

Jean Baptiste Vallé House

STE. GENEVIEVE NATIONAL HISTORICAL PARK
STE. GENEVIEVE, MISSOURI



Historic Structure Report

PMIS 311236
OCTOBER 2024



Jean Baptiste Vallé House, east facade. (Source: RRJ)

Prepared for:

National Park Service
DOI Interior Regions 3, 4, 5 – Midwest Regional Office
601 Riverfront Drive, Omaha, Nebraska 68102
402.661.1601

Prepared by

Raths, Raths & Johnson, Inc.
500 Joliet Road, Suite 200
630.325.6160 | Main Number

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Ste. Genevieve National Historical Park
Ste. Genevieve, MO

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Omaha, NE

Prepared by:

Raths, Raths & Johnson, Inc.
500 Joliet Road, Suite 200
Willowbrook, IL 60527

Historic Resources Group, Inc.
2840 Calvert Street
Lincoln, NE 68502

Alvine Engineering
1201 Cass Street
Omaha, NE 68102

Liz Sargent Historic Landscape Architects
1855 Winston Road
Charlottesville, VA 22903

CCS International
1815 S. Meyers Road, Suite 1070
Oakbrook Terrace, IL 60181

VIATechnik, LLC
1500 W Carroll Avenue, 5th Floor
Chicago, IL 60607

Ligno Logic LLC
1919 Woodlawn Avenue
Eugene, OR 97403

Jean Baptiste Vallé House

Historic Structure Report

Ste. Genevieve National Historical Park
Ste. Genevieve, MO

Contract No. 140P6020D0002
Task Order No. 140P6022F0085
Prepared by: Raths, Raths & Johnson Inc.

Recommended: **BRIAN MCCUTCHEN** Digitally signed by BRIAN MCCUTCHEN
Date: 2024.10.04 14:17:50 -05'00' Date: 10/16/2024
Acting Superintendent, Ste. Genevieve National Historical Park

Concurred: **STEPHANIE STEPHENS** Digitally signed by STEPHANIE STEPHENS
Date: 2024.10.15 10:00:35 -05'00' Date: _____
Associate Regional Director, Cultural Resources, Land and Water Conservation Fund (LWCF),
and Tribal Relations Programs, Interior Regions 3, 4, & 5

Approved:  Digitally signed by HERBERT FROST
Date: 2024.10.22 19:47:42 -05'00' Date: _____
Regional Director
Interior Regions 3, 4, & 5

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Table of Contents

CONTENTS

ADMINISTRATIVE SUMMARY AND DATA1

Resource Information 1

 Project Purpose and Need.....1

 Park Planning2

 Methodology2

Project Team.....4

Related Studies and Drawings5

Glossary5

Date Conventions 7

PART I: DEVELOPMENTAL HISTORY.....8

 Introductory Comments.....8

 Historical Background and Context8

 Architectural Antecedents in France and French Canada.....29

Chronology of Development and Use32

 Building Chronology.....32

 Period of Significance (c. 1794 – 1877).....42

 Statement of Significance.....43

 Character Defining Features.....45

 Assessment of Integrity53

Physical Description.....56

 Site and Landscape Features57

 Historic Documentation.....64

Condition Assessments.....68

 Definitions68

 Summary Condition Assessment Table.....69

 Site and Landscape81

 Enclosure99

Structural Systems	120
Interiors	153
Mechanical Assessment.....	195
Electrical Assessment.....	227
Hazardous Materials Survey.....	247
Accessibility and ABAAS Compliance	248
PART II: Treatment and Use	256
Requirements for Treatment.....	256
Code Analysis.....	257
Treatment Objectives.....	258
Treatment Approach.....	259
Ultimate Treatment and Use.....	260
Treatment Recommendations	266
Enclosure Systems.....	266
Structural Systems	273
Building Systems.....	276
Miscellaneous Items	277
Heating, Ventilation and Air Conditioning (HVAC) Systems Options	278
Electrical Systems, Fixtures, and Devices Options	278
Plumbing Systems Options.....	280
Fire Protection Options.....	281
 Appendices	
Appendix A – Existing Condition Drawings	
Appendix B – Historic Photographs and Images	
Appendix C – Phase II Environmental Assessment Report	
Appendix D – Wood Assessment and Species Identification Report	
Appendix E – Other Treatments Options Considered	
Appendix F – Treatment Workshop Meeting Minutes	
Appendix G – Treatment Cost Estimate	

ADMINISTRATIVE SUMMARY AND DATA

Resource Information

The Jean Baptiste Vallé House is located at 99 South Main Street in Saint Genevieve, Missouri. The home was built in c. 1794 and is among only a few surviving French Colonial vernacular dwellings of this period in the United States. The home is listed on the National Register of Historic Places as a contributing structure to the Ste. Genevieve Historic District and Ste. Genevieve National Historical Park (Ste. Genevieve NHP). The house is currently operated by NPS as a museum. Visitors are allowed limited access to the house interior and surrounding grounds.

<i>Name:</i>	Jean Baptiste Vallé House
<i>Location:</i>	Ste. Genevieve National Historical Park (STGE) 99 South Main Street, at the intersection of Main Street and Market Street in downtown Ste. Genevieve, Missouri.
<i>National Register Status:</i>	Contributing property to the Ste. Genevieve National Historic District and contributing property to the Ste. Genevieve National Historic Landmark District; not individually listed but eligible for individual listing under Criteria A (national level), C (national level), and D (local level).
<i>Dates of Construction and Major Alterations:</i>	c. 1794, original construction After 1794, possible expansion of original house c. 1862, office, kitchen, and second story added; basement expanded After 1862, shed added c. 1945, first floor bathroom installed 1880, portico added 1950s, portico replaced with an enclosed room
<i>Current Use:</i>	Historic house museum.
<i>Overall Dimensions:</i>	59'-7" by 80'-4" and 30'-10" at roof ridge
<i>Net Areas:</i>	Basement 3,005 square feet First Floor 2,290 square feet Second Floor 1,338 square feet

Project Purpose and Need

The goal of the Jean Baptiste Vallé House project, as defined by the NPS, is to develop conceptual planning

and design to inform the ultimate treatment of the house and its continued use. This historic structure report (HSR) is the first phase in this planning and design effort.

Park Planning

Ste. Genevieve NHP was authorized by the Consolidated Appropriations Act of 2018 on March 23, 2018. The act incorporates by reference Section 7134 of Senate Bill 1460, which authorizes the establishment of Ste. Genevieve NHP as a unit of the National Park System “to preserve, protect, and interpret for the benefit of present and future generations the themes of French settlement, vernacular architecture, and community form and farming on the frontier associated with Ste. Genevieve.”

This document is part of Ste. Genevieve NHP planning portfolio. A park planning portfolio is the collection of planning documents that guides decision making and satisfies law and policy. Ste. Genevieve NHP’s planning portfolio creates a logical, trackable guide for park management actions. Along with the Ste. Genevieve Special Resource Survey (2016) and the Foundation Document (2020), the Jean Baptiste Vallé House HSR addresses resource preservation for the Jean Baptiste Vallé House.

The HSR was prepared in advance of a Long-Range Interpretive Plan, Cultural Landscape Report, and other documents for the park’s planning portfolio not yet developed. At present, the anticipated future use for the Jean Baptiste Vallé House for flexible interpretive functions is based on past and current uses and guidance from park staff.

Methodology

The purpose of the HSR is to provide a compilation of the findings of research, investigation, analysis, and evaluation of the historic structure. The report serves as a basis for decision-making and direction for preservation of the building. The report also serves as a

record of existing conditions and as a basis for planning future preservation and maintenance.

The HSR for the Jean Baptiste Vallé House addresses key issues specific to this structure, including a thorough level of research¹ and physical investigation to determine construction chronology of the house, investigation of existing physical conditions, evaluation of the surrounding landscape, and evaluation of the existing systems to identify needed upgrades.

History Methodology

Review, transcription, and translation of the earliest Ste. Genevieve historical documents which are in French; research for this report relied heavily on translated excerpts, summaries, and indexes previously prepared by others. These documents are primarily located in the following collections, but other collections not noted below may also have significant holdings:

- Ste. Genevieve County Court (original documents)
- State Historical Society of Missouri, Ste. Genevieve Archives, 1756-1930 (microfilm)
- University of Missouri, Western Historical Manuscripts Collection
- Missouri Historical Society/ Missouri History Museum and Library

Resources Consulted

As part of the research into developing the historical background and context, the HSR also consulted and/or researched collections at the following:

- Mercantile Library at St. Louis University-Ernst Connelly Collection
- Ste. Genevieve Archive in the Missouri State Historical Society
- Ste. Genevieve County Courthouse

¹ National Park Service, NPS- 28: Cultural Resource Management Guideline. June 11, 1998.

https://www.nps.gov/parkhistory/online_books/nps28/28contents.htm.

- Felix Vallé House State Historic Site
- National Park Service (NPS) site files
- Charles E. Peterson papers, in the collection of Ste. Genevieve NHP.
- Various Family Records and collections

Condition Assessment Methodology

From October 3 to 7, 2022, representatives from the HSR team were on site to perform an investigation into the existing conditions and construction of the Jen Baptiste Vallé House.

- Visual inspection and condition assessment of the site, context, and landscape features.
- Visual inspection and condition assessment of the architectural features and building materials.
- Visual inspection and condition assessment of the enclosure and structural systems.

- Non-destructive evaluation of wood framing members.
- Visual inspection and condition assessment of the mechanical, electrical, and plumbing systems.
- Sampling and identification of wood species for structural members.
- Identification and assessment of integrity of significant character-defining features and elements.

The condition assessment and physical investigation were limited to areas and features that were readily visible; no finishes were removed to expose concealed conditions. Isolated sampling and testing of wood building components to identify constituent materials and/or determine dates of construction were performed as part of the HSR scope.

Project Team

National Park Service – Midwest Regional Office

Tonya Bradley | Contracting Officer

Nicholas Murray | Contracting Specialist

John Rosemurgy | Historical Architect and Contracting Officer's Representative

National Park Service – Ste. Genevieve National Historical Park

Christopher M. Collins | Park Superintendent (January 2020 to June 2024)

Brian McCutchen, Acting Park Superintendent (August 2024 to Present)

Raths, Raths and Johnson, Inc.

Lurita McIntosh Blank, NCARB, RBEC | Historical Architect

George R. Mulholland, P.E., S.E. | Structural Engineer

Gloria Frank | Engineering Staff

Racheal Lute, Ph.D. | Engineering Staff

Historic Resources Group, Inc.

Melissa Dirr Gengler | Architectural Historian

Ligno Logic, LLC

Suzana Radivojevic, Ph.D. | Wood Scientist

Alvine Engineering

Mike Gregory, CPD | Mechanical Engineering

Bob Foust | Electrical Engineering

Liz Sargent Historic Landscape Architects

Liz Sargent, FASLA, PLA | Historical Landscape Architect

Jane Jacobs, HLA, PLA | Historical Landscape Architect

Related Studies and Drawings

- 1933/1939 HABS photographs and measured drawings
- 1959, 1970 Ste. Genevieve, National Survey of Historic Sites and Buildings
- 1985/1986 HABS photographs
- Undated/c. 1986 Tree Ring Dating of French Colonial Vertical Log Houses in St. Genevieve, MO
- 2001 Ste. Genevieve Historic District, National Register of Historic Places Registration Form
- 2016 Ste. Genevieve Special Resource Study
- 2016 – 2018 Documents related to the proposed National Historical Park
- 2019 Ste. Genevieve Boundary Adjustment Public Law No. 116
- 2021 Archeological Overview and Assessment of Ste. Genevieve National Historical Park
- 2025 Cultural Landscape Report (in progress)

Glossary

Arpent	(French) A French measurement of land area, roughly equivalent to 0.84 of an English acre; also, a unit of measure of distance (approximately 192 English feet).	Grenier	(French) Attic; the loft of a house.
Bousillage	(French) A mixture composed of mud or clay with straw, or hair, for infill between posts in the construction of vertical log buildings.	Habitant(s)	(French) French settlers, especially those of French-Canadian descent used to denote a person engaged in agriculture.
Caveau	(French) A crawl space or cellar.	King Post	The central vertical member of the Norman truss which connects the diagonal top chord members to the collar tie.
Collar Tie	The horizontal member of a Norman truss, located at the approximate midpoint of the diagonal top chord members.	Nogging	Brick masonry infill between wood framing members.
Colombage	(French) Half-timbered construction.	Norman Truss	A French vernacular variation on the “king post truss,” characterized by a steep pitch, through purlins, and the elevated position of the collar beam.
En filade	(French) An interior layout that is a single room wide with successive rooms being interconnected, often with aligned doorways.	Rafter	A diagonal roof framing member: “primary rafters” are those of the main roof structure, and “secondary rafters” are those of the galerie roof structures.
Galerie	(French) Gallery or veranda; a porch extending the full length of either one, two or four sides of a building.	Parterre	(French) A geometrically organized and symmetrical formal garden characterized by enclosed planting

	beds which are separated by walkways, typically of gravel or other naturalistic paving materials.	Purlin	A longitudinal, horizontal member of the roof framing that provides midspan support for the rafters; “through-purlins” pass over the top of the truss diagonal top chords.
Pierrotage	(French) Infill of stone and clay daub or lime mortar; packed between the posts of a heavy timber frame.	Ridge Beam	A longitudinal, horizontal member at the apex of the roof framing which supports the top ends of the rafters.
Poteau(x)	(French (pl.)) Timber post or vertical log member.	Top Chord	The diagonal members of the Norman truss that form the distinctive “A-frame” shape, with the crossbar formed by the collar tie.
Poteaux-en-terre	(French) “Posts in the ground”; a construction type where the vertical logs are set into the ground.	Top Plate	A horizontal wood member that bears on the tops of the vertical log walls.
Poteaux-sur-sole	(French) “Posts on a sill”; a construction type where the vertical logs sit on a horizontal sill plate, and the foundation is typically constructed of stone masonry.	Trenail	A tapered wood pin used in traditional heavy timber construction.
Puncheon	A rough log timber flattened on the top side, sometimes used for flooring or seating.		

Date Conventions

The dates as presented in this HSR are drawn from the information available at the time of writing. In a few cases, the dates are supported by direct historical documentation, but in the majority of cases, the dates proposed are the project team’s best determination

based on factors such as physical evidence, circumstantial documentation, research by others, professional experience, or those dates adopted by general consensus. Further research, investigation, and analysis may refine or refute the dates proposed herein.

No Notation Direct attribution of the date or date range given is supported by historical documentation or physical evidence; ex: 1910 or 1919 –1923.

Circa (c.) Attribution to within one or two years of the date or date range given is supported by historical documentation or physical evidence, but the precise dates are not known; ex. c. 1955 or c. 1933 – c. 1935.

Dash (–) Indicates that the range given is inclusive of the years between the start and end dates, such as an ongoing event or period of ownership, ex: 1923–1963.

Slash (/) Indicates that two or more specific dates are referenced without being inclusive of the years between; ex: c.1940/c.1952 or 1940/1988.

Decade Span Indicates a ten-year span, but the date or date range given are approximate and may be refuted by further study; ex: 1920s or 1960s – 1970s.

PART I: DEVELOPMENTAL HISTORY

Introductory Comments

Native American Habitation and Land Use

The following narrative spans a broad historical context that documents the interaction of peoples across thousands of years of time and place. Missouri's archeological record is vast and diverse, with studies that reflect over 13,000 years of human adaptations to the landscape and environment. This introduction is meant to provide a broad context of the people who occupied and developed this area prior to the arrival of European explorers, fur traders, and miners and has attempted to incorporate the best scholarship available at the time of its preparation.

Harmful Language

Terminology relating to and recognition the of indigenous peoples that were removed from the region to make way for European and American settlers and enslaved individuals is important in the recordation and documentation of the House. This document is generated from both primary and secondary sources and is meant to contribute to the understanding of the enslaved community in Ste. Genevieve, as well as the formerly enslaved individuals and free people of color who lived there and contributed to its history. These individuals are identified in the historic record and referenced with deference to language appropriate for developing this context. Historic documents often contain language and terminology that is widely considered offensive and racially discriminatory in the United States today. Where used in this report, these terms represent direct quotations from historic sources,

with full acknowledgment of their harmful history of use.

Resources from community-sourced guidance, meant to be shared with those documenting slavery in the United States and the Americas, have been applied here. One helpful resource from the Culpeper Branch of the NAACP presents useful considerations in documenting slavery. As aptly noted in their guidance: "...all words we know to talk about enslaved people of African descent in these Americas prove insufficient, both for the brutality against them, and for their remarkable overcoming."²

Historical Background and Context

Settlement and Land Use Pre-1700

Southeast Missouri

Ste. Genevieve is in the central or middle Mississippi Valley, a region that was first settled during the Paleo-Indian period and continuously was occupied through the Woodland Period and into the Mississippian Period.

By the Woodland Period (1000 BCE – 1000 CE), ornately decorated pottery styles were found, and permanent village sites became more common. Tools and weapons were refined, and the bow-and-arrow was introduced, while agricultural practices and plant cultivation continued to grow.

During the Mississippian Period (800 – 1600 BCE), complex social, political, and economic structures were

2 P. Gabrielle Foreman, et al. "Writing about Slavery/Teaching About Slavery: This Might Help" community sourced document, 26 July 2023, at <http://www.naacpculpeper.org/resources/writing-about-slavery-this-might-help>.

developed, and Cahokia on the east side of the Mississippi River near modern-day St. Louis became one of the greatest cultural centers in North America.³

The Mississippians are recognized for their earthwork structures where pottery, projectile points, and agricultural practices were evident. Existing mounds associated with this period are present near Ste. Genevieve. The Common Field Archeological Site (23SG100) is listed in the National Register of Historic Places and is located within the common field area south of town near where Cotton Woods Road intersects with U.S. Route 61.⁴

The largest Mississippian urban center was established at Cahokia, Illinois, near St. Louis, where people lived in large, planned, permanent towns with ceremonial centers. Cahokia is named after the Cahokia Nation, now recognized as part of the Peoria Nation. At the height of its populace, the urban center grew to 20,000 people. They were part of an extensive cultural and religious tradition throughout most of the Midwest. Villages were located along both sides of the Mississippi River with features like farmsteads, sacred rock art, ceremonial centers, and transportation systems. Long distance trade and travel routes were established throughout the area and were influenced by natural features, adapting to changing terrain and following the waterways. The population at the Cahokia site declined significantly by the early 1400s. The descendants of the Mississippians are most likely the historically known Dhegian Sioux speaking tribes of the mid-continent area. When and how the Mississippians became the Osage, Omaha, Ponca, Quapaw, and Kaw Nations is a topic of lively scholarly debate.⁵

With the decline of Cahokia, people moved away from the region. Some moved west and south while others stayed in the central Missouri area and used the elaborate trail network that connected the broader



Figure 1. Illustration of the dress of a member of the Kaskaskia nation, from a 1796 map illustration by Georges Collot. (Source: Bibliothèque nationale de France, <https://gallica.bnf.fr/ark:/2148/btv1b55013299j#>)

region. Tribes were established on both sides of the Mississippi River and included the Cahokia, Kaskaskia, Michigamea, Peoria, and Tamaroa, with other Algonquian speakers moving into the area from the east. These lands, rich in natural resources, also attracted Europeans expanding west in the seventeenth century. Tribes that interacted with these early Europeans included the Osage, Peoria, Illinois, Shawnee, and Delaware nations. European diseases, along with power struggles over rights to the land and

³"Archaeology in Missouri." Missouri Archeological Society. Accessed at <https://missouriarchaeologicalsociety.org/archaeology-in-missouri/>

⁴ National Register of Historic Places, "Common Field Archeological Site," Ste. Genevieve, Ste. Genevieve County, MO, National Register #69000306.

⁵ "Before the French." Ste Genevieve National Historical Park Foundation Document.



Figure 2. 1721 Map of French Louisiana (Source: Bibliothèque nationale de France)

enslavement, devastated the Native American people in this area and across the country.⁶

The historic period represented in Missouri's archeological sites, included river settlements, like those near Ste. Genevieve, St. Louis, and St. Charles. Tribes that lived in or passed through Missouri included the Osage, Otoe-Missouria, Iowa, Delaware, Shawnee, Kickapoo, Sac-Fox, Potawatomi, Peoria, and Cherokee nations.

Early European Exploration and Settlement

American colonial history often emphasizes the colonies on the East Coast, but the first Europeans to colonize the Mississippi Valley were French fur-trappers and Catholic priests. This line of colonization ran from Canada to modern-day Louisiana, largely along the Mississippi River. Historian Robert Michael Morrissey noted that scholars of the Illinois Country have "revealed a history characterized by diversity and dynamism." Morrissey creates a context around the main French-Native settlements of Cahokia and Kaskaskia, both communities with centuries of pre-



Figure 3. The first map illustrating the village of Ste. Genevieve, 1755. (Source: *Partie occidentale de la Nouvelle France ou Canada*, Library of Congress, <https://www.loc.gov/resource/g3400.ar077400/>)

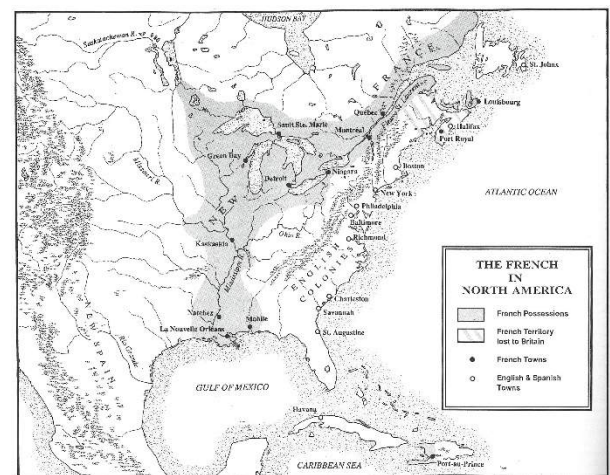


Figure 4. Map showing the location of French territory during the eighteenth century. (Source: Luer and Francis, *Vanishing French Heritage*, 12)

contact history. This area, called *le pays des Illinois* or the Illinois Country, was remote from both Canada and New Orleans, with little governmental oversight. By necessity, the communities grew into a network of Native and French villages.⁷

⁶ "Before the French." Ste. Genevieve National Historical Park Foundation Document.

⁷ Robert Michael Morrissey, "Le Pays des Illinois Finds its Context: The Early History of Illinois in a Continental Perspective." *Journal of the Illinois State Historical Society*

(1998-), Vol. 111, No. 1-2, *Illinois History-A Bicentennial Appraisal* (Spring/Summer 2017), pp 9-30. Accessed at <https://www.jstor.org/stable/10.5406/illisthist.111.1-2.0009>

Intermarriage, intercultural connections, and racial identity are part of the early history of Illinois Country. While there were frequent marriages and close ties between the French settlers and the local Indigenous tribes, this was not an area where diverse cultures and races interacted without bias or tension. Community, cultural, and racial identities were “drawn in complex and often idiosyncratic ways, often by local people themselves as much as by imperial authorities.”⁸

During this time, the population of the Illinois Country was diverse and multinational, with members of the 12 nations of the Illinewek (the Illinois Confederacy) in the area, as well as other nations including the Potawatomi, Sauk, Fox, Kickapoo, Osage, and others seeking asylum from warring factions in the East.⁹ In Missouri near the confluence of the Missouri and Grand Rivers about 250 miles north and west of Ste. Genevieve, the Indigenous groups that lived in the area also included the Otoe-Missouria and Ioway.

Earliest accounts of French Europeans in the Illinois Country are from the explorations of fur trader Louis Joliet and Jesuit missionary Father Jacques Marquette in 1673. Traversing the Mississippi River and utilizing trails established by Native Americans, they sought a route to connect the Great Lakes to the Gulf of Mexico, largely by water. Their expedition turned back near the mouth of the Arkansas River but traveled far enough south to confirm that the through water route they sought did exist.

European exploration, occupancy, and eventual colonization of the Illinois Country had long-ranging impacts on both the ecology and people of the region, decimating fur-bearing animal populations, appropriating significant lands for agriculture, introducing new diseases, and displacing Native American communities.¹⁰

La Louisiane

Equipped with Joliet and Marquette’s information, Robert Cavelier de La Salle, a seventeenth century French explorer, charted a route from Fort Frontenac in Ontario, Canada, across the Great Lakes to the Illinois River, then down the Mississippi River to the Gulf of Mexico during his 1682 expedition conducted on behalf of the French government. La Salle named the lands *la Louisane* (Louisiana, after the French king Louis XIV) and claimed them “by virtue of His Majesty’s commission” for France.¹¹

LaSalle established military forts along his route, including Fort St. Louis at Starved Rock, Illinois, and Fort Crevecoeur near Peoria, Illinois. Following LaSalle’s explorations, a European townsite and Catholic mission was established at Cahokia in 1699 and another at Kaskaskia in 1703 by French Canadians who sought to benefit from the fertile natural resources that had supported Native Americans for thousands of years before.¹²

The French occupancy of Upper Louisiana was part of broader pattern of European exploration and

⁸ Ibid. 19.

⁹ “Before Euro-American Settlement.” United States Forest Service. Summary of excavations and research of Mark Schurr & Dr. Madeline McLeester at the Midewin National Tallgrass Prairie and article: Madelein McLeester & Mark R. Schurr. “Uncovering Huber Lifeways: An Overview of Findings from Four Years of Excavations at the Huber Phase Middle Grant Creek Site (11WI2739) in Northern Illinois,” *Midcontinental Journal of Archaeology*, 45:2, 102-129. Accessed at <https://www.fs.usda.gov/detail/midewin/learning/history-culture/?cid=stelprdb5155177>

¹⁰ Louise Phelps Kellogg, (ed.). *Early Narratives of the Northwest, 1634-1699*. (New York: Charles Scribner’s Sons, 1917). 223-230. From the journals of *The Mississippi Voyage of Jolliet and Marquette*, 1673. Accessed at www.americanjourneys.org/aj-051/

¹¹ The Explorers: Rene-Robert Cavelier de La Salle 1670-1687. Virtual Museum of New France, Canadian Museum of History. Accessed at <https://www.historymuseum.ca/virtual-museum-of-new-france/the-explorers/rene-robert-cavelier-de-la-salle-1670-1687/>

¹² “The Creation of Ste Genevieve and a Unique Culture” Foundation Document, Ste. Genevieve National Historical Park.

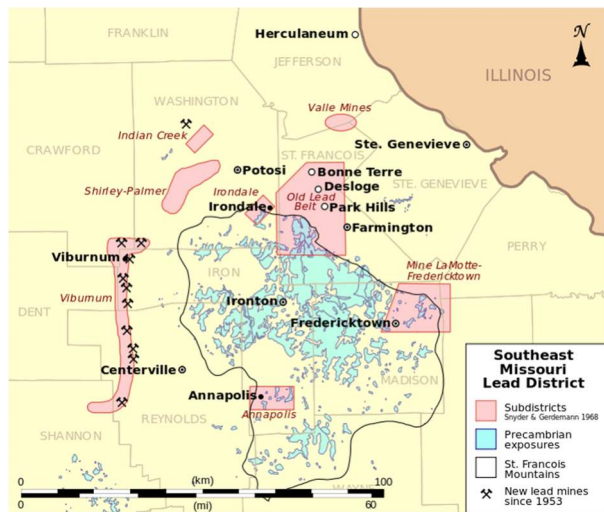


Figure 5. Map showing lead mining districts in southeast Missouri. Ste. Genevieve is shown at the top right of map with Vallé Mines just north and west and Mine LaMotte south and east of the city. (Source: Map from US. Geological Survey, *Hydrologic Investigations Concerning Lead Mining Issues in Southeastern Missouri*)

colonization worldwide. France, Spain, and Great Britain fought multiple wars in the 17th and 18th centuries over power and control of their colonial territories. The British victory in the Seven Years' War (also called the French and Indian War) ultimately culminated in the total loss of French territory in continental North America to both Great Britain and Spain in 1763.

Shifting governance of the Illinois Country in the 1760s brought Ste. Genevieve under Spanish control and lead to an influx of settlers into the formerly French-controlled lands. Per the 1772 Spanish census, Ste. Genevieve seems to have prospered during this time, with significant population growth to 691 residents, including enslaved persons.¹³

Early Mining Practices

Southeast Missouri has a long history of mining that began with Native Americans, followed by French-Canadian explorers, and then by European settlers. Lead and fur were the most important exports during the period when the area was under control by the French and Spanish, and then later the United States. Southeast Missouri retains the largest known concentration of lead sulfide in the world, and today remains the largest lead-producing region in the United States. Land has been continuously mined for lead since the first part of the eighteenth century.

The earliest written account of lead in Missouri was made by Father James Gravier in c. 1700, who journaled about his voyage and documented the potential for lead mining near the Meramec River in Washington County, just west of Ste. Genevieve. Phillippe François Renault, a French politician, metallurgist, and explorer favored by Louis XIV, established the first major lead mine in North America at Mine La Motte (near Fredericktown, approximately 40 miles south and east of Ste. Genevieve) in 1722.¹⁴ Phillippe François Renault transported the first enslaved people from the French colony of Saint-Domingue to colonial Missouri to work as forced labor at Mine la Motte. Although Renault's mining venture eventually failed, mining was a lucrative undertaking for the Vallés and others.¹⁵

Lead mining was labor intensive and hazardous to the workers. Extracting the raw materials required intensive physical effort that initially included "open pit" or "strip" mining by digging large shallow pits to expose lead deposits. Later, deep shafts were sunk as a more efficient and profitable means of extracting materials. The first shafts were sunk c. 1819 at Vallé Mines in

¹³ Ekberg, *Colonial Ste. Genevieve*, 43; and *Padron y Lista de los Milicianos y Habitantes de... Santa Geneveva...* (Spanish Territorial Census), 1772. Accessed at <https://www.sos.mo.gov/default.aspx?PageID=9621>.

¹⁴ Kleeschulte, M.J., ed., *Hydrologic Investigations Concerning Lead Mining Issues in Southeastern Missouri*: U.S. Geological Survey Scientific Investigations Report 2008-5140, 8-10.

¹⁵ Carl J. Ekberg, "Black Slaves in the Illinois Country, 1721-1765," *Proceedings of the Meeting of the French Colonial Historical Society*, 11 (Michigan State University Press, 1987): 265-277; Carl J. Ekberg, *François Vallé and His World: Upper Louisiana Before Lewis and Clark*. University of Missouri Press (Columbia, MO, 2002) 39-40.

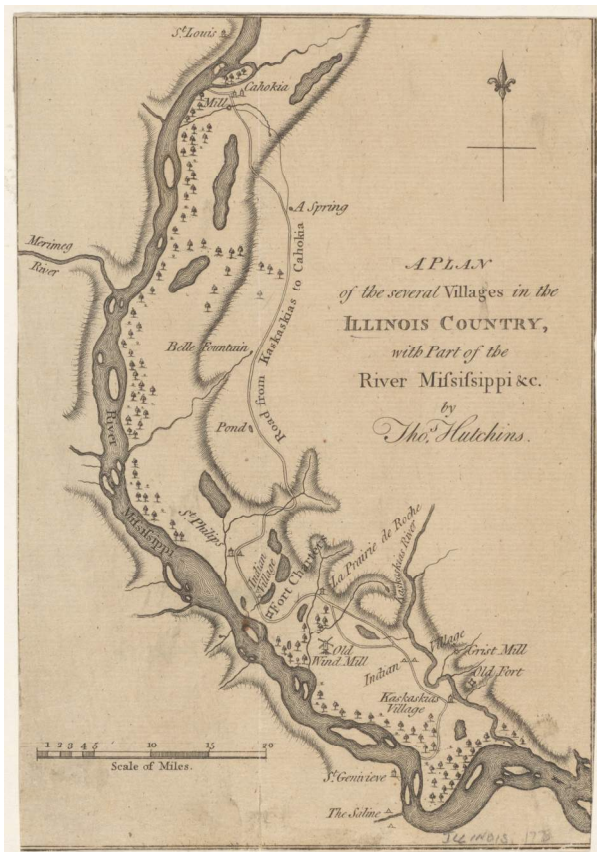


Figure 6. 1785 map of villages along the Mississippi River in Illinois Country, including Ste. Genevieve. (Source: New York Public Library Digital Collections, catalog no. b20644602, <https://digitalcollections.nypl.org/items/ca545cb0-76ce-0135-f178-9298ec325d9>)

present day Jefferson County. Raw materials were collected and shipped through Ste. Genevieve to the Mississippi River and eventually to trade across the world.¹⁶

Mining and the Vallé Family

Mine La Motte contributed to much of the wealth of early Ste. Genevieve families, including François Vallé père and eventually his son Jean Baptiste, who would later own part of the mine. The mining town was named after Antoine de la Mothe Cadillac, governor of the Louisiana territory from 1710 – 1716. François Vallé, the patriarch of the Vallé family in Ste. Genevieve, was identified in the 1730s as a *voyageur* (transporter of goods, or literally “traveler”) often living at Mine La Motte on the west side of the Mississippi River, or Kaskaskia on the east side, or a general resident of *le pays de Illinois*.¹⁷ He participated widely in the early industries of the area including extracting salt from La Saline, a salt spring and creek nearby, lead mining, and trading goods.

François Vallé may have started his involvement with mining as early as 1749, and the descendants operated mines in Jefferson County into the 1800s. The mines also eventually became associated with the Roziers, another prominent Ste. Genevieve family, through marriage into the Vallé family, eventually leading to the founding of the Valle Mining Company by 1839. The Valle Mining Company operated mines on the border between Jefferson and St. Francois Counties, mining lead and possibly zinc and other minerals to a lesser extent.¹⁸

François Vallé built his extensive wealth through real estate, agriculture, mining, and trade. He purchased land throughout Ste. Genevieve and farmed much of it, profiting from the enslaved individuals who worked his holdings. During the 1770s, Vallé produced the most

¹⁶ John Edward McCormic. *The Mine La Motte Lead Deposit, Madison County, Missouri*. Open File Report Series OFR-93-94-GS. Missouri Department of Natural Resources, 1993. 2. The Marquette and Joliet expedition was preceded by Hernando De Soto who explored southeast Missouri in 1541, and notes indicate that two of his men along with American Indian guides visited lead deposits in Madison County, south of Ste. Genevieve. This was a side exploration on their hunt for gold but noted the lead deposits and active mining at that time.

¹⁷ Ekberg, *François Vallé*, 20-26; Kaskaskia Manuscripts, 39:3:4:4 (for a searchable finding aid, see Lawrie Dean's 1981 Kaskaskia Manuscripts Digests, <https://www.illinoiscolony.org/kaskaskia-digests>).

¹⁸ Vallé Mining Company Records and Account Books Summary. State Historical Society of Missouri collections summary of Vallé Mining Company Records, 1839-1972. Collection R1278.

flour and wheat in the entire colony of Louisiana, and he became among the richest men in Upper Louisiana.

The Vallés were among the earliest settlers of Old Ste. Genevieve and remained highly influential well into the nineteenth century.

Early Settlement of Ste. Genevieve

Antecedents of Ste. Genevieve began across the Mississippi River in the Illinois Country, where French and French-descended settlers migrated to a mission established at Cahokia on the east bank of the river as early as 1699. The mission at Kaskaskia was founded four years later in 1703, and following that, small-scale and subsistence economies such as mining lead and salt making began on the west side of the Mississippi River.

French land grants west of the Mississippi River occurred in the last half of the 1740s, spurring more permanent migration across the river. Settlers from Kaskaskia and Fort de Chartres established the first Ste. Genevieve townsite along the west bank of the Mississippi River, about three miles southeast of its present location.¹⁹

By about 1758, the region supported about 2,000 inhabitants associated with European settlements, as

compared to the whole of the territory of Louisiana, whose population was estimated at 7,000. Most settlements were largely agrarian, in which small clusters of families, typically from French Canada, settled to take advantage of the rich and fertile soil of the Mississippi River Valley. Forts and outposts were populated with transient traders, soldiers, missionaries, and Native Americans.²⁰

The earliest reference in the extant historic record to identify Ste. Genevieve is in a land survey conducted by notary and surveyor, Jean Baptiste Bertlot *dit* Barrois, in 1751. Antoine Heneaux commissioned Barrois to survey his land on the west side of the Mississippi River, and Barrois's 1751 description documented his property and described Heneaux as residing in Ste. Genevieve.²¹ In 1752, a census of the Illinois Country was completed, and Ste. Genevieve was listed as one of the communities with 23 residents.²² Finally in 1755, Jacques-Nicolas Bellin, a French hydrographer and member of the Académie de Marine and the Royal Society of London, published a map of la Louisiane that identified the town of Ste. Genevieve and other settlements along the Mississippi River.²³

The town of Ste. Genevieve was named after one of the three patron saints of Paris, France. Born "Genovefa"

¹⁹ Robert Michael Morrissey. "Le Pays des Illinois Finds its Context: The Early History of Illinois in a Continental Perspective." *Journal of the Illinois State Historical Society* (1998-), Vol. 111, No. 1-2, *Illinois History-A Bicentennial Appraisal* (Spring/Summer 2017). The NPS Foundation Document for Ste. Genevieve National Historical Park identifies the term "Creole" as being of Spanish descent and referencing those individuals of French, Spanish, Black, or mixed-race that were born in North America.

²⁰ National Park Service, "French Exploration and Settlement: The National Survey of Historic Sites and Buildings," revised 1960, 24.; Louis Houck. *A History of Missouri*. (Chicago, IL: R.R. Donnelley and Sons Company, 1908), 245-250.; Justin Winsor, *Narrative and Critical History of America*, Vol. V (Boston and New York : Houghton, Mifflin and Company, 1889): 53.

²¹ Carl J. Ekberg. *Colonial Ste. Genevieve: An Adventure on the Mississippi Frontier*. (Carbondale, Illinois: Southern Illinois University Press, 1996) 22.

²² *Recensement General du pays de Illinois de 1752*, Huntington Museum, Loudon Section, Vaudreuil subsection, call No. L0426. Partial transcription available via the Missouri Secretary of State Archives website at <https://s1.sos.mo.gov/records/archives/census/pages/territorial>. Note that the online transcription contains an error compared to the original document, which also includes family names and other information not included in the transcription. For a full English transcription see Berardinis, Robert de. "The 1752 French Census of Illinois." *Illinois State Genealogical Society Quarterly* (Winter 2000).

²³ Charles E. Peterson. "Early Ste. Genevieve and Its Architecture." (Columbia, MO: *The Missouri Historical Review*, volume XXXV, No. 2. January 1941) 208; Ekberg. *Colonial Ste. Genevieve*, xxi, 22; and Jacques Nicolas Bellin, *Carte de la Louisiane et des pays voisins...*, 1755, Library of Congress (G3300 1755 .B4), <http://hdl.loc.gov/loc.gmd/g3300.ar001800>.



Figure 7. 1796 drawing of French residence on a map illustration by Georges Collot. (Source: Bibliothèque nationale de France, <https://gallica.bnf.fr/ark:/12148/btv1b55013299j#>)

(in the Frankish spelling) around 422 in Nanterre, France, and officially canonized as a saint in the twelfth century, Saint Genevieve and was known for her generosity to the poor. Saint Genevieve's symbolic attributes include a lit candle, which she is often depicted as holding in church iconography. She was a recognized leader among Parisian women during the tumultuous threat of invasion by Attila the Hun's armies in the mid-fourth century.²⁴ Many of the earliest settlers of Ste. Genevieve were devout Catholics and looked to the church for naming the community.²⁵

The first townsite was in the lowlands and routinely suffered from flooding. Although an important waterway for trade and a major source of support for the community, the river had been a significant threat to the settlement for years.

A major river flood in 1785 caused serious damage to the original townsite. The year became known as "*l'année des grandes eaux* (the year of the big waters)," and contemporary reports document that:

*"the waters have risen so greatly from their source that they have entirely submerged the village of Santa Genoveva. All its inhabitants having been obliged to retire with great haste to the mountains...they abandoned their houses which were inundated and their furniture and other possessions which they had in them. Although the waters have now fallen, those inhabitants remain along the said coast without yet knowing the place where they can settle."*²⁶

A report by Zenon Trudeau, the lieutenant governor of Upper Louisiana from 1792 – 1799, stated that the residents were "warned by so many reiterated occasions, they determined at length to seek a position where they might place the houses under shelter."

Consideration to remove Ste. Genevieve to higher and safer ground was underway, and eventually a new townsite evolved on higher ground to the north, near the North and South Gabouri Creeks. It is here at the new townsite, present-day downtown Ste. Genevieve, where several of the surviving vertical log structures were constructed by the prominent families that migrated across the river.²⁷

The new townsite was formed in a grid configuration, similar to town planning for colonial-era St. Louis, Prairie du Rocher, and many other Illinois Country settlements. Some structures may have been disassembled and transported, moved whole, or salvaged for construction materials for the new townsite

²⁴ McNamara, Jo Ann (ed.), et al. *Sainted Women of the Dark Ages*. (Gordon, England: Duke University Press, 1992). 17-37.

²⁵ Houck, History of Missouri, 277.

²⁶ Report of Governor Estevan Miro to Conde de Galvez. (Seville, AGI-papers from the island of Cuba, No.209) July 10, 1785. Ernst Connelly Collection, Mercantile Library, Box 2, History of Ste Genevieve File.

²⁷ Bonnie Stepenoff. From French Community to Missouri Town: Ste. Genevieve in the Nineteenth Century (Columbia, Missouri: University of Missouri Press, 2006) 16-18.; Peterson. Early Ste. Genevieve, 212.; Rozier. History of the Early settlement of the Mississippi Valley, 16.; Ernst Connelly Papers, Copy of a Report of Zenon Trudeau, January 15, 1798, concerning settlements of the Spanish Illinois Country, Mercantile Library, Box 2 Folder History of Ste. Genevieve."

as residents slowly migrated to the new location, a process that took a number of years.

By 1787, residents in the new town petitioned to have their lots in the Common Field subdivided. Eleven residents were included on the petition, indicating New Town had at least this many residents in 1787; conflicting figures are provided in other contemporary sources that may shift the number of early residents to 13 or more, but historians are not in general agreement with the actual number of new town inhabitants at that time.²⁸

The Church did not relocate to the new townsite until 1794, when it was physically moved from the old townsite.

France lost all its North American territory after the Seven Years' War/French and Indian War in 1763, and Spain took control of the land west of the Mississippi River and the port of New Orleans on the east side of the river, with England dominating control of lands east of the river. People continued to move from Kaskaskia and Cahokia to Spanish-controlled Ste. Genevieve, and in 1766, a Spanish census was conducted. It recorded a population that included 319 free people and 228 enslaved people, with Native Americans accounting for 29 of the enslaved individuals.²⁹ Between 1766 and 1800, the combined population of people of African descent, mixed-race, enslaved, and free people of color was recorded as 35 to 44% to the number of whites of European descent. Enslavement heavily influenced the demographics of Ste. Genevieve; the combined population of Black, mixed-race, enslaved, and free people of color was often near 40% of the total population on average.

Many of the agricultural pursuits in the Illinois Country required large tracts of land for their crops and were profitable because of the labor of enslaved individuals.

Enslavement of Africans and African-descended people was more prominent in the Louisiana Territory, but the French also enslaved Native Americans. After coming under Spanish control in 1763, Native American enslavement in the territory was ostensibly prohibited. The Indigenous peoples of the Americas were recognized by Spanish law as "free vassals of the crown," and as such, Alejandro O'Reilly, the second governor of Louisiana, issued a degree 1769 outlawing their enslavement. However, this generally went unenforced in the formerly French territories, and Native American enslavement continued.³⁰ On the other side of the Mississippi River, the Northwest Ordinance was adopted by the United States in 1787, prohibiting slavery in territories located north of the Ohio River. As a result, some French moved west of the Mississippi River into Spanish territory to avoid loss of enslaved labor.

In Ste. Genevieve, the settlers mostly worked their own land in assigned long lots located in the Common Field. Wealthier families cultivated several lots and relied on enslaved labor to work these larger parcels. Census data taken at various times during the colonial period portray that a majority of households did not contain enslaved persons. In most of these years, several of the wealthier households held the majority of the enslaved persons in Ste. Genevieve, while other Ste. Genevieve families

²⁸ Ste Genevieve Archives, Petitions, #22, December 21, 1787.

²⁹ National Park Service. "Ste. Genevieve Final Special Resource Study and Environmental Assessment." 4.

³⁰ Gwendolyn Midlo Hall. *Africans in Colonial Louisiana: the Development of Afro-Creole Culture in the Eighteenth Century*. Baton Rouge, LA: Louisiana State University

Press, 1992. 336-337; Stephen Webre, "The Problem of Indian Slavery in Spanish Louisiana, 1769-1803." *Louisiana History: The Journal of the Louisiana Historical Association*, Vol. 25, No. 2 (Spring 1984), 117-135; and Leila K. Blackbird, " 'It Has Always Been Customary to Make Slaves of Savages': The Problem of Indian Slavery in Spanish Louisiana Revisited, 1769-1803." *The William and Mary Quarterly*, Vol. 80, No. 3 (July 2023), 525-558.

enslaved one to three African or Native American persons.³¹

Trade also continued with the Native Americans in and near the community and included the Osage, Illinois, Peoria, and Shawnee nations who largely lived in villages on the banks of the Apple Creek and Shawnee Creek.³²

The early settlers of Ste. Genevieve built a typical dwelling that was unlike the log cabins seen in most of American westward expansion. Their built environment was populated largely with one story timber buildings, often of vertical logs either directly in the earth (*poteaux-en-terre*) or resting on a stone foundation or sill (*poteaux-sur-sole*). Homes typically had galleries or porches (*galeries*) that either wrapped the structure or were located on one or two sides, which sheltered exterior living and working space. Steeply pitched upper hipped roofs had a lower pitch that extended over the porch, creating the broken-pitch roof shape so characteristic to many Illinois Country homes (Figure 7).³³

*Scattered around the country however are several French villages as they are called. The inhabitants of these are all French and the French language is the only one spoke. They who are industrious cultivate a little land in small vegetables. The others live miserably by hunting and fishing, their houses are generally one story high and have curiously peaked roofs, with perhaps a little piazza in front overrun with evergreens, under that are congregated parrots, canary birds, cats, and lapdogs in the great harmony the greatest simplicity of manners prevails among them.*³⁴

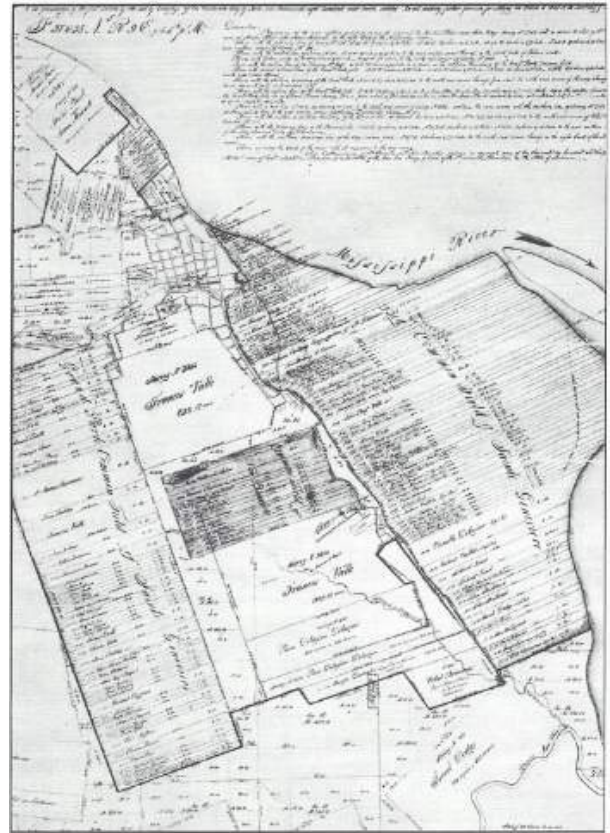


Figure 8. Drawing of land ownership within Ste. Genevieve including the long narrow strips associated with the Big Field (Source: Luer and Francis, *Vanishing French Heritage*, 26, from Ste. Genevieve Museum)

The farmers cultivated plots within Common Field where long lots that extended from the river were divided among the residents (Figure 8). The larger Common Field was fenced to protect crops from wandering livestock. In his recollections, Henry Marie Brackenridge described the setting of Ste. Genevieve as follows:

³¹ Henry Marie Brackenridge. *Views of Louisiana Together with a Journal of a Voyage Up the Missouri River in 1811*. (Chicago, IL: Americana Classics, Quadrangle Books, Inc., 1962 from first edition published in 1814) 127; Statistics from territorial census records from 1752, 1766, 1787, 1791, and 1787, as summarized by Robert Mueller.

³² Stepenoff, French Community to Missouri Town, 14.

³³ National Park Service. "French Exploration and Settlement." 26.

³⁴ "St. Louis & French Villages in 1836" Extract from the Journal of George A. Bicknell prepared by Esther U. McNitt, Indiana State Library, Indianapolis for Charles E. Peterson, May 12, 1939. Ernst Connelly Collection. Box 2, Folder Ste Genevieve History.

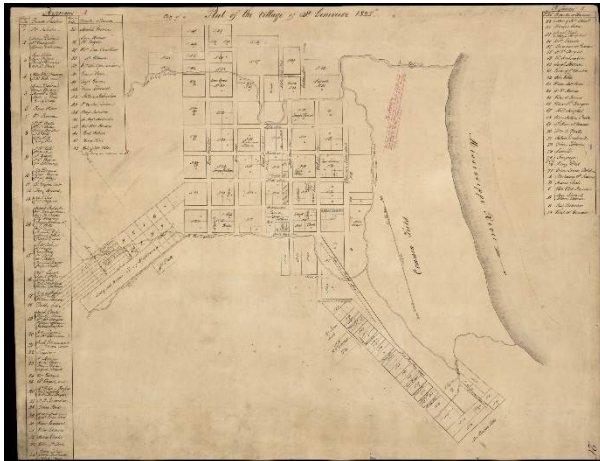


Figure 9. 1825 Map of Ste. Genevieve (Source: State Historical Society of Missouri)

One fence encloses the whole village field, and this is kept up at the common expense. The river side is left open, the steepness of the bank rendering any enclosure unnecessary. The field is divided into a number of small lots, of an equal size; a certain number of arpents in front, and a certain number in depth. The more wealthy possess and cultivate several of these lots, while some of the poorer class do not own one entire... Their agricultural labors commence in the month of April when the inhabitants with their slaves are seen going and returning each morning and evening, for eight or ten days with their ploughs, carts, horses., etc.³⁵

The new townsite was laid out roughly in a grid with blocks of approximately 350 by 400 feet. Blocks were sometimes divided into two or more parts. Several residents owned an entire block (Figure 9). Each building site was termed an *emplacement*, and most were surrounded by wood fences, sometimes of palisaded logs.

By the time the William Clark of the Lewis and Clark Expedition reached the area across the Mississippi

River near Ste. Genevieve in November 1803, the population was around 1,000 people, comprised of primarily French Creole families. Although this was a French community, France ceded lands west of the Mississippi River to Spain who controlled the area from late 1762 – 1800.³⁶

Historical events including the American Revolution (1775-1783), the Louisiana Purchase (1803), and Missouri statehood (1821) shifted Ste. Genevieve from a French village to an American town, and the population grew to include English and German residents. During this period, Native American tribes

³⁵ Brackenridge. *Views of Louisiana*, 127.

³⁶ Stepenoff. *From French Community to Missouri Town*. 11, 28.



Figure 12. 1860 plat map of agricultural holdings around Ste. Genevieve, showing large tracts of land under ownership by François Vallé père. (Source: The State Historical Society of Missouri map collection, call no. 751.237 L928 1860, <https://digital.shsmo.org/digital/collection/Maps/id/229/rec/1>)

including the Osage, Illini, Peoria, Shawnee, and Delaware nations had villages in the region with established trade networks between other tribes and European settlements. Villages between Ste. Genevieve and Cape Girardeau were in place until their forced removal in the 1820s.³⁷

An event of historical note took place in 1811, when a significant earthquake struck along the New Madrid Faultline in Missouri in 1811 and 1812. Though it

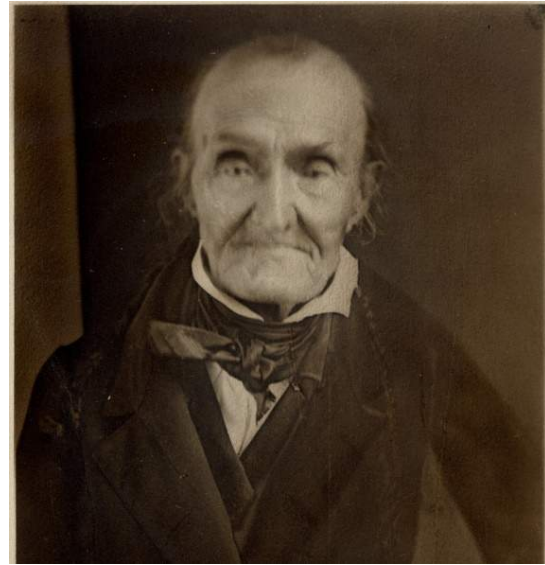


Figure 10. Jean Baptiste Vallé. Identifier: N34504, mid-nineteenth century photograph from the Missouri Historical Society. <http://collections.mohistory.org/resource/145512>



Figure 11. Marie-Jeanne (Barbeau) Vallé. Identifier: N13557, early-nineteenth century copy of a daguerreotype from the Missouri Historical Society. <http://collections.mohistory.org/resource/141627>

caused severe damage in other communities, Ste. Genevieve survived with little damage.

³⁷ Ibid.

Prominent Families of Ste. Genevieve: The Vallé Family

Ste. Genevieve was defined and influenced by a handful of early families, who mostly came from the Illinois Country via French Canada. André Deguire *dit* Larose was one of the first settlers in Ste. Genevieve, and, indeed, Larose is listed in the 1752 census along with his wife, five children, and enslaved person as well as a variety of livestock, arms, and land. Among the prominent French residents that migrated across the river were the Vallé, Deguire, Aubuchon, Carpentier, Bolduc, Lachance, and Bauvais families.

François Vallé *père* was born in 1716 in Beauport, Canada, and immigrated to Kaskaskia in Upper Louisiana as a laborer in 1739. He married Marianne Billeron (1729-1781), and they had five children: Charles (1751-1796), Marie-Louise (1752-1801), Joseph (1754-1774), François *fils* (1758-1804), and Jean Baptiste (1760-1849). A sixth child, Marguerite (1762-1804), François's child born outside his marriage, was also raised in the family.³⁸ François arrived in Ste. Genevieve c. 1754 as one of the wealthiest people in the community and possibly all of the Upper Louisiana territory, largely from his mining investment, land holdings, and manufacturing of salt at La Saline. He served as Captain of the Militia for the French starting in 1755 and maintained the position after the territory was ceded to Spain as part of the Treaty of Fontainebleau in 1762, until his death in 1783.”³⁹

Vallé *père* profited partly through purchases of vast tracts of land farmed by people he enslaved (Figure 12). Sixty-three enslaved individuals labored on his extensive holdings, making Vallé the largest enslaver in Upper Louisiana. During the 1770s, his lands produced the most flour and wheat in the Louisiana colony. As

his holdings and investments grew, so too did the number of individuals he enslaved. By 1781, 84 individuals were enslaved by Vallé, which accounted for one-third of the enslaved population of Ste. Genevieve.⁴⁰ Marianne, François's wife and Jean Baptiste's mother, died in 1781, and half the estate, including several of the enslaved individuals, was divided among her children. Jean Baptiste and his wife, Marie-Jeanne (née Barbeau), moved into the family

³⁸ Ekberg. *François Vallé*, 122.

³⁹ French Louisiana was transferred to Spain as part of the Treaty of Fontainebleau signed in 1762. The transition between governments took some time and it was not until 1770 when the Spanish government officially assumed

control of the Territory of Louisiana that was ceded to them in 1762.

⁴⁰ Todd Barnett. *François Vallé*. Historic Missourians. Accessed at <http://www.historicmissourians.shsmo.org/Vallé-François/>

residence soon after they were married in 1783, just before his father's death.⁴¹

Most enslaved individuals in Missouri labored on small farms rather than large plantations like those of the southeastern United States. While this difference alludes to a regional character of enslavement that ultimately differed from that of the deeper South, historian Diane Mutti Burke's research provides an important caution:

Nineteenth-century white Americans' collective memory, in combination with cultural references, resulted in the myth of mild border slavery trumping formerly enslaved Missourians' criticisms of the system (...)important correctives by and large have neglected the experiences of the many black and white Southerners who lived on small-slaveholding farms in the upland or border South, however, thus allowing for the belief that slavery was easier to endure in the border states.⁴²

Mutti Burke's research provides a deep examination of Missouri's regional context through the everyday experience of both enslavers and enslaved individuals, while reminding the reader: "Slavery differed in significant ways in Missouri, *but* this never translated into an overall 'better' system of bondage."⁴³

François Vallé *père* died in 1783, a wealthy man with significant land holdings, personal property, and assets, all of which were divided among his surviving children.

François Vallé *fils* was appointed military commandant in 1794.⁴⁴ When François *fils* was absent from Ste. Genevieve, his brother Jean Baptiste would serve as acting commandant. François *fils* held the position until his death in 1804, when his brother, Jean Baptiste Vallé, received the title of commandant from Captain Amos

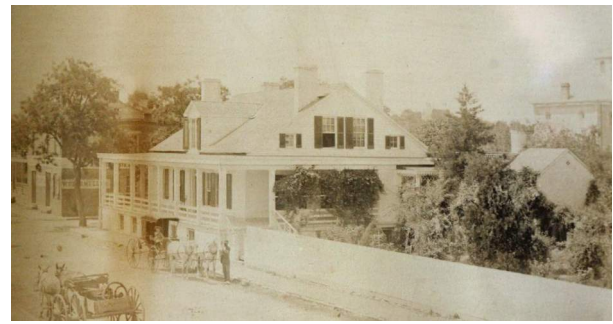


Figure 13. c. 1880s photograph of the Jean Baptiste Vallé House from the northeast, possibly from the roof of the Lagrave Building (58 South Main Street). (Source: Undetermined, taken from *St. Louis Post Dispatch*, https://www.stltoday.com/news/multimedia/jean-baptiste-valle-house/image_bbf93788-b6ae-5d28-9a94-75228c11b732.html)



Figure 14. c. 1890s photograph of the Jean Baptiste Vallé House from the northeast, with the corner of the Lagrave Building (58 South Main Street) at left. (Source: Missouri Historical Society, <https://mohistory.org/society>; a slightly cropped version also appears in Houck's *History of Missouri*, Vol. I, 350)

Stoddard, the new American commandant of the military district of Upper Louisiana. Although such titles were not hereditary, the passing of the position from brother to brother serves to illustrate the regional influence held by the Vallé family.⁴⁵ Jean Baptiste

⁴¹ Ibid; Ekberg, *Francois Vallé*, 277.

⁴² Diane Mutti Burke. *On Slavery's Borders: Missouri's Small-Slaveholding Households, 1815-1865*, Early American Places (Athens and London: The University of Georgia Press, 2010).

⁴³ Mutti Burke, 3-4.

⁴⁴ Ekberg, *Colonial Ste. Genevieve*, 356.

⁴⁵ Jean Baptiste Vallé acted as interim Civil and Military commandant beginning February 4, 1804 (Cuba, leg 197, fol. 721). He continued to serve as interim until named Civil Commandant in March 1804. By November of the same

served as the commandant for only six months but oversaw the transition from French to American policy following the Louisiana Purchase in 1803. During this period, his home served as the nexus for much of his political and civic activity. Shortly after his appointment, Jean Baptiste notably stated in a letter to Captain Stoddard, “We are now all Americans” and indicated his continued devotion to the new country and “the well being of its citizens.”⁴⁶

Jean Baptiste Vallé House

Jean Baptiste Vallé (Figure 10) and Marie-Jeanne (Barbeau) Vallé (Figure 11) were married in January 1783 and raised a family of four children that included Jean Baptiste *fils* (1783-1837), François Baptiste (1785-1851), Felix (1800- 877), and Louis (1808-1833) in the house.

Jean Baptiste acquired a portion of Block #9 (Figure 9), a property located in a prominent spot in the center of Ste. Genevieve. Shortly after acquisition, he relocated his family into a log house on the lot. Tree ring dating of framing members of the house point to a c. 1794 construction date; however, the first municipal records referencing Jean Baptiste being in ownership of the lot were not recorded until 1796.⁴⁷ It is currently unknown whether Jean Baptiste purchased a lot with an existing house, constructed a new house, or possibly expanded an existing structure. At some point, he also acquired part of Block #4 to the east across Gabouri Street (now Main Street).

The family residence was a structure built in the traditional French Creole style of *poteaux-sur-sole* (posts on a sill), a construction technique that used logs

oriented vertically to form exterior walls that sit on a stone foundation and support a heavy timber truss roof. Multiple variations of vertical log construction were used in Ste. Genevieve, but by the end of the eighteenth century, *poteaux-sur-sole* was likely the preferred method. *Poteaux-sur-sole* was considered more durable than *poteaux-en-terre* (posts in the ground) because the logs were raised from the earth and protected from moisture and decay. The bottom sill was often raised two to eight feet on piers or a stone foundation wall, with stone walls being more commonly seen in Ste. Genevieve than piers. Raising the main floor may have also improved air circulation under the house, diminishing damp and insects, aiding in passive cooling, and minimizing water damage from flooding. It could be assumed that flooding was a consideration in the raised basement of Vallé’s new residence because of his experience at the original Ste. Genevieve townsite prior to and after the Mississippi River flooding of 1785.

The house, as with other Illinois Country houses of a similar typology, responded to the dueling climatic conditions of this region. Vernacular influences from Normandy, France, then later Quebec, Canada, are seen in the *en filade* plan, heavy massed walls, and steeply pitched center roofs, while vernacular practices from Lower Louisiana and the French Caribbean, such as the deep galleries and broken-pitched roofs, responded to Missouri’s hot, humid summers. Directly connected interior rooms without corridors, along with aligning the window and door openings, increased internal air circulation. High ceilings with tall windows and doors also increased air flow. Galleries surrounding the residence provided further protection from the summer heat,⁴⁸ while large central fireplaces provided heat with

year, he was replaced by an American, Major Seth Hunt (Ekberg, *Colonial Ste. Genevieve*, 360.

⁴⁶ Ekberg, *Colonial Ste. Genevieve*, 359-60.

⁴⁷ Richard Guyette. “Tree Ring Dating of French Colonial Vertical Log Houses in St. Geneviève, Missouri.” University of Missouri – Columbia (1986 [n.d.]); and Ste. Genevieve Land Records, 107 (SGA58); Ste. Genevieve Archive, Folder 58, deed between Pierre Levrard and Francois Poillievre. Deed describes property as the front boundary is

the street which runs to the church which is between the said lot and the lot of Jacques Courtois (*south edge of lot*); and to the rear or back of the lot by the lot of Nicolas Plante (*north edge of lot*); bounded by the lot of JB Valle on the east, and the west side bounded by a street between the lot of Widow Le Grand. (*Italics added for clarity*)

⁴⁸ Christine Huckins Franck. “Houses of the French Colonial Tradition.” Accessed at



Figure 15. 1933 photograph of the Jean Baptiste Vallé House from the southeast. (Source: HABS)



Figure 16. 1933 photograph of the Jean Baptiste Vallé House from the north. (Source: HABS)

the log walls and pierrotage infill serving as fairly effective insulation against the winter cold.

The Jean Baptiste Vallé House may have originally been constructed as two large rooms separated by a central hallway with a central fireplace, a variation on the *en filade* or linear plan, which was typically one room deep and one or more rooms long. The current floor plate is two rooms deep and three rooms long; variations in the floor framing suggest the western half of the main level was constructed separately from the

eastern half, possibly as an expansion to an existing structure.

Jean Baptiste wrote his last will and testament on January 14, 1839. The will provides several insights into his vast holdings. He left most of his estate to his wife, which included the house and furnishings, six enslaved individuals of her choice, \$500 in cash annually (about \$16,000), and “land across the street where the barn/stables are located.” This would be land separated by Main Street, to the east of the residence, where the park’s visitor center is now located. He gifted money to each of his grandchildren for their education, and his extensive landholdings, investments, and personal property were divided among his children.⁴⁹

His estate was worth approximately \$555,806, according to multiple inventories completed after his death – roughly \$22 million in today’s dollars. Real estate included multiple lots in the Common Field, lots in New Bourbon, other land in Ste. Genevieve County, portions of Mine La Motte, a house in St. Louis on Pine Street, land in neighboring counties, and land outside Missouri in Arkansas and Texas.

Personal property inventories identified 22 enslaved individuals, ranging in age from three to 52 years old. These individuals’ forced labor helped build Vallé’s wealth, and they were sold and divided among other families and businesses in the community as part of the estate: seven boys named Paul, Sampson, Michel, Leandre, Henry, Jacquette, and Xavier and one girl named Madelaine went to Vallé Mines; two boys named Baptiste and Louis and one girl named Marie Louise went to Felix Vallé; one boy named Joseph, the “son of Mary,” and one girl named Victoria and her small child went to Felix Rozier; one boy named Joseph, “son of girl Felicite,” went to Francis Rozier; one boy named Peter, one girl named Mary and her infant child, and one small girl named Adelia went to Jules Vallé; and one girl Félicitie, her infant child, and

christinefranck.com/2011/01/19/houses-of-the-french-colonial-tradition/

⁴⁹ Ste. Genevieve Probate Court. Last Will and Testament of Jean Baptiste Vallé. Will and Estate Records at Ste. Genevieve County Courthouse.

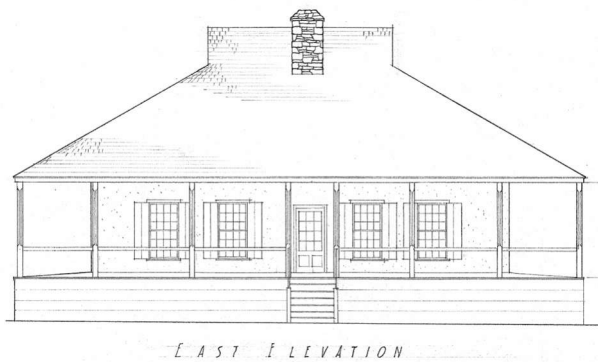


Figure 17. Conceptual east façade, c. 1794, from the 1959 HABS drawings. (Source: HABS)

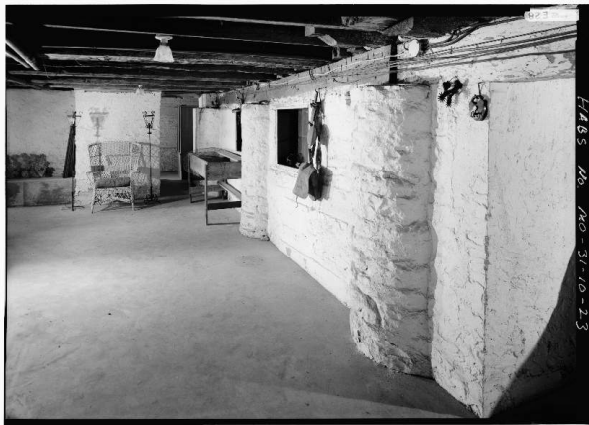


Figure 18. 1933 photograph of the Jean Baptiste Vallé House basement, showing the unusual stone piers. (Source: HABS)

one girl Laide went to Francis B. Vallé. These individuals were sold for a total of \$8,140.⁵⁰

His estate records also document some improvements on and around the property. A receipt against the estate in 1852 was issued for \$41.62 John Froll for “making division fence between my lot of ground and one of said J. B. Vallé.” The fencing was completed, and a receipt for \$5.00 for labor paid was issued in April 1853.



Figure 19. The white marble funerary monument for Vallé and his wife Jeanne. (Source: RRJ)

On June 4, 1853, the estate paid \$77.25 for stone used for curbing the streets surrounding his residence. Cutting and setting 636 feet of stones on two lots around the residence cost the estate \$57.24. Gravel was hauled and sidewalks filled around the lot in July 1855 at a cost of \$7.12 ½ (seven dollars, twelve and one-half cents).⁵¹

Vallé also spent a significant amount of money memorializing himself and his wife in the Ste. Genevieve Memorial Cemetery (Figure 19). He paid nearly \$500 to purchase a large marble, obelisk shaped, monument from Krut and Fuller in St. Louis, have it

⁵⁰ Sale of Slaves & Other Personal Property of J.B. Vallé deceased, Filed December 2, 1851. Ste. Genevieve County Courthouse, Probate and Estate Records. Note: Further research into the lives of the enslaved people of Ste.

Genevieve is recommended as part of a future thematic study.

⁵¹ Receipts against the estate of Jean Baptiste Vallé . Ste. Genevieve County Courthouse, Probate and Estate Records.

shipped to Ste. Genevieve, and installed in the cemetery. This was completed in December of 1854.⁵²

The House Grounds

The Jean Baptiste Vallé house and grounds as originally constructed have undergone several major eras of significant alteration but still retain strong integrity of feeling for the site and gardens.⁵³ The grounds surrounding the residence likely included a summer kitchen, barn, and other smaller scale outbuildings that no longer exist. The grounds likely also included a detached building or buildings to house enslaved people. No outbuildings from this era are extant. Notably, the designed landscape with vegetable and herb gardens, a grape arbor, and rose garden that remain at the north side of the lot are likely reminiscent of early use of the site, which was known to include a formal garden at an early date.

Changes Over Time

The house may have originally been organized as two large rooms separated by a central hallway, with a central fireplace, capped by a hipped roof (Figure 17). Changes in the floor framing suggest that the eastern half of the first floor may have been constructed as a stand-alone structure, with the western half an addition that was constructed shortly after the original house; further investigation that includes removing interior finishes would be needed to confirm the sequence of construction.

In their book *Vanishing French Heritage*, Jack Luer and Jesse Francis note that the current configuration of the Jean Baptiste Vallé House is more reminiscent of the Georgian style, because of 1860s alterations. This style adopted more rigid symmetry, balanced proportions, lower pitched roofs, and classical detailing. Typically, the symmetrical plan had a large central bisecting hall

flanked on each side by two rooms and covered by a low-pitched roof.

This house was notable as one of only two extant structures in Ste. Genevieve that may have utilized the lower level for other than animals and storage. The basement at the Jean Baptiste Vallé House includes multiple rooms, one of which has three round stone piers and windows set into the stone walls (Figure 18).⁵⁴ Further investigation would be necessary to determine if the windows were original to the stone foundation wall or cut in at a later time. The round stone piers may be unique among the extant structures in Ste. Genevieve but were not unique to the Jean Baptiste Vallé House; similar piers are present in the basement of the Pierre Menard House (c. 1802) near Kaskaskia, Illinois.

The house exemplifies the evolution over time of different styles implemented by new owners to meet the aesthetic tastes of the day. Jean Baptiste occupied the house until his death in 1849. Marie-Jeanne preceded him in death in 1842, and together they are buried at the Ste. Genevieve Memorial Cemetery.

Their children continued to successfully run family businesses and had their own properties in Ste. Genevieve. The house was inherited by the children upon Vallé's death in 1849 and held until 1853 when Antoine (sometimes spelled as Anthony) LaGrave purchased the residence from Felix Vallé. LaGrave was

⁵² Ibid.

⁵³ An illustrated timeline of the property provides conceptual renderings of the residence through its different building eras.

⁵⁴ Luer and Francis. *Vanishing French Heritage*. 123.

Jean Baptiste Vallé House Historic Structure Report

married to Mary Louise Vallé, Jean Baptiste's granddaughter and Felix's niece, and under his ownership, the house retained its connection with the Vallé family.

LaGrave made several significant alterations to the property during his ownership. The hipped roof was removed and reframed to allow for the addition of finished second floor space. This changed the symmetry and appearance of the residence. The main level was reconfigured, and a central corridor was added or widened. Portions of the galleries surrounding the house were enclosed at the northeast corner and the northwest corner to add an interior kitchen, pantry, and office space or possibly a small bedroom. Finish carpentry and interior trim and mantels were replaced with the more fashionable Greek Revival style. LaGrave also removed the large French colonial-era central fireplace and constructed smaller fireplaces to serve each first-floor room; the fire places in the western two rooms have since been infilled. This extensive remodel was not unexpected in one of the largest homes in the community and from a wealthy family. LaGrave invested significant funds to modernize the house and remodel it with the more fashionable styles of the era.

A handwritten document entitled “Cost of House Built in St Genevieve” from 1868 itemizes costs of the construction of a house, as well as listing the names and fees paid to individual laborers, including the following among dozens of transactions (Figure 20):

[illegible]

Figure 20. 1868 document itemizing the costs of building a house in Ste. Genevieve. (Source: Ste. Genevieve NHP Archive)

The bill for plastering 380 yds @ 10¢ - \$38.00
(about \$820 in modern currency)

100' 10x14 glass - 13.00

4 kegs lead - 14.50

850 brick - 6.80

40# 3d nails - 3.60

7 door locks 7.10, 3 locks 1.50, 14 pr hinges
3.00, hook .10

2200' lumber for flooring - 55.45

1500' siding - 36.00

Labor, carpenters finishing Whitlock 31.50
Shoelting [?] 32.50 Janis 10.00 Gerard 11.50
Miller 15.00

Unfortunately, the document has been separated from its source book, and the reverse side of the sheet is damaged. The document also includes no identifying information on the owner or location of the house described. However, it provides interesting context on costs, trades, materials, and laborers likely involved in the renovation of the Vallé House in the 1860s.

The Historic American Building Survey (HABS) notes that the renovations may have taken place in 1862 – 1863 when the residence was heavily mortgaged. Deed records illustrate that LaGrave and his wife Mary had a deed of trust to Merchants Bank of St. Louis for \$2,917 until 1864.⁵⁵

Leon Vion and his family purchased the residence from LaGrave in 1867 in a deed record that shows they paid \$8,000 (about \$166,000 in today's dollars) for the property.⁵⁶ Ten years later Leon Vion willed the

property to his wife Fannie and their children.⁵⁷ The Vions enclosed another section of the galleries to accommodate modern plumbing and the interior modern kitchen during their tenure. A March 6, 1880, *Ste. Genevieve Fair Play* article indicated that Mrs. Vion also added a portico to the north side of her residence.⁵⁸ This can be seen in pictures included in the 1933 HABS report. The present enclosed configuration of the sunroom was done between the 1933 HABS photo and a 1985 HABS photo where it had been modified. Mrs. Vion had the house painted in 1883, and in 1892, the city dug a ditch to drain the lot.⁵⁹ The house was passed through the descendants of Vion, and included a 1922 transfer to Joseph Vion Papin, a 1945 transfer to Fannie Locket Papin, and a 1968 transfer from Fannie Locket Papin to Vion Papin Schram.⁶⁰

Vion Papin married Bernard Schram in the 1940s, and together they spent much of the next two decades traveling the world. During this time, Vion's mother Fannie spent her senior years in the residence. Their home was in St. Louis, but they returned to Ste. Genevieve in 1966 to care for Fannie, who had lost her sight.

Upon Fannie's death, Vion Papin Schram and her husband Bernard occupied the house and were the last generation of the family that owned the property for over 140 years. They quickly became entrenched in the community, and Bernard became the president of the Foundation for the Restoration of Ste. Genevieve. At that time, the house was still filled with family antiques and collectibles. Bernard Schram's recollections noted he regretted refinishing period chairs and tables in the basement of the house to get rid of the dirt and stains. He unfortunately removed the original finish on some

⁵⁵ Jean Baptiste Vallé House. HABS No. 31-10, 5. Deed Book P, page 301.

⁵⁶ General Warranty deed from Anthony and Mary LaGrave to Leon Vion. Ste. Genevieve County Courthouse, Deed Book R, page 490.

⁵⁷ Will of Leon Vion Deed book 30, page 51 Ste. Original will in NPS files.

⁵⁸ *Fair Play*. (Ste. Genevieve, MO), March 6, 1880, 3.

⁵⁹ *Fair Play*. (Ste. Genevieve, MO) April 14, 1883, 3.; *Fair Play*. (Ste. Genevieve, MO) March 19, 1892, 3.

⁶⁰ November 9, 1877, will of Leon Vion dated April 1, 1875, to Fannie Vion and children. Deed book 30, page 51; December 27, 1922, will of Fannie Vion to Joseph Vion Papin, Deed book 90, page 341; January 11, 1945, will of J. Vion Papin to Fannie Locket Papin, Deed book 123, page 236; June 27, 1968, will of Fannie Locket Papin to Vion Papin Schram, estate record #132-627.

pieces, diminishing their historic value. When the Schrams sold the property, some of the early furnishings were also sold but remain in the Ste. Genevieve community. The corner cabinet in the dining room is reportedly a close approximation of the original furnishing, which is privately owned by a local resident.

In 1993, the Missouri and Mississippi Rivers experienced catastrophic flood levels. Damage to Ste. Genevieve proper was limited by emergency measures, and the residence survived intact, though the Schrams spent weeks away because of stagnant water in city streets. The Schrams put the house on the market in 2002 when they were in their 80s and 90s and felt they could no longer afford its care. Bernard recalls the sale of the house was heartbreaking.⁶¹ Following the early alterations, there were few significant changes to the property other than aesthetics during the long span the Vion/Papin/Schram family owned the property.

Dan and Dawn Francis purchased the house in 2002 and opened it as a museum for the first time in its history. Dan Francis moved the *Lt. Robert E. Lee* riverboat to Kimmswick with the goal to connect the two cities via boat for a tourist attraction. The gardens were used as part of their wine garden, and during a visit from Bernard Schram in 2004, he shared that he loved living in the house and was appreciative of Francis's efforts to preserve its history. They added a new bronze plaque in the garden that reads:

Vion's Garden. This formal French rose garden has been laid out in the same beds for more than 150 years. Vion Papin Schram was the fourth generation of her family to tend it with tender loving care.

Dan Francis struggled financially, and his business ventures proved unsuccessful. A legal settlement against him for \$1 million in 2007 eventually spurred the sale of the house.

Tim Conley purchased the house in 2009 after it stood vacant for nearly four years.⁶² Conley was a well-known historic preservation activist who purchased and restored many significant properties in Missouri, including the Ste. Genevieve Academy and the Antoine Aubuchon House, both in Ste. Genevieve. Newspaper articles note that the roof was leaking, and the porch was deteriorated. He replaced the roof and replaced decking on the exterior galleries.⁶³ Conley sold part of the property on the west side of the lot to the Lions Club of Ste. Genevieve in 2010.⁶⁴ A 2011 article notes that Conley revived the remaining roses and the grape vines.⁶⁵ He then purchased the Antoine Aubuchon residence at 4th and Washington Streets and proceeded to renovate that property.

Conley sold the Jean Baptiste Vallé House to The National Society of Colonial Dames of America in the State of Missouri (Colonial Dames) in 2013.⁶⁶ At the time, they already owned and operated the Bolduc

⁶¹ Matthew Hathaway. "History for Sale" *St. Louis Post-Dispatch* (St. Louis, Missouri), December 8, 2002. 20.

⁶² Ste. Genevieve Recorder of Deeds, Book 1589, page 266.

⁶³ Matthew Hathaway. "Hunter of historic houses snaps up prized Ste. Genevieve dwelling." *St. Louis Post Dispatch*, 4 January 2010. Accessed at [https://www.stltoday.com/news/hunter-of-historic-houses-snaps-up-prized-ste-genevieve-dwelling/article_992dced3-de33-5d6d-84c4-](https://www.stltoday.com/news/hunter-of-historic-houses-snaps-up-prized-ste-genevieve-dwelling/article_992dced3-de33-5d6d-84c4-8a3480dcee25.html#:~:text=In%20the%20late%201960s%2C%20Conley,1994%2C%20he%20moved%20to%20Ste.)

[8a3480dcee25.html#:~:text=In%20the%20late%201960s%2C%20Conley,1994%2C%20he%20moved%20to%20Ste.](https://www.stltoday.com/news/hunter-of-historic-houses-snaps-up-prized-ste-genevieve-dwelling/article_992dced3-de33-5d6d-84c4-8a3480dcee25.html#:~:text=In%20the%20late%201960s%2C%20Conley,1994%2C%20he%20moved%20to%20Ste.)

⁶⁴ Ste. Genevieve Recorder of Deeds, Book 1648, page 175.

⁶⁵ Joan Lerch. In Fine Style, Jean Baptiste Vallé House, *Ladue News*, 9 June 2011. Accessed at https://www.laduenews.com/home/in-fine-style/article_3d8923d2-d6e7-5134-af9d-3fdf93650ec9.html

⁶⁶ Ste. Genevieve Recorder of Deeds, 2013-1121.

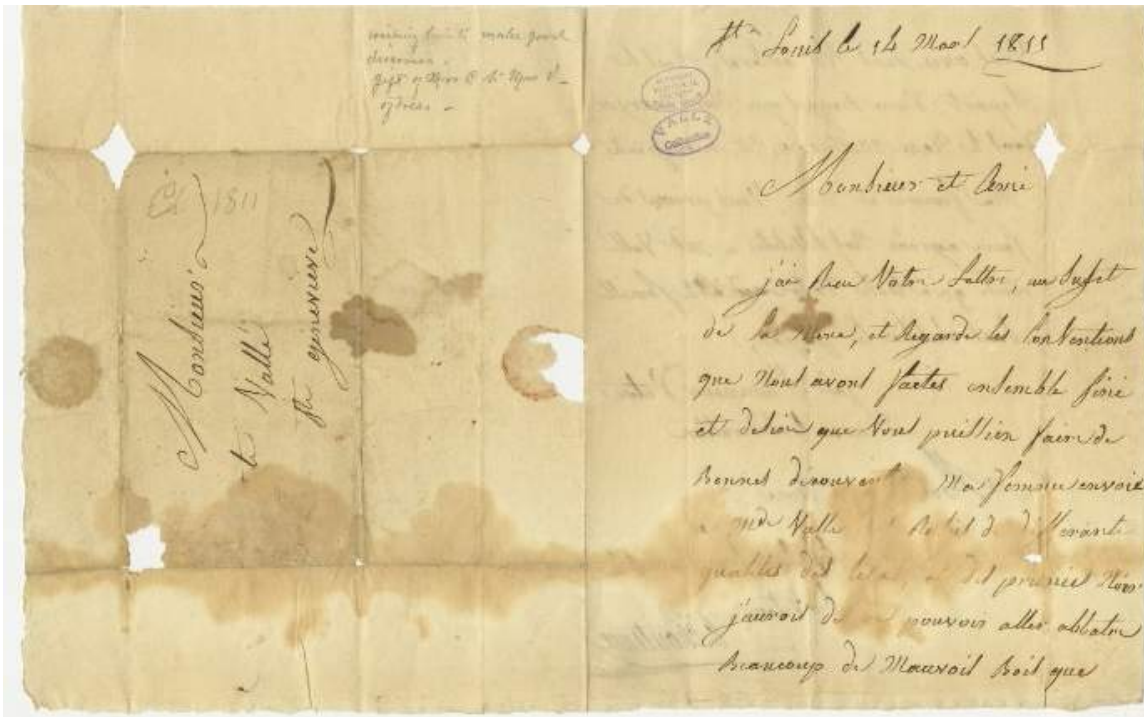


Figure 21. 1811 letter from Chouteau to Vallé regarding the garden. (Source: Missouri Historical Society)

House Museum, and with no immediate plans for the property, allowed Conley to continue residence in the house. The Colonial Dames entered into discussions with NPS to include some of their properties in Ste. Genevieve NHP. They deeded the property to the United States Government in 2020.⁶⁷ Following this transfer, the Colonial Dames were in discussions to transfer four other historic properties: the Louis Bolduc House, the Bolduc-LeMeilleur House, the Beauvais-Linden House, the François Vallé *fils* House as well as the Centre for French Colonial Life facility to French Colonial America. This transfer marked the end of more than 70 years of historic preservation efforts in Ste.

Genevieve by the Colonial Dames.⁶⁸ The Colonial Dames remain an active organization in Missouri today.

Congress established Ste. Genevieve NHP in 2018, and in January 2020, the Jean Baptiste Vallé residence was donated to NPS by the Colonial Dames.⁶⁹

The Garden

Rumored to be the first formal rose garden west of the Mississippi River, although this rumor is unsubstantiated, the garden was planned by Marie-Jeanne Vallé and influenced by her friendship with Marie Thérèse Chouteau (née Cerré).⁷⁰ After Marie-Jeanne's marriage to Jean Baptiste and taking up

⁶⁷ Ste. Genevieve Recorder of Deeds, 2020-0308.

⁶⁸ Bobby Radford. "Historic sites donated." *The Daily Journal* (Flat River, Missouri) December 11, 2019, A1.; Ste. Genevieve Recorder of Deeds 2020-0308.

⁶⁹ "The Jean Baptiste Vallé House" Ste Genevieve National Historical Park, NPS History eLibrary accessed at <http://npshistory.com/publications/stge/index.htm>; Recorder of Deeds Document #2020-0308.

⁷⁰ Auguste Chouteau, considered one of the founders of St. Louis, married Marie Thérèse Cerré in 1786 (not to be

confused with Auguste's mother, the matriarch of the Chouteau family, who was also named Marie Thérèse). As wealthy and influential families in the region, the Chouteaus, Vallés, and Barbeaus were connected through business endeavors, family ties, and political involvement. Jean Baptiste Vallé and Auguste Chouteau were personally acquainted, and based on the tone and contents of Chouteau's letter, a strong friendship existed between the families.



Figure 22. Decorative pan-de-bois facade from the mid-18th century, located in tEu, Normandy, France. (Source: Lurita McIntosh Blank, 2024)

residence in the house, she began to develop her formal garden. A friendly 1811 letter from Auguste Chouteau to Jean Baptiste Vallé was accompanied by some rose cuttings and described “*des rosiers de différentes qualités, des lilas, et des pruniers noirs*” (“rose bushes of different varieties, lilacs, and plum trees”) sent to Madame Vallé by Madame Chouteau (Figure 21).

Formal rose gardens were established to show wealth and prestige. Ste. Genevieve residents almost universally had vegetable and herb gardens, but at the Vallé house, the formal garden was a marked distinction among the other sustenance gardens. Features of the garden included a grape arbor, designed walkways, and

geometric planting beds for roses, flowers, and small trees. The current fountain was added during Tim Conley’s ownership of the property, but the organization of the planting beds and grape arbor appear to be substantially intact compared to the 1933 HABS photographs.

Architectural Antecedents in France and French Canada

Creole architecture... represents an amalgam of elements drawn from widely separated cultures and synthesized into something novel, but with clear attachments to its multiple forbears. Though traces of the parental building traditions survive in the newly established forms, they are now synthesized into a unique pattern which cannot be said to represent the patrimony of any single contributing culture. They are, rather, innovations that differ in both form and in social function from their antecedents.

Jay Edwards, “Long Distance Implantation of Vernacular Architecture Traditions: The Canadians in Early Louisiana”⁷¹

The vertical log structures of Nouvelle France represent an unusual typology that evolved along nearly 300 years of French settlement and culture in North America. In the Illinois Country, building traditions from both Canada and Lower Louisiana were woven together, responding to the extremes of both cold, wet winters and hot, humid summers. These competing needs created the characteristic form of the houses in Ste. Genevieve: a house with a massive fireplace and a steeply sloped roof to shed snow, surrounded by open

⁷¹ Edwards, “Long Distance Implantation of Vernacular Architecture Traditions: The Canadians in Early Louisiana,” *Material Culture Review / Revue de la culture matérielle* 88-89 (2018): 45-78.



Figure 23. 17th century barn near Livet-sur-Authou, Normandy, France showing close-stud pan-de-bois construction technique that was the architectural antecedent to poteaux-sur-sole. (Source: Lurita McIntosh Blank, 2024)



Figure 24. 17th century, close-stud pan-de-bois buildings in Pont-Audemer, Normandy, France, showing a typical configuration for urban buildings with multiple stories and shared party walls. (Source: Lurita McIntosh Blank, 2024)

galleries to provide shade and ventilation. Multiple architectural historians have researched the genesis and evolution of vertical log structures in much detail, highlighting how unique these buildings are to the New World.

Pan-de-Bois

The origins of vertical log structures are found in the *pan-de-bois* structures of France. Pan-de-bois is a type of post and beam construction that uses heavy timbers as the load bearing structure for the walls, floors, and roof. The voids between the timbers are infilled with colombage of straw and clay, brick, tile, or stone, depending on regional practices. The colombage is not structural, but provides insulation, weatherproofing, and pest proofing. For aesthetic purposes, the timber frame is often left exposed and the colombage may be colorfully painted.

Called “half timbering” in English and “*Fachwerk*” in German, pan-de-bois construction in Europe began in the early medieval period and continued under common use until the latter half of the 19th century, when dimension lumber and frame construction became more prevalent. Surviving examples of pan-de-bois structures in France typically date to the 15th century and later, although buildings from as early as the 13th century survive, at least in part.

Structures in France

Pan-de-bois structures vary greatly in size, ornamentation, and sophistication of the structural system, with some buildings exhibiting multiple corbeled stories and ornate wood carving. The simplest pan-de-bois structures are single-story vernacular or agricultural buildings; these will typically be stud construction, meaning constructed with many vertical timbers, and will have steep gabled or hipped roofs covered with tile, slate, or thatch. These smaller, rural structures share many characteristics with vertical log houses and provide much insight into the knowledge and skill of the early settlers of the Illinois Country.

Straw and mud infill on lath, woven wattle, or torchis are commonly seen, as is stone or brick infill. Foundations are typically stone with later alterations made in brick. In parts of the country where clay or slate readily available, these will be used for roofing; in other regions, thatch is still often used, especially on agricultural buildings. Many roofs have also been



Figure 25. 18th or 19th century farm structure on the grounds of the Château de Bailleul in Picardy, France, with close-stud pan-de-bois construction. (Source: Lurita McIntosh Blank, 2024).



Figure 26. 18th or 19th century farm structure on the grounds of the Château de Bailleul in Picardy, France, with close-stud pan-de-bois construction. (Source: Lurita McIntosh Blank, 2024).

replaced with 20th century materials like asphalt shingles or metal panels. Similar to the houses in Ste.

Genevieve, many roofs are king post trusses with an elevated collar tie member - the "Norman" truss.

Early Structures in New France

The vertical log structures of the Illinois Country were influenced by a wide variety of sources and exhibit an amalgam of building traditions. During the 17th century, residents of Normandy, Brittany, and Poitou comprised the majority of the French who immigrated to Canada, settling particularly around Quebec. It is from these émigrés that the many of early settlers of Kaskaskia and Ste. Genevieve can trace their family lines. Other settlers arrived directly from France and the Caribbean. Additionally, there were significant cultural exchanges with settlers from other home countries, particularly the English, who also had a shared tradition of half-timbered construction.⁷²

With the earliest structures in Quebec, the influence of building types from northern and western can be readily seen. In an early description of house construction, written in 1621 by Samuel de Champlain, a French explorer and founder of Quebec City, he describes a structure to be built in Cap -Tourmente as "made of wood and earth in the manner of those built in the villages of Normandy." Champlain spends the next several paragraphs describing the measurements, materials, and skilled labor required for the work.⁷³

The house described by Champlain likely followed a building form seen throughout Normandy, with a simple, rectangular form, small windows, and a steeply pitched roof. A similar extant example is the Maison Lamontagne, built in 1744 in Rimouski, Quebec, today one of the oldest half-timbered structures in Quebec.⁷⁴

⁷² Edwards, "Long Distance Implantation of Vernacular Architecture Traditions," 47 and 50.

⁷³ Robitaille, Andre. *Habiter en Nouvelle-France, 1534-1648*. Quebec: Publications MNH, Inc., 1996: 230-231; and Champlain, Samuel de. *Les voyages de la Nouvelle France occidentale, dicte Canada, faits par le sr de Champlain*. Paris, France: Chez Pierre Le Mur, 1632: 113-114.

⁷⁴ Site Historique de la Maison Lamontagne, <https://maisonlamontagne.com/>. Accessed August 12, 2024.

Chronology of Development and Use

Building Chronology

Original Construction and First Addition, c. 1794

The Jean Baptiste Vallé House is believed to have been constructed c. 1794, based on dendrochronology studies performed by the University of Missouri.⁷⁵ The house in its original form was likely a rectangular, single-story, *poteaux-sur-sole* vertical log structure, having the characteristic Creole broken-pitch, hipped roof. Galleries may have encircled the house on all four sides, typical of some of the other vertical log houses in St. Genevieve constructed in the 1790s, such as the Bolduc House. Further investigation of the concealed gallery framing is needed to confirm if the original gallery extended around all four sides of the structure.

Evidence of now missing diagonal floor bracing members implies that the original vertical log structure was constructed as the east half of the first floor (Rooms 101, 103 and 105 – in yellow in Figure 27). Based on these missing corner braces, the west three rooms of the first floor (Rooms 102, 104, and 106 – in green in Figure 27) may have been added on to the original construction. It is unknown whether the west rooms were added immediately following the construction of the east rooms, or whether the west rooms were added at a later date. The joists supporting the eastern rooms are puncheon and hewn timbers of much larger diameter (typically eight or nine inches wide) than the hewn floor timbers supporting the western rooms (typically four to five inches wide), suggesting separate construction campaigns.

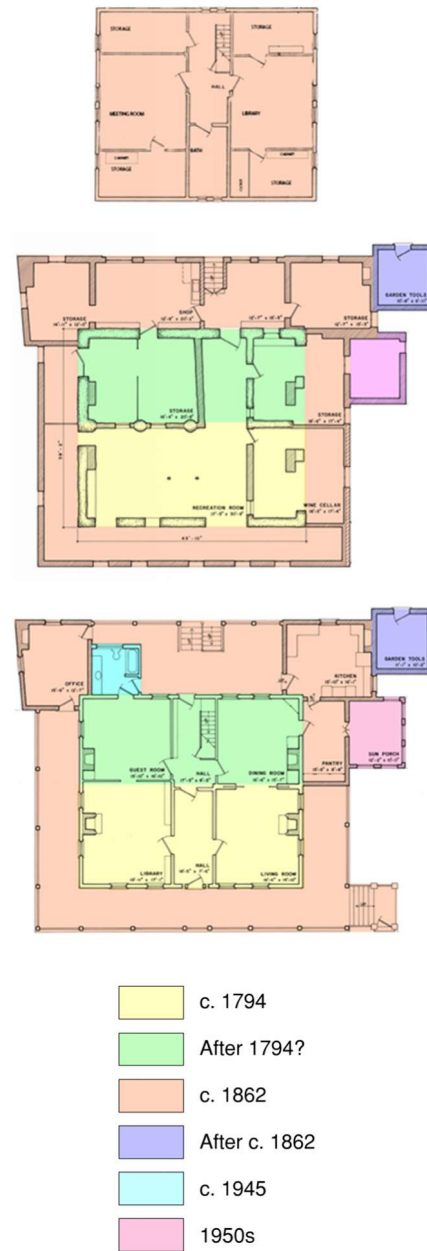


Figure 27. Approximate construction dates (basement at bottom, first floor at center, second floor at top).

