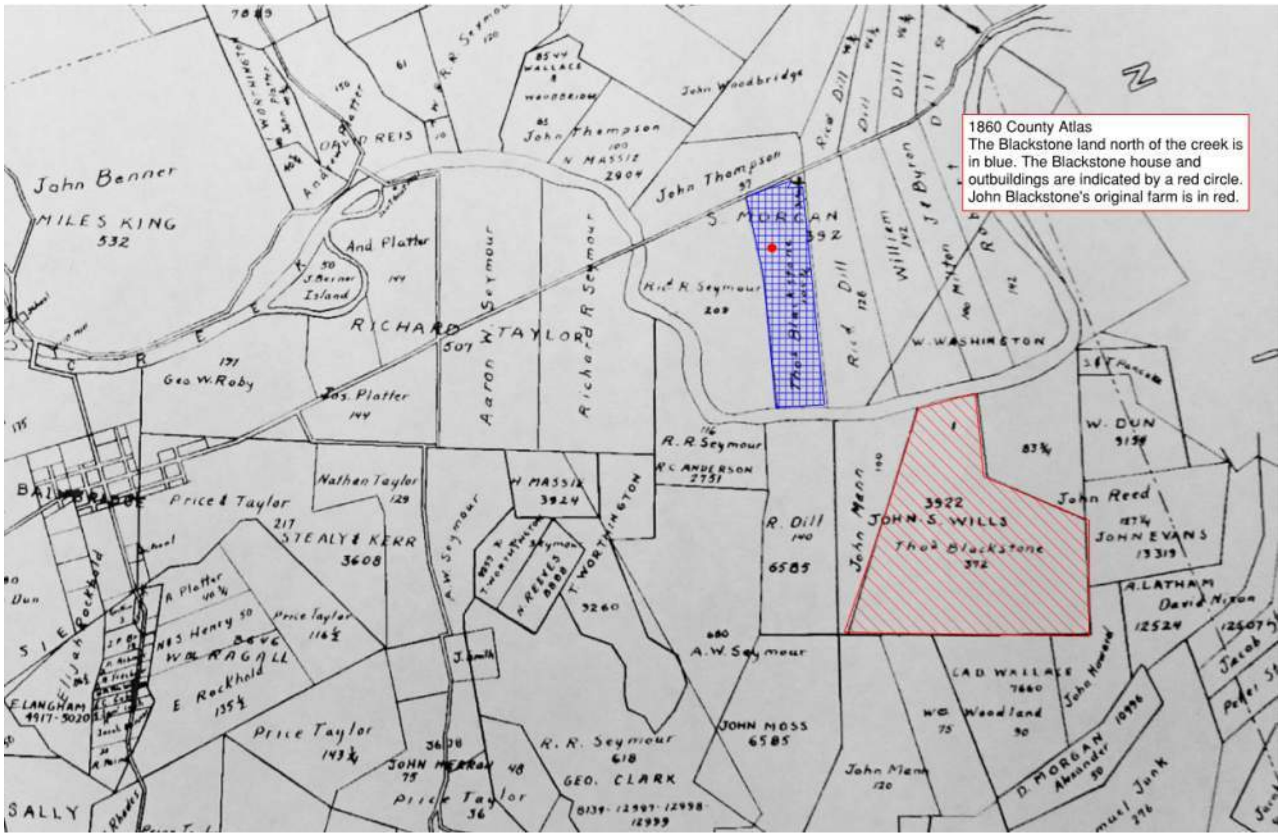
- No problem with the access road for now. They are ok and could be [removed] in mid-range plans.
- The powerlines. 1-2 people brought it up bit it [is] not a killer. (Mostly deals with Hopewell Mound). Power lines across sites have always been negatively viewed.
- Buffer Zones: At Seip, a large school was constructed in the 1990s adjacent to the site. While it is visually intrusive, its existence has not had a significant negative impact on the site.
- Relocation or direct boring of above-ground electrical lines was encouraged for Hopewell Mound Group.
- What is underground is just as vital to World Heritage as what is above ground.
- The level of awareness of earthworks in North America is growing.
- If you call them cultural landscapes, that allows change. It is the combined work of humanity and nature.





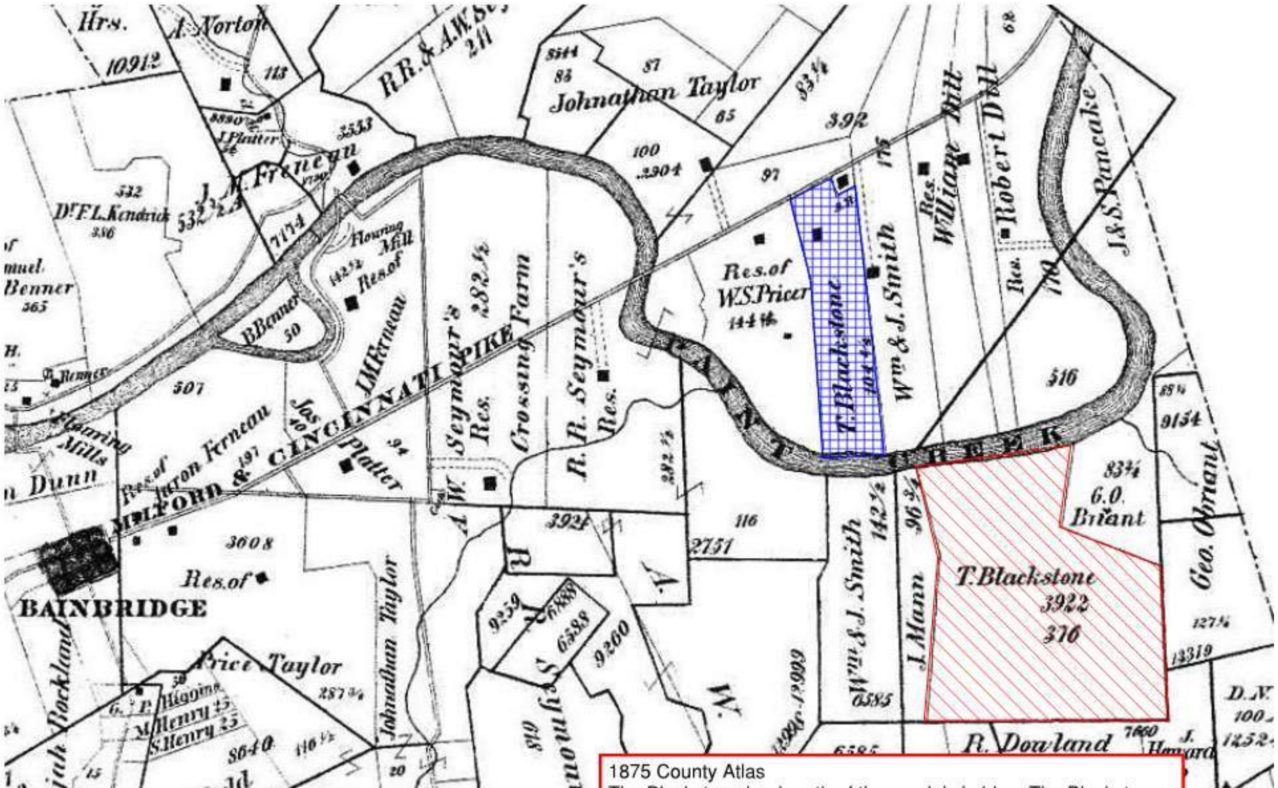
Historic Land Ownership

Blackstone House Workshop
August 2016



Historic Land Ownership

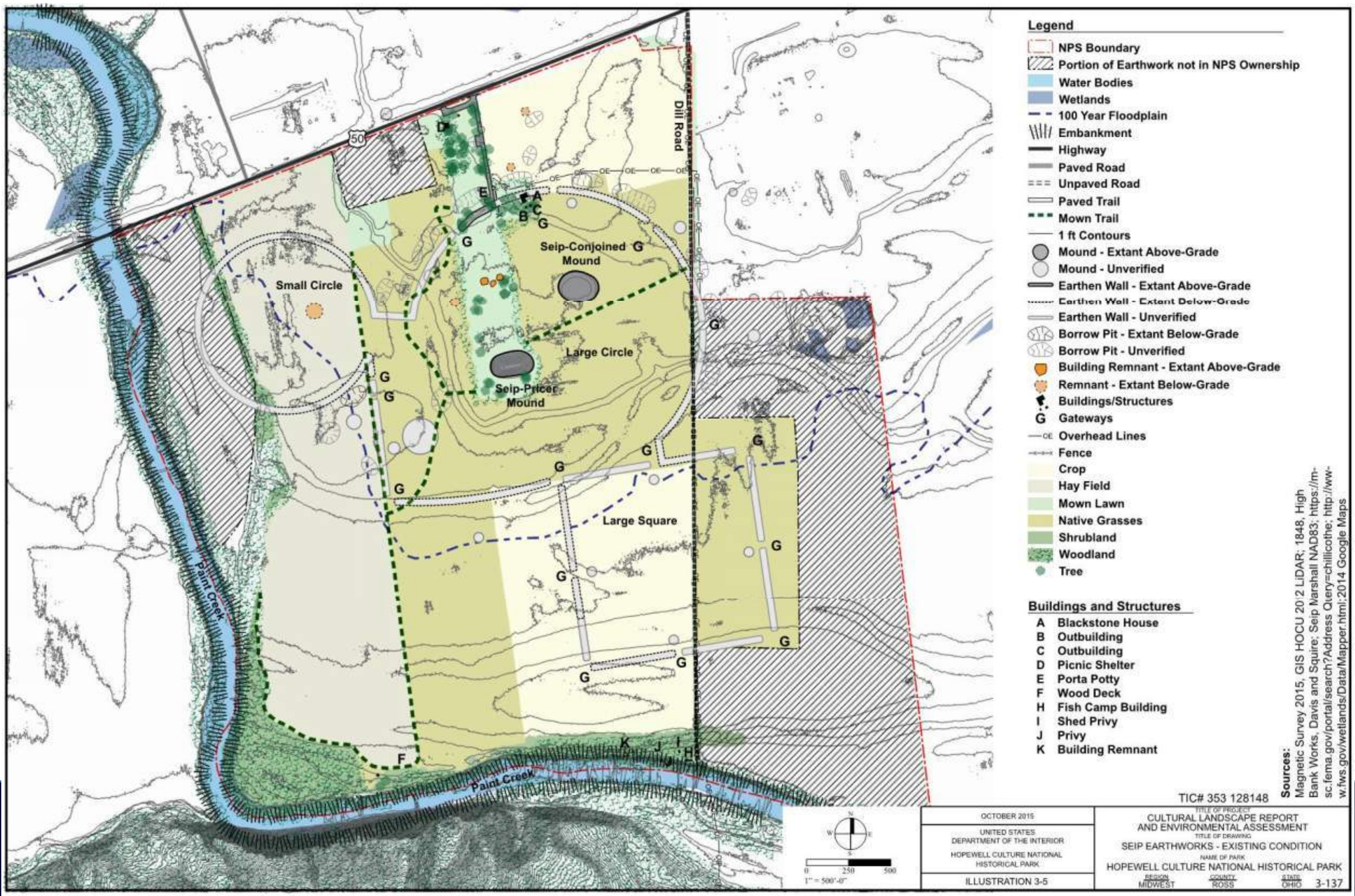
Blackstone House Workshop
August 2016



1875 County Atlas
The Blackstone land north of the creek is in blue. The Blackstone house and outbuildings are indicated by a red circle. The portion of John Blackstone's original farm owned by Thomas Blackstone is in red.