⁷⁵ Guyette, Richard. "Tree Ring Dating of French Colonial Vertical Log Houses in St. Genevieve, Missouri." University of Missouri – Columbia. N.d. [1986], 18.

Floor Plan, c. 1794

The earliest floor plan of the house was possibly two or three connecting rooms (central hall, parlor, and possibly a separate kitchen) with a fireplace originally located on the west wall, slightly south of center. The original location of the fireplace is supported by a long notch at the topside of a 10-inch square timber joist within the basement. The authors of the 1933 HABS drawings believed the original first-floor plan to consist of four rooms with two central fireplaces, one centrally located for the east rooms, and one centrally located for the west rooms. Further architectural study is required to gather supporting information regarding the original floor plan, which will require removing interior finishes at the first level.

Shed, undetermined

A small brick structure with a gable roof is present at the northwest corner. The space is currently being used as a storage shed. This structure was added after the c. 1862 alterations.

Major Alteration, c. 1862

Significant alterations and additions were made to the Jean Baptiste Vallé house c. 1862, following the purchase of the property by the Lagrave family and when deed records indicated that the home was mortgaged. These alterations included the removal of the original roof framing and the addition of a second floor. The remodel date of c. 1862 is also supported by the presence of newspaper pages lining an interstitial space at the second-floor level located between the bathroom and the southeast storage room and accessed via an opening in the backside of a cabinet within the storage room (Figure 28 and Figure 29). The newspapers showed dates ranging from 1857 to 1862 and are a combination of English-Language (*The Missouri Republican*, *The Plain Dealer*) and French-Language (*Currier des Etas-Unis*) periodicals.

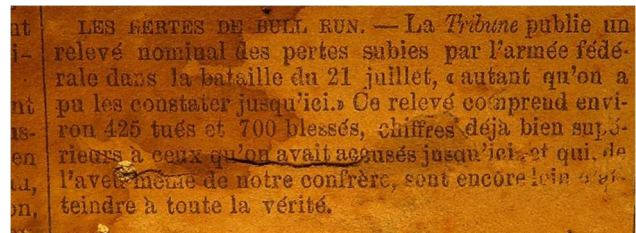


Figure 28. Article from a July 1861 issue of *Currier des Etas-Unis*, describing the losses suffered by the Union Army during the First Battle of Bull Run.

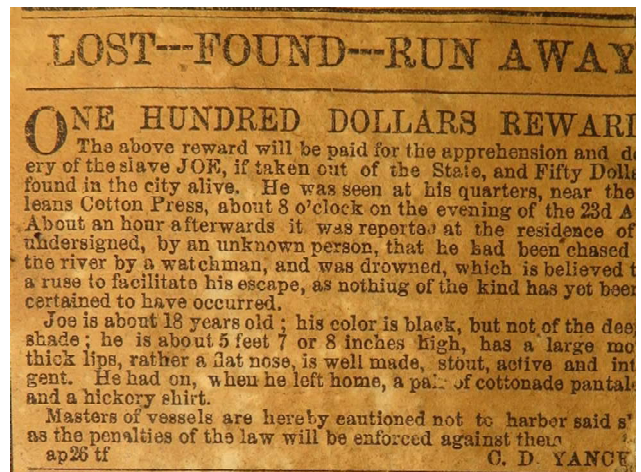


Figure 29. Announcement posted in *The Plain Dealer*, possible from 1862, placing a bounty of one hundred dollars on Joe, an enslaved person who escaped, seeking freedom.

Alterations to the First Floor, c. 1862

The first-floor plan was modified in the c. 1862 alterations, resulting in the central hall plan present today. Infill in the wood flooring in the main entry hall suggests that the north partition was relocated to widen the hall, possibly to accommodate the stairs to the new second floor. Other walls on the first floor do not align with the masonry walls in the basement level, again suggesting that some walls may have relocated during a 19th century renovation.

At this time, none of the interior partition walls at the first floor are believed to be constructed of vertical logs due to their insufficient width. It is unknown whether original interior walls were removed from the structure during the 1860s renovation or at another time. The wood flooring all appeared to be sawn boards secured

with cut nails, suggesting mid-1800s or later replacement of the original plank floors.

The vertical logs remain in place at the exterior walls, and a small area is exposed in the kitchen addition.

Addition of the Second Floor, c. 1862

During the c. 1862 alternations, the original roof framing was removed, and a framed, half-story was constructed. The room arrangement of the second floor as originally constructed is currently unknown but was likely substantially similar to the current plan, excepting the addition of the twentieth-century bathroom.

The second-floor exterior walls are constructed of sawn dimension lumber with cut nails and finished with plaster on sawn lath.

Hewn timbers, possibly from the original roof framing were observed in the enclosed space under the north eave. The main roof was reframed with sawn lumber paired rafters and spaced sheathing.

Alterations to the Galleries, c. 1862

Much of the extant floor framing for the wrap-around galleries is a combination of vertically sawn and circular sawn lumber, with joists widths between three and five inches.

Prior to 1880s, the area under the galleries was enclosed with mass brick walls to create additional interior space at the basement level; this may also have been performed during the 1860s when the galleries were reconstructed.

Kitchen and Pantry Addition, c. 1862

A one-story brick addition containing a kitchen and pantry was constructed at the northwest corner of the house; given that this addition is visible in the c. 1880s

and c. 1890s photographs, it is possible this addition also dates to the c. 1862 renovation. Likewise, the floor framing under this addition is a combination of vertically sawn and circular sawn wood, supporting a mid-19th century construction date, similar to the gallery framing members. However, there is no corner joist under the kitchen unlike the northeast and southwest gallery corners, suggesting this area was not an open gallery at the time of its reconstruction, again supporting a c. 1862 date for the kitchen and pantry addition.

Back Room Addition, c. 1862

A one-story brick addition was constructed on the southwest corner of the house. Given the similar framing and similar exterior cornice detailing as the kitchen addition, this room may also date to c. 1862. The south wall of this addition splays out to the southwest; the purpose behind this splay is undetermined but this corner likely had a fireplace at one time.

Unfortunately, the oldest known historic photos do not show the south or west sides of the house to help support the date of construction.

Portico, c. 1880

Fannie Vion added an open portico to the north side of the gallery, which is visible in the 1933 HABS photographs.⁷⁶ The portico was wood framed with wood columns and stairs that lead to the parterre garden.

Bathroom Addition, c. 1945

A full bathroom was added to the west exterior wall. The exterior walls of the bathroom structure are likely dimension lumber. Based on the floor framing visible in the basement, the bathroom appeared to have been added over existing structure, likely an open porch and additional support was added for a bathtub. The

⁷⁶ *Fair Play*. (Ste. Genevieve, MO), March 6, 1880.

bathroom was altered sometime between 1935 and the 1960s renovation into the current footprint. An estimate of c. 1945 for the construction based on the historic photos.

Sunroom Addition, 1950s

At some time after HABS documentation in 1933, a brick sunroom replaced the 1880 portico visible in the HABS photos. The brick sunroom first appears in photographs possibly dating to the 1950s but the portico is still in place on the 1945 Sanborn map.

Garden and Landscape, Varies

Some features of the garden and landscape were altered during the period of ownership by Tim Conley. During this time, the current fountain was added to the parterre garden, and the brick entry piers were constructed on the east and south sides of the property. Photographs from the 1930s through 1960s show the garden was present but much overgrown, and the planting bed design is difficult to determine. By the 1985 HABS photographs, the garden was more cultivated, and the planting bed design appears very similar to the design in place today.

Other Alterations, Undetermined

Evidence of additional alterations within the basement of the house are currently of undetermined date, including the following:

- The addition of concrete slabs on grade within the basement.
- The addition of partition walls separating various rooms in the basement.
- Addition of supplemental beams and columns within Rooms 011 and 012A.
- Addition of supplemental joists within Rooms 003, 011, 012A, and 013.
- The date of the existing grape arbor is undetermined but pre-dates the 1933 HABS documentation

HISTORICAL EVENT	DATE	HISTORICAL CONTEXT
	1673	Marquette and Jolliet noted as first explorers of the area.
	1699	Catholic mission established on the east banks of the Mississippi River in Kaskaskia and Cahokia.
	c. 1719	References to Mine la Motte, one of the first lead mines in North America noted.
	1740s	First French land grants west of the Mississippi River (Illinois Country)
François Vallé immigrated to Upper Louisiana as a laborer and eventually owned a lead mine at Mine la Motte.	c. 1740	

HISTORICAL EVENT	DATE	HISTORICAL CONTEXT
	1750s	Ste. Genevieve is established and noted as the oldest European settlement in Missouri. The original townsite was approximately three miles south of the current location. Significant research has been conducted on the founding date of the community, and no specific evidence exists to support a precise founding date. Ekberg's Colonial Ste. Genevieve explores the likely settlement dates and suggests it was more likely a fluid settlement from Kaskaskia to the west side of the river. The first known maps to identify Ste. Genevieve are from 1755.
	1752	First census in Ste. Genevieve identifies eight heads of household and 23 individuals.
Jean Baptiste Vallé is born to François Vallé and Marianne Billeron.	September 25, 1760	
	1762	France cedes land to Spain through the Treaty of Fontainebleau, and Spain controls the territory until 1800 when it is retroceded back to France.
Jean Baptiste Vallé marries Marie-Jeanne Barbeau	1783	
	1785	A severe Mississippi River flood causes the residents of Ste. Genevieve to temporarily relocate to the hills with a later, permanent relocation to the new (current) town site. The move was gradual and by 1795 was largely complete.
	1787	The Northwest Ordinance prohibits slavery in American territory north of the Ohio River. Some French enslavers move west of the Mississippi River into Spanish controlled territory to avoid losing their enslaved people. Eleven inhabitants are documented at the new Ste. Genevieve townsite, although this number is disputed and maybe somewhere closer to 13 or a few more residents.

Jean Baptiste Vallé House Historic Structure Report

HISTORICAL EVENT	DATE	HISTORICAL CONTEXT
Antoine Dufour acquires a Spanish land grant and sells part of the land to Nicolas Janis, including the parcel on which the Janis-Ziegler House now stands.	1789-90	Ste. Genevieve floods again in 1789.
Estimated date of erection of the Jean Baptiste Vallé House.	c. 1794	
François Janis married Pelagie Bienvenue and live in the house with Nicolas where they raised their family of five children.	1792	
A land deed between Francois Moraux and Jean Baptiste Moraux (SGA61) on the east side of what is now Main Street references Vallés property on block #9, establishing his presence in New Town prior to the 1796 deed of sale.	1795	
Land Records 107 (SGA58) sale of property by Pierre Lebrard to Francois Poillievre mentions that the property being sold is “on one end the lot of Jean Baptiste Vallé, the east side.” “Part of block number 9 in the town of Ste. Genevieve and being the northwest corner of Main and Market Streets.”	October 25, 1796	
	1800	Control of the Louisiana Territory returns to France.
	1803	The United States acquires the territory as part of the Louisiana Purchase, which doubles the size of the United States. The Corps of Discovery (the Lewis and Clark Expedition) begins from St. Charles, Missouri, approximately 75 miles north of Ste. Genevieve. Clark likely passed near Ste. Genevieve during his 1803 visit to Fort Kaskaskia.
Jean Baptiste Vallé appointed Civil Commandant of Ste. Genevieve by Amos Stoddard.	1804	The original five districts of Missouri are identified as Cape Girardeau, New Madrid, St. Charles, St. Louis, and Ste. Genevieve, by proclamation from William Henry Harrison, then governor of the Indiana Territory which

Part I: Developmental History

HISTORICAL EVENT	DATE	HISTORICAL CONTEXT
		held administrative control over the District of Louisiana.
	1811-1812	New Madrid Earthquakes, a series of three severe earthquakes from December through February, cause widespread, regional damage and are today recognized as some of the most intense seismic events experienced in North America since the time of European settlement. Ste. Genevieve experiences minor damage.
	1814	First American Missouri census is taken in October 1814.
The lot on the east side of Main Street is transferred by deed of trust from Jean Baptiste Vallé to Etienne Parent for \$1500. Deed book B, page 360. Although this is not the Vallé House parcel, this establishes some of his other land holdings in New Town.	February 8, 1815	
	1820	The “Missouri Compromise,” passed by Congress on March 3, 1820, allows Maine to enter the United States as a “free state” and Missouri to enter as a “slave state.” The compromise, which maintained the balance between states where slavery was legally allowed and those states where it was prohibited, was a temporary patch on the increasingly volatile issue of slavery.
Valle Mines founded as a trading post, and later mined lead and other minerals. The Valle Mining Company was established by 1839.	c. 1821	
Certificate from the Recorder of Land titles, Theodore Hunt, confirming claim of John B. Vallé for this lot.	October 25, 1825	
John Baptiste Vallé dies.	August 3, 1849	
Transfer of the lot by will of John Baptiste Vallé dated January 14, 1839, to Felix Vallé and other heirs. Deed book G, page 476.	August 9, 1849	

Jean Baptiste Vallé House Historic Structure Report

HISTORICAL EVENT	DATE	HISTORICAL CONTEXT
Transfer of the lot by general warranty deed from Felix Vallé et. al. to Anthony LaGrave. Deed book H, page 706. Quit claim from heirs of Jean Baptiste Vallé to Anthony LaGrave. Deed book H, pages 610-611.	August 12, 1853	
	1854	Kansas-Nebraska Act passes, repealing the Missouri Compromise of 1820 and allowing “popular sovereignty” in determining if a territory would be free or permit slavery. This spurs years of violence between pro- and anti-slavery forces along the Missouri-Kansas border.
Earliest date of newspapers decorating interstitial space between attic storage and second-floor bathroom.	1857	
	1861	Following the secession of South Carolina and six other states, the Missouri State Convention votes against seceding from the United States in a 98-1 vote on March 19. The Civil War officially begins with the Battle of Fort Sumter on April 12. By June, Union forces would occupy Jefferson City, Missouri, and the state was fully embroiled in the war. Ste. Genevieve is spared the worst of the fighting but the war is divisive among the citizens.
By deed of trust from Anthony LaGrave and Mary, his wife to Frances C. Rozier for \$1500, released on May 14, 1864. Deed Book P, page 190.	March 29, 1862	
Latest date of newspapers decorating interstitial space between attic storage and second-floor bathroom.	April 23, 1862	
By deed of trust from Anthony Lagrave and Mary, his wife to merchants Bank of St. Louis for \$2,917. Released May 11, 1864. Deed book P, page 301.	July 29, 1862	

HISTORICAL EVENT	DATE	HISTORICAL CONTEXT
Extensive remodel of the house under Lagrave ownership, likely resulting in the “central hall plan” of the first floor visible today.	c. 1862	
By general warranty deed from Anthony Lagrave and Mary, his wife to Leon Vion for \$8,000. Deed Book R, page 490	March 20, 1867	
Gardens laid out by the Vion family and dormer windows added at roof level.	1867	
By will of Leon Vion dated April 1, 1875, to Fannie Vion, wife and children. Deed book 30, page 51.	November 9, 1877	
Fannie Vion has the north portico constructed.	1880	
The existing wood framed stable is replaced with a concrete adobe structure of a similar footprint. 1901 Sanborn Map.	c. 1900	
	1917	The United States enters World War I on April 4, 1917
The stable is replaced with a one-story stone (likely concrete) structure. At least two other outbuildings are present on the west boundary of the property. 1929 Sanborn Map.	1920s	
By will of Fannie Vion dated August 21, 1920, to Joseph Vion Papin. Deed book 90, page 341.	December 27, 1922	
	1929	The stock market crash starting on October 28, 1929, triggers a severe economic downturn - the Great Depression, that lasts for over a decade.
HABS documentation of the property shows most current additions to the house. The floor plan shows a bathroom was present on the north west side of the house, only accessible from the gallery.	October 1933	
	1941	The United States enters World War II on December 7, 1941. Labor shortages for farm workers becomes a widespread issue. Many

Jean Baptiste Vallé House Historic Structure Report

HISTORICAL EVENT	DATE	HISTORICAL CONTEXT
		women entered the workforce by choice and necessity, including the agricultural trades.
By will of J. Vion Papin dated September 26, 1944, to Fannie Locket Papin, wife. Deed book 123, page 236.	January 11, 1945	
First-floor bathroom is altered and is now accessible from the interior.	c. 1945	
Brick sunroom is constructed to replace the 1880 portico.	1950s	
By will of Fannie Locket Papin dated May 1, 1954, to Vion Papin Schram. Estate #132-627.	June 27, 1968	
The house was remodeled and restored in the 1960s “to its pre-1850 appearance” by the present owners per 1985 HABS documentation and general resource study, introducing much of the extant interior wood-work.	1960s	
A privy and garage on the site of the Jean Baptiste Vallé House are demolished during a snowstorm. The current garage onsite was built at the location of the original stable.	February 1982	
Measured drawings and photographs of the House are supplemented by HABS.	1985 – 1986	
Dendrochronology study conducted by Dr. Richard Guyette establishes the approximate age of the logs, supporting the assumed construction date of c. 1790.	c. 1986	
	1993	The Great Flood of 1993 inundates Ste. Genevieve and floods many of the historic buildings along the Common Field. Downtown Ste. Genevieve is protected from the worst of the flooding conditions by volunteers and temporary barriers.
An electrical fire causes minor damage to the second floor. (<i>Ste. Genevieve Herald</i> , January 6, 1999)	January 6, 1999	

HISTORICAL EVENT	DATE	HISTORICAL CONTEXT
Bernard K. Schram, Trustee of the Vion Papin Trust sells the property to D&T Leasing, Inc. (Deed book 1222, page 5). D&T Leasing, Inc., may have become or sold the property to Latonka Land, LLC. No documentation was found in the Recorder of Deeds books.	July 15, 2004	
House purchased by Tim Conley from Latonka Land, LLC, (Deed book 1589, p. 266) after sitting empty for four years.	November 3, 2009	
Tim Conley sells the west portion of the lot to the Lions Club of Ste. Genevieve (Deed book 1648, p. 175), dividing the parcel.	November 24, 2010	
Colonial Dames purchase the House. (Deed Document #2013-1221)	May 1, 2013	
French Colonial America begins operating the house museum campus owned by the National Society of the Colonial Dames of America.	2017	
	2018	The Ste. Genevieve NHP is authorized by the Consolidated Appropriations Act of 2018 on March 2.
The Colonial Dames of America St. Louis chapter donates the Jean Baptiste Vallé House to NPS as part of the new Ste. Genevieve NHP.	January 30, 2020	
NPS engages a consultant team to prepare this HSR.	2023-2024	

Period of Significance (c. 1794 – 1877)

The National Register of Historic Places Ste. Genevieve Historic District nomination identifies the period of significance as 1790 to 1951. This period begins with the construction of the oldest extant buildings in the district and extends through the fifty-year recommended cut-off date (from the time written in

2001) as established by the National Register. The nomination incorporates discussions of all aspects of the history of the community and architectural styles including ranch houses.

Though precise dates for significance are not associated with the federal acquisition of properties, Ste. Genevieve NHP enabling legislation was authorized by the Consolidated Appropriations Act of 2018 on March 23 to “preserve, protect, and interpret for the benefit of

present and future generations the themes of French settlement, vernacular architecture, and community form and farming on the frontier associated with Ste. Genevieve⁷⁷ - themes that better align with the period of significance identified in the 2016 Special Resource Survey.

This HSR is specific to the Jean Baptiste Vallé House and recommends a period of significance that begins in c. 1794, the construction date of the house by Jean Baptiste Vallé and extends through 1877, with the death of Lean Vion and the end of major alterations to the property. The Vion family, who purchased the property in 1867 made the last significant changes that included adding indoor plumbing for the modern kitchen area; these changes were likely completed by 1877. This date marks the last significant changes in the historic configuration of the residence. Three families formed much of the significant history of the house: Jean Baptiste Vallé, La Grave, and the Vion/Papin/Schram families. Its exceedingly rare architectural style and evolution from its construction through the 1870s is credited to these three families. Physical features to their credit include a new roof configuration, enclosing portions of the galleries surrounding the house, reconfiguring interior spaces, additions to the main level, and site work including the designed garden landscape.

Statement of Significance

Review of Significance Statements for Ste. Genevieve

1960 / 1970 National Historic Landmark District

In 1960, the Ste. Genevieve National Historic Landmark District was recognized for the national significance of its collection of extant French

vernacular vertical log architecture and was designated under the theme of “French Exploration and Settlement.” As one of the earliest NHL districts, the nomination specifically identified only eight structures believed to have eighteenth century construction dates but established no specific period of significance. The Jean Baptiste Vallé House was included as resource number three and described as “*a one and a half story Creole type of dwelling which is claimed to date from 1785. The original owner was the Third Commandant of Ste. Genevieve. It was the ‘State House’ of the territory up to the time of the Louisiana Purchase.*”⁷⁸ When the NHL district nomination was revised and expanded in 1970, the district boundaries were established, and the number of contributing resources was kept at eight but slightly revised to include the house as resource number two.⁷⁹

2002 National Register District

The 2002 designation of the Ste. Genevieve National Register District included overlap with the 1960 / 1970 NHL district but was generally broader to encompass buildings also significant at the state and local level. The National Register district was nominated under the following criteria:

Criterion A (Event) in part for association with an “ethnically diverse population including French, Anglo-Americans, African Americans, and Native Americans.”

Criterion C (Design/Construction) in part for its “French vertical log architecture” that “represents the early French and French Canadian settlement of the community.”

⁷⁷ National Park Service. Ste. Genevieve National Historical Park Legislation and Map. <https://parkplanning.nps.gov/document.cfm?parkID=155&projectID=31496&documentID=86827> accessed 3 May 2021.

⁷⁸ NHL 1960/70, 2. Note that while this direct quotation is faithful to the NHL, the information in the quote is incorrect.

Jean Baptiste Vallé was actually the 7th Commandant of Ste. Genevieve, and St. Louis was considered to be the administrative capitol of Upper Louisiana during the Spanish and second French eras of Upper Louisiana.

⁷⁹ NHL, 419.

Criterion D (Information Potential) in part for the potential for significant archeological deposits related to the “French, German, Anglo-American and African American communities.

(Note: The National Register nomination does not identify pre-European or Native American resources under this criterion as the majority of these resources are located outside the district boundaries.)

The period of significance for the National Register district was given as 1790 – 1951, from approximately the founding of “New Town” Ste. Genevieve to the minimum age requirement of fifty years at the time of nomination. The Jean Baptiste Vallé House was listed as resource number 58 and included a lengthy description of the structure and a brief biographical statement for Jean Baptiste Vallé.

2016 Special Resource Study

Public Law 109-319, the Ste. Genevieve County National Historic Site Study Act of 2005 tasked the NPS with studying the historic resources of Ste. Genevieve for potential inclusion in the national park system. The study culminated in a 2016 report that found the Ste. Genevieve district to be nationally significant under the following criteria:

Criterion 4 (Architecture) for the district’s “large and rare collection of French vernacular vertical log houses.”

Criterion 1 (Broad Patterns of United States History) for French colonial settlement, which also includes reference to the vertical log structures. Included also under this criterion is a discussion of the ethnic diversity of Ste. Genevieve, stating:

The richness of the town’s cultural heritage is further amplified by the fact that several French vertical log houses had owners and occupants who were free people of African heritage in the years before the Civil War ended slavery in the United States.

The Special Resource Study identified a period of significance for the district of 1750 – 1846, approximately the founding of “Old Town” Ste. Genevieve to the construction date of the last French vertical log structure in New Town. The study listed resources in approximately chronological order, including the Jean Baptiste Vallé House as resource number eleven and gave a construction date of c. 1794.⁸⁰

2018 Ste. Genevieve NHP

In 2018, Ste. Genevieve NHP was established as the 422nd Unit of NPS. Though precise dates for significance are not associated with the federal acquisition of properties, Ste. Genevieve NHP enabling legislation was authorized by the Consolidated Appropriations Act of 2018 on March 23 to:

*preserve, protect, and interpret for the benefit of present and future generations the themes of French settlement, vernacular architecture, and community form and farming on the frontier associated with Ste. Genevieve.*⁸¹

2021 Archeological Overview and Assessment

This report identifies a timeframe of c. 1770 – 1860 as the period of significance, representing the major time of “French influence and associated cultural expressions” in Ste. Genevieve. The report does not specifically address the Jean Baptiste Vallé House.

⁸⁰ Special Resource Study, 67.

⁸¹ National Park Service. Ste. Genevieve National Historical Park Legislation and Map. <https://parkplanning.nps.gov/docu->

[ment.cfm?parkID=155&projectID=31496&documentID=86827](https://www.nps.gov/stege/learn/management.cfm?parkID=155&projectID=31496&documentID=86827), accessed 3 May 2021.

Significance of the Jean Baptiste Vallé House

Criterion C (Design/Construction)

The Jean Baptiste Vallé House is primarily significant under National Register Criterion C, at the national level, for embodying the distinctive characteristics of a late eighteenth-century French vernacular vertical log structure in the poteaux-sur-sole style. Alterations made during the period of significance include the addition of the second story, small additions to the northwest and southwest corners, and enclosing the area below the wrap-around gallery to expand the basement footprint. With these changes, the current building form from the 1840s – c. 1877 time period is intact and envelopes the remaining c. 1794 construction. The house retains a moderate level of integrity of the original c. 1794 fabric including the post-on-sill vertical log exterior walls and puncheon log and dressed timber floor framing. The addition of the second floor unfortunately resulted in the loss of the original roof structure, which was likely a Norman truss configuration, as seen in contemporary structures in Ste. Genevieve. The 19th century alterations to the interior have a moderate level of integrity, with some twentieth century finishes and alterations impacting the historic fabric. In its current form, the house represents a good example of regional Greek Revival interiors.

Criterion A (Event)

The Jean Baptiste Vallé House is also significant under National Register Criterion A, at the national level, for its contribution to the patterns of French colonial settlement in Ste. Genevieve. The house plays an important role as the home of the first American commandant of the Ste. Genevieve district, who oversaw the transition of the district from Spanish/French control to American with the Louisiana Purchase of 1803.

Criterion D (Information Potential)

The Jean Baptiste Vallé House is also significant under National Register Criterion D, at the local level, for its potential to contribute to our understanding of human history and prehistory. Colonial and Pre-Civil War era deposits may be present at the site, particularly those that would contribute to information on domestic life in the French Colonial era. This criterion should be revisited after completion of further archaeological study.

Character Defining Features

A “Character-Defining Feature” is an aspect of a building’s design, construction, or detail that is representative of the building’s function, type, or architectural style. Character-defining elements include the overall shape of the building, its materials, craftsmanship, decorative details, interior spaces and features, as well as the various aspects of its site and environment. Generally, character-defining features date to a property’s period of significance. For a historic resource to retain significance, its character-defining features must be retained to the greatest extent possible. An understanding of a building’s character-defining features is a crucial step in developing a rehabilitation plan that incorporates an appropriate level of restoration, rehabilitation, maintenance, and protection.⁸²

There are numerous features that contribute to the historic character of the Jean Baptiste Vallé House. The site retains much of its original feel as an urban parcel within the central core of historic Ste. Genevieve “New Town” which also retains some of the sense of the historic streetscape due to the proximity to other extant historic structures that date to the period of significance.

⁸² Nelson, Lee H. Preservation Brief 17: Architectural Character – Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving their Character. The

Preservation of Historic Architecture, The U.S. Government's Official Guidelines for Preserving Historic Homes. Guilford, CT: The Lyons Press, 2004.

The form and configuration of the current house are also some of the primary character defining features. The house has been changed from its original c. 1794 configuration with modifications made in the 1860s that are also significant and important in its history.

A summary of the Jean Baptiste Vallé House's character defining features is as follows, developed from the guidance provided by Preservation Brief 17.

OVERALL VISUAL ASPECT		
Element	Feature or Element	Commentary
Setting and Context	Location within downtown "New Town" and proximity to extant French Colonial structures	c. 1794 with later construction The existing orientation of the house, with primary facade facing Main Street, maintains the same orientation as the original construction in relation to the eighteenth-century street grid. Other extant historic properties also contribute to the French vernacular character of this corridor include the Vital St. Gemme Beauvais House (c. 1792), the Louis Bolduc House (c. 1793), and the Rene LeMeilleur House (c. 1820). The Jean Baptiste Vallé House's contextual relationship with these properties and the road is a key character defining feature of the overall site. Contributing features include: ▪ Symmetrical, enclosed planting beds oriented around a central, focal point ▪ Pedestrian circulation between planting beds ▪ Ornamental rose bushes ▪ Grape arbor and vines
Shape and Massing	Broken-pitch, hipped roof with galleries	c. 1862, with minor later alterations The double or broken-pitch roof and galleries represent a building form common to French vernacular structures in Ste. Genevieve. Although the existing galleries were likely reframed during the 1860s alterations, the house likely had a wrap-around gallery as part of the c. 1794 construction. The c. 1862 alterations maintained this character defining massing.

OVERALL VISUAL ASPECT		
Element	Feature or Element	Commentary
		Contributing features include: ▪ Broken-pitch roof form with the gable end walls ▪ Open galleries on the north, east, south and west walls with wood plank decking and wood plank ceilings ▪ Chamfered wood gallery posts ▪ Board railings at galleries ▪ South and east galleries aligned with Main and Market Streets. ▪ Stairs from the parterre garden to the east gallery. ▪ West gallery stairs aligned with rear entry (extant).
Construction Methodology	<i>Poteaux-sur-sole</i> exterior wall framing	c. 1794 The Jean Baptiste Vallé House is one of a select number of known extant poteaux-sur-sole structures in Ste. Genevieve. The vertical log walls bearing on the limestone foundation walls, along with the pierrotage infill (where still extant) are key character defining features, representing a rare and valuable construction methodology with national historical significance. Small areas of this construction are exposed to view, including portions of the basement, an interpretive area visible in the kitchen addition, and a small wall opening on the second floor. Contributing features include: ▪ Timber vertical logs forming the wall framing ▪ Pierrotage and bousillage infill between the logs ▪ Timber framing for galleries ▪ Timber framing for first floor structure

OVERALL VISUAL ASPECT		
Element	Feature or Element	Commentary
Construction Methodology	Round stone foundation piers	c. 1794 One striking feature of the Jean Baptiste Vallé House is the presence of three round limestone piers in the basement. The original reason for constructing these piers is currently undetermined but may suggest that the basement was used for purposes beyond typical domestic usage. Given the uniqueness of these piers among contemporary extant structures in Ste. Genevieve, they are character defining features of the house.
Openings	Exterior windows and doors	c. 1862 and later alterations The existing wood doors and windows appear to be in the same locations as established during the c. 1862 renovations. Further investigation is needed to determine if the first-floor windows are in the locations original to the vertical log construction. The main entry aligned with the central hall on the east walls appears to have been slightly modified from its original location at a yet undetermined date, potentially to coincide with the construction of the 1860s stairs and second floor and the widening of the central hall. The exterior casing around the doors and windows exhibits a subtle Green Revival influence with the peaked hood suggesting a pediment. The dormer windows on the east and west-facing slopes of the second-floor roofs are another common feature of Greek Revival domestic architecture. These windows date to the period of significance. The existing front door is flanked by two sidelights and a rectangular transom window. This style of door is common to Greek Revival architecture, and alterations to the central hallway suggest this door was added c. 1862.

OVERALL VISUAL ASPECT		
Element	Feature or Element	Commentary
		xContributing features include: ▪ Asymmetrical primary facade with its rhythm of window and door openings ▪ Alignment of window and door openings on the north-south and east-west axes ▪ Greek Revival window and door casing with a pedimented window hood. ▪ Double-hung sash windows with 6-over-6 lites at the first level ▪ Casement windows with 2-over-2 lites at the basement level ▪ Dormer windows centered on the upper corridor on the east and west roof slopes ▪ Wood louvered shutters on the first and second level windows ▪ Wood panel doors with lites and glazed transoms at the entrances on the east and west walls ▪ Wood batten-style door on the basement level⁸³

VISUAL CHARACTER AT CLOSE RANGE		
Element	Feature	Commentary
Materials	Roofing and exterior wall covering materials	c. 1794, with modern replacement materials Wood shingles, as seen in the earliest photographs of the house, were likely the original roof covering and were in place for much of the house's history. Wood shingles are characteristic of the roofing treatment for French vernacular vertical log structures in Ste. Genevieve in the 18th and 19th centuries, and in the second-half of the 19th century and into the 20th century, metal panel roofing was commonly used. Weatherboard lap siding and plaster were common exterior wall finishes in Ste. Genevieve.

83 Howard Major, *The Domestic Architecture of the Early American Republic, the Greek Revival* (Philadelphia, PA: J.B. Lippincott, 1926), 64.

VISUAL CHARACTER AT CLOSE RANGE		
Element	Feature	Commentary
		The existing asphalt shingle and EPDM roofing are modern replacement materials that do not contribute to the historic character of the building. Contributing features include: ▪ Wood weatherboard siding on the gable end walls ▪ Exterior stucco on the gallery walls ▪ Brick masonry walls at the gallery foundation and c. 1862 additions ▪ Brick masonry chimneys
Craft Details	Hewn structural members with traditional joinery	c. 1794 The structural members for the original c. 1794 construction were fabricated by hand with an axe which created a distinctive hewn surface, in contrast to later nineteenth century and twentieth century wood framing members which were sawn. Joinery between timber structural members is typically accomplished with mortise and tenon connections with wood pins. These techniques provide valuable insight into the hand-crafted and labor-intensive nature of building construction in early Ste. Genevieve. Contributing features include: ▪ Hewn wood surfaces visible on the vertical log wall members, gallery framing members, roof framing, and floor framing members in the basement ▪ Carpentry joinery using traditional methods with wood pins (without metal fasteners), including mortise-and-tenon, half lap, scarf, and dovetail joints

INTERIOR VISUAL CHARACTER		
Elements	Feature	Commentary
Interior Features	Chimneys and fireplaces	c. 1862 The existing chimneys and fireplaces date to the 1860s alterations. The placement of the fireplaces, serving each room of the double-loaded corridor plan for the first floor, responds to the change of the house from what was likely a French <i>enfilade</i> plan to a more anglicized Georgian or Greek Revival plan. The placement of the fireplaces suggests that the eastern rooms were hierarchically more prominent than the rooms on the west end of the first floor. The fireplace mantels are simple with elements of Greek Revival influence. The date of the existing mantels is currently undetermined, but the style is appropriate to the period of significance. Contributing features include: ▪ Brick masonry fireplaces and chimneys ▪ Carved wood mantel and fireplace surrounds
Exposed Structure	Ceiling beams	c. 1794 The existing beams are exposed to view in the first-floor rooms. The ceiling beams are hewn and are likely original c. 1794 members that were kept in place to support the second floor. Exposed ceiling beams as an intentional interior finish are commonly seen in contemporary buildings in Ste. Genevieve, and the beams have slightly chamfered edges as a decorative element. As original structural members and given the evidence that they were likely originally intended to be exposed to view, the ceiling beams are character defining features. Contributing features include: ▪ Exposed wood plank ceilings ▪ Exposed beaded wood ceiling beams

INTERIOR VISUAL CHARACTER		
Elements	Feature	Commentary
Interior Finishes	Wood flooring, wood trim and interior casing, wood and plaster wall surfaces	c. 1862 with later alterations The finishes utilized throughout the interior all contribute as the character defining features of each room. The extant finishes primarily appear to date from the c. 1862 alterations and adopt a subtle Greek Revival influence, which was popular in Missouri during this era. This can be seen in the simple peaked hoods over the doors and windows, which suggest a triangular pediment. The ceiling moulding is a simple ogee curve and is unexpectedly small for a Greek Revival interior, which would typically employ a deeper, more architectural cornice. Further research is recommended to determine if the existing moulding is historic or a twentieth-century alteration. Contributing features include: ▪ Hardwood flooring ▪ Plaster wall finishes ▪ Door and window casing ▪ Baseboards, chair rails, and wall trim ▪ 6-panel wood panel interior woods with period hardware ▪ Batten-style interior doors with period hardware

Assessment of Integrity

Historic integrity is the ability of a property to convey its historic significance. Integrity involves seven aspects: location, design, setting, materials, workmanship, feeling and association.⁸⁴ These aspects closely relate to the resource's significance and should be primarily intact for designation. Depending on the significance criterion, some aspects of integrity are more critical to conveying the building's historic significance.

A property that is significant for architectural merit must retain the historic elements that characterize the type, period, or method of construction that the property represents. Retention of design, workmanship, and materials is usually more important than location, setting, feeling, and association when determining integrity. Location and setting are important for properties whose design is a reflection of their immediate environment.

Per the National Register Bulletin 15: *How to Apply the National Register Criteria for Evaluation*, "integrity" is the ability of a property to convey its historic significance. Integrity is evaluated under seven aspects: Location, Design, Setting, Materials, Workmanship, Feeling, and Association. Depending on the significance criterion of the property, some aspects of integrity are more critical to expressing the building's historic significance than others, but the property must retain integrity to be considered significant.

The primary historical significance of the Jean Baptiste Vallé House is its use of the poteaux-sur-sole construction technique. The house is likely the grandest extant poteaux-sur-sole structure in the historic district. Despite later alterations, including the addition of the second-floor structure c. 1862, the original vertical log structure and its stone masonry foundation remain majorly intact.

INTEGRITY ASSESSMENT	
Location: <i>The place where the historic property was constructed or the place where the historic event occurred.</i>	
High	The Jean Baptiste Vallé House retains a high degree of integrity of location in relationship to its site. The house is part of a cluster of six historic French colonial period buildings along South Main Street near the center of town built between 1793 and 1844 that convey a sense of the character of Ste. Genevieve during the early nineteenth century. The buildings include the Bolduc House, Jean Baptiste Vallé House, Le Meilleur House, Linden House, Antoine O'Neill House, and Joseph Amoureux House.

⁸⁴ Shrimpton 1994.

INTEGRITY ASSESSMENT	
Design: The combination of elements that create the form, plan, space, structure, and style of a property.	
High	The Jean Baptiste Vallé House has a high degree of integrity of design. The c. 1794 vertical log house above a full-height basement is readily recognizable in the current building, along with the original rhythm and interior alignment of window and door penetrations. The log structure was expanded and renovated into a Greek Revival house c. 1862. These changes are highly intact and date to the period of significance.
Setting: The physical environment of a historic property.	
High	The Jean Baptiste Vallé House has a high level of integrity of setting. The house was originally constructed in a semi- urban setting, as part of the original street grid and platting of the “New Town” of Ste. Genevieve. The surviving street grid and other extant structures contribute to the integrity of setting by conveying the domestic land use of the site. This setting is unique among the other properties currently administered by Ste. Genevieve NHP, which are more rural in setting.
Materials: The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.	
High	The Jean Baptiste Vallé House retains a high degree of integrity of materials. The character-defining features, including the c. 1794 walls and floor systems of the original poteaux-sur-sole structure and the stone masonry foundation, remain majorly intact. The c. 1862 alterations are also within the period of significance and also retain a high level of material integrity. The house is in overall good condition, which contributes to the preservation of the historic fabric. The current roofing on the house minorly impacts the integrity of materials due to the use of non-compatible roofing systems, but this does not represent a substantial loss of integrity as the roofing systems can be replaced with more sympathetic materials.
Workmanship: The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.	
High	The Jean Baptiste Vallé has a high integrity of workmanship. As a poteaux-sur-sole structure, the house represents an excellent example of the French Colonial vernacular architecture for which Ste. Genevieve has been determined to be significant. While visibility of the log framing is limited, openings in finishes demonstrate the high level of craft required to build these structures.

INTEGRITY ASSESSMENT	
Feeling: A property's expression of the aesthetic or historic sense of a particular period of time.	
Medium	The Jean Baptiste Vallé House has a medium integrity of feeling, supported by the high integrity of the setting. The site still conveys much of its historic and aesthetic feeling of its location within the semi-urban setting of historic Ste. Genevieve, particularly with the viewsheds to the west and north across the gardens. The integrity of feeling is somewhat diminished by surrounding construction outside the period of significance, including the Ste. Genevieve Visitors Center to the east, the visual encroachment of modern utilities like telephone poles and overhead power lines; and the prevalence of on-street parking around the property. At the interior, the preservation of the Greek Revival finishes, particularly at the first floor, contributes to a strong feeling of the historic character and what it was like to occupy the space as a grand home in the 1860s.
Association: The direct link between an important historic event or person and a historic property.	
Medium	Jean Baptiste Vallé House has a medium integrity of association, being the residence of the last French commandant of the District of Ste. Genevieve, when the region transitioned from Spanish to American control. The house has an excellent and strong association with Jean Baptiste Vallé; however, the integrity is diminished by the 1860s alterations to the property.

Physical Description

The Jean Baptiste Vallé House closely edges both Market Street and South Main Street at their northwestern intersection. The house is a relatively large example of *poteaux-sur-sole* construction, a style of timber framing in which closely spaced posts rest on a timber sill. It measures 80 feet, 4 inches in width from the front and 59 feet, 7 inches deep. The walls are constructed of hewn, white oak logs, mortised into a sill and infilled with *pierrotage*. The roof structure consists of vertical sawn pine rafters with 3-inch by 5-inch collar beams spaced about 2 feet on center. The house features an interrupted French colonial gallery porch on all sides. The flat roofed gallery has a roof supported by wood box columns and is reached by steps at the north end of its east side. The residence was built on a stone foundation with a raised basement.⁸⁵ Architectural historians often refer to the Jean Baptiste Vallé House as one of the premier historic properties in Ste. Genevieve.



Figure 30. 1934 view northwest toward the east façade of the house from South Main Street, over newly constructed sidewalks. (Source: Alexander Piaget photograph, HABS MO-31-10, Library of Congress Prints and Photographs Division).



Figure 31. A similar view taken in 2022. (Source: LSHLA, 2022).

⁸⁵ National Register of Historic Places “Ste. Genevieve Historic District, Boundary Expansion”, 2001, 7-18 and 7-19.

Site and Landscape Features

Setting

The Jean Baptiste Vallé House is located at 99 South Main Street in Ste. Genevieve, Missouri. The property

falls within the Ste. Genevieve Historic District, listed in the National Register of Historic Places, and a listed property within the Ste. Genevieve National Historic Landmark (NHL) district.⁸⁶ A 2001 updated nomination that proposes further expansion of the historic district remains in draft form (Figures 1 and 2). The property also falls within the authorized boundary of Ste. Genevieve NHP.

Ste. Genevieve Proposed Boundary of Nationally Significant District

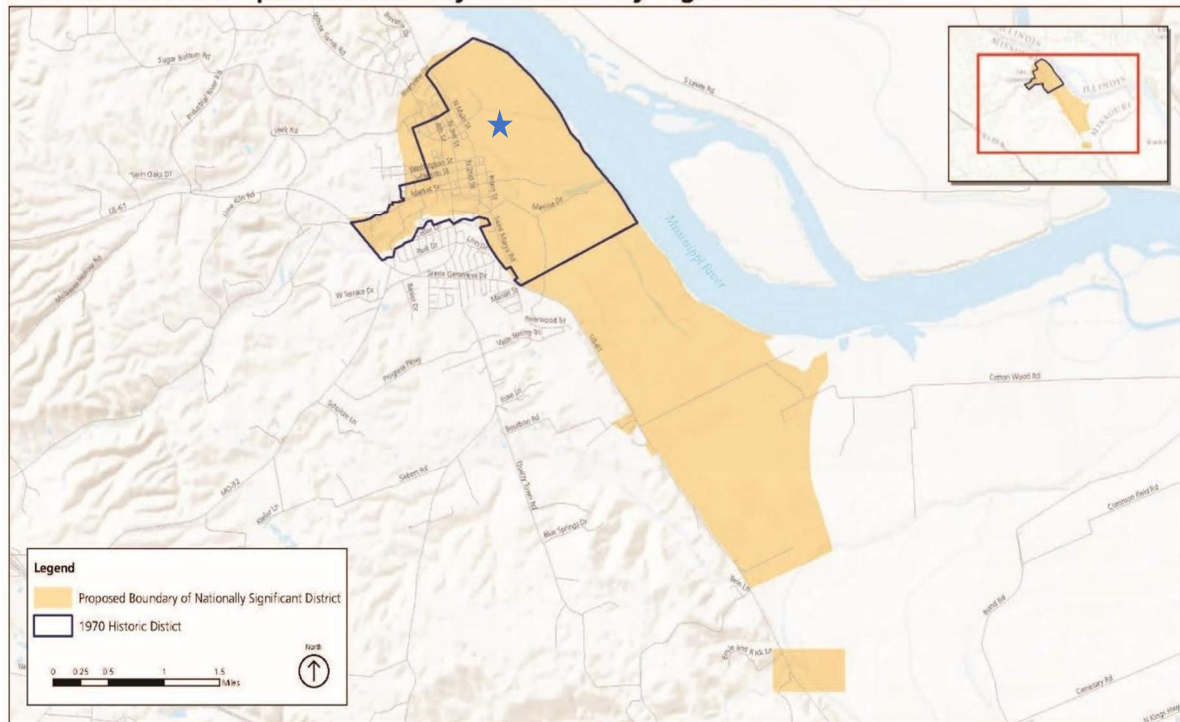


Figure 32. Map of the Ste. Genevieve National Historic Landmark property, and the 2001 proposed expanded historic district. The location of the Jean Baptiste Vallé House is indicated with a blue star. (Source: NPS, “Ste. Genevieve Special Resource Study,” 17)

⁸⁶ The Ste. Genevieve Historic District was administratively listed based on the National Historic Preservation Act of

October 15, 1966. The property was designated a National Historic Landmark in 1960 and expanded in 1970.

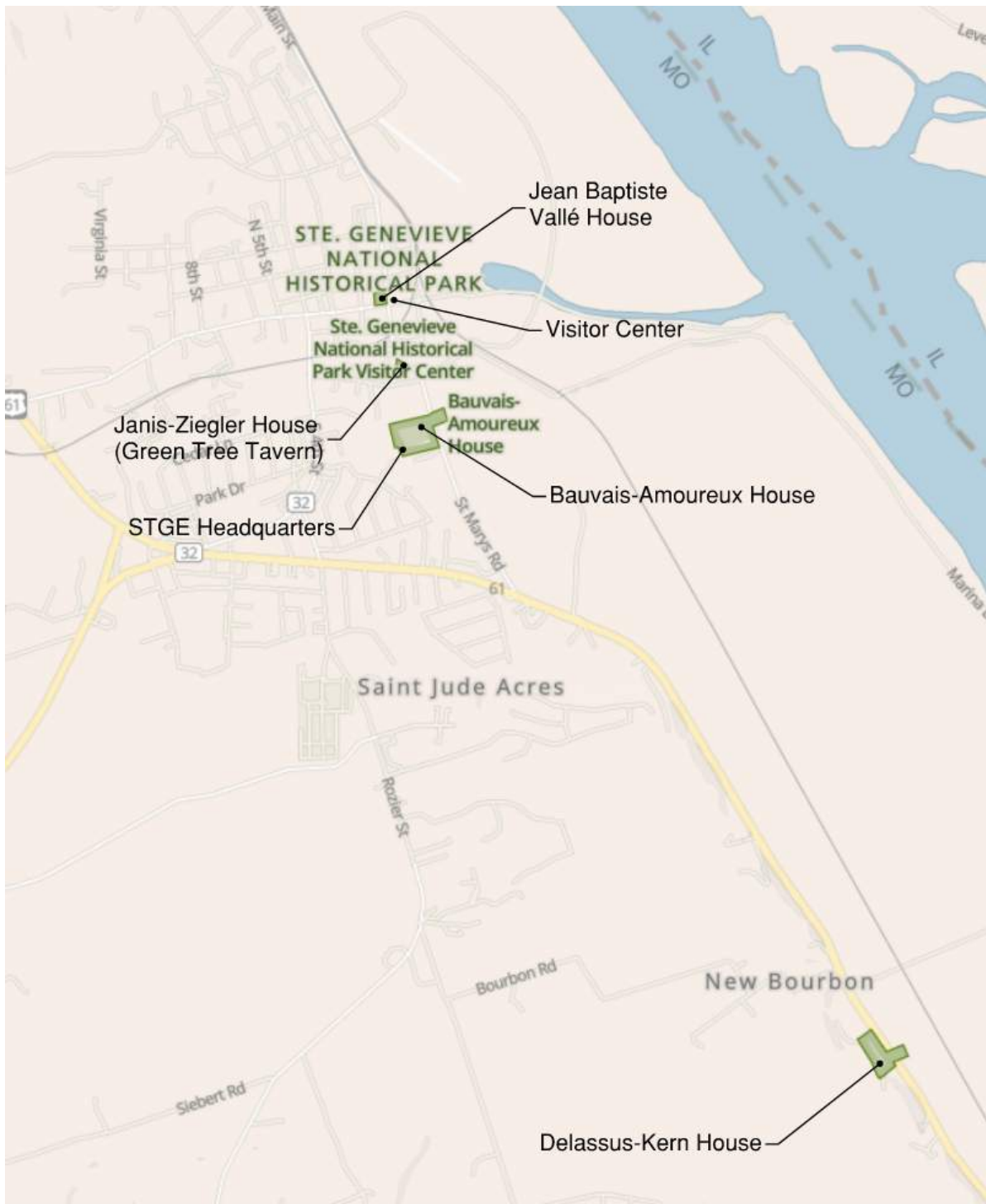


Figure 33. The Jean Baptiste Vallé property falls within the authorized boundary of Ste. Genevieve NHP, a unit of the National Park System established in 2020. The park includes several discontinuous parcels protecting several other historic examples of French colonial architecture, such as include Green Tree Tavern (Janis-Ziegler House), Delassus-Kern House, Bauvais-Amoureux House, and Bequette-Ribault House. (Source: NPS with annotations)

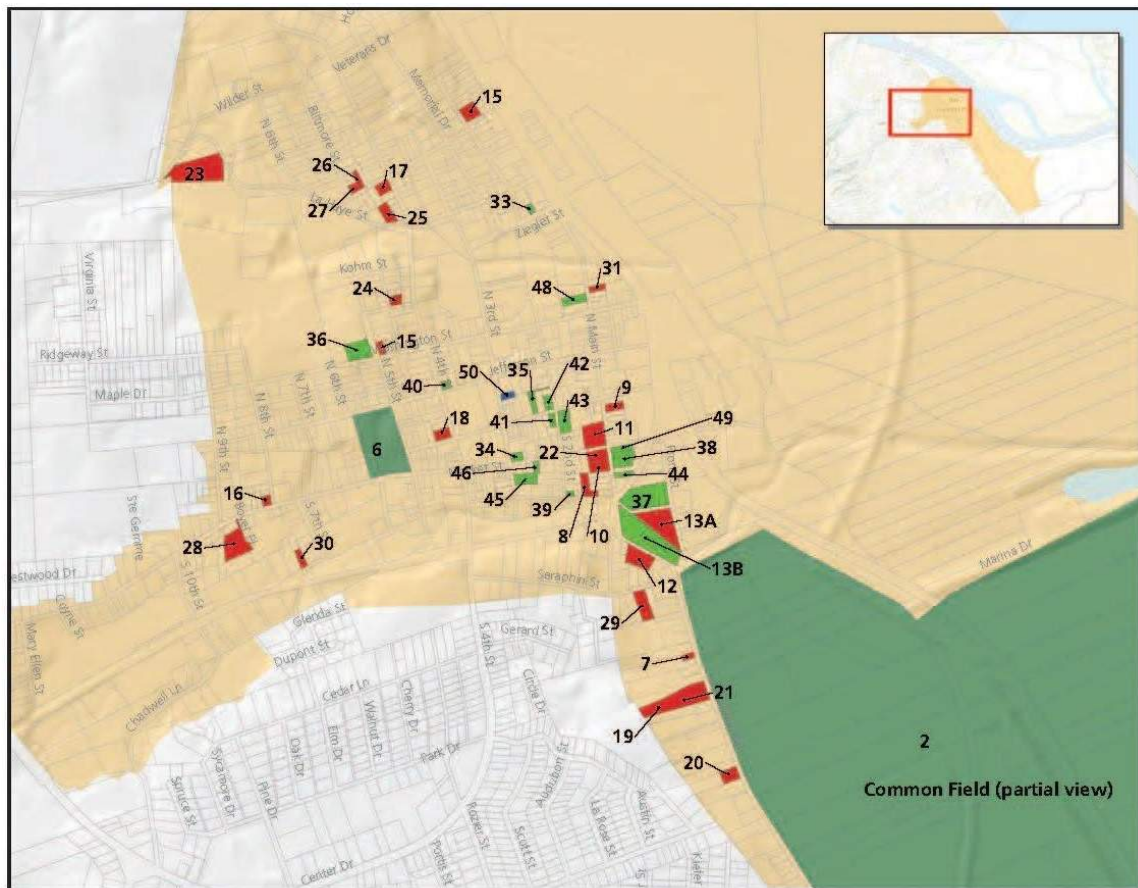


Figure 10. Ste. Genevieve and surrounding area.
(See Chapter 6: Property Inventory for a key to this map.).

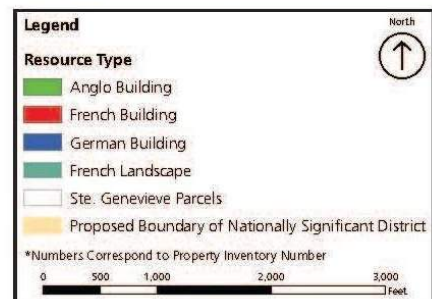


Figure 34. Detail of the existing and proposed expanded Ste. Genevieve Historic District, with contributing properties indicated. The Jean Baptiste Vallé House is #11. (Source: NPS, "Ste. Genevieve Special Resource Study," 16 Chapter 6 within the study has the key and descriptions of all the buildings).



Figure 35. Detail of an 1894 Sanborn Fire Insurance Map showing the intersection of Market and South Main Streets in Ste. Genevieve, Missouri. (Source: Sanborn Fire Insurance Map, 1894)

Visitors to the Jean Baptiste Vallé House arrive via Main Street, a two-lane, two-way, asphalt-paved public road that is part of the historic grid of the city of Ste. Genevieve. The 24-foot-wide road corridor is generally aligned north-south as it extends through the Ste. Genevieve Historic District. The street is flanked by examples of French colonial architecture as well as early nineteenth-century British American and German American buildings. Overall, the Ste. Genevieve Historic District features several buildings, structures, and landscape elements that represent the history of the city from its founding in its current location in 1790 to the mid-twentieth century.⁸⁷

The Jean Baptiste Vallé House is part of a cluster of six historic buildings along South Main Street near the center of town built between 1793 and 1844 that convey a sense of the character of Ste. Genevieve during the early nineteenth century. The buildings include the Bolduc House⁸⁸, Jean Baptiste Vallé House, Le Meilleur House, Linden House, Antoine O'Neill House, and Joseph Amoureux House (Figure 34). These significant buildings form a visually compelling streetscape and provide a glimpse of Ste. Genevieve as

it might have looked in the 1840s, before the death of Jean Baptiste Vallé.⁸⁹

The Ste. Genevieve Welcome Center is also located along South Main Street, across from the Jean Baptiste



Figure 36. The Ste. Genevieve Welcome Center is located across South Main Street from the Jean Baptiste Vallé property (Source: LSHLA, 2022).



Figure 37. The Jean Baptiste Vallé property falls within the authorized boundary of Ste. Genevieve NHP. (Source: LSHLA, 2022).

⁸⁷ Douglas C. McVarish, National Register of Historic Places, Draft "Ste. Genevieve Historic District Boundary Expansion," October 2001), 7 - 3.

⁸⁸ The Louis Bolduc House was individually designated a National Historic Landmark in 1970.

⁸⁹ National Park Service, Ste. Genevieve Special Resource Study and Environmental Assessment (May 2016), 12.



Figure 38. View of the formal parterre garden looking south toward the house (left) (Source: LSHLA, 2022).



Figure 39. The grape arbor looking south, separates the formal garden from the adjacent turf grass landscape (right). (Source: LSHLA, 2022).

Vallé House. Visitor parking facilities are provided east of the building. Visitors can also park along the east edge of South Main Street. Sidewalks edge both Market Street and South Main Street, also providing access to the welcome center and the numerous historical buildings and sites nearby. (See also the *Accessibility Assessment* section of this report).

Landscape

The Jean Baptiste Vallé House property is located at the northwest corner of the intersection of South Main and Market Streets. The house sits along the property boundary at the corner of South Main and Market Streets; other boundaries of the property are marked by wood post and plank screen fences, with entrances into the parcel located north and west of the house that are delineated by pairs of brick piers that support iron gates; these were added in the 2010s and are not historic features. Visitors can access the property through these piers from the sidewalks along South Main and Market Streets. NPS signage directs visitors to this and other historic properties.

Landscape features associated with the Jean Baptiste Vallé House include a formal parterre garden north of the house, a long wooden grape arbor structure that extends northward from the vicinity of the house to the west of the parterre garden, defining the edge of an open turf grass lawn panel to the west cut by several geometrically arranged pathways. Narrow pathways frame the planting beds in the parterre garden, that are planted with roses, and flowering perennials and annuals.

The expanse of open turf lawn west of the grape arbor is edged by the property boundary fence. It is cut north-south by a paved walkway oriented similar to the arbor. Three pathways cross the central north-south pathways in a generally perpendicular fashion, dividing the lawn into six rectangular spaces, edged to the west by a second north-south pathway. To the south of the turf lawn is a wood and wire fence edged by linear planting beds that help to define a long rectangular space

between the western façade of the house and a garage at the western property boundary. Walks edge the long linear space to the east, south, and west. The landscape in this area is characterized by turf grass; a large hackberry tree (*Celtis occidentalis*) edges the garage at the western end of the lawn panel. Other trees on the property include a flowering dogwood (*Cornus florida*) north of the garage, flowering trees such as redbud (*Cercis canadensis*), cherry (*Prunus* sp.), and pear (*Pyrus* sp.) along the western boundary fence; a bald cypress (*Taxodium distichum*), hickory (*Carya* sp.), and pecan (*Carya illinoensis*) along the northern boundary fence; crape myrtles (*Lagerstroemia indica*) in the vicinity of the parterre garden; a large pecan at the southern end of the grape arbor; a dogwood (*Cornus florida*) along the path west of the house; and redbuds, dogwood, and a sweet bay magnolia (*Magnolia virginiana*) near and along the southern boundary fence. An array of ornamental perennials and annuals fill linear planting beds between the house and the garage.

Small-scale features within the landscape include a well, cistern, garden fountain within the central circular parterre bed, two benches, three light poles and lamps, small decorative sculpture, a commemorative plaque, a small display box attached to the house, and NPS signage.



Figure 40. View looking west from the grape arbor over the open turf grass landscape and fenced property boundary in the distance (Source: LSHLA, 2022).



Figure 41. View looking east across the turf lawn west of the Jean Baptiste Vallé House and a walkway extending from the west façade of the house (Source: LSHLA, 2022).

Jean Baptiste Vallé House Historic Structure Report

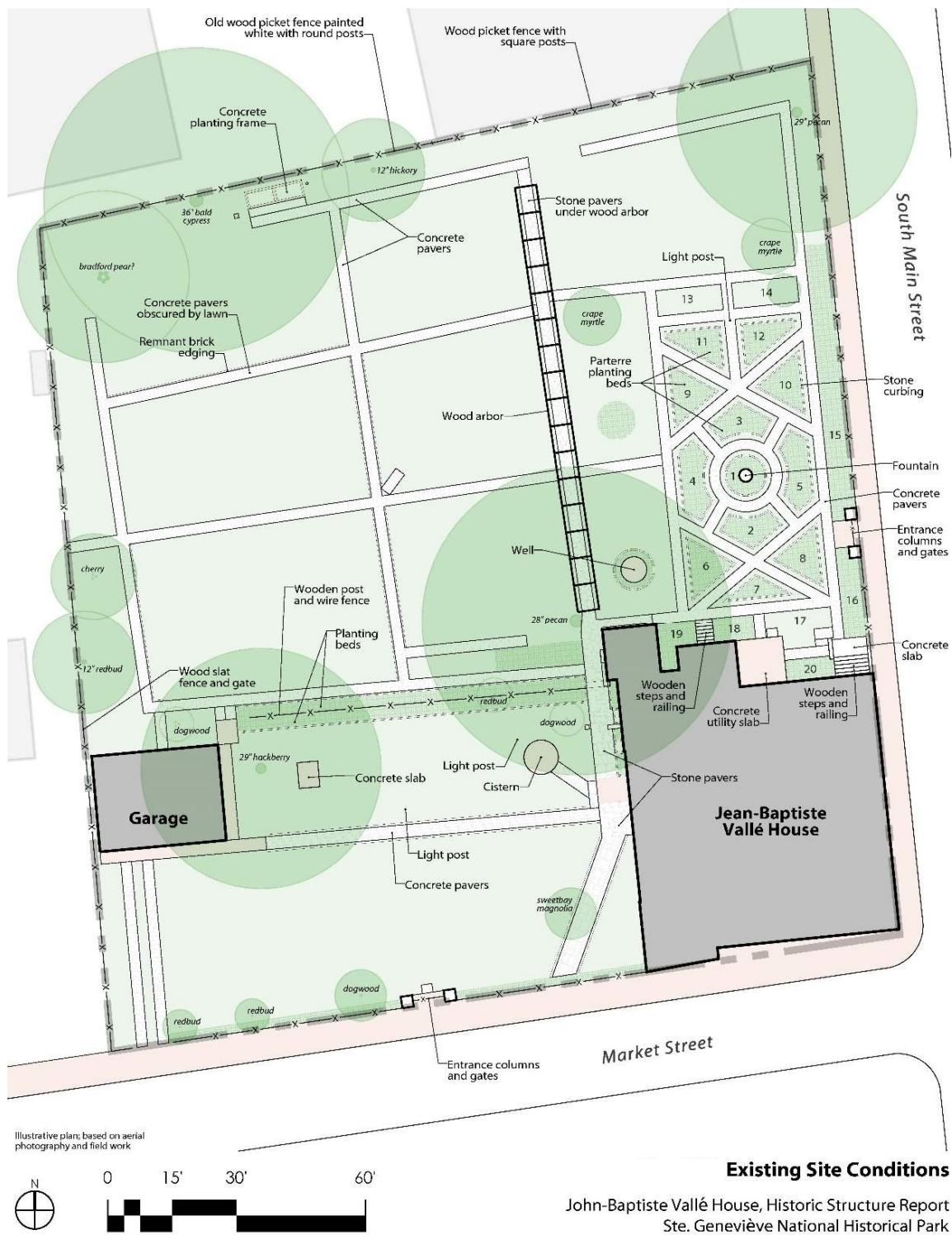


Figure 42. Site plan of the Jean Baptiste Vallé House property including the historic designed landscape. (Source: LSHLA, 2023).

Historic Documentation

The inventoried landscape features described below were observed during field investigations conducted on behalf of the HSR. Each inventoried feature is compared with information available about the landscape for periods pre-dating NPS acquisition of the Jean Baptiste Vallé House property. Few sources of information exist for the late eighteenth-century period during which the house was built. Letters dated 1811 describe some of the plantings introduced into the gardens around the house. Little else is known about the physical layout and configuration of the property prior to documentation in 1934 by the Historic American Buildings Survey (HABS). Photographs of the property from 1934 help to illustrate its condition during the early twentieth century. There are also photographs dating to the 1940s and 1950s in the Schram Collection associated with the former Felix Vallé State Historic Site. The next important source of information is additional HABS documentation completed in 1986.

Contextual documentation of French-style gardens during the 17th and 18th centuries has been used to consider the arrangement of the Vallé property during the early to mid-19th century. Although few contemporary resources specific to gardening practices in New France are available, this was an era with a wealth of European resources, with trends and fashions being exported to the New World.

An early treatise on garden design, *L'Agriculture et maison rustique* (*Agriculture and the Country House*) by Jean Liébault (1535-1596), was known by both the French original and its English translation, and copies were brought to the New World by settlers.⁹⁰ In his treatise, Liébault extolls the advantages of all types of gardens, including “both vegetable garden, medicinal, and flowerbed” and lays out recommendations for

planning, planting, and tending aromatic herbs, vegetables, and ornamental floors in parterre beds.⁹¹

Another early parterre designer, Jacques Boyceau (1560-1633) published *Traité du jardinage selon les raisons de la nature et de l'art* (*Treatise on Gardening According to the Logic of Nature and Art*) in 1638 during his time as Superintendent of Gardens under Louis XIII. His treatise was the first to discuss the aesthetics of garden design and was highly influential on André le Nôtre (1613-1700), landscape architect for Louis XIV. In his book, Boyceau included numerous

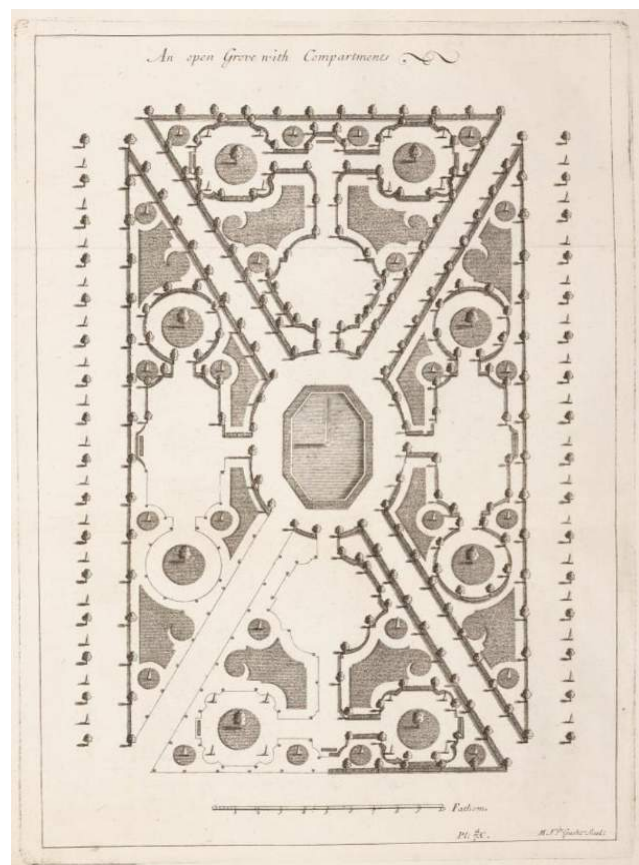


Figure 43. Plate showing an ornate parterre garden in the le Nôtre fashion. (Source: Joseph Dezallier d'Argenville, *The Theory and Practice of Gardening*, trans. John James. London, England: Geo. James, 1712, n.p.)

⁹⁰ National Gallery of Art, “History of Early American Landscape Design.” Accessed at https://heald.nga.gov/mediawiki/index.php/French_style

⁹¹ Jean Liébault. *L'Agriculture et maison rustique*. Paris, France: Jacques Du-Puys, 1570.

illustrations for parterre gardens, from the fabulously ornate to the comparatively simple. A common feature of many of Boyceau's illustrations is a symmetrical or repetitive design that radiates from a central focal point.

Regimented and controlled gardens were popularized by le Nôtre's parterre gardens at Vaux-le-Vicomte (starting 1656) and expansive landscape work at Versailles (starting 1662). Other books on formal gardening were likely known to members of society in Louisiana and other parts of New France during the 18th and early 19th centuries, including as Antoine-Joseph Dezallier d'Argenville's *La Théorie et la pratique du jardinage* (*The Theory and Practice of Gardening*), published in the original French in 1709 and translated into English by architect and surveyor John James in 1712, which codified the practice of the Le Notrean school and was highly influential (Figure 43).

Of particular interest are garden plat drawings prepared by Jean- François-Benjamin Dumont de Martigny and published in *Memoires historiques sur la Louisiane* (*Memories of Louisiana*) in 1753. The illustrated garden plats suggest that popular arrangement of residential properties included both formal gardens and kitchen and sustenance gardens separated by fences and beds and lined by pathways, similar to those present within the Jean Baptiste Vallé House landscape. The illustrations also show perimeter fencing in the form of vertical log "picket" fences, symmetrical garden plots divided by pathways, upright boards sometimes forming planter boxes, areas likely planted in geometric arrangements of fruit trees, and a grape arbor, all of which may have been present historically on the Vallé property. The primary garden plat in the book shows Dumont de Martigny's own residence in New Orleans in some detail (Figure 45), and these features are not only graphically represented but are also clearly labeled. In his memoirs, Dumont de Martigny mentions several times his love of gardening, saying "I very much enjoyed gardening and engaged in this activity whenever I had spare time." At his farms in Louisiana, he describes growing grapes, hops, indigo,

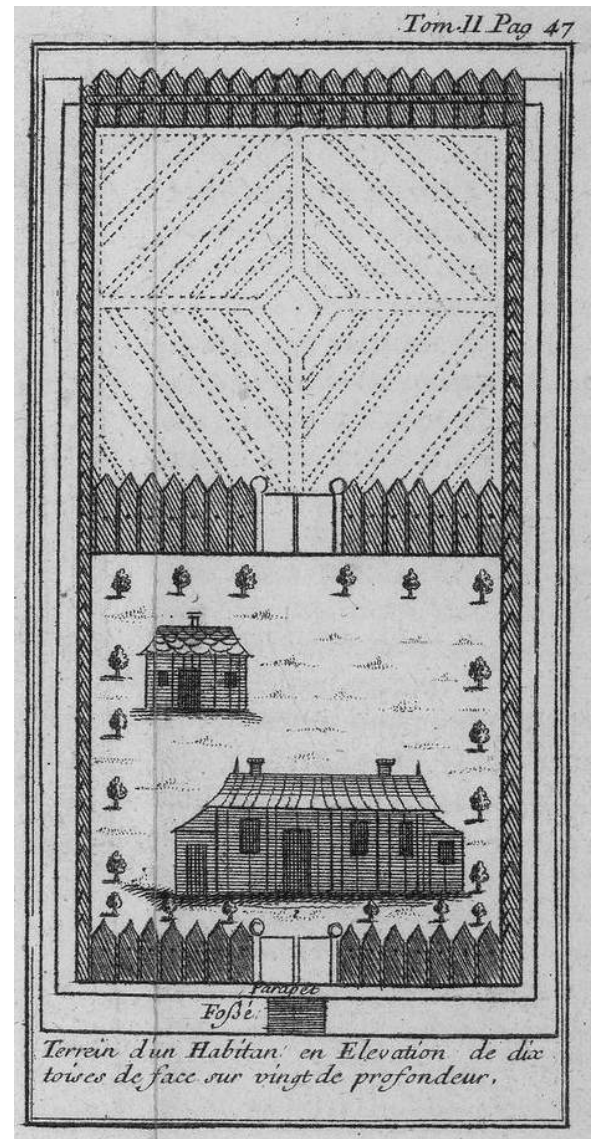


Figure 44. This engraving of a "Plot of a residence," in elevation. The size was 65-feet x 130-feet and considered as a "yard and garden," typical for small urban blocks. The garden is symmetrical, divided into paths and planting beds. (Source : A plate from *Memoires historiques sur la Louisiane*, Bibliothèque nationale de France, <https://gallica.bnf.fr/ark:/12148/btv1b23006064>

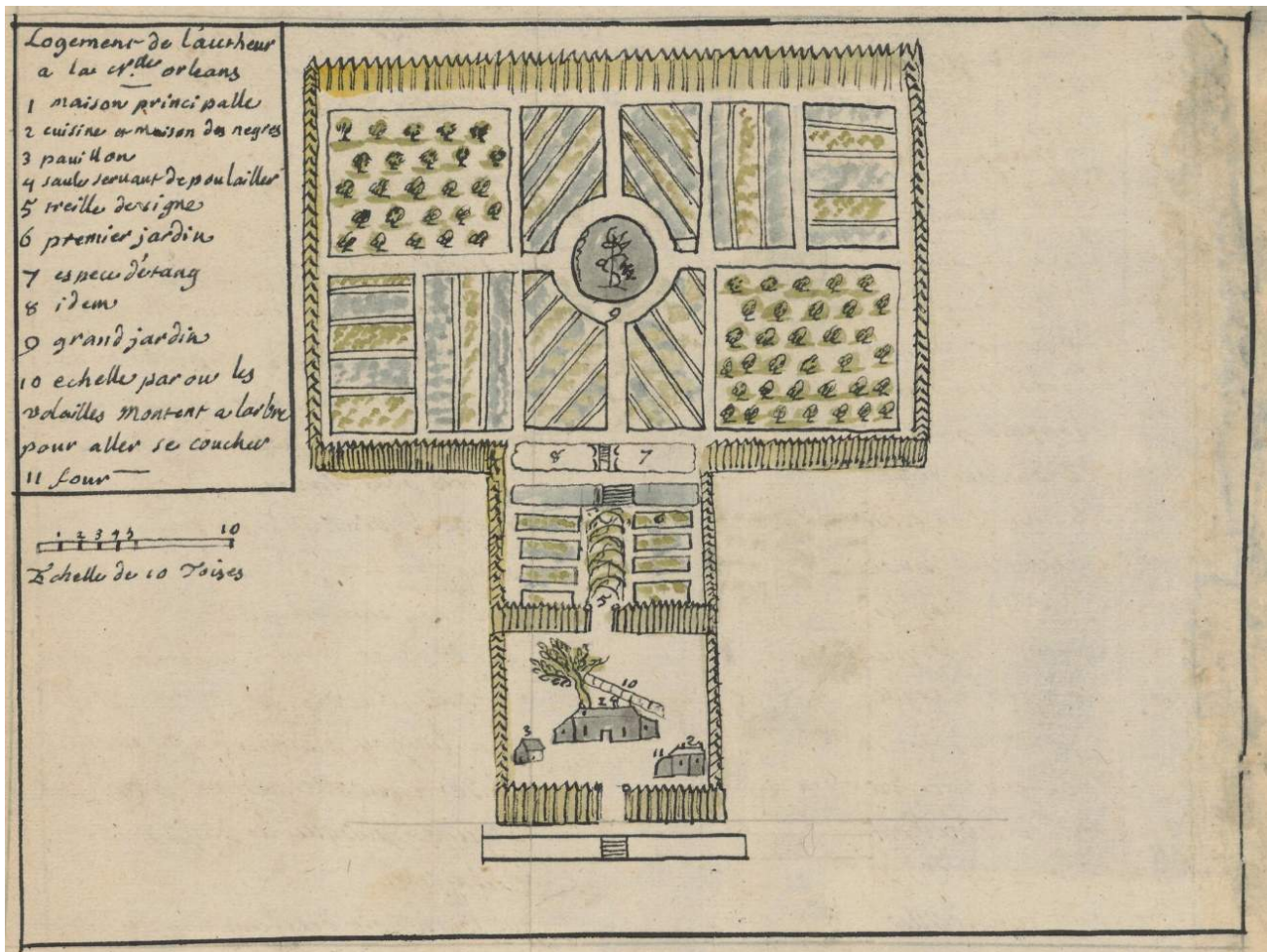


Figure 45. The watercolor of the Dumont de Martigny Garden illustrates the articulated parterre beds and surrounding pathways, the grape arbor, and articulated spaces for fruit trees and vegetables. (Source: *Mémoires historiques sur la Louisiane*, Dumont de Martigny Garden Plat, 1753, Newberry Library, call no. Ayer MS 257 map 14, <https://collections.newberry.org/IIIF3/Presentation/Manifest/2KXJ8ZSJL3QB3>)

tobacco, and possibly wheat, corn, and rice, along with other crops and likely fruit trees.⁹²

Although Dumont de Martigny did not make his time in Louisiana a success and eventually returned to France, his illustrations provide valuable visual references for how information presented in gardening treatises and other historic documents was implemented in the New World. Many similar such visual examples of formal gardens also come from New Orleans and the

surrounding area, as well as Quebec, where such practices had many years to flourish under the growing wealth of the French colonists.

Following the stylistic trends of French aristocrats, the parterre garden enjoyed a long period of popularity before landscape fashions turned towards more restrained, manicured lawns of the English style. By the turn of the 19th century, formal parterre gardens may have been somewhat outmoded in France and England

⁹² Gordon M. Sayer and Carla Zecher. *The Memoir of Lieutenant Dumont, 1715 – 1744, A Sojourner in the French*

Atlantic. Chapel Hill, NC: University of North Carolina Press, 2012. 199 and 379-383.

but continued in use, and were presumably still in fashion, in *la Louisiane* and French Canada.⁹³

For Marie-Jeanne Vallé to have laid out her new garden in the early years of the 19th century following the formal French parterre style would have been in keeping with landscape design practices in areas of more established French settlement, such as New Orleans and Quebec. Likely the Vallé garden contained both ornamental and sustenance plantings, evidenced by the letter from Chouteau describing roses, lilacs, and plum trees that his wife had sent to Madame Vallé.

NPS intends to conduct archeological investigations within the Jean Baptiste Vallé yard landscape. Given the lack of available historic documentation regarding the property during the nineteenth century, these investigations will likely provide the best source of information about the actual arrangement of spaces, paths, fences, and plantings associated with the Jean Baptiste Vallé property. It is anticipated that further research associated with the development of a Cultural Landscape Report for Ste. Genevieve National Historical Park will also inform the garden history and development of the Jean Baptiste Vallé House landscape over time.

⁹³ "History of Early American Landscape Design."

Condition Assessments

Definitions

The following terms define subjective ratings used in this part to apply a sliding scale of condition rating, deficiency of the component and priority of the repair,

Condition Rating

Good

The element is intact, structurally sound, and performing its intended purpose. There are few or no cosmetic imperfections, and the elements need no repair and only minor or routine maintenance.

Fair

There are early signs of wear, failure, or deterioration, though the element is generally structurally sound and performing its intended purpose. There is failure of a sub-component of the element. Up to 25 % of the element or replacement of a sub-component is required.

Poor

The element is no longer performing its intended purpose. The element is missing. Deterioration or damage affects more than 25% of the element and cannot be adjusted or rebuilt. The element shows signs of imminent failure or breakdown. The element requires major repair or replacement.

Failed

The element is no longer performing its intended purpose and has deteriorated to a point where it presents a life-safety hazard or is contributing to damage to other elements. Full replacement of the component may be required to restore function and service.

as developed from Sections 7.2 and 7.4 of the “Field Operations Manual, Volume 1”, United States National Park Service, Washington, D.C., 1985.

Repair Priority

Immediate

There is advanced deterioration which has resulted in the failure of the building element or will result in the failure of the building element if not corrected within two years; and/or there is accelerated deterioration of adjacent or related building materials as a result of the element’s deficiency; and/or there is a threat to the health and/or safety of the user; and/or there is failure to meet a legislative requirement.

Short-Term

There is deterioration which, if not corrected within two to five years, will result in the failure of the building element, and/or; a threat to the health and/or safety of the user may occur within two to five years if the deterioration is not corrected, and/or; there is deterioration of adjacent or related building materials and/or systems as a result of the element’s deficiency.

Long-Term

Standard preventative maintenance practices and building conservation methods have not been followed, and/or; there is a reduced life expectancy of affected or related building materials and/or systems, and/or; there is a condition with long-term impact beyond five years

Summary Condition Assessment Table

SITE AND LANDSCAPE					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
G BUILDING SITE WORK					
G20 SITE IMPROVEMENTS					
G2045		SITE FURNISHINGS			
G204501		Small-scale Features: Benches, Garden Fountain, Decorative Sculpture, Plaque, Light Posts, Signs		Good to Fair	Long-Term
G2049		MISCELLANEOUS STRUCTURES			
G204901		Building: Garage		Good	Long-Term
G204902		Structure: Grape Arbor		Poor to Failed	Short-Term
G2050		LANDSCAPING			
G205001		Circulation: Landscape Pathways		Fair to Good	Long-Term
G205002		Cultural Vegetation: Parterre Garden Beds		Fair to Good	Long-Term
G2055		PLANTING			
G205501		Spatial Organization: Designed Landscape		Good	Long-Term
G205502		Spatial Organization: Formal French Parterre Garden		Fair to Good	Long-Term
G205503		Cultural Vegetation: Trees		Fair to Good	Long-Term
G30 SITE MECHANICAL UTILITIES					
G3013		WELL SYSTEMS			
G301301		Small-scale Features: Cistern and Well		Fair to Good	Long-Term

ENCLOSURE					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
A SUBSTRUCTURE					
A20 BASEMENT CONSTRUCTION					
A2020		BASEMENT WALLS (Exterior)			
A202001			Basement Walls	Good	Long-Term
B SHELL					
B10 ROOF CONSTRUCTION					
B1013		BALCONY CONSTRUCTION			
			Galleries Overall	Fair to Good	Short-Term
B101301			North, East & South Gallery Decking	Good (New)	None

ENCLOSURE					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
		B101302	West Gallery Decking	Good (New)	None
		B101501	North Gallery Stairs and Handrails	Fair to Good	Short-Term
		B101502	North Sunroom Stairs and Handrails	Fair to Good	Short-Term
		B101503	West Gallery Stairs and Handrails	Fair to Good	Short-Term
		B201006	Base Trim	Fair	Short-Term
		B201007	Horizontal Railing at Galleries	Poor to Failed	Immediate
		B201008	Exterior Gallery Soffits	Fair	Short-Term
B1029		OTHER ROOF SYSTEMS			
		B1029.1	Northeast Chimney	Good	Long-Term
		B1029.2	Northwest Chimney	Good	Long-Term
		B1029.3	Southeast Chimney	Poor	Immediate
		B1029.4	Southwest Chimney	Good	Long-Term
		B1029.5	Office Chimney	Poor	Immediate
		B1029.6	Kitchen Chimney	Good	Long-Term
B20 EXTERIOR ENCLOSURE					
B2010		EXTERIOR WALLS			
		B201001	Weather Board Siding	Good	Long-Term
		B201002	Stucco	Good	Long-Term
		B201003	Masonry Walls	Fair	Short-Term
		B201004	Masonry Parapets	Failed	Immediate
		B201004.1	Steel Window Lintels	Failed	Immediate
		B201005	Trim	Fair	Short-Term
		B301007	Horizontal Railing	Poor to Failed	Immediate
B2020		EXTERIOR WINDOWS			
		Windows Overall		Varies	Varies
		B202001	W001A	Good	Long-Term
		B202002	W001B	Good	Long-Term
		B202003	W002A	Fair	Short-Term
		B202004	W002B	Poor	Short-Term
		B202005	W003A	Poor	Short-Term
		B202006	W003B	Poor	Short-Term
		B202007	W004A	Fair	Short-Term
		B202008	W004B	Fair	Short-Term
		B202009	W007A	Fair	Short-Term
		B202010	W008	Poor to Fair	Short-Term
		B202011	W010	Poor	Short-Term
		B202012	W012	Fair	Short-Term
		B202013	W013A	Poor	Short-Term
		B202014	W013B	Poor	Short-Term

Jean Baptiste Vallé House Historic Structure Report

ENCLOSURE					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
		B202015	W013C	Poor	Short-Term
		B202016	W013D	Poor	Short-Term
		B202017	W013E	Poor	Short-Term
		B202018	W013F	Poor	Short-Term
		B202019	W103A	Good	Long-Term
		B202020	W103B	Good	Long-Term
		B202021	W103C	Good	Long-Term
		B202022	W103D	Good	Long-Term
		B202023	W104A	Good	Long-Term
		B202024	W104B	Good	Long-Term
		B202025	W105A	Good	Long-Term
		B202026	W105B	Good	Long-Term
		B202027	W105C	Good	Long-Term
		B202028	W105D	Good	Long-Term
		B202029	W106A	Good	Long-Term
		B202030	W106B	Good	Long-Term
		B202031	W108A	Fair	Short-Term
		B202032	W108B	Fair	Short-Term
		B202033	W108C	Fair	Short-Term
		B202034	W108D	Fair	Short-Term
		B202035	W108E	N/A	None
		B202036	W109A	Fair to Good	Long-Term
		B202037	W109B	Fair	Short-Term
		B202038	W112	Good	Long-Term
		B202039	W113A	Good	Long-Term
		B202040	W113B	Good	Long-Term
		B202041	W201	Failed	Immediate
		B202042	W202	Poor to Failed	Immediate
		B202043	W203	Fair	Short-Term
		B202044	W204A	Fair	Short-Term
		B202045	W204B	Fair	Short-Term
		B202046	W205	Fair	Short-Term
		B202047	W206	Poor	Short-Term
		B202048	W207A	Fair	Short-Term
		B202049	W207B	Fair	Short-Term
		B202050	W208	Fair	Short-Term
B2030		EXTERIOR DOORS			
			Doors Overall	Fair to Good	Short-Term
		B203001	D001	Fair	Short-Term
		B203002	D101	Good	Long-Term
		B203003	D102	Good	Long-Term
		B203004	D108	Fair	Short-Term

ENCLOSURE					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
		B203005	D109	Good	Long-Term
		B203006	D110	Poor	Short-Term
		B203007	D112B	Good	Long-Term
		B203008	D113A	Good	Long-Term
		B203010	D113B	N/A	None
B30 ROOFING					
B3010		ROOF COVERINGS			
		Roof Overall		Fair	Short-Term
		B301001	Laminated Asphalt Shingle Roofing	Good	Short-Term
		B301002	EPDM Membrane Roofing	Fair	Short-Term
		B301004	Metal Flashing at Roof-Wall Interfaces	Good	Long-Term
		B301005	Metal Flashing at Chimneys	Good	Long-Term
		B301006	Gutters	Good	Long-Term
		B301007	Downspouts	Good	Long-Term

STRUCTURE					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
A	SUBSTRUCTURE				
A10	CONCRETE FOUNDATIONS				
A1010		STANDARD FOUNDATIONS			
A101001			Stone and Concrete Foundations	Fair	Short-Term
A20	BASEMENT CONSTRUCTION				
A2020		BASEMENT WALLS			
A202001			Basement Walls	Fair	Short-Term
A202002			Partition Walls	Fair	Short-Term
A40	SLABS AND FLOORING				
A4010		STANDARD SLABS ON GRADE			
A401001			Slab-on-Grade	Good	Long-Term
A409001			Wood Plank Flooring	Failed to Poor	Long-Term
B	SHELL				
B10	EXTERIOR ENCLOSURE				
B1010		FLOOR CONSTRUCTION			
			Framing Observed from Basement Overall	Failed to Good	Immediate
B101001			001 Floor Framing	Good	Long-Term
B101001.02			002 Floor Framing	Good	Long-Term

Jean Baptiste Vallé House Historic Structure Report

STRUCTURE					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
		B101001.03	003 Floor Framing	Poor to Fair	Short-Term
		B101001.04	004 Floor Framing	Good	Long-Term
		B101001.05	005 Floor Framing	Fair	Short-Term
		B101001.06	006 Floor Framing	Poor to Fair	Short-Term
		B101001.07	007 Floor Framing	Good	Long-Term
		B101001.08	008 Floor Framing	Failed to Fair	Immediate
		B101001.09	009 Floor Framing	Fair	Long-Term
		B101001.10	010 Floor Framing	Fair	Short-Term
		B101001.11	011 Floor Framing	Poor to Good	Short-Term
		B101001.12	012 Floor Framing	Failed to Good	Immediate
		B101001.13	013 Floor Framing	Poor to Good	Short-Term
		B101002	Framing Observed from First Floor Overall	Good	Long-Term
B1020		ROOF CONSTRUCTION			
		B102001	Roof Framing and Sheathing	Good	Long-Term
		B102002	Gable End Wall Framing	Good	Long-Term
		B102003	Room 110 Roof Framing	Good	Long-Term
B2011		EXTERIOR WALL CONSTRUCTION			
		B201101	Vertical Log Wall Framing	Fair	Immediate
		B201102	Vertical Log Wall Top Plate Braces	Fair	Immediate

INTERIORS					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
C INTERIORS					
C10 INTERIOR PARTITIONS					
C1017		INTERIOR WINDOWS			
		C101701	W007B	Good	Long-Term
		C101702	W009	Good	Long-Term
C1020		INTERIOR DOORS			
			Interior Doors Overall	Good	Long-Term
C102001			D002	Good	Long-Term
C102002			D003	Good	Long-Term
C102003			D004	N/A	None
C102004			D005	Good	Long-Term
C102005			D006	Good	Long-Term
C102006			D009	N/A	Long-Term
C102007			D010	N/A	None
C102008			D012	Good	Long-Term

INTERIORS					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
		C102009	D103	Good	Long-Term
		C102010	D104A	Fair	Short-Term
		C102011	D104B	Good	Long-Term
		C102012	D105A	Good	Long-Term
		C102013	D105B	Good	Long-Term
		C102014	D106	Good	Long-Term
		C102015	D107A	Good	Long-Term
		C102016	D107B	Good	Long-Term
		C102017	D107C	Good	Long-Term
		C102018	D112A	Good	Long-Term
		C102019	D112C	Good	Long-Term
		C102020	D201	Good	Long-Term
		C102021	D202	Good	Long-Term
		C102022	D204A	Good	Long-Term
		C102023	D204B	Good	Long-Term
		C102024	D207A	Good	Long-Term
		C102025	D207B	Good	Long-Term
		C102026	D208	Good	Long-Term
C1030		FITTINGS			
		C103002	2091 Storage Shelving	Good	None
		C103002	202 Bath Accessories	Good	None
		C103003	202 Storage Shelving	Good	None
		C103004	203 Storage Shelving	Good	None
		C103005	206 Storage Shelving	Good	None
		C103006	208 Storage Shelving	Good	None
C20		STAIRS			
C2010		STAIR CONSTRUCTION			
		C201001	Stair Treads and Risers	Good	None
		C201002	Handrails and Balustrades	Good	None
C2020		STAIR FINISHES			
		C202001	Stair Tread and Riser Finishes	Good	None
		C202002	Handrail and Balustrade Finishes	Good	None
C30 INTERIOR FINISHES					
		C301001	Basement Interior Overall	Poor	Short-Term
		C301002	Basement Flooring	Poor to Good	Long-Term
		C301003	Basement Wall Finishes	Failed to Poor	Short-Term
		C301004	Basement Wall Mouldings	N/A	None
		C301005	Basement Ceiling Finishes	Fair	Long-Term
		C301006	Basement Exposed Ceiling Beams	Good	Long-Term
		C301007	Room 1 (101) Interior Overall	Good	Long-Term

Jean Baptiste Vallé House Historic Structure Report

INTERIORS					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
		C301008	101 Flooring	Good	Long-Term
		C301009	101 Wall Finishes	Good	N/A
		C301010	101 Wall Mouldings	Good	Long-Term
		C301011	101 Ceiling Finishes	Good	Long-Term
		C301012	101 Exposed Ceiling Beams	Good	N/A
		C301013	Room 2 (102) Interior Overall	Good	Long-Term
		C301014	102 Flooring	Good	None
		C301015	102 Wall Finishes	Good	Long-Term
		C301016	102 Wall Mouldings	Good	Long-Term
		C301017	102 Ceiling Finishes	Good	Long-Term
		C301018	102 Exposed Ceiling Beams	Good	Long-Term
		C301019	Room 3 (103) Interior Overall	Good	Long-Term
		C301020	103 Flooring	Good	Long-Term
		C301021	103 Wall Finishes	Good	None
		C301022	103 Wall Mouldings	Good	Long-Term
		C301023	103 Ceiling Finishes	Good	Long-Term
		C301024	103 Exposed Ceiling Beams	Good	None
		C301025	Room 4 (104) Interior Overall	Good	Long-Term
		C301026	104 Flooring	Good	Long-Term
		C301027	104 Wall Finishes	Good	None
		C301028	104 Wall Mouldings	Good	Long-Term
		C301029	104 Ceiling Finishes	Good	Long-Term
		C301030	104 Exposed Ceiling Beams	Good	Long-Term
		C301031	Room 5 (105) Interior Overall	Good	Long-Term
		C301032	105 Flooring	Fair	Long-Term
		C301033	105 Wall Finishes	Good	None
		C301034	105 Wall Mouldings	Good	None
		C301035	105 Ceiling Finishes	Good	Long-Term
		C301036	105 Exposed Ceiling Beams	Good	None
		C301037	Room 6 (106) Interior Overall	Good	Long-Term
		C301038	106 Flooring	Good	Long-Term
		C301039	106 Wall Finishes	Good	None
		C301040	106 Wall Mouldings	Good	None
		C301041	106 Ceiling Finishes	Good	Long-Term
		C301042	106 Exposed Ceiling Beams	Fair	Short-Term
		C301043	Room 7 (107) Interior Overall	Good	None
		C301044	107 Flooring	Good	None
		C301045	107 Wall Finishes	Good	None
		C301046	107 Wall Mouldings	Good	None
		C301047	107 Ceiling Finishes	Good	None
		C301048	107 Exposed Ceiling Beams	Good	None
		C301049	Room 8 (108) Interior Overall	Good	None

INTERIORS					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
		C301050	108 Flooring	Good	None
		C301051	108 Wall Finishes	Good	None
		C301052	108 Wall Mouldings	Good	None
		C301053	108 Ceiling Finishes	Good	None
		C301054	Room 9 (109) Interior Overall	Good	Long-Term
		C301055	109 Flooring	Good	Long-Term
		C301056	109 Wall Finishes	Good	Long-Term
		C301057	109 Wall Mouldings	Good	Long-Term
		C301058	109 Ceiling Finishes	Good	Long-Term
		C301059	109 Exposed Ceiling Beams	Good	Long-Term
		C301060	Room 10 (110) Interior Overall	Good	Short-Term
		C301061	110 Flooring	Fair	Short-Term
		C301062	110 Wall Finishes	Poor	Short-Term
		C301063	110 Exposed Ceiling Beams	Good	None
		C301064	Room 12 (112) Interior Overall	Good	Long-Term
		C301065	112 Flooring	Good	None
		C301066	112 Wall Finishes	Fair	Long-Term
		C301067	112 Wall Mouldings	Good	None
		C301068	112 Ceiling Finishes	Good	None
		C301069	Room 13 (113) Interior Overall	Good	Long-Term
		C301070	113 Flooring	Good	None
		C301071	113 Wall Finishes	Good	None
		C301072	113 Wall Mouldings	Good	None
		C301073	113 Ceiling Finishes	Fair	Long-Term
		C301074	113 Exposed Ceiling Beams	Good	None
		C301075	Room 1 (201) Interior Overall	Good	Long-Term
		C301076	201 Flooring	Good	None
		C301077	201 Wall Finishes	Good	None
		C301078	201 Wall Mouldings	Good	None
		C301079	201 Ceiling Finishes	Good	None
		C301080	Room 2 (202) Interior Overall	Good	Long-Term
		C301081	202 Flooring	Good	Long-Term
		C301082	202 Wall Finishes	Good	Long-Term
		C301083	202 Wall Mouldings	Good	Long-Term
		C301084	202 Ceiling Finishes	Good	Long-Term
		C301085	Room 3 (203) Interior Overall	Fair	Short-Term
		C301086	203 Flooring	Poor	Short-Term
		C301087	203 Wall Finishes	Poor	Short-Term
		C301088	203 Ceiling Finishes	Good	None
		C301089	Room 4 (204) Interior Overall	Good	Long-Term

Jean Baptiste Vallé House Historic Structure Report

INTERIORS					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
		C301090	204 Flooring	Good	None
		C301091	204 Wall Finishes	Good	None
		C301092	204 Wall Mouldings	Good	None
		C301093	204 Ceiling Finishes	Good	None
		C301094	Room 5 (205) Interior Overall	Fair	Short-Term
		C301095	205 Flooring	Poor	Short-Term
		C301096	205 Wall Finishes	Poor	Short-Term
		C301097	205 Ceiling Finishes	Good	None
		C301098	Room 6 (206) Interior Overall	Fair	Short-Term
		C301099	206 Flooring	Poor	Short-Term
		C301100	206 Wall Finishes	Poor	Short-Term
		C301101	206 Ceiling Finishes	Good	None
		C301102	Room 7 (207) Interior Overall	Good	Long-Term
		C301103	207 Flooring	Good	None
		C301104	207 Wall Finishes	Good	None
		C301105	207 Wall Mouldings	Good	None
		C301106	207 Ceiling Finishes	Good	None
		C301107	Room 8 (208) Interior Overall	Poor	Short-Term
		C301108	208 Flooring	Poor	Short-Term
		C301109	208 Wall Finishes	Failed	Short-Term
		C301110	208 Ceiling Finishes	Good	None
E FURNISHINGS					
E20 FURNISHINGS					
E2010		FIXED FURNISHINGS			
		E201001	103 Fireplace Mantel	Good	None
		E201002	103 Fixed Casework	Good	Long-Term
		E201003	104 Fireplace Mantel	Good	None
		E201004	105 Fireplace Mantel	Good	None
		E201005	106 Fixed Casework	Good	None
		E201006	Fixed Casework	Good	None
		E201007	109 Fireplace Mantel	Good	None

MEP/FP					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
D	PLUMBING				
D20	SITE UTILITIES				
	D2010	WATER UTILITY			
		D2010	Water Service to site from south of property from Market Street	Good	Long-Term
		D2021	Abandoned Well and Cistern	Poor	Immediate
	D2020	GAS UTILITY			
		D2022	Gas Utility to site to northeast corner of property from South Main Street	Good	Long-Term
	D2030	Plumbing Fixtures			
		D2031	Water Closets	Good	Long-Term
		D2032	Lavatories	Good	Long-Term
		D2033	Kitchen Sink and Faucets	Good	Long-Term
		D2034	Showers	Good	Long-Term
		D2035	Basement Sink and Faucet	Fair	Short-Term
		D2036	Garage Sink and Faucet	Fair	Short-Term
	D2030	Floor Drains			
		D2037	Floor Drains - House	Fair	Short-Term
D30	DOMESTIC WATER DISTRIBUTION				
	D3010	Domestic Water Distribution			
		D3010	Water Piping – House	Good	Long-Term
	D3020	Water Heater			
		D3020	Water Heater – House	Good	Long-Term
D40	SANITARY WASTE				
	D4010	Sanitary Waste Piping			
		D4010	Sanitary Waste Piping - House	Good	Long-Term
D50	OTHER PLUMBING SYSTEMS				
	D5010	Gas Distribution Piping			
		D5010	Gas Distribution Piping - House	Good	Long-Term
	D5020	Basement Sump Pump			
		D5020	Basement Level Sump Pump - House	Fair	Short-Term
D	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)				
D60	ORIGINAL HVAC SYSTEMS				
	D6010	ORIGINAL HVAC EQUIPMENT - EXTERIOR			
		D6010	Old HVAC equipment located north of the Vallé House which has since been removed	N/A	N/A
D70	HEATING AND COOLING GENERATING SYSTEMS				
	D7010	GAS-FIRED FURNACE SYSTEMS			
		D7010	Furnace systems serving First level	Good	Long-Term

Jean Baptiste Vallé House Historic Structure Report

MEP/FP					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
		D7011	basement level furnace system flue and combustion air piping	Good	Long-Term
	D7010	Electric Furnace System			
		D7012	Electric furnace system serving Second level	Good	Long-Term
	D7010	Heat Rejection Systems			
		D7013	Exterior air-cooled condensing units serving basement level gas furnaces	Good	Long-Term
		D7014	Exterior air-cooled condensing unit serving Second level electric furnace	Good	Long-Term
D80 DISTRIBUTION SYSTEMS					
	D8010	Ducted Air Distribution Systems			
		D8010	Air distribution in basement level serving First level	Good	Long-Term
		D8011	Ducted air distribution in Attic serving Second level	Good	Long-Term
	D8020	Exhaust Systems			
		D8021	First level and Second level Restroom Exhaust	Fair	Short-Term
		D9011	First level and Second level Restroom Exhaust	Fair	Short-Term
D ELECTRICAL SERVICES					
	D50	ELECTRICAL			
	D5010	ELECTRICAL SERVICE & DISTRIBUTION – ELECTRICAL UTILITY			
		D501001	Outdoor Electrical Service to House	Fair	Long-Term
	D5012	ELECTRICAL CIRCUITS			
		D501201	Electrical Panel In House	Poor	Short-Term
		D501202	Circuit Directory on Panel	Poor	Short-Term
	D5021	BRANCH CIRCUITS			
		D502101	NM Cable	Poor	Short-Term
	D5021	POWER DISTRIBUTION AND CONTROL DEVICES			
		D502102	Wiring Devices, Receptacles, and Switches	Fair	Long-Term
	D5022	INTERIOR LIGHTING			
		D502201	Lighting Fixture Types	Fair	Long-Term
	D5030	COMMUNICATIONS			
	D5032	COMMUNICATIONS UTILITY			
		D503201	Fiber Optic Service to House	Fair	Long-Term
	D5030	LIFE SAFETY			
	D5037	FIRE DETECTION			
		D503701	Fire Alarm System	Fair	Immediate

MEP/FP					
Category	Topic	Code	Subtopic	Assessment	
				Condition Rating	Repair Timeline
D5030	SECURITY				
	D5038	BUILDING PROTECTION			
		D503801	Intrusion Alarm System	N/A	Short-Term
	D5091	GROUNDING SYSTEMS			
		D509101	Electrical Meter Socket Grounding	Fair	Long-Term
		D509102	Ground Rod Connection	Poor	Immediate
D5090	LIFE SAFETY				
	D5092	EGRESS LIGHTING			
		D509201	Exit Lighting and Emergency Lighting	N/A	Short-Term
D5090	LIGHTNING				
	D5094	LIGHTNING HAZARD REDUCTION			
		D509401	Lightning Protection System	N/A	Long-Term

Site and Landscape

N/A	GENERAL				
N/A	JEAN BAPTISTE VALLÉ HOUSE				
	N/A	SUBCATEGORY			
		N/A	Building: Jean Baptiste Vallé House	Condition	Priority
				Good	Varies

Date: c. 1794

Contributing: Contributing

The building is a large example of vertical log construction known as *poteaux-sur-sole*. The house is one of two extant buildings from the French Colonial era in Ste. Genevieve with a basement built for a use other than animal shelter and storage. The house, altered in the 1860s, was restored to its earlier

appearance in the 1960s and retains a good degree of integrity (**Error! Reference source not found.**). See Architectural Assessment section for detailed information.



Figure 46. View southwest from the corner of Main and Market Streets (Source: RRJ)

G	BUILDING SITE WORK				
G20	SITE IMPROVEMENTS				
	G2049	MISCELLANEOUS STRUCTURES			
		G204901	Building: Garage	Condition	Priority
				Good	Low

Date: 1982

Contributing: Non-Contributing

A garage occupies the southwestern section of the property directly west of the house. The wood frame, single-story structure, which is clad with stucco, measures 15 feet in width and is 22 feet long. The stucco siding is painted white with red trim. The gable roof is clad with asphalt shingles.

The garage is located on the site of a stable allegedly constructed on the property c. 1812. A historic photograph in the Schram Collection is labeled “1812 Barn – Oldest cement building west of the Mississippi” (Figure 47); this caption is not accurate as the structure in the photograph likely dates to the 1920s.

The stable appears on several Sanborn Fire Insurance Maps dated 1894, 1901, 1911, 1929, and 1945. The 1894 map shows the stable constructed of wood framing, while the 1901 and 1911 maps label it as “concrete adobe.” The 1929 and 1945 maps show the structure constructed with masonry, likely concrete or cinder blocks. The stable remained on the property until February 1982, when it was severely damaged due to a snowstorm. The stable, along with a small privy to the north, was subsequently demolished. The current garage was erected later that year within the footprint of the 1920s stable (Figure 48). Although the privy was not replaced, it was represented in the 1986 HABS documentation.



Figure 47. View looking southwest from the vegetable garden and orchard area of the landscape toward the stable and privy prior to the 1982 snowstorm that destroyed the stable. (Source: Schram Collection Archives)



Figure 48. A similar view taken in 2022 toward the garage and site of the former privy. (Source: LSHLA, 2022).

Jean Baptiste Vallé House Historic Structure Report

G	BUILDING SITE WORK			
G20	SITE IMPROVEMENTS			
	G2049	MISCELLANEOUS STRUCTURES		
		G204902	Structure: Grape Arbor	Condition Poor to Failed
				Priority Moderate

Date: c. 1795-1811, likely date for an initial grape arbor. The date of the current arbor is not known but likely predates 1933.

Contributing: Undetermined

A wood grape arbor extends generally north-south from the northwest corner of the house toward the north property line (Figure 49). The arbor forms the western border of the parterre garden and separates it from the open turf grass area that dominates the northwest portion of the landscape. The arbor is composed of wood posts and beams notched and nailed to the posts. It stands approximately 8 feet in height from the top of the vines to the ground and is 70 feet long. Below the arbor is a cut stone pathway that leads through a gate to another pathway to the west entrance of the house. The arbor is covered with the thick growth of grape vines that challenges the strength of the wood structure (Figure 51).

A grape arbor is believed to have been part of the French colonial period parterre garden associated with the Jean Baptiste Vallé House, likely constructed during the 1810s. A handwritten letter dated 1811 from a friend of Jean Baptiste Vallé, Auguste Chouteau of St. Louis, described plantings associated with the emerging garden, including rose cuttings sent to Ste. Genevieve from St. Louis for planting in the formal garden. It is around the same time that the French-style barn is believed to have been built, suggesting further development of the landscape surrounding the house at the time.

The existing arbor is not 200 years old as recorded in several descriptions of the house and garden. However, there has possibly been an arbor on the property since the 1810s. Although the date of origin of the present-day arbor is not currently known, the arbor appears in an unattributed photograph in the NPS archives dated c. 1947 (Figure 50). A site plan prepared in 1985 as part of the updated HABS



Figure 49. The grape arbor remains in its original alignment at the northwest corner of the house. The site of the former vegetable garden is now turf grass that extends throughout the landscape west of the house. (Source: LSHLA, 2022)



Figure 50. 1947 view of the grape arbor at the northwest corner of the house with the vegetable garden and orchard area of the landscape to the west. (Source: Unattributed in NPS archives).

documentation shows the main north-south arbor as well as an additional intersecting section extending west for approximately 20 feet. The additional section is no longer extant.

The condition of the wood members of the grape arbor are in fair to failed condition, with the condition of the arbor progressively worsening along its length from south to north (Figure 52 and Figure 53). At present, the grape arbor is closed off from pedestrian access with caution tape. Of the seventeen bays, ten bays contained at least one failed or missing member. Supplemental posts are present at two locations. In addition to failed and missing members, the arbor posts typically lean toward the east at an angle of up to twelve degrees, and in some locations, toward the south at an angle up to ten degrees. Deterioration of post bases was observed at multiple locations.

Since the initial assessment for the HSR, the grape arbor has been stabilized in place by NPS pending future repairs.



Figure 51. Overview of grape arbor looking northeast. (Source: RRJ, 2022)



Figure 52. North end of grape arbor exhibiting failed members (Source: RRJ, 2022).



Figure 53. Grape arbor looking north. (Source: RRJ, 2022).

Jean Baptiste Vallé House Historic Structure Report

G	BUILDING SITE WORK				
G20	SITE IMPROVEMENTS				
	G2055	PLANTING			
		Spatial Organization: Designed Landscape		Condition	Priority
	G205501			Good	Low

Date: c. 1794-1877 the current spatial organization of the designed landscape was established.

Contributing: Contributing

The designed landscape is anchored by the house in the southeast corner of the site and divided into several distinct outdoor spaces—a formal parterre garden and turf panels northwest and west of the house — each edged by geometric pathways (Figure 54).

Typically, French vernacular houses in downtown Ste. Genevieve were situated close to the street at one side of a large lot, often taking up a quarter of the block. This siting permitted the remainder of the property to be used for outbuildings and gardens. This is characteristic of the Jean Baptiste Vallé House property.

The designed landscape of the Jean Baptiste Vallé House property is composed of several geometrically arranged outdoor spaces, each of which may have accommodated a different use in terms of ornamental and productive gardens. It is likely that many properties contained a kitchen garden to produce easily accessible foodstuffs. It is not currently known whether the Jean Baptiste Vallé House property had a kitchen garden, but this may be determined through further research and archeological investigations. As currently in evidence, the area directly north of the house and parallel to South Main Street contains a formal parterre garden. This location is appropriate for a formal garden due to its proximity to the house for residents to enjoy and for entertaining, while its location along South Main Street affords views of the garden to passerby. The garden is edged by a formal yet productive feature often shown in period garden plans—a grape arbor to the west. Beyond the grape arbor to the west is a level open space cut by geometric pathways , a linear lawn panel edged by pathway, and planting beds extending west of the house toward the garage. This area is separated from the formal parterre garden to the north by fencing and planting beds. During the early to mid-twentieth century, the area west



Figure 54. The formal parterre garden occupies the landscape north of the house and is separated from the remainder of the site by the grape arbor. (Source: LSHLA, 2022)

of the house contained a summer kitchen, barn, and privy.

The formal parterre garden is located to the north of the Jean Baptiste Vallé House. The garden likely survives from the Vallé period of property ownership based on the exchange of letters between Vallé and Chouteau in 1811. The letters were accompanied by some rose cuttings and referred to roses, lilacs, and plum trees sent to the Vallé

family. The letter, however, only mentions the plants that may have been used to structure the garden. Little is known about its arrangement and extent. The nineteenth-century arrangement of gardens and garden spaces is not currently known. It is hoped that further research and archeological investigations may provide further insight into the garden.

A distinctive spatial organization for the historic landscape likely originated during the Vallé period of ownership based on historic references and maps of historic structures or features on the property. However, the exact location and date of construction of the grape arbor is undetermined as are the specific land uses associated with the open areas north and west of the house.

The spatial organization of the landscape can be observed from various vantage points, including pathways and the porch of the house. Although elements of the overall arrangement of landscape spaces may recall historic uses, the materials used to surface pathways as well as the plant materials used in the garden bed are contemporary additions. The property once extended further west, encompassing the entire city block. Documentation suggests that additional buildings were present on the property, possibly within the section that is now the Ste. Genevieve Lions Club Park, that are no longer extant. Within the remaining Vallé property is a garage built in 1982 that was sited on the footprint of an earlier stable.

Jean Baptiste Vallé House Historic Structure Report

G	BUILDING SITE WORK				
G20	SITE IMPROVEMENTS				
	G2055	PLANTING			
		G205502	Spatial Organization: Formal French Parterre Garden	Condition Good to Fair	Priority Low

Date: c. 1794-1877

Contributing: Contributing

The formal French-style parterre garden is located directly north of the house and parallels South Main Street. The core garden is centered around a circular planting bed and pathway with a focal point composed of a tiered concrete fountain. Four polygonally-shaped beds surround the central bed and walk that form the suggestion of a diamond form. Each bed is edged on all sides by pathways. Three triangular planting beds edge the diamond shape to the south, while four beds edge it to the north. Outside the core garden, four rectangular beds edge the house, while two long rectangular beds edge the garden inside the perimeter fence along the eastern property boundary. Two rectangular beds are located at the northern end of the garden. Overall, there are twenty beds associated with the parterre garden. Pathways are constructed of concrete blocks, while cut granite edges the beds within the core garden. Plants within the garden include roses and flowering perennials and annuals.

The garden is believed to have been planned by Marie-Jeanne Vallé after construction of the Vallé residence in 1794. Marie-Jeanne likely designed and laid out the garden according to French patterns established between 1620 and 1775. No historic maps, diagrams, or correspondence have been found that illustrate the original garden layout. However, gardens laid out in the “French style,” meaning laid out with geometrical configurations, were popular in the 18th and early 19th century, following formal parterre designs with ornamental beds and walking paths. The original garden design may have shared many characteristics with other parterre gardens in New France, such as the Dumont de Martigny Garden Plat of 1753 associated with his property in Louisiana. The garden plat shows a symmetrically arranged system of spaces all enclosed by vertical log picket fences, a grape arbor,

garden plots and planting beds edged by geometrically arranged pathways, and a central formal flower garden surrounded by articulated planting areas for fruit trees and vegetables.



Figure 55. The parterre garden looking north across the fountain. (Source: LSHLA, 2022)



Figure 56. The formal parterre garden in 1934, with raised beds and hard-packed earth pathways. (Source: Alexander Piaget photographer, HABS MO-31-10, Library of Congress Prints and Photographs Division)

Within the Jean Baptiste Vallé House property, the formal parterre garden appears in HABS photographs from 1934. These photographs illustrate the shapes of the parterre beds at that time, and the fact that they were raised and surrounded by grass or groundcovers. Later photographs show the beds edged with round wooden posts, most likely installed during the period of ownership of Fannie Locket Papin and Vion Papin Schram (1945-2002). The beds are currently edged with cut granite stones, with an unknown date of origin. The surface material associated with the garden pathways has similarly changed over time. In the 1930s, the pathways appear to be surfaced with hard-packed earth, while in the 1940s and 1950s, the pathways are surfaced with concrete pavers. Similar concrete pavers define the pathways today (Figure 56 and Figure 57).



Figure 57. A similar view in 2022 showing different shaped beds, granite edging, and concrete pathways. (Source: LSHLA, 2022)

Jean Baptiste Vallé House Historic Structure Report

G	BUILDING SITE WORK				
G20	SITE IMPROVEMENTS				
	G2050	LANDSCAPING			
		G205001	Circulation: Landscape Pathways	Condition	Priority
				Good to Fair	Low

Date: c. 1800s-1877

Contributing: Not Assessed

Geometrically arranged pathways currently define spaces within the Jean Baptiste Vallé House property, both internally and along the margins between adjacent spaces. Geometrically arranged pathways frame each of the garden beds in the formal parterre garden, extend through the grape arbor, and form a grid within the open expanse of turf lawn west of the parterre garden. Landscape pathways also frame the turf panel between the house and garage.

The alignment and geometry of the extant network of landscape pathways is similar to some of the garden illustrations in garden plat drawings prepared by Dumont de Martigny, showing pathways defining the larger areas of the property, the formal ornamental gardens extending through a grape arbor, and the divisions within the open landscape containing various land uses.

The condition of the existing pathways varies, and the cut stone and concrete blocks exhibit cracking, loss of material, expanding joints, and uneven walking surfaces, interfering with accessible circulation through the landscape. The landscape pathways are generally 30-inches wide with concrete pavers, that are overgrown with grass and ground cover that further diminishes the clear walking space. The landscape pathway extending west through an expanse of turf grass to the garage and the west boundary fence, consists of concrete pavers, with cut-stone edging. This walk is 3 feet, 6 inches in width. This dimension is the minimum accessibility standard for one wheelchair, however, the deteriorated condition of the pavers, the expanded joint space between pavers, and plant growth along the entire surface prohibits prevents the pathway from meeting accessibility standards.

G	BUILDING SITE WORK				
G20	SITE IMPROVEMENTS				
	G2055	PLANTING			
		G205503	Cultural Vegetation: Trees	Condition	Priority
				Good to Fair	Low

Date: Early 1930s to present

Contributing: Non-Contributing but compatible



Figure 58. A large bald cypress tree dominates the northwest corner of the site and is adjacent to the north boundary fence. (Source LSHLA, 2022)



Figure 59. A large pecan tree dominates the landscape at the southern end of the grape arbor. (Source: LSHLA, 2022)

Numerous trees are present on the Jean Baptiste Vallé House property today. For the most part, these trees appear to date to the mid- to late twentieth century, although there are two large pecan trees, a hackberry, and a bald cypress that may be older. None of the extant trees likely date to the nineteenth century.

Otherwise, documentation of trees is afforded by HABS documentation photographs from 1934 and

photographs from the 1940s and 1950s from the Schram Collection, as well as photographs and drawings of the garden from the 1985 HABS documentation. As indicated in the 1930s HABS photographs, large trees were present within the landscape surrounding the house that do not survive today. Some of the large trees shown on the 1985 HABS site plan (Figure 60) remain on the site today, including a large bald cypress (Figure

Jean Baptiste Vallé House Historic Structure Report

58) adjacent to the north boundary fence; two large pecans (Figure 59), one in the northeast corner of the site and one adjacent to the south end of the grape arbor; and a large hackberry. Some of the larger trees shown on the 1985 site plan that have since been lost include an American elm (*Ulmus americana*), bald cypress, silver maple (*Acer saccharinum*), sycamore (*Platanus occidentalis*), Eastern red cedar, tulip poplar

(*Liriodendron tulipifera*), and shagbark hickory (*Carya ovata*), while smaller trees lost since 1985 include redbuds, dogwoods, and an apricot (*Prunus armeniaca*). Several smaller trees have also been planted on the site since 1985. These include redbud, sweet bay magnolia (*Magnolia virginiana*), and dogwood (Refer to Figure 11, Site Plan for the Jean Baptiste Vallé House property, 2023).

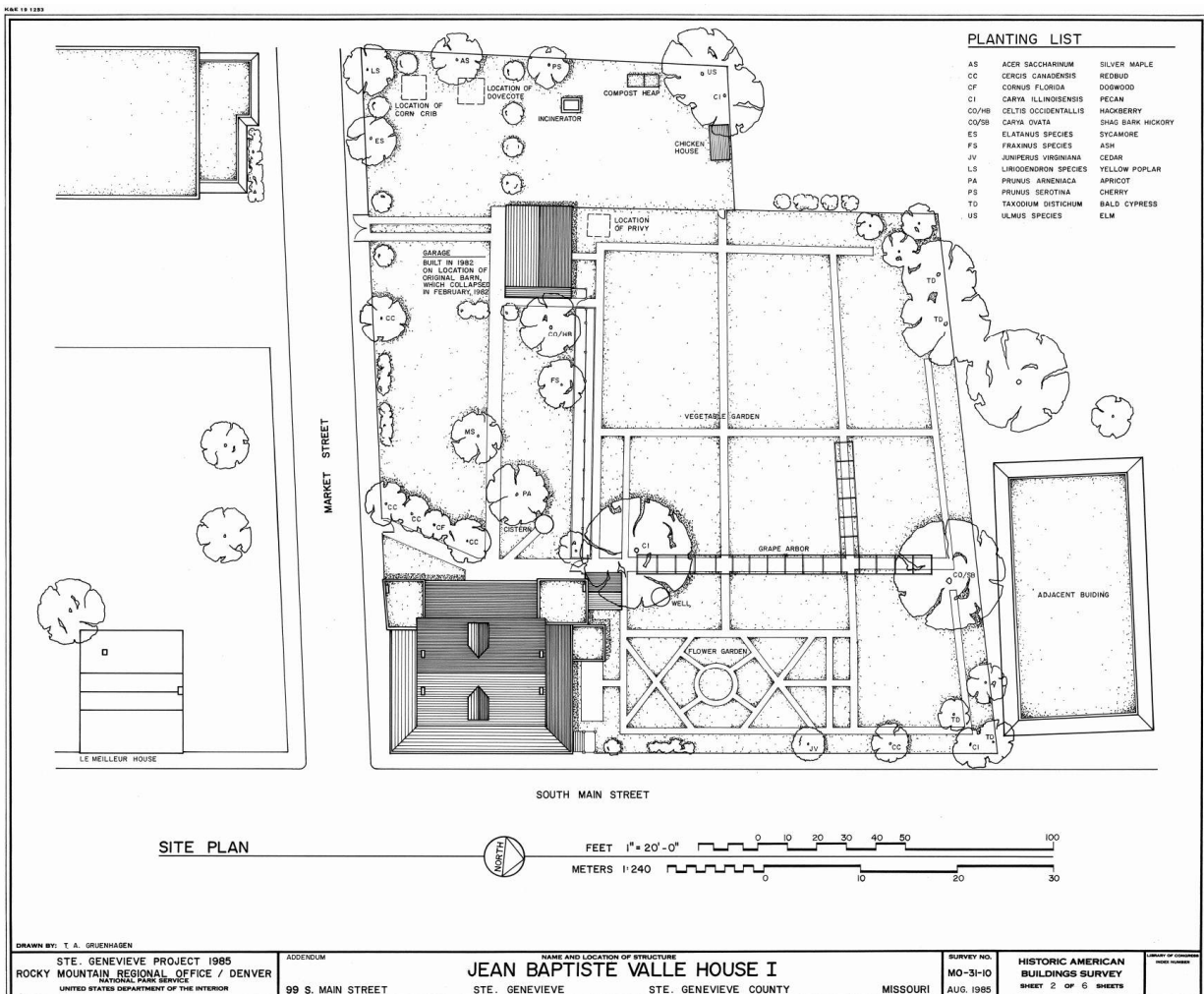


Figure 60. The 1985 HABS site plan for the Jean Baptiste Vallé House. (Source: HABS MO-31-10, Library of Congress, 1985)

G	BUILDING SITE WORK				
G20	SITE IMPROVEMENTS				
	G2050	LANDSCAPING			
		G205002	Cultural Vegetation: Parterre Garden Beds	Condition	Priority
				Good to Fair	Low

Date: Since c. 1811 there appear to have been flowering plants and shrubs in the formal French parterre beds.

Contributing: Contributing



Figure 61. The formal parterre garden c. 1934 with beds filled with tulips and other perennials. (Source: HABS MO-31-10, Library of Congress Prints and Photographs Division)

The plantings associated with the parterre garden beds include roses and flowering perennials and annuals. The current plantings appear to have been added between 2002 and 2020, but recall the garden likely introduced c. 1811 by Marie-Jeanne Vallé.



Figure 62. The formal parterre garden in the 1940-1950s with beds filled with iris and large shrubs. (Source: Schram Collection Archives)

While local lore suggests that the Vallé House parterre was the first formal rose garden west of the Mississippi River, the garden was certainly a very early example in the Illinois Country. As noted previously, a letter written in 1811 from Auguste Chouteau to Jean Baptiste Vallé indicates that Madame Vallé was working on a pleasure garden for the Ste. Genevieve property. The letter referenced the fact that Chouteau was sending rose cuttings to Vallé while also referencing other roses, lilacs, and plum trees sent to Ste. Genevieve. At the time, the formal garden at the Vallé house would have been distinctive and a show of wealth in an area where most gardens developed were for sustenance.

Over time, roses continued to be cultivated within the garden beds, along with annuals and perennials.



Figure 63. The formal parterre garden in the 1980s with new plantings, new parterre bed edging, and a general clearing of all the large shrub vegetation as seen in previous photographs. (Source: HABS MO-31-10, Library of Congress Prints and Photographs Division, 1985)



Figure 65. Currently rose bushes continue to bloom within the garden and are planted in most of the interior beds. (Source: LSHLA, 2022).



Figure 64. The formal parterre garden currently. (Source: LSHLA, 2022)

Photographs from the 1930s and 1940s reveal an abundance of tulips and iris in the beds as well as lilacs and other large shrubs, several appearing overgrown, which may have overtaken the rose plantings (Figure 61 and Figure 62). Between 1966 and 2002, Vion Papin Schram and her husband Barnard owned the property. They spent time improving the garden, removing and pruning the large shrubs, edging the beds with round wood posts, and adding new rose and perennial plantings. These garden improvements are apparent in the 1985 HABS documentation (Figure 68). Between 2002 and 2020, new rose plantings were introduced, and the wood edging was replaced by cut granite blocks as seen today in the garden (Figure 67 and Figure 69). Current plantings of roses and other annuals and perennials within the garden beds were not present in the garden during the nineteenth century. The original roses have been replaced over time with newer plants and different species.

G	BUILDING SITE WORK				
G30	SITE MECHANICAL UTILITIES				
	G3013	WELL SYSTEMS			
		G301301	Small-scale Features: Cistern and Well	Condition	Priority
				Good to Fair	Low

Date: Undetermined

Contributing: Non-Contributing, but compatible

A cistern is located west of the Vallé House along one of the concrete pathways that intersects the main pathway extending between the house and the garage. The well base is expressed by its circular limestone lid, raised a few inches above the surrounding grade. The lid is approximately 7 feet in diameter. A HABS documentation photograph from 1934 shows the cistern with a pump structure set atop the stone lid (Figure 66). The pump is no longer extant (Figure 67). The date of construction of the cistern has not yet been determined. The current cistern is marked only by its cover. The associated pump structure seen in a HABS photograph from the 1930s is no longer extant. The same is true for the well.

A well is located north of the house, set within turf lawn to the east of the grape arbor near its southern end. The well is covered with a circular limestone lid that extends approximately 4 inches above the surrounding grade. The lid is approximately 5 feet in diameter with a smaller round, removable cap set within its surface. The cap is approximately 18 inches in diameter.

The well appears in HABS photographs from the 1930s. As shown, the well had a metal pump set into the limestone cover (Figure 68). The pump is no longer present today (Figure 69). The date of origin of the well has not yet been determined.



Figure 66. 1933 view of the cistern from the back porch of the house looking northwest. (Source: HABS MO-31-10, Library of Congress Prints and Photographs Division, 1933)



Figure 67. Contemporary view of the cistern from the back porch of the house looking northwest. (Source LSHLA, 2022)



Figure 68. 1934 view of the well looking south toward the house, showing the stone lid and a metal pump set off center on top. (Source: HABS MO-31-10, Library of Congress Prints and Photographs Division, 1934)



Figure 69. Contemporary view of the well looking north from the house, showing the stone cover with the smaller, removal cap. There is no longer a pump associated with the well. (Source LSHLA, 2002)

G	BUILDING SITE WORK				
G20	SITE IMPROVEMENTS				
	G2045	SITE FURNISHINGS			
			Small-scale Features: Benches, Garden Fountain, Decorative Sculpture, Plaque, Light Posts, Signs	Condition	Priority
		G204501		Good to Fair	Low

Date: c. 1934-present

Contributing: Non-Contributing

Some of the small-scale features are decorative and attached to the house. Others are placed strategically in the landscape such as the garden fountain marking the center round parterre and the bench adjacent to the grape arbor.

Several small-scale features are present in the cultural landscape, including a display case containing a sculptural figure attached to the house, two benches, fountain, commemorative plaque, light posts and lanterns, and signs associated with NPS administration of the property. All the small-scale features present within the landscape today are twentieth- and twenty-first-century additions.

A single wooden bench is located west of the grape arbor (Figure 70). The bench has a wood slat back and seat. Within the seat, the wood slats are set into a wooden frame for comfort. The bench includes arm rests and is 5 feet in length. An additional stone bench is located inside the west entrance gate to the site. It is adjacent to the brick entrance column just inside the property. This has granite block supports and a granite slab for a seat. It is approximately 12 inches in height and 4 feet in length.

Lighting fixtures on the property are composed of three light posts topped with metal framed glass lanterns. One is located at a pathway intersection north



Figure 70. A single wooden bench is located west of the grape arbor as of 2022. (Source LSHLA, 2022)



Figure 71. A lamp post is situated at the intersection of two of the formal garden pathways. (Source: LSHLA, 2022)

Jean Baptiste Vallé House Historic Structure Report

of the house (Figure 71), and two additional light posts with lamps are located in the grass turf west of the house.

A three-tiered decorative concrete fountain sits at the center of the circular bed at the heart of the parterre garden (Figure 72). It rises from the ground to a height of 6 feet.

The small display case attached to the house can be seen in a 1930s HABS photograph (Figure 35). The display box was documented in the 2022 field investigations at the John Baptiste Vallé House (Figure 36). The small black rectangular wooden box has a pediment and associated pitched roof. It is 4 inches deep, painted black, and has a small door that opens and locks shut. The door is constructed with a wood frame containing clear plastic or glass, allowing views to the sculptural figure inside (Figure 73).

Signage associated with the John Baptiste Vallé House includes NPS identity signs on the vertical slat fencing adjacent to the brick columns at both the east and south entrances. Also at both locations is temporary signage composed of two white boards in wooden frames, hinged at the top. The white boards provide visitors with daily information concerning activities associated with site programs and tours. A NPS arrowhead identity sign is mounted on the east gallery railing.

Other small-scale features were present during the 1930s, as shown in HABS photographs, that are no longer extant within the landscape as of 2022. One of these features is a backless bench with a stone seat shown within the parterre garden (Figure 74). Several wooden trellis structures covered with thick vegetation and vines were also present around the south porches and facade of the house. The HABS photographs from the 1980s show additional site furnishings and a light post west of the house that are no longer present, along with a large wooden arbor north of the formal garden.



Figure 72. The ornate three-tier fountain marks the central parterre bed. (Source: LSHLA, 2022)



Figure 73. A decorative sculpture is attached to the north wall of the shed. (Source: LSHLA, 2022)



Figure 74. A 1930s HABS photograph shows the small display case attached to the south façade of the house (left) (Source: HABS MO-31-10, Library of Congress Prints and Photographs Division, 1934).



Figure 75. The display case as it appears in 2022 (right). (Source: LSHLA, 2022)

Enclosure

B	SHELL				
B30	ROOFING				
	B3010	ROOF COVERINGS			
		B3010	Roof Overall	Condition	Priority
				Fair	Moderate
		B301001	Laminated Asphalt Shingle Roofing	Good	High
		B301002	EPDM Membrane Roofing	Fair	Moderate
		B301004	Metal Flashing at Roof-Wall Interfaces	Good	Low
		B301005	Metal Flashing at Chimneys	Good	Low
		B301006	Gutters	Good	Low
		B301007	Downspouts	Good	Low

Date: c. 1862 with later alterations

Contributing: Non-Contributing

Roof

During extensive remodeling in the 1860s, the original hip roof was removed, a second floor was added, and a new gabled roof was installed. The gabled roof today is clad in laminated asphalt shingles (Figure 76) and two gable-roofed dormers project from the east and west roof slopes. The roof structure consists of vertical sawn, pine rafters. Ceiling joists measuring 3 by 5 inches are spaced about 2 feet 6 inches on center.

Room 110 is currently in use as a tool shed. The roof of this room was clad in laminated asphalt shingles, which were found to be in fair condition. Wood rot was noted on the fascia board at the north wall of the tool shed. Loose roof flashing was noted at the chimney for Room 106.

EPDM roofing was present above Rooms 108, 109 and 113 on the west wall as well as on the gallery roofs (Figure 77). The EPDM membrane in these areas was debonding and showed signs of age.



Figure 76. Laminated asphalt shingle roofing. (Source: RRJ, 2022).



Figure 77. EPDM Roofing above room 109 and West Gallery (Source: RRJ, 2022).



Figure 78. Downspout at roof eave. (Source: RRJ, 2022).



Figure 79. Gutter at eave at west gallery (Source: RRJ, 2022).



Figure 80. Downspouts at East Gallery, discharge at sidewalk. (Source: RRJ, 2022).

Drainage System

The roof slopes to drains connected to downspouts located at the eaves along the west gallery, north wall of east gallery and the east and south walls (Figure 78). At least one of the downspouts on the west wall discharges into a nearby cistern (Figure 79). The condition of the cistern was not assessed during this investigation. Two downspouts were located at each side of the east wall gallery, discharging water at the sidewalk along Main Street (Figure 80). One downspout was located on the south wall of the gallery and discharged water at the sidewalk along Market Street. A K-style hung gutter was present at the west wall of Room 113. A downspout from this gutter was located at the northwest corner of room 113. No drainage system was present on the roof of the tool shed, Room 110.

Jean Baptiste Vallé House Historic Structure Report

B	SHELL				
B20	EXTERIOR ENCLOSURE				
	B2010	EXTERIOR WALLS			
				Condition	Priority
		Walls Overall			
		B201001	Weather Board Siding	Good	Low
		B201002	Stucco	Good	Low
		B201003	Masonry Walls	Fair	Moderate
		B201004	Masonry Parapets	Failed	High
		B201004.1	Steel Window Lintels	Failed	High
		B201005	Trim	Fair	Moderate
		B301007	Horizontal Railing	Poor to Failed	High

Date: c. 1794, c.1862, and undetermined

Contributing: Contributing



Figure 81. Masonry walls at tool shed and sunroom (Source: RRJ, 2022)



Figure 82. Weatherboard siding at the second floor (Source: RRJ, 2022).

The original exterior walls are constructed of vertical log resting on sills with a painted stucco finish; the existing stucco was likely fully replaced during the 1960s renovations. Later alterations utilized brick masonry to enclose areas of the gallery, resulting in new rooms to the northwest and southwest corners.

The stucco finished walls are sheltered by the gallery roof and as a result generally remain in good condition (**Error! Reference source not found.**). The stucco on the northwest wall of the west gallery was cracking and debonding in isolated locations.

Step cracking, displaced brick, and peeling paint were common conditions found throughout the masonry (**Error! Reference source not found.**). The sunroom (Room 108), which is not original, showed the greatest amount of distress (Figure 81). Several step cracks and displaced bricks were noted on all three walls of the room. The steel lintels on the north wall of the sunroom were corroded and have failed. The sunroom parapet will need to be rebuilt.

Peeling paint, brick spalls, and failed mortar were present on the brick walls enclosing Room 113. Peeling paint was also present on the exterior brick walls of the tool shed, Room 110. Step cracking was also noted above the entrance to Room 110.

The second-floor walls are framed with dimensional lumber and are clad in painted weatherboard siding which appeared to be in good condition (Figure 82).

A	SUBSTRUCTURE				
A20	BASEMENT CONSTRUCTION				
	A2020	BASEMENT WALLS (Exterior)			
		A202001	Basement Walls	Condition	Priority
				Good	Low

Date: c. 1862

Contributing: Contributing

The masonry foundation walls extend to the edge of the gallery perimeter and are finished with painted stucco (Figure 83). The stucco was found to be in good condition with isolated locations of spalling on the east wall.

Painted brick masonry columns support the west gallery. Mortar failure was noted at several locations.



Figure 83. Masonry Foundation wall with peeling finishes and missing mortar (Source: RRJ, 2022)

Jean Baptiste Vallé House Historic Structure Report

B	SHELL				
B10	ROOF CONSTRUCTION				
	B1029	OTHER ROOF SYSTEMS			
				Condition	Priority
			Chimneys Overall	Fair	Moderate
		B1029.1	Northeast Chimney	Good	Low
		B1029.2	Northwest Chimney	Good	Low
		B1029.3	Southeast Chimney	Poor	High
		B1029.4	Southwest Chimney	Good	Low
		B1029.5	Office Chimney	Poor	High
		B1029.6	Kitchen Chimney	Good	Low

Date: c. 1862

Contributing: Contributing

Four brick chimneys with stucco finish project through the roof within each original quadrant of the house.

- The Northeast Chimney is located above Room 105.
- The Northwest Chimney corresponds to the abandoned fireplace in Room 106.
- The Southwest Chimney is also associated with an abandoned fireplace located in Room 104 (Figure 84).
- The Southeast Chimney is associated with the fireplace in Room 103.
- A fifth chimney is located in Room 113, or the office, in the southwest corner of the house. A sixth chimney is associated with the fireplace in the Kitchen (Room 109), in the northwest corner of the house (Figure 85).

The five chimneys were capped with sheet metal. Brick decay was noted on the southeast chimney, which was also leaning towards the northeast. The Office Chimney was leaning deeply toward the north. Both the southeast and office chimneys will need to be partially rebuilt.



Figure 84. Office Chimney leaning toward the north . (Source: Source: RRJ, 2022)



Figure 85. Kitchen chimney. (Source: RRJ, 2022).

B	SHELL				
B20	EXTERIOR ENCLOSURE				
	B2020	EXTERIOR WINDOWS			
				Condition	Priority
			Windows Overall	Varies	Varies
		B202001	W001A	Good	Low
		B202002	W001B	Good	Low
		B202003	W002A	Fair	Moderate
		B202004	W002B	Poor	Moderate
		B202005	W003A	Poor	Moderate
		B202006	W003B	Poor	Moderate
		B202007	W004A	Fair	Moderate
		B202008	W004B	Fair	Moderate
		B202009	W007A	Fair	Moderate
		B202010	W008	Fair to poor	Moderate
		B202011	W010	Poor	Moderate
		B202012	W012	Fair	Moderate
		B202013	W013A	Poor	Moderate
		B202014	W013B	Poor	Moderate
		B202015	W013C	Poor	Moderate
		B202016	W013D	Poor	Moderate
		B202017	W013E	Poor	Moderate
		B202018	W013F	Poor	Moderate
		B202019	W103A	Good	Low
		B202020	W103B	Good	Low
		B202021	W103C	Good	Low
		B202022	W103D	Good	Low
		B202023	W104A	Good	Low
		B202024	W104B	Good	Low
		B202025	W105A	Good	Low
		B202026	W105B	Good	Low
		B202027	W105C	Good	Low
		B202028	W105D	Good	Low
		B202029	W106A	Good	Low
		B202030	W106B	Good	Low
		B202031	W108A	Fair	Moderate
		B202032	W108B	Fair	Moderate
		B202033	W108C	Fair	Moderate
		B202034	W108D	Fair	Moderate
		B202035	W108E	N/A	None
		B202036	W109A	Fair to Good	Low
		B202037	W109B	Fair	Moderate
		B202038	W112	Good	Low
		B202039	W113A	Good	Low
		B202040	W113B	Good	Low
		B202041	W201	Failed	High
		B202042	W202	Poor to Failed	High
		B202043	W203	Fair	Moderate
		B202044	W204A	Fair	Moderate
		B202045	W204B	Fair	Moderate
		B202046	W205	Fair	Moderate
		B202047	W206	Poor	Moderate
		B202048	W207A	Fair	Moderate

Jean Baptiste Vallé House Historic Structure Report

		B202049	W207B	Fair	Moderate
		B202050	W208	Fair	Moderate

Date: c. 1862 with later additions

Contributing: Contributing

Windows

Fenestration consists primarily of six-over-six, double hung sash windows. Louvered shutters flank most of the six-over-six windows. The raised foundation is fenestrated with paired two-lite windows. Sill decay was typical for the foundation level windows. Several nine-over-nine double hung sash windows are also present in newer portions of the house. Small four-lite casement windows are also located at the second level.

Basement Windows

W001A and W001B – W001A and W001B are framed casement windows with an interior swing. The exterior of these windows has been covered with yellow-painted panel board (Figure 86). The wood at the interior of the windows was observed to be in good condition. The lift latches were in good condition, but the butt hinges were rusted and may be modern replacements.

W002A and W002B – W002A and W002B are one-over-one wood-framed shutter casement windows (Figure 87). The exterior of these windows was closed off with panel board that was unpainted. Both windows have an interior swing and a pull handle. W002A was not operable, however, W002B was operable. Water stains were present on W002A which may indicate previous leak locations. The glazing and putty at W002A were in good and fair condition, respectively. The interior casing of this window was painted white and was in fair condition. Overall, W002A was in fair condition. Wood decay was present at the lower rail and jambs of W002B. The glazing in W002B was good, however, the putty was in poor condition. Interior casing at W002B was in fair condition with the presence of some wood decay and deterioration of paint. The exterior sill of W002B was failed. Overall, W002B was in poor condition.



Figure 86. Exterior Panelboard Covering Basement Windows (Source: RRJ, 2022)



Figure 87. A basement casement window with exterior panel board behind (Source: RRJ, 2022).

W003A – Window W003A was blocked from the exterior by plywood that was painted yellow. A brick sill was present on the exterior. This window was a wood casement window with an exterior swing. No hardware was present. Overall, this window was in poor condition.

W003B – Window W003B was blocked from the exterior by plywood that was painted yellow. A brick



Figure 88. Exterior view of typical basement level Casement Window with metal mesh covering (Source: RRJ, 2022)



Figure 89. Interior view of typical basement level Casement Window with metal mesh covering (Source: RRJ, 2022).

sill was present on the exterior. The existing window was composed of wood and plexiglass and is not historic. Overall, this window was in poor condition.

W004A – W004A is a one-over-one wood-framed shutter casement window. This window has an interior swing and a pull handle. The interior of the window was painted white. Some minor decay was noted at the exterior jamb bases. A metal grill with a deteriorated frame and paint failure covered the exterior of the window. Overall, this window was in fair condition.

W004B – W004B is a one-over-one wood-framed shutter casement window. This window has an interior swing and a pull handle. The interior of the window was

painted white. The interior glazing putty was in poor condition, and the lower left pane of glass was cracked. Some wood decay was present at the lower rail and base of the jambs, and the window would not open. The interior head casing of the window was pediment shaped. Metal mesh covered the exterior of the window. There was water damage to the exterior window sill, rails and jambs. Paint failure was noted on the exterior of the window which was painted light blue. Overall, window W004B was in fair condition.

W007A – W007A is a one-over-one wood-framed shutter casement window. This window has an interior swing and a pull handle. The interior of the window was painted white. No interior window casing was present. Minor water damage was noted at the jamb bases. Metal mesh covered the exterior of the window. The exterior paint was deteriorated, and wood decay was noted at the exterior window sill. The glazing putty was loose, and the window was generally in fair condition.

W008 – W008 is a two-over-two casement window with butt hinges that swing to the exterior. Minor water damage was noted on the bottom rail, and wood decay was noted on the exterior sill, rail, and jambs. The paint and glazing putty were in poor condition. Overall, this window was in fair to poor condition.

W010 - W010 is a one-over-one wood-framed shutter casement window. This window has an interior swing and a pull handle. The interior of the window was painted white. No interior window casing was present. Some wood decay was noted at the jamb bases of the exterior metal grill. There was also wood decay of the lower rail and jambs of the window exterior. The glazing putty had failed, and the window was generally in poor condition.

W012 – W012 is a one-over-one wood-framed shutter casement window. This window has an interior swing and a pull handle. No interior window casing was present, and the window did not open. The interior glazing putty was in poor condition. The wood frame for the exterior metal grill has failed and should be fixed or replaced. The exterior paint is debonding and generally failing. Some decay was present at the



Figure 90. Six-over-six double hung wood windows typical of first floor windows located in original core of the house (Source: RRJ, 2022)



Figure 91. Interior view of Six-over-six double hung wood windows typical of first floor windows (Source: RRJ, 2022).

exterior windowsill and lower rails of the window. Generally, this window was in fair condition.

W013A to W013F – The windows in basement Room 013 are one-over-one wood-framed shutter casement windows (Figure 88 and Figure 89). Typically, the upper portions of windows located within the basement were in good condition. The conditions of the other sections of each window varied, and the following deficiencies were noted:

- **W013A** – Water damage was noted to the windowsill and rails. Heavy wood decay was

noted at the rails and jambs. There was a complete loss of wood in some sections allowing there to be an opening to the exterior. Water damage was limited to the lower areas of the window. Repairs can be spliced into the existing materials. Heavy wood decay was noted in the lower rails and jambs of the exterior metal grill. Failed glazing putty and exterior paint were also noted. This window was in poor condition.

- **W013B** – Water damage was noted to the windowsill and rails. Heavy wood decay was noted at the rails and jambs. There was a complete loss of wood in some sections allowing there to be an opening to the exterior. Water damage was limited to the lower areas of the window. Repairs can be spliced into the existing materials. Heavy wood decay was noted in the lower rails and jambs of the exterior metal grill. Failed glazing putty and exterior paint were also noted. This window was in poor condition.
- **W013C** – Water damage was noted to the windowsill and rails. Heavy wood decay was noted at the rails and jambs. There was a complete loss of wood in some sections allowing there to be an opening to the exterior. The exterior stone windowsill was covered with a cementitious parging which had failed. The window was generally in poor condition.
- **W013D** – New hardware was present at this window. There was a sliding bolt mechanism instead of a lift latch. Minor water damage was noted on the interior sill, lower rail and lower jamb. The window was in poor condition.
- **W013E** – This two-over-two casement window was a replacement window. It had butt hinges and a sliding bolt at the head. A meeting strip applied mullion for weatherproofing was noted at the center of the window. The glazing was cracked, and the lower rail of the window had failed. This window was in poor condition.
- **W013F** – New hardware was present at this window. There was a sliding bolt mechanism instead of a lift latch. Minor water damage was



Figure 92. Exterior view of typical nine-over-nine double hung window (Source: RRJ, 2022)



Figure 93. Interior view of typical nine-over-nine double hung window (Source: RRJ, 2022).

noted on the interior sill, lower rail and lower jamb. No interior casing was present. The window was generally in poor condition.

First Floor Windows

No attempts were made to open any windows on the first floor during this investigation.

W103A – W103A is a six-over-six double hung wood window (Figure 90 and Figure 91). Exterior louvered

shutters were typically fixed in the open position. One shutter catch was missing. Minor wood deterioration was noted at the bottom of the shutter and at the missing catch hook location. Some cracked glazing putty and paint was noted, but overall, the window was in good condition.

W103B – W103B is a six-over-six double hung wood window. Exterior louvered shutters were typically fixed in the open position. All shutter hardware was present. Minor wood deterioration was noted at the bottom of the right shutter. Some bubbles were noted in the glass, but, overall, the window was in good condition.

W103C – W103C is a six-over-six double hung wood window. Exterior louvered shutters were typically fixed in the open position. The left shutter catch was missing. Minor wood deterioration was noted at the bottom of the shutter and at the missing catch hook location. Glazing putty was applied for weatherproofing at the meeting rail on the interior of the window. Overall, the window was in good condition.

W103D – W103D is a six-over-six double hung wood window. Exterior louvered shutters were typically fixed in the open position. Glazing putty was applied for weatherproofing at the meeting rail on the interior of the window. Brass hardware was present at the interior. Overall, the window was in good condition.

W104A – W104A is a six-over-six double hung wood window. Exterior louvered shutters were typically fixed in the open position. All shutter hardware was present. Some wood decay was noted at the bases of the shutters. At the interior of the window, water damage was noted at the lower right corner and lower rail. A brass sash lift handle, sash friction locks, and a brass swivel sash lock were present. Generally, the window was in good condition.

W104B – W104B is a six-over-six double hung wood window. Louvered shutters and shutter hinges were present, but the shutter catch at the windowsill was missing on one side. The shutters were fixed to an open position. The glass was wavy, but clear and was in good condition. The glazing putty and paint were in fair

condition. Some minor water damage was noted at the interior left lower jamb. Overall, the window was in good condition.

W105A – W105A is a six-over-six double hung wood window. Exterior louvered shutters were typically fixed in the open position. A brass lift handle, brass swivel lock, and original sash friction locks were present on the interior. Minor cracking of paint was noted, and the glazing putty was failed at the meeting rail. Generally, the window was in good condition.

W105B – W105B is a six-over-six double hung wood window. Exterior louvered shutters were typically fixed in the open position. A shutter catch was missing at the lower left location. Wood deterioration was noted at the missing catch location. Minor paint cracking was noted. Generally, the window was in good condition.

W105C – W105C is a six-over-six double hung wood window. Exterior louvered shutters were typically fixed in the open position. The glazing putty was failed at the sill and meeting rail. Generally, the window was in good condition.

W105D – W105D is a six-over-six double hung wood window. Exterior louvered shutters were typically fixed in the open position. The exterior casing was square edged with a pediment head. The exterior paint and glazing putty were in good condition. The glass was wavy, and some inclusions were present, but overall was in good condition. Overall, the window was in good condition.

W106A – W106A is a six-over-six double hung wood window. Louvered shutters, shutter hinges, and shutter catches were present. Minor cracking of the glazing putty was noted. Some debonded paint was noted at the interior window jambs. Overall, the window was in good condition.

W106B – W106B is a six-over-six double hung wood window. Louvered shutters, shutter hinges, and shutter catches were present. The interior of the window was painted white. A swivel sash lock and brass lift handle were present. An older friction lock was also still in



Figure 94. Interior view of Window W112 (Source: RRJ, 2022)



Figure 95. Exterior view of Window W112 (Source: RRJ, 2022).

place. The interior casing was simple square edging with a pediment head. Overall, the window was in good condition.

W108A – W108E The windows in room 108 were all six-over-six double hung wood windows. These windows were double glazed and are likely newer than the other historic windows. The muntins are much larger than those found on historic windows throughout the house. W108E no longer exists and was infilled with brick at an unknown date. Steel lintels were present at the exterior of all four remaining windows. The steel lintels exhibited corrosion, contributing to distressed brick masonry above. No shutters or shutter hardware were present. Overall, these windows were in fair condition.

W109A – W109A is a nine-over-nine double hung wood window (Figure 92 and Figure 93). The shutters were missing but shutter hardware was partially in place. The exterior paint and glazing putty were in fair condition. A stone, possibly limestone, sill was present at the exterior windowsill. The interior of the window was stained wood. An older hewn wood lintel was noted above the window. Some water stains were noted at the interior jamb of the casing. The lower sash was secured in place with screws into the jamb pocket. Overall, this window was in good to fair condition.

W109B – W109B is a nine-over-nine double hung wood window. The upper sash was secured in place. An old hewn lintel was present in the interior above the window. Some water stains and wood decay were present at the interior window jambs and sill. The lower sash was secured in place by screws. The exterior glazing putty was missing in some areas. Some decay and paint loss were noted on the exterior sill, and minor paint loss was noted on the window sashes and frames. The shutters were missing, but some of the abandoned shutter hardware was still present. Overall, this window was in fair condition.

W112 – W112 is a clearstory bathroom window comprised of a single fixed lite (Figure 94 and Figure 95). The exterior casing and window in general were in good condition.

W113A – W113A is a nine-over-nine double hung wood window. The exterior of the window was painted light green. Minor paint deterioration was noted. The glazing putty was in good condition. The shutters were missing, but some of the abandoned shutter hardware was still present. Some deterioration was noted at the exterior sill. The glass, glazing putty and window in general were in good condition.

W113B – W113B is a nine-over-nine double hung wood window. The exterior of the window was painted light green. Minor paint deterioration was noted. The glazing putty was in good condition. The shutters were missing, but some of the abandoned shutter hardware was still present including the hinges and one shutter hook. The interior of the window was painted white,



Figure 96. Exterior view of double casement window at second floor (Source: RRJ, 2022)



Figure 97. Interior view of double casement window at second floor (Source: RRJ, 2022).

and the upper sash was fixed in place. A brass swivel lock was present at the meeting rails. This window appeared to be newer relative to others and was in overall good condition.

Second Floor Windows

W201 – W201 is a double casement (French) wood window (Figure 96 and Figure 97). Each section contains eight lites each. This is a modern replacement unit with crank sash operators and sash locks. The

window was not fully functional. The window was stuck open due to wood decay at the sill. The operator of the right sash was not working. No shutters were present, but the shutter (illegible word in notes) was present. The glazing putty and paint were in fair condition. Overall, this window has failed and requires intervention.

W202 – W202 is a double casement (French) wood window. Each section contains eight lites each. The sashes in this window are older than those observed at W201. Heavy wood deterioration was noted at the windowsill. An exterior slide bolt was noted at one sash. No shutters were present, but the shutter (illegible word in notes) was present. Interior storm windows were in place preventing inspection of the interior of the casement window. Overall, this window was in poor to failed condition.

W203 - W203 is a four-lite casement window with an interior swing and butt hinges. Exterior louvered shutters were present and were fixed to the open position. Water stains were noted under the window at the interior. This window was in fair condition.

W204A – W204A is a six-over-six double hung wood window. The exterior shutters were missing, but the hinges were still in place. The glass was in good condition, but the glazing putty and paint were in fair condition. A molded detail was employed for the exterior casing similar to picture frame casing. Water damage and interior paint failure were noted on the lower rail and jamb. Overall, this window was in fair condition.

W204B – W204B is a six-over-six double hung wood window. The exterior shutters were missing, but the hinges were still in place. The glass was in good condition, but the glazing putty and paint were in fair

condition. A molded detail was employed for the exterior casing similar to picture frame casing. Overall, this window was in fair condition.

W205 – W205 is a four-lite casement window with an interior swing and butt hinges. Exterior louvered shutters were present and were fixed to the open position. The exterior window casing had a molded profile similar to W204A. The glass was in good condition, but the glazing putty and paint were in fair condition. Water stains were noted under the window at the interior. Overall, the window was in fair condition.

W206 – W206 is a four-lite casement window with an interior swing. Exterior louvered shutters were present and were fixed to the open position. One shutter was detached at one side. Minor wood decay was noted on the shutters. The paint and glazing putty were in fair condition. Damage was noted at the windowsill and muntins likely due to leaking. This window is likely to fall apart if opened. Overall, the window was in poor condition.

W207A/B – Windows W207A and W207B are six-over-six double hung wood windows. Exterior louvered shutters were present and were fixed to the open position at both windows. Brass hardware was present. Some water damage was noted on the upper and lower sash of W207A. Overall, these windows were in fair condition.

W208 – W208 is a four-lite casement window with an interior swing. Exterior louvered shutters were present and were fixed to the open position. Wood joinery construction was observed, but also some nails were present. Modern weatherstripping was in place, and some wood decay was noted at the lower rails. Overall, this window was in fair condition.

B	SHELL				
B20	EXTERIOR ENCLOSURE				
	B2030	EXTERIOR DOORS			
				Condition	Priority
		Doors Overall			
		B203001	D001	Fair	Moderate
		B203002	D101	Good	Low
		B203003	D102	Good	Low
		B203004	D108	Fair	Moderate
		B203005	D109	Good	Low
		B203006	D110	Poor	Moderate
		B203007	D112B	Good	Low
		B203008	D113A	Good	Low
		B203010	D113B	N/A	None

Date: Potentially c. 1794 but altered, c. 1862, and modern replacements

Contributing: Contributing

D001 – D001 is the main entrance door to the basement (Figure 98). The door is constructed of vertical wood planks that were painted green. The door trim was painted dark green. A wrought iron (or wrought style) strap lock with a modern deadbolt and a wrought-style handle were present. Three strap hinges were present, and a slide bolt was located at the top on the inside face of the door. Overall, the door was in fair condition.

D101 – D101 is the main exterior door, located on the east wall (Figure 99). The door is constructed with stained wood. The lower portion of the door contained two raised panels, and the upper portion contains a single arched lite with etched glass. Weather stripping was applied to the door jambs. Double sidelites were present. Each side lite contained four lites each with a lower wooden panel. The lites were frosted etched glass. A three lite transom window was also present. The glass in the transom was also etched glass. The sashes for the sidelites and transom were painted light green. The existing casing had a squared edge and was painted white. Two lantern-style sconces flanked the door. A sculpted cast metal door knocker of a lady's hand was present (Figure 100). A press-button style doorbell with a cast brass octogram shaped plate was also present (Figure 101). The door knob was brass with an interlocking leaf and dart motif (Figure 102). The exterior escutcheon, or keyhole cover, was missing. At the interior the same door knob with an escutcheon were present. The interior hardware appeared to be



Figure 98. Exterior of basement entrance, Door D001. (Source: RRJ, 2022)

replacement hardware rather than historic. A cast brass slide-bolt lock was present at the top of the door. Overall, the door was in good condition.

D102 – The central door within the rear porch was a four-panel door with stained raised panels (Figure 103 and Figure 104). A three-lite transom was located above. Square-edged casing with a pediment at the head was present. A sculpted bronze door knocker of a



Figure 99. Main Entrance to the House. (Source: RRJ, 2022)



Figure 100. Brass door knocker at D101. (Source: RRJ, 2022)

cherub with a trumpet was present at the exterior. A metal knob with a covered key hole was present. The current knob had been replaced or moved from a previous location. Modern weatherstripping was applied to the door jambs. At the interior, a brass door knob and rim lock with strike plate were present. The interior of the door was stained, and the raised panels are a simpler style than those on the exterior. The existing brass hinges measured 4.5-inch by 4.5-inch. A



Figure 101. Press-button style doorbell with a cast brass octogram shaped plate at D101 (Source: RRJ, 2022)



Figure 102. Exterior brass door knob with interlocking leaf and dart motif and key hole cover. (Source: RRJ, 2022)



Figure 103. Main exterior door at rear porch. (Source: RRJ, 2022)



Figure 104. Interior view of D102. (Source: RRJ, 2022)



Figure 105. Exterior of Door D108. (Source: RRJ, 2022)



Figure 106. Interior of Door D108. (Source: RRJ, 2022)



Figure 107. Interior rim lock and door knob for Door 108. (Source: RRJ, 2022)



Figure 108. West porch showing Doors D112 (left) and D113A (right). (Source: RRJ, 2022)



Figure 109. Interior door knob and rim lock form Door D113A. (Source: RRJ, 2022)

modern interior sweep was attached to the door. Overall, the door was in good condition.

D108 - This stained wood door was comprised of a lower section of two flat panels and an upper section contained 12 lites (Figure 105 and Figure 106). A porcelain knob with a modern deadbolt was present at the exterior while a metal rim lock and brass door knob were present on the interior side of the door (Figure 107). The glazing putty was in poor condition, but the glass was in good condition. Significant corrosion was noted at the steel lintel above the door. Overall, the door was in fair condition.

D109 – This door provides access to the kitchen from the west porch. This stained wood door was comprised of a lower section of two flat panels and an upper section contained 12 lites. The door had a simple exterior casing and wood threshold. The exterior glazing showed some cracking and was considered in



Figure 110. Exterior of Door D110 to tool shed. (Source: RRJ, 2022)



Figure 111. Weathered paint and wood at base of Door D110. (Source: RRJ, 2022)

fair condition. Minor separation of the wood at joints was noted. An interior porcelain doorknob with rim lock and modern deadbolt was present. The brass butt hinges that were present appear to be replacements due to marks present on the door frame. An old hewn wood lintel was noted above the door. The door was fully operational and was in good condition.

D110 – This door provides access to the tool shed. It is a narrow board wood door that was painted green (Figure 110). Water related deterioration was noted at the base of the door and jamb boards (Figure 111). A

white porcelain doorknob, modern padlock, and interior metal rim lock were present. When operated, the door sticks and drags on the flooring, making it difficult to close. At the interior, unpainted, face-nailed diagonal boards were present on the door. The interior casing of the door was unpainted. In general, this door was in poor condition.

D112 - This door provides access to the west porch from Room 112 (Figure 108). The door is a four-panel door with raised panels and has an inward swing. The interior was stained, and the exterior was painted dark green. Brass butt hinges and a door stop at the interior were present. The exterior head casing had a slight pediment, and the rest of the casing had a squared edge. Minor separation of the wood at joints was noted but can be remedied by caulking or painting. The door was in good condition overall.

D113A – This door provides access to the west porch from Room 113. The door is a four-panel door with raised panels and has an inward swing. The interior was painted white, and the exterior was painted dark green. An exterior round metal knob and skeleton key style lock were present, but these appear to have been replaced or relocated from another door. A modern deadbolt and strike plate were also present. An interior porcelain knob and metal rim lock with strike plate were present (Figure 109). The knob appeared to be antique, but the rim lock may be a reproduction. The exterior head casing had a slight pediment, and the rest of the casing had a squared edge. The door was in good condition overall.

D113B – D113B is present on the exterior of the house but has been closed off internally and does not provide access to the interior (Figure 112 and Figure 113). The exterior of the door is constructed with vertical wood



Figure 112. Exterior of Door 113B. The interior has been walled off and this door does not provide access to the house (Source: RRJ, 2022)



Figure 113. Interior view of Room 113 showing no exterior access at D113B location. (Source: RRJ, 2022)

planks with a beaded edge. Abandoned hinges were present at the door indicating the removal of a previous door or screen door. A porcelain door knob with a "mineral" swirl pattern was present, and a key hole which had been filled in was also present. Overall, the exterior of this door was in good condition.

Jean Baptiste Vallé House Historic Structure Report

B	SHELL				
B10	SUPERSTRUCTURE				
	B1013	BALCONY CONSTRUCTION			
				Condition	Priority
		Galleries Overall			
		B101301	North, East & South Gallery Decking	Good (New)	None
		B101302	West Gallery Decking	Good (New)	None
		B101501	North Gallery Stairs and Handrails	Fair to Good	Moderate
		B101502	North Sunroom Stairs and Handrails	Fair to Good	Moderate
		B101503	West Gallery Stairs and Handrails	Fair to Good	Moderate
		B201006	Base Trim	Fair	Moderate
		B201007	Horizontal Railing at Galleries	Poor to Failed	High
		B201008	Exterior Gallery Soffits	Fair	Moderate

Date: c. 1862 with twentieth-century replacement materials

Contributing: Contributing



Figure 114. East gallery facing north (Source: : RRJ, 2022)

Galleries

An interrupted French colonial-style gallery surrounds the house on all four sides (Figure 114). The flat roofed

gallery has a roof supported by wood box columns and is reached by steps at the north end of its east side.

The beadboard soffit of the gallery is in fair condition. Areas of rot were noted on the northeast fascia and soffit. Wood decay was also noted at several locations including the southeast corner of the gallery and east gallery. Loose trim was noted below the box gutter at the west gallery.

Stairs, Railing, Decking, and Trim

Three sets of stairs were present at the House providing access to the North Gallery, West Gallery, and Sunroom. Several loose treads and minor warping of the treads were noted at the north gallery stairs (Figure 115 and Figure 116). No railing was present at the east side of the north gallery stairs which could be a safety issue. One split tread was noted at the west gallery stairs; these treads were replaced in 2023 (Figure 117). The stair treads to the sunroom were replaced in 2023 (Figure 118). Overall, the exterior stairs are in fair condition.

Handrails are present along the full perimeter of the remaining segments of the wrap around porch which is present to some extent on all four walls (Figure 119).

The railing along the north, east and south walls consist of a 4 x 1.5-inch top rail and nominal 2x mid-rail and bottom rails. The railing sections are connected to the gallery roof columns and singular intermediate railing posts. This railing consists of a 4 x 1.5-inch top rail with 2 x 2-inch intermediate vertical rails equally spaced across the span of the railing.

Several loose railings were identified on all sides and were likely insufficient to withstand code-required loads for safety railings. The railing configuration is likely historically appropriate but does not comply with the International Building Code provisions for safety railings for changes in height above thirty inches, regarding railing height above the walking surface, height and placement of midrails, and maximum allowable spacing between railings, pickets, or posts. Consideration should be made whether a sympathetic



Figure 115. Stairs to east gallery at north wall (Source: RRJ, 2022)



Figure 116. Railing at north stairs to east gallery (Source: : RRJ, 2022)



Figure 117. West gallery stairs (Source: : RRJ, 2022)



Figure 118. Stairs and handrails to sunroom; the treads have since been replaced. (Source: : RRJ, 2022)



Figure 119. Typical gallery handrails which do not comply with IBC safety provisions (Source: : RRJ, 2022)



Figure 120. Weathered decking at east gallery; this has since been replaced with new decking (Source: : RRJ, 2022)

modern safety railing should be installed at the south gallery. At a minimum, the rails should be repaired or replaced as required to withstand code-required loading of safety rails, which the 2018 IBC is a minimum of 50 pounds per linear foot for uniform loading, 200 pounds for a concentrated load on the top rail, and 50 pounds for concentrated loads on intermediate members or infill panels.

Wood decking is located at the west and east galleries (Figure 120). The decking is generally in fair condition. Areas containing wood rot and warped wood planks were identified on the west gallery, and buckling wood decking was noted at the northeast corner of the east gallery. Several areas of wood decay were noted on the base trim between the decking and foundation at the south and east walls. Note that the decking was fully replaced in Spring 2023.

Structural Systems

Basement and Foundations

A concrete slab-on-grade is present throughout most of the House at basement level. A combination of brick masonry and limestone masonry walls of varying vintage and construction are present at basement level supporting the first-floor rooms and galleries. It appears that the oldest masonry walls are present beneath the core six rooms at the first floor, and that gallery walls and various additions were added around the core spaces over time extending out to the exterior face of the wrap around gallery.

Exterior Walls

The exterior walls of the central six rooms of the House are constructed of vertical logs resting atop a wood sill (poteaux-sur-sol construction), above brick and limestone masonry foundation walls. The vertical log walls are typically obscured from view by interior and exterior finishes. Thus, throughout the structural condition assessment, perimeter beams visible from the basement surrounding basement Rooms 009, 005, 006, 012A, and 011 are referred to as “sills”, because these members either currently serve or likely once served as sill plates within a vertical log wall. Contrastingly, the timber members spanning north-south separating the following rooms are referred to as “beams” because they likely once spanned between masonry pillars.

- Rooms 009 and 011
- Rooms 005 and 011,
- Rooms 006 and 012A

The vertical log framing is exposed at one location within the northeast room at the second-floor level, where interior finishes have been removed to reveal the vertical log top plate and the upper 14 inches of three vertical logs. Although not visible at the second-floor opening, the spaces in between vertical logs shown in historic photographs to be filled with pierrotage, although other documents, such as the Ste. Genevieve National Register Nomination Form, describe the infill

as a combination of plant fiber and clay called bousillage. The scope of the HSR did not include removal of interior finishes, and no infill was able to be directly observed for confirmation. The construction of interior walls separating hallway spaces at the first floor is unknown at this time. No lateral bracing was observed within the portion of vertical log framing visible at the second floor, but photographs taken during the 1960s restoration show diagonal timbers within the plane of each wall at outside corners. Top plate braces are present at the four corners of the second floor, tying the top plates of adjacent walls to each other.

First Floor Framing

The first-floor framing is generally visible from basement spaces. The basement footprint includes the areas beneath all galleries at north, south, east, and west, and gallery framing is visible within the basement spaces. Several large timber members are visible within the basement that are suspected to serve as sill plates for vertical log walls at the first floor. This cannot be verified without removing the wall finishes on the first floor. Empty joints within multiple of these sill plates imply that diagonal bracing members were once present tying the sill plates of adjacent walls together. The first floor and gallery areas are supported by a combination of dimensional lumber and timber joists that vary in size, vintage, material, orientation, and condition. Wood joists encompass a spectrum of hand-hewn logs and timbers, pit-sawn dimensional lumber, and circular-sawn dimensional lumber. The variety of framing types is attributed to the many additions and alterations to the first-floor layout over time.

Changes Over Time

Known alterations, many of undetermined timeframe, include the following:

- Relative age of the core six rooms on the first floor.
- Addition of the current office (Room 113), bathroom (predated Room 112), kitchen (Room 109), and pantry (Room 107) prior to 1933 HABS documentation.

- Addition of sunroom at north following 1933 HABS documentation and prior to 1985 HABS documentation (c. 1945).
- Reconfiguration of bathroom (Room 112) at house southwest following the 1985 HABS documentation.
- Removal of original roof framing and addition of second floor rooms (c. 1862).
- Removal of sill plate braces between vertical log sill plates within the basement.
- Movement of first-floor interior walls relative to masonry foundation walls in basement. The walls separating the following rooms appear to have shifted: (1862?)
 - Between Rooms 103 and 104
 - Between Rooms 101/102 and Rooms 105/106.
- Addition of partition walls between the basement rooms listed below. 1933 HABS documentation describes the basement as containing nine rooms. Today the basement contains approximately fourteen rooms.
- Room 009 walls at north and east (brick masonry)
- Room 010 and Room 013 at south (wood partition)
- Room 007 and Room 012B (brick masonry)
- Room 012B and Room 013 at north (brick masonry)
- Addition of CMU stair-supporting walls at west gallery.
- Addition of supplemental columns and beam within the center of Room 011 and within Room 012A.
- Addition of concrete floor within most basement spaces.
- Reconfiguration of framing near the east entry door including sistered joists in Rooms 011, 012A, and 013.

The size and orientation of first-floor decking observed from within the basement was determined to differ from the size or orientation of first-floor floor finishes in

some areas and may serve as a sub-floor. Although the majority of flooring was observed to be lumber plank, notable instances of plywood subflooring were observed as noted below. The second-floor framing is supported by timber beams spanning in the east-west direction, many of which are exposed to view within the four central rooms on the first floor.

Roof and Gallery Roof Framing

In the early 1860s, the original roof framing was removed, and the second-floor framing was added. Currently, dimensional lumber framing forms the structure of all wall areas, including gable end walls, atop the vertical log top plate. The roof framing is comprised of dimensional lumber rafters, thin lumber planking, and plywood sheathing. Roof rafters meet in a half-lap joint with fasteners at the gable roof ridge. The roof framing for the galleries consists of lightweight wood framing. Gallery finishes did not allow for visual observation of the gallery. roof framing.

Wood species identification was performed on a total of 14 samples from throughout the house, with most samples taken from exposed first-floor framing within the basement and two samples taken from exposed vertical log framing at the second-floor opening, and one sample was taken of existing gallery decking. The range of species used within the house is consistent with a number of the known renovations and additions performed over time. In addition, resistance drilling was performed at nineteen locations within the basement. At nearly all locations, resistance drilling data revealed up to two inches of voiding or up to two inches of punky section were identified within basement framing. At one location, one joist within Room 12A was identified to be nearly hollow, the location and extent of deterioration is discussed in detail below.

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1020	ROOF CONSTRUCTION			
				Condition	Priority
		B102001	Roof Framing and Sheathing	Good	Low
		B102002	Gable End Wall Framing	Good	Low
		B102003	Room 110 Roof Framing	Good	Low

Date: c. 1862 with later alterations

Contributing: Contributing

The roof framing is constructed of dimensional lumber rafters, thin lumber planks with open joints, and topped with plywood sheathing. Roof rafters meet with a pinned half-lap joint at the roof ridge (Figure 121). No evidence of water infiltration was observed.

Roof members generally appeared to be in serviceable condition: minor section loss was observed near the ridge within one rafter.

Gable end walls were constructed with conventional dimensional lumber and observed to be in good condition.

Framing supporting the tool shed (Room 110) gable roof consists of three bays of rafters and ceiling joists. Rafters are connected by means of a butt joint at the roof ridge: no ridge board or ridge beam is present. Thin wood planking with an unfinished waney edge was present spanning rafters, apparently cut from whole logs, and modern wood sheathing is present beyond. Three-dimensional lumber members are pocketed into the masonry walls below and parallel to the ceiling joists. The dimensional lumber members currently contain many nails, which currently serve to suspend tools such as shovels (Figure 122).



Figure 121. Overview of roof rafter framing and gable end wall. (Source: RRJ, 2022).

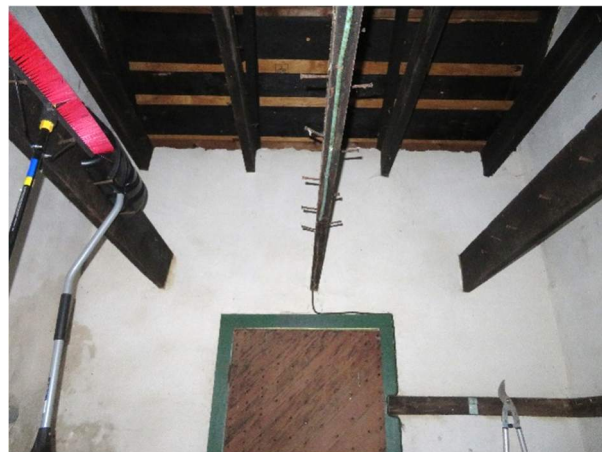


Figure 122. Dimensional lumber members containing nails currently used to hang site maintenance tools. (Source: RRJ, 2022).

Jean Baptiste Vallé House Historic Structure Report

A	SUBSTRUCTURE				
A10	CONCRETE FOUNDATIONS				
	A1010	STANDARD FOUNDATIONS			
		A101001	Stone and Concrete Foundations	Condition	Priority
		A101001	Stone and Concrete Foundations	Fair	Moderate

Date: Undetermined

Contributing: Unassessed

Apparent supplemental stone masonry foundations parged with cement were present within Rooms 3 and 11A (Figure 123 and Figure 124).

Apparent concrete foundations or areas of thickened slab-on-ground were observed adjacent to the masonry walls below the east porch. The concrete was observed to be in good condition.

The stone foundations are visible in the 1960s Schram family renovation photographs, although the purpose of this construction is currently undetermined. Possibly, they were added to provide additional support to areas of the stone masonry foundation walls, possibly if the basement floor had been excavated to increase headroom.



Figure 123. Supplemental concrete foundation within Room 011A (Source: RRJ, 2022)



Figure 124. A Supplemental concrete foundation within Room 003. (Source: RRJ, 2022).

A	SUBSTRUCTURE				
A20	BASEMENT CONSTRUCTION				
	A2020	BASEMENT WALLS			
				Condition	Priority
		A202001	Basement Walls	Fair	Moderate
		A202002	Partition Walls	Fair	Moderate

Date: Undetermined

Contributing: Contributing

Masonry Walls

Basement walls were observed to be a combination of brick, limestone, and concrete masonry and varied widely in condition. Several areas of masonry appear to have been previously repaired. Generally, walls beneath the oldest areas of the house – the six core rooms at the first floor – appeared to be made of limestone masonry, while the walls of later additions and repairs were made using brick masonry. Brick masonry walls range in thickness from 14 inches to 22 inches. Walls consisting of concrete masonry units (CMU) are present supporting stairs providing access to the basement and west gallery. According to HABS documentation, concrete masonry walls are present along the east portion of the north wall below the exterior gallery. At the interior, one course of brick masonry is visible, and from the exterior at this location, the masonry wall has been parged over.

All masonry walls within the basement appear to have been painted white at a time unknown, and the paint is in poor to failed condition.

Brick masonry distress was observed at the northwest corner of Room 002, within a fireplace brick masonry foundation (Figure 125). Brick masonry distress was observed along the perimeter gallery walls within Rooms 010 and 013 (Figure 126). The most severe deterioration was observed at the northeast and southeast wall corners. The lower two feet of these walls serve as retaining walls and are exposed to runoff



Figure 125. Brick spalling in room 002. (Source: RRJ, 2022).



Figure 126. Brick distress including spalling in room 013. (Source: RRJ, 2022)

from the exterior sidewalk. In contrast, the masonry walls below the gallery at north within Room 012B showed markedly less distress at the interior.

Limestone masonry distress was observed on both sides of the walls comprising the north and east walls of Room 009. Deterioration of mortar and spalling of the plaster was observed, likely due to rising ramp (Figure 127).

The concrete masonry features were observed to be in good condition.

Partition Walls

Non-structural partition walls are present within the basement.

Basement walls within Room 009 (Figure 128), separating Room 010 and Room 013 to the south, and separating Room 012B and Room 013 to the north are of undetermined construction date. For the walls in Room 009, based on the use of rough-cut circular sawn lumber and cut nails, these walls may date to the c. 1862 alterations.



Figure 127. Stone masonry distress including spalling and mortar loss in room 009. (Source: RRJ, 2022)



Figure 128. c. 1862 sawn lumber partition wall in room 009. (Source: RRJ, 2022).

A	SUBSTRUCTURE				
A40	SLABS AND FLOORING				
	A4010	STANDARD SLABS ON GRADE			
				Condition	Priority
		A401001	Slab-on-Grade	Good	Low

Date: Undetermined

Contributing: Non-Contributing

A concrete slab-on-grade is present within all basement areas with the exception of Room 009 (Figure 129 and Figure 130). The concrete slab is not original to the building's period of significance. The slab-on-grade is in serviceable condition and exhibits only very minor topside cracking. No trip hazards were identified.



Figure 129. Slab-on-grade within Rooms 011B and 013 (Source: RRJ, 2022)



Figure 130. Slab-on-grade and floor drain in Room 003. (Source: RRJ, 2022).

Jean Baptiste Vallé House Historic Structure Report

A	SUBSTRUCTURE				
A40	SLABS AND FLOORING				
	A4090	OTHER FLOORING			
		A409001	Wood Plank Flooring	Condition	Priority
				Poor to Failed	Low

Date: Undetermined, early 1800s or before

Contributing: Contributing

The floor within Room 009 consists of wood planking nailed directly to wood sleepers resting on the earth below (Figure 131 and Figure 132). The planking was largely absent within the north half of the room, as divided by a partition wall comprised of wood planks.

The planks appeared to be planed and were installed with either cut or forged nails; corrosion of the nails made identification difficult.

This flooring appears to date to before the c. 1862 alterations and may represent an area of original or very early flooring.



Figure 131. Overview of missing floor planking and remaining sleepers within Room 009 (Source: RRJ, 2022)



Figure 132. Floor planking observed in Room 009. (Source: RRJ, 2022).

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
				Condition	Priority
		B101001	Framing Observed from Basement Overall	Good to Failed	High
		B101001.04	001 Floor Framing	Good	Low

Date: c. 1862

Contributing: Contributing

The first-floor framing within this room spans in the north-south direction and supports the exterior gallery at west. Joists frame into a beam aligned with the north wall of the room, and a beam aligned with the north side of the descending exterior staircase (Figure 133). To the south of this beam, joists frame continuously over a partition wall into the room located immediately south. Joists consist of dimensional pit-sawn and circular-sawn lumber measuring nominally 3 by 6 inches. Beams were nominally 5.5 by 6 inches in cross-section. Joists and beams were observed to be in fair condition.

Gallery subfloor decking observed from within this room showed evidence of past water infiltration near the north widow (Figure 134).



Figure 133. Beam near descending staircase. (Source: RRJ, 2022)



Figure 134. Evidence of past water infiltration near window. (Source: RRJ, 2022).

Jean Baptiste Vallé House Historic Structure Report

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
				Condition	Priority
		B101001	Framing Observed from Basement Overall	Good to Failed	High
		B101001.02	002 Floor Framing	Good	Low

Date: c. 1862

Contributing: Contributing

The framing viewed within this room spans across the full room width in the east-west direction. Joists consist of dimensional circular-sawn and vertically sawn lumber and appear to be in serviceable condition. Joists were nominally 3x9 inches in size. Nail markings at the bottom face of joists strongly suggest that a plaster ceiling was once present within this room.

At the northwest corner of this room, near a brick chimney foundation, a short joist spans between the north wall and the first beam spanning in the east-west direction. A pinned tenon joint is present at the far face of the joist (Figure 135). The tenon belonging to the short member extends through the width of the mortised joist and is secured in place with a tusk tenon inserted through the mortise at the far face of the joist. Joists were observed to be in good condition.

Plywood subflooring was observed spanning between joists within this room and appeared to be in good condition (Figure 136).



Figure 135. Pinned tenon joint. (Source: RRJ, 2022).



Figure 136. Underside of joist and plywood planking. (Source: RRJ, 2022)

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
				Condition	Priority
		B101001	Framing Observed from Basement Overall	Good to Failed	High
		B101001.03	003 Floor Framing	Fair to Poor	Moderate

Date: c. 1862, with later alterations

Contributing: Contributing

The framing within this room spans in the north-south direction and supports part of the west gallery above (Figure 137). Joists frame into a beam aligned with the south wall of the room, a beam aligned with the exterior wall of the bathroom above, and a beam aligned with the south side of the ascending exterior staircase. To the north of the latter beam, joists frame continuously over a partition wall into the room located immediately south. A supplemental metal post is present below the approximate mid-span of the beam below the bathroom wall. An area of missing decking near this post reveals a second layer of framing above. Joists were observed to be of dimensional pit-sawn lumber in fair to poor condition (Figure 138). The joists within this room appeared to be of the same dimension and vintage as those within Room 001. In addition, notches were observed within the bottom and sides of beam to accommodate conduit or piping both existing and no-longer-present. Evidence of powder post beetle infestation was visible within multiple beams. Resistance drilling of two joists in this room revealed no voiding, however, possible powder post beetle deterioration of up to one half inch was observed at the bottom of one of the drilled joists.

Subfloor decking was generally observed to be in serviceable condition; however, evidence of past water infiltration was observed. Supplemental joist



Figure 137. Mortise and tenon at beam-joist intersection. (Source: RRJ, 2022)



Figure 138. Pit saw marks at joist underside. (Source: RRJ, 2022).



Figure 140. Plywood at room southwest. (Source: RRJ, 2022)



Figure 139. Plywood at room southwest. (Source: RRJ, 2022)



Figure 141. Additional decking and framing above subfloor. (Source: RRJ, 2022).



Figure 142. Evidence of powder post beetles. (Source: RRJ, 2022).

members are present near the southwest corner of the room, where a portion of the decking has been replaced with plywood (Figure 140 through Figure 139).

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
				Condition	Priority
		B101001	Framing Observed from Basement Overall	Good to Failed	High
		B101001.04	004 Floor Framing	Good	Low

Date: c. 1862

Contributing: Contributing

The framing within this room spans in the north-south direction between masonry walls and consists of dimensional circular-sawn and vertically sawn lumber. A pinned tenon joint similar to that observed in Room 002 was observed near a fireplace support pier at the southwest corner (Figure 143).

Two samples taken from within Room 004 were determined to belong to the southern pine group. Joists were generally observed to be in serviceable condition; minor checking was observed in the vertical face of the joist containing the tusked tenon joint.

Circular-sawn subfloor decking was generally observed to be in serviceable condition (Figure 144).

The underside of the floor decking and framing members in this room were previously painted or whitewashed.



Figure 143. Pinned tenon joint and joist checking. (Source: RRJ, 2022).



Figure 144. Circular sawn joist and decking. (Source: RRJ, 2022)

Jean Baptiste Vallé House Historic Structure Report

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
				Condition	Priority
		B101001	Framing Observed from Basement Overall	Good to Failed	High
		B101001.05	005 Floor Framing	Fair	Moderate

Date: c. 1794 or shortly after

Contributing: Contributing

The framing in this room spans the length of the room from east to west (Figure 145). At west, joists appear to frame into the sill plate of a vertical log wall, which in turn rests atop either masonry walls or a timber serving as a header for a doorway below. At east, framing appears to bear upon a doorway-framing timber beam. The joists consist of hewn lumber measuring nominally four by eight inches in size. Tree bark is present at the bottom face of multiple joists. These characteristics and size identify these joists among the oldest of the house. One sample taken from this room was determined to be from the red oak group.

The joists were observed to be in fair condition with some evidence of powder post beetles at the bottom and sides of the joists (Figure 146). Resistance drilling of two joists in this room revealed no voiding, however, possible powder post beetle deterioration of one-half inches to seven-eighths of an inch was observed at the bottom of joists.

The floor boards above served as the decking and were observed to be in serviceable condition.



Figure 145. Overview of joists within Room 005. (Source: RRJ, 2022)



Figure 146. Hand hewn joist with tree bark and powder post beetle exit holes. (Source: RRJ, 2022).

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
				Condition	Priority
		B101001	Framing Observed from Basement Overall	Good to Failed	High
		B101001.06	006 Floor Framing	Fair to Poor	Moderate

Date: c. 1794 or shortly after

Contributing: Contributing

Framing within this room spans in the east-west direction, between a vertical log wall sill plate at west and atop a timber beam resting atop a masonry wall at east (Figure 147). The two north-most framing members are interrupted mid-span by masonry wall supports forming a central pillar within the combined Rooms 006 and 007. Joists consisted of hewn lumber measuring nominally four and a half by nine inches in size. Tree bark is present at the bottom face of multiple joists. These characteristics and size identify these joists among the oldest of the house. The joists in this room appear to be of similar vintage and construction to those in Room 5, however, the joists in this room were painted white at an undetermined time. In addition, one sample of wood taken from this room was identified as belonging to the white oak group whereas one sample from room 005 was identified to belong to the red oak group.

The north-most framing member within this room is a timber larger than the typical joists, it is likely that this member serves doubly as the sill plate of a vertical log wall. Supporting this hypothesis, evidence of a previously removed sill plate brace is present within this member at the room's northwest corner, likely the northwest corner of the existing vertical log structure (Figure 148).

The joists in this room appeared to be in fair to poor condition (Figure 149). Evidence of powder post beetle infestation was observed at multiple joists, and moderate checking was observed within the vertical face of the southern-most joists where piping has been hung from wire hooks embedded in the face

of the joist (Figure 150). Resistance drilling of two joists in this room revealed no voiding, however, possible powder post beetle deterioration of up to 1.75-inches was observed at the bottom of one of the drilled joists.

Planking belonging to the first-floor interior was observed to be in serviceable condition with some evidence of past water staining.

The underside of the floor decking and framing members in this room were previously painted or whitewashed.



Figure 147. Overview of joists within room 006. (Source: RRJ, 2022)



Figure 149. Joist bearing detail at central masonry wall support. (Source: RRJ, 2022).



Figure 148. Missing diagonal brace within timber beam at north. (Source: RRJ, 2022)



Figure 150. Checking at south-most joist. (Source: RRJ, 2022).

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
				Condition	Priority
		B101001	Framing Observed from Basement Overall	Good to Failed	High
		B101001.07	007 Floor Framing	Good	Low

Date: c. 1862 with later alterations

Contributing: Contributing

Framing within this room spans in the north-south direction between a masonry wall at north and frames into a beam at south by use of mortise and tenon joints (Figure 151). This beam in turn is supported by piers within masonry walls at east and west. The beam supporting joists within this room is located immediately north of a large timber member located at the likely location of a vertical log wall that no longer exists (Figure 152). Joists were observed to be vertically sawn, to measure six by seven inches nominally, and to be in good condition. This framing likely originally served as exterior gallery floor framing.

The area immediately above this framing on the first floor has been enclosed on an undetermined date prior to the 1933 HABS documentation. One wood sample from this room was identified to belong to the southern pine group.

Subfloor decking was observed to be in serviceable condition.



Figure 151. Overview of joists within room 007. (Source: RRJ, 2022)



Figure 152. Mortise and tenon joint at joist/beam intersection. (Source: RRJ, 2022).

Jean Baptiste Vallé House Historic Structure Report

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
				Condition	Priority
		B101001	Framing Observed from Basement Overall	Good to Failed	High
		B101001.08	008 Floor Framing	Fair to Failed	High

Date: Undetermined, after c. 1933

Contributing: Non-Contributing

Framing within this room spans from north to south between brick masonry walls (Figure 153). Joists consist of dimensional lumber of nominal two-inch width and undetermined depth and appear to be in serviceable condition.

The framing within room 008 supports the first-floor sunroom, which was added in between 1933 and 1985 per HABS photography. The framing within Room 008 is accessed via a crawl space, the entrance of which is a window within the former gallery masonry wall within Room 007.

The subflooring within this room was covered with planks of what appeared to be an insulating board which spanned north-south of undetermined materiality.



Figure 153. Overview looking north. (Source: RRJ, 2022)

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
				Condition	Priority
		B101001	Framing Observed from Basement Overall	Good to Failed	High
		B101001.09	009 Floor Framing	Fair	Low

Date: c. 1794 or shortly after

Contributing: Contributing

Framing within Room 9 was typically obscured from view by ceiling finishes. Isolated portions of floor framing joists were observed where ceiling planking was discontinuous (Figure 154). Although the joist bearing conditions at west could not be observed, it is suspected that they frame into a vertical log sill plate. The ends of joists within Room 009 are visible from within Room 011 bearing atop a heavy timber beam continuously supported by a masonry wall. Where joists could be observed, joists appeared to be consistent with those observed in Rooms 005 and 006 in that they are hewn lumber approximately four inches wide and ranging from eight to nine and a half inches deep with tree bark present at the bottom face of joists (Figure 155). Joists were typically sistered with dimensional lumber members. The visible joists appeared to be in fair condition.

Although the southwest corner of this room is obscured from view by ceiling finishes, it is suspected that a diagonal brace is present or was once present between vertical log wall sill plates intersecting at the southwest corner of this room.

Flooring planks, where visible, were observed to be in serviceable condition.



Figure 154. Bottom face of joist exhibiting tree bark at opening in the ceiling. (Source: RRJ, 2022)



Figure 155. Side face of hewn joist at end. (Source: RRJ, 2022).

Jean Baptiste Vallé House Historic Structure Report

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
				Condition	Priority
		B101001	Framing Observed from Basement Overall	Good to Failed	High
		B101001.10	010 Floor Framing	Fair	Moderate

Date: c. 1862

Contributing: Contributing

The framing within this room spans in the north-south direction and is supported by a brick masonry wall at south (Figure 159). At north, joists are supported by a brick masonry wall at the east end of this room, and bear atop a doorway header beam at the room's west end. Joists measure six by seven inches nominally and are vertically sawn or circular-sawn. One sample from this room was identified as belonging to the southern pine group. Joists were observed to be in fair condition with some evidence of water staining near the south masonry wall.

Subfloor decking was observed to be in fair condition, exhibiting evidence of previous water infiltration near the south masonry wall (Figure 157).



Figure 156. Overview looking west. (Source: RRJ, 2022)



Figure 157. Planking and joists exhibiting staining related to water infiltration along the south exterior wall. (Source: RRJ, 2022).

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
				Condition	Priority
		B101001	Framing Observed from Basement Overall	Good to Failed	High
		B101001.11	011 Floor Framing	Good to Poor	Moderate

Date: c. 1794

Contributing: Contributing

Framing within Room 011 showed the most variety in types of joists out of any room within the basement and within the entire house (Figure 158 through Figure 161Figure 159). One commonality between framing members is that joists typically span in the east-west dimension. However, the joists themselves varied widely in size and origin, ranging from whole logs to hand-hewn timbers to circular-sawn dimensional lumber. All three wood samples taken from Room 011 were determined to belong to the white oak group, however, it is possible that other species may be represented within this space.