Historic Land Ownership

Blackstone House Workshop
August 2016



Existing Site

Blackstone House Workshop
August 2016

John Blackstone (father of Thomas) moved from Virginia. John bought 200 acres.
1805

Bainbridge founded.
1805

Squier and Davis record the site.
1846

Thomas Blackstone purchases 100 acres from R. R. Seymour and wife. Also owned 372 acres of father's estate nearby.
1852

Thomas Blackstone bought another 4-3/4 acres on the northwest edge of the 100 acres from Seymour (current property)
1853

County Real Estate Tax Book described a "new brick house" on Thos. Blackstone's 104¾ acre parcel, valued at $800. The Smokehouse was probably built at the same time or soon after.
1858

Population Census: Thomas 52, Farmer, Hannah 53, Real Estate Value: $8,900 and Personal Property Value: $1,818. 5 children living at home, plus a farmhand.
1860

Thomas Blackstone deeds a one acre parcel for a school to the Board of Education of Paxton County. The 1875 County Atlas shows a school house on that parcel, and there appears to have been something at that site in 1860 as well.
1878

Thomas Blackstone, Sr. dies. His will stipulates that all land be sold and the proceeds distributed to his heirs. Probate records include an inventory of his estate. Rooms specifically mentioned include the "Parlor", "Hall", "Dining Room", "Kitchen", "SE Bed Room", "Front Bed Room", "Each Bed Room upstairs." The inventory also includes processed meats such as hams and sides of bacon (indicating active smokehouse) as well as "crocks in milk house."
1882

Period of Significance

Blackstone House Workshop
August 2016

Thos. Blackstone, Jr. sells all of land Thos. Blackstone Sr. owned north of Paint Creek (104-3/4 acres) to Charles Seip for $13,900, at public auction. (Seip was high bidder.).

1883

Charles Seip dies. His will says to keep all of his property together. The land is listed in several of his offsprings' names in real estate tax records and other documents.

1902

1906-08, ca. William Mills of the OHS excavated western half of Seip Mound #2 and named Mound #1 Seip-Pricer

1906-1908

1925-1928 Henry Shetrone, the Director of the Ohio Historical and Archeological Society, excavates the large mound that is now called Seip Mound #1.

1925-1928

Elizabeth Seip, et. al. donate/sell .31 acres—their part of the Seip-Pricer Mound (part of the Blackstone estate) to the state for park use. Camp family had supplied 10 acres, the bulk of the site in July the same year.

1927

Charles G. Schlegel, Charles Seip's grandson, begins managing farms, including what he called the "Seip farm" with "the brick farmhouse." Diaries mention need for Seips to pay back taxes and him making payments to them for the farm, so he may have been planning to purchase it.

1950 ca.

Charles G. Schlegel purchases all of land that was Blackstone's estate. 104 acres+ except 1 acre for a school in 1878 and .31 acre to OHC from Seip in 1927. Major renovations to the house and outbuildings occurs during this time period. The house is a rental.

1955

Seip Earthworks listed in the National Register

1971

Estate of Mary Anne Schlegel (Charles G.'s daughter, Charles Seip's great-granddaughter) deeds property to the Ohio History Connection.

1990

Hopewell Culture National Historical Park established and acquired land surrounding Blackstone House.

1992

Former Blackstone land and the Seip Mound Sate Memorial (a total of 120 acres) transferred to the National Park Service

2014

Period of Significance

Blackstone House Workshop
August 2016

Historic Photos

Blackstone House Workshop
August 2016

Photograph, 1927

Historic Photos

Blackstone House Workshop
August 2016

Photograph, 1927

Historic Photos

Blackstone House Workshop
August 2016

Photograph, 1927

Historic Photos

Blackstone House Workshop
August 2016

Photograph, 1974

Historic Photos

Blackstone House Workshop
August 2016

Photograph, 1927

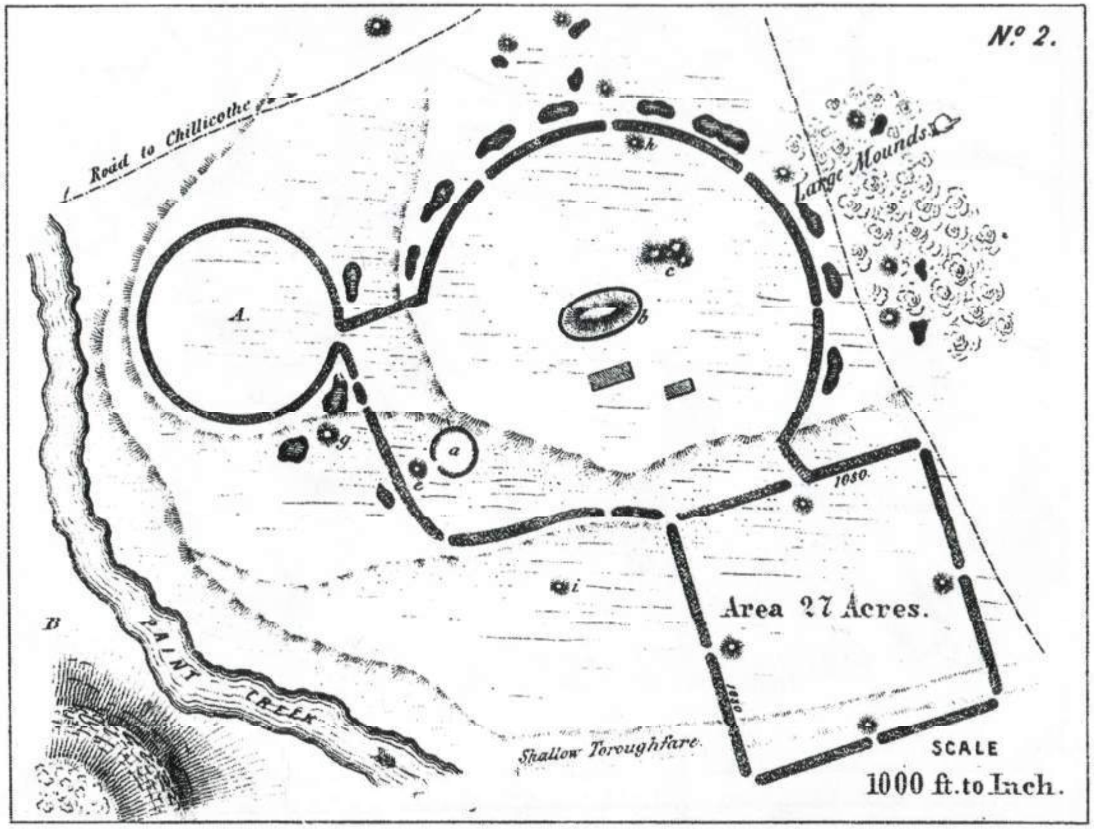
Historic Photos

Blackstone House Workshop
August 2016

Photograph, 1972

Seip Earthworks – Comparative Properties

- The former Blackstone farm presents an unusual, but far from unique, combination of historic and prehistoric resources.
- The house and outbuildings are located on a portion of the large circle, which has been described as one of the most intact sections of earthwork on the site.
- The buildings and the earthworks are obviously very different resources, with periods of significance separated by almost 1500 years. The period of significance for the earthworks is AD 1 to AD 400. The period of significance for the house and outbuildings is ca. 1857-1957. Those histories are intertwined, however, as the buildings protected that part of the large circle from being diminished by continual plowing or being excavated for archaeological study.



Seip Earthworks – Comparative Properties

Most earthwork and mound sites are located along major waterways and trade routes, so they were natural target for Anglo-American settlement.

As a result, prehistoric and historic resources often occupy the same site.

Team compiled a Study Group of public properties in the eastern United States. 20 SHPOs were contacted, we received responses from 15 SHPOs. 16 sites were located in 15 states containing prehistoric earthworks and 19th or 20th century architecture.

Study Group					
State	**City or County**	**Property Name**	**Onwership**	**Type**	**Notes**
AL	Hillsboro	Pond Spring--General Joe Wheeler House	State or local NPF	History Dominates	Mounds in yard of house, information about the house mentions that the site was home to Native Americans in prehistory.
AL	Danville	Oakville Indian Mounds State Park	County	Prehistory Dominates	19th c. cemetery at mound site. Park is interpreted for mounds but cemetery is preserved.
FL	Oak Hill	Seminole Rest-Canaveral National Seashore	National	Diverse Interpretation	Two late 19th century houses built on top of a prehistoric shell mound. Houses recognized as having helped to preserve the mounds.
IL	Grafton	Pere Marquette State Park	State	Diverse Interpretation	CCC shelter on edge of small mounds in a state park used largely for recreation.
IN	Laurel	Laurel Mound (12 FR18)	City	Diverse Interpretation	Adena mound with a bandstand on top located in a city park.
IN	Anderson	Mounds State Park	State	Diverse Interpretation	Mounds and a historic house in the same park but house not on a mound.
IA	Harper's Ferry	Effigy Mounds Natl Monument Visitors Center	National	Prehistory Dominates	Visitor's center of the park is likely built on a mound site, per Bill Whittaker, State archaeologist. Mound was not visible when it was built.
GA	White County	Nacoochee Mound	Private	Diverse Interpretation	Reconstructed platform mound topped with a 19th century gazebo. On private property but visible from public land.
KY	Ballard County	Wickliff Mounds State Park	State	Prehistory Dominates	One 1920s park building on a mond, and they recently removed a building from another mound.
MI	Garden	Fayette Historic State Park	State	History Dominates	19th c. iron smelting town on a small harbor, with known prehistoric resources.
MN	Mendota	Sibley Historic Site	County	History Dominates	State archaeologist noted mounds at site but there is no mention in website history.
MS	Sharkey County	Mt. Helena	Probalby Private	History Dominates	Large antebellum house on mound. Privately owned, mentions mound in promotional material.
ND	Fort Ransom	Fort Ransom State Park	State	History Dominates	section of website. David Maki used Lidar to show this is on a mound site.
SD	Britton	Fort Sisseton Historic State Park	State	History Dominates	No mention of prehistory on website.
TN	Kingston	Fort Southwest Point State Park	State	History Dominates	18th century fort being reconstructed. No mention of mounds in online history.
WI	Prairie du Chien	Villa Louis	State	History Dominates	19th century mansion and gardens built on a mound.

Comparative Analysis

Seip Earthworks – Comparative Properties

Study Group Categories by Interpretive Emphasis:

- Type One: Prehistory Dominates – Visitors come for archaeological significance. Historic and modern buildings and features are considered intrusions and targeted for removal (Cahokia)
  - Oakville Indian Mounds State Park; Danville, Alabama
  - Effigy Mounds National Monument; Harpers Ferry, Iowa
  - Wickliffe Mounds State Park; Ballard County, Kentucky

Seip Earthworks – Comparative Properties

Study Group Categories by Interpretive Emphasis:

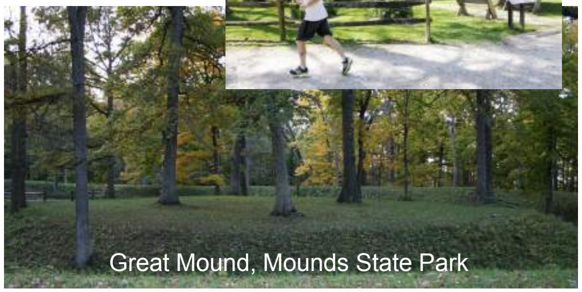
- Type Two: History Dominates – Visitors expect to be interested in historic resources, such as architecture. Prehistoric resources are often mentioned only in passing, if at all.
  - Pond Spring: The General Joe Wheeler House; Hillsboro, Alabama
  - Fayette Historic State Park; Garden, Michigan
  - Sibley Historic Park; Mendota, Minnesota
  - Mt. Helena; Sharkey County, Mississippi
  - Fort Ransom State Park; Fort Ransom, North Dakota
  - Fort Sisseton Historic State Park; Briton, South Dakota
  - Fort Southwest Point State Park; Kingston, Tennessee
  - Villa Louis; Prairie du Chien, Wisconsin

Seip Earthworks – Comparative Properties

Study Group Categories by Interpretive Emphasis:

- Type Three: Diverse Interpretation – Site explores full continuum of use, with information about both prehistoric and historic resources. Some also focus on recreation.
    - Seminole Rest, Oak Hill; Canaveral National Seashore, Florida
    - Pere Marquette State Park; Grafton, Illinois
    - Mounds State Park; Anderson, Indiana
    - Nacoochee Mound; White County, Georgia

To Be Determined….Sugar Loaf Mound; St. Louis, MO



Great Mound, Mounds State Park

Nacoochee Mound

Sugar Loaf Mound

Pere Marquette State Park

Comparative Analysis

Blackstone House Workshop
August 2016

Seminole Rest Historic Site – Canaveral National Seashore, NPS

A Prehistorical & Historical Interpretive Park

- 21 acre site, Snyder's Mound, 740 feet by 340 feet and 13 feet high – Seasonal – dates to AD 700 - 1100
- Many other mounds exist
- No burial – Mounds of clam shells used for processing
- Some clam shell mounds used as platforms for structures.
- Mound was full of live oaks, which were harvested after Civil War to build ships
- Development of housing in 1800s 'saved' the mounds from being ground and used for roadways.
- Extant historic structures include Instone House, caretaker's house, garage and pilings from non-historic boat dock.