At the south half of Room 011, all joists qualify as timbers, meaning their smallest dimension exceeds five inches. These joists typically frame into the heavy timber sill plate at east via a half-dovetail lap joint, the sill is itself supported by a stone masonry wall. At least one instance of an empty half-dovetail joint was observed within the heavy timber sill, indicating that the floor framing configuration has changed over time. The heavy timber sill currently serves doubly as a header beam above masonry wall openings. At west, the timber joists typically bear atop another timber beam continuously supported by a masonry wall below. It appears likely that this beam once spanned open spaces between the masonry walls and interior round stone pillars. Joists from Room 009 also rest upon this same timber beam, and the ends of joists within Room 009 are visible from Room 011. Joists from Rooms 011 and 009 bear alternately along the length of the beam, and a variety of infill materials are present in between joists (Figure 167).



Figure 158. Overview looking east-southeast. (Source: RRJ, 2022)



Figure 159. Overview looking south-southwest. (Source: RRJ, 2022).



Figure 160. Overview looking east at room north end. (Source: RRJ, 2022)



Figure 163. Notched joist at former fireplace location. (Source: RRJ, 2022)



Figure 161. Overview looking west into Room 5. (Source: RRJ, 2022).



Figure 164. Half-dovetail lap joint at southeast corner. (Source: RRJ, 2022).



Figure 162. Split joist at southeast. (Source: RRJ, 2022).



Figure 165. Un-used half dovetail lap joint at southeast corner. (Source: RRJ, 2022).

At the north half of room 011, joists range from At. At the north half of room 011, joists range from large timber members to dimensional lumber as thin as one and three-sixteenths of an inch in thickness. At east, a dimensional lumber beam measuring nominally 12 by three inches is placed flatwise below the heavy timber sill plate. At west, joists bear atop a heavy timber beam also serving as a doorway header between Rooms 005 and Room 011. Joists from these two rooms bear alternately upon this same beam, and no infill is present between joists. The beam at west is continuous to the north where it supports joists within Rooms 006 and 12A. Two supplemental lumber columns and a supplemental lumber beam are present at mid-span of joists within the north half of Room 011 (Figure 166). At four locations east of the supplemental beam, sistered joists span between the supplemental framing and masonry wall at east. The location of these sistered joists supports the east portion of the first-floor entry hall.

Joists in this room were observed to be in good to poor condition. One joist was observed to be split horizontally where it is notched to frame into the timber sill at the southeast corner of this room (Figure 162). In addition, several joists appeared to have been modified to accommodate building features no longer extant (Figure 164 and Figure 165). For example, one nominally 10-inch square beam was observed to be notched for a length of approximately three feet in the vicinity of a previous fireplace location, just west of the south supplemental column (Figure 163). Resistance drilling of four joists in this room revealed possible powder post beetle deterioration of up to one-half inch at the bottom of the drilled joists and a two-inch void within one joist near the northernmost round pillar at the west wall of this room.

Subfloor decking was observed to be in serviceable condition.



Figure 166. Supplemental framing. (Source: RRJ, 2022)



Figure 167. Joist ends and infill looking west. (Source: RRJ, 2022).

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
				Condition	Priority
		B101001	Framing Observed from Basement Overall	Good to Failed	High
		B101001.12	012 Floor Framing	Good to Failed	High

Date: c. 1794 and c. 1862

Contributing: Contributing

Room 12A

Framing within this room spans in the east-west direction. At east, beams frame into a heavy timber sill serving as the bottom plate of a vertical log wall via lap joinery. At west, joists rest atop a heavy timber beam resting atop a masonry wall (Figure 168). Joists from 006 and 012A bear alternately upon this beam, with a combination of brick, lumber and other infill in between. Within Room 012A, the ends of joists within Room 006 are visible, just as the ends of joists within Room 012A are visible from Room 006. The same timber beam extends southward beyond this room and forms a doorway header that also supports joists within Room 005 and 011. Joists consist of hewn members. The north-most framing member within this room is a timber larger than the typical joists, it is possible that this member serves doubly as the bottom plate of a vertical log wall. The north-most timber is also supported at its approximate midspan by a square lumber post abutting the room's central masonry pier.

A supplemental column measuring nominally five inches square is located at the southeast corner of the masonry pier at approximately half-span of the joists in this room (Figure 171). The column supports a short beam spanning north-south to the masonry wall at south. This beam in turn supports a sawn joist sistering a nominally ten-inch square joist between midspan and the east wall of the room. At the southwest corner of the central masonry pier, a timber haunch is embedded into the masonry to support a short joist spanning



Figure 168. Joist end bearing on the limestone foundation. (Source: RRJ, 2022)



Figure 169. Hollow joist viewed from room 006. (Source: RRJ, 2022).

towards the west masonry wall (Figure 172). Joists in this room were observed to be in good to failed condition. Resistance drilling of the third joist from south was determined to be hollow. Although this joist measures ten inches square in section, a perimeter of solid wood of only 0.75 inches thick at bottom and up to 2.75 inches thick at sides remains of the section (Figure 169). This member cannot be relied upon to provide structural support to the floor framing system, and if left unaddressed, the loading originally carried by this joist will be distributed to the adjacent framing members and may lead to progressive overstress in those surrounding members. Resistance drilling of the heavy timber member suspected to serve as a vertical log wall bottom plate at north edge of this room revealed no voiding or pest-related deterioration.

The floor decking was observed to be in serviceable condition.

Room 012B

Framing within this room supports the north leg of the east gallery. Framing within this room spans in the north-south direction between a masonry wall at north and frames into a beam at south by use of mortise and tenon joints. This beam in turn is supported by piers within masonry walls at east and west. The beam supporting joists within this room is located immediately north of a large timber member suspected to serve doubly as the sill plate of a vertical log wall. Joists measure four by six inches nominally and consist of vertically-sawn lumber.



Figure 170. of previous half-dovetail lap joint belonging to a diagonal sill plate brace within the northmost timber joist. (Source: RRJ, 2022).



Figure 171. Supplemental post below sill plate, viewed from Room 007. (Source: RRJ, 2022)



Figure 172. Timber haunch supporting joist. (Source: RRJ, 2022)

Jean Baptiste Vallé House Historic Structure Report

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
				Condition	Priority
		B101001	Framing Observed from Basement Overall	Good to Failed	High
		B101001.13	013 Floor Framing	Good to Poor	Moderate

Date: c. 1862

Contributing: Contributing

Room 013 encompasses an “L”-shaped area beneath the wrap-around gallery at the house’s east side, and a portion of the south side. Framing in this room spans in the “short” direction of the walkway, that is, perpendicular to the direction of walking traffic above (Figure 173). Thus, framing spans in the east-west direction at east, and spans in the north-south direction at the south leg of this room. Joists measured nominally six by three inches on average and were constructed of a combination of circular and vertically sawn lumber. Diagonally oriented beams are present at the northeast and southeast corners of the gallery, each spanning between the interior masonry wall corner and bearing upon a nominally six-inch square timber post at the inside corner of the exterior masonry wall (Figure 173). Diagonally oriented beams measured nominally five and a half by four inches.

A supplemental beam is present at mid-span of joists immediately in front of the east main entry door (Figure 174). This beam measures nominally six by six inches square. Four short joists frame into the supplemental beam at east and five short joists frame into the supplemental beam at west (Figure 175).

One wood sample from this room was identified as belonging to the southern pine group. This designation



Figure 173. Overview of northeast gallery corner. (Source: RRJ, 2022)



Figure 174. Overview of additional beam, looking north. (Source: RRJ, 2022).



Figure 175. Bearing end of joists at shoring. (Source: RRJ, 2022).



Figure 176. Overview of northeast gallery corner. (Source: RRJ, 2022)

is typical of all samples taken from areas either currently or formerly serving as gallery walkways.

Joists in this room were in fair condition. Evidence of past water infiltration was observed at the ends of nearly all joists in contact with the exterior gallery masonry walls. Subfloor decking was also observed to be in fair to poor condition with similar patterns of water-related staining near the exterior walls. Resistance drilling of one joist in this room revealed no voiding, however, possible powder post beetle deterioration of up to one inch was observed at the bottom and at the side surface of the drilled joist.

Jean Baptiste Vallé House Historic Structure Report

B	SHELL				
B10	EXTERIOR ENCLOSURE				
	B1010	FLOOR CONSTRUCTION			
		B101002	Framing Observed from First Floor Overall	Condition	Priority
		B101002	Framing Observed from First Floor Overall	Good	Low

Date: c. 1794 with c. 1862 alterations

Contributing: Contributing

From the first floor, seven joists are visible supporting the second floor and spanning in the east-west direction. Beams appear to span continuously over interior walls spanning in the north-south direction. The support conditions of these joists are obscured from view by interior finishes. Four timber joists are exposed to view in Rooms 103, 104, 105, and 106 (Figure 177 and Figure 178). Two of the joists are partially obscured within the width of walls spanning in the east-west direction at the location of walls to the north and south of Rooms 101 and 102 (Figure 179).

The framing, where visible, was observed to be in good condition. Fill material is present at the ends of joists within Room 104 (Figure 180). Slight rotation of one joist relative to interior finishes was observed at the west wall within Room 106 (Figure 181). Deflection of the beams was observed where beams intersected interior walls, however, the good condition of nearby interior finishes suggests that the deflection occurred well before interior finishes were installed and is not an ongoing concern.



Figure 177. Exposed joists in Room 103, view looking west. (Source: RRJ, 2022)



Figure 178. Exposed joists viewed from Room 105. (Source: RRJ, 2022).



Figure 179. Covered joist viewed from Room 102, looking east.
(Source: RRJ, 2022)



Figure 181. Exposed joist separating from finishes in Room 106.
(Source: RRJ, 2022).



Figure 180. Exposed joist in Room 104 with fill at bearing end.
(Source: RRJ, 2022)

Jean Baptiste Vallé House Historic Structure Report

B	SHELL				
B20	EXTERIOR ENCLOSURE				
	B2011	EXTERIOR WALL CONSTRUCTION			
		B201101	Vertical Log Wall Framing	Condition	Priority
				Fair	High

Date: c. 1794

Contributing: Contributing

The exterior walls of the central six rooms of the House are constructed of vertical logs resting atop a sill (*poteaux-sur-sol* construction), above brick and limestone masonry foundation walls. The construction of interior walls separating hallway spaces at the first floor is unknown at this time.

The vertical log walls are typically obscured from view by interior and exterior finishes. The vertical log framing is exposed at two locations: within the northeast room at the second-floor level, where interior finishes have been removed to reveal the vertical log top plate (Figure 182 through Figure 187) and the upper 14 inches of three vertical logs, and within the first-floor kitchen. The spaces in between vertical logs are filled with pierrotage, which had been removed at the second-floor opening.

Where visible from the second floor, the vertical logs are hewn and notched to fit into slots within the (also hewn) top plate. The vertical logs are likely notched at the bottom to fit into slots within the timber bottom plate. Two one-inch diameter tenons were observed at the top of each vertical log.

The top plate was observed to be symmetrically trapezoidal in section, with a height of seven inches, a width of 4.5 inches at the top, and a width of 5.75



Figure 182. Portion of vertical log wall visible where finishes have been removed at the north wall within the northeast room at the second floor. (Source: RRJ, 2022)



Figure 183. Two tenons observed at top of vertical log. (Source: RRJ, 2022)



Figure 184. Portion of vertical log wall visible where finishes have been removed at the north wall within the northeast room at the second floor, showing the mortise connection of the vertical log to a continuous kerf at the top plate. (Source: RRJ, 2022)



Figure 185. Notch in vertical log for c. 1792 (now missing) gallery framing. (Source: RRJ, 2022)



Figure 186. Notch within the top face of the timber top plate within the vertical log wall. This notch once received a hip rafter from the original roof. (Source: RRJ, 2022)

inches at the bottom. All observable vertical logs were 5.25 inches thick and varied in width from 9.75 inches to 11.5 inches. The vertical logs were spaced at approximately 16 inches on center and connected to the top plate via a mortise fit into a continuous kerf.

The exposed top plate was determined to be from the white oak group, while one vertical log was identified as belonging to the red oak group. Notches are visible within the top plate that supported the original hipped roof framing and were located at approximately 25 inches on center.

The vertical logs and top plate visible on the second floor appeared to be in fair condition. Since the vast majority of the vertical logs were not visible, the two locations where vertical logs are visible should not be considered representative of the condition of all first-floor vertical logs. Evidence of water infiltration near top plate braces implies that the vertical log framing has been exposed to water at some time. Over time, if unaddressed, exposure to water allows for the aggravation of wood distresses related to fungal growth and/or pest infestation.



Figure 187. Two exposed vertical logs present within the first-floor kitchen. (Source: RRJ, 2022)

Where visible within the first-floor kitchen, the vertical log wall was observed to be in good condition (Figure 187). The visible surface of these logs would have been the exterior face of the log wall in its original configuration, before the infilling of gallery space to create the current kitchen area. A striping pattern visible at the surface of the logs, in addition to patterns of empty nail holes along the height of the vertical log, indicates the presence of a previous lath finish at this wall. The top plate and sill plate of the wall were not visible, nor could the composition of wall infill material be determined at this location. A relatively modern parge coating is present between the two vertical logs at present.

B	SHELL				
B20	EXTERIOR ENCLOSURE				
	B2011	EXTERIOR WALL CONSTRUCTION			
				Condition	Priority
		B201102	Vertical Log Wall Top Plate Braces	Fair	High

Date: c. 1794

Contributing: Contributing

Top plate braces were observed at the level of the vertical log top plates at all four corners of the second-floor footprint (Figure 188 and Figure 189). The top plate braces consisted of hewn dimensional lumber painted white. The brace within Room 208 measured six inches wide by four- and three-quarter inches high. The top plate braces are connected to the top plate by use of a lap joint containing a one-inch diameter dowel.

Top plate braces were observed to be in fair condition. Braces within rooms 208, 205, and 206 exhibited light checking, and evidence of water infiltration resulting in stained interior finishes was observed near brace connections within Rooms 208, 203, and 206. It is possible that over time, exposure of vertical log and brace members to water may hasten deterioration mechanisms such as fungal decay and/or pest damage.



Figure 188. Top Plate Brace at Northeast (Room 208). (Source: RRJ, 2022)



Figure 189. Top Plate Brace at Southeast (Room 203). (Source: RRJ, 2022).

Interiors

The interiors of the Jean Baptiste Vallé house are finished and semi-furnished. The house was a private residence until 2010. Currently, the first floor serves as an art gallery and educational space for visitors, and the second floor is used as an office and meeting space for NPS staff. The current floor plan is divided into 11 rooms and two porches on the first floor while the second floor is divided into eight finished rooms. The unfinished basement level extends beyond the footprint of the original structure once providing the foundation for a full wrap-around porch. Portions of the porch at the northwest and southwest corners of the building

were enclosed in 1860s. The addition of these rooms modernized the house by providing space for indoor plumbing and an attached kitchen.

Rooms 101 through 106 represent the floorplan of the vertical log structure. These six rooms are finished with wood flooring, painted plastered walls, and wood plank ceilings. Exposed hand-hewn wood beams are also present in Rooms 103, 104, 105, and 106. 1860s additions include Rooms 107, 109, 112, and 113 which are enclosed portions of the original wrap-around porch, and the second floor. Other later additions include room 108 (the sun porch), which replaced an open portico. Room 110 (the tool shed) was added after the c. 1862 construction at an undetermined date.

BASEMENT ROOMS					
C	INTERIORS				
C10	INTERIOR PARTITIONS				
	C1017	INTERIOR WINDOWS			
				Condition	Priority
		C101701	W007B	Good	Low
		C101702	W009	Good	Low
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES - BASEMENT			
				Condition	Priority
		C301001	Interior Overall	Poor	Moderate
		C301002	Flooring	Good to Poor	Low
		C301003	Wall Finishes	Poor to Failed	Moderate
		C301004	Wall Mouldings	N/A	None
		C301005	Ceiling Finishes	Fair	Low
		C301006	Exposed Ceiling Beams	Good	Low

Date: c. 1794. c. 1862, and undetermined

Contributing: Contributing

The basement is divided into 11 rooms and an elevated crawl space. The configuration of these rooms loosely correlates to the layout of the first floor. The basement is accessed from stairs located on the west wall of the house. Most of the basement flooring is concrete; however, the flooring in Room 009 is planed wooded planks over dirt. A circular sawn partition wall partially divides Room 009. The plank flooring north of the partition wall is largely missing, exposing the dirt floor in this area.

The basement walls are brick masonry with a plaster finish. The plaster finish has failed in most rooms, and severe brick deterioration was noted in many locations within all rooms. Moisture-related brick decay was noted at the perimeters of the foundation wall windows. A combination of exterior moisture infiltration and interior coatings has led to the disintegration of many window perimeter bricks. The south wall in Room 010 appeared to be finished in a cementitious parging.

The structural framing for the first floor is exposed in most basement rooms; however, evidence of an older plaster ceiling was noted in Room 002.

Interior Windows

W007B - W007B is a one-over-one wood-framed shutter casement window. This window has an interior



Figure 190. Moisture related brick decay at basement window; typical along east wall. (Source: RRJ, 2022)

Jean Baptiste Vallé House Historic Structure Report

swing and a pull handle. The interior of the window was painted red. There is no interior casing for this window which leads into a crawl space under the sunporch. The window was operable and was in good condition.

W009 – W009 is a three-over-three casement window that swings into Room 009. During the investigation the window was open, and no attempt was made to operate the window further. No interior casing was present. The window was painted red and was in good condition.



Figure 191. Moisture related masonry decay at basement foundation between Rooms 005 and 009. (Source: RRJ, 2022).



Figure 192. Failed plaster and brick decay at east wall of basement. (Source: RRJ, 2022)

Room 101					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES - FIRST FLOOR			
				Condition	Priority
		C301007	Room 1 (101) Interior Overall	Good	Low
		C301008	101 Flooring	Good	Low
		C301009	101 Wall Finishes	Good	N/A
		C301010	101 Wall Mouldings	Good	Low
		C301011	101 Ceiling Finishes	Good	Low
		C301012	101 Exposed Ceiling Beams	Good	N/A

Date: c. 1862, with later alterations

Contributing: Contributing

Room 101 serves as the main entrance to the house and provides access to the library (Room 103) and living room (Room 105) as well as a secondary central hallway (Room 102) that contains the stairway to the second floor.

Flooring

The existing floor is finished with tongue-and-groove wood planks of varying widths running north to south. Evidence of a former partition wall running east to west is present through the middle of the hall where smaller wood planks have been infilled in the flooring. The flooring is in good condition, but there is evidence of mild moisture damage near the baseboard at the south wall. Loose floor boards approximately 2-feet from the entry door cause a squeaking noise when walked on.

Wall Finishes

All walls in Room 101 have a plaster finish that has been painted in a cream/off white color. The walls are in good condition with no cracking present in the plaster.

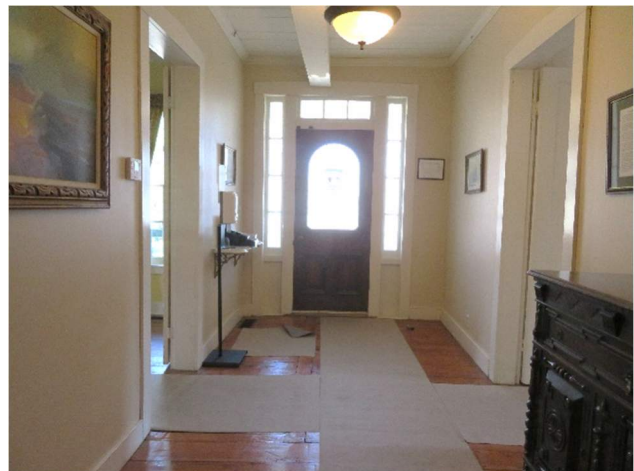


Figure 193. Room 101 facing main entrance to house. (Source: RRJ, 2022)

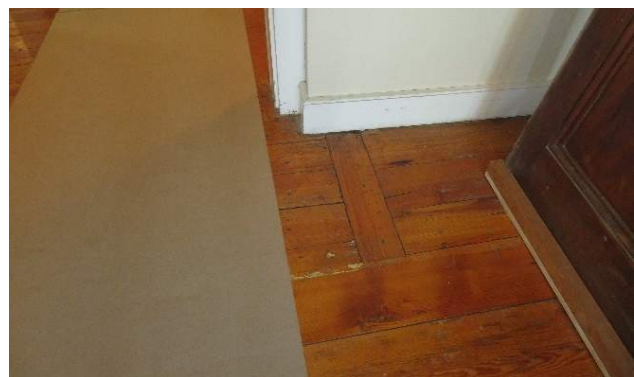


Figure 194. Evidence of former partition wall in Room 101 . (Source: RRJ, 2022).



Figure 195. Painted ceiling boards in Room 101. (Source: RRJ, 2022)



Figure 196. Mild moisture damage of flooring in Room 101. (Source: RRJ, 2022).

Ceiling Finishes

The ceiling was finished with wide wood planks installed above the ceiling beams, running north to south. The ceiling boards were tongue and groove and were painted white. The ceiling boards are in good condition, but some gaps are present between boards throughout the room.

Wall Mouldings

The room had six-inch baseboards that were notched 1/2-inch from the top and ogee style ceiling moulding. Simple moulding was present around the doorways with the top molding forming a slight pediment. All the moulding in the room was painted white. The mouldings are in good condition, but discolored, scuffed paint is present on the baseboards throughout the room. Peeling paint is present on the baseboard along the south wall above the moisture damaged flooring.

Exposed Ceiling Beams

The room had one exposed ceiling beam running east to west. This beam is located directly above a former partition wall. The beam has been enclosed by thin planks of wood on three sides which were painted white.

Room 102					
C	INTERIORS				
C20	STAIRS				
C2010	STAIR CONSTRUCTION				
				Condition	Priority
		C201001	Stair Treads and Risers	Good	None
		C201002	Handrails and Balustrades	Good	None
C2020	STAIR FINISHES				
		C202001	Stair Tread and Riser Finishes	Good	None
		C202002	Handrail and Balustrade Finishes	Good	None
C30	INTERIOR FINISHES				
C3010	INTERIOR FINISHES FIRST FLOOR				
				Condition	Priority
		C301013	Room 2 (102) Interior Overall	Good	Low
		C301014	102 Flooring	Good	None
		C301015	102 Wall Finishes	Good	Low
		C301016	102 Wall Mouldings	Good	Low
		C301017	102 Ceiling Finishes	Good	Low
		C301018	102 Exposed Ceiling Beams	Good	Low

Date: c. 1862, with later alterations

Contributing: Contributing

Room 102 is a secondary hallway and is a part of the original footprint of the house. This room connects to the main entrance hall and provides access to Rooms 104 and 106. It also provides exterior access to the porch on the west wall and stair access to the second floor. A storage closet is located beneath the stairs.

Flooring

The existing flooring was tongue-and-groove wood planks of varying widths running north to south. The flooring is in good condition. Carpet mats were placed over typical walking paths to protect the wood flooring.

Wall Finishes

All walls in Room 102 have a plaster finish that has been painted in a cream/off white color. The walls are in good condition with no cracking present in the plaster. Tongue-and-groove wood planks were used to construct the storage closet beneath the stairs. The planks were painted white. Two brass, bow-shaped coat hooks are anchored to the west wall of the closet.

Ceiling Finishes



Figure 198. Room 102, looking east to Room 101. (Source: RRJ, 2022)

The ceiling was wide wood planks installed above the ceiling beams, running north to south. The ceiling boards were tongue and groove and were painted white. The ceiling boards are in good condition, but some gaps are present between boards throughout the room.

Wall Mouldings

The room had six-inch baseboards that were notched 1/2-inch from the top and ogee style ceiling moulding. Simple moulding was present around the doorways with the top molding forming a slight pediment. All the moulding in the room was painted white. The mouldings are in good condition, but discolored, scuffed paint is present on the baseboards throughout the room.

Exposed Ceiling Beams

The room had two exposed ceiling beams running east to west. One beam is continuous from Room 101 As in

Room 101 this beam has been enclosed by thin planks of wood on three sides which were painted white. The second exposed ceiling beam is located above the wall connected to Room 104. This beam is hand hewn and was painted white.

Stairway

After a few steps the stairs curve from the north to the east. The side profile of the stair treads is exposed and painted white. The wood balusters of the staircase were painted white, but the handrail and newel post were unpainted, stained wood. A brass finial was anchored into the center of the newel post. The stairs were covered with carpet.

Room 103					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES FIRST FLOOR			
				Condition	Priority
		C301019	Room 3 (103) Interior Overall	Good	Low
		C301020	103 Flooring	Good	Low
		C301021	103 Wall Finishes	Good	None
		C301022	103 Wall Mouldings	Good	Low
		C301023	103 Ceiling Finishes	Good	Low
		C301024	103 Exposed Ceiling Beams	Good	None
E	FURNISHINGS				
E20	FURNISHINGS				
	E2010	FIXED FURNISHINGS			
				Condition	Priority
		E201001	103 Fireplace Mantel	Good	None
		E201002	103 Fixed Casework	Good	Low

Date: c. 1862, with later alterations

Contributing: Contributing

Room 103 is referred to as the Library on the HABS plans from 1985. This room can be accessed from Room 101 and also provides access to Room 104. This room contains two windows on the east wall and two windows flanking a fireplace on the south wall. Built-in wooden shelves with glass doors are located on the north wall of the room on both sides of the doorway.

Flooring

The existing flooring was tongue-and-groove wood planks of varying widths running north to south. The flooring is in good condition. Carpet mats were placed over typical walking paths to protect the wood flooring. Three small holes have been drilled into the flooring at the southeast corner of the room. These likely permitted piping from the basement to reach a radiator for heating the room.

Wall Finishes

All walls in Room 103 have a plaster finish that has been painted in a peach color. The walls are in good condition with no cracking present in the plaster.

Ceiling Finishes

The ceiling was wide wood planks installed above the ceiling beams, running north to south. The ceiling



Figure 199. Room 103, looking west. (Source: RRJ, 2022)

boards were tongue and groove and were painted white. The ceiling boards are in good condition, but some gaps are present between boards throughout the room.

Wall Mouldings

The room had six-inch baseboards that were notched 1/2-inch from the top with quarter-round molding installed at the base of the baseboards. Ogee style ceiling moulding was also present. Simple moulding was present around the doorways with the top molding forming a slight pediment. All the moulding in the room



Figure 200. Fireplace in Room 103. (Source: RRJ, 2022).



Figure 201. Penetrations in flooring likely from previous radiator. (Source: RRJ, 2022).



Figure 202. Exposed ceiling beams in Room 103. (Source: RRJ, 2022)

was painted white. The mouldings are in good condition, but discolored, scuffed paint is present on the baseboards throughout the room.

Exposed Ceiling Beams

The room had two equally spaced exposed ceiling beams running east to west. Both beams were hand hewn and unpainted.

Fireplace

The fireplace is located on the south wall of the room. The fireplace was accented with wood facing and a wooden dentil pattern at the mantle. The thin-stone fire surround encased a brick firebox, and the hearth was beveled stone.

Built-in Shelves

Two built-in bookshelves with sliding glass doors flank the north doorway in Room 103. The larger bookshelf, located west of the doorway, contained three 15-light sliding-glass doors and three wooden drawers at the base of the built-in. The smaller bookshelf, located on the other side of the doorway, contained two 10-light sliding-glass doors and two wooden drawers at the base of the built-in. Both bookshelves were painted white.



Figure 203. Built-in library shelves in Room 103, west side. (Source: RRJ, 2022)

Room 104					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES FIRST FLOOR			
				Condition	Priority
		C301025	Room 4 (104) Interior Overall	Good	Low
		C301026	104 Flooring	Good	Low
		C301027	104 Wall Finishes	Good	None
		C301028	104 Wall Mouldings	Good	Low
		C301029	104 Ceiling Finishes	Good	Low
		C301030	104 Exposed Ceiling Beams	Good	Low
E	FURNISHINGS				
E20	FURNISHINGS				
	E2010	FIXED FURNISHINGS			
				Condition	Priority
		E201003	104 Fireplace Mantel	Good	None

Date: c. 1862, with later alterations

Contributing: Contributing

Room 104 is referred to as the Guest Room on the HABS plans from 1985. This room can be accessed from Rooms 102 and 103 and also provides access to Room 112, which is a restroom. Analysis of the floorplan suggests that the doorway to Room 112 was a window prior to the enclosure of the porch and construction of the restroom. Room 103 contains one window on the south wall and one window on the west wall.

Flooring

The existing flooring was tongue-and-groove wood planks of varying widths running north to south. The flooring is in good condition. Carpet mats were placed over typical walking paths to protect the wood flooring. Three small holes have been drilled into the flooring at the northwest corner of the room. These likely permitted piping from the basement to reach a radiator for heating the room. A small, concealed storage space was located below the floor planks in this room. Portions of the flooring were cut and anchored with hinges to provide access to the space.

Wall Finishes

All walls in Room 104 have a plaster finish that has been painted green. The walls are in good condition with no cracking present in the plaster.

Ceiling Finishes

The ceiling finishes consisted of wide wood planks installed above the ceiling beams, running north to south. The ceiling boards were tongue and groove and were painted white. The ceiling boards are in good condition, but some gaps are present between boards throughout the room.

Wall Mouldings

The room had six-inch baseboards that were notched 1/2-inch from the top with quarter-round molding installed at the base of the baseboards. Ogee style ceiling moulding was also present. Simple moulding was present around the doorways with the top molding forming a slight pediment. All the moulding in the room was painted white. The mouldings are in good condition, but discolored, scuffed paint is present on the baseboards throughout the room.

Exposed Ceiling Beams

The room had three equally spaced exposed ceiling beams running east to west. All beams were hand hewn and unpainted. One beam was flush with the wall connected to Room 102.

Fireplace

The fireplace was once located on the south wall of the room. The fireplace has been enclosed by plaster wall, but the chimney remains at roof-level. An unpainted wooden closet exists between the former fireplace and east wall of the room.



Figure 204. Room 104, looking east. (Source: RRJ, 2022)



Figure 205. Concealed storage space below floor planks in Room 104. (Source: RRJ, 2022).

Room 105					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES FIRST FLOOR			
				Condition	Priority
		C301031	Room 5 (105) Interior Overall	Good	Low
		C301032	105 Flooring	Fair	Low
		C301033	105 Wall Finishes	Good	None
		C301034	105 Wall Mouldings	Good	None
		C301035	105 Ceiling Finishes	Good	Low
		C301036	105 Exposed Ceiling Beams	Good	None
E	FURNISHINGS				
	E2010	FIXED FURNISHINGS			
				Condition	Priority
		E201004	105 Fireplace Mantel	Good	None

Date: c. 1862, with later alterations

Contributing: Contributing

Room 105 is referred to as the Living Room on the HABS plans from 1985. The orientation of this room is mirrored by Room 103. This room can be accessed from Room 101 and also provides access to Room 106. This room contains two windows on the east wall and two windows flanking a fireplace on the north wall. Double pocket doors are located between Rooms 105 and 106.

Flooring

The existing flooring was tongue-and-groove wood planks of varying widths running north to south. The flooring is in good condition. Carpet mats were placed over typical walking paths to protect the wood flooring. There was a patch in the flooring in the northeast corner of the room, and the wood plank flooring between Windows 105A and 105B was warped and sloped to the exterior wall.

Wall Finishes

All the walls in Room 105 have a plaster finish that has been painted yellow. The walls are in good condition with no cracking present in the plaster.



Figure 206. Room 105 facing pocket doors to Room 106. (Source: RRJ, 2022)



Figure 207. Fireplace in Room 105. (Source: RRJ, 2022).

Ceiling Finishes

The ceiling was wide wood planks installed above the ceiling beams, running north to south. The ceiling boards were tongue and groove and were painted white. The ceiling boards are in good condition, but some gaps are present between boards throughout the room.

Wall Mouldings

The room had six-inch baseboards that were notched 1/2-inch from the top with quarter-round molding installed at the base of the baseboards. Ogee style ceiling moulding was also present. Simple moulding was present around the doorways with the top molding forming a slight pediment. All the moulding in the room was painted white.

Exposed Ceiling Beams

The room had three equally spaced exposed ceiling beams running east to west. All beams were hand hewn and unpainted. One beam is located above the wall connected to Room 101 but is not flush with the wall.

Fireplace

The fireplace is located on the north wall of the room. The fireplace was accented with wood facing and a wooden dentil pattern at the mantle. The thin-stone fire surround encased a brick firebox, and the hearth was also thin-stone.

Room 106					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES FIRST FLOOR			
				Condition	Priority
		C301037	Room 6 (106) Interior Overall	Good	Low
		C301038	106 Flooring	Good	Low
		C301039	106 Wall Finishes	Good	None
		C301040	106 Wall Mouldings	Good	None
		C301041	106 Ceiling Finishes	Good	Low
		C301042	106 Exposed Ceiling Beams	Fair	Moderate
E	FURNISHINGS				
	E2010	FIXED FURNISHINGS			
				Condition	Priority
		E201005	106 Fixed Casework	Good	None

Date: c. 1862, with later alterations

Contributing: Contributing

Room 106 is referred to as the Dining Room on the HABS plans from 1985. The orientation of this room is mirrored by Room 104. This room can be accessed from Room 102 and 105 and also provides access to Room 107 and other rooms beyond. Analysis of the floorplan suggests the doorway to Room 107 was originally a window prior to the enclosure of the porch and construction of the pantry and kitchen. Room 106 contains two windows on the west wall.

Flooring

The existing flooring finish consisted of tongue-and-groove wood planks of varying widths running north to south. The flooring is in good condition. Carpet mats were placed over typical walking paths to protect the wood flooring. Three small holes have been drilled into the flooring at the southwest corner of the room. These likely permitted piping from the basement to reach a radiator for heating the room.

Wall Finishes

All the walls in Room 106 have a plaster finish that has been painted yellow. The walls are in good condition with no cracking present in the plaster.

Ceiling Finishes



Figure 208. Room 106, looking west. (Source: RRJ, 2022)

The ceiling was wide wood planks installed above the ceiling beams, running north to south. The ceiling boards were tongue and groove and were painted white. The ceiling boards are in good condition, but some gaps are present between boards throughout the room.

Wall Mouldings

The room had six-inch baseboards that were notched 1/2-inch from the top with quarter-round molding installed at the base of the baseboards. Ogee style ceiling moulding was also present. Simple moulding was present around the doorways with the top molding forming a slight pediment. All the moulding in the room

Jean Baptiste Vallé House Historic Structure Report

was painted white. The mouldings are in good condition.

Exposed Ceiling Beams

The room had three equally spaced exposed ceiling beams running east to west. All beams were hand hewn and unpainted. One beam is located above the wall connected to Room 102 but is not flush with the wall. Evidence of mildew and mild water damage was noted where the beams intersect with the west wall.

Built-In Shelves

The fireplace was once located on the north wall of the room. The fireplace was enclosed by plaster wall and wood paneling, but the chimney remains. An unpainted, wooden built-in bookshelf flanks the former fireplace. The lower half of the built-in had three wood-paneled doors and the upper portion of the bookshelf consisted of three three-light class doors. Another built-in bookshelf was located in the northwest corner of the room. The unpainted casework consisted of two upper doors with 18-lites each and two lower six-paneled doors.



Figure 209. Room 106 facing north showing corner built-in (left) and portion of built-in concealing the former fireplace (right). (Source: RRJ, 2022).



Figure 210. Mild mildew and moisture damage at west wall at ceiling beam. (Source: RRJ, 2022).

Room 107					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES FIRST FLOOR			
				Condition	Priority
		C301043	Room 7 (107) Interior Overall	Good	None
		C301044	107 Flooring	Good	None
		C301045	107 Wall Finishes	Good	None
		C301046	107 Wall Mouldings	Good	None
		C301047	107 Ceiling Finishes	Good	None
		C301048	107 Exposed Ceiling Beams	Good	None
E	FURNISHINGS				
	E2010	FIXED FURNISHINGS			
				Condition	Priority
		E201006	Fixed Casework	Good	None

Date: c. 1862, with later alterations

Contributing: Contributing

Room 107 is referred to as the Pantry on the HABS plans from 1985. This room can be accessed from Rooms 106, 108 or 109. Room 107 was originally a part of the full wrap-around porch but was enclosed when the Kitchen was constructed.

Flooring

The existing flooring was red faux brick linoleum tile set in a basket weave pattern with grey grout (Figure 211).

Wall Finishes

All walls in Room 107 were vertical, unpainted tongue-and-groove paneling.

Ceiling Finishes

The ceiling was unpainted tongue-and-groove paneling, running east to west.

Wall Mouldings

The room had simple 3.5-inch baseboards that were painted white. Unpainted cove ceiling molding was present also present. Simple moulding was present around the south and west doorways with the top molding forming a slight pediment. All door moulding in the room was painted white. The mouldings are in good condition.

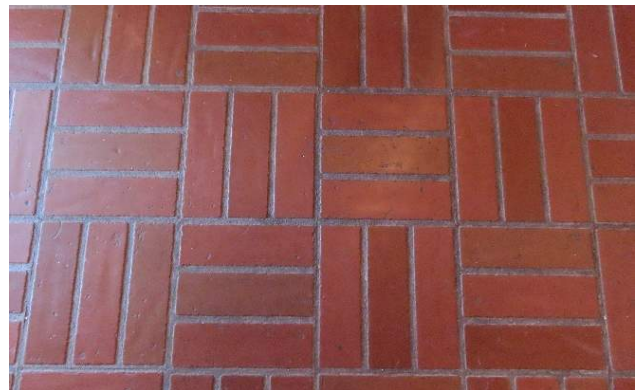


Figure 211. Basketweave flooring pattern in Room 107. (Source: RRJ, 2022).



Figure 212. Room 107 facing east showing built-in shelving and wood wall paneling. (Source: RRJ, 2022)

Built-in Shelves

One built-in pantry shelf with wooden doors was present at the east side for Room 107 (Figure 212). A full-height broom closet door is located at the right side

of the built-in while the left side contains two doors for the upper cabinet, a small ledge and two lower cabinet doors. The broom closet door was unpainted, but the rest of the cabinet was painted white.

Room 108					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES FIRST FLOOR			
				Condition	Priority
		C301049	Room 8 (108) Interior Overall	Good	None
		C301050	108 Flooring	Good	None
		C301051	108 Wall Finishes	Good	None
		C301052	108 Wall Mouldings	Good	None
		C301053	108 Ceiling Finishes	Good	None

Date: Undetermined, c. 1950s

Contributing: Non-Contributing

Room 108 is referred to as the Sun Porch on the HABS plans from 1985. This room can be accessed from the exterior or from Room 107. This room is outside of the original footprint of the House and was constructed over the footprint of the 1880s portico.

At some time between HABS documentation in 1933 and supplemental HABS documentation in 1985, this room was added adjacent to the pantry at north. The sunroom first appears in undated photographs likely from the 1950s (See Appendix B).

Room 108 contains two windows on the north wall and two windows on the east wall. At one time, there was a window on the west wall, but it was removed and infilled with brick. This window was noted on the 1985 HABS plans, but the date of removal is unknown.

The sunroom exterior door was converted to a window possibly in the 1960s but returned to a doorway at some point after the supplemental HABS documentation in 1985.

Flooring

The existing flooring was red faux brick linoleum tile set in a basket weave pattern with grey grout.

Wall Finishes

All walls in Room 108 were brick in a running bond pattern that were painted blue. Evidence of a former exterior wall was located in the northeast corner of Room 107.



Figure 215. Room 108, looking north, showing detail of a portico column. The banding detail is the lower part of the column in the image below. (Source: RRJ, 2022)



Figure 216. 1934 HABS photograph. The column at right is visible in the image above. (Source: HABS).

Ceiling Finishes

The ceiling was beadboard paneling, running east to west. The paneling was painted white and simple wood trim was installed where panel pieces abut. The beadboard and trim were painted white.

Wall Mouldings

The room had simple 3.5-inch baseboards that were painted white. Cove ceiling moulding was present. Simple moulding was present around doorways with the

top molding forming a slight pediment. All the moulding in the room was painted white. The mouldings are in good condition.

Remnants of the Portico

Evidence of the 1880s portico can be seen on the north wall of the sunroom, where two of the original portico columns are partially intact (Figure 215). The

Room 109					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES FIRST FLOOR			
				Condition	Priority
		C301054	Room 9 (109) Interior Overall	Good	Low
		C301055	109 Flooring	Good	Low
		C301056	109 Wall Finishes	Good	Low
		C301057	109 Wall Mouldings	Good	Low
		C301058	109 Ceiling Finishes	Good	Low
		C301059	109 Exposed Ceiling Beams	Good	Low
E	FURNISHINGS				
	E2010	FIXED FURNISHINGS			
				Condition	Priority
		E201007	109 Fireplace Mantel	Good	None

Date: c. 1862, with later alterations

Contributing: Non-Contributing but Compatible

Room 109 is the kitchen and can be accessed from Room 107 or from the exterior at the west porch. This room was originally a part of the full wrap-around porch but was enclosed to construct the modern kitchen. There is one window on the north wall and one window on the west wall of this room. The kitchen interior has been significantly altered at least twice in the 20th century – once during the 1960s restoration and possibly in the 2010s. During the 1960s restoration, the kitchen was plastered and painted, and a cast iron stove was installed at the fireplace; it was later renovated to its current form with the exposed brick and restored fireplace with wood mantel.

Flooring

The existing flooring was 13x13-inch tile, either of stone or ceramic to resemble stone.

Wall Finishes

The walls in Room 109 were unpainted brick. The brick is arranged in an irregular bond pattern that most closely resembles a Common bond or an English bond depending on the wall, suggesting different eras of construction for the shed structure and the kitchen structure.



Figure 217. Room 109, looking north. (Source: RRJ, 2022)

Ceiling Finishes

The ceiling was unpainted tongue-and-groove wood planks, running north to south. The ceiling finishes likely date to the 2010s.



Figure 218. Masonry fireplace in northwest corner of Room 109. The mantel appears to be salvaged historic material but was likely installed in 2010s (Source: RRJ, 2022).

Wall Mouldings

The room had simple 3.5-inch baseboards and ceiling molding was also present. Simple moulding was present around the doorways with the top molding forming a slight pediment. All door moulding in the room was unpainted. The mouldings are in good condition. Evidence of former entrances is present above both doorways in the form of long wooden lintels. The lintels appear to be salvaged historic materials but not original to the construction of the kitchen structure.

Fireplace

A brick fireplace with hand hewn wood mantle is located in the northwest corner of the room. The mantle is not original, and was installed in the 20th century, possibly in the 2010s under Tim Conley's ownership.

Cabinetry

Modern kitchen cabinetry is located in the southwest corner of the room. The cabinets are unpainted wood,

and the countertops are faux-granite linoleum. The sink is centered in the southwest corner and an oven is located between the cabinetry and the exterior door. This cabinetry likely dates to the 2010s.

Exposed Vertical Logs

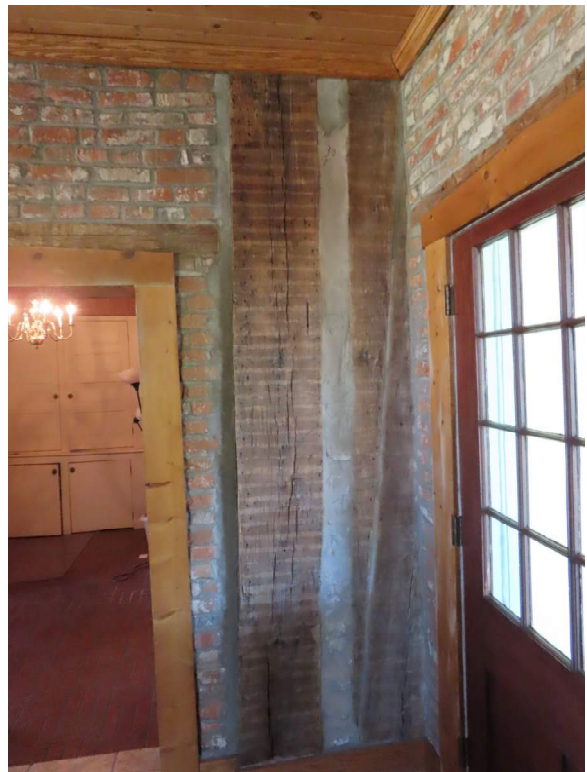


Figure 219. Exposed vertical logs in the southeast corner of the kitchen. (Source: RRJ, 2022).

At the southeast corner of the kitchen, where the c. 1862 structure intersects with the c. 1794 structure, there are two exposed vertical logs and infill parged with a cementitious coating. Evidence of removed wood lath is visible as ghosting on the logs. This is the only location on the first floor where the vertical logs are exposed.

Room 110					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES FIRST FLOOR			
				Condition	Priority
		C301060	Room 10 (110) Interior Overall	Good	Moderate
		C301061	110 Flooring	Fair	Moderate
		C301062	110 Wall Finishes	Poor	Moderate
		C301063	110 Exposed Ceiling Beams	Good	None

Date: Undetermined, but likely prior to c. 1862, with later alterations

Contributing: Contributing

Room 110 is referred to as the Garden Tools room on the HABS plans from 1985. This room can only be accessed from an exterior door on the west wall. Tools, hoses, and miscellaneous gardening items are stored in this room.

Flooring

The existing flooring consists of cut stone on grade. The stone flooring created an uneven surface due to sinking of some stones and surface delamination on other stones.

Wall Finishes

The walls in Room 110 were brick with a plaster finish. Tools are hung from various anchors along the walls. A pegboard is anchored to the north wall for tool storage. Staining and delamination was present on all the interior walls.

Ceiling Finishes

No ceiling finishes are present in this room, exposing wood rafters and ceiling joists.



Figure 220. Exposed roof structure within Room 110. (Source: RRJ, 2022)



Figure 221. Stone flooring within Room 110. (Source: RRJ, 2022).

Jean Baptiste Vallé House Historic Structure Report

Room 112					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES FIRST FLOOR			
				Condition	Priority
		C301064	Room 12 (112) Interior Overall	Good	Low
		C301065	112 Flooring	Good	None
		C301066	112 Wall Finishes	Fair	Low
		C301067	112 Wall Mouldings	Good	None
		C301068	112 Ceiling Finishes	Good	None

Date: c. 1945, with later alterations

Contributing: Contributing

Room 112 is a bathroom accessed from Room 104 and provides access to Room 113 and the west porch. This room was originally part of a full wrap-around porch but was enclosed to create an indoor restroom. The room contains non-historic fixtures including a bathtub with a shower, a toilet, and a sink with vanity.

The 1939 HABS documentation shows the bathroom footprint shifted outwards toward the exterior of the west gallery, and the 1985 HABS documentation shows this bathroom at its current location, but with a different layout of appliances. In 1939 HABS documentation, the location of Door D112A was shown as a window, dating this door to after 1939. The bathroom footprint may have been altered c. 1945, based on the outline of the house in the 1945 Sanborn map, and was in place before the 1960s restoration, along with Door D112A, which can be seen in the renovation photographs.

Flooring

The existing flooring is luxury vinyl plank (LVP) with a wood grain finish that runs east to west.

Wall Finishes

The walls in Room 112 have 49-inch-high tile wainscoting composed of 4x4-inch square field tiles and painted plaster walls for the upper portion of the walls. The field tiles are cream with grey speckles and are set in off-white grout. Bullnose 2x6-inch trim tiles are used to border the top of the wainscoting. Some of the tiles are cracked and grout is missing at isolated



Figure 222. Room 112 facing west. (Source: RRJ, 2022)



Figure 223. Room 112 facing north. (Source: RRJ, 2022)

locations. Evidence of the vertical log wall top plate may be visible though changes in interior over the door shared with room 104.

Ceiling Finishes

The ceiling was finished with painted plaster. There no ceiling trim was present in this room.

Wall Mouldings

The door moulding in this room was consistent with the rest of the first floor. Simple moulding was present around the doorways with the top molding forming a slight pediment. All door moulding in the room was painted white. The mouldings are in good condition. Similar moulding was present around the plumbing access panel adjacent to the exterior door.

Jean Baptiste Vallé House Historic Structure Report

Room 113					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES FIRST FLOOR			
				Condition	Priority
		C301069	Room 13 (113) Interior Overall	Good	Low
		C301070	113 Flooring	Good	None
		C301071	113 Wall Finishes	Good	None
		C301072	113 Wall Mouldings	Good	None
		C301073	113 Ceiling Finishes	Fair	Low
		C301074	113 Exposed Ceiling Beams	Good	None

Date: c. 1862, with later alterations

Contributing: Contributing

Room 113 is currently employed as a storage room that can be accessed from Room 112 or from the exterior at the west porch. This room was originally part of the full wrap-around porch but was enclosed at a later date. The 1939 HABS documentation labels this room as a bedroom, while the 1985 HABS documentation labels this room as an office.

Flooring

The existing flooring is low pile carpet tiles. The carpet tiles are tan/grey.

Wall Finishes

All walls in Room 113 have a plaster finish that has been painted green. The walls are in good condition with no cracking present in the plaster.

Ceiling Finishes

The ceiling was wood planks installed above a singular ceiling beam, running north to south. The ceiling boards were tongue and groove and were painted white. The ceiling boards are in good condition, but some gaps are present between boards throughout the room. Some ceiling boards are sagging in the southeast corner of the room.



Figure 224. Room 113, looking north towards room 112. (Source: RRJ, 2022)



Figure 225. Room 113 facing south with concealed fireplace at southeast corner of the room. (Source: RRJ, 2022).

Wall Mouldings

Simple baseboards were present throughout the room. Simple moulding was present around the doorway to Room 112 with the top molding forming a slight pediment. The moulding around the exterior door to the west porch has a more modern profile. All door moulding in the room was painted white. The mouldings are in good condition. There is no window trim in this room.

Exposed Ceiling Beams

One unpainted dimensional lumber member is present running north to south. The beam, like the ceiling planking, is very likely hung from ceiling joists and serves to support the lighted ceiling fan and to hide electrical wiring.

Fireplace

The fireplace was once located on the south wall of the room in the southwest corner. The fireplace was enclosed by plaster wall, but the chimney remains.

Room 201					
C	INTERIORS				
C10	INTERIOR CONSTRUCTION				
	C1030	FITTINGS			
				Condition	Priority
		C103002	201 Storage Shelving	Good	None
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES SECOND FLOOR			
				Condition	Priority
		C301075	Room 1 (201) Interior Overall	Good	Low
		C301076	201 Flooring	Good	None
		C301077	201 Wall Finishes	Good	None
		C301078	201 Wall Mouldings	Good	None
		C301079	201 Ceiling Finishes	Good	None

Date: c. 1862, with later alterations

Contributing: Contributing

Room 201 contains the stairway which provides access between the two floors. This room also serves as the main hall for the second floor. The bathroom, library, meeting room and southwest storage room can be accessed from this hall. Two eight-lite casement windows are present on the west side of the hall. There are also two small storage areas on either side of these windows.

Flooring

The existing flooring finish consists of blue low-pile carpet. The carpet was not pulled up to investigate the underlying floor system.

Wall Finishes

All walls in Room 201 have a plaster finish that has been painted in a cream/off white color. The walls are in good condition with no cracking in the plaster.

Ceiling Finishes

The ceiling was finished with plaster and was painted white.

Wall Mouldings

The room had six-inch baseboards that were notched 1/2-inch from the top. Simple moulding was present around the doorways with the top molding forming a



Figure 226. Room 201 facing east. (Source: RRJ, 2022)



Figure 227. One of two small storage spaces that flank the area west of stairs in Room 201. (Source: RRJ, 2022).

slight pediment. All the moulding in the room was painted white. The mouldings are in good condition.

Room 202					
C	INTERIORS				
	C1030	FITTINGS			
		C103002	202 Bath Accessories	Good	None
		C103003	202 Storage Shelving	Good	None
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES SECOND FLOOR			
				Condition	Priority
		C301080	Room 2 (202) Interior Overall	Good	Low
		C301081	202 Flooring	Good	Low
		C301082	202 Wall Finishes	Good	Low
		C301083	202 Wall Mouldings	Good	Low
		C301084	202 Ceiling Finishes	Good	Low

Date: c. 1862, with twentieth century alterations

Contributing: Non-Contributing

Room 202 is a bathroom and can be accessed from Room 201. The room contains a bathtub with a shower, a toilet, and vanity with a sink. The yellow bathtub/shower is elevated from the rest of the room by one step. Two eight-lite casement windows are present within the shower area.

Flooring

The existing flooring is 2x2-inch cream colored field tile.

Wall Finishes

The walls in Room 202 have 49-inch-high tile wainscotting composed of 4x4-inch square field tiles. The upper portion of the walls are finished with wallpaper. The field tiles are painted grey. Bullnose 2x6-inch trim tiles are used to border the top of the wainscotting.

Ceiling Finishes

The ceiling was finished with black and white striped wallpaper. There is no ceiling trim in this room.



Figure 228. Vanity in Room 202. (Source: RRJ, 2022)



Figure 229. View of Room 202 facing east, with dormer window inside shower enclosure. (Source: RRJ, 2022).



Figure 230. Built-in storage located between shower and vanity in Room 202. (Source: RRJ, 2022)

Wall Mouldings

Simple vinyl bathroom trim is present at the base of the tiled walls.

Built-in Cabinets

Two built-in cabinets are present on the north and south walls of the room, between the vanity and bathtub. The cabinets mirror each other and contain three doors each. A single-sink vanity is present on the south wall of the room. The built-ins and vanity are constructed of wood veneer. Two recessed, mirrored medicine cabinets flank the vanity area.

Room 203					
C	INTERIORS				
C10	INTERIOR CONSTRUCTION				
	C1030	FITTINGS			
				Condition	Priority
		C103004	203 Storage Shelving	Good	None
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES SECOND FLOOR			
				Condition	Priority
		C301085	Room 3 (203) Interior Overall	Fair	Moderate
		C301086	203 Flooring	Poor	Moderate
		C301087	203 Wall Finishes	Poor	Moderate
		C301088	203 Ceiling Finishes	Good	None

Date: c. 1862, with later alterations

Contributing: Contributing and Non-Contributing

Room 203 is a storage area located in the southeast corner of the second floor. This storage room is assessed from Room 204. A small four-lite wooden casement window is located on the south wall.

Flooring

The existing flooring is 12x12-inch linoleum tile. The linoleum tiles are loose and cupping in several locations.

Wall Finishes

The walls in Room 203 are finished with painted wood paneling. The paneling is painted white. There are water stains and peeling paint on the wall below the window in this room. There are also water stains from previous roof leaks near the horizontal, diagonal bracing member in the southeast corner of the room.

Ceiling Finishes

This room has a low ceiling that follows the slope of the roof. The ceiling was finished with painted wood paneling that was painted white.



Figure 231. Debonded linoleum tile flooring in Room 203. (Source: RRJ, 2022)



Figure 232. View of Room 203 facing northwest showing two built-in storage areas. (Source: RRJ, 2022)



Figure 233. Staining and water damage below window in Room 203. (Source: RRJ, 2022)

Built-in Cabinets

One built-in bookshelf is present on the west wall, and another built-in cabinet is present on the north wall at the entrance to the room.

Concealed Storage Room

Within the built-in cabinet, a small, concealed storage space is present under the eave. The storage space has plaster walls finished with newspapers dating from 1857 to 1862.



Figure 234. Concealed space with newspapers applied to the walls. (Source: RRJ, 2022)



Figure 235. 1857 to 1862 French and English-language newspapers on the walls of the concealed storage room. (Source: RRJ, 2022)

Room 204					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES SECOND FLOOR			
				Condition	Priority
		C301089	Room 4 (204) Interior Overall	Good	Low
		C301090	204 Flooring	Good	None
		C301091	204 Wall Finishes	Good	None
		C301092	204 Wall Mouldings	Good	None
		C301093	204 Ceiling Finishes	Good	None

Date: c. 1862, with later alterations

Contributing: Contributing and Non-Contributing

Room 204 likely originally functioned as a bedroom and currently serves as a meeting room that is accessible from the second-floor hall. This room provides access to two storage rooms, Rooms 203 and 205. Two six-over-six double hung wood framed windows are present on the south wall.

Flooring

The existing flooring was a cream colored low-pile carpet. The carpet was not pulled up to investigate the underlying floor system.

Wall Finishes

All walls in Room 204 have a plaster finish that has been painted blue. The walls are in good condition with no cracking present in the plaster. The base of the southeast wall slopes towards the center near the south windows.

Ceiling Finishes

The ceiling was finished with plaster and was painted white.

Wall Mouldings

The room had six-inch baseboards that were notched 1/2-inch from the top. Simple moulding was present around the doorways and windows with the top molding forming a slight pediment. All the moulding in the room was painted white. The mouldings were observed to be in good condition.



Figure 236. Overview of Room 204 facing west. (Source: RRJ, 2022)



Figure 237. Overview of Room 204 facing north. (Source: RRJ, 2022).

Jean Baptiste Vallé House Historic Structure Report

Room 205					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES SECOND FLOOR			
				Condition	Priority
		C301094	Room 5 (205) Interior Overall	Fair	Moderate
		C301095	205 Flooring	Poor	Moderate
		C301096	205 Wall Finishes	Poor	Moderate
		C301097	205 Ceiling Finishes	Good	None

Date: c. 1862, with later alterations

Contributing: Contributing and Non-Contributing

Room 205 is a storage area located in the southwest corner of the second floor. This storage room is assessed from Room 204. A small four-lite wooden casement window is located on the south wall.

Flooring

The existing flooring is 12x12-inch linoleum tile. The linoleum tiles are loose and cupping in several locations.

Wall Finishes

The walls in Room 203 are finished with painted wood paneling. The paneling is painted white. There are water stains and peeling paint on the wall below the window in this room. A horizontal diagonal timber roof brace is present in the southwest corner of the room.



Figure 238. Overview of Room 205 facing south. (Source: RRJ, 2022)

Ceiling Finishes

This room has a low ceiling that follows the slope of the roof. The ceiling was finished with painted wood paneling that was painted white.

Room 206					
C	INTERIORS				
C10	INTERIOR CONSTRUCTION				
	C1030	FITTINGS			
				Condition	Priority
		C103005	206 Storage Shelving	Good	None
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES SECOND FLOOR			
				Condition	Priority
		C301098	Room 6 (206) Interior Overall	Fair	Moderate
		C301099	206 Flooring	Poor	Moderate
		C301100	206 Wall Finishes	Poor	Moderate
		C301101	206 Ceiling Finishes	Good	None

Date: c. 1862, with later alterations

Contributing: Contributing and Non-Contributing

Room 206 is a storage area located in the northwest corner of the second floor. This storage room is assessed from Room 207. A small four-lite wooden casement window is located on the north wall.

Flooring

The existing flooring is 12x12-inch linoleum tile. The linoleum tiles are loose and cupping in several locations.

Wall Finishes

The walls in Room 206 are finished with painted wood paneling. The paneling is painted white. There are water stains on the wall below the window in this room. There are also water stains from previous roof leaks near the horizontal diagonal brace in the northwest corner of the room.



Figure 239. Debonded linoleum flooring in Room 206. (Source: RRJ, 2022)

Ceiling Finishes

This room has a low ceiling that follows the slope of the roof. The ceiling was finished with painted wood paneling that was painted white.

Built-in Cabinets

One built-in closet/bookshelf is present on the east wall of this room.

Jean Baptiste Vallé House Historic Structure Report

Room 207					
C	INTERIORS				
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES SECOND FLOOR			
				Condition	Priority
		C301102	Room 7 (207) Interior Overall	Good	Low
		C301103	207 Flooring	Good	None
		C301104	207 Wall Finishes	Good	None
		C301105	207 Wall Mouldings	Good	None
		C301106	207 Ceiling Finishes	Good	None

Date: c. 1862, with later alterations

Contributing: Contributing and Non-Contributing

Room 207 likely originally functioned as a bedroom and currently serves as a library used by NPS staff that is accessible from the second-floor hall. This room provides access to two storage rooms, Rooms 206 and 208. Two six-over-six double hung wood framed windows are present on the south wall.

Flooring

The existing flooring cream colored low-pile carpet. The carpet was not pulled up to investigate the underlying floor system.

Wall Finishes

All walls in Room 207 are finished with wallpaper. The wallpaper is in good condition and is not peeling or cracking.

Ceiling Finishes

The ceiling was finished with plaster and was painted white.

Wall Mouldings

The room had six-inch baseboards that were notched 1/2-inch from the top. Simple moulding was present around the doorways and windows with the top molding forming a slight pediment. All the moulding in the room was painted white. The mouldings are in good condition.



Figure 240. Overview of Room 207 facing north. (Source: RRJ, 2022)

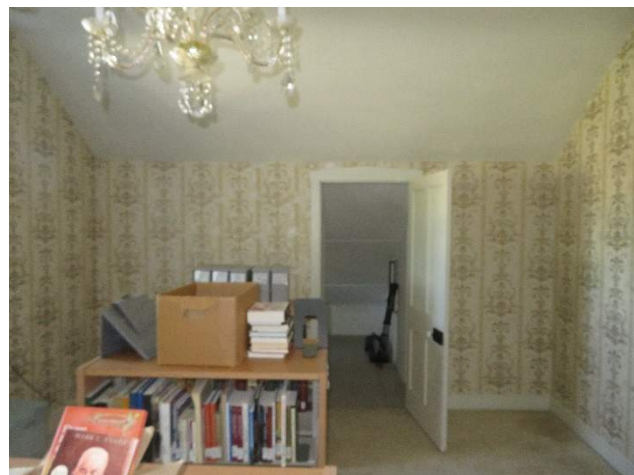


Figure 241. Overview of Room 207 facing east, showing sloped ceiling. (Source: RRJ, 2022).

Room 208					
C	INTERIORS				
C10	INTERIOR CONSTRUCTION				
	C1030	FITTINGS			
				Condition	Priority
		C103006	208 Storage Shelving	Good	None
C30	INTERIOR FINISHES				
	C3010	INTERIOR FINISHES SECOND FLOOR			
				Condition	Priority
		C301107	Room 8 (208) Interior Overall	Poor	Moderate
		C301108	208 Flooring	Poor	Moderate
		C301109	208 Wall Finishes	Failed	Moderate
		C301110	208 Ceiling Finishes	Good	None

Date: c. 1862, with later alterations

Contributing: Contributing and Non-Contributing

Room 208 is a storage area located in the northeast corner of the second floor. This storage room is accessed from Room 207. A small four-lite wooden casement window is located on the north wall. Rot is present in the window sash and muntins.

Flooring

The existing flooring is 12x12-inch linoleum tile. The linoleum tiles are loose and cupping in several locations.

Wall Finishes

The walls in Room 208 are finished with painted wood paneling. The paneling is painted white. The finishes below the window have been removed exposing the timber framing. There are water stains from previous roof leaks near the timber brace in the northeast corner.

Ceiling Finishes

This room has a low ceiling that follows the slope of the roof. The ceiling was finished with wood paneling that was painted white.

Built-in Cabinets

One closet with built-in shelving is present on the south wall of this room.



Figure 242. Overview of Room 208 facing north showing failed flooring and water staining. (Source: RRJ, 2022)



Figure 243. Exposed vertical logs in Room 208. (Source: RRJ, 2022).

Interior Doors					
C	INTERIORS				
C10	INTERIOR CONSTRUCTION				
	C1020	INTERIOR DOORS			
				Condition	Priority
		C102001	D002	Good	Low
		C102002	D003	Good	Low
		C102003	D004	N/A	None
		C102004	D005	Good	Low
		C102005	D006	Good	Low
		C102006	D009	N/A	Low
		C102007	D010	N/A	None
		C102008	D012	Good	Low
		C102009	D103	Good	Low
		C102010	D104A	Fair	Moderate
		C102011	D104B	Good	Low
		C102012	D105A	Good	Low
		C102013	D105B	Good	Low
		C102014	D106	Good	Low
		C102015	D107A	Good	Low
		C102016	D107B	Good	Low
		C102017	D107C	Good	Low
		C102018	D112A	Good	Low
		C102019	D112C	Good	Low
		C102020	D201	Good	Low
		C102021	D202	Good	Low
		C102022	D204A	Good	Low
		C102023	D204B	Good	Low
		C102024	D207A	Good	Low
		C102025	D207B	Good	Low
		C102026	D208	Good	Low

Date: c. 1862, with later alterations

Contributing: Contributing

Basement Interior Doors

D002 – Door D002 is a board and batten style door constructed with nails. The door and trim were painted red. A porcelain knob with an old latch was present. The door knob has a "mineral" swirly pattern indicating it could be from the 1880s. The door was operational, and the latch was functional. The door hardware was replaced at some unknown time and was in good condition. The butt hinges, wood and paint on the door were also in good condition.

D003 – D003 is a wood raised-panel door. The upper portion featured a two-over-two lites and the lower contained two wood panels. The door was painted red



Figure 244. Door D002 viewed from within Room 002. (Source: RRJ, 2022)

and was in good condition. No casing was present. A "mineral" pattern porcelain knob was present.

D005 – Door D005 is a board and batten door constructed with narrow boards with a beaded detail. The door was painted red. A pull handle that appeared to be from the 1880s was present at the outside face of the door. A wood rim lock was present at the interior face. The door was attached to the frame with butt hinges. Overall, the door was in good condition.

D006 – D006 is a board and batten door constructed with narrow boards with a beaded detail. The door was painted red. A pull handle that appeared to be from the 1880s was present at the outside face of the door. A wood rim lock was present at the interior face. The door was attached to the frame with butt hinges. Overall, the door was in good condition.

D009 – No door was present at the D009 location; however, a door frame was present. The door has been removed since the 1985 HABS documentation.

D010 – No door was present at the D010 location. A door frame was present, and this location likely once contained a door to the original section of the house. The door has been removed since the 1985 HABS documentation.

D012 - Door D012 is a board and batten style door. The door planks were planed but were assembled with screws. Rough sawn framing was present, but there was no interior casement. A "mineral" pattern porcelain knob and metal rim lock were present. Old shutter style hinge hardware was present on the door frame indicating the existing door was a replacement or has



Figure 245. Door Hardware at Door D002. (Source: RRJ, 2022)



Figure 246. Door D003 viewed from within Room 003. (Source: RRJ, 2022)



Figure 247. Door Hardware at Door D003. (Source: RRJ, 2022)



Figure 248. Hardware at Door D006. (Source: RRJ, 2022)



Figure 249. Door D009 has been removed since 1985 HABS documentation. (Source: RRJ, 2022)



Figure 250. Door D010 has been removed since 1985 HABS documentation. (Source: RRJ, 2022)

been relocated from another location. It is also possible that this door is a reproduction door with antique hardware. The door was painted red and was fully operational.

First Floor Interior Doors

D103 - D103 is a four-panel wood door with raised panels. Molding was present on the Room 106 side and unmolded panels were present on the hallway side. The door casing was painted white and had square edges with a pediment. A porcelain door knob and butt hinges, which appeared to be original to the door, were present. Slight separation of the wood at the joints was noted. Overall, the door was in good condition.

D104A - D104A is a four-panel wood door with raised panels. Molding was present on the Room 104 side and unmolded panels were present on the hallway side. The door casing was painted white and had square edges with a pediment. A porcelain door knob and butt hinges, which appeared to be original to the door, were present. A modern slide bolt was present on the Room 104 side of the door. The door catches on the floor when opening. A large separation was noted at the door jamb indicating the door was pulling away from the jamb. Overall, the door was in fair condition.

D104B – D104B is a stained wood six panel door with raised panels. The appearance of the two middle panels differed from the other panels, indicating that parts of the door may have been previously replaced. A crystal door knob and covered lock were present. Modern replacement brass butt hinges were present. The bottom of the door has been cut down several inches, but overall, the door is in good condition.



Figure 251. Door D104B seen from Room 104. (Source: RRJ, 2022)



Figure 252. Door D105A seen from Room 101. (Source: RRJ, 2022)



Figure 253. Semi-closed double pocket doors (D105B) seen from Room 105. (Source: RRJ, 2022)

D105A - D105A is a four-panel wood door with raised panels. Molding was present at the Room 105 side and unmolded panels were present on the hallway side. The door casing was painted white and had square edges with a pediment. A porcelain door knob and butt hinges, which appeared to be original to the door, were present. Slight separation of the wood at the joints was noted. Overall, the door was in good condition.

D105B – D105B is a double sliding pocket door between Rooms 105 and 106. The pocket doors are fully operational. Floor tracks and porcelain knobs were present. Each door contained six recessed panels. A key was present in the lock. The pocket doors were in good condition.

D106 – D106 is a four-panel wood door with raised panels. Molding was present on the Room 106 side and unmolded panels were present on the hallway side. The door casing was painted white and had square edges with a pediment. A porcelain door knob and butt hinges, which appeared to be original to the door, were present. Slight separation of the wood at the joints was noted. Overall, the door was in good condition.

D107A – D107A is a six-panel wood door that was painted white. Square-edge casing with a pediment head was present. The door was constructed with wood peg connections. Brass butt hinges were present, and there was some separation of the jamb at hinge screw locations. Overall, the door was in good condition.

D107B – D107B is a set of double French doors that allow access between the pantry and sunroom. Each door has a lower single wood, raised panel and two lites above. The door was painted white. A transom containing a mesh insert was located above the doorway. A cast brass rim lock and strike plate with a white porcelain door knob were present. A modern slide bolt at the head of the door was also present. Overall, the doors were in good condition.

D107C – There is no door at this location, but stained wood door casing was present. A hewn timber lintel was visible above the doorway from Room 109.

D112A – D112A provides access between Room 104 and the bathroom. This door was a four-panel white wood door. The panels were flat on both sides. A modern lockset and handle were present. Square-edge casing with a pediment head was present on both sides of the door. Butt hinges and a door stop were present. Some minor separation of the wood at the joints was noted, but overall, the door was in good condition.

D112C – D112C provides access between the bathroom and Room 113. This door was a four-panel, stained wood door. The panels were flat on both sides. A modern lockset and handle were present. Square-edge casing with a pediment head was present on both sides of the door. Overall, the door was in good condition. This door was added at a time following the 1985 HABS documentation.

Second Floor Interior Doors

D201 – D201 is a wood board and batten door that was assembled with flat head screws. The boards of the door were narrow planks of wood with a beaded edge. An exterior porcelain knob, brass key hole, and brass door stop were present. A straight edge casing with pediment head similar to most other doors in the house was present. The door is shorter than most due to the slope of the roof in this location. The door and latch were fully operation. Overall, the door was in good condition.



Figure 254. French doors between Rooms 107 and 108. (Source: RRJ, 2022)



Figure 255. Rim lock and door knob at Door D107B. (Source: RRJ, 2022)



Figure 256. Door 112A seen from Room 104. (Source: RRJ, 2022)



Figure 257. Door D201 seen from Room 201. (Source: RRJ, 2022)

D202 – D202 is a four-panel door with raised panels. A modern porcelain door handle with lock was present. Square-edge casing with a pediment head was present on both sides of the door. The door was pulling away from the casing at the interior face. The door was operational and overall, in good condition.

D204A – D204A was a white four-panel door with flat panels. Brass butt hinges and modern brass knobs and lockset were present. Typical casing was present. The door was fully operational and in good condition. Based on historical photographs in the Schram Collection at the Felix Vallé State Historic Site, the second-floor bedroom doors may have had glazed transoms which have since been removed, reducing the overall height of the door openings.

D204B - D204B was a white four-panel door with flat panels and porcelain knobs with a brass rim lock at the interior face. The door was out of level relative to the door framing, but otherwise the door was in good condition.

D207A – D207A was a four-panel door with flat panels. A modern porcelain knob with no lock was present. Square edge casing with a pediment head was present on the hall side of the door while the room side had square casing at the head. Overall, the door was in good condition.

D207B - D207B was a four-panel door with flat panels. A modern porcelain knob with an iron rim lock was present. The lock appeared older than the knob. Square edge casing was present. Overall, the door was in good condition.

D208 - D208 was a four-panel door with flat panels. A modern porcelain knob with an iron rim lock was present. The lock appeared older than the knob. The rim lock was operational and had a thumb lock at the interior. Square edge casing was present. Overall, the door was in good condition.



Figure 258. Door D204A seen from Room 201. (Source: RRJ, 2022)

Mechanical Assessment

Plumbing - General

The Jean Baptiste Vallé House constructed in 1794 is assumed to have gone some 150 years after its initial construction, without some form of indoor plumbing. This is an assumption based on the history of plumbing systems in the United States. The use of the exterior well and cistern would have made water available for the house even without indoor running water. Hot water used for bathing could have been provided by heating water in a container over a fireplace or exterior wood fire where hot water could then fill a bath by using buckets to transport it. A person's personal sanitary needs would have likely been handled by use of an exterior outhouse as the original Vallé House did not have bathrooms.

A brief history of plumbing systems in the United States, reveals that plumbing systems were not developed until the 1840s. During this time period indoor plumbing was a luxury and only installed for use by wealthy individuals who could afford it. Most cities did not have comprehensive sewer systems and public awareness about the association between dirty sewage and illness increased. It wasn't until the 1930's that lawmakers and medical professionals in the United States recognized that sanitary plumbing was essential for public health. The outbreak of diseases such as cholera and typhoid led to the invention of better sewerage systems. In 1920, only about 1% of U.S. homes had electricity and any type of indoor plumbing. It wasn't until the 1930s and 1940s were studies performed to form the basis of modern plumbing codes which have changed surprisingly little since then. By 1950, the number of households lacking complete plumbing facilities had declined. During this time period, nearly half of houses lacked hot piped water, a bathtub or shower, or even a flush toilet. In 1960, over 25% of the houses in 16 states didn't have complete plumbing facilities.

It is unknown what plumbing system materials were used in the Vallé House when the plumbing systems in

the house were first installed. In the early 1950s, ductile iron was the most widely used piping material for sanitary waste systems while galvanized steel was predominately used for most water supply systems. It is unknown whether the Vallé House used any of these materials when the plumbing systems were introduced to the house as there is no evidence today which would indicate what the original plumbing systems materials were.

Alliance Water Resources provides water service and sewer collection and treatment services for the city of Ste. Genevieve, Mo and its more than 2000 customers both in and around the municipality. Alliance Water resources has a total maximum water pumping capacity of 1.5 million gallons per day. Alliance Water Resources maintains the water pressure for the city at approximately 50 pounds per square inch.

Water Utility System

Much of the piping visible in the basement level of the Vallé House is Type L rigid copper with soldered joints or Type M soft copper tubing. Some of the piping is insulated with black elastomeric closed cell insulation. This insulation covers approximately 40-50 % of the piping exposed in the basement level. It is assumed that the original piping, which may have been galvanized steel, was replaced with copper as there was no evidence of any other water piping material observed. There are various locations within the basement level where water piping has been isolated with closed valves and is abandoned in place. This was particularly noticed in a northwest corner room where a washer and dryer are located.

The water service entrance is located on the west end of the basement level immediately adjacent to where the main sanitary sewer exits the building. The water line size appears to be 3/4" or 1" in size although a formal measurement of the piping was not made.

PVC water piping is connected to the copper water piping material in the northwest room in the basement level. This PVC material is consistent throughout all of the exposed irrigation piping to and from the where an

in-line filter minus the filter canister, water pressure reducing valve, pressure gauge, and the irrigation controller are located. Some of the piping immediately upstream of the in-line filter location and downstream of the pressure gauge appears to be galvanized steel but this piping material is isolated to these locations only.

The condition of the water piping systems seems to be in good condition with no signs of leakage or undue wear. There are various small kinks or dents in the copper piping but nothing that would prevent full water flow. The size of the water service is appropriate for the number and type of plumbing fixtures present within the house.

Potable hot water for the Vallé House is produced by a single, 40-gallon storage, gas-fired water heater located at the basement level of the house. It is unknown when the water heater was actually installed in the house but based on the manufacturer date of December 21, 2012, it is only 10-years old.

The water heater has a gas input capacity of 35,500 BTU/HR with a recovery rate of 36.33 gallons per hour. It appears that this water heater is adequately sized for the plumbing fixtures utilized in the Vallé House.

With the water heater being 10-years old, it appears to be in good condition with no signs of tank deterioration or leakage. Based on this assessment, it is estimated that it could continue to serve the house for another 10 years before it would be considered for replacement. Gas-fired water heaters have a 20-year life expectancy under normal use, so it has only reached half of its expected lifespan.

Sanitary Waste Utility System

Underground or below-slab sanitary piping at the basement level of the Vallé House serving floor drains and inlet strainers is assumed to be original and could be of a material including galvanized steel or cast iron. There is no evidence of any concrete slab replacement that would indicate that any of the original sanitary piping below the basement level floor in the ground would have ever been removed and replaced. It can

only be assumed that the original piping is still in place. Possible verification of the material and its condition may be able to be determined by utilizing a piping camera or providing more evasive and extensive exploratory floor demolition.

The interior above floor sanitary waste and vent piping in the Vallé House today, is primarily copper drain waste and vent (DWV) piping. There is some polyvinyl chloride (PVC DWV) piping utilized in the house as well. The PVC piping is assumed to have been used as replacement piping material to that of the copper DWV sanitary waste piping as it is connected to the copper sanitary piping upstream of the older copper piping material. The copper DWV piping appears to have been the predominately used sanitary piping material as there are locations in the basement level where the copper DWV piping has been abandoned where it would have offset up through the floor to serve plumbing fixtures which have been removed at the First level. This is evident where holes are present through the First level floor structure from the basement level below.

The sanitary waste piping exiting the house at the northwest corner under the kitchen appears to be hub and spigot cast iron. Galvanized steel may have been used in the house as the original pipe material, but this piping was likely removed and replaced with the copper material present today. The sanitary waste and vent piping that is exposed and can be observed seems to be in good condition with no major issues noted. Much of the waste and vent piping is located in the basement level which serves the First level restroom located at the southwest corner of the house and the kitchen located at the fore-mentioned northwest corner of the First level. Piping serving the Second level restroom routes down through the First level and routes and connects to other piping in the basement level where only a portion of the piping offsetting up to the First level can be seen.

The existing 4" sanitary sewer exiting the Vallé House serving the main restrooms appears to serve the house without any apparent issues. There is what appears to be a 2" PVC sanitary waste line that offsets up to serve the kitchen sink at the First level, that connects to a sump pump discharge pipe before exiting the building.

The sump pump resides in a concrete pit which is used to collect water from the basement level floor drains and the discharge from a washing machine waste standpipe. It is unclear whether the 2" line increases beyond the house exterior wall, but it is assumed that where the two lines connect together, the line size increases to something larger than the 2" size visible at the basement level.

Storm Drainage System Assessment

The Jean Baptiste Vallé House storm drainage system is comprised of exterior metal storm gutters and metal downspouts. There are gutters located at most exterior exposures of the house. The house did incorporate the use of vintage, half-round metal gutters when the house additions were added prior to 1934 as these gutters can be noticed in the collection of 1934 HABS photos. Photos taken years later and as recent as the fall of 2022, indicate smaller and more modern style gutters replaced the older vintage gutters.

There are a few locations around the house where no gutters are present. These are located at the west side of the northwest Kitchen addition and at the south side of the southwest Office addition. Here the roof areas appear to be flat with a gentle slope where rain water is allowed to drain onto surrounding roof surfaces where the storm water is then directed to other gutters present and is drained away by the downspouts.

The roof of the garden shed which is located to the north of the Kitchen appears to have no gutter on the west side of the pitched roof. Here storm water simply drains over the edge of the roof where it simply dumps to grade. The east side of the shed however has a gutter and downspout. It is recommended that a gutter and downspout be located at the west side of the garden shed roof to collect storm water allowing the water to be directed away from the immediate perimeter of the house at this location.

The house has no interior storm piping.

Plumbing Fixtures

The plumbing fixtures present in the Vallé House are assumed not to be original to the house as the fixtures appear to be of a modern design and age which is assumed to be less than 30-years old. Most of the fixtures are vitreous china. While vitreous china plumbing fixtures have been around since as early as the early 1900s, none of the fixtures in the house are this old. At the basement level is a vintage looking china sink with a back-mounted, faucet with manual dual knobs. This sink appears to be the oldest fixture in the house today although sinks with the same vintage look are available today.

The First level restroom has a floor-set, bottom outlet, tank-style, pressure-assisted, water closet with closed seat and lid. The lavatory in this restroom is an under-mount lavatory attached to solid surface countertop. The lavatory faucet is vintage looking, chrome plated faucet, manually operated, with center-set two lever handles and with pop-up drain assembly.

The Second level restroom has a wall-mounted, back-outlet, pressure-assisted, water closet with closet seat and lid. The lavatory in this restroom is an under-mount style attached to a type of surface counter. The lavatory faucet has two independent, crystalline handles and a common spout with a pop-up drain assembly.

The First and Second level restrooms each have a bathtub with showers. Both showers have been set up to accommodate handicapped users as each has grab-bars and hand-held shower heads with a flexible, chrome-plated water supply line from a shower valve or tub diverter at the spout. The tub in the First

Level is an older tan color while the tub at the Second level is a pale-yellow color. These colors would indicate that the fixtures are dated. The First level tub faucet handles and diverter have a chrome plated finish but appear to be dated. The Second level shower valve has a newer but somewhat dated look utilizing a single, crystalline shower handle and simple spout. While each shower has been provided with grab-bars and hand-held shower heads, the tubs would not appear to be ADA

handicapped compliant as the grab bars are required to be in a horizontal position at each end of the tub and on the side of the tub. This requirement gives a handicapped individual the ability to lift themselves off of a seat when provided at the tub. The grab bars at the First level tub are currently located on the side wall only where the grab bar is diagonal bar which doesn't meet the ADA requirements. There are no grab bars on the ends of the tub. At the Second level, the tub has a window at the side of the tub so no grab bars can be installed to make the tub ADA compliant. It is unknown if the grab bars and hand-held showers were installed by residents of the house or if the tubs/showers were modified in an attempt to make them ADA compliant after NPS took over the house.

The First level kitchen has a drop-in, double bowl sink and single lever, swivel, gooseneck spout with separate water spray hose. The kitchen sink does not incorporate a garbage disposal.

Gas Utility

The existing gas utility serving the Jean Baptiste Vallé House appears to be of ample size and capacity based on the house's current gas requirement. As the gas-fired heating equipment served by the gas utility was installed in 2017, it is assumed that there would be no equipment replacement planned for this building in the near future which would require an increase in gas demand.

Fire Protection

The existing Jean Baptiste Vallé House currently has no commercial or residential fire suppression system.

Heating, Ventilating, and Air-Conditioning (HVAC) - General

The Jean Baptiste Vallé House did not have any conventional heating, ventilating and air conditioning system when built in 1794 as residential HVAC systems incorporating air conditioning were not invented until approximately 1915.

The Vallé House originally had two main rooms with a central fireplace. Years later, additional interior walls were added to sub-divide the main floor into four main rooms. When this was done, the main central fireplace and chimney were removed, and additional fireplaces were constructed at the exterior walls leaving the four rooms each with their own fireplace. It is assumed that the fireplaces were used to heat the home during the winter months. Manually operated windows at the perimeter of the four main rooms provided a means to cool the spaces during the summer months and provided ventilation for the house.

It wasn't until at least the early 1930s was some form of mechanical heating provided for the home. Various photos taken from the north side of the home show at least two different early gas-fired units located up next to the house. It is unknown whether the units outside were connected to other units indoors or not. It is also unknown whether these old systems interior to the building were air-based or water-based systems. A photo taken included in the 1933 HABS photos collection shows that a metal cabinet was present next to a window located in the northeast corner of the First level which appears to have been covering what is believed to have been a steam radiator or hot water heating convector. There are other indications in other rooms at the First level where the wood floors are discolored and small openings in the wood flooring are present which would indicate that perhaps radiators or covered heating units were present at one time. Any of these older systems have since been removed. The vintage units outside were later replaced with more conventional forced air heating and cooling systems where interior ductwork provided central air distribution to the house. Photo evidence provided by a google street mapping photograph indicates that air-cooled condensing units located on grade replaced the older exterior equipment to the north of the house.

Today, the house mechanical system is comprised of three furnaces. Two of the furnaces are located at the basement level which serves the first level. A third furnace is located in the attic level (above the Second level ceiling) which serves the Second level.

Heating System

The two furnaces located in the basement are vertically configured Lennox, Merit Series, hi-efficiency gas-fired furnaces. The Lennox model numbers are ML195UH070. These units were manufactured in 2016 and installed in 2017. The furnaces have gas inputs of 66,000 Btuh and outputs of 64,000 Btuh with an annual fuel utilization efficiency of 95%. The furnaces are fed by 120-volt, single phase power.

The Second level is served by a horizontally configured, Lennox electric heating blower-coil unit. The Lennox model number is CBX32M-018/024-230-6-06. It is unknown when the unit was installed although it is believed it was about the same time that the units in the basement were installed. The unit is provided with a 10-Kw electric coil which can provide 34,100 Btuh heating capacity.

Cooling System

The two furnaces in the basement are provided with an A-frame refrigerant coil which provides cooling. The coils are coupled with air-cooled condensing units which are located on grade immediately north of the house. The condensing units are manufactured by Lennox. The model numbers are 13ACXN024-230A21 and 13ACXN036-230-20. The 024 unit has a nominal cooling capacity of 24,000 Btuh or 2.0-tons. The 036 unit has a nominal cooling capacity of 36,000 Btuh or 3.0-tons. The condensing units and indoor furnace cooling coils are served by HFC-410A refrigerant.

The Second level air handling unit is provided with a horizontal refrigerant coil. The coil is coupled with a grade-mounted air-cooled condensing unit which is located adjacent to the other two condensing units serving the basement furnaces. The air-cooled condensing unit is manufactured by Lennox and has a model number 13ACXN024-230A23. The unit has a nominal cooling capacity of 24,000 Btuh or 2.0-tons. It is served by HFC-410A refrigerant.

Air Distribution System

Sheet metal ductwork is connected to the two furnaces located at the basement level of the Vallé House. The supply air ductwork routes throughout the basement where offsets up through the First level floor to floor registers serving the various rooms at the First level. A single floor return air grille is associated with each furnace system serving the First level where the grilles are ducted back to each of the two furnaces located at the basement level.

None of the main supply and return air ductwork located at the basement level is insulated either externally or internally. As the basement level does not have a dedicated unit serving it, it is assumed that basement stays cool during the summer months as the exterior walls are below grade where the ground temperature is cooler which keeps the spaces below grade cooler in the summer. As heat rises through stratification, any heat would rise to the First and Second levels. Air leakage caused by non-sealed duct joints also contributes to the basement staying cooler. Keeping the basement level warmer in the winter would be more of a concern as there are no air outlets present at any of the ductwork running throughout the basement level.

At the Second level, the electric furnace located above the center hall space has a single ceiling return air grilled that is ducted back to the furnace. The rooms at the Second level are supplied with conditioned air through sidewall supply air registers located up high on the room walls. The registers are connected to a short rigid duct main at the discharge side of the furnace cooling coil where flexible insulated ductwork then routes out to the various sidewall registers.

The ductwork appears to be in good condition and is not recommended to be modified or replaced at this time. Sheet metal ductwork can last for 50-years or more and only needs to be replaced if it is damaged hindering its ability to move air. Damage to ductwork does not seem to be an issue at the Vallé House.

Mechanical Codes

The mechanical codes adopted by the City of Ste. Genevieve, MO are as follows:

- 2018 International Plumbing Code based on the 2018 International Plumbing Code with local amendments
- 2018 International Mechanical Code based on the 2018 International Mechanical Code with local amendments
- 2018 International Fire Code based on the 2018 International Fire Code with local amendments
- 2018 International Fuel Gas Code based on 2018 International Fuel Gas Code with local amendments

Due to its history of strong local government, Missouri does not have a mandatory statewide energy code. However, all local jurisdictions have the right to adopt an energy code. All new state construction, buildings being constructed for lease by the state, and significant renovations and replacement of energy-using equipment shall be at least as stringent as the most recent energy efficiency standards of the IECC. Exemptions shall be limited to those listed in the IECC and exemptions approved by the Director of Facilities Management, Design and Construction. The State of Missouri allows individual municipalities to adopt any combination of codes and may even forego code adoption. The City of Ste. Genevieve has not adopted any form of the International Energy Conservation Code (IECC).

Jean Baptiste Vallé House Historic Structure Report

D	PLUMBING				
D20	SITE UTILITIES				
	D2010	WATER UTILITY			
		D2010	Water Service to site from south of property from Market Street	Condition	Priority
				Good	Low

Date: Unknown

Contributing: Non-Contributing

The water service serving the Jean Baptiste Vallé House originates from a main located along Market Street. The water service extends north from the street onto the property. A water stop valve is located in the sidewalk immediately south of the property with the building water meter located in a pit below ground at the south side of the property.



Figure 259. Existing water stop valve in sidewalk south of property with the water service originating at Market Street. (Source: Alvine, 2022)



Figure 260. Existing water meter pit inside of property at south side. (Source: Alvine, 2022).

D	PLUMBING				
D20	SITE UTILITIES				
	D2010	WATER UTILITY			
		D2021	Abandoned Well and Cistern	Condition	Priority
				N.A.	N.A.

Date: Unknown

Contributing: Non-Contributing

The Jean Baptiste Vallé House was once served by water wells and a cistern which were located northwest of the house in the courtyard and north of the house in the rose garden. The wells have since been capped and the pumps removed. The cistern has been abandoned.



Figure 261. Photo of remaining cistern pump pad at courtyard.
(Source: Alvine, 2022)



Figure 262. Photo of remaining well pump pad at rose garden.
(Source: Alvine, 2022).

Jean Baptiste Vallé House Historic Structure Report

D	PLUMBING				
D20	SITE UTILITIES				
	D2020	GAS UTILITY			
		D2022	Gas Utility to site to northeast corner of property from South Main Street	Condition	Priority
				Good	Low

Date: Unknown

Contributing: Non-Contributing

The gas service serving the Jean Baptiste Vallé House originates from the east at South Main Street. It routes underground to the northeast corner of the house where a gas meter resides.

A gas utility shut-off valve is located in the ground adjacent to the pedestrian path near the northeast corner of the building ahead of the gas meter. The gas utility appears to be of a higher pressure than what is utilized in the house based on the presents of a gas pressure regulator on the service ahead of the meter. The gas pressure in the house is low pressure with an assumed pressure of 7-inch W.C.

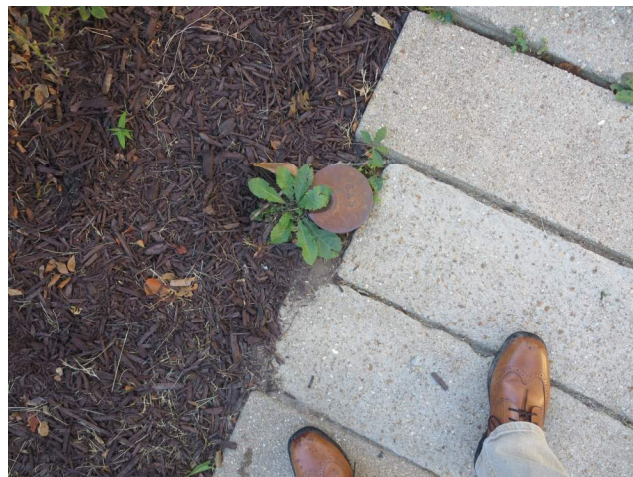


Figure 263. Existing gas meter shut-off valve in the ground next to the pedestrian path at the northeast end of the site. (Source: Alvine, 2022)



Figure 264. Existing gas utility meter location near the northeast corner of the building. (Source: Alvine, 2022).

D	PLUMBING				
D20	PLUMBING FIXTURES				
	D2030	Plumbing Fixtures			
				Condition	Priority
		D2035	First Floor Water Closet and Lavatory	Fair	Moderate
		D2036	Second Floor Water Closet and Lavatory	Fair	Moderate

Date: Unknown

Contributing: Non-Contributing

The plumbing fixtures present at the Jean Baptiste Vallé House are manufactured from vitreous china. They include wall mounted back outlet and floor set pressure

assisted water closets and undermount and molded counter lavatories.



Figure 265. Existing floor-mounted, bottom-outlet, pressure-assisted, water closet at First Floor restroom. (Source: Alvine, 2022)



Figure 267. Existing under-mounted lavatory at First level restroom. (Source: Alvine, 2022).



Figure 266. Existing wall-mounted, back-outlet, pressure assisted, water closet at Second level restroom. (Source: Alvine, 2022).



Figure 268. Existing molded, integral counter lavatory and faucet with crystalline handles at Second level restroom. (Source: Alvine, 2022).

Jean Baptiste Vallé House Historic Structure Report

D	PLUMBING				
D20	PLUMBING FIXTURES				
	D2030	Plumbing Fixtures			
		D2033	Kitchen Sink and Faucets	Condition	Priority
		D2034		Good	Low
			Showers	Good	Low

Date: Unknown

Contributing: Non-Contributing

The Kitchen sink is a double bowl drop-in sink with manually operated single lever, swivel faucet. The lavatory at the first level has a manually operated faucet with two handles.

Showers exist on both the first level and second level restrooms. Showers have hand-held shower heads. Both showers do not meet accessibility requirements.

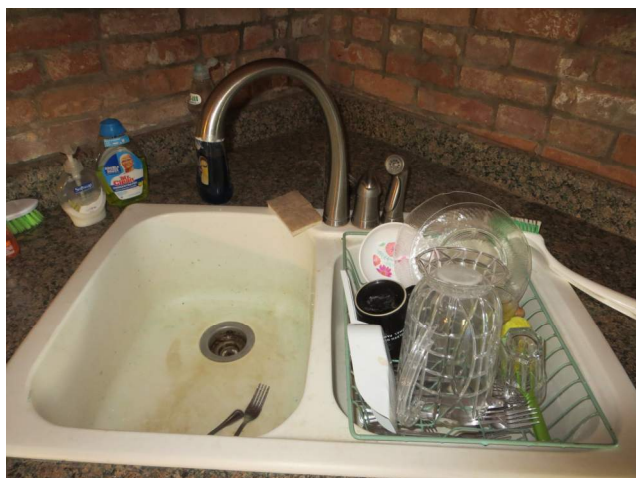


Figure 269. Existing drop-in sink with swivel, single lever faucet at kitchen on First level. (Source: Alvine, 2022)



Figure 270. Existing lavatory faucet with two handles at First level restroom. (Source: Alvine, 2022).



Figure 271. Existing shower at First level restroom. (Source: Alvine, 2022)

D	PLUMBING				
D20	PLUMBING FIXTURES				
	D2030	Plumbing Fixtures			
				Condition	Priority
		D2035	Basement Sink and Faucet	Fair	Moderate
		D2036	Garage Sink and Faucet	Fair	Moderate

Date: Unknown

Contributing: Non-Contributing

In the basement level of the Jean Baptiste Vallé House, a vintage vitreous china, sink and drainboard resides. It is mounted on a make-shift counter constructed of wood. Hot and cold-water lines route down from overhead next to the wood counter where they then route below and over to the sink faucet.