Comparative Analysis

Blackstone House Workshop
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Seminole Rest Historic Site – Canaveral National Seashore, NPS

A Prehistorical & Historical Interpretive Park

The significance of the historic structures and the landscape as described in the National Register form relates to:

- *Design and integrity of the buildings*
- *The nearly 100 years of occupation by only two families; the local prominence of the two families; families preserved the site*
- *Lack of landscape change in the last 80 years; mounds have remained relatively intact*
- *Period of significance is construction (before 1888) to the date of Snyder's death in 1929.*

Seminole Rest Historic Site – Canaveral National Seashore, NPS

A Prehistorical & Historical Interpretive Park

- National Park Service Preferred Treatment for Seminole Rest from Historic Structures Report:
  - restoration of the exterior of both houses to the Snyder period;
  - rehabilitation of the interior (first floor only) to serve a combination of interpretive and Park staff needs, while protecting historic interiors with reversible modifications. Second floor limited use, to not install ADA access;
  - construction and treatment must be constantly and diligently balanced with the protection and preservation of the mounds and archeological resources;
  - provide for public use to varying degrees (restrooms for staff use only) – planned to rely on vault toilets for public or new visitor's center.
  - Limit utilities to avoid impact to mounds.
  - Install new HVAC (not to museum standards, so limited sensitive artifact displays).
- Visitors are required to stay on the paths to protect the shell midden underneath. There is a boardwalk trail.
- Instone House is open to the public as a museum with archaeology exhibits and photographs of the Snyder family and gift store
- Site has a canoe launch for day use and a pontoon boat cruise








Site Visit: May 2016

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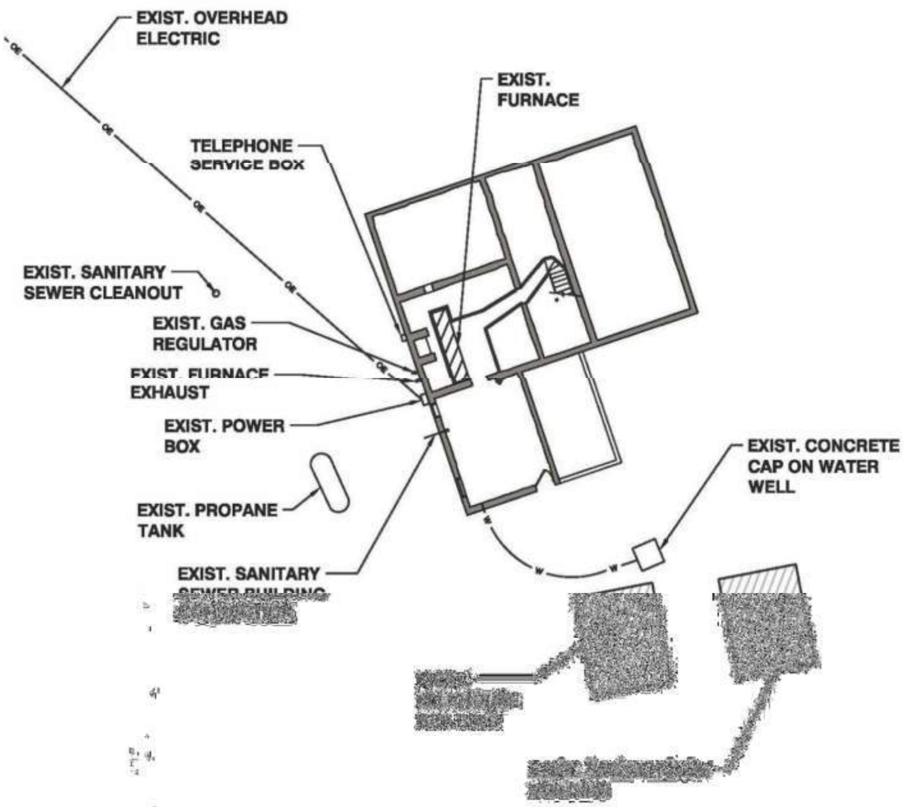
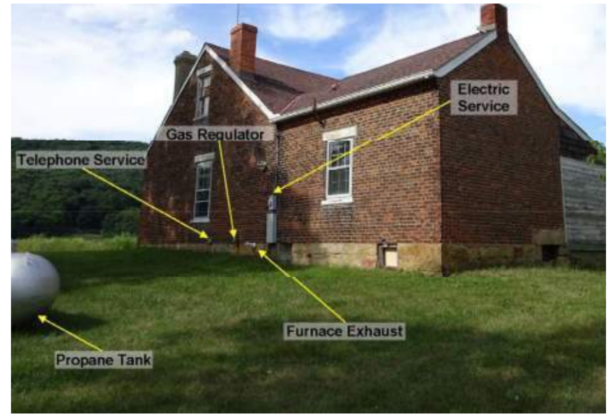
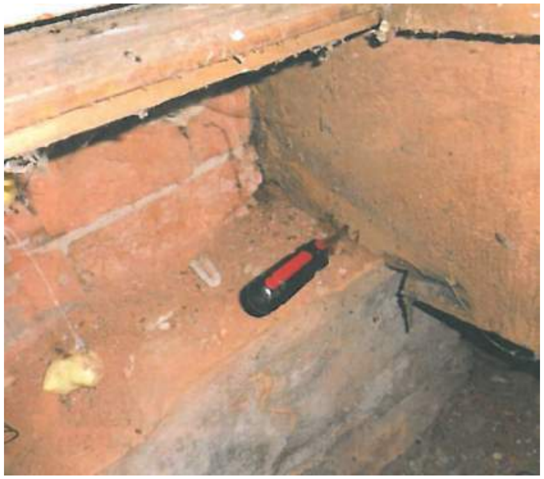




Civil Site Analysis

Blackstone House Workshop
August 2016



Detail of rotted joist and interior wythe of brick, below Room 103

Joists at basement door.

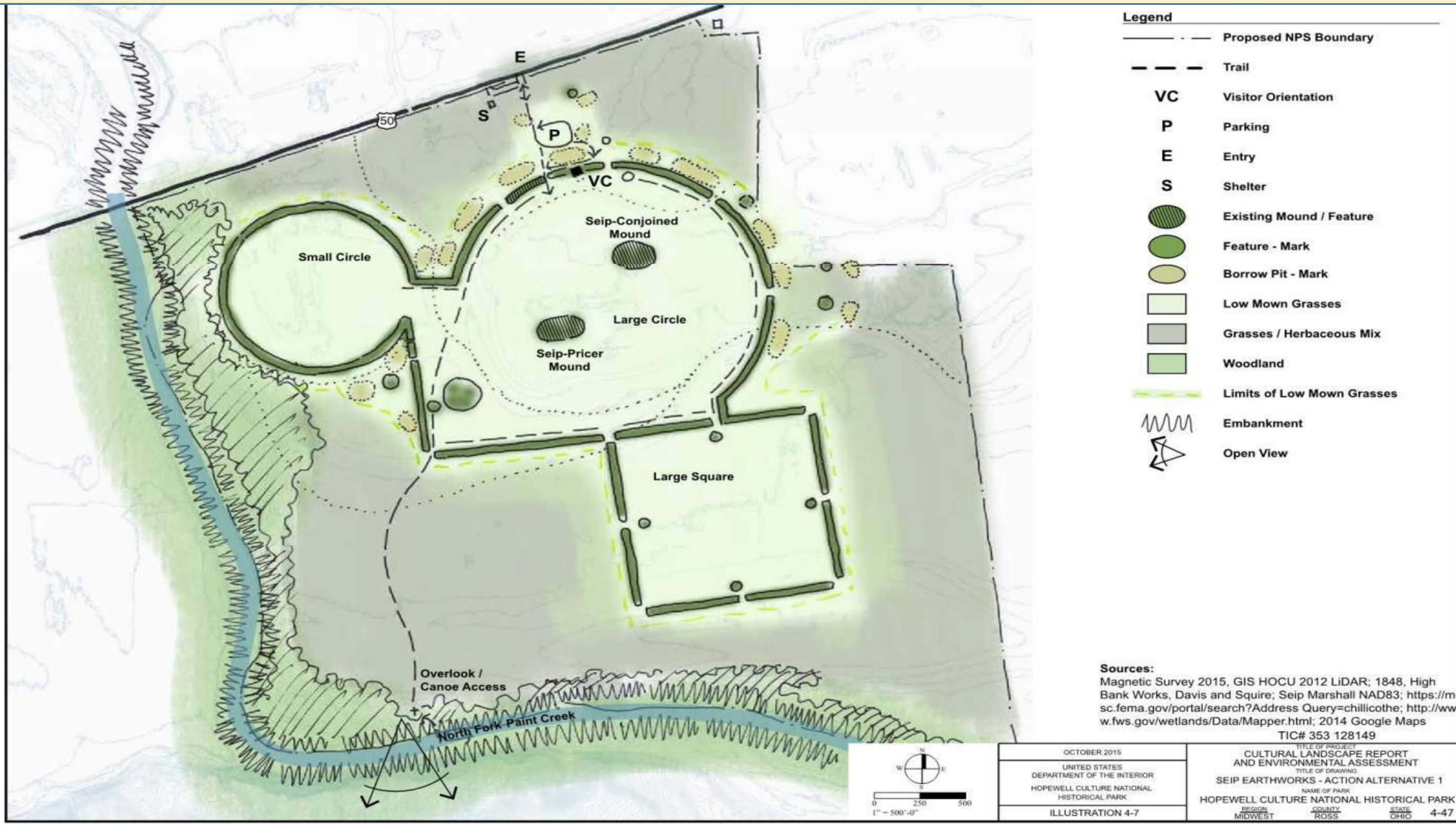
Crack at northeast corner of North Elevation.

ACTION ALTERNATIVE 1 – Preserving Earthwork Complexes

Focus on preserving the earthwork complexes, better delineate archeological features and spaces to make them more visible, and provide a visitor experience in sync with earthwork preservation.

- Repairs and maintains extant archeological features and spaces.
- Retains non-contributing features that do not impact the visitor's ability to interpret the archeological features, if they assist in interpretation and improve the visitor experience.
- Visitor orientation would be provided in the rehabilitated Blackstone House with a new parking area, drop-off and trail access. An additional orientation point may be offered off-site (Bainbridge or another location).
- Existing parking area would be removed and one vehicular access point to US 50 would be provided.
- Dill Road would be removed.
- A trail connection from the parking area to the rehabilitated Blackstone House would be added. Picnic shelter would be repaired.
- Fences, power lines, propane tank and parking area bollards would be removed in conjunction with the House rehab.