In the garage building to the west of the Vallé House is another vintage sink and drainboard which appears be similar to the sink at the basement level of the house. The sanitary waste and cold-water utility piping serving the sink routes down below the garage floor.



Figure 272. Existing old sink in the shop of the existing garage located west of the Vallé House. (Source: Alvine, 2022)



Figure 274. Existing hot and cold water supply piping routing down wall to below the sink wood counter. (Source: Alvine, 2022).



Figure 273. Existing old sink located at the basement level of the house. (Source: Alvine, 2022)

Jean Baptiste Vallé House Historic Structure Report

D	PLUMBING				
D30	DOMESTIC WATER DISTRIBUTION				
	D3030	Floor Drains Domestic Water Distribution			
		D2037	Floor Drains - House	Condition	Priority
		D3010	Water Piping – House	Good	Low

Date: Unknown

Contributing: Non-Contributing

It appears that all of the floor drain piping is connected below the floor with the sanitary line running to the sump pit located adjacent to the washing machine. The drain line discharges into the pit near the southwest corner of the pit (the pipe with the green hose in front of it). The drain lines may need to be cleaned out to ensure their viability to continue to serve the house.



Figure 276. Existing below floor waste piping at the southwest corner of the sump pit where the waste pipe discharges into the pit (drain line with the green hose in front of it). (Source: Alvine, 2022).



Figure 275. Existing floor drain in the center of the basement level adjacent to the furnace. The drain grate appears to be dirty and partially clogged with debris. (Source: Alvine, 2022).



Figure 277. Existing floor drain in the far southwest room of the basement level. The drain grate appears to be dirty and partially clogged with debris. (Source: Alvine, 2022)

D	PLUMBING				
D30	DOMESTIC WATER DISTRIBUTION				
	D3010	Domestic Water Distribution			
		D3010	Water Piping – House	Condition	Priority
				Good	Low

Date: Unknown

Contributing: Non-Contributing

ittings. Black closed cell insulation exists in various locations

The cold and hot water piping inside the Jean Baptiste Vallé House is primarily copper pipe with soldered

PVC cold piping material is present for the exterior irrigation system



Figure 278. Existing copper piping in basement level. (Source: Alvine, 2022)



Figure 280. Existing copper water piping below restroom cabinet serving lavatory. (Source: Alvine, 2022)



Figure 279. Existing copper water piping with closed cell insulation in basement level. (Source: Alvine, 2022).



Figure 281. Existing PVC water piping serving lawn irrigation system. (Source: Alvine, 2022).

Jean Baptiste Vallé House Historic Structure Report

D	PLUMBING				
D30	DOMESTIC WATER DISTRIBUTION				
	D3020	Water Heater			
		D3020	Water Heater – House	Condition	Priority
				Good	Low

Date: 2012

Contributing: Non-Contributing

A single, Reliance model number 640GORS 300, gas-fired water heater is located at the basement level. The water heater is a 40-gallon storage size with a 36.33 gallons per hour (GPH) recovery capacity with a 35,500 Btuh gas input. The water heater is only 12-years old as it was manufactured in 2012.

The flue for the water heater extends to the room immediately south of where the water heater resides with the flue connected to an existing chimney.



Figure 282. Existing gas-fired water heater located at the basement level. (Source: Alvine, 2022)



Figure 283. The water heater has a 40-gallon storage capacity and 36.33 GPH recovery. (Source: Alvine, 2022)



Figure 284. The water heater flue passes through the adjacent wall to the south. (Source: Alvine, 2022)



Figure 285. The water heater flue continues to the south where it connects to an existing chimney. (Source: Alvine, 2022)

Jean Baptiste Vallé House Historic Structure Report

D	PLUMBING				
D40	SANITARY WASTE				
	D4010	Sanitary Waste Piping			
		D4010	Sanitary Waste Piping - House	Condition	Priority
				Good	Low

Date: Unknown

Contributing: Non-Contributing

The house sanitary sewer lines are comprised of different piping materials. These include hub and spigot cast iron, copper DWV and polyvinyl chloride (PVC) piping. All of the sanitary sewer piping exits the house on the west side with piping exiting in multiple locations.



Figure 286. The main sanitary sewer piping exiting the building is copper DWV piping as indicated in the above photo. (Source: Alvine, 2022)



Figure 287. There are portions of the building which have PVC sanitary waste piping connected to the copper DWV piping as indicated in the above photo. (Source: Alvine, 2022)



Figure 288. Existing sanitary waste piping below the kitchen sink is PVC. (Source: Alvine, 2022)

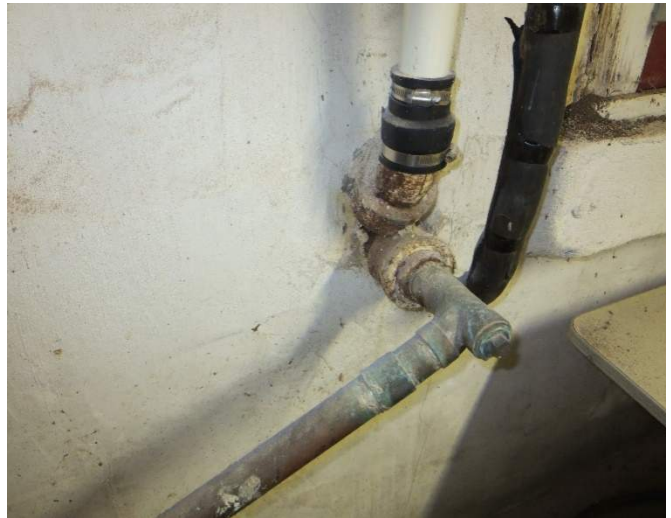


Figure 289. At the north end of the basement level there is a copper DWV sump pump discharge pipe and PVC waste piping (white pipe) which connect to hub and spigot cast iron pipe before exiting the house through the wall. (Source: Alvine, 2022)

Jean Baptiste Vallé House Historic Structure Report

D	PLUMBING				
D50	OTHER PLUMBING SYSTEMS				
	D5010	Gas Distribution Piping			
		D5010	Gas Distribution Piping - House	Condition	Priority
				Good	Low

Date: Unknown

Contributing: Non-Contributing

The gas piping routing through the basement level of the Jean Baptiste Vallé House is Schedule 40 black steel pipe. At the water heater, the black steel piping transitions to copper piping before final connection to the water heater.

In the basement level of the Jean Baptiste Vallé House, is a washer and dryer. The washer waste pipe routes to an adjacent standpipe which then drains to a concrete

pit. In the pit is a sump pump, which then pumps the waste water over to a cast iron pipe exiting the house at the west wall. This pump should be cleaned and checked for operation to ensure reliability



Figure 290. The gas piping serving each of the Basement furnaces is Schedule 40 black steel. (Source: Alvine, 2022)



Figure 291. The gas piping serving each of the Basement furnaces is Schedule 40 black steel. (Source: Alvine, 2022)



Figure 292. The gas piping serving each of the Basement furnaces is Schedule 40 black steel. (Source: Alvine, 2022)



Figure 293. The gas piping serving the water heater in the basement level is Schedule 40 black steel before transitioning to flexible copper pipe at the water heater. (Source: Alvine, 2022)

Jean Baptiste Vallé House Historic Structure Report

D	PLUMBING				
D50	OTHER PLUMBING SYSTEMS				
	D5020	Basement Sump Pump			
		D5020	Basement Level Sump Pump - House	Condition	Priority
				Fair	Moderate

Date: Unknown

Contributing: Non-Contributing

In the Basement Level of the Jean Baptiste Vallé House, is a washer and dryer. The washer waste pipe routes to an adjacent standpipe which then drains to a concrete pit. In the pit is a sump pump which then pumps the

waste water over to a cast iron pipe existing the house at the west wall. This pump should be cleaned and checked for operation to ensure reliability.



Figure 294. Existing washing machine waste piping discharging into a PVC standpipe behind the washing machine. (Source: Alvine, 2022)



Figure 295. The PVC standpipe routes under the floor to a concrete pit where a sump pump is located. (Source: Alvine, 2022)



Figure 296. The sump pump has a PVC discharge pipe which is connected to copper DWV piping. (Source: Alvine, 2022)



Figure 297. The existing copper DWV waste piping then connects to a cast iron hub and spigot drain line which exits the west wall of the basement level. (Source: Alvine, 2022)

D	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)				
D60	ORIGINAL HVAC SYSTEMS				
	D6010	ORIGINAL HVAC EQUIPMENT - EXTERIOR			
		D6010	Old HVAC equipment located north of the Vallé House which has since been removed	Condition	Priority
				N.A.	N.A.

Date: Unknown

Contributing: Non-Contributing

Prior to the current HVAC equipment installation in 2017, there were several varying HVAC systems that existed that serve the Vallé House. These photos indicate these pieces of equipment that have since been removed.



Figure 298. Vintage HVAC units which resided at the north side of the house have since been removed. (Source: HABS, 1933)

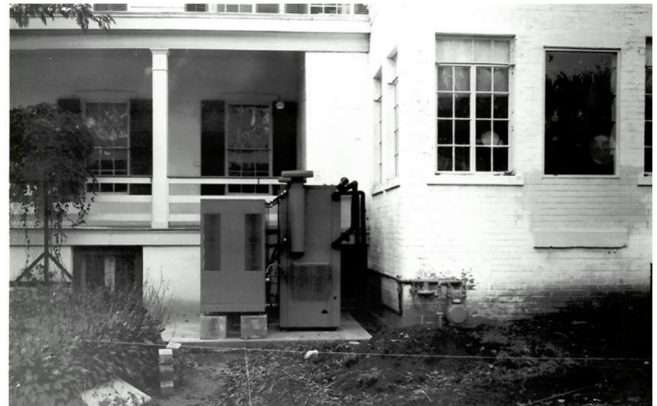


Figure 299. Vintage HVAC units which resided at the north side of the house have since been removed. (Source: HABS, c. 1950s)



Figure 300.. Older air-cooled condensing units which resided at the north side of the house. (Source: Google Street View, 2013)



Figure 301. Close-up view of older air-cooled condensing units which resided at the north side of the house. (Source: Google Street View, 2013)

Jean Baptiste Vallé House Historic Structure Report

D	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)				
D70	HEATING AND COOLING GENERATING SYSTEMS				
	D7010	GAS-FIRED FURNACE SYSTEMS			
		D7010	Furnace systems serving First level	Condition	Priority
				Good	Low

Date: 2017

Contributing: Non-Contributing

Two, gas-fired furnace systems located in the basement level provide heating and air-conditioning for the First level of the house. Each unit is a Lennox model ML195UH070, vertically-configured, furnace.

Flues and combustion air piping for each furnace is PVC and routes to the exterior walls of the building up high in the basement level.



Figure 302. Existing 66,000 Btuh input and 64,000 Btuh output (95% efficient), gas-fired furnace located at center of basement level. (Source: Alvine, 2022)



Figure 303. Existing 66,000 Btuh input and 64,000 Btuh output (95% efficient), gas-fired furnace located at northwest end of basement level. (Source: Alvine, 2022)



Figure 304. Existing flue and combustion air PVC piping routing through basement level from central furnace. (Source: Alvine, 2022)



Figure 305. Existing flue and combustion air PVC piping routing through basement level from northwest furnace. (Source: Alvine, 2022)

Jean Baptiste Vallé House Historic Structure Report

D	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)				
D70	HEATING AND COOLING GENERATING SYSTEMS				
	D7010	GAS-FIRED FURNACE SYSTEMS			
		D7011	Basement level furnace system flue and combustion air piping	Condition	Priority
				Good	Low

Date: 2017

Contributing: Non-Contributing

The flue and combustion air piping from the two basement level gas furnaces route up high in the basement level where they terminate at the exterior

walls with a combination flue exhaust and combustion air intake fitting.



Figure 306. Existing flue and combustion air piping up high in basement level from northwest furnace. (Source: Alvine, 2022)



Figure 307. Existing flue and combustion air piping up high in basement level from central furnace. (Source: Alvine, 2022)



Figure 308.. Existing combination flue exhaust and combustion air intake fitting at west exposure of house serving NW basement furnace. (Source: Alvine, 2022)



Figure 309. Existing combination flue exhaust and combustion air intake fitting at north exposure of house serving center basement furnace. (Source: Alvine, 2022)

D	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)				
D70	HEATING AND COOLING GENERATING SYSTEMS				
	D7010	ELECTRIC FURNACE SYSTEM			
		D7012	Electric furnace system serving second level	Condition	Priority
				Good	Low

Date: 2017

Contributing: Non-Contributing

A single, electric furnace resides above the ceiling in the attic space. This unit provides heating and cooling for the Second level. Access to this unit in the attic space is through a ceiling hatch. The unit is a Lennox model CBX32M-018/024, horizontally-configured unit. The unit is provided with a 10 Kw (34,100 Btuh) heating coil and horizontal airflow refrigerant cooling coil.

A sheet metal pan with an auxiliary drain resides underneath the unit against moisture overflow if the main condensate drain ever gets clogged and does not drain properly.



Figure 310. Existing ceiling area below Second level electric furnace location with return air grille in the ceiling. (Source: Alvine, 2022)



Figure 311. View up through the access opening in the ceiling to the Second level electric furnace. (Source: Alvine, 2022)



Figure 312. Existing Second level electric furnace with sheet metal pan below. Note the PVC drain line from the pan. (Source: Alvine, 2022)



Figure 313. Existing Second level electric furnace with refrigerant coil. Note sheet metal pan below unit. (Source: Alvine, 2022)

Jean Baptiste Vallé House Historic Structure Report

D	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)				
D70	HEATING AND COOLING GENERATING SYSTEMS				
	D7010	HEAT REJECTION SYSTEMS			
		D7013	Exterior air-cooled condensing units serving basement level gas furnaces	Condition	Priority
				Good	Low

Date: 2017

Contributing: Non-Contributing

The basement level furnaces are provided with A-frame refrigerant cooling coils. Each furnace cooling coil is coupled with an exterior located, grade-mounted, air-cooled condensing unit. The condensing units are located adjacent to the building on the north side near the northeast corner of the house. The basement level northwest furnace is served by a Lennox model 13ACXN024 condensing unit which has a 2-ton cooling

capacity. The basement level central furnace is served by a Lennox model 13ACXN036 condensing unit which has a 3-ton capacity. Refrigerant piping exits building to condensing units through exterior wall adjacent to basement window.



Figure 314. Existing condensing units for basement level furnaces. The unit capacities are 3-ton (left) and 2-ton (right). (Source: Alvine, 2022)



Figure 315. Existing 2-ton condensing unit serving NW basement level furnace. (Source: Alvine, 2022)



Figure 316. Existing 3-ton condensing unit serving central basement level furnace. (Source: Alvine, 2022)



Figure 317. Existing refrigerant piping routing through exterior wall above corner of basement window. (Source: Alvine, 2022)

D	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)				
D70	HEATING AND COOLING GENERATING SYSTEMS				
	D7010	HEAT REJECTION SYSTEMS			
		D7014	Exterior air-cooled condensing unit serving Second level electric furnace	Condition	Priority
				Good	Low

Date: 2017

Contributing: Non-Contributing



Figure 318. Existing condensing unit (on the left) which serves the Second level electric furnace located in the attic. This unit is a 2-ton unit. (Source: Alvine, 2022)

The second level furnace is provided with a horizontal airflow refrigerant cooling coil. The furnace cooling coil is connected to an exterior located, grade-mounted, air-cooled condensing unit. The condensing unit is located adjacent to the building on the north side near the northeast corner of the house. The Second level furnace is coupled with a Lennox model 13ACXN024 condensing unit which has a 2-ton cooling capacity.



Figure 319. Existing 2-ton condensing unit serving Second level furnace. (Source: Alvine, 2022)



Figure 320. Existing refrigerant piping routes along top of concrete slab to grade-mounted second level condensing unit. (Source: Alvine, 2022)

D	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)				
D80	DISTRIBUTION SYSTEMS				
	D8010	DUCTED AIR DISTRIBUTION SYSTEMS			
		D8010	Air distribution in basement level serving First level	Condition	Priority
				Good	Low

Date: Unknown

Contributing: Non-Contributing

Air distribution for the Jean Baptiste Vallé House is through direct ducted air distribution systems. The ductwork serving the First level is routed throughout the basement level where supply and return air ductwork offsets up through the First level floor to floor located

supply registers and return grilles. The ductwork in the basement is not insulated.



Figure 321. Typical supply air ductwork located at the basement level which serves the First level spaces. (Source: Alvine, 2022)



Figure 322. Typical supply air ductwork located at the basement level which serves the First level spaces. (Source: Alvine, 2022)



Figure 323. Typical floor supply air register located at the floor of the first level. (Source: Alvine, 2022)



Figure 324. Typical floor return air grille located at the floor of the first level. (Source: Alvine, 2022)

D	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)				
D80	DISTRIBUTION SYSTEMS				
	D8010	DUCTED AIR DISTRIBUTION SYSTEMS			
		D8011	Ducted air distribution in Attic serving Second level	Condition	Priority
				Good	Low

Date: 2017

Contributing: Non-Contributing

Air distribution for the second level of the Jean Baptiste Vallé House is through a ducted air distribution system. The ductwork serving the second level is routed throughout the attic utilizing insulated flexible supply

air ductwork which routes to the various room sidewall supply air registers. The return air is through a central return air grille at the ceiling with a return air duct connected to the electric furnace above the ceiling.



Figure 325. Typical insulated flexible supply air ductwork located up above the ceiling within the attic serving sidewall supply air registers at the Second level spaces. (Source: Alvine, 2022)



Figure 326. Typical sidewall supply air registers located up high on the walls of the Second level rooms. (Source: Alvine, 2022)



Figure 327. Typical sidewall supply air registers located up high on the walls of the second level rooms. (Source: Alvine, 2022)



Figure 328. Central ceiling-located return air grille serving second level located adjacent to the attic equipment access hatch. (Source: Alvine, 2022)

Jean Baptiste Vallé House Historic Structure Report

D	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)				
D80	DISTRIBUTION SYSTEMS				
	D8020	EXHAUST SYSTEMS			
		D8021	First level and Second level Restroom Exhaust	Condition	Priority
				Fair	Moderate

Date: Unknown

Contributing: Non-Contributing

At the north wall of the interior first floor restroom, there is an old exhaust fan located in the wall above an existing exterior door to the west deck. It is unknown if this fan still operates and if it is ducted in the wall beyond the fan as there is no exhaust grille at the exterior side of the wall. Operation should be verified to make sure there are no issues regarding exhaust.

The restroom at the second level has a combination heat lamp / exhaust fan unit at the ceiling of the room. It is assumed that the exhaust fan operates as the heat lamp currently operates. Operation should be verified to make sure there are no issues regarding exhaust.



Figure 329. First level restroom wall exhaust fan. (Source: Alvine, 2022)



Figure 330. Second level restroom ceiling exhaust fan/heat lamp. (Source: Alvine, 2022)

D	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)				
D90	HEATING AND COOLING GENERATING SYSTEMS				
	D9010	Exhaust Systems			
		D9011	First level and Second level Restroom Exhaust	Condition	Priority
				Fair	Moderate

Date: 2017

Contributing: Non-Contributing

Control of each of the Jean Baptiste Vallé House furnace systems is through simple wall-mounted, programmable heating-cooling thermostats.



Figure 331. First level furnace system control thermostat located in entry hallway of the first level. This thermostat controls the central basement furnace. (Source: Alvine, 2022)



Figure 332. First level furnace system control thermostat located at the entry of the kitchen of the first level. This thermostat controls the northwest basement furnace. (Source: Alvine, 2022)



Figure 333. Second level furnace system control thermostat located in the central hallway outside the restroom at the second level. This thermostat controls the Second level furnace. (Source: Alvine, 2022)

Electrical Assessment

The Jean Baptiste Vallé House as constructed in c. 1794 did not originally have any electrical wiring. It is not known when electrical wiring was first installed in the house, but it was probably in the 1940s.

Electric cooperatives began to crop up nationwide after President Franklin D. Roosevelt signed the Rural Electrification Administration (REA) into law in 1935. The REA provided low-interest loans to cooperatives in order to electrify rural America.

Genevieve Electrical Cooperative was formed in 1941 under the direction of the REA to extend powerlines to rural southern Missouri. In 1945, at the end of World War II, the first 202 miles of line were energized, and Genevie Electric started active operation as a rural elective cooperative.

Later the same year, Genevieve Electric Cooperative acquired the assets of Missouri General Utilities company located in Perry Genevieve, eastern St. François, and northern Cape Girardeau counties.

With the acquisition of Missouri General Utilities, Genevieve Electric Cooperative began serving the cities of Ste. Genevieve and Perryville; each having a population of more than 1,500 customers. Since cooperatives are prohibited from serving any municipality with a population of more than 1,500, it was necessary to reorganize Genevieve Electric Cooperative.

To accomplish this reorganization, Citizens Electric Corporation was organized, incorporated, and the charter was issued on November 17, 1947. Citizens Electric Corporation is the current electric utility company serving Saint Genevieve. The original 1940s electrical wiring was mostly replaced later on; possibly in the 1970s or later. The exact date is unknown.

A Brief History of Home Electrical Wiring

Electrical service to American homes began in the late 1890s and blossomed from 1920 to 1935, by which time

70% of American homes were connected to the electrical utility grid. In the following 100-some years, the methods for installing wiring in those homes have seen several important innovations aimed at improving safety of electrical systems.

Knob-and-Tube Wiring

Between 1890 and 1910, a wiring system known as knob-and-tube was the principal system of installation. It was quite a dependable system.

In knob-and-tube wiring, individually conducted wires protected by rubberized cloth fabric are installed in stud and joint cavities, held in place by porcelain knob insulators attached to the sides of framing members, and protected by porcelain tube insulators where the wires run through framing members. In this wiring system, hot wires and neutral wires were run separately for safety. The system also allowed long circuit runs to be constructed by splicing together lengths of wire. To do this, the insulation was stripped back, a new wire was wrapped around the exposed bare wire, and the splice was soldered together, then taped to cover the splice. The downfall was that the wire was also exposed, and there was no ground wire used. The rubber would also dry out and start to crack, so the insulation could fall off when disturbed.

Flexible Armored Cable (Greenfield Or Bx)

In the 1920s to 1940s, electrical installations took a turn to a more protective wiring scheme; flexible armored cable. Flex, also known as Greenfield or BX, was a welcome addition to home wiring because the flexible metal walls helped to protect the wires from damage, and offered a metal pathway that could ground the system when properly installed. Although it was an improvement, this wiring method had its troubles. Although the individual wire conductors are protected, the flexible outer metal jacket served as a proper ground only when the metal pathway was complete all the way to the service entrance and grounding rod. There was still no separate ground wire in these installations.

In the early years of BX wiring, the rubberized fabric coating sheath was still being used (similar to that used in knob-and-tube wiring). This would dry out and crack over time.

In the 1930s, a quicker installation method was developed. Nonmetallic-sheathed (NC) cable was born, which incorporated a rubberized fabric coating sheath, much like knob-and-tube wiring, but here the hot and neutral wire were run together in this one sheathing. It also had its drawbacks due to the lack of ground wire, but its development would eventually lead to major innovation. Early sheathed cable, however, also had an expected lifespan of about 25 years.

A ground wire was added in the mid-1940s to early 1950s, but it was only about a quarter of the size of the hot and neutral wires. This was also when the modern plastic-coated inner wire was introduced. This cable type was sometimes called “Rat Wire” because the coating was developed to have a bad taste to keep mice and rats away.

There are still some of these first generation-type NC cables visible in the basement of the Jean Baptiste House.

Metal Conduit

The 1940s brought the age of metal conduit. This innovation allowed users to pull many individual conducting wires in the same rigid metal tube enclosure. The conduit itself was considered a viable grounding method, and the system also allowed another sperate grounding wire (usually an insulated green wire) to be pulled through the conduit. Conduit has been in use ever since those days and is still the recommended method for wiring on certain applications, such as when wiring needs to the run along the face of basement masonry

walls or in exposed locations. Most homes have some areas where conduit is used, though it is now sometimes made with rigid plastic PVC conduit rather than metal.

Modern Nonmetallic-Sheathed Cable

The non-metallic-sheathed-type cable (NM) cable was introduced in around 1965. This form of NM cable was an update to older NC cable, incorporating the use of bare copper grounding wire that joined insulated hot and neutral wires contained within the sheathing. Instead of rubberized sheathing, modern NM cable uses a very tough and durable vinyl sheathing. This update made the NM cable inexpensive and very easy to install. It is a very flexible product and is used extensively in virtually every new home built.

The NM cable in various forms is the current wiring method present in the Jean Baptiste Vallé House. The NM cable is visible in the basement.

Electrical Codes

The electrical codes adopted by the City of Ste. Genevieve, Missouri, are as follows:

- 2020 National Electrical Code (NEC)
- 2018 International Existing Building Code (IEBC)
- 2018 International Residential Building Code (IRC)

The following Codes have not been adopted:

- 2018 International Energy Conservation Code (IECC)
- NFPA 101 Life Safety Code (LSC)

Jean Baptiste Vallé House Historic Structure Report

D	SERVICES				
D50	ELECTRICAL				
	D5010	ELECTRICAL SERVICE & DISTRIBUTION – ELECTRICAL UTILITY			
		D501001	Outdoor Electrical Service to House	Condition	Priority
				Fair	Low

Date: Unknown

Contributing: Non-Contributing

The electrical utility company serving the building is Citizens Electric Corporation. Primary power is routed overhead along Main Street to an oil-filled, pole-mounted transformer. This transformer is approximately 150 feet away to the north from the Jean Baptiste Vallé House. This transformer is located in front of the Fire Department Station 2 building. This transformer also supplies power to other buildings in the area. From the transformer, a 240/120-volt, single-phase, 3-wire service feeder is routed overhead along Main Street to a wooden pole and then 50 feet over to

the vertical service riser on the north side of the building. At this location, the service feeder is routed down to a 200-amp meter socket.



Figure 334. Citizen Electric Corporation overhead primary electrical along Main Street. (Source: Alvine, 2022)



Figure 335. Citizen Electric Corporation oil-filled, pole-mounted transformer. (Source: Alvine, 2022)



Figure 336. Citizen Electric Corporation overhead 240/120-volt, secondary electrical drop to building. (Source: Alvine, 2022)



Figure 337. Overhead 240/120-volt secondary electrical attachment to building. (Source: Alvine, 2022)

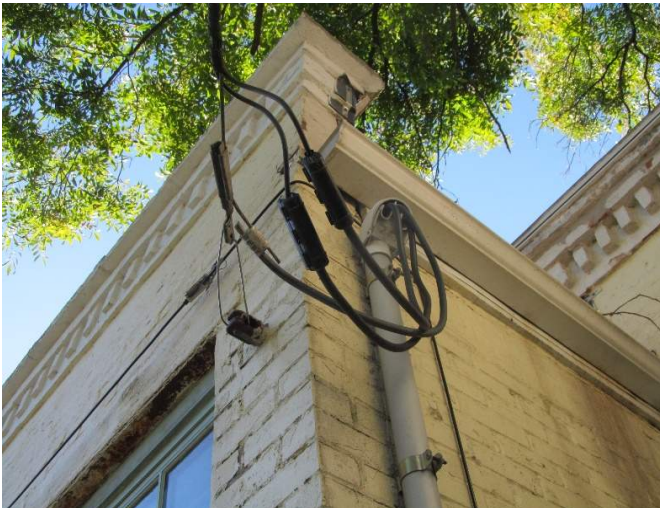


Figure 338. Electric service vertical riser from meter socket. (Source: Alvine, 2022)



Figure 339. Electrical service feeder from meter socket down to load center in basement. (Source: Alvine, 2022)

Jean Baptiste Vallé House Historic Structure Report

D	SERVICES				
D50	ELECTRICAL				
	D5091	GROUNDING SYSTEMS			
		D509101	Electrical Meter Socket Grounding	Condition	Priority
				Fair	Low

Date: Unknown

Contributing: Non-Contributing

From the 200-amp meter socket, a bare #6 American Wire Gauge (A.W.G), copper grounding conductor is routed down to a driven ground rod. The grounding conductor is not installed in conduit.



Figure 340. 200-amp, 240/120-volt, single-phase meter socket on left side; telephone cable termination box on right side. (Source: Alvine, 2022)

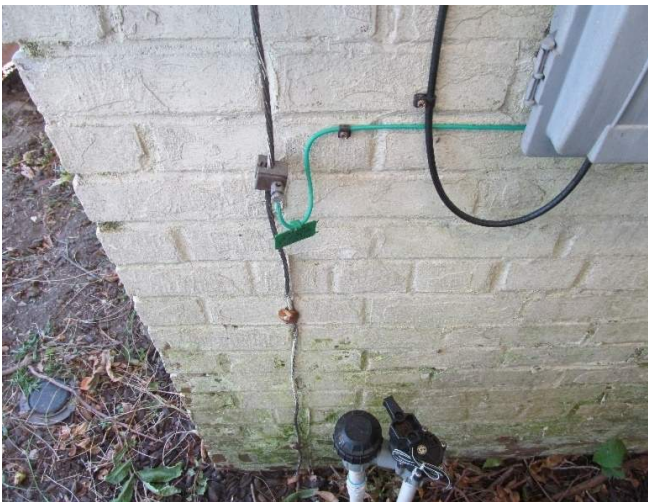


Figure 341. Grounding from electrical meter socket and telephone cable termination box down to a ground rod. (Source: Alvine, 2022)

D	SERVICES				
D50	ELECTRICAL				
	D5012	ELECTRICAL CIRCUITS			
		D501201	Electrical Panel In House	Condition	Priority
				Poor	Moderate

Date: Unknown

Contributing: Non-Contributing

From the 200-amp meter socket, the 240/120-volt, single-phase, 3-wire feeder is routed to a 200-amp load center in the northwest storage room in the basement of the Jean Baptiste Vallé House.

The 240/120-volt, 200-amp load center is manufactured by Challenger. It has a main 200-amp, 2-pole breaker; one, 60-amp, 2-pole; one, 40-amp, 2-pole; four, 30-amp, 2-pole; 19, 20-amp, 1-pole; and three, 15-amp, 1-

pole branch breakers. The branch breakers are manufactured by Challenger with a 10,000 A.I.C. rating. There are four blank spaces for future breakers. The exterior of the panel has rust on it.

Challenger electrical load centers were manufactured from 1973 through the 1990s. Challenger products are currently discontinued.



Figure 342. 240/120-volt, 200-amp load center in basement. (Source: Alvine, 2022)



Figure 343. Rusting on load center. (Source: Alvine, 2022)



Figure 344. Load center circuit breakers and circuit directory. (Source: Alvine, 2022)

D	ELECTRICAL				
D5010	ELECTRICAL DISTRIBUTION				
	D5012	ELECTRICAL CIRCUITS			
		D501202	Circuit Directory on Panel	Condition	Priority
				Poor	Moderate

Date: Unknown

Contributing: Non-Contributing

The circuit directory for the load center is marked next to each individual breaker. Some labels are difficult to read.



Figure 345. Circuit load marked next to each circuit breaker in load center. (Source: Alvine, 2022)

D	ELECTRICAL				
D5090	GROUNDING				
	D5091	ELECTRICAL SERVICE GROUNDING			
		D509102	Ground Rod Connection	Condition	Priority
				Poor	High

Date: Unknown

Contributing: Non-Contributing

There is no visible grounding electrode connection from the electrical load center to a metallic water pipe or to a ground rod.



Figure 346. There is no visible grounding electrode connection visible from load center. (Source: Alvine, 2022)

D	ELECTRICAL				
D5020	INTERIOR WIRING				
	D5021	BRANCH CIRCUITS			
		D502101	NM Cable	Condition	Priority
				Poor	Moderate

Date: Unknown

Contributing: Non-Contributing

Branch circuits are routed from the load center to receptacles and lighting fixtures using non-metallic-sheathed (NM) cable.

Most of the NM cables are over 40 years old and have two #12 A.W.G. phase and neutral conductor, along with one #12 A.W.G. equipment grounding conductor.

There are a few green-colored NM cables installed that are manufactured by Phelps PS Dodge and are older than 50 years that have two #12 A.W.G. phase and one #12 A.W.G. and neutral conductors with no equipment

grounding conductor. These green-colored NMC cables were visible in the basement recreation room.

There was on short piece of cloth-covered NC cable that is older than 60 years that has two #14 A.W.G. phase and neutral conductors with no equipment grounding conductor. This cable was visible in the basement between the load center and a splice to a newer NM cable 10 feet away.

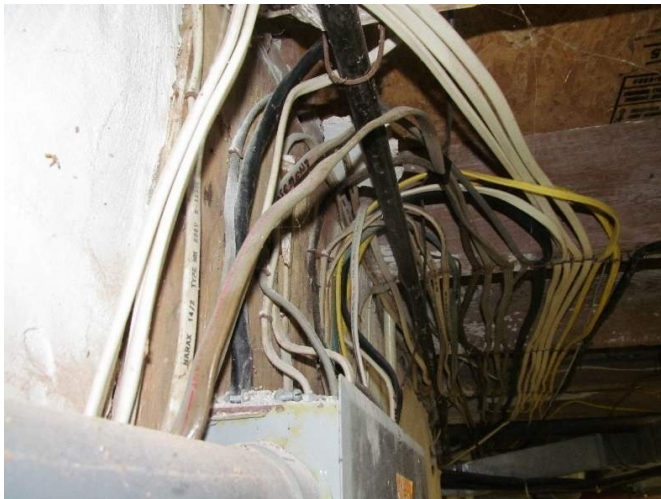


Figure 347. Branch circuit, non-metallic sheathed (NM) cable originating from the top of the load center. (Source: Alvine, 2022)



Figure 348. Branch circuit, non-metallic sheathed (NM) cable routed horizontally along basement ceiling. (Source: Alvine, 2022)



Figure 349. Non-metallic sheathed (NM) cable and cloth covered NC cable originating from top of load center. (Source: Alvine, 2022)

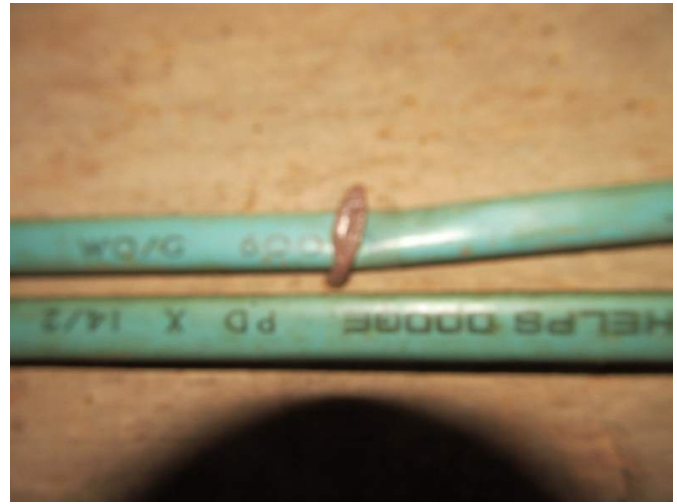


Figure 350. Green-colored, non-metallic sheathed cable (NM) manufactured by Phelps PS Dodge in the basement. (Source: Alvine, 2022)



Figure 351. An older, cloth-covered cable in the basement. (Source: Alvine, 2022)

Jean Baptiste Vallé House Historic Structure Report

D	ELECTRICAL				
D5020	LIGHTING				
	D5022	INTERIOR LIGHTING			
		D502201	Lighting Fixture Types	Condition	Priority
				Fair	Low

Date: Unknown

Contributing: Non-Contributing

Lighting fixtures in the basement are either older, outdated, fluorescent-type or incandescent, lamp-holder type. The following rooms in the basement have these types of lighting fixtures:

- Northwest Storage Room: One, 4-foot, fluorescent strip light with two T-12 lamps
- Southwest Storage Room: One, 4-foot, fluorescent strip light with two T-12 lamps
- West Shop Room: Two, 4-foot, fluorescent strip lights each with two T-12 lamps
- Recreation Room: Six ceiling-mounted, porcelain lamp holders with incandescent lamps
- Wine Cellar: Two ceiling-mounted, porcelain lamp holders with incandescent lamps
- North Storage Room: Two ceiling-mounted, porcelain lamp holders with incandescent lamps
- South Central Storage Room: Two ceiling-mounted, porcelain lamp holders with incandescent lamps
- South Storage Room: Two ceiling-mounted, porcelain lamp holders with incandescent lamps
- Pantry: One ceiling-mounted, 6-arm candelabra chandelier
- Dining Room: One ceiling-mounted, 12-arm candelabra chandelier
- Living Room: None
- West Hall: One pendant-mounted lighting fixture
- East Hall: One pendant-mounted lighting fixture
- Library: Plug-in, floor-mounted lights for art work
- Guest Room: Lighting fixtures inside glass-display cabinets
- Bathroom: One pendant-mounted lighting fixture (Re: Photograph E-30)
- Office: One ceiling-mounted, paddle-bladed fan with light
- West Porch: One pendant-mounted lighting fixture
- East Porch: Two wall sconces

The lighting fixtures on the first floor are higher-end, residential, incandescent-type. The following rooms on the first floor have these types of lighting fixtures:

- Garden Tool Room: Two incandescent, ceiling-mounted lighting fixtures
- Kitchen: One, three-shaded, ceiling-mounted chandelier (
- Sun Porch: One ceiling-mounted, 14-arm candelabra chandelier
- Office: One, 6-arm candelabra chandelier; two recessed downlights (Re: Photograph E-27)
- Meeting Room: None
- Hall: One pendant-mounted lighting fixture
- Bathroom: Two recessed downlights over the counter; two recessed downlights over the tub; one, 2-lamp heat/vent light (Re: Photograph E-28)

The lighting fixtures on the second floor and hall on the second floor are higher-end, incandescent-type. The lighting fixtures in the four closets are outdated, older, fluorescent type. The lighting fixtures in the bathroom are older, low-end, incandescent, residential type. The following rooms on the second floor have these types of lighting fixtures:

- Northwest Closet: One vertical fluorescent strip light with one T-12 lamp
- Northeast Closet: One vertical fluorescent strip light with one T-12 lamp
- Southwest Closet: One vertical fluorescent strip light with one T-12 lamp



Figure 352. Fluorescent 4-ft. strip light in basement. (Source: Alvine, 2022)

- Southeast Closet: One vertical fluorescent strip light with one T-12 lamp



Figure 353. Incandescent lamp holder in basement. (Source: Alvine, 2022)



Figure 354.. Incandescent pendant lighting fixture in kitchen on first floor. (Source: Alvine, 2022)

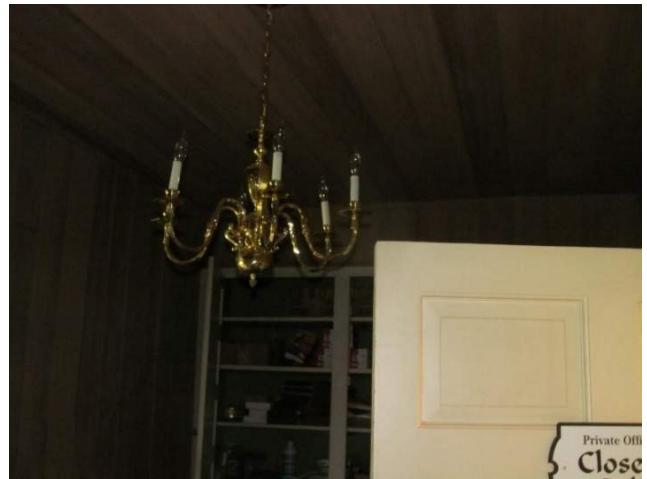


Figure 355. Incandescent pendant chandelier in pantry on first floor. (Source: Alvine, 2022)



Figure 356. Incandescent pendant chandelier in living room on first floor. (Source: Alvine, 2022)



Figure 357. Incandescent pendant chandelier in dining room on first floor. (Source: Alvine, 2022)

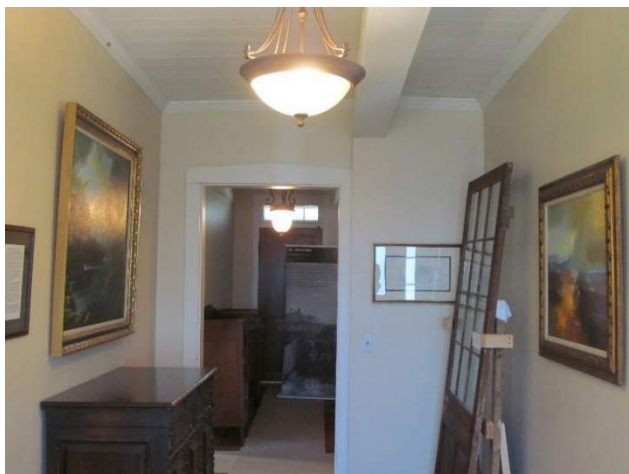


Figure 358.. Incandescent pendant lighting fixture in west hallway on first floor. (Source: Alvine, 2022)



Figure 359. Incandescent pendant lighting fixture west porch. (Source: Alvine, 2022)



Figure 360. Incandescent chandelier and incandescent down lights in office on second floor. (Source: Alvine, 2022)



Figure 361. Heat/vent light in bathroom on second floor. (Source: Alvine, 2022)



Figure 362. Incandescent wall-mounted sconces on the east porch.
(Source: Alvine, 2022)



Figure 363. Incandescent pendant lighting fixture in
bathroom on first floor. (Source: Alvine, 2022)

Jean Baptiste Vallé House Historic Structure Report

D	ELECTRICAL				
D5020	WIRING DEVICES				
	D5021	POWER DISTRIBUTION AND CONTROL DEVICES			
		D502101	Wiring Devices, Receptacles, and Switches	Condition	Priority
				Fair	Low

Date: Unknown

Contributing: Non-Contributing

In general, the wiring devices and cover plates that are installed in the basement are black in color. The following rooms in the basement have these types of switches and receptacles:

- Northwest Storage Room: One single-pole toggle switch for lighting control; one duplex, 120-volt receptacle; one grounding-type, double-duplex, 120-volt receptacle to power washing machine (Re: Photograph E-31); one NEMA 10-30, 30-amp, 240-volt receptacle to power dryer
- Southwest Storage Room: One single-pole toggle switch for lighting control; one non-grounding duplex, 120-volt receptacle
- West Shop Room: One single-pole toggle switch for lighting control; one duplex, 120-volt receptacle
- Recreation Room: Two single-pole toggle switches for lighting control; one non-grounding duplex, 120-volt receptacle to power the security panel
- Wine Cellar: No switches or receptacles
- 6. North Storage Room: One single-pole toggle switch for lighting control; one duplex, 120-volt, non-grounding receptacle (Re: Photograph E-32)
- South Central Storage Room: One single-pole toggle switch for lighting control
- South Storage Room: No switches or receptacles are present.
- Garden Tool Room: One single-pole toggle switch for lighting control; one duplex, 120-volt receptacle
- Kitchen: Two, 3-way toggle switches for lighting control (Re: Photograph E-34); one, 240-volt, 50-amp receptacle for electric range; one GFCI duplex, 120-volt receptacle (Re: Photograph E-33); four duplex, 120-volt receptacles
- Sun Porch: Two, 3-way toggle switches for lighting control; two duplex, 120-volt receptacles
- Pantry: One single-pole toggle switch for lighting control; two duplex, 120-volt receptacles
- Dining Room: One single-pole toggle switch for lighting control; one duplex, 120-volt receptacle
- Living Room: One single-pole toggle switch to control one half-switched, duplex receptacle for lighting control; six duplex, 120-volt, non-grounding and grounding receptacles (Re: Photographs E-35 and E-36)
- West Hall: One single-pole toggle switch for lighting control; one duplex, 120-volt receptacle
- East Hall: Two three-way toggle switches for lighting control; one duplex, 120-volt receptacle
- Library: One single-pole switch to control five duplex, 120-volt receptacles that have one outlet that is switched
- Guest Room: One single-pole switch to control one half-switched, duplex receptacle

In general, the wiring devices and cover plates that are installed on the first floor are white in color. The following rooms on the first floor have these types of switches and receptacles:

- Bathroom: Two single-pole switches; one switch for lighting control; the other switch to control the exhaust fan
- Office: One single-pole switch for lighting and fan control; one duplex, 120-volt receptacle
- West Porch: One single-pole switch for lighting control; two duplex, 120-volt receptacles
- East Porch: Two duplex, 120-volt receptacles weatherproof cover plates.

In general, the wiring devices and cover plates that are installed on the second floor are ivory in color. The following rooms on the second floor have these types of switches and receptacles:

- Office: One single-pole switch for lighting control; three duplex, 120-volt receptacles; four duplex, 120-volt receptacles

- Meeting Room: One single-pole switch for lighting control
- Hall: Two, 3-way switches for lighting control
- Bathroom: Two single-pole switches for lighting control; one duplex, 120-volt GFCI receptacle
- Northwest Closet: One single-pole switch for lighting control
- Northeast Closet: One single-pole switch for lighting control
- Southwest Closet: One single-pole switch for lighting control
- Southeast Closet: One single-pole switch for lighting control



Figure 364. Double-duplex, grounded, 120-volt receptacles northwest storage room in basement. (Source: Alvine, 2022)



Figure 365. Double-duplex, non-grounded, 120-volt receptacle in north storage room in basement. (Source: Alvine, 2022)



Figure 366. Double-duplex, GFCI receptacle in kitchen on first floor. (Source: Alvine, 2022)



Figure 367. Single-pole, toggle switch in kitchen on first floor. (Source: Alvine, 2022)



Figure 368. Double-duplex, non-grounding, 120-volt receptacle in the living room on first floor. (Source: Alvine, 2022)



Figure 369. Double-duplex, 120-volt, 15-amp receptacle in living room on first floor. (Source: Alvine, 2022)

D	ELECTRICAL				
D5030	COMMUNICATIONS				
	D5032	COMMUNICATIONS UTILITY			
		D503201	Fiber Optic Service to House	Condition	Priority
				Fair	Low

Date: Unknown

Contributing: Non-Contributing

The local utility communications company has routed an overhead telephone cable overhead from Main Street to a termination box on the north side of the building that is mounted next to an electrical meter.

There is also an overhead cable television cable routed overhead from the southwest corner intersection of Main Street and Market Street to a termination point on the south side of the building.



Figure 370. Telephone cable junction box on the right side; electrical meter on left side on north side of building. (Source: Alvine, 2022)



Figure 371. Cable television junction box on south side of building. (Source: Alvine, 2022)

Jean Baptiste Vallé House Historic Structure Report

D	ELECTRICAL				
D5090	LIFE SAFETY				
	D5092	EGRESS LIGHTING			
		D509201	Exit Lighting and Emergency Lighting	Condition	Priority
				N/A	Moderate

Date: Unknown

Contributing: N/A

The building does not have exit lighting or emergency lighting.

D	ELECTRICAL				
D5030	SECURITY				
	D5038	BUILDING PROTECTION			
		D503801	Intrusion Alarm System	Condition	Priority
				N/A	Moderate

Date: Unknown

Contributing: N/A

The building does not have an intrusion alarm system.

D	ELECTRICAL				
D5090	LIGHTNING				
	D5094	LIGHTNING HAZARD REDUCTION			
		D509401	Lightning Protection System	Condition	Priority
				N/A	Low

Date: Unknown

Contributing: N/A

The building does not have a lightning protection system.

D	ELECTRICAL				
D5030	LIFE SAFETY				
	D5037	FIRE DETECTION			
		D503701	Fire Alarm System	Condition	Priority
				Fair	High

Date: Unknown

Contributing: Non-Contributing

The building has a combination security/fire alarm system. The control panel is manufactured by Ademco and is located on the west wall of the recreation room in the basement.

In the basement, there is a heat detector located in the northwest storage room.

There is a smoke detector located in the shop and the recreation room.

On the first floor, there is a smoke detector located in the west hallway, guest room, and office.

On the second floor, there is a smoke detector located in the hallway and meeting room. There are no audio or visual alarm devices.

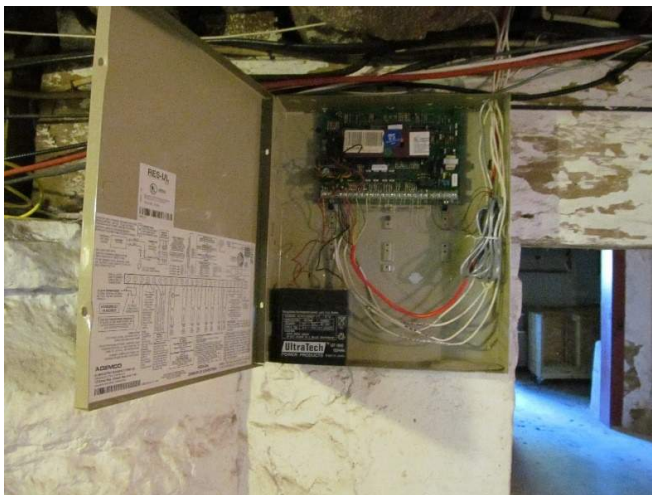


Figure 372. Fire alarm/intrusion alarm system panel in basement. (Source: Alvine, 2022)



Figure 373. Fire alarm/smoke detector in basement. (Source: Alvine, 2022)



Figure 374. Fire alarm/smoke detector in hallway on second floor. (Source: Alvine, 2022)

Hazardous Materials Survey

In 2019, Wood Environmental & Infrastructure Solutions, Inc., performed a Phase II Environmental Site Assessment (ESA) on four properties in Ste. Genevieve, which included the Jean Baptiste Vallé House. The assessment included testing for asbestos-containing materials (ACM), lead-based paint (LBP), and other hazardous materials.

- ACM: The testing confirmed the presence of ACM in limited materials at the Jean Baptiste Vallé House, including linoleum tile mastic and roofing mastic. Smaller amounts (<1% containing) were also identified in the joint compound in multiple rooms and linoleum mastic on the first floor.
- LBP: Only one location at the exterior plaster on the east gallery wall was sampled; it tested positive for LBP. XRF in-situ testing identified LBP exceeding 1.0 mg/cm² at multiple conditions in the majority of rooms and on the exterior.
- Lead Soil Sampling: Samples were taken from the north and west sides of the property, and lead was reported at both sample locations in concentrations in excess of MDOH and EPA levels.

See Wood's Phase II ESA report in Appendix C.

Additionally, two hand-written recipes for pesticides were found on the wall of Room 010 in the basement. These recipes likely date the first half of the 20th century and multiple toxic compounds: "Bordeau" (a copper sulfate-lime mixture called "Bordeaux mixture"), "Arsenate Lead" (lead arsenate), and "Cal Arsenate" (calcium arsenate), among other ingredients. Bordeaux mixtures were developed in France in 1882 and were commonly used in vineyards as fungicides; lead arsenate was used as an insecticide starting about 1892 and was one of the most commonly used insecticide sprays for fruit trees, vineyards, and flower gardens until the late 1940s; and calcium arsenate was introduced as a pesticidal dust around 1918 and was also commonly used to treat fruit trees.⁹⁴

Arsenic, copper, and lead are persistent, inorganic soil contaminants, meaning they settle in the top 12 to 18 inches of soil and do not break down or decay. The elevated lead soil samples measured in the Phase II ESA are more likely related to the use of lead-based paint on the exterior walls. Because orchards, grape vines, and sustenance gardens were historically present on the parcel, additional soil sampling at other locations around the property should be performed to determine if elevated levels of heavy metals are present.

⁹⁴ Denver Department of Environmental Health, Environmental Protection Division. "Historic Arsenical Pesticide Research." 2004. Accessed at <https://semspub.epa.gov/work/05/259803.pdf>; and Cheryl

Ann Bishop, "Legacies of Lead and Arsenic," Department of Ecology, State of Washington. February 3, 2020. Accessed at <https://ecology.wa.gov/blog/february-2020/legacies-of-lead-and-arsenic>.

Accessibility and ABAAS Compliance

The NPS has adopted the following Building Codes and Industry Standards which were used for the analysis of this report:

- IBC 2021 with Appendices
- IEBC 2021 with Appendices
- NFPA 101 Life Safety Code
- ABAAS

The building is currently used as a key element of Ste. Genevieve NHP. This occupancy would align with the occupancy definition of Group B in the 2021 IBC and per IEBC Special Occupancy exceptions for Museums (historic buildings). The recommendation is to allow the first floor to be assigned the B occupancy, with the basement and attic remaining unoccupied.

Landscape Accessibility Assessment

An important goal of treatment for historic sites is the provision of an accessible experience for visitors, including those with physical challenges. Treatment recommendations pertaining to enhancing accessibility and meeting current Americans with Disabilities Act Accessibility Standards (ABAAS) are informed by historical analysis of historic buildings and landscapes in order to devise solutions that accommodate accessibility without diminishing the integrity of significant historic features.

In order to achieve National Park Service (NPS) goals for accessibility and interpretation at the Jean Baptiste Vallé House and landscape, existing circulation and interpretive features are assessed below to identify any deficiencies in terms of ABAAS that can be considered for improvement as part of treatment recommendations

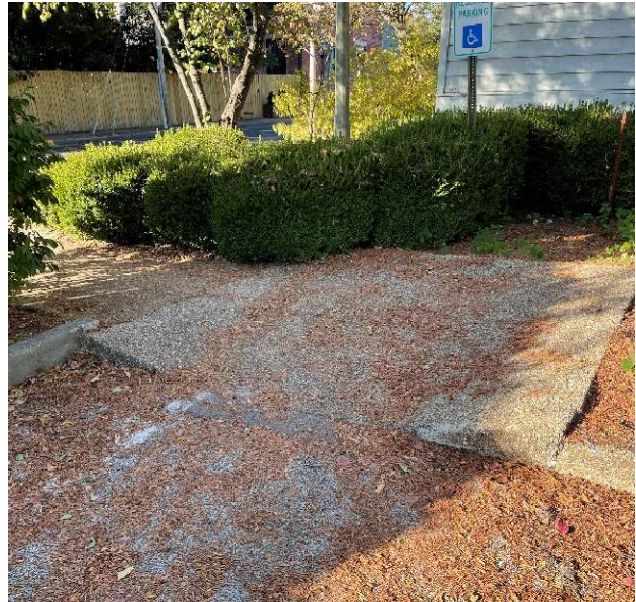


Figure 375. View of the existing ramp adjacent to the accessible parking space in the welcome center parking lot, which does not meet accessibility standards. The parking space striping was also not clear at the time this photograph was taken. (Source: LSHLA, 2022)



Figure 376. View to the connecting walkway that needs to be reached via an accessible ramp and level landing at grade. (Source: LSHLA, 2022).



Figure 377. View of the sidewalk along Market Street that leads to the Ste. Genevieve Welcome Center and the Jean Baptiste Vallé House, with a lamp post limiting available space for wheelchair access. (Source: LSHLA, 2022)



Figure 378. View along the sidewalk on South Main Street toward the brick piers that mark the entrance into the Jean Baptiste Vallé House property and features limiting accessibility that include a lamp post, power pole, and gutter. (Source: LSHLA, 2022).

to be provided in later sections of this HSR, intended to provide a safe and rewarding experience for all visitors. The accessibility assessment that follows considers both circulation features and signage. Circulation features considered below include parking, routes connecting parking with site access, paths and walks located on the site, entry into the building, and circulation within the building.

Visitor Parking and Site Access

The urban setting of the Jean Baptiste Vallé House and landscape allows visitors to park along the streets where permitted, while there is also a parking area situated to the east of the Ste. Genevieve Welcome Center that can be used by visitors to access the property. However, there are currently no signs located along the roads approaching the Welcome Center that indicate the entrance into the parking area.

Within the parking area, there is a sign marking the location of a single accessible parking space. However, at the time field investigations were conducted on behalf of the HSR, the space was covered with leaves and the white painted lines delineating where to park and how to reach the adjacent walk were not visible.

A ramp extending from the striped margin of the accessible parking space to the walk leading to the welcome center also did not comply with ABAAS because it did not include at least 4 feet of a level landing to allow for someone in a wheelchair to navigate the turn from the ramp to meet the grade of an adjacent walk, which must be a minimum of 4 feet in width. These features are not in place to allow visitors to reach the sidewalk on Market Street (Figure 375 and Figure 376). Once visitors have reached the fully accessible welcome center plaza from the Market Street sidewalk, an accessible ramp is provided to the front door of the building, allowing for an accessible entrance.



Figure 379. View toward the South Main Street entrance into the Jean Baptiste Vallé House property and the concrete landing that leads to a pathway within the parterre garden . (Source: LSHLA, 2022)

Additional challenges to accessibility once visitors reach the sidewalk along Market Street, which provides access to the Jean Baptiste Vallé House, include the presence of power line poles and lamp posts set within the walk itself that reduce the clear passage space below the minimum requirement of 4 feet in width and render them impassable for a wheelchair (Figure 377 and Figure 378).

Curb cuts are another feature that can facilitate or interfere with accessibility within the landscape. Within the vicinity of the welcome center and the Jean Baptiste Vallé House there are several curb cuts near the intersection of Market and South Main Streets (Figure 380). These do not facilitate access to the Jean Baptiste Vallé House because while there is a curb cut that allows visitors to cross Market Street from the South Main Street sidewalk at the corner of the Jean Baptiste Vallé House property leading south, there is no curb cut on the opposite side of the street. There are also no curb cuts along the South Main Street sidewalk adjacent to the east façade of the house, including near the main visitor entrance into the property. Evaluation of the locations and accessibility of the existing curb cuts in the vicinity of the Market and South Main Street intersection and routes leading to the entrance into the Jean Baptiste Vallé House needs to be undertaken to ensure visitor safety, compliance with accessible design



Figure 380. View of the intersection of Market and South Main Streets where the curb cuts need evaluation in order to ensure accessible routes are available to visitors from the accessible parking space at the welcome center to the Jean Baptiste Vallé House entrance. (Source: LSHLA, 2022)



Figure 381. View toward the Market Street entrance into the Jean Baptiste Vallé property, marked by a pair of brick piers added in the 2010s. (Source: LSHLA, 2022).

standards for curb cuts, and compliance with ABAAS guidelines for circulation routes to site entrances.

There are two entrances into the Jean Baptiste Vallé House property, one on the South Main Street sidewalk (Figure 381 and Figure 379) and the other on the Market Street sidewalk. Neither complies with ABAAS.



Figure 382. View of the 30-inch-wide pathway, raised concrete landing, and steps leading to the east entrance to the house. (Source: LSHLA, 2022)



Figure 383. View of the cut-stone walkway that leads from the grape arbor to the west façade of the house and the staircase leading to the west porch and house entrance. (Source: LSHLA, 2022).

The entrance from the Market Street sidewalk is delineated by two brick piers, topped with concrete caps, and supporting and iron gates. Once the visitor passes through the piers, however, there is only a turf path that extends toward the house and garage. Turf does not meet ABAAS criteria in providing a firm and stable surface.



Figure 384. View of the intersection of the cut-stone walkways, their deteriorated condition, and the staircase leading to the west porch. The existing conditions interfere with an accessible route to the west entrance of the house. (Source: LSHLA, 2022)

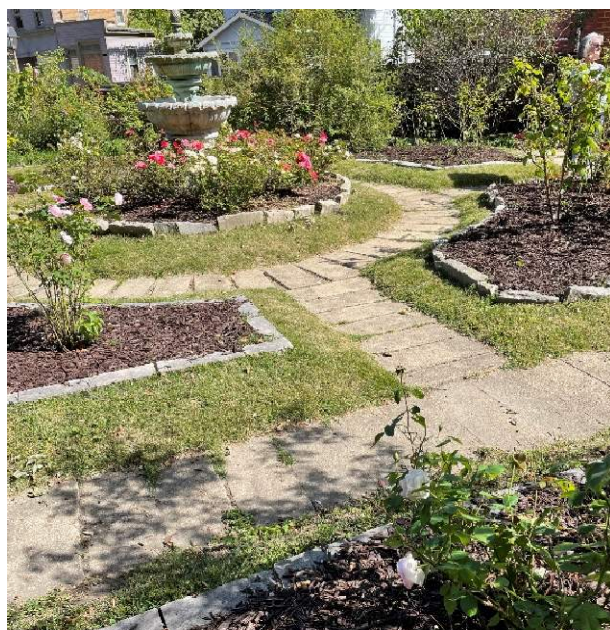


Figure 385. View of the parterre garden pathways north of the house, constructed of concrete block pavers. (Source: LSHLA, 2022).

The entrance from the South Main Street sidewalk is similarly delineated with two large brick piers with concrete caps and iron gates. This entrance into the property leads to a 4-by-4-foot exposed concrete landing and a pathway that extends through the parterre garden. The garden pathway, which is paved with concrete blocks, measures 2 feet, 6 inches in width, which falls short of the required 4-foot-width of an accessible walk.

Landscape Circulation

Circulation within the Jean Baptiste Vallé House property includes pathways through the parterre garden north of the house, pathways extending to the north boundary fence and through the grape arbor, other pathways extending through the expanse of turf grass west of the arbor, and pathways leading from the parterre garden and arbor through the expanse of turf grass west of the house. These pathways are surfaced with a variety of materials that include concrete, concrete blocks, and cut stone (Figure 383). The condition of the pathways varies, and the cut stone and concrete blocks exhibit cracking, loss of material, expanding joints, and uneven walking surfaces, interfering with the accessibility within the Jean Baptiste Vallé house landscape. Many are overgrown with grass and groundcovers. Most of the landscape pathways do not meet accessibility standards except in the sections west of the house. The walkway adjacent to the west façade of the house and the walkway connecting it to the garage do meet accessibility requirements for walkway widths.

A paved pathway leads to the house entrances at the east and west facades. The pathway leading to the east entrance into the house, which is the primary visitor tour route, measures 2 feet 6 inches in width and leads to a raised concrete landing and flight of five steps extending to the porch and building entrance. The width of the pathway, a raised landing, and five steps all contribute to a lack of accessibility into the house in this location (Figure 382).

Two walkways lead to the west entrance of the house. They intersect at a cut stone landing at the foot of a

staircase providing access to the west porch. The first walkway extends from the grape arbor to a gate and associated fence. The width of the walk varies with the condition of the stones, but generally is 30 inches in width, below the minimum required for accessibility. The walk is paved with cut stones, some in poor condition, with large joint spaces between the stones.



Figure 386. The pathway under the arbor (looking south) is paved with cut stones. It is overgrown with grass and groundcovers. The NPS has closed this path to visitors due to the condition of the arbor. (Source: LSHLA, 2022)

Also, as the walk passes through the gate, the paving stone is raised 3 inches above grade, prohibiting accessible passage from the grape arbor to the landing at the west porch steps (Figure 384).

The second walk leads west from the house and extends through an expanse of turf grass to the garage and the west boundary fence. It is paved with concrete pavers, with cut-stone edging. This walk is 3-feet, 6 inches in



Figure 387. Concrete block pavers also extend into the landscape from the parterre garden and lead to the pathways that continue through the turf grass area west of the grape arbor. (Source: LSHLA, 2022)



Figure 388. Irregular cut stone pavers with large open spaces between the stones are used on the pathway leading around the garage, west of the house. (Source: LSHLA, 2022).

width. This dimension is the minimum standard for accessibility for one wheelchair, therefore, pull-off areas would be required along the route to accommodate any additional wheelchair. The deteriorated condition of the pavers, the expanded joint space between pavers, and plant growth along the entire surface area interfere with accessibility requirements. The west landing widens out considerably, but the existing conditions of the cut stones and the staircase prohibit accessibility into the house in this location.



Figure 389. The pathway under the arbor, looking north, prior to the arbor being stabilized and the walkway closed. (Source: RRJ, 2022)

The parterre garden pathways, as noted earlier, measure approximately 2 feet 6 inches in width, which is too narrow to meet accessibility standards (Figure 385 and Figure 387). Additionally, the paving material is often deteriorated, broken, or unevenly laid, which can present a trip hazard (Figure 388). Due to the poor condition of the grape arbor, visitors are not permitted to walk on the pathway leading beneath the wood structure (Figure 389).

Accessible Entry to the House

Currently, the house is not accessible to visitors with mobility challenges. The first floor of the house is elevated from the street level and requires ascending several steps to reach the level of the gallery decking. Two entry points to the first level are present: the primary entry at the east facade and a secondary entry

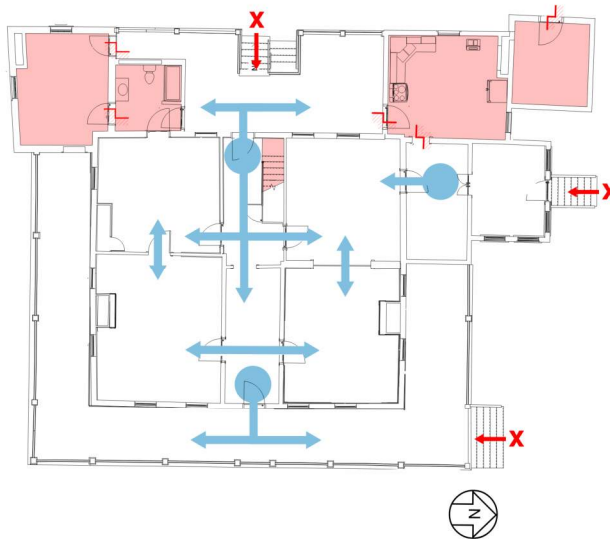


Figure 390. Of the three entrances to the main level, none are currently accessible from grade (red arrows). Changes in floor elevation render rooms 109, 110, and 113 inaccessible (red zones). Additionally, the lavatory is currently inaccessible due to the layout and fixtures. Door, thresholds, and corridors are generally compliant with ABAAS requirements for widths, obstructions, and turning space (blue arrows and circles). (Source: RRJ)

at the west wall. For interpretive purposes, visitors enter through the east door, then circulate through the first floor.

Visitors typically experience the house through guided docent tours, which may help define an accessible path through the house. However, there is no accessible compliant signage throughout the site or building which should be provided to define the accessible route both on the site and through the building.

East Gallery Accessibility

The east (main) door to the house is used as the primary entry point for visitors. Multiple points of non-compliance with ABAAS and IBC requirements are encountered for the east entry.

- There is no ramp or lift present for access to the east gallery. Visitors must step up onto a low concrete landing, then ascend six steps to reach the first floor. The wood stairs have presented

slip concerns in the past, and metal traction strips have been applied to each tread. The final step to the gallery deck is higher than the other steps.

- The wood handrail does not meet ABAAS requirements for graspability.
- The railing along the perimeter of the house is deteriorated and requires repair. The top rail does not meet IBC requirements (minimum 42 inches) for walking surfaces elevated above grade. Given the condition of the railing, it likely does not meet IBC requirements for loading on handrails and guardrails.

West Gallery Accessibility

A secondary entry point can be provided from the west gallery on the rear of the house. Currently, there are multiple points of non-compliance with ABAAS and IBC requirements for the west gallery:

- There is no ramp or lift present for access to the west gallery. Visitors must ascend six steps to reach the first floor. The wood treads do not have any applied slip resistant materials.
- The wood handrail does not meet ABAAS requirements for graspability.
- The railing along the perimeter of the gallery is loose and requires repair. The top rail does not meet IBC requirements (minimum 42 inches) for walking surfaces elevated above grade. The railings wobble when pushed and likely do not meet IBC requirements for loading on handrails and guardrails.
- The exterior doors for Room 112 (bathroom), Room 113 (office), and Room 109 (kitchen) all require a step to enter the space.
- The exterior door to Room 102 (hall) is level with the main floor. The door exceeds ABAAS's minimum clearance requirements and once inside Room 102, the hallway is 64-inches clear, which can accommodate a 60-inch turn radius. Note however that accessibility standards are evolving, and a turn radius of 67 inches or greater to accommodate larger

mobility devices may be required by future standards.

▪

First Floor Circulation and Accessibility

Once visitors have reached the first floor, fewer barriers to accessibility are present within the primary rooms on the first floor.

- ABAAS requires that doorways have minimum 32-inch clearance along the accessible path. The main east door is 33-inches wide. The interior doors connecting Rooms 101 through 106 are all greater than 32-inches wide.
- For circulation within Rooms 101 through 106, there are no thresholds or flooring transitions in the interior door openings which may present trip hazards.
- Floor slopes within Rooms 101 through 106 are generally compliant with required slopes and cross slopes for walking surfaces. Areas with non-compliant cross slope may be present but are limited.

Areas on the first floor without accessible access include Room 112 (bathroom), Room 113 (office), and Room 109 (kitchen), which are all elevated one step above the walking surface of the first floor. Due to this, the house has no accessible restrooms, drinking fountains, or mop sinks. However, these elements can be accommodated in a nearby building within the park, potentially the Visitor's Center.

Second Floor Circulation and Accessibility

The only existing path to the second floor is the interior stair in Room 102. Currently, the second floor is not open to visitors. However, the park library is still located on the second floor, which renders the library inaccessible.

Basement Circulation and Accessibility

The only existing path to the basement is the exterior stair on the west side of the building. Currently, the basement is not open to visitors, and it is unlikely that it will contain occupied program spaces.

PART II: Treatment and Use

Requirements for Treatment

Laws, Regulations, and Functional Requirements

Key laws, regulations, and functional requirements that apply to the recommended work include the following:

- National Park Service Cultural Resources Management Guideline (Director's Order 28), which requires planning for the protection of cultural resources on park property.
- Section 106 of the National Historic Preservation Act, which mandates that federal agencies, including the National Park Service, take into account the effects of their actions on properties listed or eligible for listing in the National Register of Historic Places and give the Advisory Council on Historic Preservation a reasonable opportunity to comment.

Treatment of the building and site are also to be guided by the following, listed as of the date of preparation of this report and subject to future amendment, revision, and adoption of updated editions:

- Secretary of Interior's Standards for the Treatment of Historic Properties
- National Park Service Management Policies, 2006 Edition
- National Park Service Guiding Principles of Sustainable Design
- Architectural Barriers Act Accessibility Standards (ABAAS)

As well as the current building codes, as adopted by the City of Ste. Genevieve, with local amendments:

- International Building Code (IBC), 2018 Edition
- International Existing Building Code (IEBC), 2018 Edition

- International Residential Building Code (IRC), 2018 Edition
- National Electrical Code (NEC), 2020 Edition
- International Plumbing Code (IPC), 2018 Edition
- International Mechanical Code (IMC), 2018 Edition
- International Fire Code (IFC), 2018 Edition
- International Fuel Gas Code (IFGC), 2018 Edition
- International Property Maintenance Code (IPMC), 2018 Edition

The State of Missouri currently has also adopted the International Energy Conservation Code (IECC), 2018 Edition, but the City of Genevieve has not adopted this code. The State of Missouri allows individual municipalities to adopt any combination of codes and may even forego code adoption. The City of Genevieve currently has not adopted any form of the IECC nor has it adopted the NFPA 101 Life Safety Code.

The NPS is self-regulating in terms of enacting and enforcing building code standards. The Jean Baptiste Vallé House is therefore not legally subject to local or state building code requirements. When undertaking repairs to buildings and structures, NPS endeavors to have the work comply with model building code standards.

With historic structures, attempts to achieve strict conformance with model building code standards that are intended for new buildings can lead to destruction of the historic fabric. Alternative compliance procedures, such as Chapter 12 of the IEBC relating to historic buildings, should be referenced in determining code compliance.

NPS currently recognizes the following as the model building codes for design and construction projects:

- International Building Code (IBC), 2021 Edition
- International Energy Conservation Code (IECC), 2021 Edition
- International Existing Building Code (IEBC), 2021 Edition
- NFPA 101 Life Safety Code (where IBC is silent)

Where conflicts exist between the 2021 ICC Codes and the currently adopted Missouri Building Codes, compliance with the more stringent of the two, as determined by a licensed design professional or code official, should be followed.

Additionally, the NPS Authority Having Jurisdiction (AHJ) for Interior Regions 3, 4, and 5 will have input on determining code-related treatments, including the Regional Chief of Design and Construction and Regional Structural Fire Manager / Fire Control Officer.

Code Analysis

The following specific building code and life safety deficiencies based on the 2021 IBC and NFPA 101 have been identified.

Occupancy

Multiple occupancy classifications are proposed for the preservation of the Jean Baptiste Vallé House, potentially to include (as defined by the 2021 IBC, Chapter 3):

- Assembly Group A-3, Art Galleries/ Museums.
- Business Group B. Office.
- Storage Group S-1, Moderate Hazard

Each occupancy classification has specific requirements for life-safety considerations such as fire protection and emergency egress that are also factored based on the occupancy load. Efficiencies may be also available by taking advantage of code-permitted exceptions for small assembly spaces with occupant

loads below 50 persons, which can be considered as Business Group B under certain circumstances.

Fire separation between occupancies is generally required. For occupancies with the potential for odors, fumes, or that include the storage of limited hazardous materials such as the proposed maintenance area, mechanical isolation and specialty ventilation will also be required.

Emergency Egress

The Jean Baptiste Vallé House currently has limited and managed occupancy. The house is typically only open to the public through guided tours or during staffed events. There are multiple egress points on the main level which can be appropriately signed and altered to comply with Group A occupancy egress requirements, including safe path of travel, clearances, and door swing direction, among other requirements. However, there are no accessible egress points or areas of refuge currently, which will be required when the property is made accessible.

The basement and second levels have only a single means of egress each, and the path of travel will be difficult to make accessible without adverse effects to the resource. Given these conditions, the basement and second floor should be closed to general public use and occupancy.

Accessibility

The site and existing building will require modification to provide access to visitors with mobility challenges and to comply with ABAAS standards. Current accessibility challenges in summary include:

- The first-floor entrances are elevated from the street level requiring the use of several steps to access the House. There are no lifts, ramps, or other accessible paths.
- The lack of curb cuts, tactile paving, and obstructions along the public sidewalk in the vicinity of the House along Market Street and South Main Street impede accessible circulation.

- Pathways within the garden and grounds are often too narrow or lack appropriate paving material to sufficiently meet accessibility standards.

Fire Protection

The existing Jean Baptiste Vallé House currently has no commercial or residential fire suppression system. A fire alarm system is present at the house but requires upgrades to bring it into compliance with Group A occupancy requirements for sensor placement and accessibility.

Interior's Standards for the Treatment of Historic Properties. These standards define four treatment approaches that may be applied to historic properties with guidelines for the application of each approach.

Of the four treatment approaches, *Rehabilitation*, which involves making possible a compatible use through repair and alterations, is the most appropriate for the Jean Baptiste Vallé House. This approach will permit the removal of non-contributing additions and alterations, any repairs that are necessary to stabilize the historic structure, and the improvements that will be required to meet the programmatic, interpretive, and management needs of NPS.

Treatment Objectives

The recommendations presented within this report have been developed in accordance with *The Secretary of the*

Secretary of the Interior's Standards for the Treatment of Historic Properties – Definitions	
Preservation The act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.	Restoration The act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.
Rehabilitation The act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.	Reconstruction The act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

The Secretary of the Interior's Standards for Rehabilitation

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Treatment Approach

For each broad category of building components and systems, the following are the recommended treatment approaches to achieve the park's goals for the resource. For some systems, alternatives have been explored and will be presented below.

Component	Integrity	Contributing	Treatment
Exterior	High (with modern replacement materials and some alterations)	Contributing and Non-Contributing	Rehabilitation

Component	Integrity	Contributing	Treatment
Structure	High	Contributing	Rehabilitation
Interior	Moderate (with multiple layers of alterations)	Contributing and Non-Contributing	Rehabilitation
Landscape	Moderate to High	Contributing and Non-Contributing	Rehabilitation
Building Systems	N/A	Non-Contributing	Rehabilitation

Ultimate Treatment and Use

Following a participatory workshop which included NPS staff, Missouri SHPO, the project consultant team, park partners, and other stakeholders, the following preferred treatments were distilled from discussions spurred by the options presented (see Appendix E for “Other Treatment Options Considered”).

The Jean Baptiste Valle House and site both offer a moderate level of flexibility for programming, circulation, and interpretation. The preferred treatment recommendations focus on actions to establish barrier-free access to the House and gardens in compliance with ABAAS through compatible and appropriate interventions. Preference was also given to treatments which reduced the need for new construction and prioritized maintaining programmatic needs, for both administration and visitor purposes, within the footprint of the existing building, while restoring as much as possible the historic site character.

The preferred use of the House was determined to be a blended program of park administration and interpretive exhibits.

Ultimate Treatment – Site and Landscape

The site retains a high level of integrity as a very early planned landscape in Ste. Genevieve and can be improved to achieve universal access and public enjoyment of the gardens and house.

The preferred treatment approach (Figure 391) entails the establishment of an accessible circulation route to the Jean Baptiste Vallé parcel from the parking area west of the Ste. Genevieve National Historical Park Welcome Center, leading to two proposed new site entrances, one on South Main Street and the other on Market Street. Visitors would cross South Main Street at the intersection of Market and South Main and continue north along the South Main Street sidewalk toward a proposed new entrance to the site at the north end of the parterre garden. The entrance would be accessible, connecting with site walkways and a ramp on the west side of the house. Since the current layout of the parterre garden beds dates to the 20th century (post 1936 HABS), sensitive improvements can be considered to paving materials and pathway widths

Jean Baptiste Vallé House Historic Structure Report

within the parterre garden to make this important feature accessible.

Improvements to the overall site circulation include a pathway through the grape arbor, where visitors can enjoy moving through the structure, which is not currently open due to the condition of the arbor. The accessible route through the grape arbor would continue west to the new accessible west entrance.

A new site entrance from Market Street would meet an accessible walkway and connect to the ramp at the west entrance. Visitors would have a choice of two entrance and exit points from the site along either Market or South Main Street sidewalks.

Other existing walkways would be made accessible but remain in their current footprints, creating a fully interconnected and accessible site for visitor enjoyment.

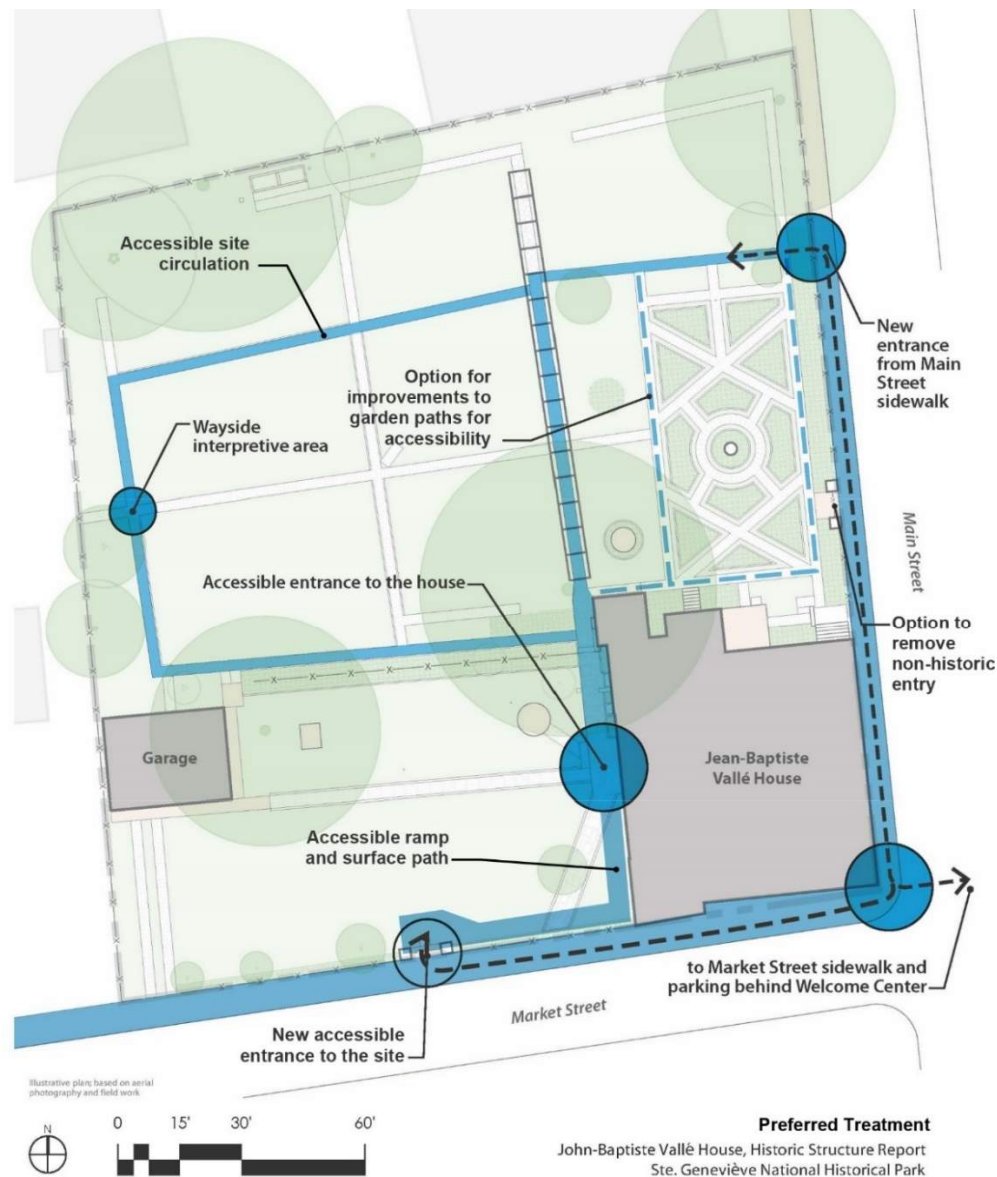


Figure 391. Preferred Treatment. (Source: LSHLA/RRJ)



Figure 392. Rendering of potential ABAAS ramp on the west face of the building. (Source: RRJ)

Ultimate Treatment – Accessibility

Creating an accessible entry to the first floor is a desired intervention for the continued use and enjoyment of the resource. Several options for accessibility were considered; the recommended treatment is the addition of an ABAAS-compliant ramp on the west side of the building (Figure 392 and Figure 393). The ramp can be a simple, post-and-rail design and constructed of wood, which would be visually compatible with the existing gallery railings and the historic character of the house. An unpainted, pressure treated wood ramp will require minimal maintenance, but the ramp may be painted green and white to blend with the house railings if preferred. Other railing options such as metal pipe or wire cable are available but are not in keeping with the historic character of the property.

Providing code compliant access to the basement and second-floor levels was considered but would require new construction for a new elevator structure beyond the guidelines of the *Rehabilitation* standards. The park does not anticipate a programmatic need to access the basement and second floor, therefore, this option was deemed too invasive and would result in adverse effects to the House. The basement will be unused to facilitate building monitoring and maintenance and to house lower-level MEP systems; the second floor will be

limited to park administration and maintenance of upper-level MEP systems. See Appendix E “Other Treatment Options Consider” for additional discussion.

It is recommended that the existing first floor restroom be reconfigured to achieve accessibility compliance (Figure 394). While an accessible restroom is available in the Ste. Genevieve Visitor Center across South Main Street, this facility may not be open during after-hour events at the Jean-Baptiste Vallé House. Additionally, the route to the Visitor Center restrooms will require coordinated improvements with the City of Ste. Genevieve to establish an accessible experience. The addition of an accessible restroom to the House will provide the best flexibility to the park and can be accomplished without adverse effect to the resource.

Ultimate Treatment – Exterior and Structure

Given the good condition of the envelope components and the structural systems, preservation maintenance is the recommended treatment for these systems. Replacement of cladding and roofing materials can be performed in kind or alternate, historically appropriate materials can be considered, when the existing systems have reached the end of their service lives. Minor structural repairs are recommended to address localized areas of deterioration.

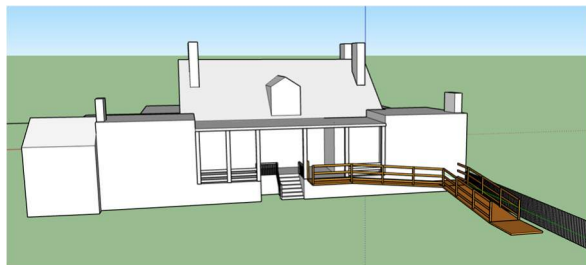
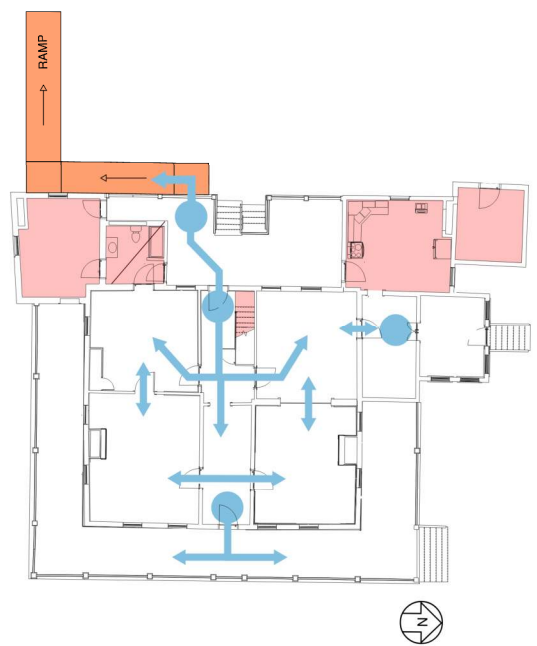


Figure 393. The addition of a ramp to the west wall provides an accessible path that is low impact to the resource and reversible. (Source: RRJ)

The following is a list of needed repairs:

- Perform isolated repairs to the roofing membrane and flashing to maintain the weather resistance of the roofing systems.
- Repair and localized reconstruction of distressed brick masonry chimneys.
- Performed isolated repointing, stucco and masonry repairs throughout all exterior elevations.
- Repair and partial reconstruction of the distressed brick masonry parapet walls at the sunroom; replace of steel window lintels; and install lintel flashing.

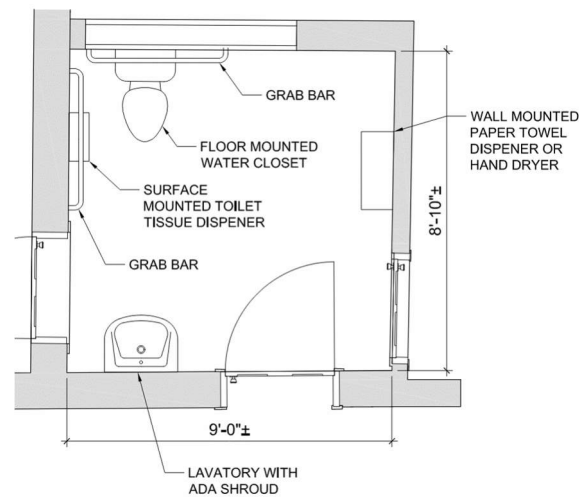


Figure 394. Conceptual renovations to the existing restroom to meet accessibility requirements. (Source: RRJ)

- Repair the louvered window shutters and fabricate several new window shutter where missing.
- Repair the window trim and sills where necessary.
- Replace the failed glazing putty at all exterior windows, doors and door transoms.
- Replace the inoperable window with a period appropriate unit to match other existing windows of this kind.
- Repair or replace failed basement windows in kind.
- Clean the finishes within Rooms 101, 102, 103 and 104 to address mildew and biological soiling.
- Repair and repoint deteriorated brick masonry throughout the basement level and at basement windows.
- Perform repairs to portions of the north and east limestone masonry walls in the basement to address deterioration.
- Repair damaged plaster walls in the basement, and repaint the walls in Rooms 203, 205, 206 and 208 to conceal old water stains.
- Install a supplemental floor joist in Room 012A to provide extra support due to deterioration of the existing joints. Install a sister member

immediately south of the damaged joist, at its western half.

Detailed lists of recommended preservation maintenance treatments organized by building component are provided in the following section.

Ultimate Treatment – Interiors

The interiors are in serviceable condition and much of the finishes on the first floor are representative of the 19th century alternations made through 1877, with minor 20th century alterations, primarily in secondary spaces such as the kitchen and lavatory.

Given that the desired use for the House will remain flexible interpretive use with some opportunity for administrative space on the second floor, the first-floor interiors represent an appropriate interpretation for the proposed period of significance from c. 1794 – 1877. Non-contributing finishes on the second floor, such as the wall-to-wall carpet and modern wallpaper can be removed as appropriate for the planned use of the space. Second-floor moulding, trim, doors, plaster, and other historic features should be preserved in place.

Ultimate Treatment – Interpretation

Currently, the interpretive materials on the first floor are a mix of furnishings and finishes specific to the Jean Baptiste Vallé House, educational exhibits primarily in the form of a small-scale model of a vertical log structure that was previously in the Visitor Center, paintings possibly from the 1930s Ste. Genevieve Art Colony, and other miscellaneous art works. The interpretive materials are not well labeled. Consideration should be given to reprogramming or curating the interpretive materials into a cohesive visitor experience, which may include relocating the art pieces not specific to the House or park.

Because the first floor is entirely finished, the only location where the vertical logs are exposed for public view is the southeast corner of the kitchen, which is not accessible due to the change in floor elevation. The vertical log structure is a key character-defining feature of the House and an important part of the interpretive

experience for visitors. An exposure can be created at one of the interior walls for interpretation and educational discussion of this important structural system, possibly at the bracing member in the southwest corner of Room 104 or the southeast corner of Room 103; the plaster and lath in these rooms were fully removed and replaced in the 1960s, and creating a viewing window of the logs will not disturb historic finishes.

Ultimate Treatment – MEP/FP Systems

A high-level summary of recommended treatments for MEP/FP building systems is provided here, with additional information and detail included in the treatment options section below.

- Plumbing Systems and Fixtures: Plumbing systems and the existing fixtures are in serviceable condition and do not require any immediate replacement or alterations, except those that may be required if lavatories are remodeled for accessibility.
- Gas Service: The gas piping is serviceable condition and does not require any immediate replacement or repairs.
- Water Heater: The water heater is serviceable and may have another five to 10 years of service remaining; no replacement or repairs beyond standard maintenance are recommended.
- Heating System: The gas-fired furnaces were installed in 2017 and may have another 10 to 15 years of service remaining; no replacement or repairs beyond standard maintenance are recommended.
- Cooling System: The air-cooled condensing units serving the furnaces also appear to have been installed in 2017 and may have another 15 years of service remaining; no replacement or repairs beyond standard maintenance are recommended.

- Electrical Service: The existing electrical service for the house is a mix of modern and outdated systems. Repairs and partial system replacements are recommended, including replacement of the panel, grounding, and replacement of interior wiring.
- Electrical Fixtures and Devices: Existing fluorescent and incandescent fixtures or lamps should be replaced with LED type fixtures or lamps for energy conservation. Existing receptacles and switches are a mix of modern and outdated components and should be replaced with the wiring systems. New receptacles can be introduced where needed, and GFCI receptacles should be provided where required by code.
- Communications: The existing fiber optic line should be extended into the building.
- Fire Suppression System and Fire Service: Currently, the House has no fire suppression system. An early warning system, such as a VESDA system, along with a combination wet-pipe/dry-pipe system is recommended. Providing a fire suppression system will require fire water service to be installed in the basement, along with an exterior fire department connection at least 40-feet from the building. A fire pump is not anticipated to be required.
- Fire and Intrusion Alarms: The existing fire/intrusion alarm system should be removed and replaced. Smoke detectors should be replaced with an aspirating-type, smoke detection system that is integrated with the early detection system and fire suppression system. The intrusion alarm system should be replaced with wireless motion detections and door entry sensors as preferred by the park.
- Exit Lighting and Emergency Lighting: Emergency egress lighting may be required depending on the planned use of the building. This can be accomplished with normal lighting fixtures on a battery backup system. Emergency egress signage should be provided, including indicating the accessible path as appropriate.
- Lightning Protection System: Currently, the building does not have a lightning protection system. A system can be installed on the building. Lightning arrestors and grounding conductors will be visible, and care should be taken in the placement of these components to minimize impact to the resource and visitor experience.

Treatment Recommendations

Enclosure Systems

The following preservation maintenance recommendations are made for the building exterior and enclosure systems.

Roofing Systems

Two different roofing materials are utilized throughout the house. The EPDM and laminated asphalt shingled sections of roofing showed signs of age but have at least five years of remaining service life.

Immediate (Year 1)	Roofing Repairs - Repair buckled shingles at kitchen chimney and northeast chimney. - Repair isolated other locations of damaged or missing shingles. - Repair loose flashing at the northwest chimney.
Medium Term (2 to 5 Years)	Replace EPDM Roofing - Replace debonded and deteriorated EPDM roofing above the east and west galleries and Rooms 108, 109, and 113. Replace Laminated Asphalt Roofing - Replace laminated asphalt roofing at tool shed.
Long Term (5 – 10 Years)	Full Roof Replacement Within 5 – 10 years, the current roofing system will have reached the end of its useful life and will require full replacement. Consider adding this to forecasted budget.
Regular Maintenance	Inspections On an annual basis, inspect the roofing for signs of damage or deterioration and repair/replace as necessary.

Drainage

The existing drainage system appears to adequately discharge drainage away from the house. The box gutter on the west elevation drains into a cistern. This cistern should be inspected to ensure it is still functioning properly and is not contributing to water issues within the basement. Lack of proper water drainage at the sunroom has contributed to corrosion of lintels and decay of the masonry. A new drainage system should be installed at the sunroom after masonry repairs are completed.

**Immediate
(Year 1)****Drainage System**

- Remove leaves and debris from all gutters.
- After the cisterns have been backfilled, redirect gutter downspouts away from the northwest corner of the building and extend downspouts away from the foundation wall

**Regular
Maintenance****Inspections**

- At a minimum, remove debris from gutters in spring and fall.
- Inspect the basement at the northwest corner of the building for signs of water intrusion after heavy rains or consider installing remote moisture sensors in sensitive areas of the basement.

Exterior Walls

The exterior of the house was constructed with varied materials, most of which were in good to fair condition, without areas of significant deterioration. Some preservation maintenance activities are recommended. However, the parapet walls at the sunroom are distressed and require intervention.

**Medium Term
(2 to 5 Years)****Repointing and Painting Repairs**

- Petrographic analysis should be performed of the existing brick and mortar to determine compatible pointing mortar mixes. The replacement mortar should match the existing in material properties, appearance, and tooling.
- Repoint locations of deteriorated or missing mortar within exterior masonry foundation walls.
- Repoint isolated locations of deteriorated or missing mortar within the masonry walls at Rooms 110 and 113.
- Remove debonded paint at exterior masonry foundation walls and masonry walls at Rooms 110 and 113.
- Repaint masonry foundation and exterior walls with breathable paint suitable for masonry substrate and to match existing color. A finishes analysis of the paint can be conducted to determine if evidence of earlier colors can be found.