ACTION ALTERNATIVE 1 – Preserving Earthwork Complexes



2016 CULTURAL LANDSCAPE REPORT

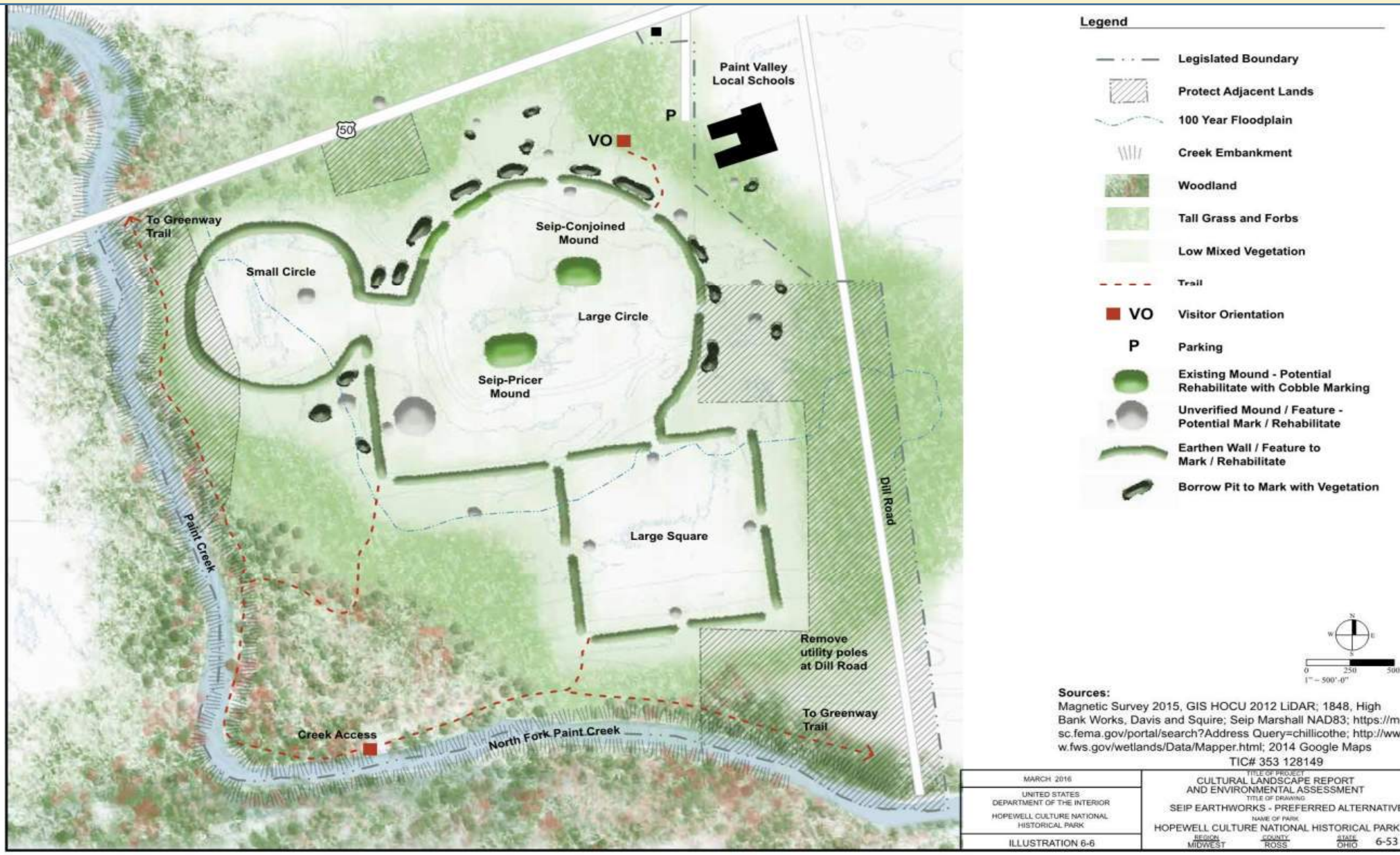
SEIP EARTHWORKS TREATMENT ALTERNATIVES

ACTION ALTERNATIVE 2 – Conserving and Revealing Earthwork Complexes

Focus on preserving extant below- and above-grade archeological features, clearly delineate archeological features and spaces, balance removal of non-contributing features with earthwork preservation, and provide visitor experiences and management tailored to the individual character of each park unit. At …. Seip Earthworks, …..delineate non-extant archeological features (mounds, earthen walls, etc.) through markings….

- Non-contributing features would be removed, including Blackstone House, outbuildings, roads, picnic shelter, vehicular access and utilities, regardless of historic eligibility.
- The parking area and a new visitor orientation facility would be moved off-site to adjacent property (onto Paint Vallye High School property).
- Dill Road would be removed.
- Protect all archeological features either through conservation easements or acquiring property from willing sellers, in order to protect the entirety of the earthwork. Currently, portions of the Large Circle and Small Circle are in private ownership. Agreements with adjacent properties will be necessary to provide visitor access to the parking and orientation area.

ACTION ALTERNATIVE 2 – Conserving and Revealing Earthworks



The park educates the public about the daily lives, contributions, perceived values, and interactions of the Hopewell peoples with other peoples and the environment around them.

The significant sites in the park and related sites are protected and preserved by various means, and the local community feels a sense of stewardship for these and other sites.

The visitor leaves the park and related sites with a greater knowledge about the Hopewell culture, an understanding of the relationships between the sites, an admiration of the Hopewell accomplishments, and a cognizance of the need to preserve them.

Hopewell Culture National Historical Park Mission Statement

Blackstone House Workshop
August 2016

How to Interpret the Seip Earthworks Site?

These earthworks and buildings are very different resources, with periods of significance separated by almost 1500 years.

The Period of Significance for the earthworks is AD 1 to AD 400.

The period of significance for the Blackstone House and outbuildings is ca. 1857-1957.

These histories are intertwined.

The combination of historic and pre-historic resources naturally gives rise to questions of how to interpret the site. Should the buildings be removed to restore the site to its archeological period of significance? Or should they be retained as evidence of the continued use of the cultural landscape?

External Factors Related to Potential Building Programming

- *While the construction of the foundation of the Blackstone House disturbed the earthwork wall, the very presence of the house and outbuildings on the site has helped preserve the earthworks through the years.*

- *Visitor Use/Experience/Needs/Expectations:*
  - *Multi-Access to park. Vehicular, pedestrian, bike, canoe, trails, etc.*
  - *ADA Access throughout park and to any visitor facilities.*
  - *Visitor Facilities –*
    - *Restrooms (require significant utilities)*
    - *Drinking water (external)*
    - *Shelter*
  - *Interpretation –*
    - *Visitor Orientation Gathering Area – With or Without a Visitor Center*
    - *Clear Message/Educational Resources*
  - *Technology*
  - *Resource Protection*
  - *Authentic Visitor Experience*

- *Potential World Heritage Listing = Increase in Visitors and Visitor Expectations and Sophistication*

Potential Further Research

- *Section Cut Trench through existing mound at Blackstone House location to determine original breadth, height and authenticity of the existing earthworks surrounding the house and outbuildings.*

- *Locate all non-extant outbuildings (barns, sheds, outhouses).*

- *TV the septic clean-out west of the house to determine what type of septic system is installed.*

- *Remove concrete floor in milk house and investigate original floor depth and material.*

TREATMENT ALTERNATIVE 1: PRESERVATION & MAINTENANCE OF EXISTING STRUCTURES (Mothballing)

PROS:

CONS:

ITEMS FOR DISCUSSION:

FURTHER ITEMS TO EXPLORE:

TREATMENT ALTERNATIVE 2: REHABILITATION OF EXISTING STRUCTURES WITH NEW USE

PONTENTIAL USES:

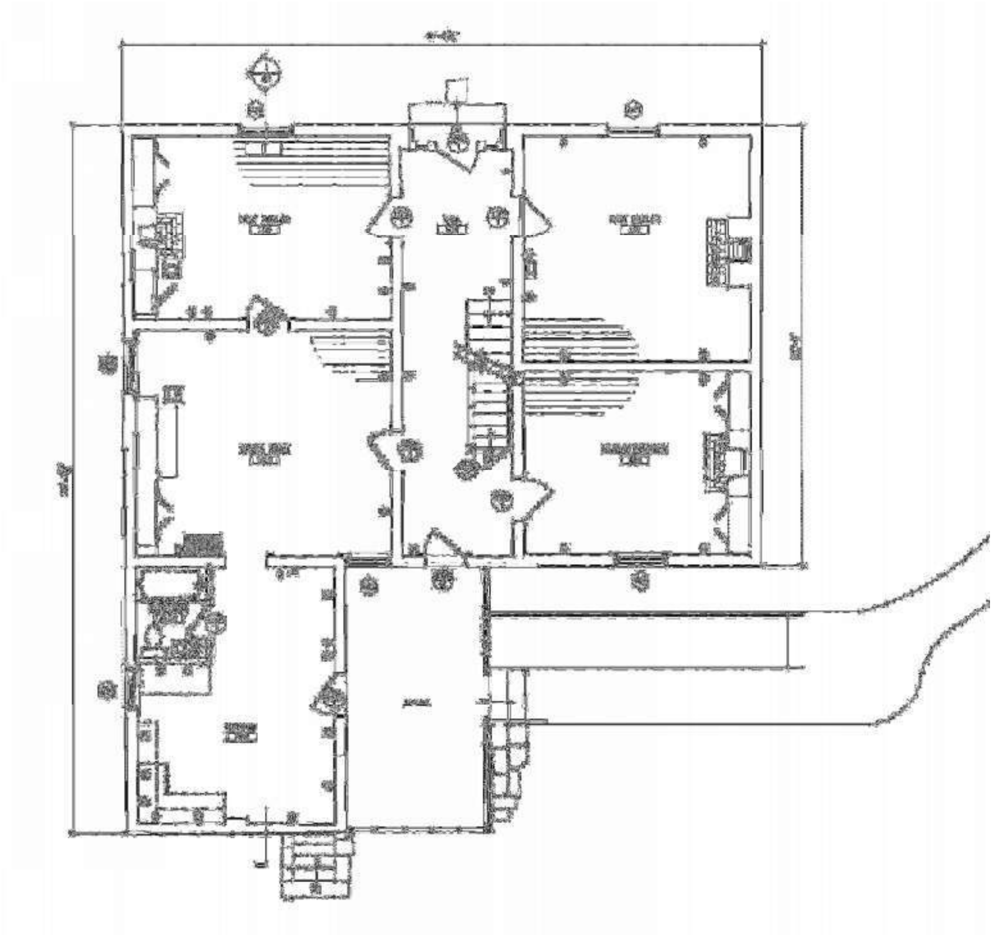
PROS:

CONS:

ITEMS FOR DISCUSSION:

FURTHER ITEMS TO EXPLORE:

TREATMENT ALTERNATIVE 2:



Treatment Alternative Options

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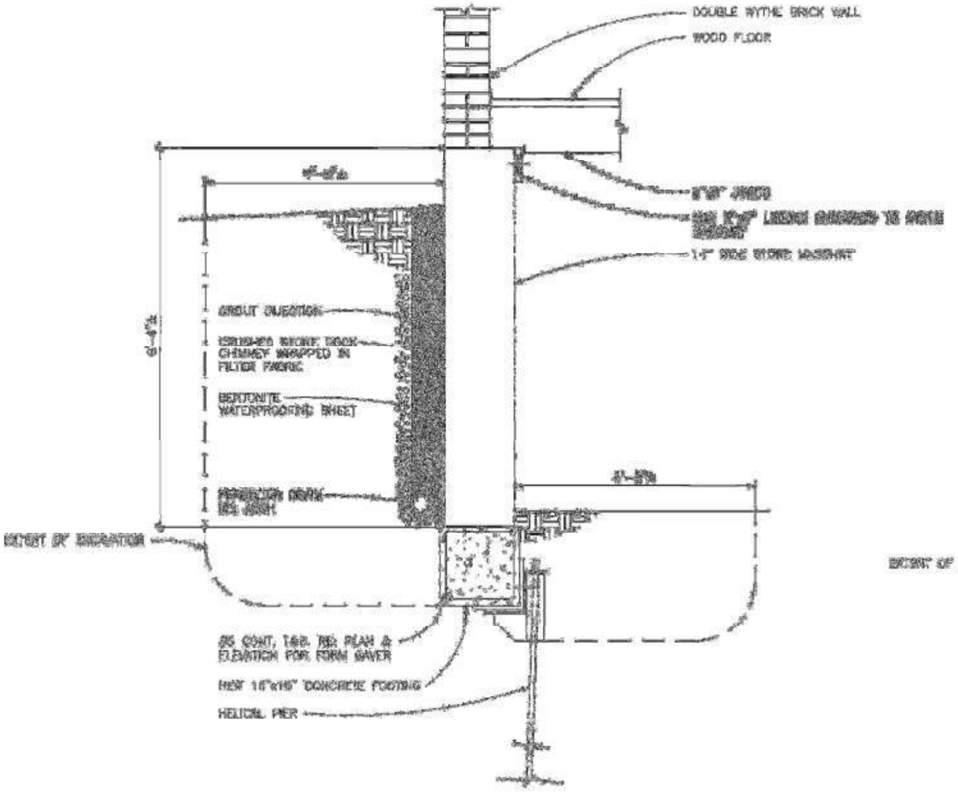
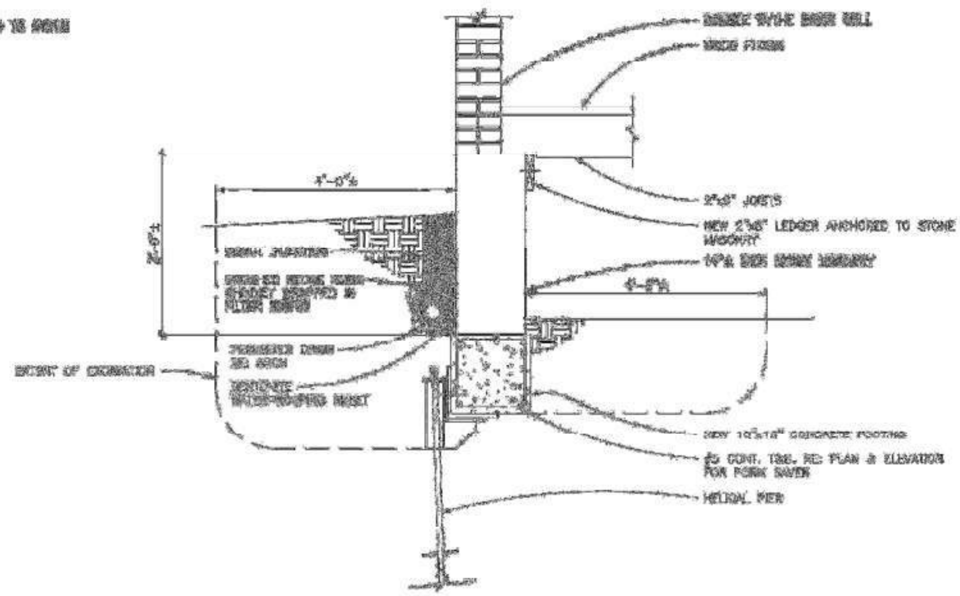


1 FOUNDATION REPAIR SECTION CUT



2 FOUNDATION REPAIR SECTION CUT

Structural Analysis

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TREATMENT ALTERNATIVE 3a: MOVING EXISTING HOUSE AND OUTBUILDING STRUCTURES TO AN ON SITE LOCATION
(3 POTENTIAL SITE LOCATIONS)

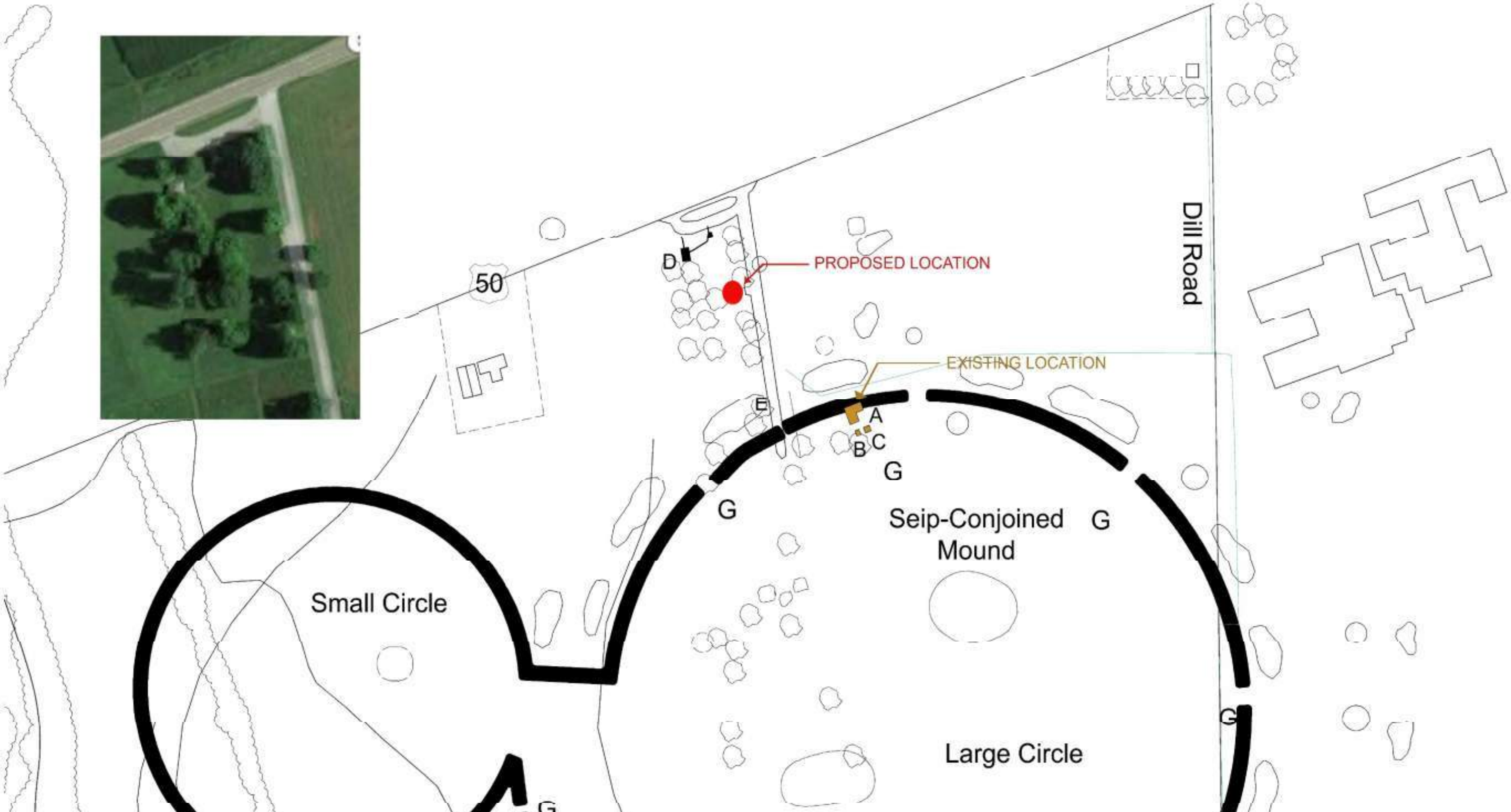
Option 3a: NEAR PREVIOUS RESTROOM BUILDING TURN-OUT

PROS:

CONS:

ITEMS FOR DISCUSSION:

FURTHER ITEMS TO EXPLORE:



Relocation of House on Site – Option 3a Near Previous Restroom Building Turn-out

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TREATMENT ALTERNATIVE 3b: MOVING EXISTING HOUSE AND OUTBUILDING STRUCTURES TO AN ON SITE LOCATION

(3 POTENTIAL SITE LOCATIONS)

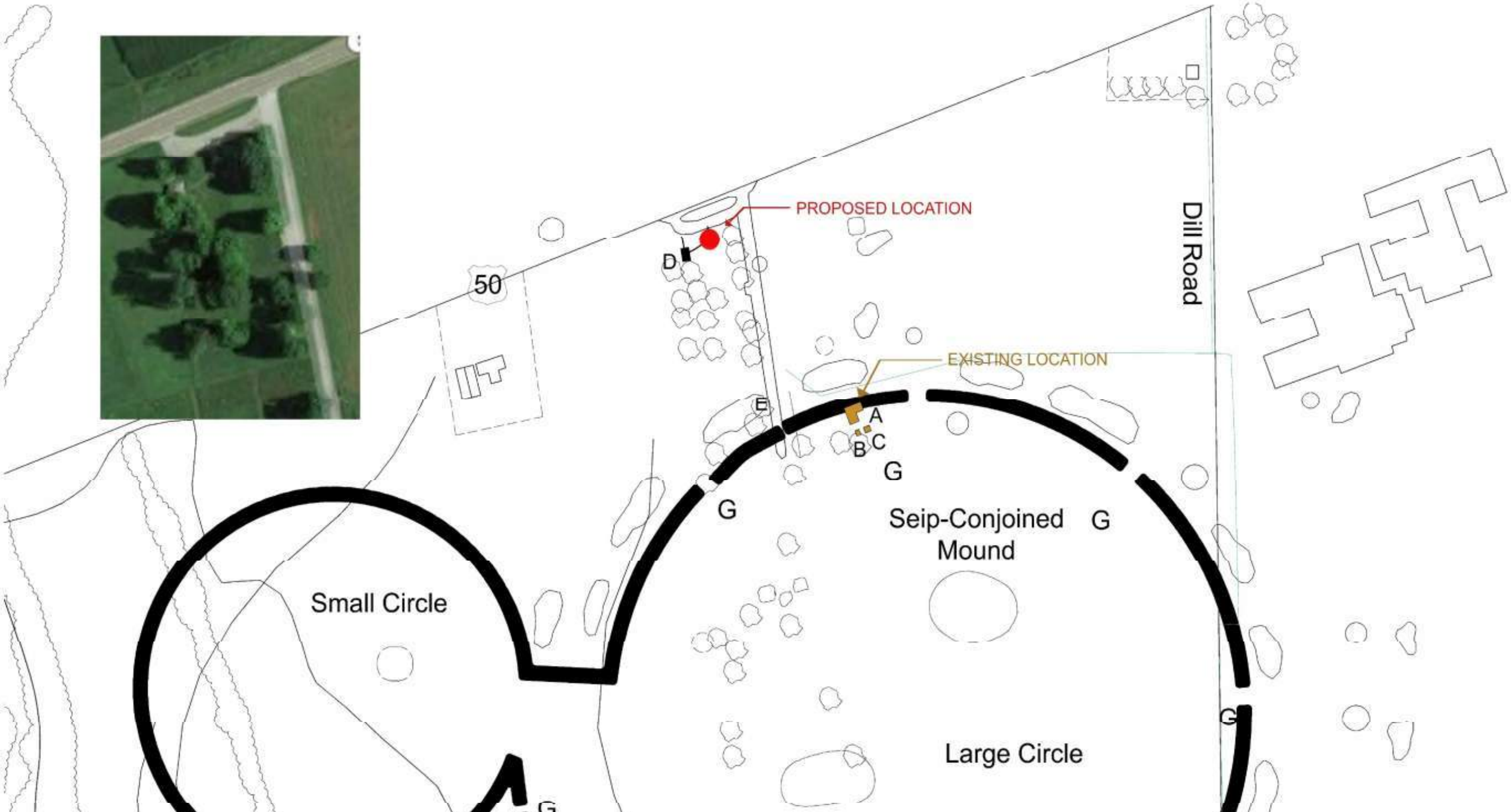
OPTION 3b: NEAR EXISTING VISITOR PARKING LOT