Masonry Repairs

- Dismantle the failed parapet walls above the sunroom and rebuild to match existing. Coordinate with lintel replacement and installation of through-wall flashing in this area.

Regular Maintenance	▪ Alternate: Complete removal of sunroom and reconstruction of previous porch structure to match HABS photographs and other historic documents. The sunroom dates to the mid-20th century and does not represent the site's period of significance. ▪
	Stucco Repairs ▪ Conduct isolated repairs of debonded and cracked stucco finish at exterior walls and exterior foundation walls. ▪ Repaint stucco repair areas to match existing.
	Inspections • On an annual basis, inspect the exterior walls for signs of deterioration. Conduct repointing and masonry repairs as needed.

Chimneys

Brick deterioration has led to out-of-plane movement at two of the six chimneys.

Immediate (Year 1)	Chimney Repairs ▪ Dismantle and rebuild the office chimney above roofline. ▪ Investigate further at southeast chimney to evaluate out-of-plumbness; repair or rebuild as needed. ▪ Repoint open and weathered joints in the other four brick masonry chimneys. ▪ Replace deteriorated chimney caps to match caps from historic photographs.
Regular Maintenance	Inspections ▪ After heavy rains, inspect the fireboxes for signs of water intrusion through the flue. ▪ On an annual basis, inspect the portions of the chimney stack with rise above the roof line for signs of mortar deterioration and plumbness.

Windows

The condition of the windows throughout the JBV house range from good to failed. Most of the windows are in good to fair condition and require maintenance to maintain use; however, wood decay is severe enough in some windows that replacement may be necessary. All replacement windows shall be historically accurate replicas of originals to be replaced.

Medium Term (2 to 5 Years)

Finishes Analysis

- Prior to performing repairs on painted substrates, engage a qualified finishes conservator to perform an analysis on the existing paint layers to determine a compatible material for new paint layers and to determine what color most closely approximates the original paint layer.

Shutter Repairs

- Install new shutters on Windows W109B, W113A, W113B, W201, W202, W204A and W204B to match existing shutters elsewhere.
- Scrape and repaint the remaining existing shutters. Minor wood repairs can be performed with a wood filler prior to painting. Replace any hinges in-kind that are damaged or missing.
- Replace shutter dogs and hooks where missing. Resecure loose shutter dogs.

Trim and Sill Repairs

- Replace the jamb trim on Windows W104B and W109B in kind.
- Scrape and paint the wood trim for all other windows. Fill any holes with wood filler, including holes from shutter hinges, prior to repainting.
- Replace failed exterior sills at Windows W109B, W201, and W202.

Glazing and Rail Repairs

- Replace the failed glazing putty at all exterior windows and door transoms. Coordinate repainting of sashes with putty replacement.
- Replace deteriorated lower rails at Window W208.

Window Replacement

- Replace inoperable Window W201 with period appropriate replacement to match other existing windows of this kind.
- Additional window replacement may be required, particularly at the basement windows W013A through W013F, which exhibited moderate to severe deterioration of sashes and frames. Replacement should be considered at locations where repairs require removal/replacement of greater than 50% of the original material.

**Regular
Maintenance****Surface Cleaning**

- On the interior, painted surfaces with mildew or biological soiling should be cleaned using the gentlest means possible. A dilute solution of an unscented surfactant in warm water, such as Dawn Dish Soap or Ivory Liquid Dish Soap (discontinued), with light abrasion using a natural sponge. This should be sufficient to remove most bulk soiling. Spot treatment with dilute vinegar in warm water, dilute citrus-based cleaner, or proprietary chemical cleaners specifically manufactured for this purpose can be tested on areas of heavier soiling.

Lintel Repairs

- Replace corroded steel lintels at windows and install through-wall flashing W108A, W108B, W108C, and W108D and rebuild masonry parapet above as needed.

Inspections

- On an annual basis, inspect the exterior windows for signs of deterioration, paint failure, broken glass, failed glazing putty, and other conditions which may allow water penetration through the window system.

Exterior Doors

Deterioration and conditions affecting the weather-resistance and operation of the doors were observed at multiple locations. While these conditions do not represent critical structural or life-safety issues, maintaining the performance of the doors is important to prevent moisture and pest-related damage to other building components. Additionally, issues with operation of locks and handles and where doors catch on the flooring affect the daily operations of the park. Addressing these issues should be a priority.

**Immediate
(Year 1)****Finishes Analysis**

- Prior to performing repairs on painted substrates, engage a qualified finishes conservator to perform an analysis on the existing paint layers to determine a compatible material for new paint layers and to determine what color most closely approximates the original paint layer. Coordinate with finishes analysis for window treatments.

Door Adjustments and Repairs

- Re-adjust Door D110 to eliminate drag on the floor.

Short Term (1 to 2 Years)	▪ Address separation at wood joints in doors as needed with caulking and/or painting.
	Glazing and Finish Repairs ▪ Replace the failed glazing putty at all exterior doors. ▪ Refinish the exterior stain at Door D108. ▪ Repaint Door D110 and interior casing. Coordinate color choice with findings from finishes analysis. ▪
Medium Term (2 to 5 Years)	Lintel Repairs ▪ Replace corroded steel lintel at Door D108 and rebuild masonry parapet above as needed. Coordinate with sunroom window lintel replacement and parapet work.
Regular Maintenance	Inspections ▪ On an annual basis, inspect the exterior doors for signs of deterioration, paint failure, broken glass, failed glazing putty, and other conditions which may allow water penetration or pest infiltration. Ensure all locking mechanisms are in working order.

Galleries

Both east and west galleries require maintenance and in-kind replacement to address life-safety hazards. Several stair treads are loose and represent a trip hazard, and the deteriorated decking also represents a trip hazard for visitors. Loose or missing railings were noted at several locations and represent a fall hazard. Areas of wood rot were noted at several locations throughout the beadboard soffit of the galleries.

The existing railings are not code compliant for top rail and intermediate rail dimensions. However, the existing railings are historically appropriate and changes to the railing system may represent an adverse effect to the House. The railings should be repaired and stabilized to meet code-required loading at a minimum.

Immediate (Year 1)	Replace Stair Treads ▪ Replace loose stair treads at the west and east galleries to match existing. The new elements should comply with accessibility standards for treads/risers and handrails. (Completed April 2023)
	Replace Decking ▪ Replace deteriorated deck boards in kind. (Completed April 2023)
	Replace Railing ▪ Replace deteriorated or damaged railings in-kind.

	- Construct new railing at east side of North Gallery stairs as required by code and modify west side railing to match.
Medium Term (2 to 5 Years)	Replace Soffit - Replace deteriorated soffit boards in kind. - Resecure any loose soffit boards to the gallery roof framing. Repair Trim - Repair loose trim at box gutters and all other locations; replace trim in-kind and paint to match existing where deteriorated.
Regular Maintenance	Inspections On an annual basis, inspect the gallery railings and stair handrails for any signs of movement or conditions which may negatively affect their performance.

Stairs

The north exterior stairs at the sunroom entrance have failed and need to be replaced.

Immediate (Year 1)	Replace Stairs - Replace the stairs at the north entrance to the sunroom to match existing. The new steps should comply with accessibility standards for treads/risers and handrails. (Treads replaced April 2023) - Replace the ledger boards in-kind where deteriorated to provide support for the stingers.
Regular Maintenance	Inspections On an annual basis, inspect the handrails for any signs of movement or conditions which may negatively affect their performance.

Structural Systems

The following preservation maintenance recommendations are made for the building structural systems.

First Floor Framing

The first-floor framing was observed to range in condition from good to failed. First-floor framing ranged in wood species, date of construction, and in the extent of previous repairs and/or alterations performed over time. A small number of repairs are recommended at specific framing members, based upon results of limited wood-drilling onsite. Limited resistance drilling was performed at a selection of rooms within the basement.

Immediate (Year 1)
Medium Term (2 to 5 Years)

- Floor Joist Replacement
- Supplement the floor joist in room 012A subject to extensive voiding. Provide a sister member immediately south of this joist, at its western half. A sister member is extant at the eastern half. This joist is the third joist from the south wall, measures approximately 10 inches by 10 inches. The end of this joist is visible within room 006 on the east elevation, and exhibits voiding.
- Floor Framing Condition Assessment
- Monitor the condition of first-floor framing. Revisit the condition of select members at five-year intervals to ascertain progression of pest-related deterioration.

Second Floor Framing

The second-floor framing, visible from the first floor, was observed to be in good condition. No areas of significant deterioration were observed, however, deflection was observed near the location of interior walls. Slight rotation was observed at a second-floor framing member within room 106.

Regular Maintenance

- Inspections
- On an annual basis, observe interior finishes covering and adjacent to second floor framing for cracking or other deterioration that may imply recent movement, including rotation or deflection, within these members.

Roof Framing

Roof framing, where visible was observed to be in good condition, without areas of significant deterioration.

Regular Maintenance

Inspections

- On an annual basis, inspect the roof framing for signs of water infiltration, damage, pest activity, or other deterioration.

Vertical Log Wall Framing

Vertical log framing, where visible, was observed to be in fair condition. However, it is noteworthy that only the tops of two logs were available for observation, and that concealed conditions may exist. Visual observation of vertical log members would require removal of interior finishes or exterior cladding, which was not within the scope of this HSR. The four corner braces connecting vertical log top plates above the second floor level were observed to be in fair condition. Water staining observed at top plate corner braces appeared to be old and water intrusion is not believed to be active.

Regular Maintenance

Inspections

- On an annual basis, observe interior finishes at vertical log walls within the first and second floors for signs of water infiltration, discoloration, cracking, or other changes that might indicate concealed deterioration.
- If water infiltration is detected, the source of water infiltration must be determined and corrective action taken. Monitor interior finishes for signs of movement at vertical log walls including cracking, displacement, or other changes.
- If interior wall finishes are to be altered or removed, photographic documentation of the vertical logs during this work is recommended.

Interiors

Interiors were generally in good to fair condition. Specific conditions, primarily in the basement rooms, were identified for repair to address component stability or the long-term performance of finishes. Within the basement the plaster finish had failed in most rooms. Severe brick deterioration within many rooms. Moisture-related brick decay was noted at the perimeters of the foundation wall windows. A combination of exterior moisture infiltration and interior coatings has led to the disintegration of many window perimeter bricks. Interior masonry repairs required through basement level. Throughout the remainder of the house the interiors were found to be in good condition. The existing flooring remains in good condition. Minor areas of wear or failure of painted surfaces were observed but did not rise to the level where full repainting is required if surfaces are able to be cleaned without damaging the existing paint.

**Medium Term
(2 to 5 Years)**

Finishes Analysis

- Prior to performing repairs on painted substrates, engage a qualified finishes conservator to perform an analysis on the existing paint layers to determine a compatible material for new paint layers and to determine what color most closely approximates the original paint layer.

Surface Cleaning

- Multiple rooms, particularly Rooms 101, 102, 103, and 104, exhibited varying severities of mildew or biological soiling on painted surfaces. Mildew was also noted near the exposed ceiling beams in Room 106. The mildew or biological soiling should be cleaned using the gentlest means possible. A dilute solution of an unscented surfactant in warm water, such as Dawn Dish Soap or Ivory Liquid Dish Soap (discontinued), with light abrasion using a natural sponge. This should be sufficient to remove most bulk soiling. Spot treatment with dilute vinegar in warm water, dilute citrus-based cleaner, or proprietary chemical cleaners specifically manufactured for this purpose can be tested on areas of heavier soiling.
- If repainting is planned, surfaces must still be cleaned before new paint is applied.

Interior Masonry Repairs

- Petrographic analysis should be performed of the existing brick and mortar to determine compatible pointing mortar mixes. The replacement mortar should match the existing in properties, appearance, and tooling.
- Review options to enhance site drainage to mitigate seepage into Room 002.
- Replace deteriorated brick at perimeters of Basement level windows W013A through W013F.
- Replace deteriorated brick at northwest corner of Room 002, northeast and southeast corners of Room 013, and other isolated locations throughout the basement.
- Rebuild portions of the north and east limestone masonry walls in Room 009.

Wall Finishes

- Replace water damaged plaster below windows in Rooms 203, 206, and 208.
- Repaint walls in Rooms 203, 205, 206, and 208 to conceal old water stains.
- If desired, repair wall finishes in basement.

Long Term (5+ Years) Regular Maintenance	Flooring Remove and replace debonded linoleum flooring in Rooms 203, 205, 206, and 208. Coordinate work with any abatement activities required for asbestos-containing materials (ACM) identified in the environmental report.
	Ceilings Address gaps in ceiling boards in Rooms 101, 102, 103, 104, 105, 106, and sagging boards in Room 113. Caulking and repainting may be sufficient, but ceiling boards may need to be replaced at isolated locations.
	Finishes Replace upstairs finishes with more historically appropriate finishes depending on planned use for the spaces.
	Inspection On a monthly basis, inspect interiors for signs of pest infiltration, moisture intrusion issues, and mildew growth.

Building Systems

In addition to the treatment recommendations below specific to the MEP/FP systems at the building, the following preservation maintenance activities are recommended.

Regular Maintenance	Inspection - Continue regular maintenance of heating and cooling systems, including annual inspections or servicing of the furnace and air conditioning systems. Include regular replacement of filters, and each spring clean the coils on the exterior condensing units. - On a monthly basis, inspect the condensate tray in the attic air handler to ensure the condensate drain is clear and draining properly. If the drain is clogged, the tray will overflow and leak into the ceiling. Consider installing a moisture detection system for early warnings regarding possible condensate leakage. - On an annual basis, inspect and test the basement sump pump for operation. - Biannually, inspect sub-slab drain lines for condition and blockage.
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Miscellaneous Items

Cisterns

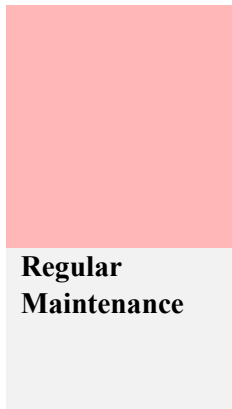
Immediate (Year 1)	Cistern and Well Safety Measures Retrieve and reinstall or replace the missing access cover on the garden cistern.
Medium Term (2 to 5 Years)	Backfilling Cisterns - All abandoned cisterns should be filled with grout and clean fill to prevent collapse of the shaft. The Missouri Well Construction Rule (Missouri Code of State Regulations 10 CSR 23-3.110) outlines requirements for reporting and permitting for filling of abandoned wells.⁹⁵ Consultation with the Missouri Department of Natural Resources is recommended to determine if the regulations for hand-dug wells of less than 80-feet are applicable to this property. Masonry Repairs - After the cisterns and wells have been backfilled, repoint deteriorated mortar and rebuild areas of collapsed shaft walls above grade. Reinstall the historic cover.

Grape Arbor

The grape arbor was observed to be in a failed condition. It was stabilized by park staff and bound in caution tape to prevent visitors from walking below the deteriorated arbor framing. This caution tape or other barricading methods should remain in place until final corrective action is taken. The grapevine itself is understood to have been present at this site for many years and should be protected to the extent possible during the make-safe repairs described below. In the event that replacement of the arbor structure is required, efforts should be made to preserve the vines, as they are likely historic plantings.

Immediate (Year 1)	Make-Safe Repairs Consider retaining a horticulturalist to determine the extent to which grapevines may be removed from the plant to reduce the current weight on the grape arbor, and to allow for removal and replacement of members.
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⁹⁵ Missouri Department of Natural Resources, "Missouri Well Construction Rule, found in Code of State Regulations. Accessed March 2, 2023. <https://dnr.mo.gov/land-geology/hazards/abandoned-wells>.



**Regular
Maintenance**

Inspections

- Brace grape arbor members and support live grapevines as necessary during repairs. (Completed by park staff April 2023.)
 - Replace deteriorated post members in kind. Where post bases are not deteriorated, re-set posts such that they are plumb.
 - Replace deteriorated horizontal members in kind, including diamond cut-out detailing at isolated members. Replace missing framing members.
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- On an annual basis, inspect the grape arbor for loose, missing, or rotated wood members.

Heating, Ventilation and Air Conditioning (HVAC) Systems Options

Heating System

Since the three gas-fired furnaces serving the Vallé House were installed during the 2017 calendar year, they are only going on five years old. Due to the equipment's relatively young age, there are no recommendations to remove or replace the units at this time as equipment such as this have a life expectancy of a minimum of 15-20-years based on a published Equipment Life Expectancy Chart provided through ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) so there is no immediate need to replace the equipment. With continued maintenance, these units should continue to serve the house for another approximately 15-years when replacement equipment may be needed to replace the current units.

Cooling System

It is assumed that the air-cooled condensing units serving the three interior furnaces with refrigerant could were installed at approximately the same time the furnaces were installed which was in 2017. Due to the equipment's relatively young age similar to the indoor

furnaces, there are no recommendations to remove or replace the units as equipment such as this have a life expectancy of a minimum of 20-years based on a published Equipment Life expectancy Chart provided through ASHRAE so there is no immediate need to replace the equipment. With continued maintenance, these units should continue to serve the house for another approximately 15-years when replacement equipment may be needed to replace the current units.

Electrical Systems, Fixtures, and Devices Options

Electrical Service

It is recommended to replace the existing indoor 240/120-volt, single-phase, 200-amp, electrical load center with a new 240/120-volt, single-phase, 200-amp, 42-pole, electrical panel.

The new electrical panel would conform to National Park Service standards, such as panelboard construction, service-entrance rated, cooper bus bars, cooper lugs, surge suppression device, adequate spare breakers, and space.

Arc fault circuit interrupter (AFCI) circuit breakers will be used for branch circuit over current protection.

Ground fault circuit interrupter (GFCI) circuit breakers will be used where required by the NEC.

The new electrical panel could be installed in the same location as previous load center or installed in a different location to better serve building improvements.

A typed panel circuit directory will be provided with the new panel.

Grounding

When the new electrical panel is installed, it is recommended to install a grounding electrode system connection to an outside copper-clad driven ground rod with Bare #6 A.W.G. copper ground wire in 3/4" conduit and to the metallic water service with Bare #4 A.W.G. copper ground wire in 3/4" conduit.

An intersystem bonding termination device (IBT) is recommended to be installed to bond the incoming communication utility services. A Bare #6 A.W.G. copper grounding conductor in 3/4" conduit will be routed from the IBT to the new panelboard.

Interior Wiring

If the new electrical panel is located in the same location as the previous panel, then the existing nonmetallic-sheathed (NM) cables can be reconnected to the new panel. If the new electrical panel is installed in a different location, then the previous load center then existing NM cables will have to be rerouted or replaced.

It is recommended, however, that the existing NM cable be replaced with metal clad (MC) cable. MC cable is a factory-made assembly with multiple insulated conductors enclosed in an armor of interlocking metal tape. The MC cable is more durable and less likely to get damaged as compared to NM cable. In areas where electrical devices are surface-mounted to walls, then it is recommended to install individual conductors in electrical metallic tubing (EMT) conduit.

Lighting

The existing incandescent and fluorescent lighting fixtures should be replaced with new light emitting

diode (LED) type lighting fixtures for energy conservation. The new LED lighting fixtures should have the style and locations needed to compliment the building improvements and intended usage.

Devices (Switches and Receptacles)

Lighting control should be modified to be compatible with future building use. Additional receptacle locations may need to be added to support future building use needs. It is recommended to replace the existing wiring devices when the existing building wiring is replaced. The general-purpose receptacles shall be duplex Type 5-20R, 125-volt, 20-amp, 2-pole, 3-wire grounding, side-wired, specification-grade. Ground-fault circuit interrupter (GFCI) receptacles shall be duplex, Type 5-20R,

125-volt, 20-amp, 2-pole, 3-wire grounding, side-wired, specification-grade. GFCI receptacles shall be used outdoors, in the basement, in the kitchen, and in the two restrooms.

Communications

Depending on the future use of the building, it is recommended to extend the existing fiber optic line into the building to a small rack-mounted patch panel. From the patch panel, Category 6A, copper, twisted-pair data cables can be extended out to new communication outlets to serve future loads.

The new rack-mounted patch panel needs to be installed in a small closet or cabinet in a conditioned space.

Fire Alarm Systems

It is recommended to remove the existing combination fire alarm/intrusion alarm system and add a new fire alarm system to the building. The fire alarm system would monitor the flow and tamper switches on the new fire sprinkler system.

Instead of providing fire alarm system smoke detectors, it is recommended to provide an aspirating-type, smoke

detection system that would sample the air on all three levels and provide early smoke detection of the spaces.

Exit Lighting and Emergency Lighting

Depending on the future use of the building, exit lighting and egress lighting may be required to be installed. The egress lighting could be accomplished by utilizing the normal lighting fixtures, backed up by a small battery powered inverter. The exit lighting fixture could have back-up battery power from an inverter system or individual, self-contained batteries.

Intrusion Alarm System

It is recommended to remove the existing combination fire alarm/intrusion alarm system and add an intrusion alarm system to the building. The intrusion alarm motion detectors could be the wireless-type.

Lightning Protection System

A lightning protection system could be added to the building; however, the visible lightning arrestors on the roof, and the grounding conductors routed down the outside of the building to ground rods, would be visible on the sides of the building and would be objectionable to look at.

Plumbing Systems Options

Water Piping

The plumbing systems appear in fair-to-good condition. There are no immediate recommendations for any piping replacements based on visual inspections and observations. Based on a visual inspection no piping leaks were detected. Eventual replacement of indoor water piping may be warranted as the system ages.

Sanitary Waste Piping

The waste piping appears in fair-to-good condition. There are no immediate recommendations for any

piping replacements based on visual inspections and observations. No piping leaks were detected. Eventual replacement of sanitary piping may be warranted as the system ages.

Since the sanitary service lines leaving the house have been in place for a significant amount of time, it is recommended that these sanitary mains be scoped with a camera to verify condition and viability for future use. This may also reveal any cracks or breaks in the line outside the house prior to the sanitary pipe connection to the sewer at the street which may require attention.

Plumbing Fixtures

It appears that all of the plumbing fixtures in the Vallé House are generally operational. While most of the fixtures are considered modern in nature, the lavatories, bathtubs, and faucets appear to be somewhat dated. While the plumbing fixtures may be functional, replacement with low-flow fixtures may be advised to conserve water use.

Gas Service and Water Heater

The gas piping appears in good condition so there is no immediate need to remove or replace any of the piping. It is recommended to leave the gas service piping in place and let it continue to serve the building in an as-is condition.

The gas-fired water heater which provides potable hot water to the two restrooms and kitchen, is of adequate size for the hot water needs of the fixtures in the house. The age of the water heater is only 10-years old and should be able to continue to serve the building for another 10 years as gas-water heaters have an expected lifespan of 15 – 20 years with periodic tank blow-down to minimize scale build-up. It is unclear whether the water heater is being provided with blowdown procedures being performed on a periodic basis. There would be no recommendation to replace the water heater unless at some point the water heater may experience a leak at the tank or the burner would fail.

Fire Protection Options

Any inclusion of a fire suppression system associated with the any preservation or revitalization project for the property would require a new fire water main be extended to the house from Market Street to the south of the property if the fire protection system were to include a wet or dry pipe sprinkler system.

As the house is currently a finished space and no dedicated space for a fire entrance location or pathways for piping are readily available, limits the inclusion of a piped fire suppression system. Property protection and life safety are the benefits a fire suppression system would offer. It is with these benefits that the Jean Baptiste Vallé House is recommended to be upgraded with an automatic fire suppression system or early warning system.

Based on the building techniques and materials used in the Vallé House construction where extensive use of wood timbers and other wood construction make up a vast majority of the structure, protection against fire is of major importance. Utilizing active fire safety features found in modern automatic fire detection and suppression systems, provide occupant notification, alarm transmittance and the ability to suppress fire growth until the fire department arrives. Relying on active systems with proper maintenance and alarm supervision, they have a high degree of reliability.

Active fire protection is characterized by detection and response. Detection of a fire through smoke or heat sensors initiates a chain of events that reduced threats from a fire. Once a detection system is activated, other actions including sounding alarms and opening of fire sprinklers or other fire suppression systems occur. Fire protection system minimum requirements are to detect a fire, alert the occupants or fire department of a fire emergency, control smoke, and control or extinguish the fire.

Fire Suppression Systems

For the Jean Baptiste Vallé House, a fire suppression system that incorporates both wet-pipe and dry-pipe

systems is recommended. Wet-pipe systems would be installed in conditioned spaces within the House without risk of pipes freezing. In semi- or unconditioned areas, such as attics and the basement, a dry-pipe system is recommended.

General Systems Discussion

There are many types of fire protection or suppression systems utilized in buildings today to mitigate the risk against the loss of life and property in the event of a fire. The fire suppression system should be based on the building occupancy group, size of the building/fire area, height of the building, and occupant load. The fire suppression system should comply with the current NFPA and IBC requirements as they relate to building usage.

The various types of systems in use range from wet-pipe systems, dry-pipe systems, anti-freeze systems, deluge systems, and pre-action systems.

- *Wet-Pipe System:* A wet pipe system is the most common type of system. It is a sprinkler system employing automatic sprinklers attached to a piping system containing water and connected to a water supply so that water discharges immediately from sprinklers opened by heat from a fire.
- *Dry-Pipe System:* A dry pipe system is the second most common type of system. A dry-pipe fire suppression system is a piping system filled with pressurized air or nitrogen instead of water. Water does not enter the pipes until a fire event is detected, releasing the dry pipe valve to allow water to flow. Dry-pipe systems are used when protecting areas which have a freeze potential, such as attics, basements, and balconies.
- *Pre-action System:* A pre-action system is used in locations where accidental activation is undesired, such as in museums or collection spaces housing valuable or historic artifacts. Water will not flow from the sprinklers until a

fire has generated enough heat to open one or more sprinklers.

Wet-Pipe/Dry-Pipe Combination System

Advantages of using a pre-action, combination wet and dry-pipe fire sprinkler with a pre-action system include the following:

- A dry-pipe sprinkler system provides automatic protection in spaces where freezing condition is possible such as the attic spaces.
- A dry-pipe sprinkler system with pre-action device offers an advantage when compared to conventional wet-type and dry-pipe sprinkler systems for the protection of collections, artifact and water sensitive documents. The addition of the pre-action devices, such as heat and smoke detectors, provide an added safeguard against false discharges.

Disadvantages of using a pre-action, dry-pipe fire sprinkler system:

- Increased complexity – Dry-pipe systems require additional control equipment and air pressure supply components which increases system complexity. Without proper maintenance this equipment may be less reliable when comparable to a wet-pipe system.
- Higher installation and maintenance costs - The added complexity impacts the overall dry-pipe installation cost. This complexity also increases maintenance costs.
- Lower design flexibility - There are strict requirements regarding the maximum permitted size (typically 750 gallons) of individual dry-pipe systems unless the water delivery time is less than 60 seconds.
- Increased fire response time - Up to 60-seconds may pass from the time a smoke or heat detector activates and a sprinkler head opens until water is discharged onto the fire, which allow for increased fire damage.
- Increased corrosion potential - Following operation, dry-pipe sprinkler systems must be

completely drained and dried. Any remaining water may cause pipe corrosion and premature failure.

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System Maintenance

Each of the types of fire suppression systems requires some form of inspection, testing and maintenance. The following outlines a typical schedule of inspection, testing and maintenance:

- *Monthly:* Control valves, alarm valves, and pressure gauges should be inspected, tested, and monthly. Control valves should have the appropriate identification and wrench, be accessible, and be locked in the open position or electronically supervised during inspection. Pressure gauges should show that normal water supply pressure is being maintained.
- *Quarterly:* The fire department connection (FDC), water flow/supervisory signal devices, and alarm devices should be inspected, tested, and maintained quarterly. The FDC should be visible and accessible and, identification signs and caps should be in place.
- *Annually:* Sprinklers, pipe and fittings, hangers and any seismic braces, and spare sprinklers should be inspected, tested, and maintained annually. Sprinkler heads should be installed in the proper orientation (e.g., upright, pendent, or sidewall); not show signs of leakage; and should be free of corrosion, foreign materials, paint, and physical damage.
- *Additional Testing and Maintenance:* There are specific requirements for the testing and maintenance of the valve and device components of sprinkler systems that should be done quarterly, semiannually, and annually. Fire sprinkler system service contractors are usually contracted to perform these services. Mechanical water flow devices, including but

not limited to water motor gongs should be tested quarterly. Vane-type or pressure switch-type water flow devices should be tested semiannually.

Early Warning Systems

Additional fire and smoke systems are available which are considered Early Warning Systems. One such system utilizes air sampling and is referenced by the name of “VESDA” which stands for “Very Early Warning Aspirating Smoke Detection”. The VESDA system is designed to alarm the occupants to a danger as soon as possible. The VESDA air sampling fire detection system detects invisible by-products of materials as they degrade during the pre-combustion stages of a developing fire.

Depending upon smoke levels and the preprogrammed alarm levels, appropriate output signals are triggered. The first of three staged alarm levels (ALERT) may simply indicate that the system has detected something out of the ordinary that should be investigated. The second level (ACTION) indicates that a potential fire exists and that emergency procedures should begin. The third level (FIRE) signifies an actual fire condition.

The early warning systems such as VESDA while offering an advantage of early detection, would rely on other fire suppression systems to actively extinguish the fire. For the Jean Baptiste Vallé House, this type of system does not offer much benefit as this building would still need some other means to fight a fire including some type of automatic fire suppression system or the local fire department.

Fire Service and Fire Service Room

Any added automatic fire suppression system for the Jean Baptiste Vallé House incorporating a wet or dry-pipe solution will require a separate fire water service be installed to the building. This water service will be

in addition to any existing potable water service to the building serving domestic water needs. The fire service size anticipated would need to be a minimum 4” in size with the water service provided with a post indicator valve near the street giving the fire department visual indication of whether the fire service is active or is inactive due to maintenance.

The fire service to the house should enter the building in a heated space or room. At the Jean Baptiste Vallé House, it is recommended that the fire service be brought in below grade to inside the building at the Basement Level as the Basement Level can be provided with heat to protect the fire service from freezing. Ample space will be needed for the fire entrance assembly including backflow preventers, valves, drain and test connections, and an air compressor to keep the piping system charged with air.

A fire department connection or FDC will also be needed allowing the local fire department to connect their water supply to the building fire suppression system if the main fire service from the street is down for servicing or maintenance. The FDC would generally be located 40-feet or more from the building for safety of the fire fighters.

Impact to Historic Finishes

Another consideration is providing a piped fire suppression system in a building which was not built and configured for one. Providing and hiding new fire suppression piping and sprinkler discharge heads to minimize the aesthetic impact requires thoughtful design.

Providing piping throughout the house potentially will involve some selective demolition and new construction and piping soffits may be required in some spaces, which will change the interior appearance.

Bibliography

- Anthony, Ronald W. "Basics of wood inspection: Considerations for historic preservation." *APT Practice Points*, no. 3 (2007). <http://www.apti.org/clientuploads/publications/PracticePoints/03-Anthony.pdf>
- Anthony, Ronald W. "Nondestructive Evaluation: Wood." *APT Practice Points*, no. 10 (2010).
- Anthony, Ronald W., Kimberly D. Dugan, and Deborah J. Anthony. "A Grading Protocol for Structural Lumber and Timber in Historic Structures." *APT Bulletin: The Journal of Preservation Technology*, 40, No. 2 (2009), 3-9.
- Baker, Jim. "Le Petit Anglais Henry Marie Brackenridge and the Vital Bauvais Family of Ste. Genevieve, Upper Louisiana," *Le Journal (Center for French Colonial Studies)* 21, No. 1 (2005): 1-6.
- Belting, Natalia Maree. *Kaskaskia Under the French Regime*. Urbana: Southern Illinois University Press, 1948.
- De Berardinis, Robert. "The 1752 French Census of Illinois." *Illinois State Genealogical Quarterly* 32, no. 4 (Winter 2000): 195-203.
- Blackbird, Leila K. "'It Has Always Been Customary to Make Slaves of Savages': The Problem of Indian Slavery in Spanish Louisiana Revisited, 1769-1803." *The William and Mary Quarterly*, 80, No. 3 (July 2023), 525-558.
- Bomberger, B.D. (1991). "The preservation and repair of historic log buildings." National Preservation Services: Preservation Briefs 26. www.nps.gov/tps/how-to-preserve/briefs/26-log-buildings.htm
- Boyceau, Jacques. *Traité du jardinage selon les raisons de la nature et de l'art*. Paris, France: M. Vanlochem, 1638.
- Brackenridge, Henry Marie. Views of Louisiana: Together with a Journal of a Voyage up the Missouri River, in 1811. Pittsburgh, PA: Cramer, Spear and Eichbaum, 1814.
- Brackenridge, Henry Marie. *Recollections of Persons and Places in the West*. Philadelphia, PA: James Kay, Jun. & Co., 1834.
- Charles, F. W. B., and M. Charles. *Conservation of Timber Buildings*. Dorset, England: Donhead Publishing Ltd., 1984.
- Chouteau, Auguste. Fragment of Col. *Auguste Chouteau's Narrative of the Settlement of St. Louis: A Literal Tr. from the Original French*, Ms. in Possession of the St. Louis Mercantile Library Association. United States: G. Knapp & Company, 1858.
- Deposki, Richard. *Ste. Genevieve (Images of America)*. Charleston, SC: Arcadia, 2008.
- Dezallier d'Argenville, Antoine-Joseph. *La théorie et la pratique du jardinage...* Paris, France: Jean Mariette, 1709. Translated by John James as *The Theory and Practice of Gardening*, London: Geo. James, 1722.
- Dumont de Montigny, Jean F. B. *Mémoires historiques sur la Louisiane...* Paris, France : C. J. B. Bauche, 1753.
- Edwards, Jay D. "Creole Architecture: A Comparative Analysis of Upper and Lower Louisiana and Saint Domingue." *International Journal of Historical Archaeology* 10, (2006): 237-267.
- Edwards, Jay D. "Louisiana's French Creole Architecture," National Register of Historic Places Nomination Form. Washington, D.C.: U.S. Department

Jean Baptiste Vallé House Historic Structure Report

of the Interior, National Park Service, 1991, <https://catalog.archives.gov/id/73972785>.

Ekberg, Carl J. "Black Slaves in the Illinois Country, 1721-1765," *Proceedings of the Meeting of the French Colonial Historical Society*, 11 (Michigan State University Press, 1987): 265-277.

Ekberg, Carl J. *Colonial Ste. Genevieve: An Adventure on the Mississippi Frontier*. (Carbondale, Illinois: Southern Illinois University Press, 1996)

Ekberg, Carl J. *François Vallé and His World: Upper Louisiana before Lewis and Clark*. United States: University of Missouri Press, 2002.

Ekberg, Carl J. *French Roots in the Illinois Country: The Mississippi Frontier in Colonial Times*. United States: University of Illinois Press, 2000.

Elbert, E. Duane, and Keith A. Sculle. *Log Buildings in Illinois: Their Interpretation and Preservation*. United States: Illinois Department of Conservation, Division of Historic Sites, 1982.

Gitlin, Jay, Robert Michael Morrissey, and Peter J. Kastor, eds. *French St. Louis, Landscape, Contexts, and Legacy*. Lincoln: University of Nebraska Press, 2021

Garraghan, Gilbert J. "Earliest Settlements of the Illinois Country." *The Catholic Historical Review* 15, no. 4 (1930): 351-62. Accessed April 27, 2021. <http://www.jstor.org/stable/25012670>

Guyette, Richard. "Tree Ring Dating of French Colonial Vertical Log Houses in St. Genevieve, Missouri." University of Missouri – Columbia. N.d. [1986].

Fuller, Myron L. *The New Madrid Earthquake, U. S. Geological Survey*, Bulletin 494. United States: U.S. Government Printing Office, 1912.

Hall, Gwendolyn Midlo. *Africans in Colonial Louisiana: the Development of Afro-Creole Culture in the Eighteenth Century*. Baton Rouge, LA: Louisiana State University Press, 1992.

Historic American Building Survey. "Jean Baptiste Vallé House, 99 South Main Street (Northwest corner of Main & Market Streets) Ste. Genevieve, Ste. Genevieve County, MO", The Library of Congress. National Park Service, U.S. Department of the Interior, <https://www.loc.gov/pictures/item/mo0360/>

Historic Arsenical Pesticide Research. Denver Department of Environmental Health, Environmental Protection Division: 2004. Accessed at <https://semspub.epa.gov/work/05/259803.pdf>.

Houck, Louis. *A History of Missouri: From the Earliest Explorations and Settlements Until the Admission of the State into the Union*. Vol 1. Chicago, IL: R. R. Donnelley & Sons Company, 1908.

Houseman, Richard M. "Subterranean Termites." University of Missouri – Columbia, Department of Entomology, <https://extension.missouri.edu/publications/g7420>.

Houseman, Richard M. "Wood-Boring Beetles." University of Missouri – Columbia, Department of Plant Sciences, <https://extension.missouri.edu/publications/g7422>

International Council on Monuments and Sites (ICOMOS). *International Wood Committee Charter: Principles for the Preservation of Historic Timber Buildings*. October 1999. https://www.icomos.org/charters/wood_e.pdf.

International Council on Monuments and Sites. "Principles for the Preservation of Timber Structures." 1999. https://www.icomos.org/charters/wood_e.pdf

Johnson, C. "Missouri-French Houses: Some Relict Features of Early Settlement." *Pioneer America* 6, no. 2 (1974): 1-11. Accessed March 9, 2021. <http://www.jstor.org/stable/29763533>

Lelièvre, Jacques-Felix. *Nouveau Jardinier de la Louisiane*. New Orleans: J. F. Lelièvre, 1838. Translated by Sally Kittredge Reeves as *New Louisiana*

- Gardener. Baton Rouge: Louisiana State University Press, 2001.
- Liébault, Jean. *L'Agriculture et maison rustique*. Paris, France: Jacques Du-Puys, 1570.
- Luer, Jack Richard, and Jesse W. Frances. *Vanishing French Heritage: A Complete Study of the Vertical Log Homes of the Illinois Country*. Chesterfield, MO: Independent Publishing Corporation, 2014.
- McCormic, John Edward. *The Mine La Motte Lead Deposit, Madison County, Missouri*. Open File Report Series OFR-93-94-GS. Missouri Department of Natural Resources, 1993.
- McNitt, Esther U. "St. Louis & French Villages in 1836," extract from the *Journal of George A. Bicknell*. Indiana State Library, Indianapolis for Charles E. Peterson, May 12, 1939. Ernst Connelly Collection. Box 2, Folder Ste Genevieve History.
- McVarish, Douglas C. "Ste. Genevieve Historic District." National Register of Historic Places Nomination Form. Washington, DC: U.S. Department of the Interior, National Park Service, 2001.
- Mercer, Henry. "The Dating of Old Houses." *A Collection of Papers Read Before the Bucks County Historical Society*, V (1926): 536-549.
- Missouri Department of Natural Resources, Division of State Parks. "Ste. Genevieve Architectural Survey." N.d. [1982].
- Mutti Burke, Diane. *On Slavery's Borders: Missouri's Small-Slaveholding Households, 1815-1865. Early American Places*. Athens and London: The University of Georgia Press, 2010.
- National Park Service. *Archeological Overview and Assessment of Ste. Genevieve National Historical Park*. 2021.
- National Park Service. *French Exploration and Settlement: The National Survey of Historic Sites and Buildings*, revised 1960.
- National Park Service, NPS- 28: *Cultural Resource Management Guideline*. June 11, 1998. Accessed September 4, 2023. https://www.nps.gov/parkhistory/online_books/nps28/28contents.htm
- National Park Service. Ste. Genevieve Final Special Resource Study and Environmental Assessment. May 2016.
- Nelson, Lee H. "Preservation Brief 17: Architectural Character – Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving their Character." *The Preservation of Historic Architecture, The U.S. Government's Official Guidelines for Preserving Historic Homes*. Guilford, CT: The Lyons Press, 2004.
- Peterson, Charles E. *Colonial St. Louis: Building a Creole Capital*. United States: Missouri Historical Society, 1949.
- Peterson, Charles E. "Early Ste. Genevieve and Its Architecture." *The Missouri Historical Review* XXXV, No. 2 (1941): 207-232.
- Peterson, Charles E. "The Technology of Early American Building." *Newsletter of the Association for Preservation Technology*, 1, no. 1 (April 1969): 3-17.
- Peterson, Charles E. *Building Early America*. Radnor, PA: Chilton Book Company, 1976.
- Priess, Peter. "Wire Nails in North America." *Bulletin of the Association for Preservation Technology* 5, no. 4 (1973): 87-92.
- Report of Governor Estevan Miro to Conde de Galvez. (Seville, AGI-papers from the island of Cuba, No.209) July 10, 1785. Earnst Connelly Collection, Mercantile Library, Box 2, History of Ste Genevieve File.

Jean Baptiste Vallé House Historic Structure Report

- Ridout, B. *Timber Decay in Buildings: The Conservation Approach to Treatment*. London: E. and F. N. Spon, 2000.
- Robitaille, Andre. *Habiter en Nouvelle-France, 1534-1648*. Quebec: Publications MNH, Inc., 1996.
- Ross, R. J., B. K. Brashaw, X. Wang, R. H. White, and R. F. Pellerin. *Wood and Timber Condition Assessment Manual*. Madison, WI: Forest Products Society, 2004.
- Rozier, Firmin A. *Rozier's History of the Early Settlement of the Mississippi Valley*. St. Louis, MO: G. A. Pierrot & Sons, Printers, 1890.
- Sayer, Gordon M. and Carla Zecher. *The Memoir of Lieutenant Dumont, 1715-1747: A Sojourner in the French Atlantic*. Williamsburg, Virginia: University of North Carolina Press, 2012.
- Sobon, Jack A. *Historic American Timber Joinery: A Graphic Guide*. Natchitoches, LA: National Center for Preservation Technology and Training, 2004.
- Ste. Genevieve, Missouri, Sanborn Fire Insurance Maps. Library of Congress.
- February 1894. http://hdl.loc.gov/loc.gmd/g4164sm.g4164sm_g048551894
- December 1901. http://hdl.loc.gov/loc.gmd/g4164sm.g4164sm_g048551901
- October 1911. http://hdl.loc.gov/loc.gmd/g4164sm.g4164sm_g048551911
- March 1915. http://hdl.loc.gov/loc.gmd/g4164sm.g4164sm_g048591915
- October 1929. http://hdl.loc.gov/loc.gmd/g4164sm.g4164sm_g048551929
- July 1945. http://hdl.loc.gov/loc.gmd/g4164sm.g4164sm_g048551945
- Stepenoff, Bonnie. "Faire une Maison: Carpenters in Ste. Genevieve, 1750-1850." *The Confluence* (Spring/Summer 2014): 31-38.
- Stepenoff, Bonnie. *From French Community to Missouri Town: Ste. Genevieve in the Nineteenth Century* (Columbia, Missouri: University of Missouri Press, 2006)
- "Technical Leaflet 48: Nail Chronology as an Aid to Dating Old Buildings." United States: American Association for State and Local History, History News, 24, No. 11 (1968).
- Thurman, Melburn D. *Building a House in 18th Century Ste. Genevieve*. Ste Genevieve, MO: Pendragon Press, 1984.
- Traquair, Ramsay. *The Old Architecture of Quebec: A Study of the Buildings Erected in New France from the Earliest Explorers to the Middle of the Nineteenth Century*. Canada: Macmillan Company of Canada, 1947.
- Valentin, Jean-Louis. *Le colombage, mode d'emploi*. Paris: Group Eyrolles, 2007.
- Vallé Mining Company Records and Account Books Summary. State Historical Society of Missouri collections summary of Vallé Mining Company Records, 1839-1972. Collection R1278.
- Webre, Stephen. "The Problem of Indian Slavery in Spanish Louisiana, 1769-1803." *Louisiana History: The Journal of the Louisiana Historical Association*, 25, No. 2 (Spring 1984), 117-135.
- Wells, Tom. "Nail Chronology: The Use of Technologically Derived Features." *Historical Archaeology*, 32, No. 2 (1998):78-99.
- Wild, John Caspar. *The Valley of the Mississippi; Illustrated in a Series of Views*. St. Louis, MO: Hawthorn Publishing, 1841.

Justin Winsor, *Narrative and Critical History of America*, 8 Volumes. Boston and New York : Houghton, Mifflin and Company, 1889.

Wood and Timber Condition Assessment Manual. United States: United States Department of Agriculture, Forest Service, Forest Products Laboratory, 2014.

Zimmer, Gertrude Minnie. *Place Names of Five Southeast Counties of Missouri: Crawford, Reynolds, St. Francois, Ste. Genevieve, and Washington Counties*. Master's thesis, 1944. University of Missouri. Accessed May 3, 2023. <https://hdl.handle.net/10355/82581>

Websites

Barnett, Todd. "Historic Missourians: François Vallé." Accessed at <https://historicmissourians.shsmo.org/valle-francois/>.

Bishop, Cheryl Ann. "Legacies of Lead and Arsenic." Department of Ecology, State of Washington. February 3, 2020. Accessed at <https://ecology.wa.gov/blog/february-2020/legacies-of-lead-and-arsenic>.

"Jean-Baptiste Vallé." Ste. Genevieve National Historical Park. NPS History eLibrary <https://npshistory.com/publications/stge/index.htm>

"Jean-Baptiste Vallé House." Lewis and Clark National Historic Trail Experience. Accessed at <https://www.lewisandclark.travel/listing/jean-baptiste-valle-house/>.

Franck, Christine Huckins. "Houses of the French Colonial Tradition." Accessed at

<https://christinefranck.com/2011/01/19/houses-of-the-french-colonial-tradition/>.

"History of Early American Landscape Design." National Gallery of Art. Accessed at https://heald.nga.gov/mediawiki/index.php/French_style.

"Timeline of Historic Missouri: 1673-1829." Missouri Secretary of State. Accessed at <https://www.sos.mo.gov/archives/history/timeline>.

Newspapers

Fair Play. Ste. Genevieve, Missouri,

March 6, 1880, 3.

April 14, 1883, 3.

March 19, 1892, 3.

Hathaway, Matthew. "History for Sale" *St. Louis Post-Dispatch* (St. Louis, Missouri), December 8, 2002

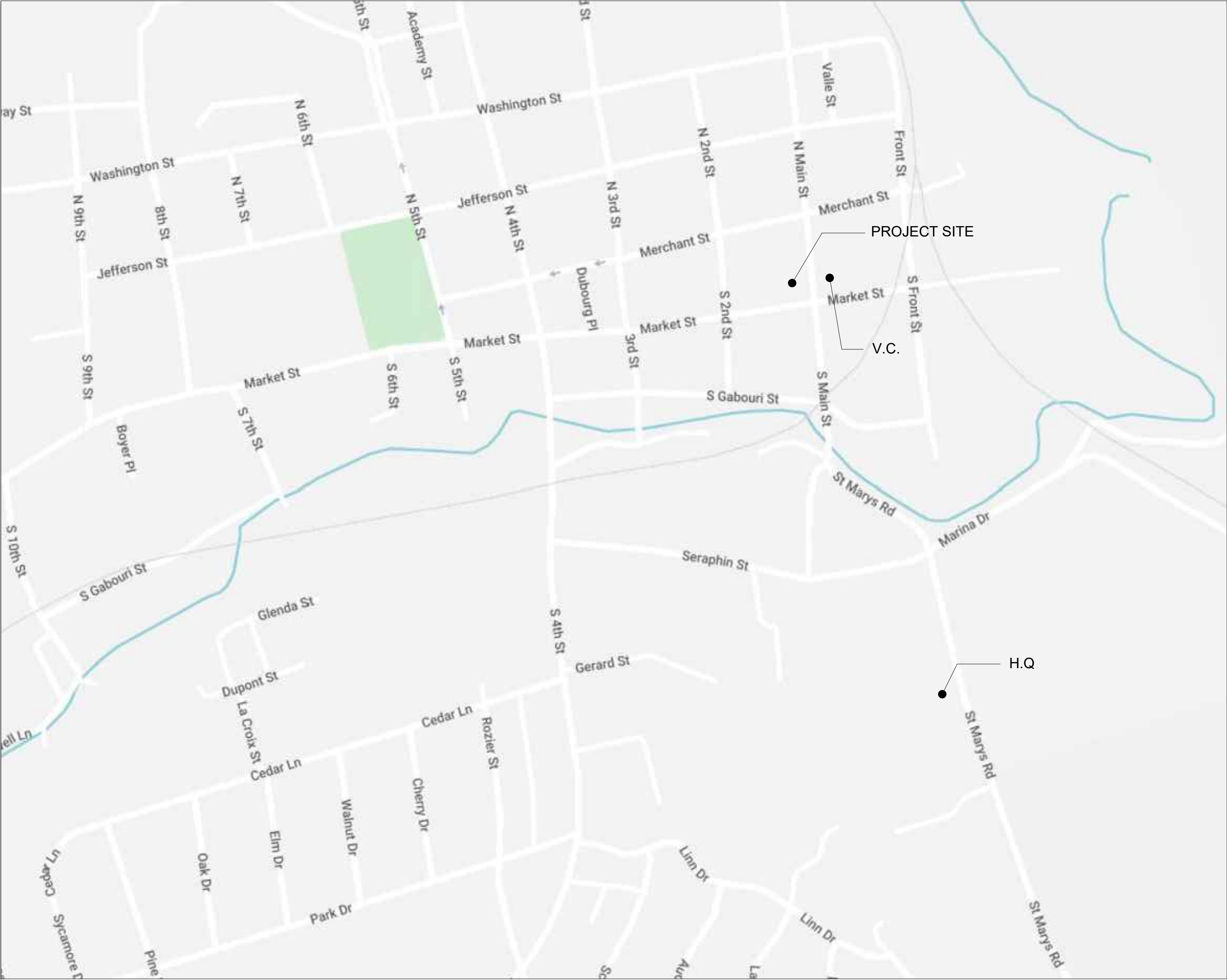
Matthew Hathaway. "Hunter of historic houses snaps up prized Ste. Genevieve dwelling." *St. Louis Post Dispatch*, 4 January 2010.

Uhlenbrock, Ron. "More than an artifact." *St. Louis Post-Dispatch* (St. Louis, Missouri), October 24, 2004.

Radford, Bobby. "Historic sites donated." *The Daily Journal* (Flat River, Missouri) December 11, 2019.

Ste. Genevieve Herald, January 6, 1999.

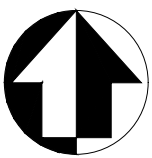
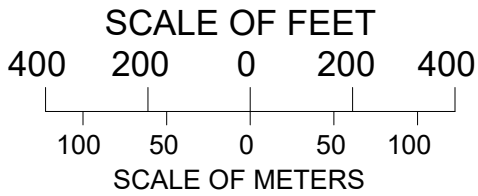
Appendix A – Existing Condition Drawings



STE. GENEVIEVE, MISSOURI

LEGEND

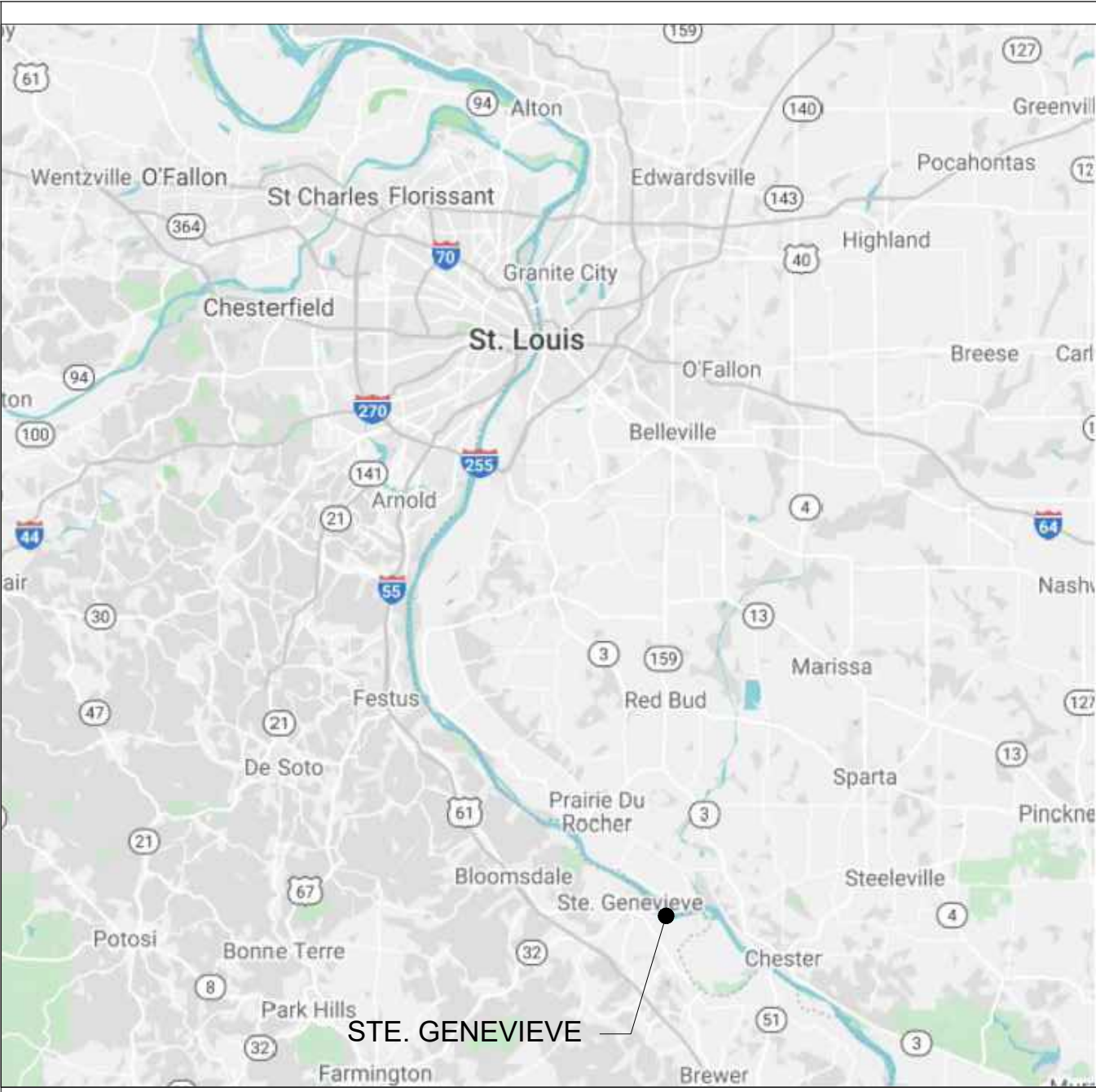
- V.C. VISITOR CENTER
- HQ. PARK HEADQUARTERS



EXISTING CONDITIONS JEAN-BAPTISTE VALLE HOUSE

99 S. MAIN STREET, STE. GENEVIEVE, MO 63670
STE. GENEVIEVE NATIONAL HISTORICAL PARK

PMIS 311236



LIST OF DRAWINGS:

- G0.0 COVER SHEET
- A1.0 SITE PLAN
- A2.0 BASEMENT FLOOR PLAN
- A2.1 FIRST FLOOR PLAN
- A2.2 SECOND FLOOR PLAN
- A2.3 ROOF PLAN
- A3.0 EAST ELEVATION
- A3.1 SOUTH ELEVATION
- A3.2 WEST ELEVATION
- A3.3 NORTH ELEVATION
- A4.0 BUILDING SECTIONS
- A4.1 BUILDING SECTIONS
- A4.2 BUILDING SECTIONS
- A4.3 BUILDING SECTIONS
- A4.4 BUILDING SECTIONS
- A4.5 BUILDING SECTIONS
- A4.6 BUILDING SECTIONS
- A4.7 BUILDING SECTIONS
- A4.8 BUILDING SECTIONS
- A4.9 BUILDING SECTIONS
- 5.0 PERIOD PLANS
- 5.1 PERIOD PLANS
- 5.2 PERIOD PLANS

A/E FIRM		Mark	Sheet	REVISION	Date	Initial	QUALITY DESIGN CERTIFICATION			TITLE OF DRAWING			DRAWING NO.
ARCHITECT:							☐ Prepared in Accordance with Design Development (Title I) _____ OR ☐ Variance from Design Development (Title I) Approved by Superintendent on _____ OR ☐ Construction Drawing Not Preceded by Design Development (Title I) _____	EXISTING CONDITIONS			80004		
RATHS, RATHS & JOHNSON, INC.								LOCATION WITHIN PARK			PMIS/PKG NO.		
500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618							_____ Project Manager Date	JEAN BAPTISTE VALLE HOUSE STE. GENEVIEVE NATIONAL HISTORICAL PARK			311236		
									UNITED STATES DEPARTMENT OF THE INTERIOR	REGION COUNTY STATE STE. GENEVIEVE COUNTY MISSOURI			SHEET 1 OF 23
									NATIONAL PARK SERVICE DENVER SERVICE CENTER				

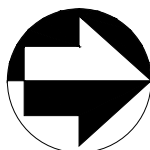
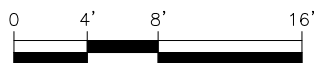
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SHEET NOTES:

- | | |
|---|---|
| 1. JEAN BAPTISTE VALLE HOUSE, c.1794/c.1862 | 13. CISTERN WITH STONE COVER |
| 2. PARTERRE GARDEN PLANTING BED WITH LIMESTONE EDGING | 14. CONCRETE FOUNDATION |
| 3. GRAPEVINE ARBOR | 15. SITE DRAIN |
| 4. c. 1982 GARAGE | 16. GAS UTILITY METER |
| 5. WOOD BOARD FENCE | 17. ELECTRICAL UTILITY METER |
| 6. WOOD RAIL-AND-POST FENCE | 18. HVAC CONDENSER UNITS |
| 7. BRICK MASONRY PIER WITH GATE, 2010s | 19. EXPOSED AGGREGATE CONCRETE SIDEWALK WITH CURB |
| 8. WOOD GATE | 20. TRAFFIC SIGN |
| 9. FLAGSTONE WALKWAY | 21. LANTERN-STYLE LIGHT ON POLE |
| 10. CONCRETE PAVER WALKWAY | 22. UTILITY POLE |
| 11. CONCRETE PAVER WALKWAY WITH STONE EDGING | 23. FIRE HYDRANT |
| 12. CONCRETE SLAB-ON-GRADE | |

1 SITE PLAN
A2.0 SCALE: $\frac{3}{32}$ " = 1'-0"



SOUTH MAIN STREET

A/E FIRM
PRIME/ARCH:
RATHS, RATHS &
JOHNSON, INC.
500 Joliet Road,
Suite 200
Willowbrook, Illinois
60527-5618

DESIGNED:
LMB
CADD:
AM/MDN
TECH. REVIEW:
LMB
DATE:
01-05-24

SUB SHEET NO.

G0.1

TITLE OF SHEET

SITE PLAN

STE. GENEVIEVE NATIONAL HISTORICAL PARK

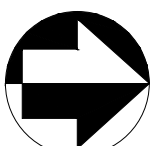
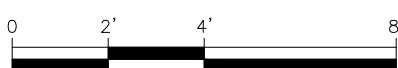
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2 OF 23

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1
A2.0

BASEMENT FLOOR PLAN

SCALE: 1/4" = 1'-0"



A/E FIRM
PRIME/ARCH:
RATHS, RATHS &
JOHNSON, INC.
500 Joliet Road,
Suite 200
Willowbrook, Illinois
60527-5618

DESIGNED:
LMB
CADD:
AM/MDN
TECH. REVIEW:
LMB
DATE:
07-25-24

SUB SHEET NO.

A2.0

TITLE OF SHEET

BASEMENT PLAN

STE. GENEVIEVE NATIONAL HISTORICAL PARK

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SHEET
3 OF 23



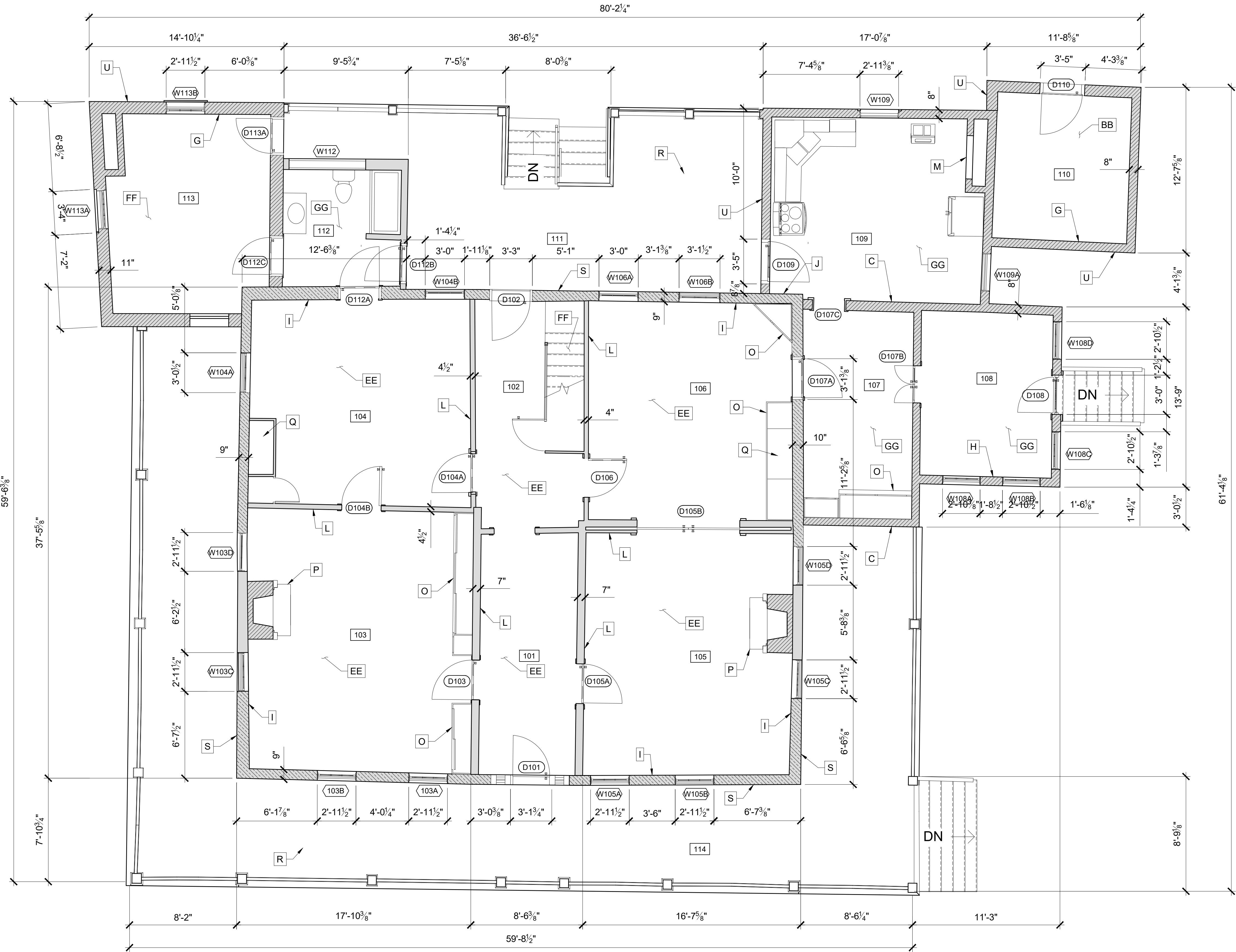
SHEET NOTES:

- | | |
|--|--|
| A. c. 1794 STONE MASONRY WALL | Q. c. 1862 FIREPLACE WITH HEARTH AND MANTLE, NOW MISSING |
| B. c. 1794 STONE MASONRY PIER | R. OPEN GALLERY, ALTERED FROM c. 1794 |
| C. c. 1862 BRICK MASONRY WALL | S. PAINTED STUCCO CLADDING |
| D. 20th CENTURY CMU MASONRY WALL | T. PAINTED WOOD SIDING |
| E. EXPOSED FOUNDATION FOOTING | U. PAINTED BRICK |
| F. c. 1862 WOOD PLANK PARTITION WALL | V. EPDM MEMBRANE ROOFING |
| G. BRICK MASONRY, UNDETERMINED DATE | W. ASPHALT SHINGLE ROOFING |
| H. AFTER 1936, REPLACED THE 1880 PORTICO | X. ROOM LINED WITH HISTORIC NEWSPAPERS |
| I. c. 1794 VERTICAL LOG WALL | Y. GUTTER |
| J. EXPOSED VERTICAL LOGS | Z. BRICK PARAPET WALL |
| K. c. 1862 DIMENSION LUMBER WALL | AA. CONCRETE SLAB ON GRADE, DATE UNDETERMINED |
| L. c. 1862 RELOCATED/ALTERED PARTITION | BB. STONE PAVING ON GRADE |
| M. c. 1862 BRICK MASONRY CHIMNEY | CC. SOIL |
| N. c. 1794 LIKELY LOCATION OF STONE MASONRY CHIMNEY, NOW MISSING | DD. c. 1862 WOOD PLANK FLOORING (PARTIALLY MISSING) |
| O. BUILT-IN CABINETRY | EE. HARDWOOD FLOORING, DATE UNDETERMINED |
| P. c. 1862 FIREPLACE WITH HEARTH AND MANTLE | FF. WALL-TO-WALL CARPET |
| | GG. 20th CENTURY TILE OR COMPOSITE FLOORING |

LEGEND:

- | | | | |
|------|--------------------|--|------------------|
| XXX | ROOM DESIGNATION | | STONE MASONRY |
| WXXX | WINDOW DESIGNATION | | BRICK MASONRY |
| DXXX | DOOR DESIGNATION | | CMU MASONRY |
| xx | KEY NOTE | | TIMBER/LOG FRAME |
| | | | DIMENSION LUMBER |
| | | | CONCRETE |

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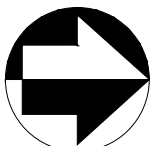
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- | | |
|--|--|
| A. c. 1794 STONE MASONRY WALL | Q. c. 1862 FIREPLACE WITH HEARTH AND MANTLE, NOW MISSING |
| B. c. 1794 STONE MASONRY PIER | R. OPEN GALLERY, ALTERED FROM c. 1794 |
| C. c. 1862 BRICK MASONRY WALL | S. PAINTED STUCCO CLADDING |
| D. 20th CENTURY CMU MASONRY WALL | T. PAINTED WOOD SIDING |
| E. EXPOSED FOUNDATION FOOTING | U. PAINTED BRICK |
| F. c. 1862 WOOD PLANK PARTITION WALL | V. EPDM MEMBRANE ROOFING |
| G. BRICK MASONRY, UNDETERMINED DATE | W. ASPHALT SHINGLE ROOFING |
| H. AFTER 1936, REPLACED THE 1880 PORTICO | X. ROOM LINED WITH HISTORIC NEWSPAPERS |
| I. c. 1794 VERTICAL LOG WALL | Y. GUTTER |
| J. EXPOSED VERTICAL LOGS | Z. BRICK PARAPET WALL |
| K. c. 1862 DIMENSION LUMBER WALL | AA. CONCRETE SLAB ON GRADE, DATE UNDETERMINED |
| L. c. 1862 RELOCATED/ALTERED PARTITION | BB. STONE PAVING ON GRADE |
| M. c. 1862 BRICK MASONRY CHIMNEY | CC. SOIL |
| N. c. 1794 LIKELY LOCATION OF STONE MASONRY CHIMNEY, NOW MISSING | DD. c. 1862 WOOD PLANK FLOORING (PARTIALLY MISSING) |
| O. BUILT-IN CABINETRY | EE. HARDWOOD FLOORING, DATE UNDETERMINED |
| P. c. 1862 FIREPLACE WITH HEARTH AND MANTLE | FF. WALL-TO-WALL CARPET |
| | GG. 20th CENTURY TILE OR COMPOSITE FLOORING |

LEGEND:

- | | | | |
|------|--------------------|-----------|------------------|
| XXX | ROOM DESIGNATION | [Pattern] | STONE MASONRY |
| WXXX | WINDOW DESIGNATION | [Pattern] | BRICK MASONRY |
| DXXX | DOOR DESIGNATION | [Pattern] | CMU MASONRY |
| xx | KEY NOTE | [Pattern] | TIMBER/LOG FRAME |
| | | [Pattern] | DIMENSION LUMBER |
| | | [Pattern] | CONCRETE |

1 FIRST FLOOR PLAN
A2.1 SCALE: 1/4" = 1'-0"

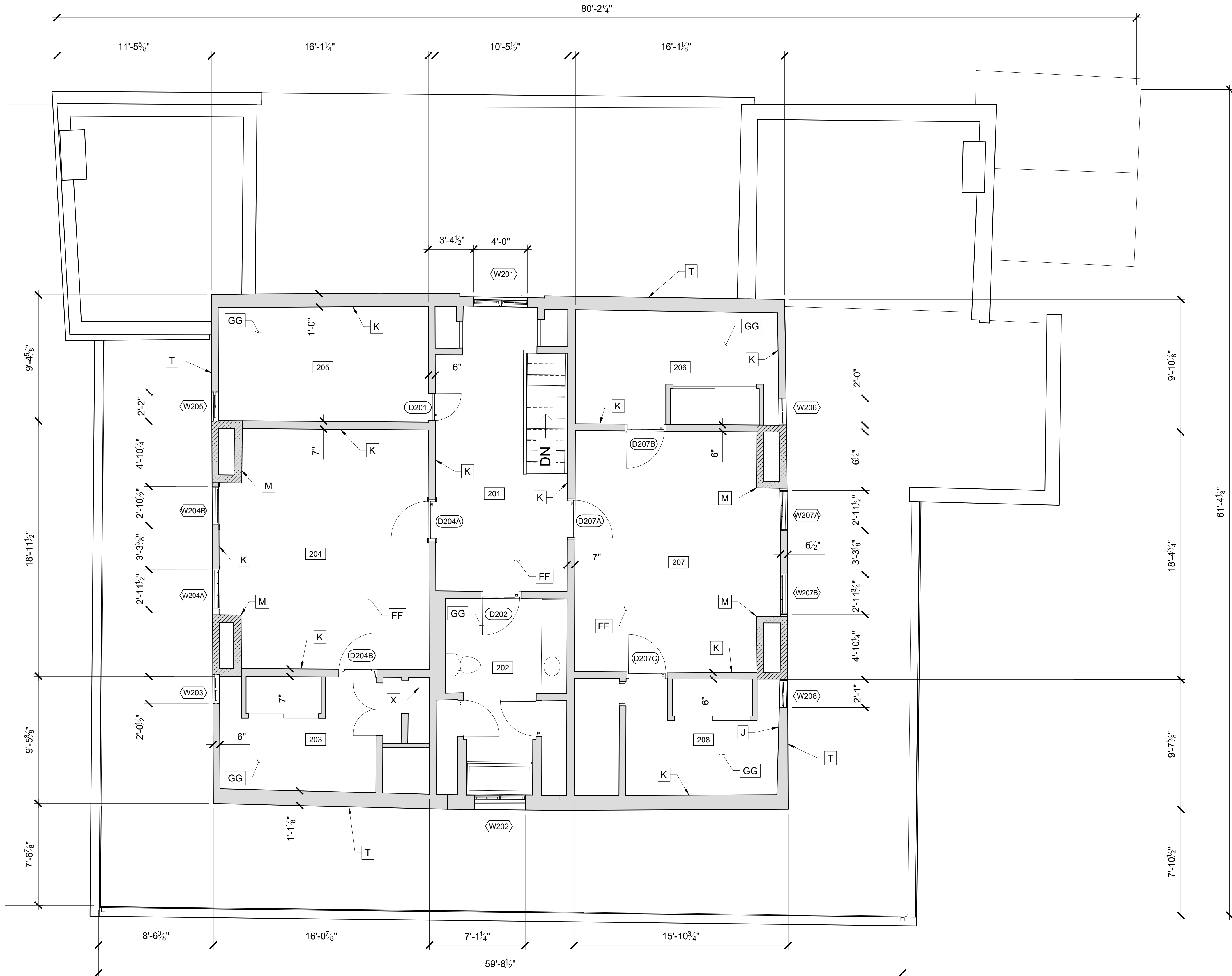
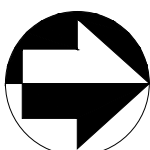


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	CADD: AM/MDN			PMIS/PKG NO. 311236
	TECH. REVIEW: LMB			SHEET 4 OF 23
	DATE: 01-05-24			

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1
A2.2 SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"



SHEET NOTES:

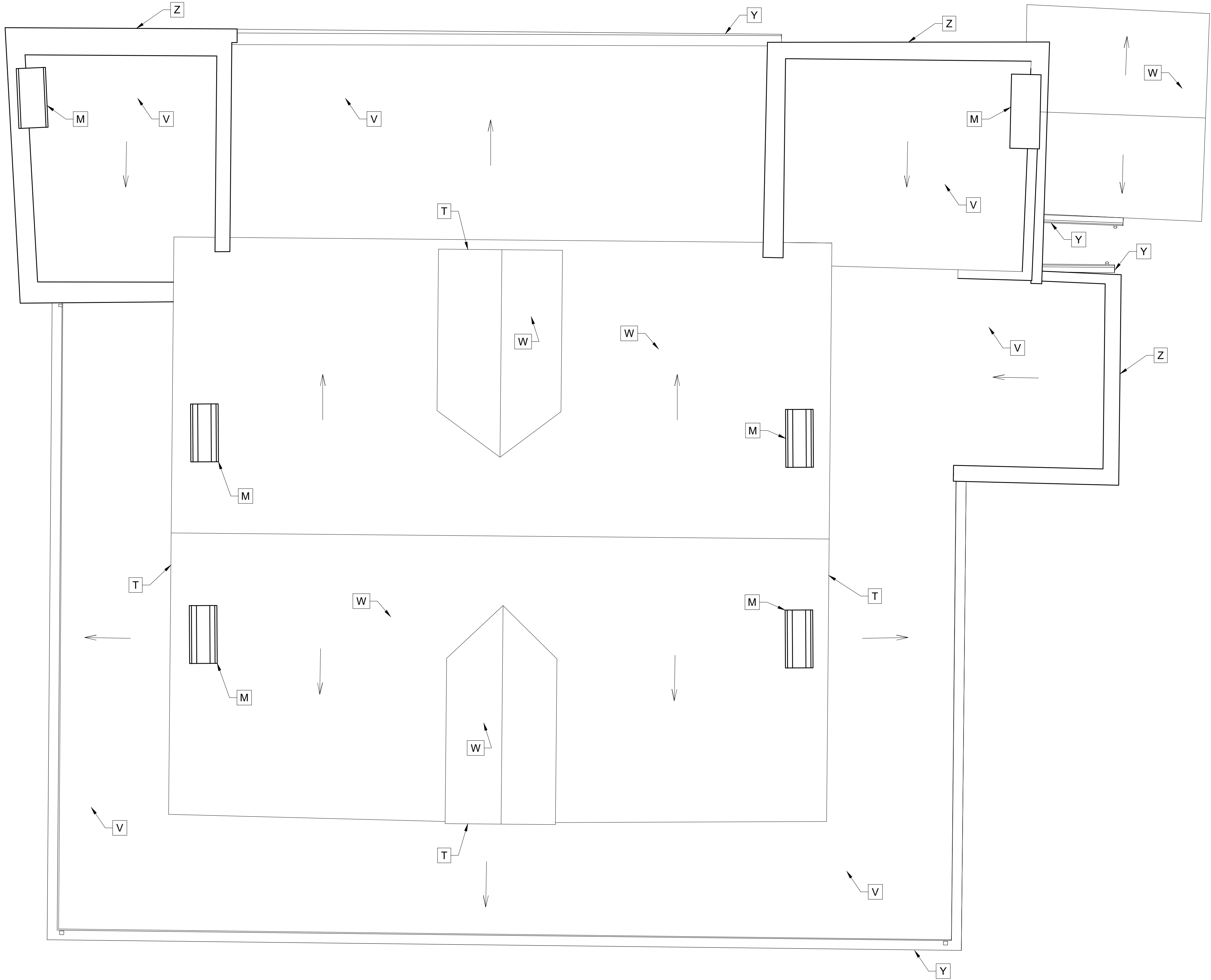
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|--|--|
| A. c. 1794 STONE MASONRY WALL | Q. c. 1862 FIREPLACE WITH HEARTH AND MANTLE, NOW MISSING |
| B. c. 1794 STONE MASONRY PIER | R. OPEN GALLERY, ALTERED FROM c. 1794 |
| C. c. 1862 BRICK MASONRY WALL | S. PAINTED STUCCO CLADDING |
| D. 20th CENTURY CMU MASONRY WALL | T. PAINTED WOOD SIDING |
| E. EXPOSED FOUNDATION FOOTING | U. PAINTED BRICK |
| F. c. 1862 WOOD PLANK PARTITION WALL | V. EPDM MEMBRANE ROOFING |
| G. BRICK MASONRY, UNDETERMINED DATE | W. ASPHALT SHINGLE ROOFING |
| H. AFTER 1936, REPLACED THE 1880 PORTICO | X. ROOM LINED WITH HISTORIC NEWSPAPERS |
| I. c. 1794 VERTICAL LOG WALL | Y. GUTTER |
| J. EXPOSED VERTICAL LOGS | Z. BRICK PARAPET WALL |
| K. c. 1862 DIMENSION LUMBER WALL | AA. CONCRETE SLAB ON GRADE, DATE UNDETERMINED |
| L. c. 1862 RELOCATED/ALTERED PARTITION | BB. STONE PAVING ON GRADE |
| M. c. 1862 BRICK MASONRY CHIMNEY | CC. SOIL |
| N. c. 1794 LIKELY LOCATION OF STONE MASONRY CHIMNEY, NOW MISSING | DD. c. 1862 WOOD PLANK FLOORING (PARTIALLY MISSING) |
| O. BUILT-IN CABINETRY | EE. HARDWOOD FLOORING, DATE UNDETERMINED |
| P. c. 1862 FIREPLACE WITH HEARTH AND MANTLE | FF. WALL-TO-WALL CARPET |
| | GG. 20th CENTURY TILE OR COMPOSITE FLOORING |

LEGEND:

- | | | | |
|------|--------------------|--|------------------|
| XXX | ROOM DESIGNATION | | STONE MASONRY |
| WXXX | WINDOW DESIGNATION | | BRICK MASONRY |
| DXXX | DOOR DESIGNATION | | CMU MASONRY |
| xx | KEY NOTE | | TIMBER/LOG FRAME |
| | | | DIMENSION LUMBER |
| | | | CONCRETE |

A/E FIRM	DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
PRIME/ARCH:	LMB	A2.2	SECOND FLOOR PLAN	80004
RATHS, RATHS & JOHNSON, INC.	CADD: AM/MDN			PMIS/PKG NO. 311236
500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618	TECH. REVIEW: LMB			SHEET 5 OF 23
DATE: 01-05-24			STE. GENEVIEVE NATIONAL HISTORICAL PARK	

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SHEET NOTES:

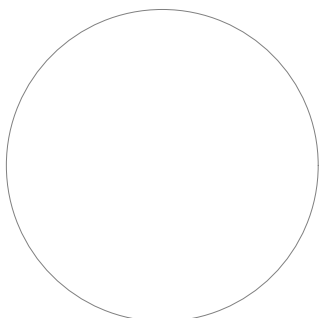
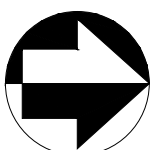
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| A. c. 1794 STONE MASONRY WALL | Q. c. 1862 FIREPLACE WITH HEARTH AND MANTLE, NOW MISSING |
| B. c. 1794 STONE MASONRY PIER | R. OPEN GALLERY, ALTERED FROM c. 1794 |
| C. c. 1862 BRICK MASONRY WALL | S. PAINTED STUCCO CLADDING |
| D. 20th CENTURY CMU MASONRY WALL | T. PAINTED WOOD SIDING |
| E. EXPOSED FOUNDATION FOOTING | U. PAINTED BRICK |
| F. c. 1862 WOOD PLANK PARTITION WALL | V. EPDM MEMBRANE ROOFING |
| G. BRICK MASONRY, UNDETERMINED DATE | W. ASPHALT SHINGLE ROOFING |
| H. AFTER 1936, REPLACED THE 1880 PORTICO | X. ROOM LINED WITH HISTORIC NEWSPAPERS |
| I. c. 1794 VERTICAL LOG WALL | Y. GUTTER |
| J. EXPOSED VERTICAL LOGS | Z. BRICK PARAPET WALL |
| K. c. 1862 DIMENSION LUMBER WALL | AA. CONCRETE SLAB ON GRADE, DATE UNDETERMINED |
| L. c. 1862 RELOCATED/ALTERED PARTITION | BB. STONE PAVING ON GRADE |
| M. c. 1862 BRICK MASONRY CHIMNEY | CC. SOIL |
| N. c. 1794 LIKELY LOCATION OF STONE MASONRY CHIMNEY, NOW MISSING | DD. c. 1862 WOOD PLANK FLOORING (PARTIALLY MISSING) |
| O. BUILT-IN CABINETRY | EE. HARDWOOD FLOORING, DATE UNDETERMINED |
| P. c. 1862 FIREPLACE WITH HEARTH AND MANTLE | FF. WALL-TO-WALL CARPET |
| | GG. 20th CENTURY TILE OR COMPOSITE FLOORING |

LEGEND:

- | | | | |
|------|--------------------|--|------------------|
| XXX | ROOM DESIGNATION | | STONE MASONRY |
| WXXX | WINDOW DESIGNATION | | BRICK MASONRY |
| DXXX | DOOR DESIGNATION | | CMU MASONRY |
| xx | KEY NOTE | | TIMBER/LOG FRAME |
| | | | DIMENSION LUMBER |
| | | | CONCRETE |

1
A2.3

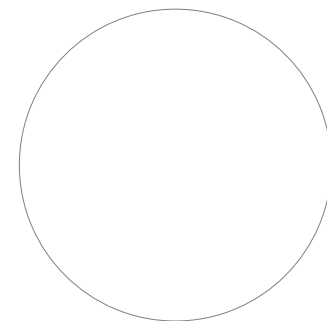
ROOF PLAN
SCALE: 1/4" = 1'-0"



A/E FIRM PRIME/ARCH: RATHS, RATHS & JOHNSON, INC. 500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618	DESIGNED: LMB	SUB SHEET NO. A2.3	TITLE OF SHEET ROOF PLAN STE. GENEVIEVE NATIONAL HISTORICAL PARK	DRAWING NO. 80004
	CADD: AM/MDN			PMIS/PKG NO. 311236
	TECH. REVIEW: LMB			SHEET 6 OF 23
	DATE: 01-05-24			



1 EAST ELEVATION
A3.0 SCALE: 1/4" = 1'-0"

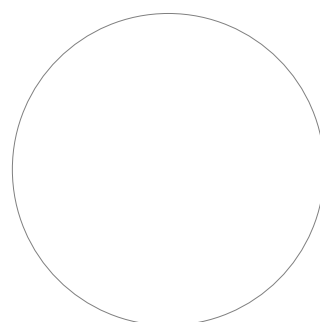


A/E FIRM PRIME/ARCH: RATHS, RATHS & JOHNSON, INC. 500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618	DESIGNED: LMB	SUB SHEET NO. A3.0	TITLE OF SHEET EAST ELEVATION STE. GENEVIEVE NATIONAL HISTORICAL PARK	DRAWING NO. 80004
	CADD: AM/MDN			PMIS/PKG NO. 311236
	TECH. REVIEW: LMB			SHEET 17 OF 23
	DATE: 01-05-24			

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1 SOUTH ELEVATION
A3.1 SCALE: 1/4" = 1'-0"



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	CADD: AM/MDN			PMIS/PKG NO. 311236
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	DATE: 01-05-24			

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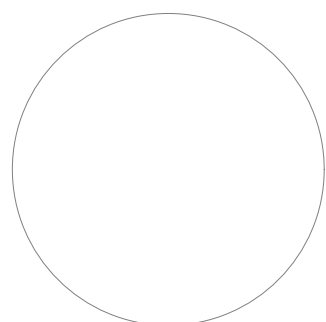


Level 2
9' - 7"

Level 1
0' - 0"

Level 0
-7' - 2"

1
A3.2 WEST ELEVATION
SCALE: 1/4" = 1'-0"

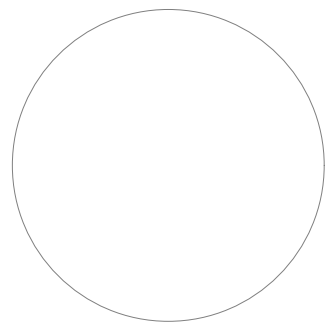
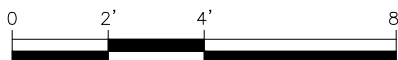


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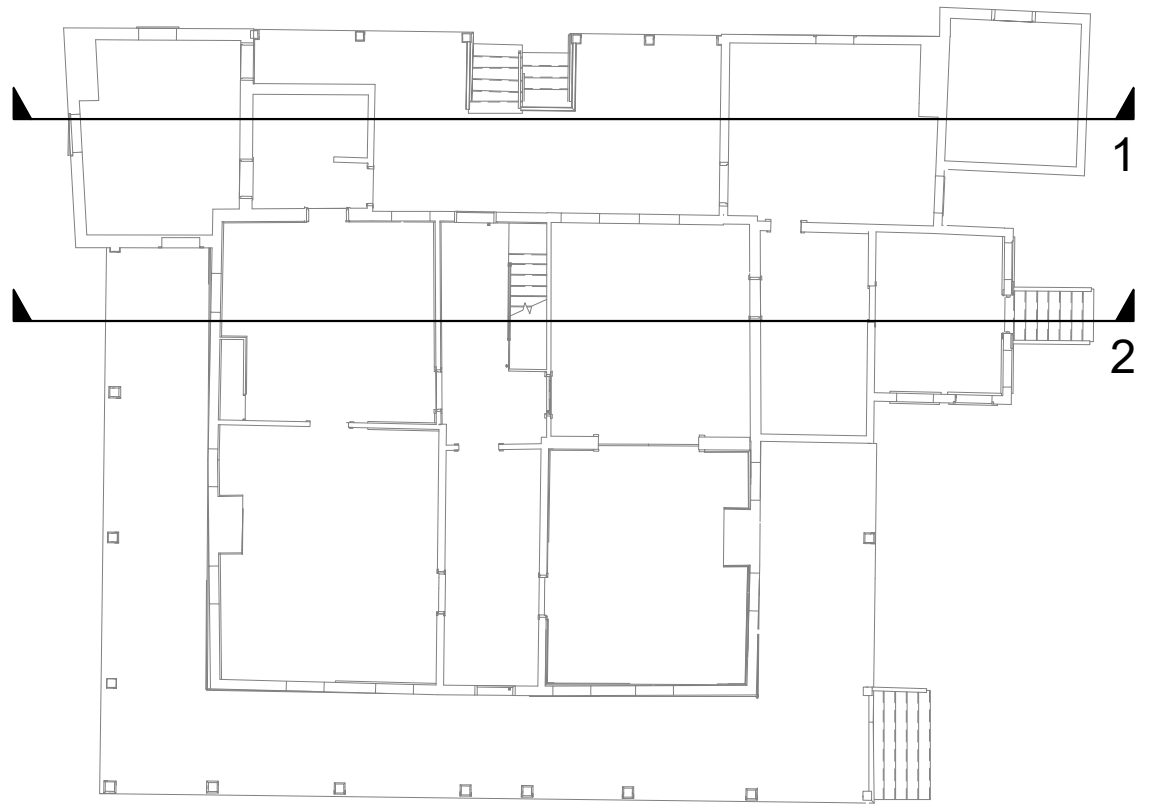
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1 NORTH ELEVATION
A3.3 SCALE: 1/4" = 1'-0"

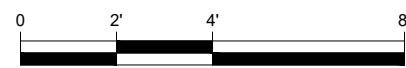


A/E FIRM	DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
PRIME/ARCH:	LMB			
RATHS, RATHS & JOHNSON, INC.	CADD: AM/MDN			
500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618	TECH. REVIEW: LMB			
DATE: 01-05-24		A3.3	NORTH ELEVATION	PMIS/PKG NO. 311236
				SHEET 20 OF 23
				STE. GENEVIEVE NATIONAL HISTORICAL PARK

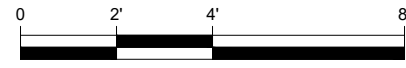


KEY PLAN

1
A4.0
BUILDING SECTION EAST 1
SCALE: 1/4" = 1'-0"

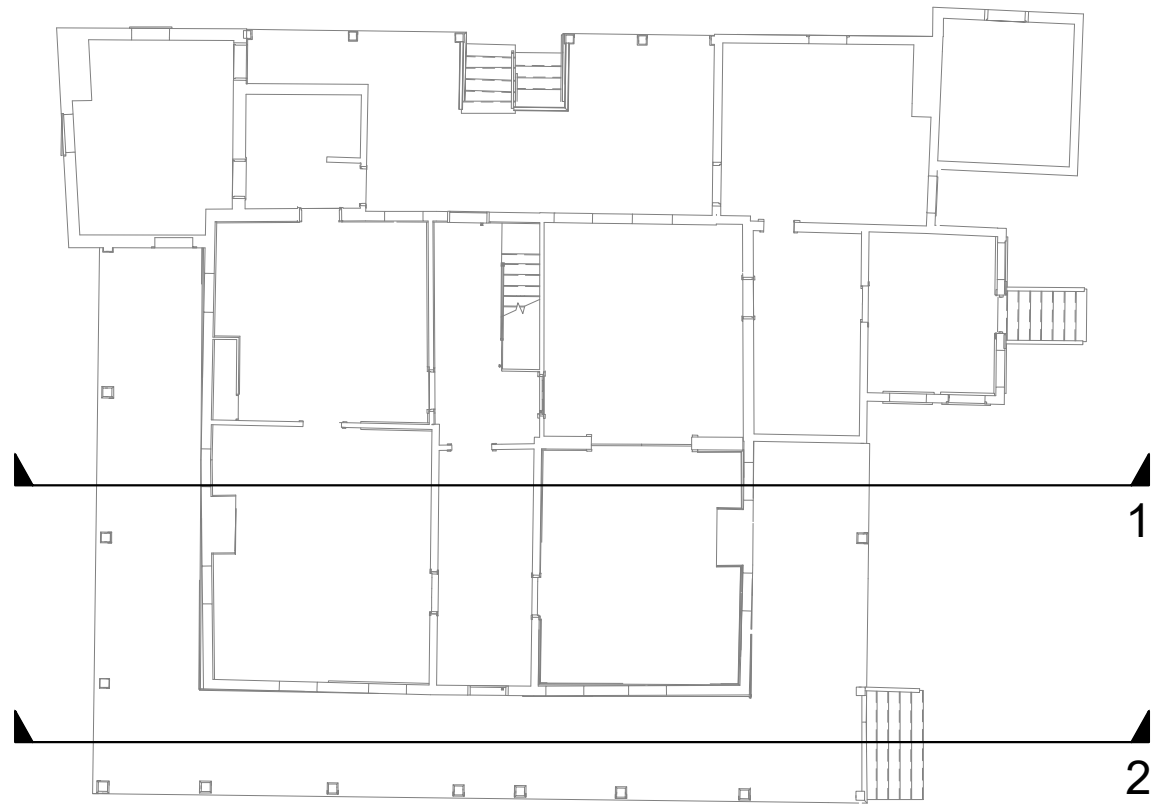
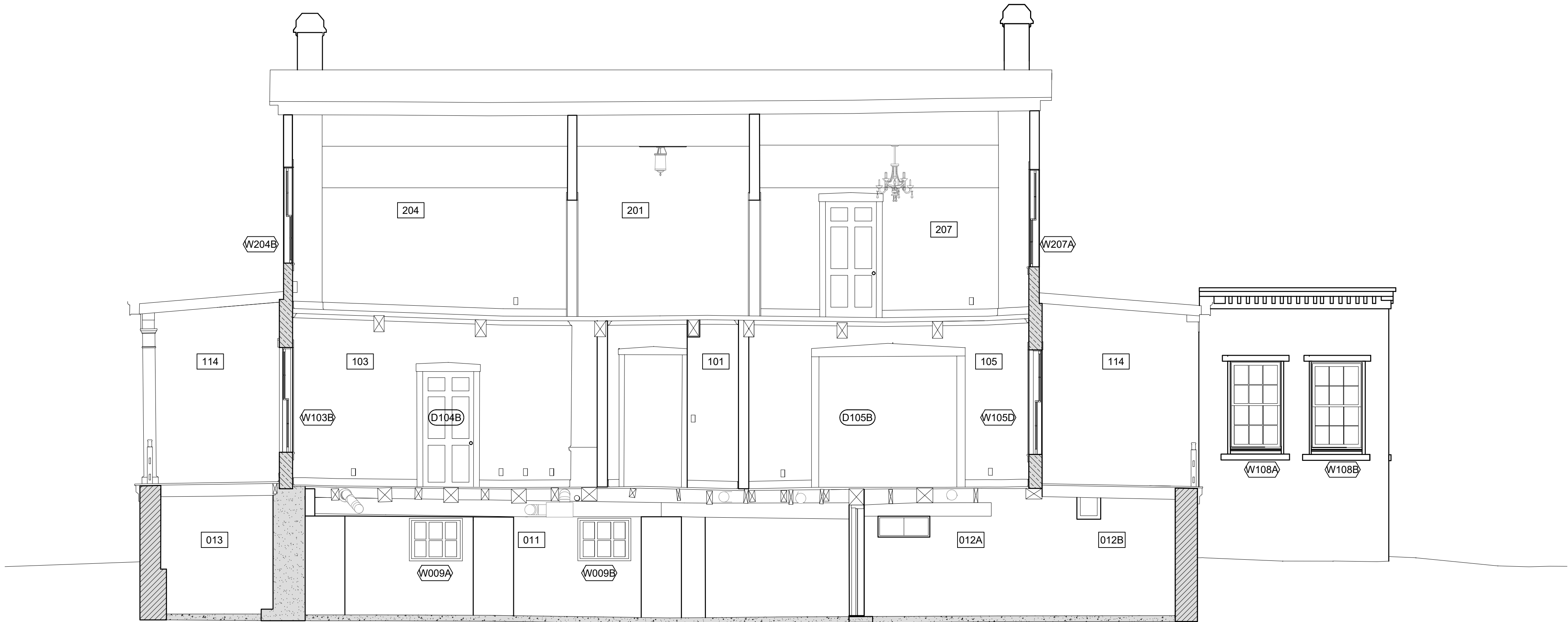


2
A4.0
BUILDING SECTION EAST 2
SCALE: 1/4" = 1'-0"



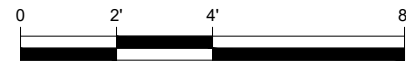
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	CADD: AM/MDN			PMIS/PKG NO. 311236
	TECH. REVIEW: LMB			SHEET 7 OF 23
	DATE: 01-05-24			

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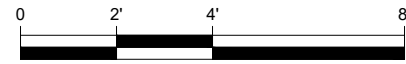


KEY PLAN

1 BUILDING SECTION EAST 3
SCALE: 1/4" = 1'-0"

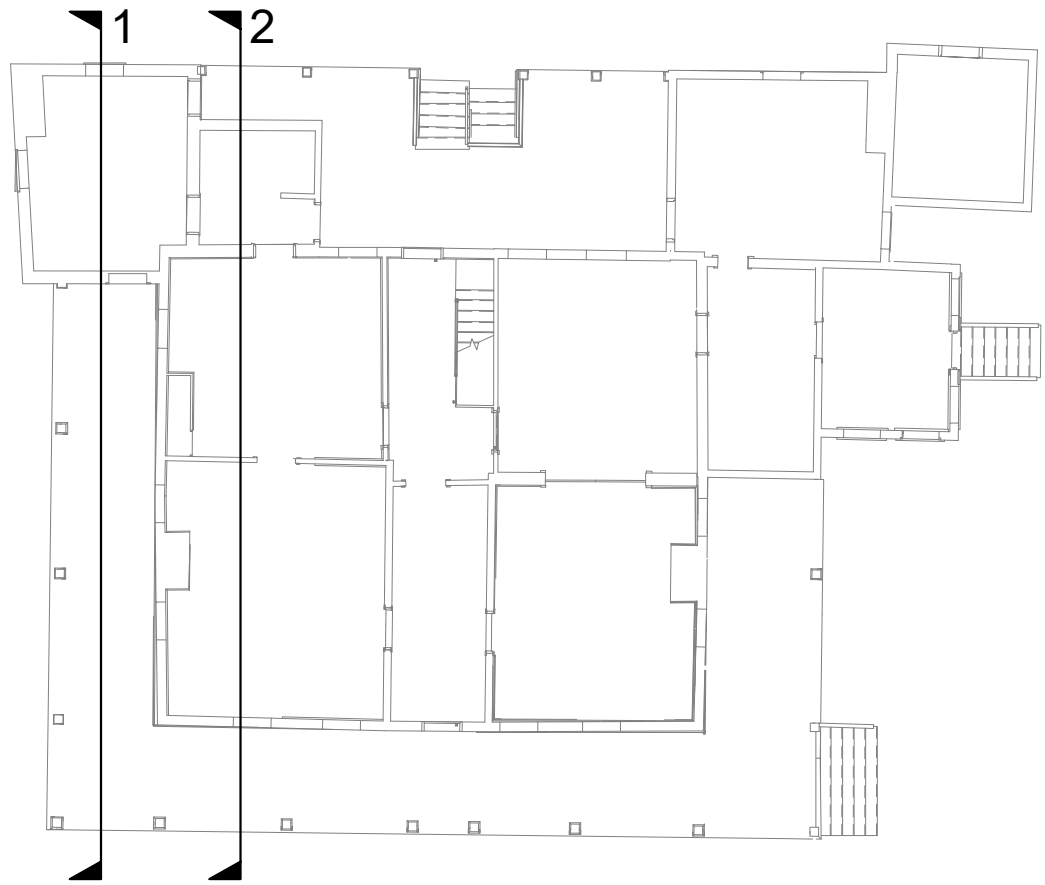
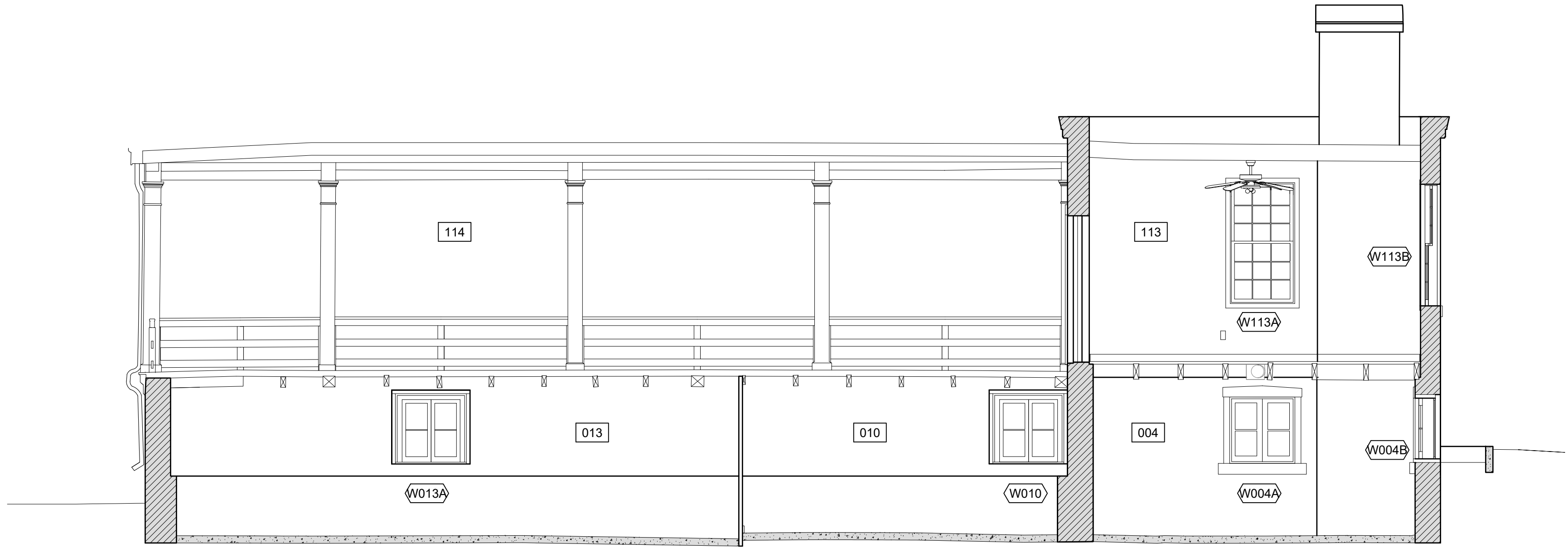


2 BUILDING SECTION EAST 4
SCALE: 1/4" = 1'-0"



A/E FIRM PRIME/ARCH: RATHS, RATHS & JOHNSON, INC. 500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618	DESIGNED: LMB	SUB SHEET NO. A4.1	TITLE OF SHEET BUILDING SECTIONS 02 STE. GENEVIEVE NATIONAL HISTORICAL PARK	DRAWING NO. 80004
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	DATE: 01-05-24			

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KEY PLAN

1 BUILDING SECTION NORTH 1
A4.2 SCALE: 1/4" = 1'-0"



2 BUILDING SECTION NORTH 2
A4.2 SCALE: 1/4" = 1'-0"



A/E FIRM PRIME/ARCH: RATHS, RATHS & JOHNSON, INC. 500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618	DESIGNED: LMB	SUB SHEET NO. A4.2	TITLE OF SHEET BUILDING SECTIONS 03 STE. GENEVIEVE NATIONAL HISTORICAL PARK	DRAWING NO. 80004
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	TECH. REVIEW: LMB			SHEET 9 OF 23
	DATE: 01-05-24			

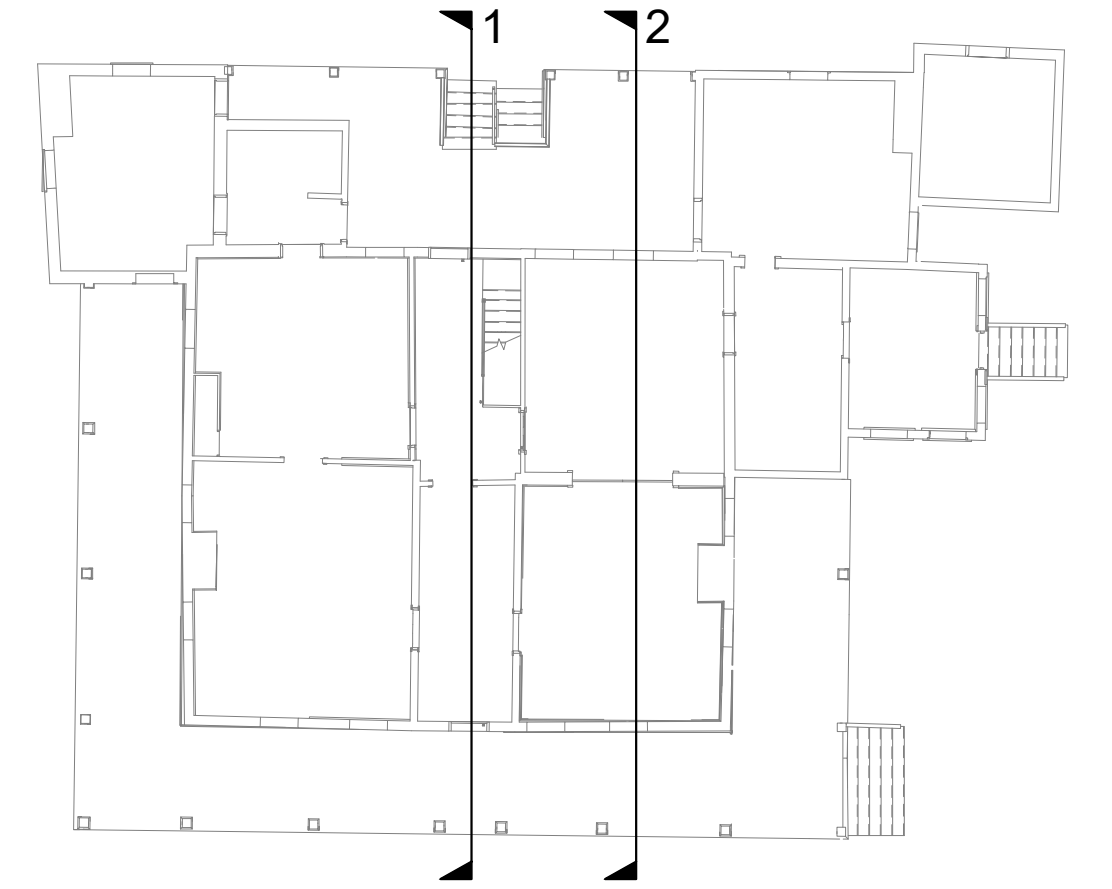
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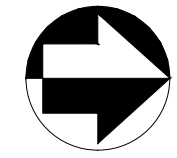
1 BUILDING SECTION NORTH 3
A4.3 SCALE: 1/4" = 1'-0"



2 BUILDING SECTION NORTH 4
A4.3 SCALE: 1/4" = 1'-0"



KEY PLAN

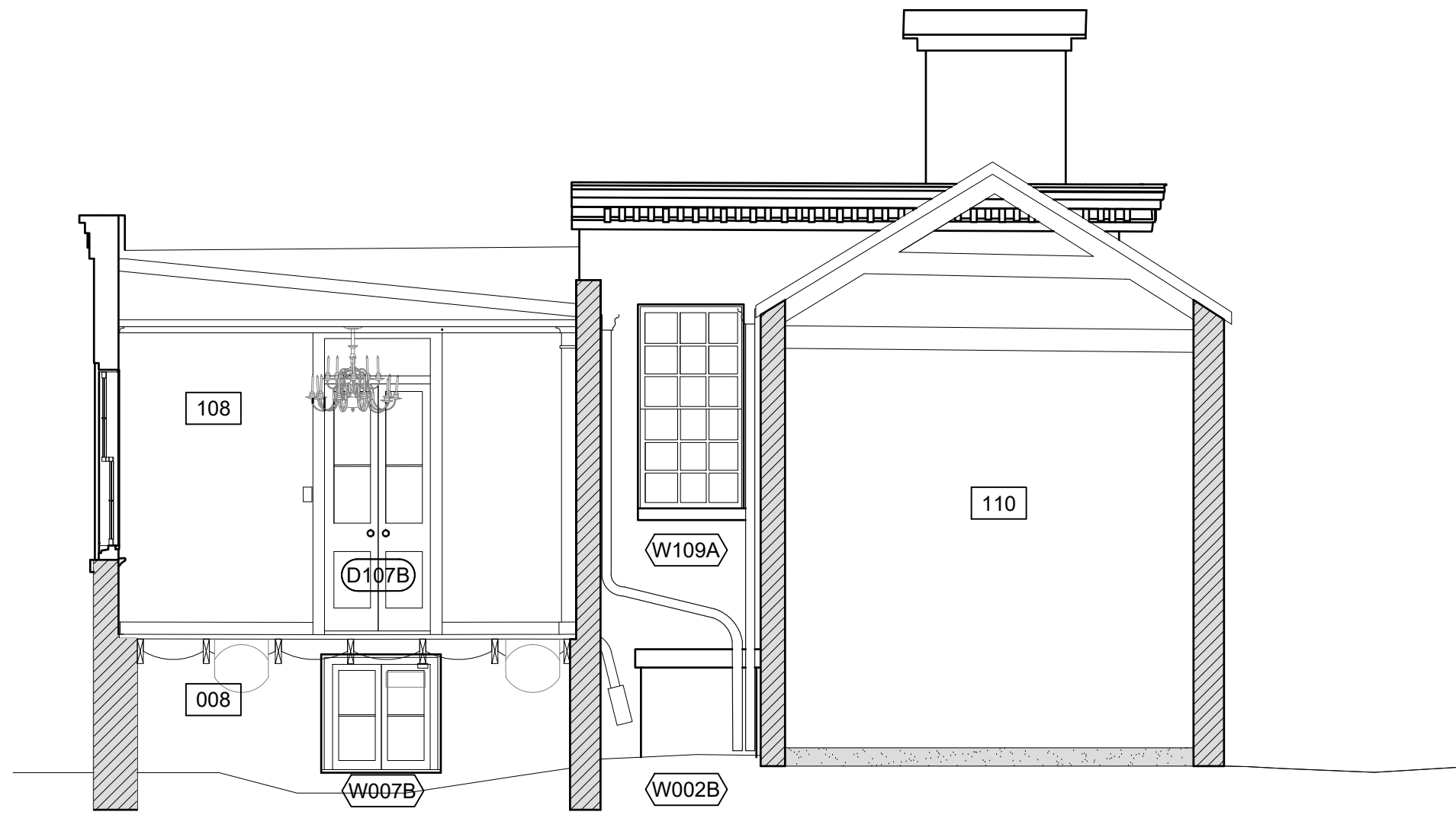


A/E FIRM PRIME/ARCH: RATHS, RATHS & JOHNSON, INC. 500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618	DESIGNED: LMB	SUB SHEET NO. A4.3	TITLE OF SHEET BUILDING SECTIONS 04 STE. GENEVIEVE NATIONAL HISTORICAL PARK	DRAWING NO. 80004
	CADD: AM/MDN			PMIS/PKG NO. 311236
	TECH. REVIEW: LMB			SHEET 10 OF 23
	DATE: 01-05-24			

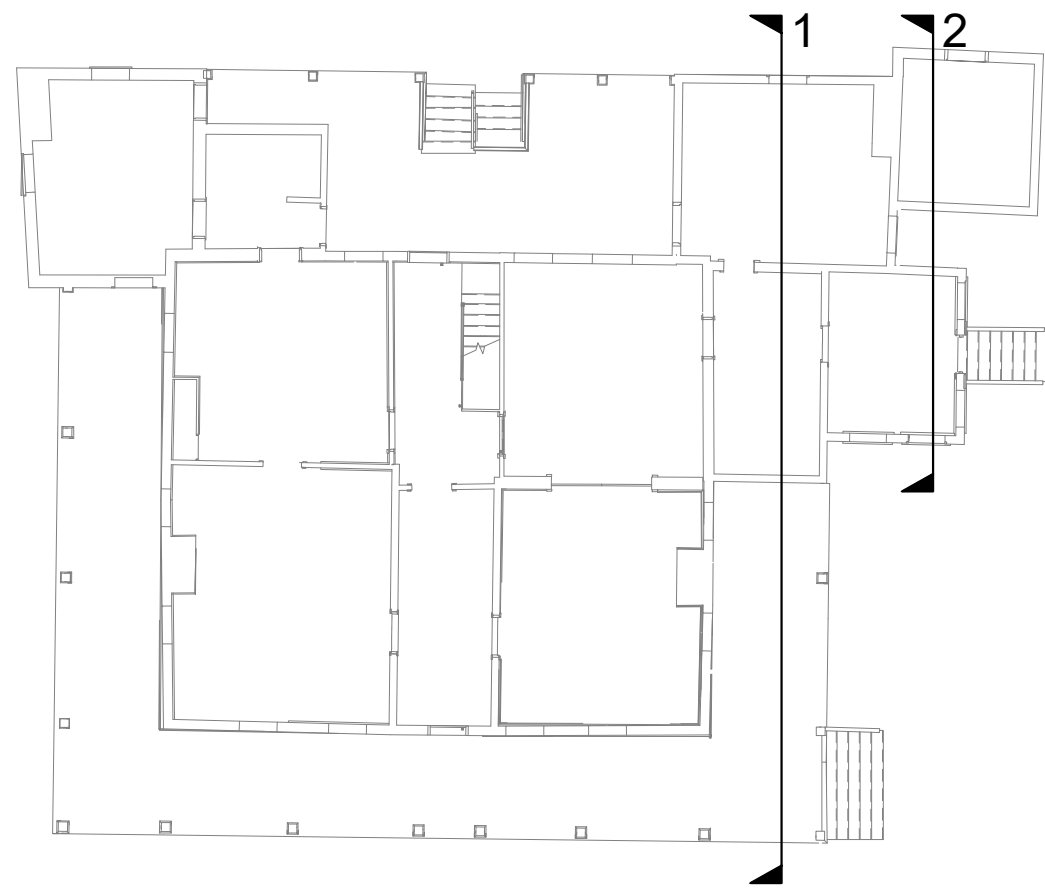
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1 BUILDING SECTION NORTH 5
SCALE: 1/4" = 1'-0"
0 2' 4' 8'



2 BUILDING SECTION NORTH 6
SCALE: 1/4" = 1'-0"
0 2' 4' 8'



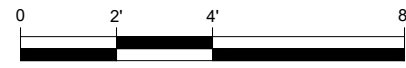
KEY PLAN

A/E FIRM PRIME/ARCH: RATHS, RATHS & JOHNSON, INC. 500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618	DESIGNED: LMB CADD: AM/MDN TECH. REVIEW: LMB DATE: 01-05-24	SUB SHEET NO. A4.4	TITLE OF SHEET BUILDING SECTIONS 05 STE. GENEVIEVE NATIONAL HISTORICAL PARK	DRAWING NO. 80004 PMIS/PKG NO. 311236 SHEET 11 OF 23
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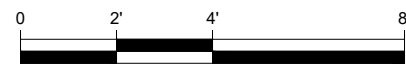
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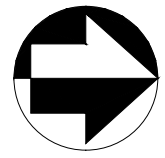
1
A4.5
BUILDING SECTION SOUTH 1
SCALE: 1/4" = 1'-0"



2
A4.5
BUILDING SECTION SOUTH 2
SCALE: 1/4" = 1'-0"

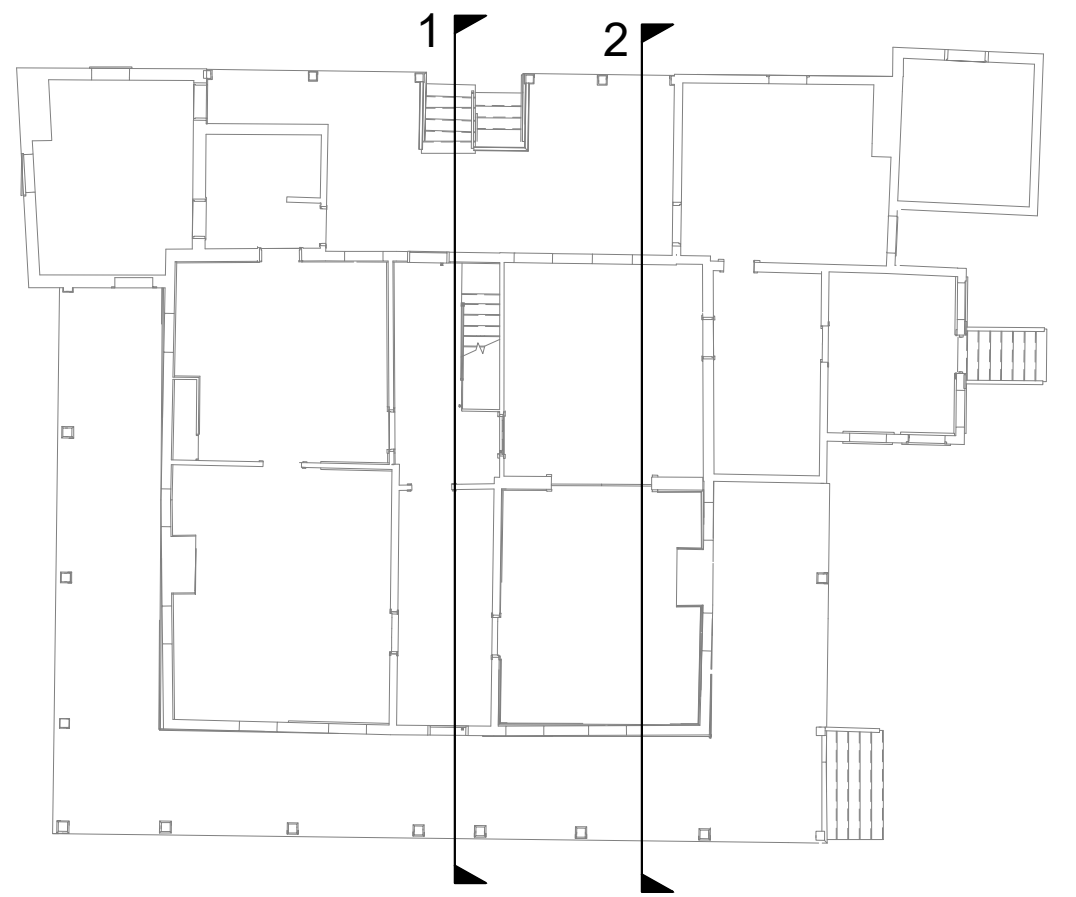


KEY PLAN

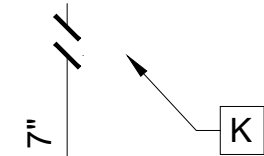


A/E FIRM PRIME/ARCH: RATHS, RATHS & JOHNSON, INC. 500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618	DESIGNED: LMB	SUB SHEET NO. A4.5	TITLE OF SHEET BUILDING SECTIONS 06 STE. GENEVIEVE NATIONAL HISTORICAL PARK	DRAWING NO. 80004
	CADD: AM/MDN			PMIS/PKG NO. 311236
	TECH. REVIEW: LMB			SHEET 12 OF 23
	DATE: 01-05-24			

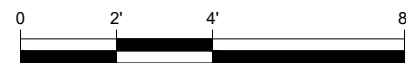
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KEY PLAN



1 BUILDING SECTION SOUTH 3
A4.6 SCALE: 1/4" = 1'-0"

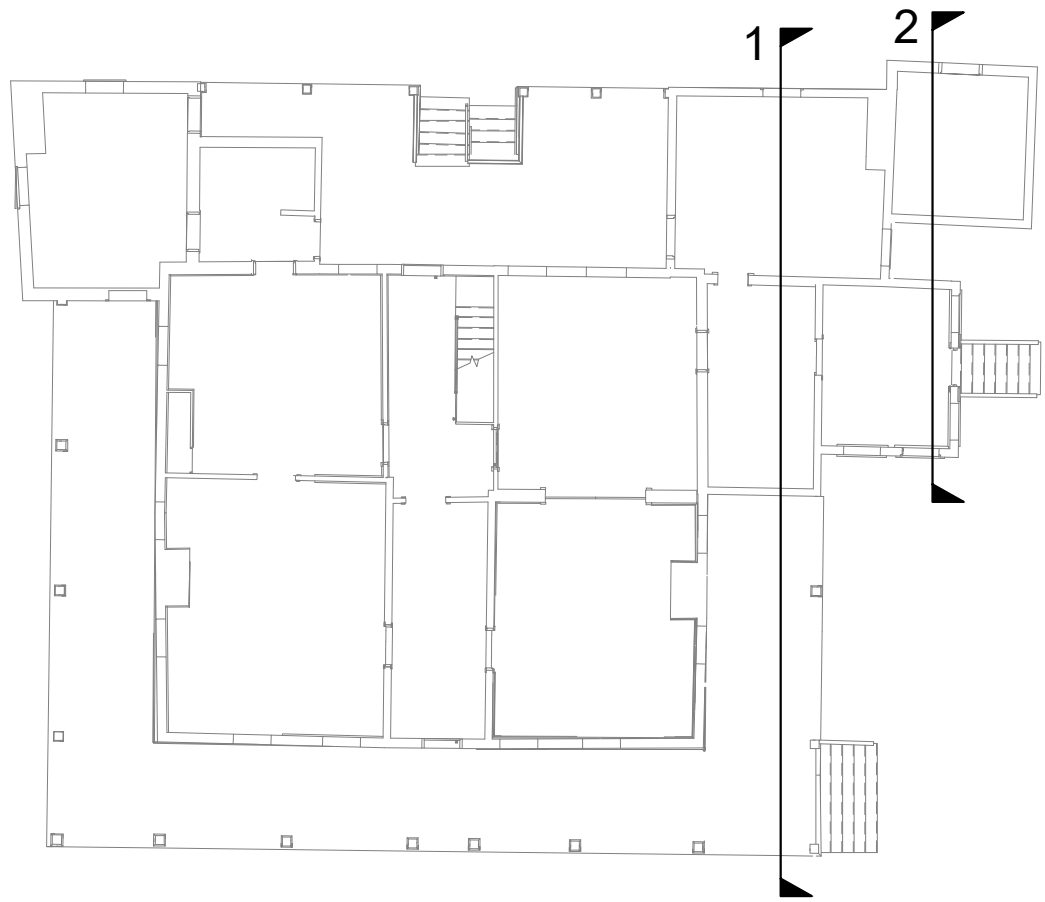


2 BUILDING SECTION SOUTH 4
A4.6 SCALE: 1/4" = 1'-0"



A/E FIRM PRIME/ARCH: RATHS, RATHS & JOHNSON, INC. 500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618	DESIGNED: LMB	SUB SHEET NO. A4.6	TITLE OF SHEET BUILDING SECTIONS 07 STE. GENEVIEVE NATIONAL HISTORICAL PARK	DRAWING NO. 80004
	CADD: AM/MDN			PMIS/PKG NO. 311236
	TECH. REVIEW: LMB			SHEET 18 OF 23
	DATE: 01-05-24			

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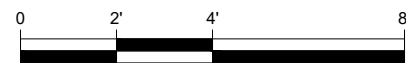


KEY PLAN

1
A4.7

BUILDING SECTION SOUTH 5

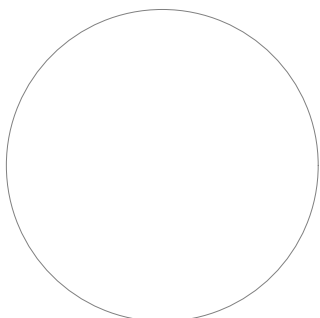
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2
A4.7

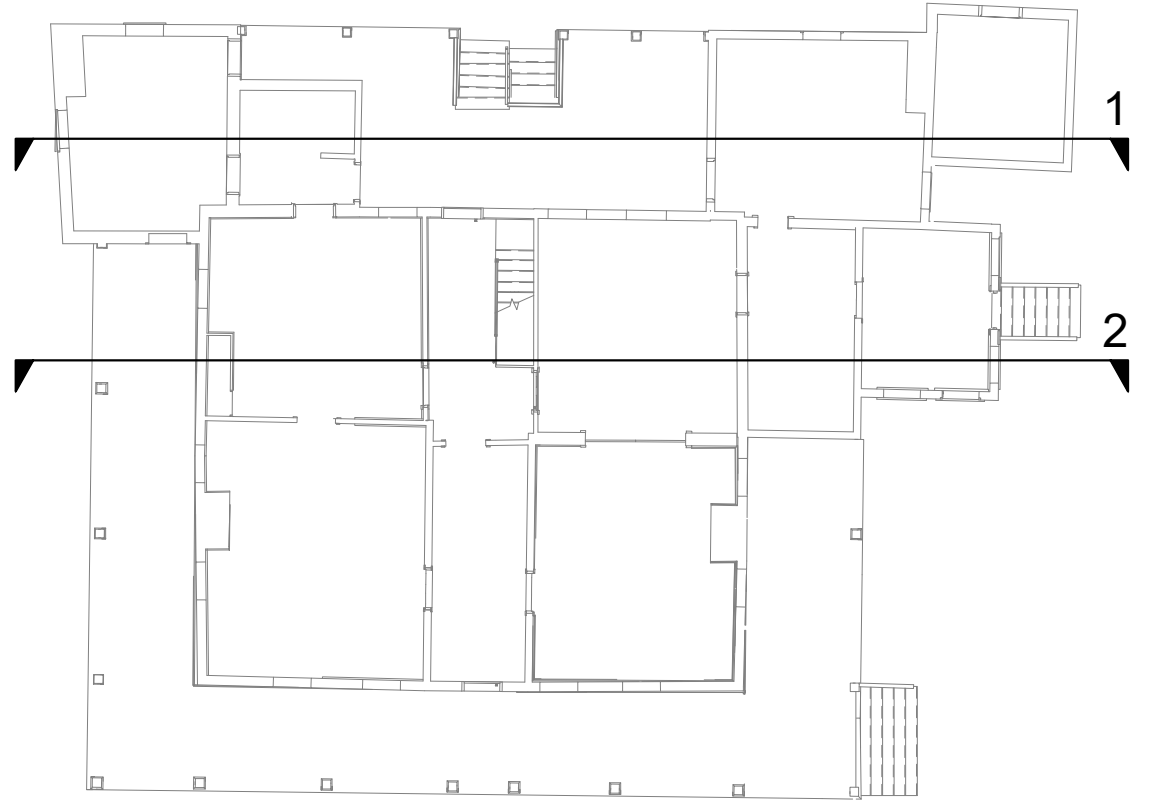
BUILDING SECTION SOUTH 6

SCALE: 1/4" = 1'-0"



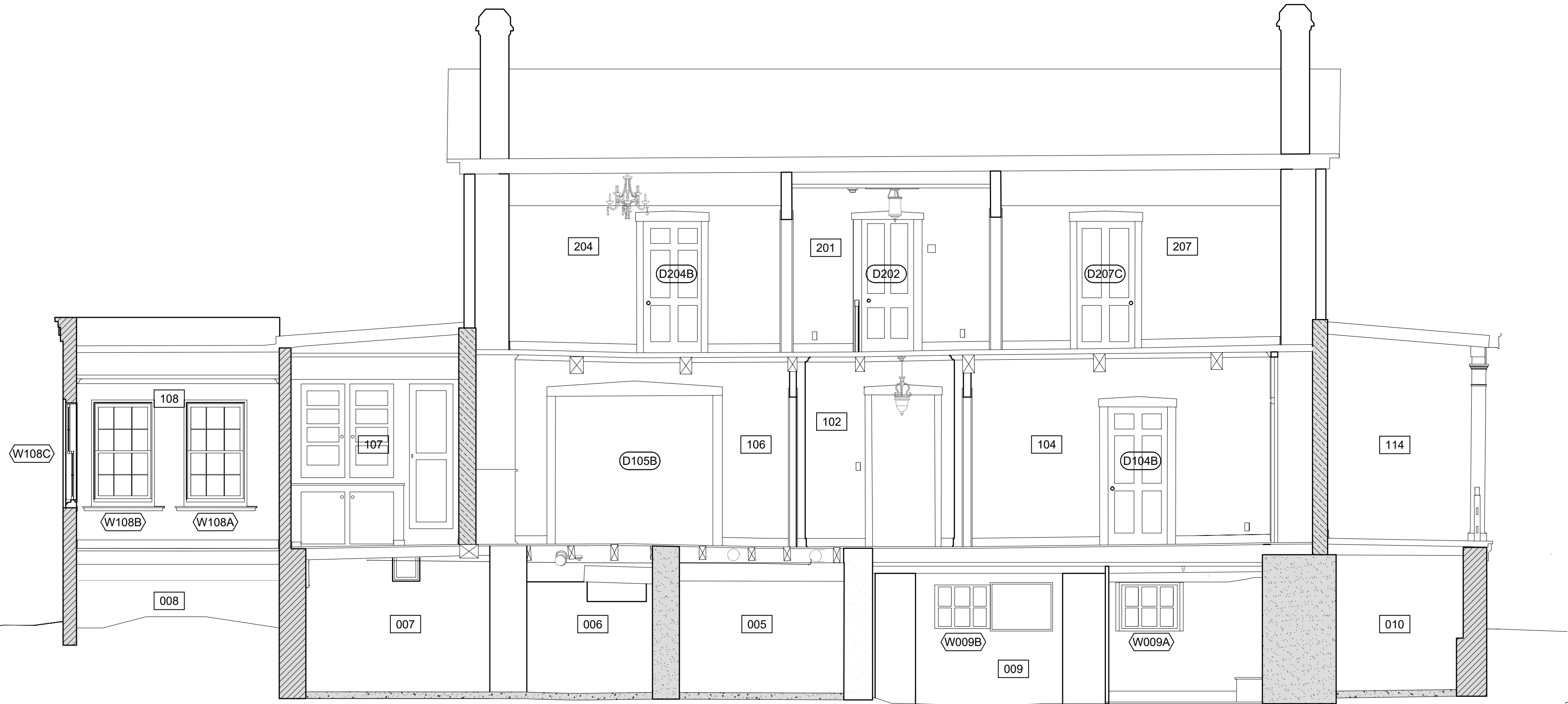
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KEY PLAN

1 BUILDING SECTION WEST 1
A4.8 SCALE: 1/4" = 1'-0"



2 BUILDING SECTION WEST 2
A4.8 SCALE: 1/4" = 1'-0"



A/E FIRM PRIME/ARCH: RATHS, RATHS & JOHNSON, INC. 500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618	DESIGNED: LMB	SUB SHEET NO. A4.8	TITLE OF SHEET BUILDING SECTIONS 09 STE. GENEVIEVE NATIONAL HISTORICAL PARK	DRAWING NO. 80004
	CADD: AM/MDN			PMIS/PKG NO. 311236
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	DATE: 01-05-24			

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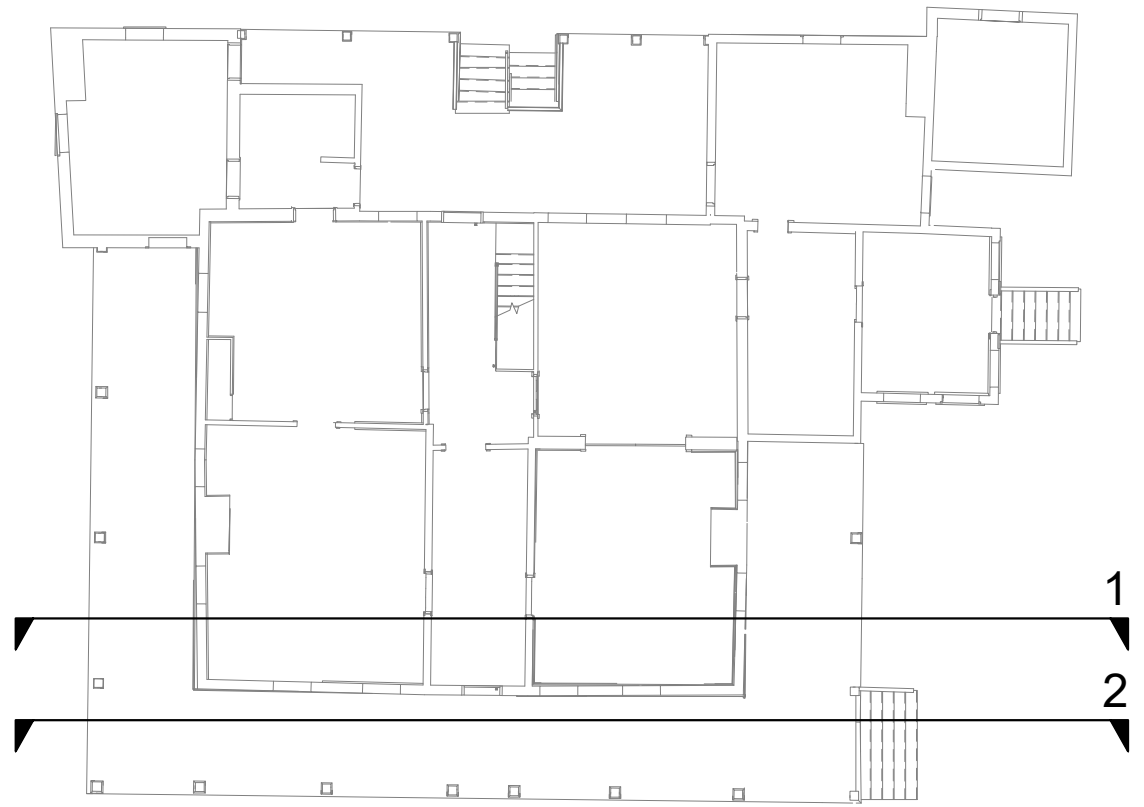


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A4.9

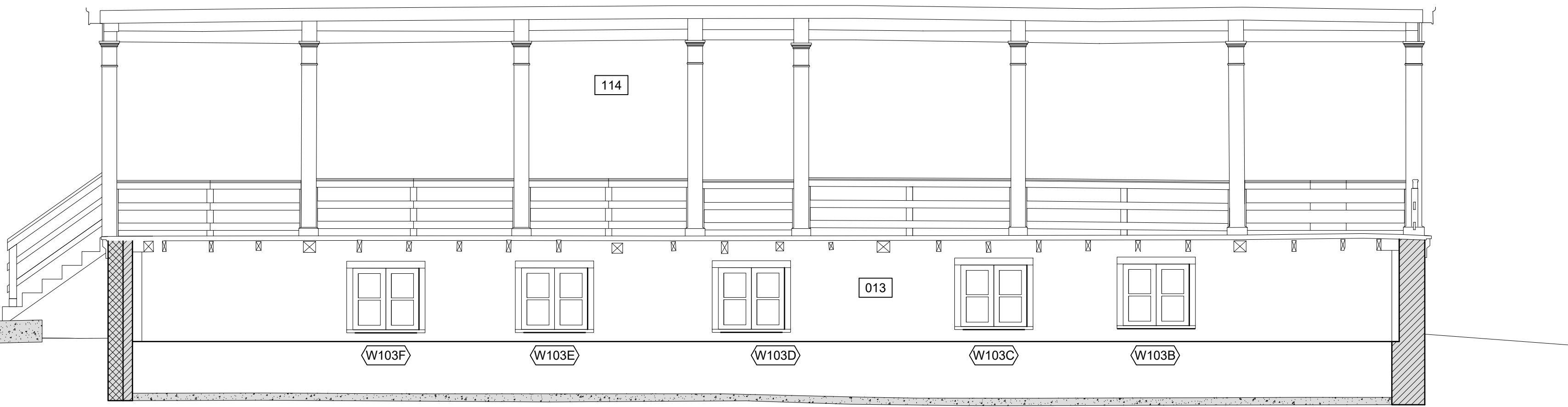
BUILDING SECTION WEST 3

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0 2' 4' 8'



KEY PLAN



2
A4.9

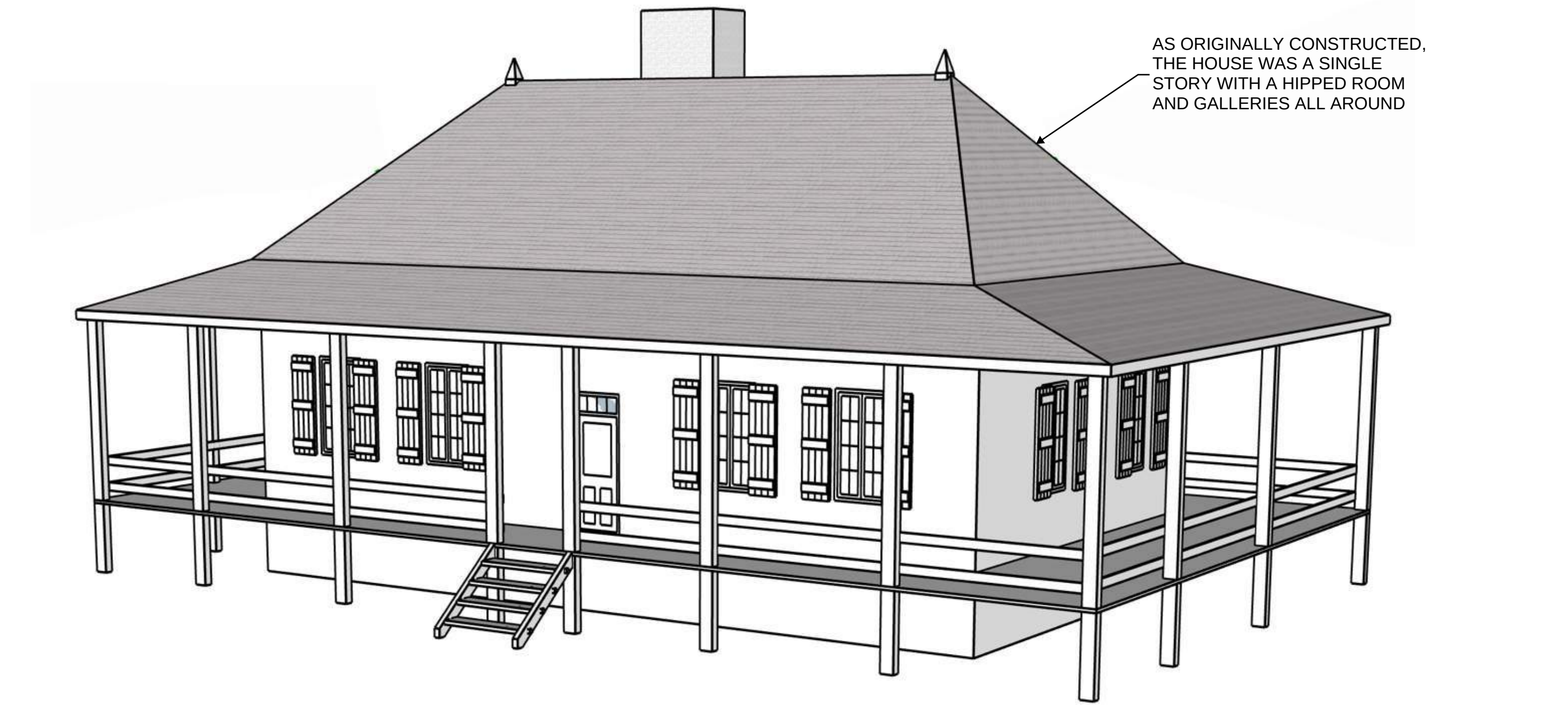
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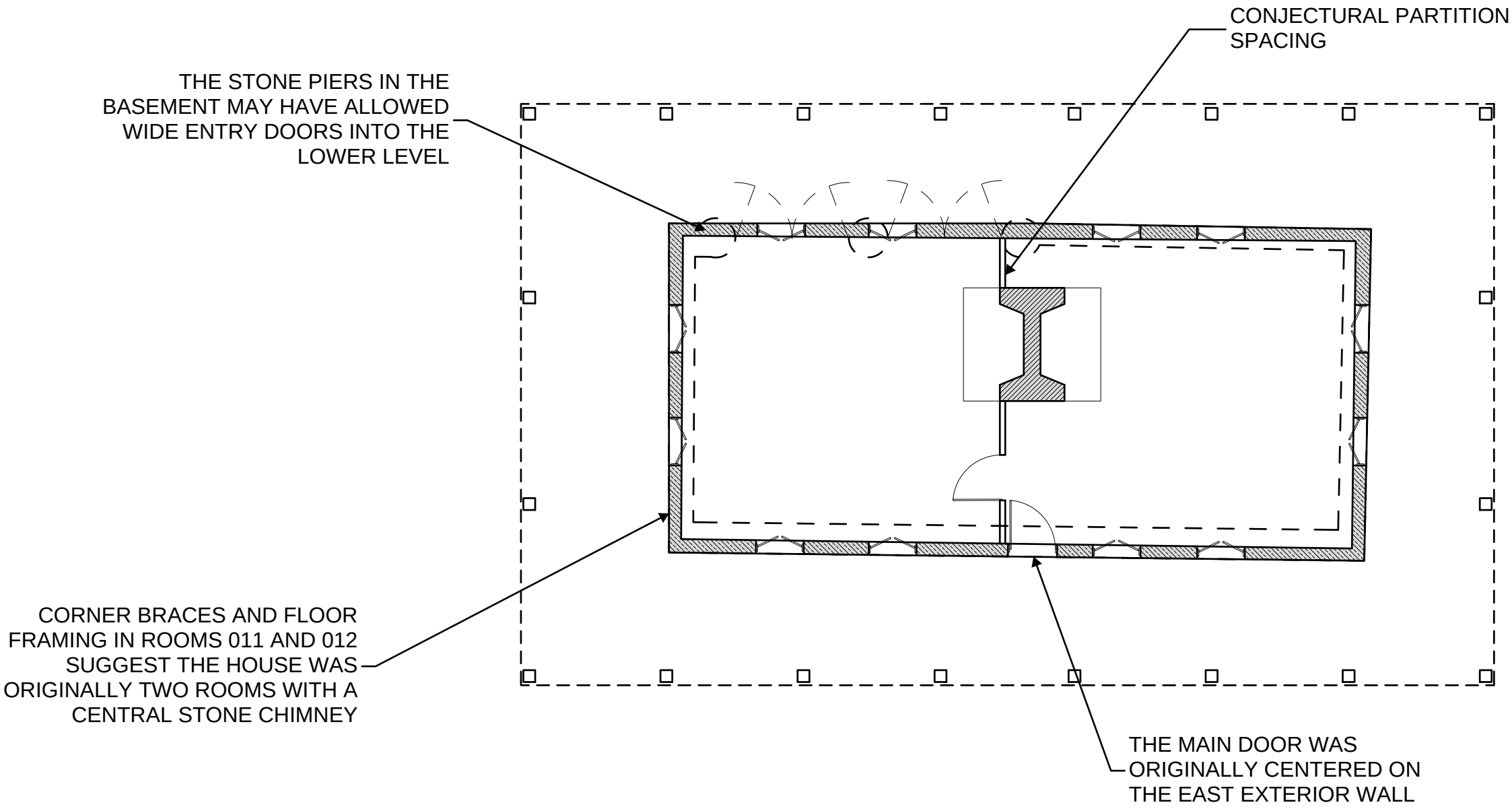
0 2' 4' 8'

A/E FIRM PRIME/ARCH: RATHS, RATHS & JOHNSON, INC. 500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618	DESIGNED: LMB	SUB SHEET NO. A4.9	TITLE OF SHEET BUILDING SECTIONS 10 STE. GENEVIEVE NATIONAL HISTORICAL PARK	DRAWING NO. 80004
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	TECH. REVIEW: LMB			SHEET 16 OF 23
	DATE: 01-05-24			

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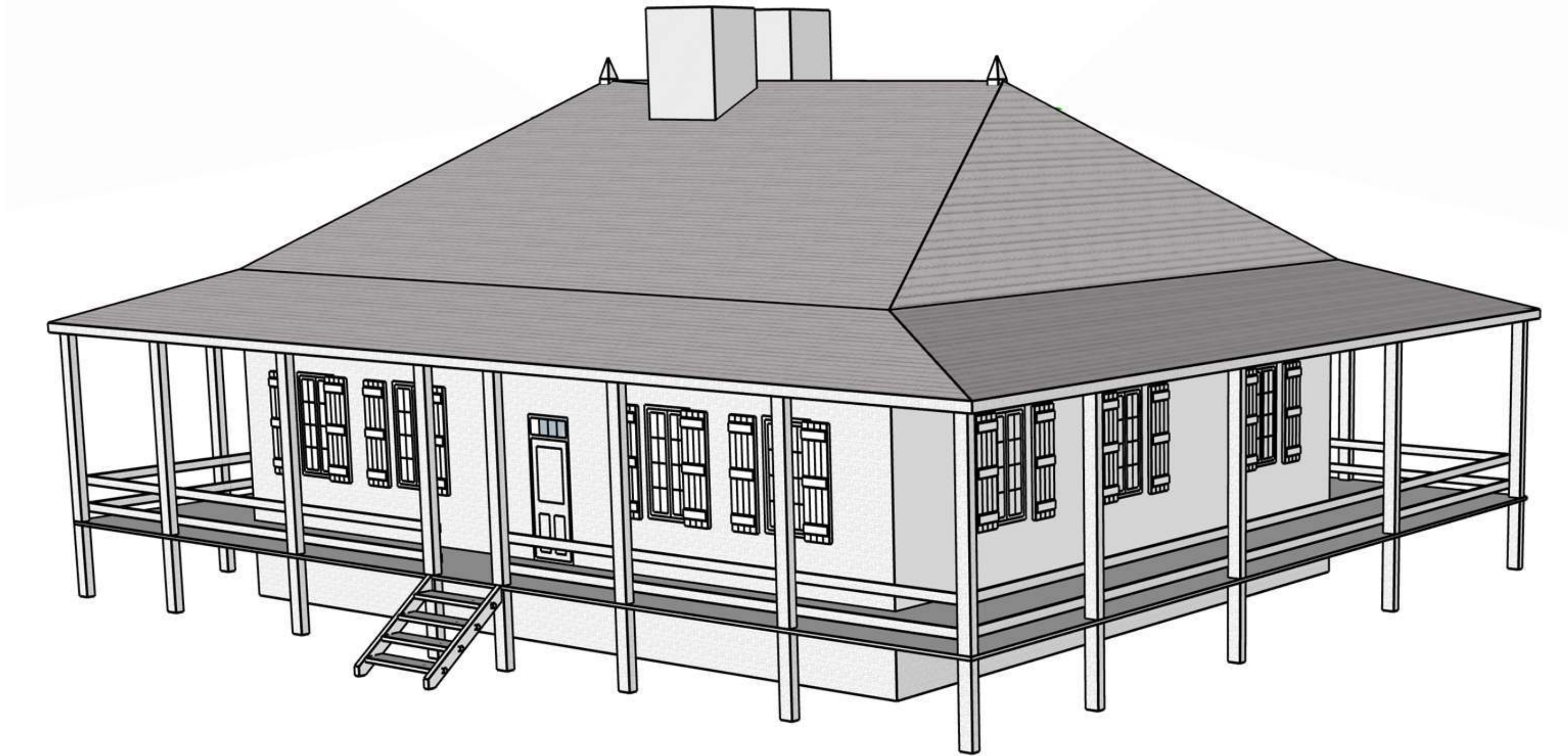


AS ORIGINALLY CONSTRUCTED, THE HOUSE WAS A SINGLE STORY WITH A HIPPED ROOM AND GALLERIES ALL AROUND

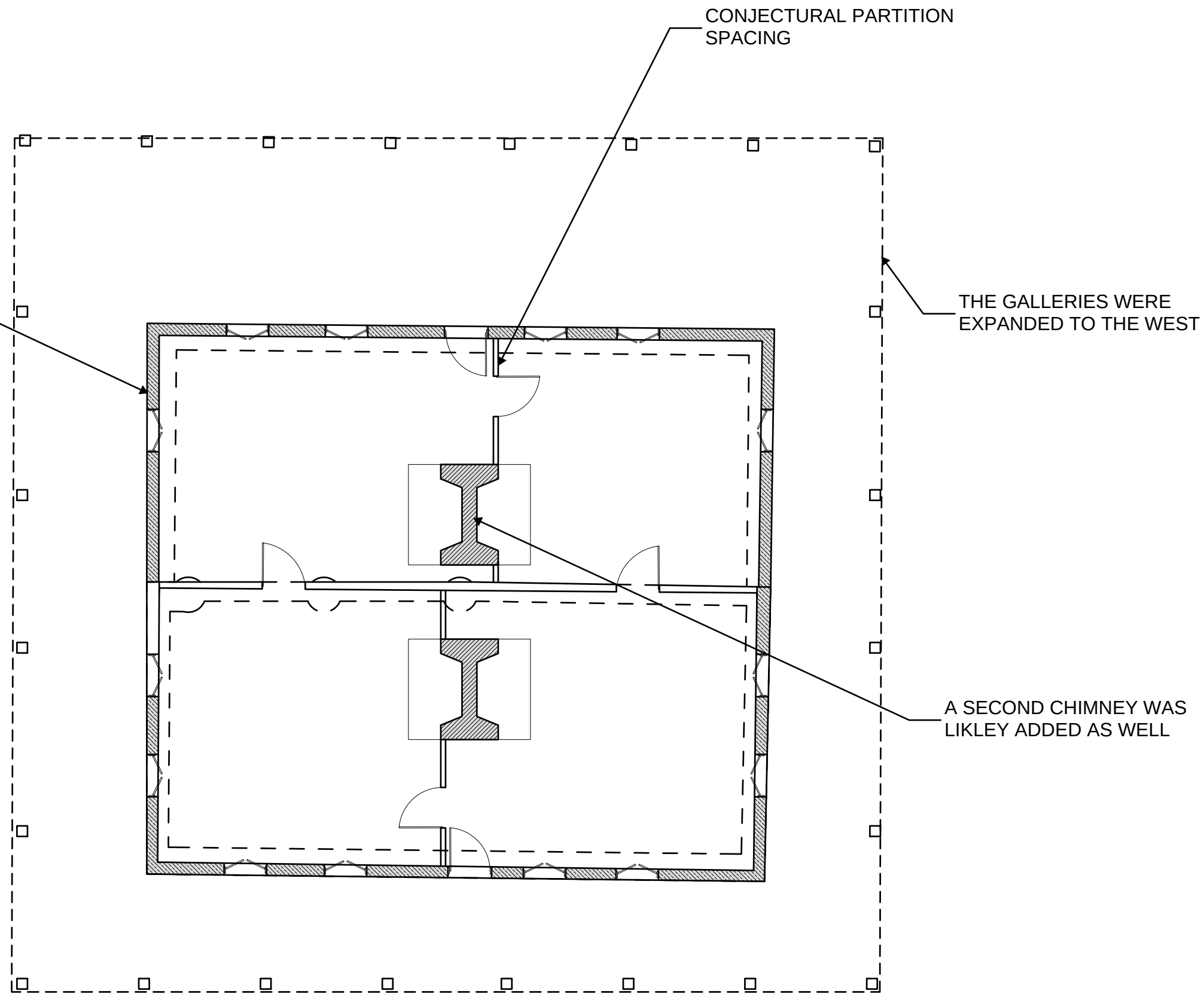


CORNER BRACES AND FLOOR FRAMING IN ROOMS 011 AND 012 SUGGEST THE HOUSE WAS ORIGINALLY TWO ROOMS WITH A CENTRAL STONE CHIMNEY

THE MAIN DOOR WAS ORIGINALLY CENTERED ON THE EAST EXTERIOR WALL



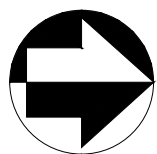
SHORTLY AFTER THE ORIGINAL CONSTRUCTION, TWO ROOMS WERE ADDED TO THE WEST, DOUBLING THE FOOT PRINT



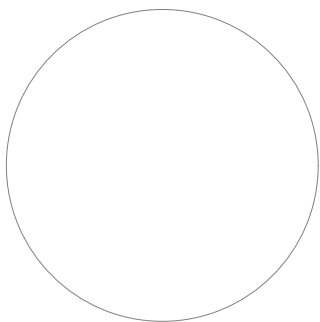
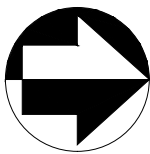
THE GALLERIES WERE EXPANDED TO THE WEST

A SECOND CHIMNEY WAS LIKLEY ADDED AS WELL

1 c. 1794 - POSSIBLE ORIGINAL CONSTRUCTION
A5.0 SCALE: NONE



2 1790s - POSSIBLE FIRST ALTERATION
A5.0 SCALE: NONE

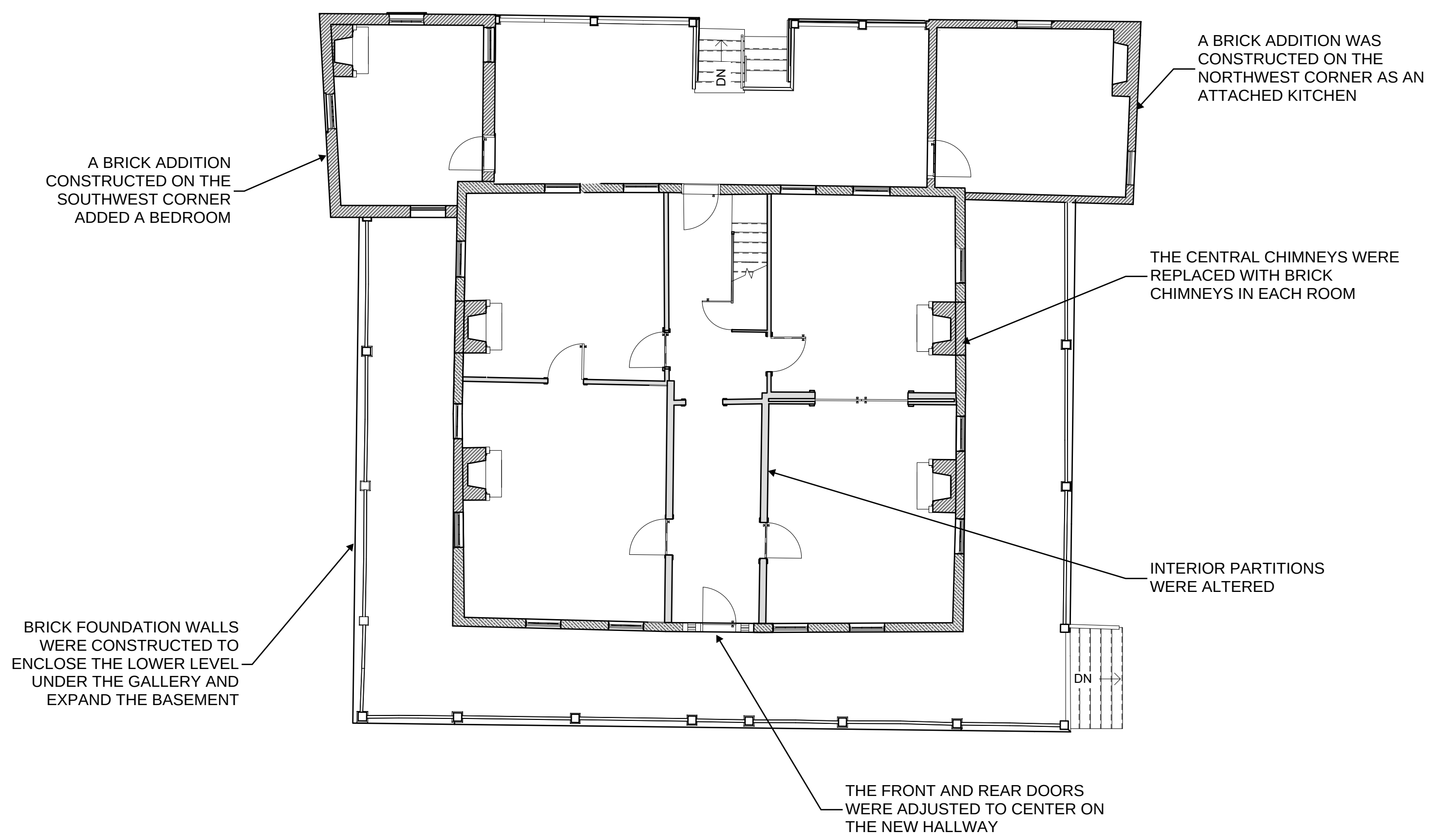
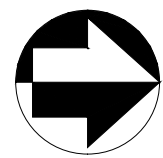


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	TECH. REVIEW: LMB			SHEET 21 OF 23
	DATE: 07-25-24			

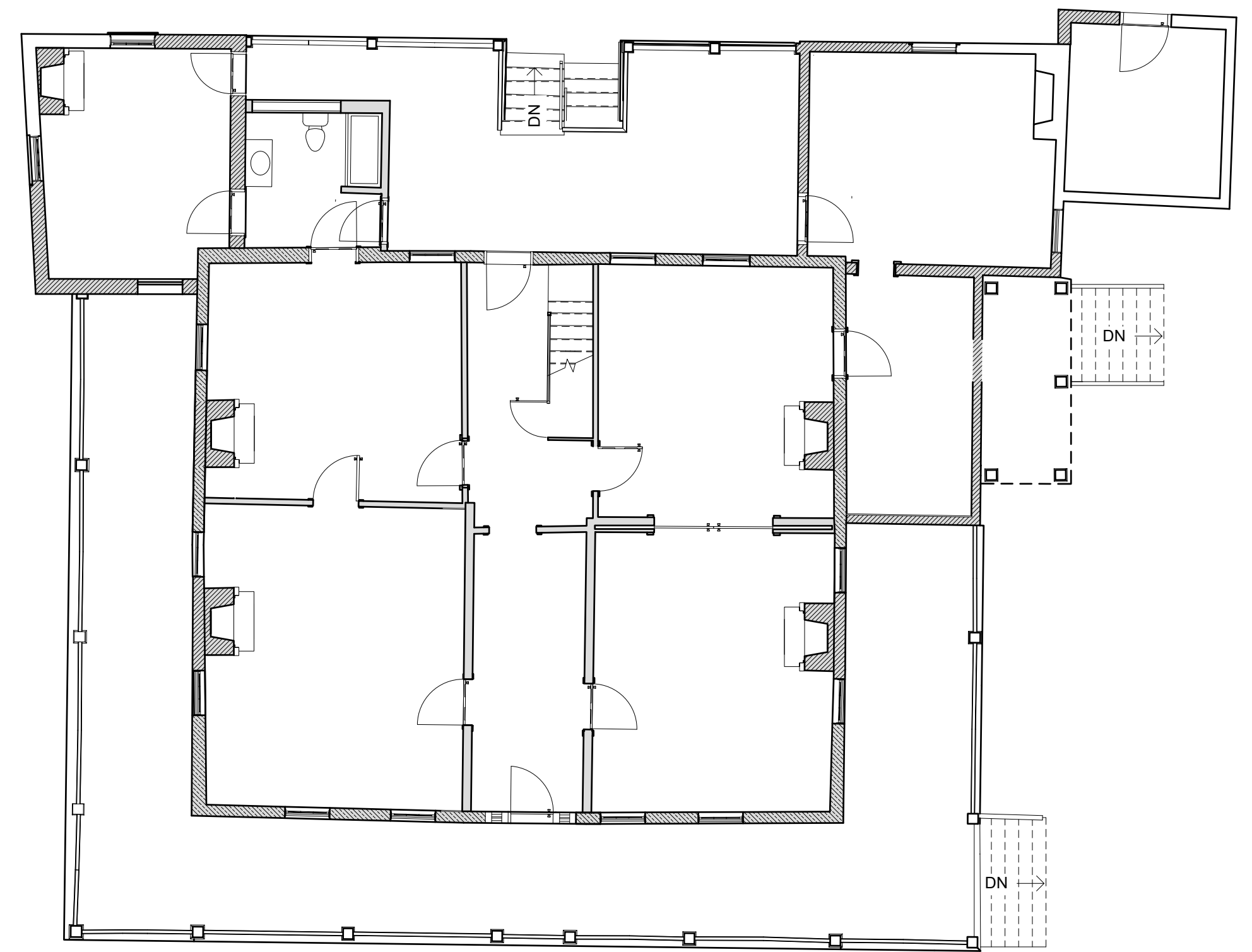
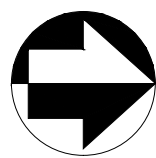
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1 c. 1862 ALTERATIONS
A5.0 SCALE: NONE



2 1880 PORTICO ADDITION
A5.0 SCALE: NONE

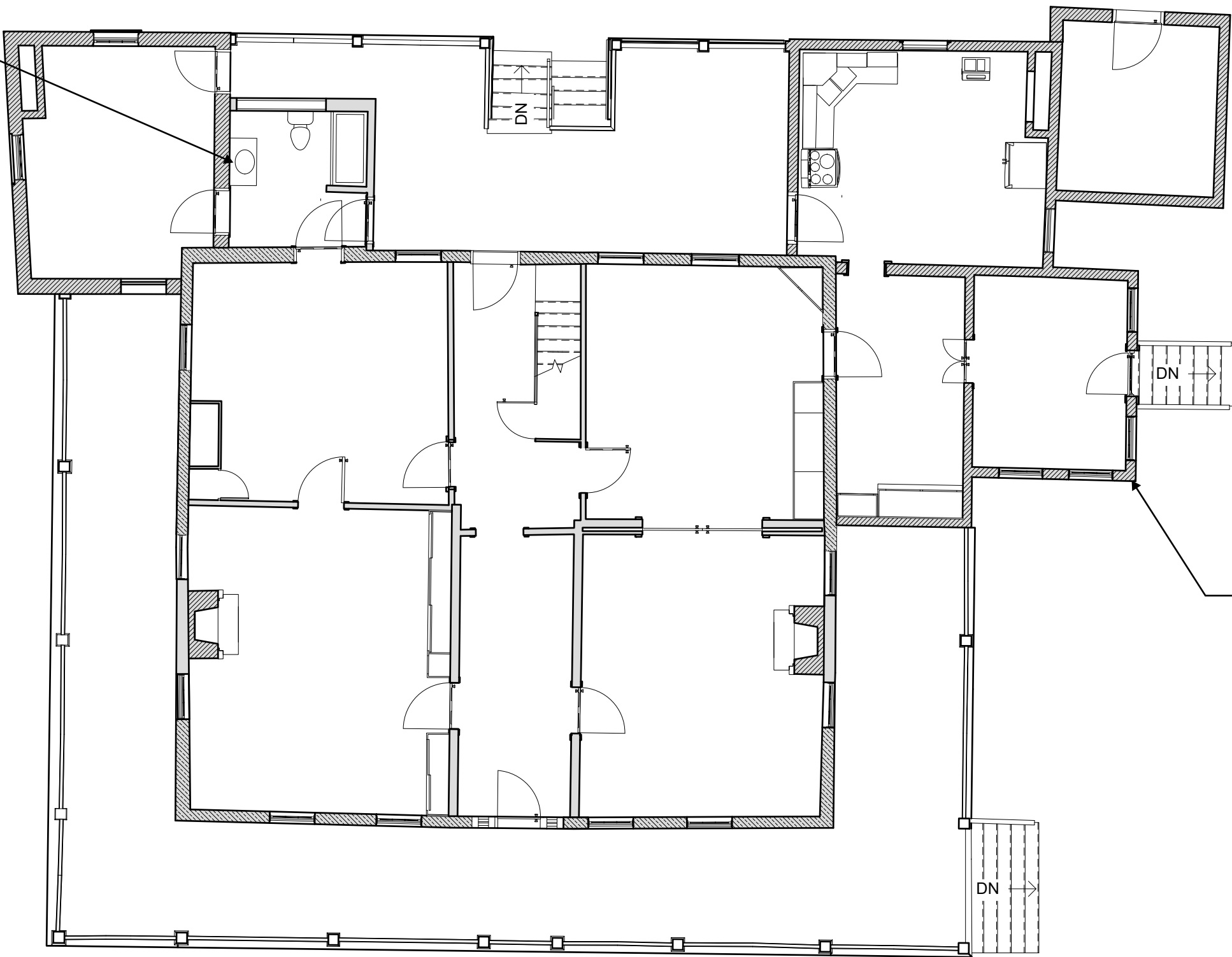


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	TECH. REVIEW: LMB			SHEET 22 OF 23
	DATE: 07-25-24			

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THE EXISTING FIRST-FLOOR
BATHROOM WAS ADDED c. 1945,
REMODELED DURING THE 1960s
RESTORATION WORK, AND
REMODELED AGAIN IN THE 2010s



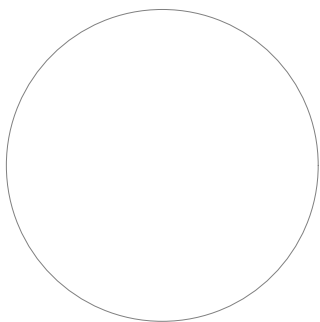
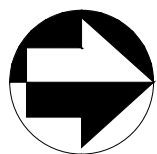
THE PORTICO WAS
ENCLOSED WITH BRICK
WALLS IN THE 1950s

1

A5.2

MID-20TH CENTURY ALTERATIONS

SCALE: NONE



A/E FIRM PRIME/ARCH: RATHS, RATHS & JOHNSON, INC. 500 Joliet Road, Suite 200 Willowbrook, Illinois 60527-5618	DESIGNED: LMB	SUB SHEET NO. A5.2	TITLE OF SHEET PERIOD PLANS STE. GENEVIEVE NATIONAL HISTORICAL PARK	DRAWING NO. 80004
	CADD: AM/MDN			PMIS/PKG NO. 311236
	TECH. REVIEW: LMB			SHEET
	DATE: 07-25-24			23 OF 23

Appendix B – Historic Photographs and Images

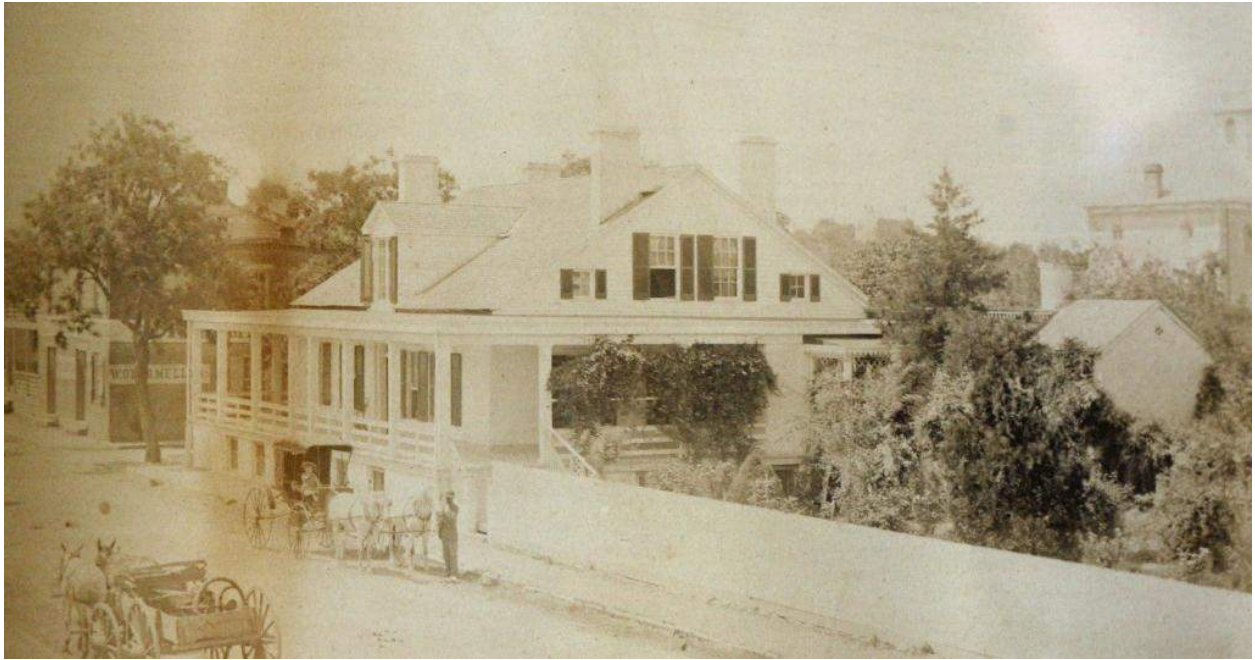


Figure 1. c. 1880s photograph of the Jean Baptiste Vallé House from the northeast, possibly from the roof of the Lagrave Building (58 South Main Street). (Source: Undetermined, taken from *St. Louis Post Dispatch*, https://www.stltoday.com/news/multimedia/jean-baptiste-valle-house/image_bbf93788-b6ae-5d28-9a94-75228c11b732.html)



Figure 2. c. 1890s photograph of the Jean Baptiste Vallé House from the northeast, with the corner of the Lagrave Building (58 South Main Street) at left. (Source: Missouri Historical Society, <https://mohistory.org/society>; a slightly cropped version also appears in Houck's *History of Missouri*, Vol. I, 350)

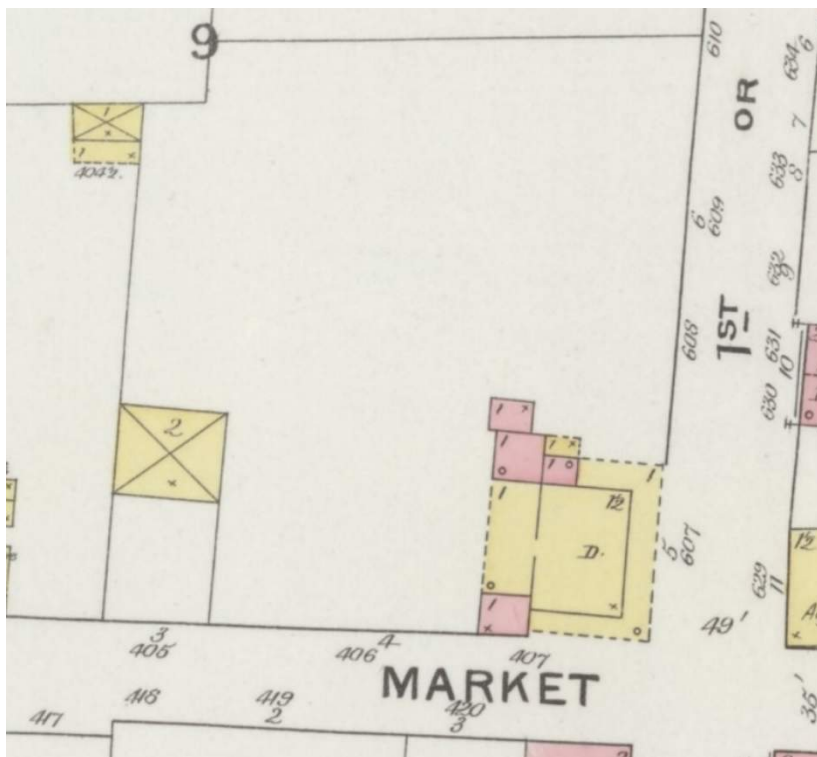


Figure 3. 1894 Sanborn Fire Insurance Map, showing the Vallé House parcel. Yellow indicates frame lumber construction, and pink indicates brick construction. The stable (designated by the X) is indicated as a two-story frame structure. The house is shown with a combination of shingle and tin roofing, which is consistent with the 1890s and 1910 photographs. (Source: Library of Congress)



Figure 4. 1901 Sanborn Fire Insurance Map, showing the Vallé House parcel. Yellow indicates frame lumber construction, and pink indicates brick construction. The stable (designated by the X) is now shown as a two-story "Concrete Adobe" structure of a similar footprint. (Source: Library of Congress)



Figure 5. c. 1910 (between 1908 and 1911) photograph of the Jean Baptiste Vallé House from the southeast, just south of Market Street. The barn at right is the current location of the Ste. Genevieve Welcome Center. (Source: Private Collection)



Figure 6. c. 1910 photograph of the Jean Baptiste Vallé House from the north, looking over the overgrown parterre garden. (Source: Private Collection)

Jean Baptiste Vallé House Historic Structure Report

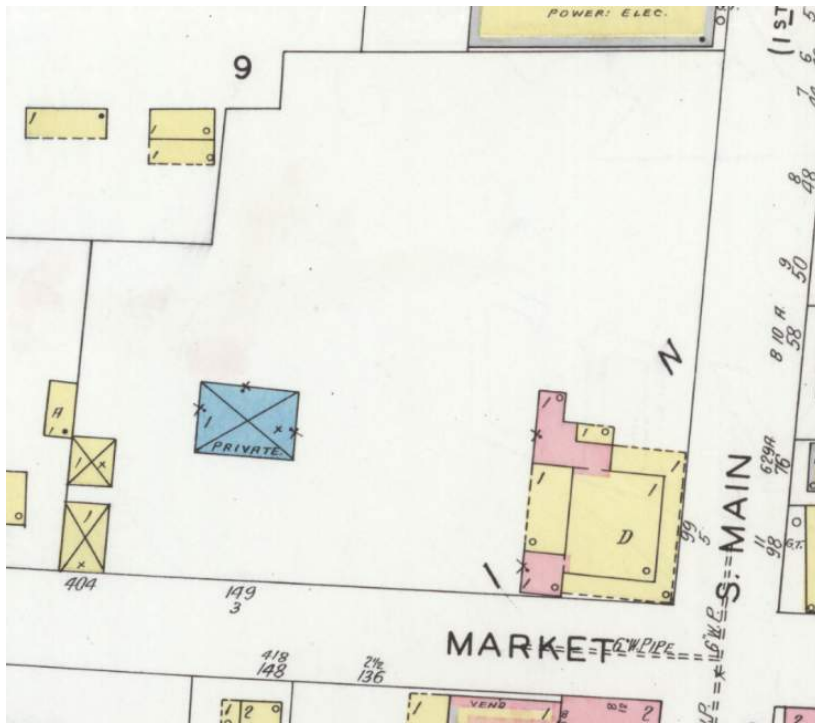


Figure 7. 1929 Sanborn Fire Insurance Map, showing the Vallé House parcel. The address has changed from 5 South Main Street to 99 South Main Street. The main house is shown with a tin roof, which is consistent with 1930s photographs. The stable (designated by the X) is now shown as a one-story structure stone structure (blue) with a different footprint than the previous stable; this footprint and placement appears consistent with the garage structure visible in the 1970s and 1980s photographs, although the indication that the building is stone may be in error. Note also the change in parcel's west boundary and the presence of two additional frame stables. (Source: Library of Congress)



Figure 8. Undated/possibly c. 1930, exterior from the southeast corner of Market and Main Streets. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-, <https://www.loc.gov/item/mo0360/>)



Figure 9. 1934, exterior from the southeast corner of Market and Main Streets. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 10. 1934, exterior from the southwest along Market Street. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 11. 1934, north exterior wall from parterre garden. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 12. 1934, west exterior wall, looking south. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)

Appendix B – Historic Photographs and Images



Figure 13. Undated (likely 1934), showing the 1880s portico from the garden. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 14. Undated (likely 1934), showing the 1880s portico (at left) and the formerly detached brick structure of undetermined date (at right). (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 15. Undated (likely 1934), showing the 1880s portico (at left) and the grape arbor (at right). (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 16. Undated (likely 1934), showing the north exterior wall of the brick structure (now a shed), with a cistern and pump in the foreground. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 17. Undated (likely 1934), showing the west exterior wall of the kitchen. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 18. 1933, view of yard from the west porch. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 19. 1949, Room 105 looking east towards Main Street. Note the fireplace mantel at left is not the same mantel as is presently in place at the house. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 20. Undated (after 1934, possibly 1949), looking south towards Market Street along the west exterior wall. Note the vegetation growth on the west porch lattice. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 21. 1949, exterior looking slightly northwest from Main Street. (Source: Charles W. Cushman Photograph Collection, Indiana University, <http://purl.dlib.indiana.edu/iudl/archives/cushman/P04400>)



Figure 22. 1949, exterior from the southeast corner of Market and Main Streets. (Source: Charles W. Cushman Photograph Collection, Indiana University, <http://purl.dlib.indiana.edu/iudl/archives/cushman/P04409>)

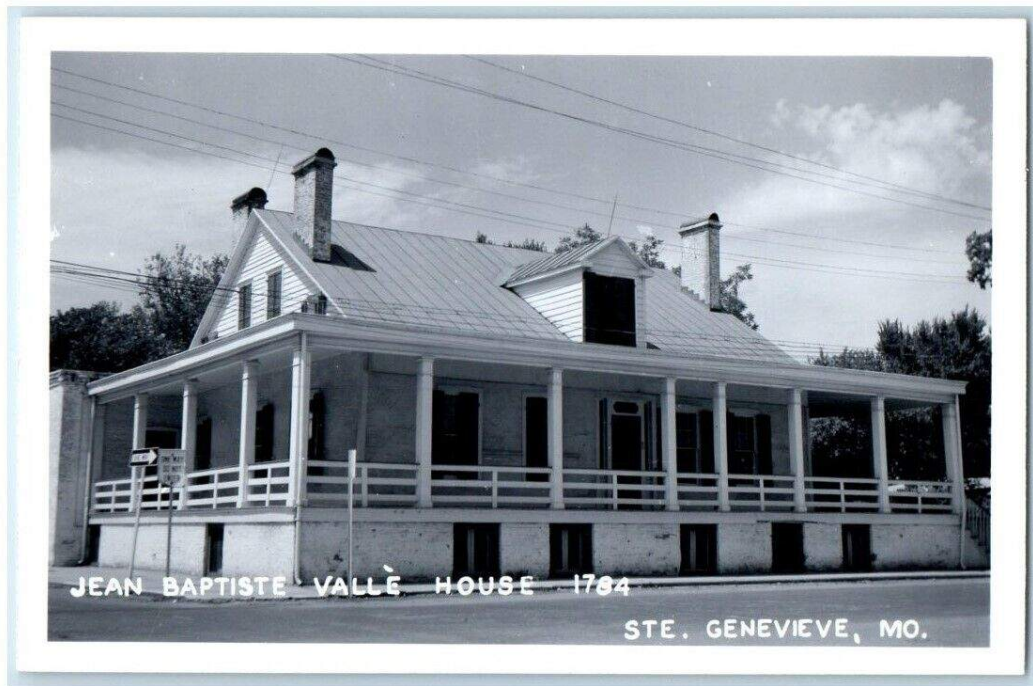


Figure 23. Undated (possibly 1950s) postcard, possibly from the R. P. Papin Photo Company, exterior from the southeast corner of Market and Main Streets. (Source: Undetermined)



Figure 24. Undated (possibly before 1960s renovations), Room 011B, looking southwest, showing the three stone masonry piers and windows in the original foundation wall. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 25. Undated (possibly before 1960s renovations), Room 001, looking north towards Door D002. Note the thickened stone masonry at the base of the foundation wall at right. (Source: Schram Collection, Felix Vallé State Historic Site)

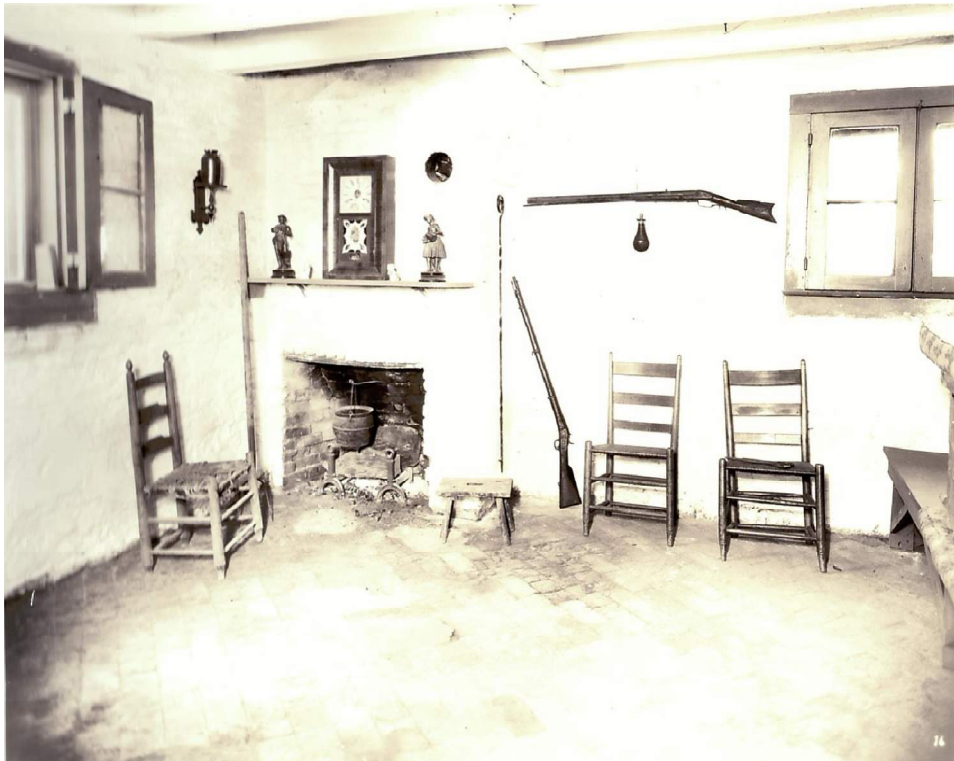


Figure 26. Undated (possibly before 1960s renovations), Room 109 (the kitchen), looking north towards the fireplace. Note the windows have since been enlarged and the fireplace mantel replaced with a timber beam. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 27. Undated (possibly before 1960s renovations), possibly Room 208. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 28. Undated (possibly before 1960s renovations), bedroom in an undetermined location, possible where Room 202 (the bathroom) is now location. Note the transoms present in this photograph have been removed from the interior doors. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 29. Undated (possibly before 1960s renovations), Room 207, looking east. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 30. Undated (possibly before 1960s renovations), Room 103, looking west towards Door D104B. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 31. Undated (possibly before 1960s renovations), Room 103, looking southeast. Note the stove installed at the fireplace. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 32. Undated (possibly before 1960s renovations), Room 106, looking west. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 33. Undated (possibly before 1960s renovations), likely the barn, looking north. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 34. Undated (possibly before 1960s renovations), Room 105, looking east. Note the furniture and wall hangings are the same as the 1949 HABS photograph but in slightly different arrangements. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 35. Undated, parterre garden looking north.
(Source: Schram Collection, Felix Vallé State Historic Site)



Figure 36. Undated, view from
yard west of the grape arbor
southeast towards the west porch.
(Source: Schram Collection, Felix
Vallé State Historic Site)

Appendix B – Historic Photographs and Images



Figure 37. Undated, view from west porch, looking northwest towards the cistern and pump. Based on the diameter of the tree trunks and grapevines in the background, this photograph appears to be similar in date to the 1934 HABS photograph of the same view. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 38. Undated (likely after 1934), view from yard towards the west porch, looking southeast. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 39. Undated, likely looking northeast to the garage (demolished in 1982). Note the ghosting and remnants of roll roofing on the left gable end, indicating that another structure may have previously been attached to this side of the structure. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 40. Undated, looking south to the garage (demolished in 1982). (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 41. Undated (possibly 1930s), exterior from the southeast corner of Market and Main Streets. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 42. Undated (possibly 1930s), view of north exterior wall from the parterre garden. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 43. Undated (possibly 1930s), looking southwest from the corner of the Lagrave Building (58 South Main Street). (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 44. 1935, looking south across the parterre garden. (Source: Francis J. Rozier, Sainte Genevieve, Missouri Bicentennial Collection, 1933-35, State Historical Society of Missouri)



Figure 45. 1935, aerial view of Ste. Genevieve taken during the Bicentennial celebrations. The Jean Baptiste Vallé House is in the lower left. (Source: Ste. Genevieve Library, bicentennial scrapbook)



Figure 46. Undated (possibly 1930s), looking east from to the west porch. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 47. 1948, photograph of the grape arbor at left, possibly looking north. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 48. Undated (possibly 1950s), photographs of the parterre garden. Deckle-edge photographs were widely available from the 1930s to the 1960s. Note the 1880s portico has been replaced with the brick sun room, dating these photos to after 1945 based on the Sanborn map. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 49. 1960s, photograph of the southeast corner of Room 103 taken during renovations, showing the exterior log walls from the interior. Note the alterations to the framing around the windows, indicating that the rough openings had been modified. Ghosting from plaster lath is visible; the diagonal lath marks may be from the original plaster. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 50. 1960s during renovations, wider angle of southeast corner of Room 103. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 51. 1960s during renovations, southeast corner of Room 103, looking south. Note the wall framing alterations around the window and fireplace at right. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 52. 1960s during renovations, closer view southeast corner of Room 103, looking south. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 53. 1960s during renovations, Room 105, looking east toward Main Street. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 54. 1960s during renovations, Room 111 (west porch), looking south towards Room 112 (the bathroom), with the exterior plaster partially removed from the west wall at left. (Source: Schram Collection, Felix Vallé State Historic Site)

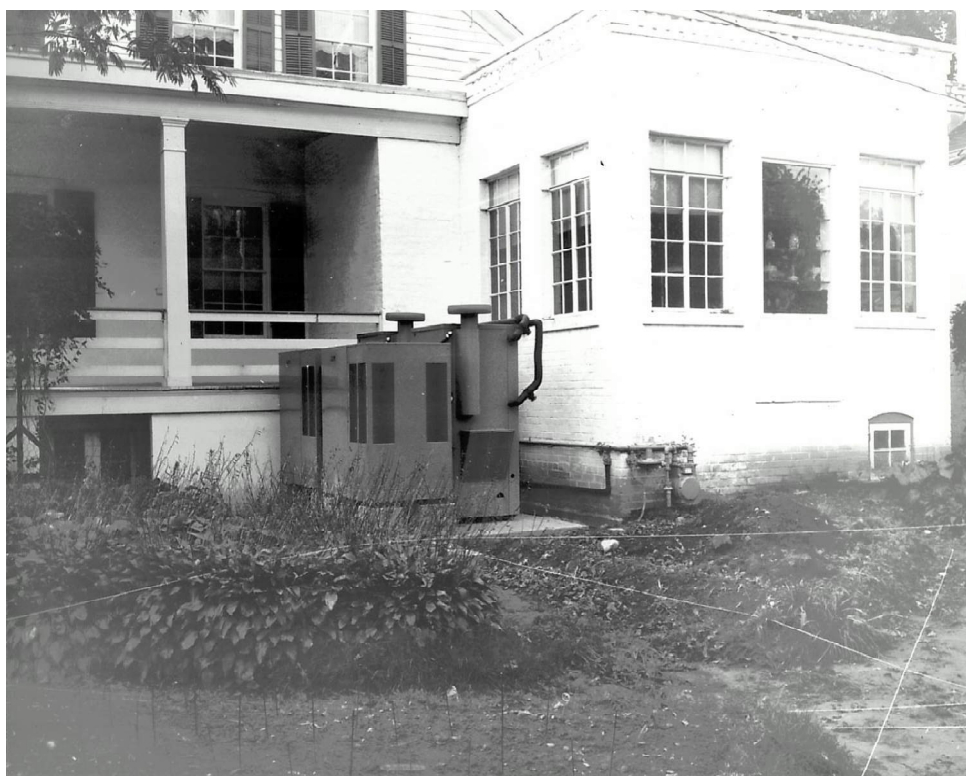


Figure 55. Undated (possibly after the 1960s renovation but before 1985), looking at the sunroom on the north side of the house. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 56. Undated (possibly after the 1960s renovation but before 1985), looking at the west porch; the white chairs in the middle ground are positioned on top of the cistern. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 57. Undated (possibly after the 1960s renovation but before 1985), looking at the north exterior wall. Note the sunroom door has been partially infilled with brick. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 58. Undated (possibly after the 1960s renovation), Room 105, looking east. Note that radiator heat has been added to the house. (Source: Schram Collection, Felix Vallé State Historic Site)

Appendix B – Historic Photographs and Images



Figure 59. Undated (possibly after the 1960s renovation), Room 107 (the pantry), looking northeast, with the built-in cabinetry on the right. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 60. Undated (after the 1960s renovation), Room 109 (the kitchen), looking west. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 61. Undated (after the 1960s renovation), Room 109 (the kitchen), looking north. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 62. Undated (after the 1960s renovation), Room 107 (the pantry), looking west into the kitchen. This corner cabinet is believed to have been original to the house, although relocated in this photograph, and is now in private ownership in Ste. Genevieve. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 63. Undated (possibly the 1960s), the parterre garden during a party or open house, looking northwest across the grape arbor. (Source: Bill Naeger, private collection)



Figure 64. Undated (possibly the 1960s or 1970s), Room 106 (the dining room), looking west. (Source: Schram Collection, Felix Vallé State Historic Site)



Figure 65. Undated (possibly the 1960s or 1970s), Room 105, looking east. Note the same furnishings but in a slightly different arrangement as Figure 58. (Source: Bob Mueller, private collection)



Figure 66. Undated (possibly the 1960s or 1970s), parterre garden, looking west. (Source: Bob Mueller, private collection)



Figure 67. 1975, looking sightly northeast to the barn from Market Street. (Source: Oxford Brookes University, call no. POVAL023490, <https://radar.brookes.ac.uk/radar/items/62f3e4b9-84ef-406e-b30d-b1e02d431b12/1/>)



Figure 68. 1975, looking northwest to from the corner of Market and Main Streets. (Source: Oxford Brookes University, call no. POVAL023489, <https://radar.brookes.ac.uk/radar/items/b1febc94-f7ac-4db5-a2b0-f3a3bf721498/1/?search=%2Fsearching.do&index=1&available=2>)



Figure 69. 1975, looking northeast from the lawn towards the west wall of the house. (Source: Oxford Brookes University, call no. POVAL023491, <https://radar.brookes.ac.uk/radar/items/682a9095-fac7-4f9a-8c10-aa591834f314/1/?search=%2Fsearching.do&index=4&available=16>)



Figure 70. c. 1982, looking slightly northeast to the barn from Market Street, note the distress to the bar roof framing. (Source: Robert Mueller, private collection)



Figure 71. c. 1982, looking southwest to the barn from the yard walkway west of the grape arbor. (Source: Robert Mueller, private collection)



Figure 72. 1986, east exterior wall, (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 73. 1986, view of the house from the northeast on Main Street. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 74. 1986, view of the house from the northeast on Main Street. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 75. 1986, view of the house from the southeast at the intersection of Market and Main Streets. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 76. 1986, south exterior wall, (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 77. 1986, looking south from the grape arbor along the west exterior wall of the house. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 78. 1986, looking east toward the west porch. Note that the porch still retains the lattice visible in the 1933 HABS photographs. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 79. 1986, looking south toward the north exterior wall, showing the parterre garden under renovation and replanting. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 80. 1986, looking south toward the house across the parterre garden, (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 81. 1986, looking south across the parterre garden to the north exterior wall. Note that the door to the sunroom has not yet been reinstalled. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-) <https://www.loc.gov/item/mo0360/>)

Appendix B – Historic Photographs and Images



Figure 82. 1986, Room 103 (the library), looking west into Room 104 (the guest bedroom). (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)



Figure 83. 1986, Room 106 (the dining room), looking east into Room 105 (the living room). Note that radiator heating system is still in place. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)

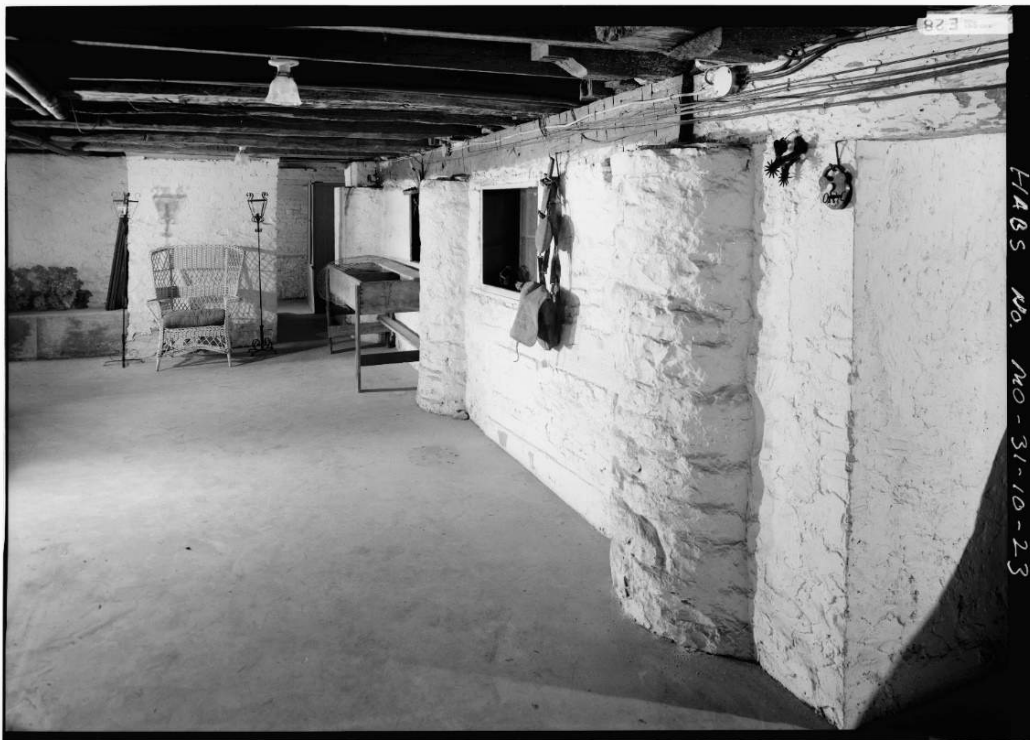


Figure 84. 1986, Room 011, looking southwest at the stone masonry piers and foundation wall with windows. (Source: Historic American Buildings Survey, Library of Congress, Call no. HABS MO,97-SAIGEN,1-). <https://www.loc.gov/item/mo0360/>)

Appendix C – Phase II Environmental Assessment Report

DRAFT

Phase II Environmental Site Assessment Report

Tracts 01-019, 01-110, 01-111, 01-112 & 01-113

Ste. Genevieve, Missouri

Prepared by:

Wood Environment & Infrastructure Solutions, Inc.