PROS:

CONS:

ITEMS FOR DISCUSSION:

FURTHER ITEMS TO EXPLORE:



Relocation of House on Site – Option 3b Near Visitor Parking Lot

Blackstone House Workshop
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TREATMENT ALTERNATIVE 3c: MOVING EXISTING HOUSE AND OUTBUILDING STRUCTURES TO AN ON SITE LOCATION
(3 POTENTIAL SITE LOCATIONS)

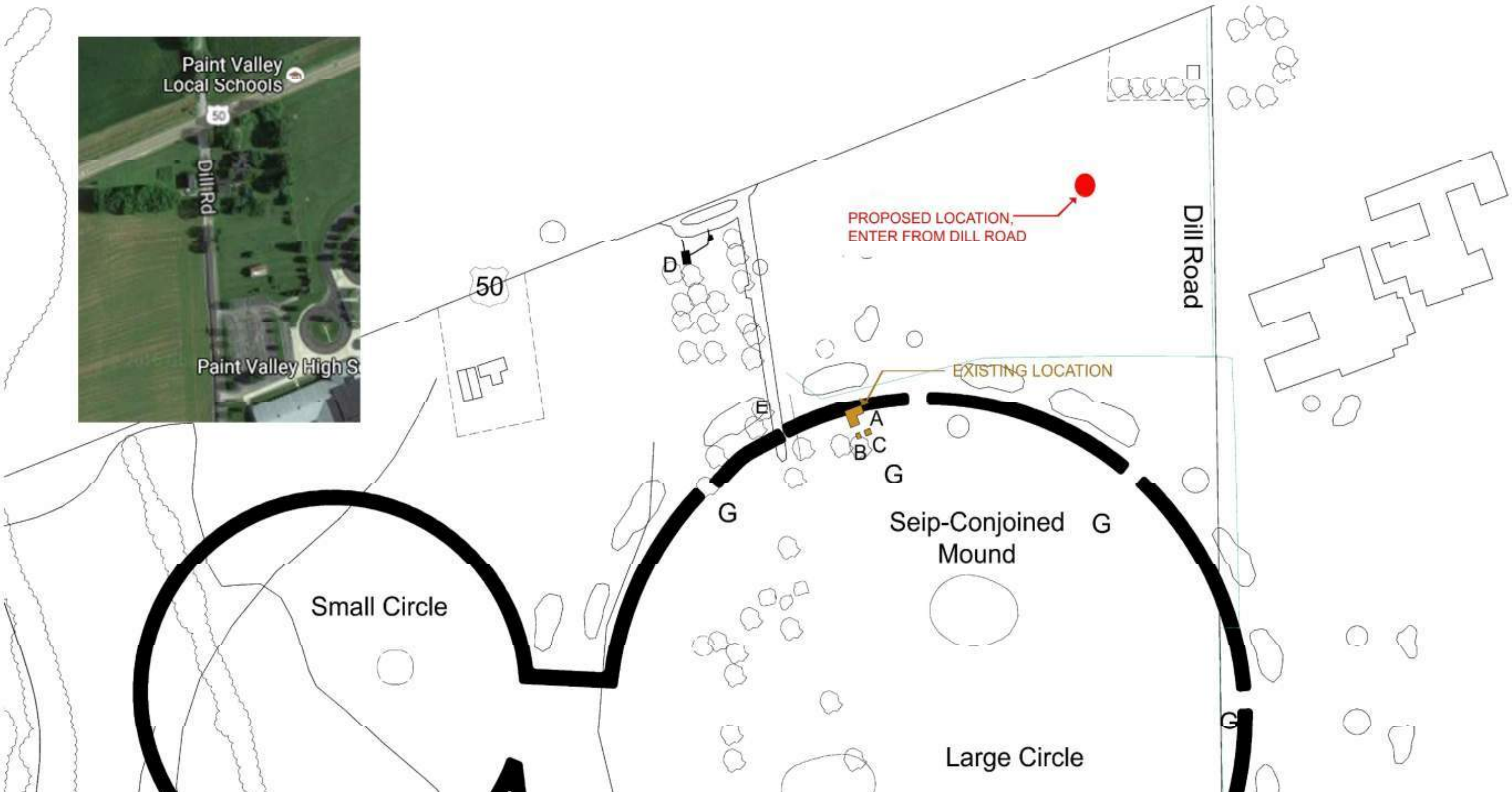
OPTION 3c: Relocate South and West of Historic School

PROS:

CONS:

ITEMS FOR DISCUSSION:

FURTHER ITEMS TO EXPLORE:



Relocation of House on Site – Option 3c Relocate South and West of Historic School

Blackstone House Workshop
August 2016

TREATMENT ALTERNATIVE 4a: DEMOLISH STRUCTURE

PROS:

CONS:

ITEMS FOR DISCUSSION:

FURTHER ITEMS TO EXPLORE:

TREATMENT ALTERNATIVE 4b: MOVE STRUCTURE OFF SITE

POTENTIAL LOCATIONS:

PROS:

CONS:

ITEMS FOR DISCUSSION:

FURTHER ITEMS TO EXPLORE:

Blackstone House and Outbuildings, Photo by I. T. Frary, August 1, 1927. (Photo Collection Number A0957, Folder 6, Ohio History Connection Archeological Collections Facility, Columbus, Ohio.)

APPENDIX I
COST ESTIMATE

Blackstone House and Outbuildings

- Immediate Preservation and Maintenance Estimated Costs

- Long Term Rehabilitation Estimated Costs

Blackstone House and Outbuildings
Seip Earthworks, Hopewell Culture National Historical Park
STRATA
Final HSR Treatment Estimate 04/17/2017

DESCRIPTION		House Immediate Work
Immediate Treatment Recommendations		
01 00 00 GENERAL CONDITIONS		10,289
02 41 00 DEMOLITION		15,450
04 01 20 MASONRY RESTORATION AND CLEANING		18,710
06 10 00 ROUGH CARPENTRY		1,140
06 13 00 EXTERIOR WOOD RESTORATION		17,279
07 92 00 JOINT SEALANTS		500
08 11 00 DOOR & FRAMES		1,000
08 32 13 STORM WINDOWS		3,850
08 52 00 WOOD WINDOWS		6,565
23 00 00 HVAC		1,200
26 00 00 ELECTRICAL		2,800
31 20 00 EARTH MOVING (not including archaeological monitoring)		100
subtotal		78,883
Contractor's Fee	10%	7,888
subtotal		86,771
Design/Estimate Contingency	20%	17,354
subtotal		104,126
Escalation to Mid-Point - 04/27/2019	9.2%	9,614
TOTAL		**113,739**

***NOTE: Costs assume construction start October 2018.**

Optional Temporary Heating		11,027

CONSTRUCTION MANAGEMENT RESOURCES, LLC
ESTIMATING • SCHEDULING • PROJECT MANAGEMENT • CONSULTING
5201 JOHNSON DRIVE, SUITE 330, MISSION, KANSAS 66205 (913) 262-6715 • FAX (913) 262-1380

Blackstone House and Outbuildings
Seip Earthworks, Hopewell Culture National Historical Park
STRATA
Final HSR Treatment Estimate 04/17/2017

DESCRIPTION		House Long Term
Long Term Treatment Recommendations		
01 00 00 GENERAL CONDITIONS		172,146
02 41 00 DEMOLITION		46,941
02 50 00 HAZARDOUS MATERIAL ABATEMENT		75,000
03 30 00 CAST-IN-PLACE CONCRETE		161,389
04 01 20 MASONRY RESTORATION AND CLEANING		111,531
05 12 00 STRUCTURAL STEEL		5,675
06 10 00 ROUGH CARPENTRY		43,270
06 13 00 EXTERIOR WOOD RESTORATION		5,000
06 40 16 INTERIOR ARCHITECTURAL WOODWORK		17,950
07 14 00 FOUNDATION WATERPROOFING		13,383
07 21 00 THERMAL INSULATION		14,715
07 50 00 ROOFING		25,740
07 60 00 SHEET METAL FLASHING AND TRIM		16,243
08 11 00 DOOR & FRAMES		23,400
08 52 00 WOOD WINDOWS		39,600
08 71 00 DOOR HARDWARE		8,750
09 20 00 PLASTER REPAIR		62,500
09 21 16 GYPSUM SYSTEMS		29,521
09 64 00 WOOD FLOORING		34,073
09 65 00 CARPET		105
09 90 00 PAINTING		15,672
10 28 00 TOILET AND BATH ACCESSORIES		150
21 00 00 FIRE PROTECTION		31,200
22 00 00 PLUMBING		19,850
23 00 00 HVAC		19,870
26 00 00 ELECTRICAL		191,512
31 20 00 EARTH MOVING (not including archaeological monitoring)		11,793
32 13 13 PAVING		50,262
32 92 00 LAWN & GRASSES		630
33 10 00 WATER DISTRIBUTION		47,000
33 30 00 SANITARY SEWERAGE		21,375
33 46 16 FOUNDATION DRAINAGE SYSTEMS		3,538
subtotal		1,319,784
Contractor's Fee	10%	131,978
subtotal		1,451,762
Design/Estimate Contingency	20%	290,352
subtotal		1,742,114
Escalation to Mid-Point - 04/27/2019	9.2%	160,844
TOTAL		**1,902,959**

***NOTE: Archeology costs to be determined by NPS.**

***NOTE: Hazardous material costs unknown at this time.**

***NOTE: Additional structural repairs and reinforcement work may be uncovered during future investigations or work that may require reassessment of structural costs.**

***NOTE: Costs assume construction start October 2018.**

DESCRIPTION	QUANTITY	UNIT $	TOTAL	House Immediate Work	House Long Term
02 41 00 DEMOLITION					
House Immediate Work					
Conduct Hazardous Materials Investigation and Report and Guidelines	1 LS	12,500.00	12,500	12,500	
Remove above ground propane tank and piping	1 LS	2,500.00	2,500	2,500	
Provide Pest Inspection and Treatment	1 LS	450.00	450	450	
House Long Term					
Historic Finishes Study	1 LS	6,500.00	6,500		6,500
Mortar Testing	1 LS	1,200.00	1,200		1,200
Electrical Demo	2,600 SF	1.25	3,250		3,250
Demo Plumbing Fixtures	5 EA	85.00	425		425
Demo RR 106	50 SF	4.00	200		200
Demo Kitchen Cabinets	12 LF	15.00	180		180
Demo Flooring in Kitchen 105	287 SF	3.00	860		860
Demo Ceiling in Kitchen 105	287 SF	2.00	574		574
Demo Ceiling in first floor Rooms	1,395 SF	12.00	16,740		16,740
Demo Ceiling in second floor Rooms	720 SF	12.00	8,640		8,640
Demo Back Porch	190 SF	4.00	760		760
Demo Chase in Dining Room	1 LS	200.00	200		200
Demo Walls in Basement	60 LF	5.00	300		300
Demo Slab in Basement	121 SF	3.00	362		362
Clean Crawlspace and install vapor Barrier	1,350 SF	5.00	6,750		6,750
			62,391	15,450	46,941
02 50 00 HAZARDOUS MATERIAL ABATEMENT					
Long Term - Allowance costs for abatement of lead base paint included at this time. Actual testing for all hazardous materials should be done. Complete costs for abatement unknown at this time.					
Abate Lead Paint from Exterior Walls/Soffits/Doors/Windows/Trim ALLOWANCE	1 LS	15,000.00	15,000		15,000
Interior Lead Paint Abatement ALLOWANCE	1 LS	60,000.00	60,000		60,000
			75,000	0	75,000
03 30 00 CAST-IN-PLACE CONCRETE					
House Long Term					
Install New Footing at Porch	58 LF	65.00	3,770		3,770
New Porch Foundation Wall	290 SF	28.00	8,120		8,120
New Porch Slab	190 SF	6.50	1,235		1,235
Concrete Stairs @ Porch	12 SF	20.00	240		240
Concrete Ramp @ Porch	115 SF	10.00	1,150		1,150
Sidewalks ALLOW	600 SF	6.50	3,900		3,900
New SOG @ Basement	121 SF	8.00	966		966
New 8" Concrete Walls @ Basement	483 SF	20.00	9,658		9,658
Column Footings for Drop Beams	4 EA	125.00	500		500
Install Helical Piers	54 EA	900.00	48,600		48,600
Footing @ Basement Stone Wall	185 LF	450.00	83,250		83,250
			161,389	0	161,389
04 01 20 MASONRY RESTORATION AND CLEANING					
House Immediate Work					
Spot repointing ALLOWANCE	1 LS	11,400.00	11,400	11,400	
Stabilize Masonry above Basement Windows - Install Galvanized Steel Lintel	2 EA	400.00	800	800	
Install Caps on Chimneys	4 EA	1,140.00	4,560	4,560	
Patch Chimney Stucco and Joint Sealants	3 EA	450.00	1,350	1,350	
Remove PVC Furnace Vent pipe and Patch Stone	1 EA	600.00	600	600	
House Long Term					
Restore Brick Hearth	4 EA	2,100.00	8,400		8,400
Repoint Interior of Firebox	4 EA	1,500.00	6,000		6,000
Interior Masonry Wall Repairs	1 LS	32,200.00	32,200		32,200
Grout Injection into Foundation Walls	1,115 SF	5.00	5,576		5,576
Spot repointing Interior Stone Foundation ALLOWANCE	1 LS	2,000.00	2,000		2,000
Salvage and Reconstruct Stone Basement Stairs	1 LS	3,500.00	3,500		3,500
Repoint and Crack Repair	2,393 SF	9.50	22,730		22,730
Replace Bricks	115 EA	75.00	8,625		8,625
Demo and Reconstruct Chimney	5 EA	4,500.00	22,500		22,500
			130,241	18,710	111,531
05 12 00 STRUCTURAL STEEL					
House Long Term					
Metal Railing @ Steps and Ramp	51 LF	75.00	3,825		3,825
Metal Railing @ Stairs	10 LF	75.00	750		750
Metal Railing @ Front Door	2 EA	550.00	1,100		1,100
			5,675	0	5,675
06 10 00 ROUGH CARPENTRY					
House Immediate Work					
Shore Back Porch	1 LS	1,140.00	1,140	1,140	
House Long Term					
Wood Framed Walls	280 SF	20.00	5,600		5,600
Sheathing @ Wood Framed Walls	280 SF	3.25	910		910
Siding @ Wood Framed Walls	280 SF	8.00	2,240		2,240
Wood Framed Roof Structure/Decking @ Porch	190 SF	8.00	1,520		1,520
New Soffit @ Porch	120 SF	10.00	1,200		1,200
Wood Rail @ Porch	10 LF	25.00	250		250
Repair Interior Stair Balustrades	1 LS	1,500.00	1,500		1,500
Replace Post in Room 000	1 EA	650.00	650		650
Install New Timber Lintels	5 EA	500.00	2,500		2,500
Repair or Reinforce 1st Floor Joists ALLOWANCE	1 LS	10,000.00	10,000		10,000
Install Drop Beam in 001 and 004	32 LF	15.00	480		480
Steel Posts for Drop Beams	4 EA	350.00	1,400		1,400
Sister Joists @ 2nd Floor	56 EA	250.00	14,000		14,000
Add Tie Down Straps @ Roof Joists	68 EA	15.00	1,020		1,020
			44,410	1,140	43,270

DESCRIPTION	QUANTITY	UNIT $	TOTAL	House Immediate Work	House Long Term
06 13 00 EXTERIOR WOOD RESTORATION					
House Immediate Work					
Prep, Prime & Paint Door Surround @ Front Door	1 LS	1,500.00	1,500	1,500	
Prep, Prime & Paint Wood Trim & Porch	1 LS	6,900.00	6,900	6,900	
Wood Trim Repair - Prep, Prime & Paint @ Dormers	3 EA	1,200.00	3,600	3,600	
Replace Wood Fascia and Barge Boards	264 LF	20.00	5,279	5,279	
House Long Term					
Restore Front Door	1 EA	5,000.00	5,000		5,000
			22,279	17,279	5,000
06 40 16 INTERIOR ARCHITECTURAL WOODWORK					
House Long Term					
New Handrail For Stair	14 LF	250.00	3,500		3,500
Repair and Reinstall Mantle	1 EA	850.00	850		850
Restore Interior Millwork Allowance and Interior Doors	1 LS	6,800.00	6,800		6,800
Restore Built-in Cabinets and Hardware	1 LS	3,800.00	3,800		3,800
Kitchenette Cabinets in Office 105	6 LF	250.00	1,500		1,500
Replace Wood Lintel	3 EA	500.00	1,500		1,500
			17,950	0	17,950
07 14 00 FOUNDATION WATERPROOFING					
House Long Term					
Bentonite Waterproofing	1,115 SF	12.00	13,383		13,383
			13,383	0	13,383
07 21 00 THERMAL INSULATION					
House Long Term					
Batt Insulation @ Wood Framed Walls	280 SF	4.00	1,120		1,120
Batt Insulation @ RR Ceiling	70 SF	4.00	280		280
Batt Insulation @ 2nd Floor Ceiling	839 SF	4.00	3,355		3,355
Insulate 1st Floor Joists	1,700 SF	5.00	8,500		8,500
Batt Insulation @ Knee Walls @ 2nd Floor	365 SF	4.00	1,460		1,460
			14,715	0	14,715
07 50 00 ROOFING					
House Long Term					
New Shingle Roofing on New Porch	190 SF	12.00	2,280		2,280
Remove and Install New Wood Shingle Roofing	1,955 SF	12.00	23,460		23,460
			25,740	0	25,740
07 60 00 SHEET METAL FLASHING AND TRIM					
House Long Term					
Flashing Patch at West Elevation Roof Line	1 LS	75.00	75		75
Install Downspouts	5 EA	200.00	1,000		1,000
Install New Half Round Gutters	109 LF	36.00	3,930		3,930
Copper Flashing @ Chimneys	5 EA	225.00	1,125		1,125
Copper Edge Flashing	289 LF	35.00	10,113		10,113
			16,243	0	16,243
07 92 00 JOINT SEALANTS					
House Immediate Work					
Joint Sealant @ Exterior Wood Repairs	1 LS	500.00	500	500	
			500	500	0
08 11 00 DOOR & FRAMES					
House Immediate Work					
Repair Basement Door & Frame and Paint	1 LS	200.00	200	200	
Remove & Install New Front Storm Door	1 LS	600.00	600	600	
Brace Doorway between room 000 and 004	1 LS	200.00	200	200	
House Long Term					
New Exterior Door/Frame/Hardware @ RR	1 EA	3,750.00	3,750		3,750
New Historic Reproduction Door/Hardware	3 EA	2,250.00	6,750		6,750
Repair Frames	2 EA	300.00	600		600
Strip, Restore and Weather-strip Door 1-100 and surround	1 PR	2,300.00	2,300		2,300
Restore Front Door Hardware 1-100	1 EA	1,500.00	1,500		1,500
Repair Door 1-101	1 EA	800.00	800		800
New Exterior Basement Door/Frame/Hardware	1 EA	3,200.00	3,200		3,200
New Access Doors/Frame/Hardware	5 EA	900.00	4,500		4,500
			24,400	1,000	23,400
08 32 13 STORM WINDOWS					
House Immediate Work					
Remove & Replace Storm Windows	11 EA	350.00	3,850	3,850	
			3,850	3,850	0
08 52 00 WOOD WINDOWS					
House Immediate Work					
Paint Exterior of Windows and Jambs	11 EA	150.00	1,650	1,650	
Replace Misc Broken Glazing	10 EA	350.00	3,500	3,500	
New Caulking @ Windows	11 EA	65.00	715	715	
Install New Temporary Painted Wood Frames and Plywood Covering (basement)	2 EA	350.00	700	700	
House Long Term					
Reconstruct Windows 202 and 204	2 EA	2,500.00	5,000		5,000
Restore All Wood Windows ALLOWANCE	11 EA	3,000.00	33,000		33,000
Reconstruct Windows 001 and 002	2 EA	800.00	1,600		1,600
			46,165	6,565	39,600

DESCRIPTION	QUANTITY	UNIT $	TOTAL	House Immediate Work	House Long Term
08 71 00 DOOR HARDWARE					
House Long Term					
New Thresholds @ Existing Doors	13 EA	150.00	1,950		1,950
Reproduction Rim Locks	8 EA	850.00	6,800		6,800
			0		0
			8,750	0	8,750
09 20 00 PLASTER REPAIR					
House Long Term					
Repair Interior Plaster Wall ALLOW	1 LS	62,500.00	62,500		62,500
			62,500	0	62,500
09 21 16 GYPSUM SYSTEMS					
House Long Term					
New Drywall Ceiling w/ Plaster Skim Coat	2,402 SF	12.00	28,821		28,821
New Drywall On Wood Framed Walls	280 SF	2.00	560		560
New Drywall Ceiling @ RR	70 SF	2.00	140		140
			29,521	0	29,521
09 64 00 WOOD FLOORING					
House Long Term					
Wood Floor @ Kitchen 105	287 SF	10.00	2,868		2,868
Repair / Refinish Wood Floors @ First Floor	1,395 SF	7.00	9,765		9,765
Repair / Refinish Wood Floors @ 2nd Floor	720 SF	7.00	5,040		5,040
Repair / Refinish Wood Stairs and Landing	1 LS	2,000.00	2,000		2,000
Salvage and Reinstall Wood Floors in rooms 101,102, 103	960 SF	15.00	14,400		14,400
			34,073	0	34,073
09 65 00 CARPET					
House Long Term					
Rubber Base @ RR	35 LF	3.00	105		105
			105	0	105
09 90 00 PAINTING					
House Long Term					
Paint Interior Walls ALLOW	9,000 SF	1.00	9,000		9,000
Paint Interior Ceilings	2,665 SF	1.25	3,331		3,331
Paint New Walls on First and Second Floor	280 SF	1.50	420		420
Paint Trim on 2nd Floor and Rm 105	324 LF	5.00	1,621		1,621
Paint Doors on 2nd Floor	2 EA	100.00	200		200
Paint Siding On Porch Walls	280 SF	2.00	560		560
Whitewash Brick Porch Walls	180 SF	3.00	540		540
			15,672	0	15,672
10 28 00 TOILET AND BATH ACCESSORIES					
House Long Term					
Grab Bars	2 EA	75.00	150		150
			150	0	150
21 00 00 FIRE PROTECTION					
House Long Term					
New System	2,600 SF	12.00	31,200		31,200
			31,200	0	31,200
22 00 00 PLUMBING					
House Long Term					
Install new Floor Drains	2 EA	2,500.00	5,000		5,000
New HCP Water Closet	1 EA	3,200.00	3,200		3,200
New HCP Lavatory	1 EA	2,900.00	2,900		2,900
Kitchen Sink	1 EA	3,000.00	3,000		3,000
Hose Bibb	1 EA	1,850.00	1,850		1,850
Demo Existing Fixtures back to main and cap	1 EA	400.00	400		400
Electric Water Heater	1 LS	3,500.00	3,500		3,500
			19,850	0	19,850
23 00 00 HVAC					
House Immediate Work					
Install Portable Dehumidifier and Drain Pipe	1 LS	1,200.00	1,200	1,200	
House Long Term Conventional Forced Air System					
Remove Existing HVAC System	1 LS	1,040.00	1,040		1,040
New Heat Pump	2 EA	3,500.00	7,000		7,000
Condensing Units	2 EA	1,400.00	2,800		2,800
Dedicated Outdoor Air Ventilation Unit	1 EA	2,500.00	2,500		2,500
Ductwork/Grilles/Registers	2,665 SF	2.00	5,330		5,330
Controls	1 LS	1,200.00	1,200		1,200
			21,070	1,200	19,870

DESCRIPTION	QUANTITY	UNIT $	TOTAL	House Immediate Work	House Long Term
26 00 00 ELECTRICAL					
House Immediate Work					
Install Motion Activated Lighting	2 EA	450.00	900	900	
Add Smoke Detectors	3 EA	350.00	1,050	1,050	
Inspect Grounding System and make repairs	1 LS	500.00	500	500	
Provide Covers over existing Bus	1 EA	200.00	200	200	
Add Circuit Breakers	1 EA	150.00	150	150	
House Long Term					
Demo OH Power	1,222 LF	5.00	6,112		6,112
Demo OH Power Poles	1 LS	1,200.00	1,200		1,200
Demo Meter and Drop Panel	1 EA	500.00	500		500
New Drop From 3 Phase Power North of Highway 50	1 EA	2,500.00	2,500		2,500
Bore under Road - Power	1 EA	3,500.00	3,500		3,500
New Transformer	1 EA	25,000.00	25,000		25,000
New Underground - power w/ trenching and backfill	1,000 LF	45.00	45,000		45,000
Bore under Road - Telecom	1 EA	3,500.00	3,500		3,500
New Telecom Service Box	1 EA	650.00	650		650
New Underground - Telecom w/ trenching and backfill	1,000 LF	25.00	25,000		25,000
Lightening Protection	1,900 SF	2.00	3,800		3,800
Lighting	2,600 SF	9.00	23,400		23,400
Lighting in Crawl Space	1,350 SF	3.00	4,050		4,050
Power	2,600 SF	4.00	10,400		10,400
Fire Alarm/ Security	2,600 SF	3.50	9,100		9,100
Distribution	2,600 SF	4.50	11,700		11,700
Telecommunications/Data	2,600 SF	4.00	10,400		10,400
Lightning Protection	1,900 SF	3.00	5,700		5,700
			194,312	2,800	191,512
31 20 00 EARTH MOVING (not including archaeological monitoring)					
House Immediate Work					
Infill Divots under Downspouts	5 EA	20.00	100	100	
House Long Term					
Excavate at perimeter of Building (some areas by hand)	112 CY	35.00	3,921		3,921
Excavate at crawl space of Building (by hand)	25 CY	60.00	1,500		1,500
Backfill at perimeter of Building	112 CY	40.00	4,481		4,481
Regrade at perimeter	1,891 SF	1.00	1,891		1,891
			11,893	100	11,793
32 13 13 PAVING					
House Long Term					
Remove and Install New Paving @ Driveway for Utilities	1,795 SY	28.00	50,262		50,262
			50,262	0	50,262
32 92 00 LAWN & GRASSES					
House Long Term					
Seed	210 SY	3.00	630		630
			630	0	630
33 10 00 WATER DISTRIBUTION					
House Long Term					
Flow Tests Costs - By Owner	NIC		0		0
Install 4" New Main Line (Fire and Domestic)	800 LF	45.00	36,000		36,000
Bore under Road	1 EA	2,500.00	2,500		2,500
New Backflow preventer	2 EA	3,500.00	7,000		7,000
Connect to Existing	1 LS	1,500.00	1,500		1,500
			47,000	0	47,000
33 30 00 SANITARY SEWERAGE					
House Long Term					
Remove Septic Tank and Lines	1 LS	1,500.00	1,500		1,500
Install New Holding Tank w/ Fill monitoring	1 LS	8,500.00	8,500		8,500
New Sewage Grinder Pump	1 LS	3,500.00	3,500		3,500
New Force main 1.5"	225 LF	35.00	7,875		7,875
			21,375	0	21,375
33 46 16 FOUNDATION DRAINAGE SYSTEMS					
House Long Term					
Tie Downspouts into perimeter Drain	5 EA	150.00	750		750
Perimeter Foundation Drain (optional)	186 LF	15.00	2,788		2,788
			3,538	0	3,538
Optional Temporary Heating					
House Immediate Work					
Install Portable Electric Heater	1 EA	6,500.00	6,500		
Install New Circuit Breaker	1 EA	150.00	150		
			0		
General Requirements	1 LS	997.50	998		
	subtotal		7,648		
	Contractor's Fee	10%	765		
	subtotal		8,412		
	Design/Estimate Contingency	20%	1,682		
	subtotal		10,095		
	Escalation to Mid-Point - 04/27/2019	9%	932		
	TOTAL		**11,027**		

Blackstone House and Outbuildings

- Smokehouse
  - Immediate Preservation and Maintenance Estimated Costs
  - Long Term Rehabilitation Work Estimated Costs

DESCRIPTION	::	QUANTITY	::	UNIT $	:	TOTAL	House Immediate Work	House Long Term
Smokehouse								
House Immediate Work								
Install Screening at Vent Holes		3 EA		100.00		300		
Install Temporary Painted Wood Frame and Door		1 EA		1,000.00		1,000		
Install Temporary Painted Wood Frame and Plywood Covering at Window		1 EA		250.00		250		
Masonry Repairs ALLOWANCE		1 LS		8,300.00		8,300		
Remove Existing Roof		1 LS		260.00		260		
Roof Frame Repairs		1 EA		750.00		750		
Install New Temporary Asphalt Shingle Roof and Flashings		1 LS		825.00		825		
Install New Half Round Gutters		24 LF		36.00		864		
Install New Downspouts		2 EA		200.00		400		
Install New Barge Boards		1 LS		600.00		600		
Cap the Brick Chimney		1 EA		350.00		350		
General Requirements		1 LS		2,084.85		2,085		
House Long Term								
Install Grade Beams And Underpin	::	52 LF	::	450.00	:			23,400
Install Helical Piers	::	14 EA	::	900.00	:			12,600
Install New Historic Door/Frame and Lintel	::	1 EA	::	1,500.00	:			1,500
Historic Reproduction Hardware	::	1 EA	::	550.00	:			550
Excavate at perimeter of Building	::	31 CY	::	25.00	:			770
Backfill at perimeter of Building	::	31 CY	::	30.00	:			924
Regrade at perimeter	::	520 SF	::	1.00	:			520
Repoint and Crack Repair Exterior	::	574 SF	::	9.50	:			5,458
Repoint and Crack Repair Interior	::	574 SF	::	9.50	:			5,458
Clean Masonry	::	574 SF	::	1.50	:			862
Replace Bricks Exterior	::	60 EA	::	75.00	:			4,500
Replace Bricks Interior	::	290 EA	::	75.00	:			21,750
Remove CMU Infill @ Wall	::	2 EA	::	250.00	:			500
Repair/Restore Chimney Flue	::	1 EA	::	800.00	:			800
Remove and Install New Fire Treated Wood Shingle Roofing	::	176 SF	::	17.00	:			2,999
Install New Half Round Gutters w/ Leaf Guard	::	24 LF	::	38.00				912
Install New Downspouts w/ Splash Blocks	::	2 EA	::	225.00				450
New Window	::	1 EA	::	600.00	:			600
Reconstruct Brick Chimney and Cap	::	1 EA	::	2,250.00	:			2,250
Install Tie Downs @ Roof Framing	::	14 EA	::	20.00	:			280
Lead Paint Abatement	::	1 LS	::	1,560.00	:			1,560
Paint White Wash Exterior	::	574 SF	::	3.00	:			1,723
Treat Wood Lintel	::	1 LS	::	75.00	:			75
		EA						0
General Requirements		1 LS		13,566.20				13,566
		subtotal				15,984		104,008
		Contractor's Fee		10%		1,598		10,400.75
		subtotal				17,582		114,408
		Design/Estimate Contingency		20%		3,516		22,881.65
		subtotal				21,099		137,290
		Escalation to Mid-Point - 04/27/2019		9%		1,948		12,675.58
		TOTAL				**23,047** Immediate Work		**149,965** Long Term Work

Blackstone House and Outbuildings

- Milk House
    - Immediate Preservation and Maintenance Estimated Costs
    - Long Term Rehabilitation Work Estimated Costs

DESCRIPTION	QUANTITY		UNIT $	TOTAL	House Immediate Work	House Long Term
Milk House						
House Immediate Work						
Install Screening at Vent Holes	2	EA	100.00	200		
Install Temporary Painted Wood Frame and Door	1	EA	1,000.00	1,000		
Install Temporary Painted Wood Frame and Plywood Covering at Window	1	EA	250.00	250		
Masonry Repairs ALLOWANCE	1	LS	8,300.00	8,300		
Install New Half Round Gutters	24	LF	36.00	864		
Install New Downspouts	2	EA	200.00	400		
Install New Barge Boards	1	LS	600.00	600		
House Long Term						
Install Grade Beams And Underpin	52	LF	450.00			23,400
Install Helical Piers	14	EA	900.00			12,600
Install New Historic Door/Frame and Lintel	1	EA	1,500.00			1,500
Historic Reproduction Hardware	1	EA	550.00			550
Excavate at perimeter of Building	31	CY	25.00			770
Backfill at perimeter of Building	31	CY	30.00			924
Regrade at perimeter	520	SF	1.00			520
Repoint and Crack Repair Exterior	287	SF	9.50			2,729
Repoint and Crack Repair Interior	287	SF	9.50			2,729
Clean Masonry	574	SF	1.50			862
Replace Bricks Exterior	30	EA	75.00			2,250
Replace Bricks Interior	30	EA	75.00			2,250
Remove and Install New Fire Treated Wood Shingle Roofing	176	SF	17.00			2,999
Install New Half Round Gutters w/ Leaf Guard	24	LF	38.00			912
Install New Downspouts w/ Splash Blocks	2	EA	225.00			450
New Window	1	EA	600.00			600
Install Tie Downs @ Roof Framing	12	EA	20.00			240
Lead Paint Abatement	1	LS	1,760.00			1,760
Paint White Wash Exterior	287	SF	3.00			862
Treat Wood Lintel	1	LS	75.00			75
Replace North Rafter & Joist	2	EA	150.00			300
Demo Concrete Floor	168	SF	5.00			840
Archeological Investigation ALLOWANCE	1	LS	1,200.00			1,200
Test historic parge coat and paint finishes	1	LS	1,200.00			1,200
Install Replica White Wash Finishes	520	SF	5.00			2,600
		EA				0
		EA				0
		EA				0
General Requirements	1	LS	9,768.28			9,768
	subtotal			11,614		74,890
	Contractor's Fee		10%	1,161		7,489.01
	subtotal			12,775		82,379
	Design/Estimate Contingency		20%	2,555		16,475.83
	subtotal			15,330		98,855
	Escalation to Mid-Point - 04/27/2019		9%	1,415		9,126.99
	TOTAL			**16,746** Immediate Work		**107,982** Long Term Work

Blackstone House and Outbuildings

- Deconstruction/Demolition Estimated Costs

DESCRIPTION	:: QUANTITY	:: UNIT $	: TOTAL	House Immediate Work	House Long Term
Hand Deconstruct House and Outbuildings					
Hand Deconstruct House Labor	1 LS	104,000.00	104,000		
Landfill Costs	9 CY	65.00	606		
Fill Foundation	208 CY	25.00	5,200		
Disconnect and Remove Utilities back to source ALLOWANCE	1 LS	15,000.00	15,000		
Archaeological Monitoring (2 week)	1 LS	14,300.00	14,300		
			0		
General Requirements	1 LS	20,865.82	20,866		
	subtotal		159,971		
	Contractor's Fee	10%	15,997		
	subtotal		175,968		
	Design/Estimate Contingency	20%	35,194		
	subtotal		211,162		
	Escalation to Mid-Point - 04/27/2019	9%	19,496		
	TOTAL		**230,658**		