4795 Meadow Wood Lane
Suite 301 East
Chantilly, Virginia 20151

wood.

And

Civil & Environmental Consultants, Inc.

4848 Park 370 Blvd.
Suite F
Hazelwood, MO 63042



August 30, 2019

TABLE OF CONTENTS

	Page
TABLE OF CONTENTS.....	I
1.0 INTRODUCTION	1
2.0 BACKGROUND	1
2.1 SITE DESCRIPTION.....	2
3.0 SCOPE OF SERVICES.....	2
3.1 GEOPHYSICAL SURVEY / PRIVATE UTILITY LOCATE.....	3
3.2 GEOPROBE SOIL SAMPLING.....	3
3.3 SOIL SAMPLE ANALYSIS AND RESULTS	4
3.4 GROUNDWATER SAMPLING	6
3.5 WATER WELL SAMPLING AND ANALYSIS.....	7
3.6 SUB-SLAB SOIL VAPOR SAMPLING	8
3.7 SUB-SLAB VAPOR ANALYSES AND RESULTS	9
3.8 ASBESTOS SURVEY	10
3.8.1 Asbestos Survey Field Activities	12
3.8.2 Visual Assessment.....	12
3.8.3 Bulk Sample Collection	13
3.8.4 Sample Analysis	14
3.8.5 Regulatory Overview.....	15
3.8.6 Asbestos Survey Findings	16
3.9 LEAD-BASED PAINT SURVEY	17
3.9.1 Lead Paint Chip Sampling	18
3.9.2 Lead Soil Sampling	19
4.0 SUMMARY OF FINDINGS AND CONCLUSIONS	20
5.0 RECOMMENDATIONS.....	25
6.0 LIMITATIONS OF STUDY	25

FIGURES

Figure 1	Site Regional Map
Figure 2	Site Map
Figure 3	Soil Boring & Sub-Slab Vapor Sample Location Map

APPENDICES

Appendix A:	Soil Boring Logs
Appendix B:	Table 1 - Soil Metals Analytical Results

Appendix C: Soil Analytical Report
Appendix D: Groundwater Analytical Report
Appendix E: Vapor Sampling Field Form
Appendix F: Table 2 - Sub Slab Soil Vapor Analytical Data
Appendix G: Sub-Slab Soil Vapor Analytical Report
Appendix H: Asbestos Inspector Certification
Appendix I: Asbestos Survey Photographic Documentation
Appendix J: Asbestos Sample Location Maps
Appendix K: Asbestos Survey Sample Summary
Appendix L: Confirmed Asbestos Containing Materials
Appendix M: Asbestos Analytical Results
Appendix N: XRF Room Naming Sketches – Field Data // XRF Summaries
Appendix O: XRF Survey Positive Materials
Appendix P: Paint Chip Analytical Report
Appendix Q: Table 3 - Soil Lead Analytical Results

1.0 INTRODUCTION

Civil and Environmental Consultants, Inc. (CEC) has conducted a Phase II Environmental Site Assessment of National Park Service (NPS) Tracts 01-109, 01-110, 01-111, 01-112, and 01-113 located in Ste. Genevieve, Missouri (Site). The Site consists of five nearby tracts, totaling approximately 2.64-acres, which have been historically utilized as residential and/or commercial property. CEC understands that NPS intends to acquire the five tracts for the Ste. Genevieve National Park and the Phase II Assessment activities outlined herein were conducted to determine whether soil, groundwater, or sub-slab vapor have been impacted as a result of historical nearby site operations.

2.0 BACKGROUND

CEC understands that Wood Environment and Infrastructure Solutions, Inc. (Wood) previously conducted Phase I Environmental Site Assessments (ESAs) at the Site tracts in April 2019 and identified recognized environmental conditions (RECs) consisting of:

Tract 01-109 – Jean Baptiste Valle House

- Former automotive repair shop on the adjoining property to the north.
- A former gasoline station located north of the Tract on the southwest corner of Merchant and South Main Streets.
- Former drycleaners located due north of the Tract on the south side of Merchant Street.
- A former gasoline station on the northeast corner of Market and South Main Streets, due east of the Tract.

Tract 01-110 – Rene LeMeilleur House

- A blacksmith shop that formerly occupied this tract.
- Former presence of a gasoline station located immediately northeast of this tract (adjoining property to the northeast) beyond the intersection of Market and South Main Streets.

Tract 01-111 – Linden House

- Former presence of a gasoline station located north of this Tract on the northeast corner of Market and South Main Streets.

Tract 01-112 – Louis Bolduc House

- Former presence of the gasoline station located northeast of this tract on the northeast corner of Market and South Main Streets.

Tract 01-113 – Francois Valle II House

- Location of a former bottling plant and warehouse.

2.1 SITE DESCRIPTION

The Site consisted of the following tracts located in Ste. Genevieve, Missouri:

- Tract 01-109 – Jean Baptiste Valle House (built 1794);
- Tract 01-110 – Rene LeMeilleur House (built 1820);
- Tract 01-111 – Linden House (built 1813);
- Tract 01-112 – Louis Bolduc House (built 1788); and
- Tract 01-113 – Francois Valle II House (built 1793).

Ste. Genevieve was founded around 1740 by Canadian settlers and migrants from settlements in the Illinois Country and is the oldest permanent European settlement in Missouri. The structures are late 18th and early 19th century historic structures which represent the development of early French settlement in the region. The Bolduc House and LeMeilleur houses are operated as year round museums. The Louis Bolduc House was designated as a National Historic Landmark in 1970.

The Site Regional Map is included as Figure 1. Refer to Figure 2, Site Map, for a map depicting the Site tracts and surrounding features.

3.0 SCOPE OF SERVICES

The following scope of services were outlined in a Wood proposal titled *Phase II Pre-Acquisition Environmental Site Assessment - Tracts 01-109, 01-110, 01-111, 01-112, and 01-113, Ste. Genevieve, Missouri*, revised May 15, 2019 and further detailed in the Wood work plan *Site Investigation Work Plan for Phase II Environmental Site Assessment, Ste. Genevieve, MO, Contract 140P1318F0136*, dated June 12, 2019:

- Geophysical Survey / Private Utility Locate
- Geoprobe Soil Sampling (four soil borings)
- Groundwater Sampling (eight temporary piezometers)
- Sub-Slab Vapor Sampling (5 sub-slab vapor samples)
- Asbestos Inspection (five residential structures)
- Lead-Based Paint Survey and soil sampling (five residential structures)

3.1 GEOPHYSICAL SURVEY / PRIVATE UTILITY LOCATE

Wood's subcontractor GeoDrill, Inc. (GeoDrill) contacted the Missouri One Call System (1-800 Dig-Rite) service to have public utilities located/marked on, and near, the Site tracts.

In addition, Wood's subcontractor Pro Mark Utilities LLC (Pro Mark) mobilized to the Site on July 8 to conduct a limited Ground Penetrating Radar (GPR) survey to clear each of the proposed soil boring and temporary piezometer locations. The soil boring/piezometer locations were determined based on communications with NPS and the landowners. Mr. Jim Conroy, Environmental Program Management & Dam Safety Coordinator – National Park Service was present during site operations and directed/approved the placement of the soil borings/temporary piezometers. In addition, NPS arranged to have an archaeologist, Dr. Margaret Brown, present during geoprobe boring advancement to observe the near surface soil boring interval for potential artifacts.

Due to fencing and site access constraints, NPS contacted the City of Ste. Genevieve for approval to place several of the temporary piezometers in the sidewalks along South Main Street. NPS contacted Mr. Martin Toma, City Administrator – City of Ste. Genevieve, who approved the NPS request subject to several conditions (notifying the city, work site protection, and appropriate repair/patching). Temporary piezometers Boring 1, Boring 2, Boring 5, Boring 6, and Boring 8 were placed in the city sidewalks. City street department personnel met with GeoDrill and Pro Mark on July 8 to verify the location of the water main/fire hydrant service lines and the un-marked electric line (serving the street lights) located in the sidewalk on South Main Street, east of Tract 01-109.

3.2 GEOPROBE SOIL SAMPLING

On July 8, 2019, CEC advanced four soil borings, designated as Borings A, B, C, and D on the Site. The borings were placed at locations to investigate the presence of potential impact from the contaminants of concern (COC) associated with the RECs identified in the Wood Phase I ESA Reports dated April 5, 2019. The boring locations are illustrated on the Soil Boring And Sub-Slab Vapor Sample Location Map, Figure 3.

Soil boring A was a shallow boring advanced with a hand auger, Soil borings B, C, and D were placed using a Geoprobe® drill rig utilizing direct-push technology, which results in essentially no soil or groundwater spoils during the drilling process. Representative soil samples were collected from each boring and were selectively analyzed for volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and

8 RCRA Metals (Arsenic (As), Barium (Ba), Cadmium (Cd), Chromium (Cr), Lead (Pb), Mercury (Hg), Selenium (Se), and, Silver (Ag).

Boring A was advanced on Tract 01-110 in the approximate location of a historical blacksmith shop. The boring was advanced with a stainless steel hand auger, and refusal was encountered at approximately 12 inches on a buried foundation (observed mortar and brick fragments in soil).

Borings B, C & D were advanced to depths of 20.0 to 24.0 feet below ground surface (bgs) and were completed at select locations on Tract 01-113 to evaluate the subsurface conditions. Saturated soil conditions were encountered in Boring B, Boring C, and Boring D during drilling activities at depths ranging from 17 to 22 feet bgs. The boring locations are illustrated on the Soil Boring And Sub-Slab Vapor Sample Location Map, Figure 3. The soil boring logs are contained in Appendix A.

On July 8, 2019, soil samples were collected continuously at approximately four-foot intervals using a track-mounted Geoprobe® rig. All borings were advanced using a continuous sampler beginning at the ground surface. Soil samples were also examined for the physical characteristics, composition, structure, voids, color, layering, lenses, odor, staining, mottling, etc. as appropriate, and observations were recorded.

Soil boring A encountered approximately 12 inches of silt underlain by a buried foundation. Soil boring B, soil boring C, and soil boring D encountered silt to depths ranging between 12 and 18 feet bgs. The silt soil was underlain by a low plastic clay to depths between 16 and 20 feet bgs. Coarse sand and gravel (saturated) was encountered in the 20- to 24-foot sample interval in soil boring B, clayey sand and coarse gravel (saturated) was encountered in the 16- to 20-foot sample interval in soil boring C, and clay soil was encountered in the 20- to 24-foot sample interval in soil boring D.

3.3 SOIL SAMPLE ANALYSIS AND RESULTS

Soil samples were collected and screened at one- to two-foot intervals in the field for volatile organic vapor concentrations using a photoionization detector (PID). The PID was a ppbRAE 3000, which provides digital readings of the volatile organic vapors in parts per billion (ppb) relative to 10 ppm isobutylene calibration gas. A standard calibration was performed on the PID on July 5, 2019. Each sample was placed in a sealed plastic bag and maintained at a constant temperature for a minimum of 10 minutes. The headspace was then screened for volatile organic vapors by inserting the PID probe into the sealed plastic bag. The peak PID reading for each sample was then recorded. The soil sample corresponding to the highest PID reading in the unsaturated zone was submitted for laboratory analysis. If PID readings were below the instrument's

detection limit (i.e., 0.0 ppm), then a soil sample was collected at the discretion of CEC's Geologist/Hydrogeologist. Soil samples from each of the soil borings screened with the PID exhibited volatile organic vapor concentrations ranging from below the instrument's detection limit of 0.0 ppb to 69 ppm (Boring B / 12- to 14-foot interval). It is likely that the elevated PID readings are attributable to the instrument sensitivity (reading in ppb), from the humidity (65-84% - July 8 Climatological Report – St. Louis) and, and the moisture content observed in the samples. The soil headspace readings are presented on the soil boring logs contained in Appendix A.

Once headspace screening was completed, one soil sample was collected from Soil Boring A and two samples each were collected from soil borings B, C, and D. The soil samples were submitted to Pace National (Pace) in Mt. Juliet, Tennessee. Representative soil samples collected were selectively analyzed for VOCs by United States Environmental Protection Agency (USEPA) method 8260, PAHs by USEPA method 8270, and 8 RCRA Metals by USEPA Method 6010/7470.

Soil analysis data was compared to the Missouri Department of Natural Resources – Missouri Risk Based Corrective Action (MRBCA) - Voluntary Cleanup Program (MDNR-VCP) Table B-1 (Lowest Default Target Levels -All Soil Types and All Pathways [DTL]) dated November 2006, revised March 2010, which have been assumed for the purpose of evaluating soil analytical data. Data was also compared to Default Target Levels in Table B-6 (Non-Residential Land Use - Soil Type 2 - Silty) and/or Table B-9 (Construction Worker - Soil Type 2 - Silty).

Metals

The soil samples collected from soil borings A, B, C, and D each exhibited one or more metal concentrations above laboratory method detection limits (MDLs). The detected mercury, barium, cadmium, chromium, selenium, and silver concentrations did not exceed the Missouri DTLs. The arsenic concentrations detected in soil samples collected from soil borings B-A, B-B, B-C, and B-D ranged between 4.35 and 7.89 milligrams per kilogram (mg/kg), which exceeded the most stringent DTL of 3.89 mg/kg (Soil Direct Contact Pathway). However, the arsenic soil concentrations did not exceed the Non-Residential DTL of 96.4 mg/kg (Dermal Contact) or the Construction Worker DTL of 2,870 mg/kg (Dermal Contact).

The soil samples collected from soil borings A, B, C, and D also exhibited lead concentrations, which ranged between 8.28 and 69.8 mg/kg, which exceeded the most stringent DTL of 3.74 mg/kg (Groundwater Protection Pathway). MRBCA Tables B-6 and B-9 did not contain DTLs (dermal contact) for Non-Residential or Construction Worker.

The document titled "*Geochemical Survey of Missouri, Geography of Soil Geochemistry and Classification by Factor Analysis of Missouri Agricultural Soils - Geological Survey Professional Paper 954-H*", authored by Ronald R. Tidball, United States Government Printing Office, and dated 1984, indicated that the average arsenic statewide concentration was 8.7 mg/kg with seventeen percent of the samples exhibiting arsenic concentrations between 12 and 70 mg/kg. The report also indicated that the average lead statewide concentration was 20 mg/kg with twenty-four percent of the samples exhibiting lead concentrations between 25 and 7,000 mg/kg. Based on the average concentrations reported in the 1984 *Geochemical Survey of Missouri* - Tidball report, the detected lead and arsenic concentrations appear to be naturally occurring and do not present a significant risk to current or future use of the site.

The soil metals results exhibiting concentrations in excess of MDLs are summarized on Table 1, Soil Metals Analytical Results contained in Appendix B.

VOCs

The soil samples collected from soil borings B, C, and D exhibited VOC concentrations below MDLs or non-detect (ND) for each analyte tested, with the exception of 2-butanone (MEK). Five of the six samples collected from soil borings B, C, and D exhibited MEK concentrations, which ranged between 0.0327 and 0.0713 mg/kg. The exhibited MEK concentrations did not exceed the most stringent DTL of 7.3 mg/kg (Protection of Domestic Groundwater Use Pathway). The soil VOC results are contained in the soil analytical report in Appendix C.

PAHs

The soil samples collected from soil borings B, C, and D exhibited PAH concentrations below MDLs or non-detect (ND) for each analyte tested. The PAH results are contained in the soil analytical report in Appendix C.

3.4 GROUNDWATER SAMPLING

During drilling activities, temporary piezometers were installed in soil boring B, soil boring C, and soil boring D. In addition, eight additional boreholes (soil borings 1 through 8) were advanced at the Site on July 8 and July 9, 2019. Three of the soil borings (soil borings 3, 4, and 7) were advanced in the lawn areas on the Site tracts. As previously noted, the remaining five borings (soil borings 1, 2, 5, 6, and 8) were advanced on city

sidewalks in areas to intercept potential contaminant plumes originating from offsite sources. The City of Ste. Genevieve granted permission to NPS to install soil borings on the city sidewalks. The temporary piezometer locations are illustrated on the Soil Boring And Sub-Slab Vapor Sample Location Map, Figure 3.

The temporary piezometer soil samples were not PID screened nor were samples collected for laboratory analysis. The encountered soil consisted of approximately 4 inches of concrete and 4 inches of crushed rock base (sidewalk borings) followed by alternating layers of low plastic silt soil and low plastic clay soil to approximate depths of 16 to 20 feet bgs. The terminus of the soil borings (16 to 20-, 20 to 24-, or 24 to 28-foot sample intervals) primarily consisted of sandy silt (saturated) and/or poorly graded sand and gravel (saturated). Evidence of petroleum impact (e.g., odors, staining, discoloration) were not observed in the soil cores removed from soil borings 1 through 8.

The temporary piezometers were constructed of 1-inch diameter polyvinylchloride (PVC) pipe with a ten-foot, 0.010-inch slot screen. The temporary piezometers were constructed at the surface and placed directly into the soil borings to intersect the zone of saturation. The temporary wells were sampled using disposable bailers. Groundwater was discharged from the bailers directly into laboratory-supplied and appropriately preserved sample containers. The samples were submitted to Pace and selectively analyzed for VOCs by USEPA Method 8260B and PAHs by USEPA Method 8270C.

VOCs

The groundwater samples collected from soil borings B and C, and from temporary piezometers 1, 2, 3, 4, 5, 6, 7, and 8 exhibited VOC concentrations below the laboratory MDLs, or ND for each analyte tested.

PAHs

The groundwater samples also exhibited PAH concentrations below the laboratory MDLs, or ND for each analyte tested.

The groundwater VOC and PAH results are contained in the groundwater analytical report in Appendix D.

3.5 WATER WELL SAMPLING AND ANALYSIS

Two inactive potable water wells are located on the Site (Tract 01-109 and Tract 01-112). In accordance with the Workplan, if sufficient water was observed in the on-site wells, then samples were to be collected and submitted for analysis for VOCs by USEPA Method 8260B, PAHs by USEPA Method 8270C, and lead by USEPA Method 6010B. On July 8, 2019, the depth to groundwater was observed at approximately 10.1 feet in the Tract 01-112 well; however, the depth of water (less than 2 inches) was insufficient to collect a sample

using a disposable bailer. The depth to groundwater was observed at approximately 17.6 feet in the Tract 01-109 well. A sample of the well water was collected and submitted for analysis. The well water sample exhibited VOC and PAH concentrations below the laboratory MDLs, or ND for each analyte tested. The well water sample exhibited a lead concentration of 0.0106 milligrams per Liter (mg/L), which did not exceed the most stringent MDNR RBCA DTL of 0.15 mg/L (Domestic Water Use of Groundwater Pathway). The location of the Tract 109 and Tract 112 water wells is depicted on the Soil Boring and Sub-Slab Vapor Sample Location Map, Figure 3. The water well laboratory report is contained in the groundwater analytical report in Appendix D.

3.6 SUB-SLAB SOIL VAPOR SAMPLING

On July 20, 2019 a sub-slab vapor survey was performed at the Site. Representative sub-slab soil vapor samples were collected from sub-slab vapor pins and were analyzed for VOCs. The sub-slab vapor pins were placed at select locations inside the subject property buildings to assess the presence of potential impact from the COCs associated with the RECs identified in the April 2019 Wood Phase I ESA reports. Mr. Jim Conroy, NPS representative, was present to escort CEC during the vapor survey. Sub-slab vapor pins were installed at the following locations:

- Tract 01-019 – two locations (109-SV1 and 109-SV2) in the basement
- Tract 01-110 – two locations (110-SV1 and 110-SV2) in the basement
- Tract 01-111 – one location (111-SV1) in the basement (CEC attempted to collect a second sub-slab vapor sample, but four attempts to drill through the floor slab encountered greater than 6 inches of concrete, which was the length of the drill bit. Mr. Conroy indicated that one vapor sample was sufficient for the tract.

The workplan originally called for collection of two sub-slab vapor samples from the basement of the Francis Valle II House located on Tract 01-113. Mr. Conroy indicated the CEC could forego collection of the vapor samples in the building due to the lack of electricity in the building and the proximity of the building from the previously identified RECs.

Five sub-slab vapor pins were advanced to depths of 6 inches below the floor slab. The sub-slab vapor pin locations are illustrated on the Soil Boring and Sub-Slab Vapor Sample Location Map, Figure 3.

3.7 SUB-SLAB VAPOR ANALYSES AND RESULTS

CEC utilized a hammer drill fitted with a 5/8-inch diameter masonry bit to core through the concrete floor slab to allow for the installation of the sub-slab vapor pins. Once the concrete slab was penetrated, brass vapor pins fitted with silicone sleeves were inserted into the boreholes. Polyethylene tubing (3/8 inch outside diameter and 1/4 inch inside diameter) was then connected from the vapor pin to a flow control regulator that was set for 200 milliliters per minute (mL/min) and fitted to a one liter Summa® canister.

Once the sampling canisters were set, each sample canister was turned to the open position and the time on and starting pressure was noted. Penetrations were then screened with a PID and exhibited volatile organic vapor concentrations ranging from 0.0 to 3.8 ppb, units relative to 10 ppm isobutylene calibration gas. The sample canisters were left in the open position for approximately 5 minutes to have remaining negative pressure in the canisters at the end of the sampling. At the time of sample completion, the sample canisters were turned to the closed position and the time off and ending pressure recorded. The vapor sample collection data including canister number, regulator number, time on and off, starting and ending pressures, and PID readings, is included in Vapor Sampling Field Form contained in Appendix E.

The samples were then transported to the analyzing laboratory, Pace, in Mount Juliet, Tennessee under chain-of-custody procedures. Each of the five samples were analyzed for VOCs via USEPA Method TO-15. The results of this method of sampling are reported in a volume, micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$).

There are no published MDNR MRBCA Risk Based Target Levels for sub-slab soil vapor. Based on conversations with Mr. Chris Cady, Environmental Scientist - MDNR - Brownfields / Voluntary Cleanup Section – Environmental Remediation Program, the laboratory data should be compared to the Tier I Risk-Based Target Levels (RBTLs) for Indoor Air (Table B-3 – Residential Land Use, and Table B-6 – Non Residential Land Use). In addition, the sub slab vapor results should be multiplied by the USEPA default attenuation factor of 0.03 to estimate the indoor air concentrations from subsurface data. The attenuation factor is defined as the ratio of indoor air concentration to subsurface concentration, and is used as a measure in the decrease of concentration that occurs during vapor migration and may vary with space and time.

The five sub-slab soil vapor samples exhibited concentrations of various VOC analytes, which exceeded the laboratory MDLs. The laboratory results were then multiplied by the USEPA default attenuation factor of

0.03 and compared to the Indoor Air –Residential and Indoor – Non-Residential RBTLS. The calculated concentrations did not exceed the Residential or Non-Residential RBTLS.

In addition, several of the sub-slab vapor samples exhibited concentrations of cyclohexane, 1,4-dioxane, 4-ethyltoluene, heptane, and/or 2-propanol, which exceeded the laboratory MDLs; however, MDNR does not have published Tier I RBTLS for those analytes.

The analytical results are summarized on Table 2 – Sub-Slab Soil Vapor Analytical Data contained in Appendix F. The sub-slab soil vapor laboratory analytical report is contained in Appendix G.

Following collection of sub-slab vapor samples, the vapor pins were removed and the voids were backfilled with hydraulic cement.

3.8 ASBESTOS SURVEY

In accordance with the work plan, CEC conducted an asbestos survey of the five Site structures. CEC understands the asbestos survey was requested due to future maintenance/renovation activities at the Site. The asbestos survey was conducted on the following Site structures:

Tract 01-109 Jean Baptise Valle House

The house was constructed in 1794, with additions in about 1800 and 1850. The house was renovated in the 1850s, 1920s, 1950s, 1970s, 1980s, and 2000s, and was continuously occupied until approximately 2006. The house has operated as offices and a library since 2016. The house encompassed approximately 3,980 square-feet under roof. The original portion of the building was constructed of vertical log construction on a stone foundation (poteaux sur sole). The original walls are hewn white oak mortised into a sill and infilled with bousillage, which is a clay/soil mixed with chopped straw and/or horse hair. The basement walls are stone and the floor was concrete. The interior finishes consist of drywall and/or plaster walls with wood or plaster ceilings. Exterior walls are brick. The roofing consists of asphalt shingles and a rubber roof membrane. Floors were carpet, vinyl or ceramic tile, or wood. The building was heated and cooled by a central air-conditioning system. Ductwork throughout the building appeared to be uninsulated.

01-110 – Rene Lemeiulleur House

The house was constructed in 1820 and was a residence until the 1830s when the house (and north adjoining brick building) were acquired by the Sisters of Loretto. A second story was constructed on the house in the 1850s and a school was operated on the Site for about 20 years. Subsequent uses included a hotel, commercial space, apartments, and a car dealer. The house was restored in 1966-1967 and the second story was removed from the house. The house was acquired by NSCDA/MO in 1970 and renovated as a museum. The house has operated as a museum since 1971. The house encompassed approximately 1,517 square feet under roof. The house has a limestone rubble foundation and a timber frame. Interior finishes consist of wood floors, wood ceilings, and plaster walls. The exterior walls are wood and the roofing system consists of cedar shakes. The building was heated and cooled by a central air-conditioning unit.

01-111 – Linden House

The Linden House structure was constructed in 1813, had several additions in the mid-19th century, and was continuously occupied as a residence until the 1960s, when it was acquired by the National Society of the Colonial Dames in America – State of Missouri (NSCDA/MO). The house was renovated as a museum in 1964 and has operated as a gift shop and offices since that time. The building encompasses approximately 2,985 square-feet under roof. The original house consists of the north portion of the building. The original construction was brick nogged heavy timber frame construction. The east addition was constructed in the 1950s. The roof consisted of asphalt shingles. The exterior walls were wood or brick. Interior finishes consisted of drywall or hard plaster walls. Floors were wood, sheet vinyl flooring, or vinyl tile. Ceilings were wood or plaster. The building was heated and cooled by a central air-conditioning unit. Ductwork throughout the building appeared to be uninsulated. The structure was formerly heated by a radiant heat system (now inactive) located in the basement.

01-112 – Louis Bolduc House

The house was constructed in 1788 with additions in 1793, 1820, and 1845. The house was continuously occupied through 1947. The house was renovated between 1948 and 1958 and has operated as a museum since 1958. The building encompasses approximately 3,936 square-feet under roof. The original portion of the building is classified as poteaux-sur-solle (post on a sill), in which vertical oak timbers resting on stone sills form the upright walls. The interstitial spaces were filled with clay/soil and hand chopped straw (bousillage). The roof was cedar shakes. The interior finishes were wood floors, wood or plaster ceilings, and

plaster walls. Exterior walls were wood. The building was heated and cooled by a central air-conditioning unit located in the cellar. The cellar contains an earth floor.

01-113 – Francois Valle II House

The structure was constructed in 1792/1793 and an addition was reported constructed in about 1940. Renovations were performed in the 1840s, 1890s, 1920s, and 1960s. The structure was continually residentially occupied until 2013 when NSCDA/MO acquired the Site. The Site has been vacant since 2013. The building encompassed approximately 1,096 square-feet under roof. The original portion of the building was constructed of log posts on stone foundation (poteaux sur sole), which measures approximately 27 feet by 26 feet and is encased within the walls. The attic floor consists of massive recycled timbers. The building may represent a portion of a once larger building, which was damaged/destroyed from the New Madrid Earthquake of 1811. The roof consisted of corrugated metal panels. The exterior walls were wood. Interior finishes consisted of drywall and plaster. Floors were wood or sheet vinyl flooring. The building contains a central air-conditioning/heating unit in the basement, but the system was not operating as the building was vacant at the time of the survey. Ductwork throughout the building appeared to be uninsulated.

3.8.1 Asbestos Survey Field Activities

The survey was conducted by State of Missouri-licensed asbestos inspector Mr. Bryan Gatlin of CEC on July 11 and 12, 2019. Mr. Gatlin was escorted by Mr. Jim Conroy - NPS, during the survey. The survey was conducted in general accordance with the sample collection protocols established in EPA regulation 40 CFR 763, the Asbestos Hazard Emergency Response Act (AHERA). Inspector certification is contained in Appendix H. A summary of the survey activities is provided in the following subsections.

3.8.2 Visual Assessment

Survey activities began with a visual inspection of interior and exterior of each building to identify, document the location, condition and approximate quantities of suspect asbestos-containing materials (ACMs). Suspect ACMs were grouped into homogeneous areas. A homogeneous area consists of building materials that appear similar throughout in terms of color, texture and consideration of date of installation or application. Building materials identified as concrete, glass, wood, masonry, metal, rubber or silicone are not considered suspect ACM and, therefore, were not sampled. Also, if information was available to indicate

a material did not contain asbestos (i.e., product label), the material was not sampled. Photographs of identified and/or assumed suspect ACMs are provided in Appendix I.

The inspection was limited to accessible areas. Destructive sampling (e.g., breaking into wall voids) was not conducted. However, CEC observed interstitial wall spaces through wall cut-outs or through existing holes and did not observe insulations or additional suspect materials. At the request of Mr. Jim Conroy of NPS, the roofing systems were not included as part of this survey.

CEC did not observe additional flooring layers unless mentioned in this report; however, as CEC could not assess beneath all floor covering in all areas, there may be isolated areas of additional suspect material present beneath existing flooring. Although reasonable effort was made to survey accessible suspect materials, additional suspect but un-sampled materials could be located in walls, in voids or in other concealed areas (e.g., locked doors, inaccessible attics).

3.8.3 Bulk Sample Collection

Based on the findings of the visual inspection, bulk samples of suspect ACM were collected in general accordance with AHERA sample collection protocols. Each homogeneous area was categorized as: surfacing material (Surfacing), thermal system insulation (TSI), or miscellaneous material (Miscellaneous). Under AHERA, the minimum number of bulk samples collected per category include:

- Surfacing
 - Less than 1,000 square feet: 3 samples
 - Between 1,000 and 5,000 square feet: 5 samples
 - Greater than 5,000 square feet: 7 samples
- Thermal System Insulation: 3 samples (less than 6 liner or square feet of a patch)
- Miscellaneous Material: in a manner sufficient to determine whether the material is ACM or not ACM. Typically, CEC collected 3 samples
- At the request of Mr. Jim Conroy of the NPS, the recommended number of bulk samples collected was reduced in several of the Site structures, notably the Louis Bolduc House and the Rene Lemeilleur House.

Samples were collected from random locations, if possible, for each suspect homogeneous material identified. Samples were placed in sealable containers, labeled with unique sample numbers, using an indelible marker. Due to safety issues, suspect ACMs identified on electrical and mechanical equipment or systems, or confined spaces were not sampled as part of this survey.

Sample collection likely resulted in some isolated damage to building materials. However, damage was limited to the extent necessary for sample collection. If possible, CEC repaired sample locations, but did not return building materials to the original finish.

One hundred sixty-six bulk samples of suspect ACMs were collected during the inspection. Some bulk samples collected included multiple layers (e.g., floor tile and mastic). Bulk samples were collected of the following suspect materials: stone mortar (multiple types), interior plaster walls and ceilings (multiple types) wall plaster, surfacing on stone wall (multiple types), window glazing (multiple types), mortar on flue pipe, 12" x 12" blue vinyl floor tile and brown mastic, "stone" pattern vinyl sheet flooring, pipe insulation, "hexagon" pattern sheet vinyl flooring, drywall and joint compound (multiple types), sheet vinyl flooring in closet, black sink insulation, sheet vinyl flooring in restroom (multiple types), duct tape (multiple structures), exterior surfacing on brick walls, ceramic floor tile thinset (two types), ceramic wall tile adhesive (two types), 12" x 12" brick pattern vinyl floor tile and black mastic and felt layer, carpet adhesive (two types), 9" x 9" white and gold floor tile and black mastic and felt layer, roof capstone asphalt sealer, exterior stucco, texture on drywall walls, ceiling tiles (two types), sheet vinyl flooring (multiple colors/patterns), texture on plaster walls, and surfacing on chimney.

Floor plans depicting approximate sample locations are presented on the Asbestos Sample Location Maps contained Appendix J. An Asbestos Survey Sample Summary table with material descriptions, sample numbers, homogeneous area number, and sample location is contained in Appendix K. A summary of confirmed and/or assumed ACMs with laboratory results, general locations and estimated quantities is contained in Appendix L.

3.8.4 Sample Analysis

Bulk samples were submitted under chain of custody to EMSL Analytical, Inc. (EMSL) in Indianapolis, Indiana, for analysis by polarized light microscopy (PLM) with dispersion staining techniques per EPA's Method for the Determination of Asbestos in Bulk Building Materials (600/R-93-116). The percentage of asbestos, where

applicable, was established by microscopic visual estimation. EMSL is an accredited National Voluntary Laboratory Accreditation Program (NVLAP Accreditation No. 200188-0) laboratory. Laboratory analytical reports are contained in Appendix M.

3.8.5 Regulatory Overview

The Missouri Department of Natural Resources, (MDNR) Air Pollution Control Program, enforces the USEPA Asbestos National Emissions Standard for Hazardous Air Pollutants (NESHAP, 40 CFR Part 61, Subpart M). The Asbestos NESHAP regulates asbestos fiber emissions, asbestos waste disposal practices, and requires the identification and classification according to friability of existing ACM prior to demolition or renovation activity.

The Asbestos NESHAP regulation defines ACM as a material containing more than 1% asbestos. Friable ACM as any material containing more than 1% asbestos that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure. Non-friable materials when dry, cannot be may be crumbled, pulverized or reduced to powder by hand pressure. Category I non-friable ACMs are exclusively asbestos-containing packings, gaskets, resilient floor coverings, resilient floor covering mastics and asphalt roofing products that contain more than 1% asbestos. Category II non-friable ACMs are all other non-friable materials other than Category I non-friable ACM that contain more than 1% asbestos.

Friable ACM along with Category I and Category II non-friable ACM which is in poor condition and has become friable or which will be subjected to drilling, sanding, grinding, cutting or abrading and could be crushed or pulverized during anticipated renovation or renovation activities are considered regulated ACM (RACM). RACM must be removed prior to renovation or demolition activities which will disturb the asbestos-containing materials.

The Occupational Safety and Health Administration (OSHA) asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos. The OSHA standard requires that employee exposures to airborne asbestos fibers be maintained below 0.1 fiber per cubic centimeter of air (0.1 f/cc) as an eight hour-time weighted average (TWA) and not exceed 1.0 fibers per cubic centimeter of air (1. f/cc) over a 30-minute time period, the excursion limit. The TWA and excursion limit together are known as the OSHA permissible exposure limits or PELs. The OSHA standard classifies construction and maintenance

activities which could disturb ACM, and specifies work practices and precautions which employers must follow when engaging in each class of regulated work.

Asbestos abatement notifications for all demolition and renovation activities involving the removal or disturbance of RACM and non-friable ACMs should be submitted to MDNR APCP at least 10-working days prior to the commencement project activities. If remodeling/renovation efforts include repair, removal or replacement of "load bearing" structural members, this is considered demolition and a 10-day notification to the local municipal agency may be required.

3.8.6 Asbestos Survey Findings

CEC conducted an asbestos survey of the five Site structures located in Ste. Genevieve, Missouri. One hundred sixty-six bulk samples of suspect ACMs were collected during the inspection and submitted to an accredited laboratory for analysis by PLM. Laboratory analysis of the bulk samples identified asbestos in the following materials (see Appendix L):

- Tract 01-111 - Linden House – Black sink insulation
- Tract 01-111 - Linden House - Duct tape in basement
- Tract -01-109 - Jean Baptiste Valle House – 9" x 9" white/gold vinyl floor tile
- Tract 01-019 - Jean Baptiste Valle House – Roof capstone asphalt sealer
- Tract 01-113 - Francois Valle II House – Red sheet vinyl flooring (top layer) in kitchen
- Tract 01-113 - Francois Valle II House – Duct tape in basement

The black sink insulation is located in the kitchen of Linden House. The sink insulation is considered a Category I non-friable ACM in good condition.

The duct tape was located in the basements of Linden House and Francois Valle II House. The duct tape is considered RACM in fair condition.

The 9" x 9" white and gold floor tile is located in the Jean Baptiste Valle second floor storage rooms and is considered a Category I non-friable ACM in good condition.

The asphalt sealer was observed on the north portion of the roof of the Jean Baptiste Valle house. The material is considered a Category I non-friable ACM in good (weathered) condition.

The red sheet vinyl flooring (top layer) was located in the Francois Valle II house kitchen. The material is considered to be RACM in fair condition.

The joint compound in Linden House (HA-17), window glazing at Linden House (HA-24), floor tile mastic in Jean Baptiste Valle House (HA-28), joint compound in Jean Baptist Valle House (HA-29), and joint compound in Francois Valle II House (HA-42) each contain less than one percent asbestos and the joint compound, window glazing, and floor tile mastic are each considered non-asbestos containing, and are exempt from current MDNR asbestos abatement regulations. However, the joint compound, window glazing, and floor tile mastic materials contain asbestos and renovation or demolition activities disturbing the joint compound, window glazing, and floor tile mastic would need to comply with the OSHA Construction Standard (29 CFR 1926.1101), which regulates workplace exposure to asbestos.

3.9 LEAD-BASED PAINT SURVEY

In accordance with the work plan, CEC performed a lead-based paint (LBP) survey of the five Site residences and associated outbuildings on July 15, 16, and 17, 2019. The purpose was to assess the presence of LBP in the buildings for future maintenance and/or renovation activities. The LBP survey was conducted by Mr. Bryan Gatlin, a Missouri-licensed lead paint inspector in general conformance with the Department of Housing and Urban Development (HUD) 1997 *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*. HUD requires one XRF test per testing combination (consists of room equivalent, building component, and substrate), except for interior and exterior walls where four readings should be taken.

LBP is a term used by HUD and The EPA's Toxic Substances Control Act (TSCA) program, which defines LBP as paint with lead levels equal to, or exceeding 1.0 milligrams per square centimeter (mg/cm²), or 0.5% by weight, or 5,000 ND. Although this defines LBP, Occupational Safety and Health Administration (OSHA) defines lead in construction as airborne lead particulates and doesn't define a certain level of lead in paint.

An XRF analyzer (Innov-X Systems Alpha 6000 - Serial Number 9011) was employed for testing painted surfaces. The HUD and Missouri Department of Health (MDOH) program's action levels are equal to, or

greater than 1.0 mg/cm². The XRF readings below the action level are considered negative and the readings at and above the action level are considered positive. The listing of the XRF reading results summary is contained in Appendix N. A summary of positive LBP results is contained in Appendix O.

CEC took a total of 778 XRF readings in the five Site buildings (and associated outbuildings as appropriate). Readings were taken from coated surfaces associated with the various building components throughout the building. Based on the results of the XRF survey, 253 positive LBP components were identified on the surfaces of the Site structures. Refer to Appendix N for a complete list of surfaces tested and the results. Maps indicating the room name schemes are located in Appendix N. It should be noted that the Innov-X XRF arranges data files by day; therefore, the XRF reading numbers start over at reading No. 1 on July 16 and again on July 17.

Quantities are approximate. Refer to Appendix N for a complete list of surfaces tested and the result.

3.9.1 Lead Paint Chip Sampling

In accordance with the workplan, Wood proposed to collect up to 15 paint chip samples according to HUD Guidelines, the paint chip samples were to be collected from testing combinations, which exhibited an inconclusive lead concentration. The Innov-X XRF has a published inconclusive range of 0.6 and 1.1 mg/cm². For those sample locations, which indicated a lead concentration of 1.0 mg/cm³, CEC collected 2-inch x 2-inch paint chip sample, which was submitted for lead analysis. The following table identifies the structure, component, paint chip sample designation, and lead results.

Paint Chip Sampling Results Tracts 01-109, 01-111, and 01-113 Ste. Genevieve, Missouri				
Sample No.	Building / Location	Component / Substrate / Color	Result (mg/kg)	Regulatory Level*
L-1	Valle II / Living Rm	E. Wall / DW / Green	5,700	5,000
L-2	Valle II / E. Bed Rm	N. Wall / Plaster / Pink	3,820	
L-3	Valle II / E. Bed Rm	E. Bed Rm /Plaster /Pink	1,460	
L-4	Valle II / W. Bed Rm	E. Wall / DW / Yellow	16,300	
L-5	Valle II / W. Bed Rm	S. Wall / DW / Yellow	10,300	
L-6	Valle II / W. Bed Rm	W. Wall / DW / Yellow	12,300	
L-7	Valle II / Stairs Up	N. Wall / Plaster / White	50.6	
L-8	Valle II / Kitchen	W. Wall / DW / Yellow	4,150	
L-9	Linden / 2 nd Bath	E. Wall / Plaster / Blue	601	
L-10	Linden / 2 nd Bath	W. Wall / Plaster / Blue	186	

L-11	Linden / 2 nd Floor	Chimney / Plaster / White	<49.1	
L-12	JBV / Front Porch	Wall / plaster/ Yellow	63.0	
* = LBP as defined by HUD and MDOH as paint with lead levels equal to, or exceeding 1.0 milligrams per square centimeter (mg/cm ²), or 0.5% by weight, or 5,000 ppm (ppm = equivalent to milligrams per kilogram)).				

It should be noted that approximately 17 of the XRF readings conducted on July 15 and 16 exhibited results ranging between approximately 0.62 and 0.93 mg/cm² which are within the XRF inconclusive range of 0.6 and 1.0, but in which paint chip samples were not collected. In those cases, the XRF reading times were generally in excess of 20 seconds and the device indicated a “negative” result. Based on the paint chip analytical data and the overall results (253 positive readings), the XRF readings, which exhibited measurable amounts of lead, but below the 1.0 mg/cm² threshold, should be considered as “lead-containing paints.” The paint chip laboratory analytical results are contained in Appendix P.

3.9.2 Lead Soil Sampling

In accordance with the work plan and HUD Guidelines, CEC collected soil samples from around the foundation/dripline of the five structures to assess for elevated lead concentrations attributable to LBP. On July 9, 2019, CEC utilized a coring tool to collect composite samples from around the structures. CEC was unable to collect four soil samples from around each structure due to the presence of sidewalks and/or paved walkways. CEC utilized a coring tool to collect near surface (top 5/8”) soil samples from the dripline. The samples were composite samples consisting of up to 10 sample points along the respective wall of the structure. The samples were submitted for analysis for lead by USEPA Method 6010B.

Samples were collected from the north and west sides of the Jean Baptiste Valle House (Tract 01-109), from the north, west, and south sides of the Rene Lemeilleur House (Tract 01-110), from the north side of the Linden House (Tract 01 -111), and from all four sides of the Louis Bolduc House (Tract 01-112) and the Francis Valle II House (Tract 01-113).

The lead concentrations in the fourteen soil samples exhibited lead concentrations, which ranged between 73.3 mg/kg to 9,510 mg/kg. The results were compared to the MDOH regulatory levels for lead in soil as it pertains to child-occupied housing. The MDOH level for bare soil areas where children have access to the site is 400 mg/kg and the level for bare soil areas where children don't have access to the site is 2,000 mg/kg. In addition, the USEPA soil lead clearance levels are 400 mg/kg for bare soil play areas and 1,200 mg/kg for the rest of the yard.

Eight of the 14 soil samples exhibited concentrations above the MDOH and USEPA levels of 400 mg/kg; specifically:

- 109 North, 109 West, 110 South, 111 North, 112 North, 113 North, 113 East, and 113 South.

Five of the 14 samples exhibited concentrations above the USEPA level of 1,200 mg/kg; specifically:

- 109 North, 109 West, 111 North, 113 East, and 113 South.

Two of the 14 samples exhibited concentrations above the MDOH level of 2,000 mg/kg; specifically:

- 109 West and 111 North.

The results of the lead sampling for lead based paint are depicted on the Soil Lead Analytical Results on Table 3 in Appendix Q. The soil lead analytical results are contained in the soil analytical report contained in Appendix C.

4.0 SUMMARY OF FINDINGS AND CONCLUSIONS

- On July 8 and 9, 2019, a subsurface assessment of the Site was performed;

Soil Sampling

- Four soil borings were advanced on July 8, 2019. Soil boring A was advanced with a hand auger and soil borings B, C, and D were placed using a Geoprobe® drill rig utilizing direct-push technology;.
- Boring A was advanced on Tract 01-110 with a stainless steel hand auger, and refusal was encountered at approximately 12 inches on a buried foundation (observed mortar and brick fragments in soil);
- Borings B, C & D were completed on Tract 01-113 and were advanced to depths of 20.0 to 24.0 feet bgs. Saturated soil conditions were encountered in Boring B, Boring C, and Boring D during drilling at depths ranging from 17 to 22 feet bgs;
- Soil boring A encountered approximately 12 inches of silt underlain by a buried foundation. Soil borings B, soil boring C, and soil boring D encountered silt to depths ranging between 12 and 18

feet bgs. The silt soil was underlain by a low plastic clay to depths between 16 and 20 feet bgs. Coarse sand and gravel (saturated) was encountered in the 20- to 24-foot sample interval in soil boring B, clayey sand and coarse gravel (saturated) was encountered in the 16- to 20-foot sample interval in soil boring C, and clay soil was encountered in the 20- to 24-foot sample interval in soil boring D;

- Soil samples retrieved from soil borings A, B, C, and D were screened with the PID and the samples exhibited volatile organic vapor concentrations, which ranged from the instrument's detection limit of 0.0 ppm to 69 ppm;
- Representative soil samples were collected and selectively analyzed for VOCs, PAHs, and 8 RCRA metals;
- The soil samples collected from soil borings A, B, C, and D each exhibited one or more metal concentrations above laboratory MDLs. The detected mercury, barium, cadmium, chromium, selenium, and silver concentrations did not exceed the Missouri DTL. The arsenic concentrations detected in the soil samples ranged between 4.35 and 7.89 mg/kg, which exceeded the most stringent DTL of 3.89 mg/kg (Soil Direct Contact Pathway), but did not exceed the Non-Residential DTL of 96.4 mg/kg (Dermal Contact) or the Construction Worker DTL of 2,870 mg/kg (Dermal Contact). The soil samples collected from soil borings A, B, C, and D also exhibited lead concentrations, which ranged between 8.28 and 69.8 mg/kg, which exceeded the most stringent DTL of 3.74 mg/kg (Groundwater Protection Pathway). Based on review of the document titled *"Geochemical Survey of Missouri, Geography of Soil Geochemistry and Classification by Factor Analysis of Missouri Agricultural Soils - Geological Survey Professional Paper 954-H, Authored by Ronald R. Tidball, United States Government Printing Office, and dated 1984, the arsenic and lead concentrations appear to be naturally occurring and present minimal risk to future use of the site;*
- The soil samples collected from soil borings B, C, and D exhibited VOC concentrations below MDLs or ND for each analyte tested, with the exception of 2-butanone (MEK). Five of the six samples collected from soil borings B, C, and D exhibited MEK concentrations which ranged between 0.0327 and 0.0713 mg/Kg. The exhibited MEK concentrations did not exceed the most stringent Default Target Level of 7.3 mg/kg (Protection of Domestic Groundwater Use Pathway). The soil samples

collected from soil borings B, C, and D exhibited PAH concentrations below MDLs or ND for each analyte tested;

Groundwater Sampling

- Temporary piezometers were installed in soil borings B, C, and D. In addition, temporary piezometers were installed in eight additional boreholes (soil borings 1 through 8) advanced at the Site on July 8 and July 9, 2019. The encountered soil consisted of alternating layers of low plastic silt soil and low plastic clay soil to approximate depths of 16 to 20 feet bgs. The terminus of the soil borings (16 to 20-, 20 to 24-, or 24 to 28-foot sample intervals) primarily consisted of sandy silt (saturated) and/or poorly graded sand and gravel (saturated);
- The temporary piezometers were constructed of 1-inch diameter PVC pipe with a ten-foot, 0.010-inch slot screen. The temporary wells were sampled using disposable bailers. Groundwater was discharged from the bailers directly into laboratory-supplied and appropriately preserved sample containers. The samples were submitted to Pace and selectively analyzed for VOCs by USEPA Method 8260B and PAHs by USEPA Method 8270C;
- The groundwater samples collected from soil borings B and C, and from temporary piezometers 1, 2, 3, 4, 5, 6, 7, and 8 exhibited VOC concentrations below the laboratory MDLs, or ND for each analyte tested. The groundwater samples also exhibited PAH concentrations below the laboratory MDLs, or ND for each analyte tested;
- On July 8, 2019, CEC measured the depth to groundwater on the two inactive potable water wells (Tract 01-109 and Tract 01-112). The depth to groundwater was observed at approximately 10.1 feet in the Tract 01-112 well; however, the depth of water (less than 2 inches) was insufficient to collect a sample using a disposable bailer. The depth to groundwater was observed at approximately 17.6 feet in the Tract 01-109 well. CEC collected a groundwater sample from the Tract 109 potable water well and the sample was submitted for analysis for VOCs by USEPA Method 8260B, PAHs by USEPA Method 8270C, and lead by USEPA Method 6010B. The well water sample exhibited VOC and PAH concentrations below the laboratory MDLs, or ND for each analyte tested. The well water sample exhibited a lead concentration of 0.0106 mg/L, which did not exceed the most stringent MDNR RBCA DTL of 0.15 mg/L (Domestic Water Use of Groundwater Pathway);

Sub-Slab Vapor Sampling

- On July 20, 2019 a sub-slab vapor survey was performed at the Site in the basements of the structures on Tracts 01-109, 01-110, and 01-111. The vapor samples were collected from sub-slab vapor pins and were submitted for analysis of VOCs via USEPA Method TO-15 (VOCs):
- There are no published MDNR MRBCA Risk Based Target Levels for sub-slab soil vapor. Based on conversations with Mr. Chris Cady, Environmental Scientist - MDNR - Brownfields / Voluntary Cleanup Section – Environmental Remediation Program, the laboratory results should be multiplied by the USEPA default attenuation factor of 0.03 and the numbers should be compared to the Tier I RBTLS for Indoor Air (Table B-3 – Residential Land Use, and Table B-6 – Non Residential Land Use);
- The five sub-slab soil vapor samples exhibited concentrations of various VOC analytes, which exceeded the laboratory MDLs. The laboratory results were then multiplied by the USEPA default attenuation factor of 0.03 and compared to the Indoor Air –Residential and Indoor – Non-Residential RBTLS. The calculated concentrations did not exceed the Residential or Non-Residential RBTLS;
- Several of the sub-slab vapor samples exhibited concentrations of cyclohexane, 1,4-dioxane, , 4-ethyltoluene, heptane, and/or 2-propanol which exceeded the laboratory MDLs; however, MDNR does not have published Tier I RBTLS for those analytes;

Asbestos Survey

- CEC conducted an asbestos survey of the five Site structures located in Ste. Genevieve, Missouri. One hundred sixty-six bulk samples of suspect ACMs were collected during the inspection and submitted to an accredited laboratory for analysis by PLM. Laboratory analysis of the bulk samples identified asbestos in the following materials:
 - Tract 01-111 - Linden House – Black sink insulation
 - Tract 01-111 - Linden House - Duct tape in basement
 - Tract -01-109 - Jean Baptiste Valle House – 9" x 9" white/gold vinyl floor tile
 - Tract 01-019 - Jean Baptiste Valle House – Roof capstone asphalt sealer
 - Tract 01-113 - Francois Valle II House – Red sheet vinyl flooring (top layer) in kitchen
 - Tract 01-113 - Francois Valle II House – Duct tape in basement

- The joint compound in Linden House (HA-17), window glazing at Linden House (HA-24), floor tile mastic in Jean Baptiste Valle House (HA-28), joint compound in Jean Baptist Valle House (HA-29), and joint compound in Francois Valle II House (HA-42) each contain less than one percent asbestos and the joint compound, window glazing, and floor tile mastic are each considered non-asbestos containing, and are exempt from current MDNR asbestos abatement regulations. However, the joint compound, window glazing, and floor tile mastic materials contain asbestos and renovation or demolition activities disturbing the joint compound, window glazing, and floor tile mastic would need to comply with the OSHA Construction Standard (29 CFR 1926.1101), which regulates workplace exposure to asbestos;

Lead-Based Paint Survey

- CEC conducted a LBP survey of the five Site residences and associated outbuildings on July 15, 16, and 17, 2019. The survey was conducted using a XRF in general conformance with the HUD 1997 *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* (one XRF test per testing combination and one on each interior and exterior wall);
- CEC took a total of 778 XRF readings in the five Site buildings (and associated outbuildings as appropriate). Readings were taken from coated surfaces associated with the various building components throughout the building. Based on the results of the XRF survey, 253 positive LBP components were identified on the surfaces of the Site structures;
- CEC collected 12 paint chip samples according to HUD Guidelines, The paint chip samples were collected from testing combinations which exhibited an inconclusive XRF lead concentration of 1.0 mg/cm³, and were submitted for analysis for lead. The paint chip samples exhibited lead concentrations ranging between 49.1 mg/kg and 16,300 mg/kg. Four of the twelve paint chip samples exhibited concentrations exceeding the regulatory level of 5,000 mg/kg;
- CEC collected soil samples from around the foundation/dripline of the five structures to assess for elevated lead concentrations attributable to LBP. CEC utilized a coring tool to collect near surface (top 5/8") soil samples from the dripline. The samples were composite samples consisting of up to 10 sample points along the respective wall of the structure. The samples were submitted for analysis for lead by USEPA Method 6010B;

- The lead concentrations in the fourteen soil samples exhibited lead concentrations, which ranged between 73.3 mg/kg to 9,510 mg/kg. Eight of the soil samples exhibited lead concentrations in excess of the MDOH and USEPA clearance level of 400 mg/kg; five of the soil samples exhibited concentrations in excess of the USEPA clearance level of 1,200 mg/kg, and two of the soil samples (109 West – 3,320 mg/kg) and 111 North (9,510 mg/kg) exhibited concentrations, which exceeded the MDOH regulatory level for bare soils areas where children don't have access to the site of 2,000 mg/kg.

5.0 RECOMMENDATIONS

CEC does not recommend additional subsurface environmental investigation of the subject property at this time based on the above findings and conclusions.

However, CEC recommends that asbestos removal, regardless of quantity or NESHAP Classification, be conducted by a State of Missouri-licensed asbestos abatement contractor prior to demolition or renovation activities that would disturb the materials. Further, suspect materials, other than those identified during this asbestos survey may exist within the buildings. Should suspect materials other than those which were identified during this survey be uncovered during demolition or renovation, those materials should be assumed asbestos-containing until sampling and analysis can confirm or deny asbestos content.

CEC recommends that all contractors and tenants be aware of the presence of LBP, and lead-containing materials, including site soils. A copy of this summary must be provided to new lessees (tenants) and purchasers of the property under Federal Law (Title 24 Code of Federal Regulations [CFR] Part 35 and Title 40 CFR Part 745). During renovations, all federal, state and local standards will need to be met. The renovation contractor should follow OSHA guidelines with dealing with LBP or lead-containing materials.

6.0 LIMITATIONS OF STUDY

This report has been prepared in accordance with generally accepted environmental, hydrogeological, and related practices. No other warranty, express or implied, is made to the professional advice and recommendations included herein. This report has not been prepared for parties other than listed in this report.

If there is a substantial lapse of time between the submission of this report and the start of future tasks at the site, an environmental professional should review this report to determine the applicability of the analyses and recommendations considering the potential changed conditions and time lapse.

Geoprobe and Groundwater Sampling

The stratigraphy reported is general in nature based on widely spaced probeholes and/or sporadic sampling intervals. The material types reported may vary between and outside the area of recovered samples. Groundwater information is also general in nature based on widely spaced wells and differing well intake intervals. It should be noted that fluctuations in the groundwater level occur due to seasonal variations and other considerations that may not be evident at the times the measurements/evaluations were made.

Sub-Slab Vapor Survey

The assessment, conclusions, and recommendations presented are based on a subjective evaluation of limited data. They may not represent all conditions at the Site, as they reflect the information gathered from specific locations during a specific timeframe. Our services, consist of professional opinions and recommendations made in accordance with generally accepted environmental consulting principles and practices, and are designed to provide an analytical tool to assist the client. CEC, or those representing CEC, bear no responsibility for the actual condition of the structure or safety of a site pertaining to Indoor Air Quality or Soil Vapor Intrusion regardless of the actions taken by the Client. Changes in property conditions, building environment, property activities, control operation and remedial actions may affect our recommendations.

Asbestos Survey

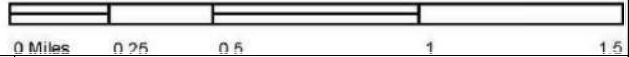
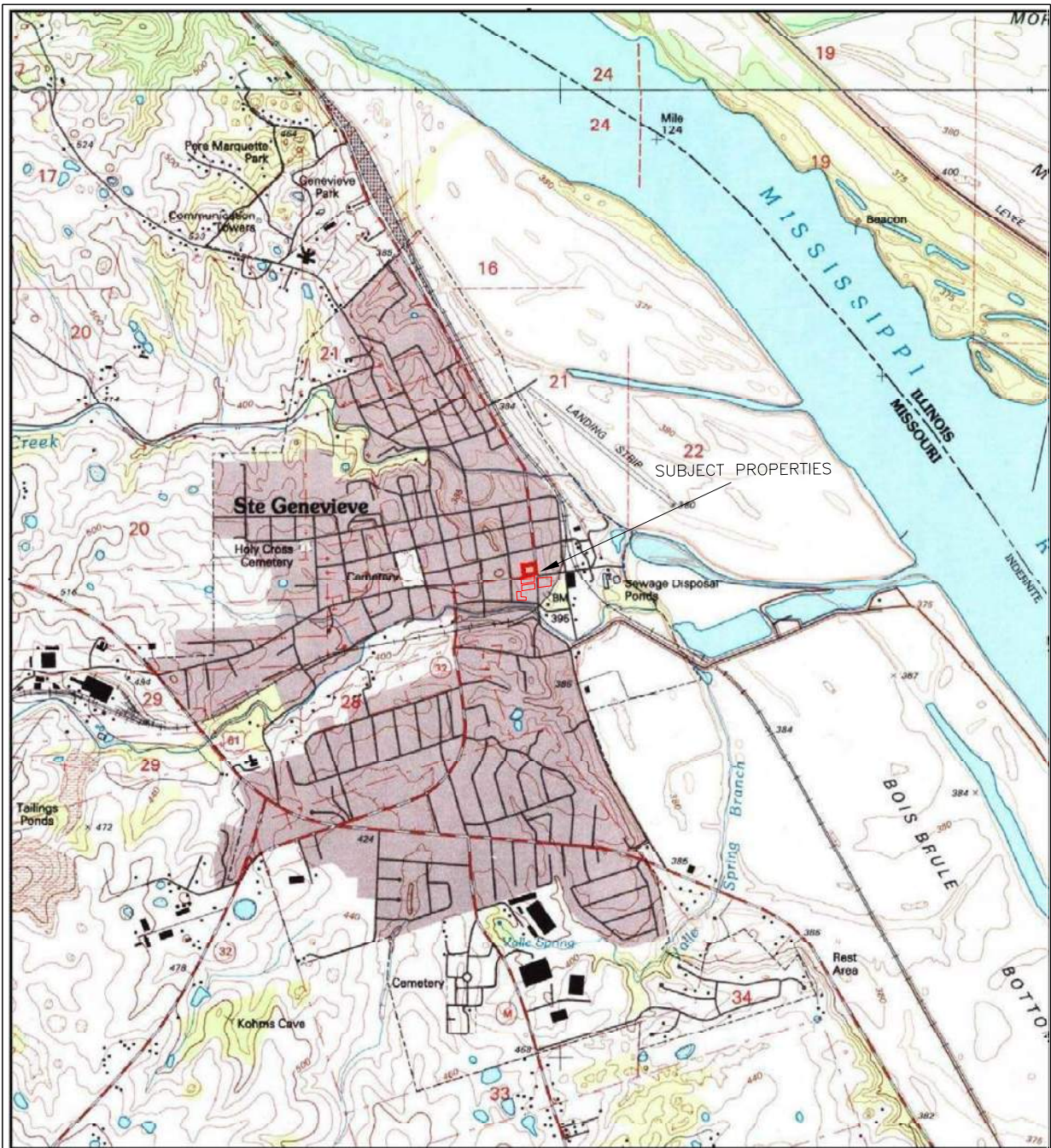
This asbestos survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our survey of the subject property building(s). The information contained in this report is relevant to the date on which this survey was performed, and should not be relied upon to represent conditions at a later date. **This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary.** CEC does not warrant the work of regulatory agencies, laboratories or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied is made.

Lead Based Paint Survey and Soil Sampling

The LBP survey was performed using procedures and a level of diligence typically exercised by professional consultants performing similar services. However, LBP and other hazardous materials can be present in a structure, but not detectable using ordinary investigative procedures.

No LBP survey can eliminate all uncertainty regarding the presence of LBP. CEC's level of diligence and investigative procedures are intended to reduce, but not eliminate, potential uncertainty regarding the presence of hazardous materials. The procedures used for this survey attempt to establish a balance between the competing goals of limiting investigative costs, time, and building damage, and reducing the uncertainty about unknown conditions. Therefore, the determinations in this report should not be construed as a guarantee that all hazardous materials present at the Site have been included in the report.

FIGURES



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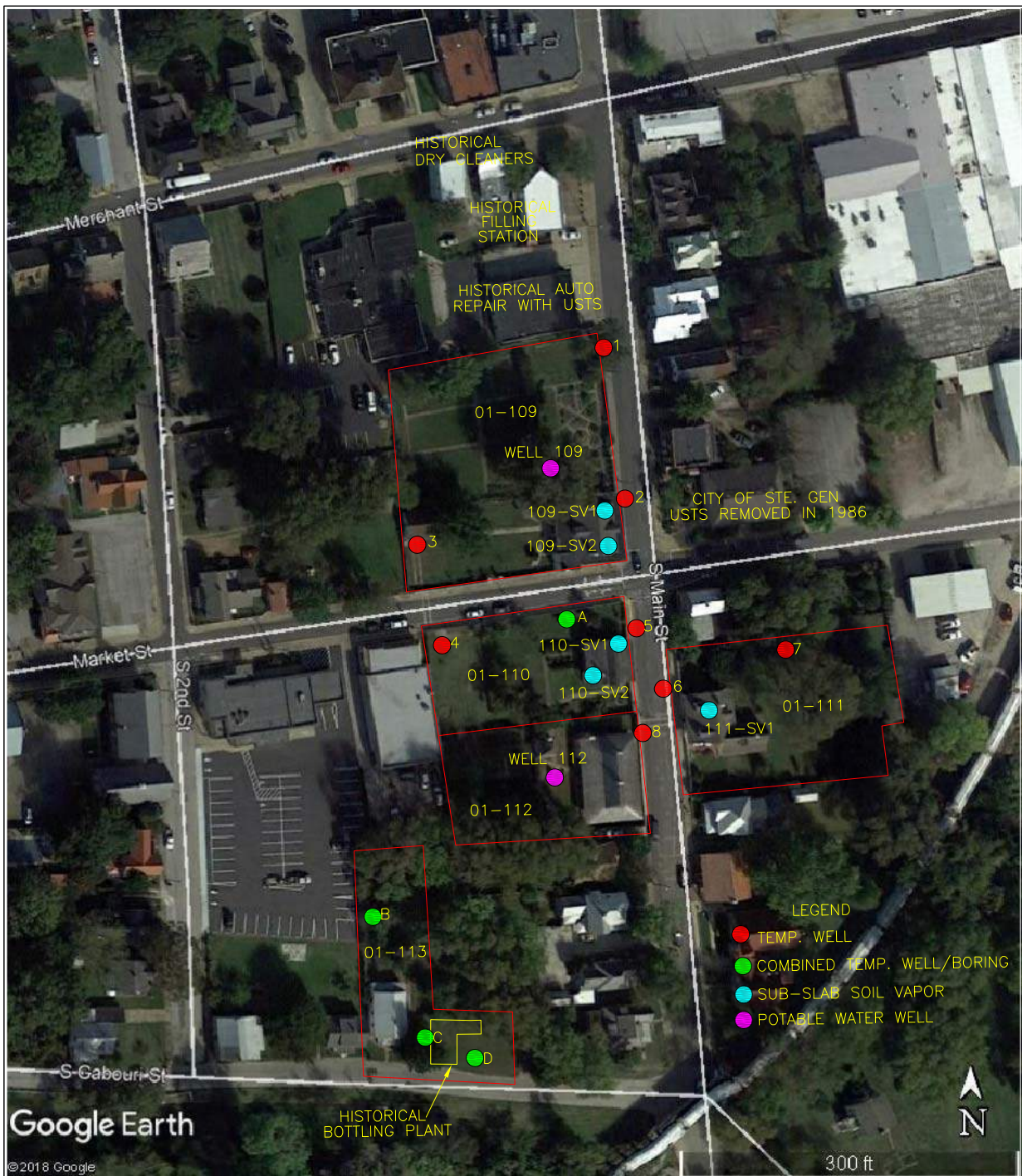
NATIONAL PARK SERVICE
TRACTS 01-109, 01-110, 01-111, 01-112 & 01-113
STE. GENEVIEVE, MISSOURI

REGIONAL MAP

DRAWN BY:	DJB	CHECKED BY:	BNG	APPROVED BY:	BNG	FIGURE NO.:
DATE:	JULY 31, 2019	DWG SCALE:	PER BAR SCALE	PROJECT NO:	193-188	1



 Civil & Environmental Consultants, Inc. 4848 Park 370 Blvd., Suite F - Hazelwood, MO 63042 314-656-4566 · 866-250-3679 www.cecinc.com		NATIONAL PARK SERVICE TRACTS 01-109, 01-110, 01-111, 01-112, & 01-113 STE GENEVIEVE, MISSOURI	
		SITE MAP	
DRAWN BY: DJB	CHECKED BY: BNG	APPROVED BY: BNG	FIGURE NO.:
DATE: JULY 26, 2019	DWG SCALE: PER BAR SCALE	PROJECT NO: 193-188	2



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NATIONAL PARK SERVICE
TRACTS 01-109, 01-110, 01-111, 01-112, & 01-113
STE GENEVIEVE, MISSOURI

**SOIL BORING & SUB-SLAB VAPOR
SAMPLE LOCATION MAP**

DRAWN BY: DJB	CHECKED BY: BNG	APPROVED BY: BNG	FIGURE NO.:
DATE: JULY 26, 2019	DWG SCALE: PER BAR SCALE	PROJECT NO: 193-188	3

APPENDIX A
SOIL BORING LOGS



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SOIL BORING NUMBER Boring A

PAGE 1 OF 1

CLIENT National Park Service

PROJECT NAME NPS- St. Genevieve - Environmental Assessments
and Audits

PROJECT NUMBER 193-188

PROJECT LOCATION Ste. Genevieve, Missouri

DEPTH (ft)	GRAPHIC LOG	U.S.C.S	MATERIAL DESCRIPTION	REMARKS	RECOVERY % (RQD)	PID (PPM)	WELL DIAGRAM
0		ML	Brown, SILT, With brick fragments, Moist, Soft End of boring at 1.0 feet	Refusal @ 1 ft on foundation	100		 Boring backfilled with bentonite chips
5							
10							
15							
20							
25							
30							



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SOIL BORING NUMBER Boring B

PAGE 1 OF 1

CLIENT National Park Service

PROJECT NAME NPS- St. Genevieve - Environmental Assessments
and Audits

PROJECT NUMBER 193-188

PROJECT LOCATION Ste. Genevieve, Missouri

DEPTH (ft)	GRAPHIC LOG	U.S.C.S	MATERIAL DESCRIPTION	REMARKS	RECOVERY % (RQD)	PID (PPM)	WELL DIAGRAM
0			Brown, SILT, Moist, Soft				
5		ML			62	14.0	
						11.0	
					83	14.0	
						24.0	
						23.0	
10			Brown, CLAY, Moist, Medium stiff		62	22.0	
		CL		Soil samples submitted for analysis 12'-14'		69.0	
				Temporary Piezometer Screened 14'-24'	83	14.0	
15						13.0	
			Brown, CLAY, With sand, Moist, Medium stiff	Soil samples submitted for analysis 18'-20'	83	13.0	
20		CL				4.0	
			SAND, And gravel, Wet, Loose, Poorly graded	Groundwater sample collected	62	3.0	
		SP					
			End of boring at 24.0 feet				
25							
30							



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SOIL BORING NUMBER Boring C

PAGE 1 OF 1

CLIENT National Park Service

PROJECT NAME NPS- St. Genevieve - Environmental Assessments
and Audits

PROJECT NUMBER 193-188

PROJECT LOCATION Ste. Genevieve, Missouri

DEPTH (ft)	GRAPHIC LOG	U.S.C.S	MATERIAL DESCRIPTION	REMARKS	RECOVERY % (RQD)	PID (PPM)	WELL DIAGRAM
0			Brown, SILT, Moist, Soft	Soil samples submitted for analysis 2'-4'	42	6.8	
						4.6	
5		ML			75	4.0	
						3.2	
				Temporary piezometer screened	83	2.3	
10						2.8	
						1.9	
				Soil samples submitted for analysis 14'-16'	75	1.9	
15		CL					
						3.3	
			Brown, SAND, With clay, Wet, Soft	Groundwater Sample Collected	83	16.2	
		SC					
20			End of boring at 20.0 feet				
25							
30							



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SOIL BORING NUMBER Boring D

PAGE 1 OF 1

CLIENT National Park Service

PROJECT NAME NPS- St. Genevieve - Environmental Assessments
and Audits

PROJECT NUMBER 193-188

PROJECT LOCATION Ste. Genevieve, Missouri

DEPTH (ft)	GRAPHIC LOG	U.S.C.S	MATERIAL DESCRIPTION	REMARKS	RECOVERY % (RQD)	PID (PPM)	WELL DIAGRAM
0			Brown, SILT, Moist, Soft	Soil samples submitted for analysis 2'-4'	42	1.8	
5		ML			75	3.7	
10				Soil samples submitted for analysis 12'-14'	38	4.8	
15				Temporary piezometer screened	62	2.0	
18.0						1.0	
20		CH	Brown, CLAY, Moist, Stiff		83	1.8	
24.0			End of boring at 24.0 feet		83	1.6	
25						3.0	
30						1.4	

Boring
backfilled
with
bentonite
chips



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SOIL BORING NUMBER Boring 1

PAGE 1 OF 1

CLIENT National Park Service

PROJECT NAME NPS- St. Genevieve - Environmental Assessments
and Audits

PROJECT NUMBER 193-188

PROJECT LOCATION Ste. Genevieve, Missouri

DEPTH (ft)	GRAPHIC LOG	U.S.C.S	MATERIAL DESCRIPTION	REMARKS	RECOVERY % (RQD)	PID (PPM)	WELL DIAGRAM
0		0.3	CONCRETE				
		0.7	Crushed stone				
			Brown, CLAY, Moist, Medium stiff		50		
5		ML			62		
		8.0	Brown, SILT, Moist, Soft				
10		CL		Temporary piezometer screened 10'-20'	42		
		10.5	Brown, SILT, Moist, Soft				
		ML			75		
15		16.0	Brown, SILT, With sand, Wet, Soft				
		SP		Groundwater sample collected	83		
20		20.0	End of boring at 20.0 feet				
25							
30							



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SOIL BORING NUMBER Boring 2

PAGE 1 OF 1

CLIENT National Park Service

PROJECT NAME NPS- St. Genevieve - Environmental Assessments
and Audits

PROJECT NUMBER 193-188

PROJECT LOCATION Ste. Genevieve, Missouri

DEPTH (ft)	GRAPHIC LOG	U.S.C.S	MATERIAL DESCRIPTION	REMARKS	RECOVERY % (RQD)	PID (PPM)	WELL DIAGRAM
0		0.3 0.7	CONCRETE Crushed stone Brown, CLAY, Moist, Medium stiff		50		
5		CL			83		
10					83		
		11.0	Brown, SILT, Moist, Soft		75		
15		ML			42		
20		20.0	Brown, SAND, Wet, Loose	Temporary piezometer screened 18'-28'	83		
25		SW		Groundwater sample collected	75		
28.0			End of boring at 28.0 feet				
30							

Boring
backfilled
with
bentonite
chips



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SOIL BORING NUMBER Boring 3

PAGE 1 OF 1

CLIENT National Park Service

PROJECT NAME NPS- St. Genevieve - Environmental Assessments
and Audits

PROJECT NUMBER 193-188

PROJECT LOCATION Ste. Genevieve, Missouri

DEPTH (ft)	GRAPHIC LOG	U.S.C.S	MATERIAL DESCRIPTION	REMARKS	RECOVERY % (RQD)	PID (PPM)	WELL DIAGRAM
0		0.5	GRAVEL Brown, SILT, Moist, Soft				
5		ML			31		
10		10.0	Brown, CLAY, Moist, Medium stiff		42		
15		CL		Temporary piezometer screened 14'-24'	62		
20		18.5	Brown, CLAY, Moist, Stiff		75		
21		CH			83		
21.5		21.5	Brown, SILT, With sand, Wet, Loose	Groundwater sample collected	83		
24		SM					
24.0		24.0	End of boring at 24.0 feet				
25							
30							



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SOIL BORING NUMBER Boring 5

PAGE 1 OF 1

CLIENT National Park Service

PROJECT NAME NPS- St. Genevieve - Environmental Assessments
and Audits

PROJECT NUMBER 193-188

PROJECT LOCATION Ste. Genevieve, Missouri

DEPTH (ft)	GRAPHIC LOG	U.S.C.S	MATERIAL DESCRIPTION	REMARKS	RECOVERY % (RQD)	PID (PPM)	WELL DIAGRAM
0			0.3 CONCRETE				
			0.7 Crushed stone				
			Brown, SILT, Moist, Soft		42		
5		ML			75		
			8.0 Brown, CLAY, Moist, Medium stiff				
		CL			75		
10			10.5 Brown, SILT, Moist, Soft	Temporary piezometer screened 10'-20'			
		ML			83		
15			16.5 Brown, SAND, With silt, Wet, Loose				
		SM		Groundwater sample collected	83		
20			20.0 End of boring at 20.0 feet				
25							
30							



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SOIL BORING NUMBER Boring 6

PAGE 1 OF 1

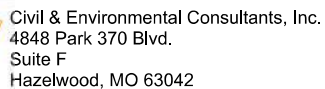
CLIENT National Park Service

PROJECT NAME NPS- St. Genevieve - Environmental Assessments
and Audits

PROJECT NUMBER 193-188

PROJECT LOCATION Ste. Genevieve, Missouri

DEPTH (ft)	GRAPHIC LOG	U.S.C.S	MATERIAL DESCRIPTION	REMARKS	RECOVERY % (RQD)	PID (PPM)	WELL DIAGRAM
0			CONCRETE				
			Crushed stone				
			Brown, SILT, Moist, Soft		42		
5		ML			62		
10					62		
			12.0 Brown, CLAY, Moist, Medium stiff				
		CL			75		
15			15.0 Brown, SILT, Moist, Soft	Temporary piezometer screened 14'-24'			
		ML			83		
20			20.5 Brown, SAND, Wet, Loose				
		SP		Groundwater sample collected	62		
			24.0 End of boring at 24.0 feet				
25							
30							



SOIL BORING NUMBER Boring 7

PAGE 1 OF 1

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PROJECT NAME

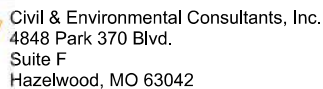
NPS- St. Genevieve - Environmental Assessments
and Audits

PROJECT NUMBER 193-188

PROJECT LOCATION

Ste. Genevieve, Missouri

DEPTH (ft)	GRAPHIC LOG	U.S.C.S	MATERIAL DESCRIPTION	REMARKS	RECOVERY % (RQD)	PID (PPM)	WELL DIAGRAM
0			Brown, SILT, Moist, Soft				
		ML			42		
4.5			Brown, CLAY, Moist, Medium stiff				
5		CL			42		
9.0			Brown, SILT, Moist, Soft				
10		ML		Temporary piezometer screened 10'-20'	62		
					62		
17.0			Brown, SAND, And silt, Wet, Loose				
		SM		Groundwater sample collected	83		
20.0			End of boring at 20.0 feet				
25							
30							



APPENDIX B

TABLE 1 – SOIL METALS ANALYTICAL RESULTS

TABLE 1

SOIL METALS ANALYTICAL RESULTS⁽¹⁾

National Park Service Tracts 01-109, 01-110, 01-111, 01-112, & 01-113

Ste. Genevieve, Missouri

ANALYTE (mg/kg) ⁽²⁾	Missouri Risk Based Corrective Action - Lowest Default Target Levels - All Soil Types and Pathways, Table B-1 ⁽³⁾	SAMPLE LOCATION						
		SB-A (0'-1')	SB-B (12'-14')	SB-B (18'-20")	SB-C (2'-4')	SB-C (14'-16')	SB-D (2'-4')	SB-D (12'-14')
Sample Date		7/08/19	7/08/19	7/08/19	7/08/19	7/08/19	7/08/19	7/08/19
Mercury	2.19 (INH)	0.142	0.0528	0.0395	0.0302	0.0403	0.0342	0.0329
Arsenic	3.89 (SDC)	5.25⁽⁴⁾	7.98	6.74	4.35	6.79	2.93	4.54
Barium	2,040 (GWP)	207	142	191	73.8	1390	116	147
Cadmium	9.31 (GWP)	ND ⁽⁵⁾	ND	ND	ND	ND	ND	ND
Chromium	74,600 (SDC)	36.5	22	17.6	17.1	19.2	15	16.5
Lead	3.74 (GWP)	69.8	11.8	8.28	6.84	9.04	9.41	8.62
Selenium	6.27 (GWP)	ND	ND	ND	ND	ND	ND	ND
Silver	1.62 (GWP)	ND	ND	ND	ND	ND	ND	ND

(1) Metals analyzed using USEPA method 6010B and 7470A

(2) mg/kg– Results reported in milligram per kilogram.

(3) Missouri Risk Based Corrective Action, Technical Guidance Appendix B, Table B-1, Lowest Default Target Levels, All Soil Types and Pathways, November 2006, Revised March 2010. INH – Indoor Inhalation Pathway, SDC – Soil Direct Contact Pathway, GWP – Groundwater Protection Pathway.

(4) **Bold** – Exceeds most stringent Default Target Level.

(5) ND – Not detected at or above laboratory reporting limits (reported detection limit) for the analysis performed.

APPENDIX C

SOIL ANALYTICAL REPORT



ANALYTICAL REPORT

July 19, 2019

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Wood E&I Solutions Inc. - St. Louis, MO

Sample Delivery Group: L1117435
Samples Received: 07/11/2019
Project Number:
Description:
Site: STGE
Report To: John R. Mittauer
15933 Clayton Road, Suite 215
Ballwin, MO 63011

Entire Report Reviewed By:

Jeff Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117435

DATE/TIME:
07/19/19 09:56

PAGE:
1 of 61

TABLE OF CONTENTS

ONE LAB. NATIONWIDE.



Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	7	
Sr: Sample Results	8	³ Ss
BORING A L1117435-01	8	
BORING B L1117435-02	9	⁴ Cn
BORING B L1117435-03	12	⁵ Sr
BORING C L1117435-04	15	
BORING C L1117435-05	18	⁶ Qc
BORING D L1117435-06	21	
BORING D L1117435-07	24	⁷ Gl
109 NORTH L1117435-08	27	
109 WEST L1117435-09	28	⁸ Al
110 NORTH L1117435-10	29	
110 WEST L1117435-11	30	⁹ Sc
110 SOUTH L1117435-12	31	
111 NORTH L1117435-13	32	
112 NORTH L1117435-14	33	
112 EAST L1117435-15	34	
112 SOUTH L1117435-16	35	
112 WEST L1117435-17	36	
113 NORTH L1117435-18	37	
113 EAST L1117435-19	38	
113 SOUTH L1117435-20	39	
113 WEST L1117435-21	40	
Qc: Quality Control Summary	41	
Total Solids by Method 2540 G-2011	41	
Mercury by Method 7471A	44	
Metals (ICP) by Method 6010B	45	
Volatile Organic Compounds (GC/MS) by Method 8260B	47	
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	53	
Gl: Glossary of Terms	57	
Al: Accreditations & Locations	58	
Sc: Sample Chain of Custody	59	

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



BORING A L117435-01 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 10:50

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311711	1	07/16/19 14:57	07/16/19 15:07	KBC	Mt. Juliet, TN
Mercury by Method 7471A	WG1311307	1	07/15/19 12:12	07/15/19 19:38	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 21:36	EL	Mt. Juliet, TN

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

BORING B L117435-02 Solid

Collected by
Bryan Gatlin

Collected date/time
07/08/19 10:05

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311711	1	07/16/19 14:57	07/16/19 15:07	KBC	Mt. Juliet, TN
Mercury by Method 7471A	WG1311307	1	07/15/19 12:12	07/15/19 19:40	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 21:39	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1311894	1	07/08/19 10:05	07/16/19 14:52	BMB	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1312492	1	07/17/19 10:40	07/18/19 00:43	DMG	Mt. Juliet, TN

BORING B L117435-03 Solid

Collected by
Bryan Gatlin

Collected date/time
07/08/19 10:10

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311711	1	07/16/19 14:57	07/16/19 15:07	KBC	Mt. Juliet, TN
Mercury by Method 7471A	WG1311307	1	07/15/19 12:12	07/15/19 19:43	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 21:46	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1311894	1	07/08/19 10:10	07/16/19 15:11	BMB	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1312492	1	07/17/19 10:40	07/18/19 01:05	DMG	Mt. Juliet, TN

BORING C L117435-04 Solid

Collected by
Bryan Gatlin

Collected date/time
07/08/19 10:50

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311711	1	07/16/19 14:57	07/16/19 15:07	KBC	Mt. Juliet, TN
Mercury by Method 7471A	WG1311307	1	07/15/19 12:12	07/15/19 19:45	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 21:57	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1311894	1	07/08/19 10:50	07/16/19 15:30	BMB	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1312492	1	07/17/19 10:40	07/18/19 01:27	DMG	Mt. Juliet, TN

BORING C L117435-05 Solid

Collected by
Bryan Gatlin

Collected date/time
07/08/19 11:00

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311711	1	07/16/19 14:57	07/16/19 15:07	KBC	Mt. Juliet, TN
Mercury by Method 7471A	WG1311307	1	07/15/19 12:12	07/15/19 19:47	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 21:59	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1311894	1	07/08/19 11:00	07/16/19 15:49	BMB	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1313275	1	07/18/19 06:43	07/18/19 15:37	DMG	Mt. Juliet, TN

BORING D L117435-06 Solid

Collected by
Bryan Gatlin

Collected date/time
07/08/19 11:35

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311711	1	07/16/19 14:57	07/16/19 15:07	KBC	Mt. Juliet, TN
Mercury by Method 7471A	WG1311307	1	07/15/19 12:12	07/15/19 19:49	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 22:02	EL	Mt. Juliet, TN

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L117435

DATE/TIME:

07/19/19 09:56

PAGE:

3 of 61

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



BORING D L117435-06 Solid

Collected by
Bryan Gatlin

Collected date/time
07/08/19 11:35

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1311894	1	07/08/19 11:35	07/16/19 16:08	BMB	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1313275	1	07/18/19 06:43	07/18/19 15:58	DMG	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

BORING D L117435-07 Solid

Collected by
Bryan Gatlin

Collected date/time
07/08/19 11:45

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311711	1	07/16/19 14:57	07/16/19 15:07	KBC	Mt. Juliet, TN
Mercury by Method 7471A	WG1311307	1	07/15/19 12:12	07/15/19 19:51	TCT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 22:04	EL	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1311894	1	07/08/19 11:45	07/16/19 16:27	BMB	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1313275	1	07/18/19 06:43	07/18/19 16:20	DMG	Mt. Juliet, TN

109 NORTH L117435-08 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 12:35

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311711	1	07/16/19 14:57	07/16/19 15:07	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 22:09	EL	Mt. Juliet, TN

109 WEST L117435-09 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 12:40

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311713	1	07/16/19 14:44	07/16/19 14:56	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 22:11	EL	Mt. Juliet, TN

110 NORTH L117435-10 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 13:15

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311713	1	07/16/19 14:44	07/16/19 14:56	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 22:14	EL	Mt. Juliet, TN

110 WEST L117435-11 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 13:20

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311713	1	07/16/19 14:44	07/16/19 14:56	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 22:16	EL	Mt. Juliet, TN

110 SOUTH L117435-12 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 13:25

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311713	1	07/16/19 14:44	07/16/19 14:56	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 22:19	EL	Mt. Juliet, TN

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L117435

DATE/TIME:
07/19/19 09:56

PAGE:
4 of 61

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



111 NORTH L1117435-13 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 14:38

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311713	1	07/16/19 14:44	07/16/19 14:56	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 20:53	EL	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

112 NORTH L1117435-14 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 13:46

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311713	1	07/16/19 14:44	07/16/19 14:56	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 20:55	EL	Mt. Juliet, TN

4 Cn

5 Sr

6 Qc

112 EAST L1117435-15 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 13:51

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311713	1	07/16/19 14:44	07/16/19 14:56	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 20:58	EL	Mt. Juliet, TN

7 Gl

8 Al

9 Sc

112 SOUTH L1117435-16 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 13:57

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311713	1	07/16/19 14:44	07/16/19 14:56	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 21:00	EL	Mt. Juliet, TN

112 WEST L1117435-17 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 14:03

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311713	1	07/16/19 14:44	07/16/19 14:56	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 21:03	EL	Mt. Juliet, TN

113 NORTH L1117435-18 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 14:55

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311713	1	07/16/19 14:44	07/16/19 14:56	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 21:06	EL	Mt. Juliet, TN

113 EAST L1117435-19 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 15:10

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311714	1	07/16/19 14:27	07/16/19 14:35	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311169	1	07/14/19 16:56	07/15/19 21:08	EL	Mt. Juliet, TN

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117435

DATE/TIME:
07/19/19 09:56

PAGE:
5 of 61

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



113 SOUTH L1117435-20 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 15:20

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311714	1	07/16/19 14:27	07/16/19 14:35	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311191	1	07/14/19 17:45	07/16/19 18:40	EL	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

113 WEST L1117435-21 Solid

Collected by
Bryan Gatlin

Collected date/time
07/09/19 15:30

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1311714	1	07/16/19 14:27	07/16/19 14:35	KBC	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1311191	1	07/14/19 17:45	07/16/19 18:42	EL	Mt. Juliet, TN

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117435

DATE/TIME:
07/19/19 09:56

PAGE:
6 of 61

CASE NARRATIVE

ONE LAB. NATIONWIDE.



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jeff Carr
Project Manager

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

7 of 61

BORING A

Collected date/time: 07/09/19 10:50

SAMPLE RESULTS - 01

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.9		1	07/16/2019 15:07	WG1311711

1
Cp2
Tc

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Mercury	0.142		0.0253	1	07/15/2019 19:38	WG1311307

3
Ss4
Cn

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	5.25		2.53	1	07/15/2019 21:36	WG1311169
Barium	207		0.634	1	07/15/2019 21:36	WG1311169
Cadmium	ND		0.634	1	07/15/2019 21:36	WG1311169
Chromium	36.5		1.27	1	07/15/2019 21:36	WG1311169
Lead	69.8		0.634	1	07/15/2019 21:36	WG1311169
Selenium	ND		2.53	1	07/15/2019 21:36	WG1311169
Silver	ND		1.27	1	07/15/2019 21:36	WG1311169

5
Sr6
Qc7
Gl8
Al9
Sc

BORING B

Collected date/time: 07/08/19 10:05

SAMPLE RESULTS - 02

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.3		1	07/16/2019 15:07	WG1311711

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Mercury	0.0528	<u>B</u>	0.0246	1	07/15/2019 19:40	WG1311307

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	7.98		2.46	1	07/15/2019 21:39	WG1311169
Barium	142		0.615	1	07/15/2019 21:39	WG1311169
Cadmium	ND		0.615	1	07/15/2019 21:39	WG1311169
Chromium	22.0		1.23	1	07/15/2019 21:39	WG1311169
Lead	11.8		0.615	1	07/15/2019 21:39	WG1311169
Selenium	ND		2.46	1	07/15/2019 21:39	WG1311169
Silver	ND		1.23	1	07/15/2019 21:39	WG1311169

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		0.0307	1	07/16/2019 14:52	WG1311894
Acrylonitrile	ND	<u>J4</u>	0.0154	1	07/16/2019 14:52	WG1311894
Benzene	ND		0.00123	1	07/16/2019 14:52	WG1311894
Bromobenzene	ND		0.0154	1	07/16/2019 14:52	WG1311894
Bromodichloromethane	ND		0.00307	1	07/16/2019 14:52	WG1311894
Bromoform	ND		0.0307	1	07/16/2019 14:52	WG1311894
Bromomethane	ND		0.0154	1	07/16/2019 14:52	WG1311894
n-Butylbenzene	ND		0.0154	1	07/16/2019 14:52	WG1311894
sec-Butylbenzene	ND		0.0154	1	07/16/2019 14:52	WG1311894
tert-Butylbenzene	ND		0.00615	1	07/16/2019 14:52	WG1311894
Carbon tetrachloride	ND		0.00615	1	07/16/2019 14:52	WG1311894
Chlorobenzene	ND		0.00307	1	07/16/2019 14:52	WG1311894
Chlorodibromomethane	ND		0.00307	1	07/16/2019 14:52	WG1311894
Chloroethane	ND		0.00615	1	07/16/2019 14:52	WG1311894
Chloroform	ND		0.00307	1	07/16/2019 14:52	WG1311894
Chloromethane	ND	<u>J4</u>	0.0154	1	07/16/2019 14:52	WG1311894
2-Chlorotoluene	ND		0.00307	1	07/16/2019 14:52	WG1311894
4-Chlorotoluene	ND		0.00615	1	07/16/2019 14:52	WG1311894
1,2-Dibromo-3-Chloropropane	ND		0.0307	1	07/16/2019 14:52	WG1311894
1,2-Dibromoethane	ND		0.00307	1	07/16/2019 14:52	WG1311894
Dibromomethane	ND		0.00615	1	07/16/2019 14:52	WG1311894
1,2-Dichlorobenzene	ND		0.00615	1	07/16/2019 14:52	WG1311894
1,3-Dichlorobenzene	ND		0.00615	1	07/16/2019 14:52	WG1311894
1,4-Dichlorobenzene	ND		0.00615	1	07/16/2019 14:52	WG1311894
Dichlorodifluoromethane	ND		0.00307	1	07/16/2019 14:52	WG1311894
1,1-Dichloroethane	ND		0.00307	1	07/16/2019 14:52	WG1311894
1,2-Dichloroethane	ND		0.00307	1	07/16/2019 14:52	WG1311894
1,1-Dichloroethene	ND		0.00307	1	07/16/2019 14:52	WG1311894
cis-1,2-Dichloroethene	ND		0.00307	1	07/16/2019 14:52	WG1311894
trans-1,2-Dichloroethene	ND		0.00615	1	07/16/2019 14:52	WG1311894
1,2-Dichloropropane	ND		0.00615	1	07/16/2019 14:52	WG1311894
1,1-Dichloropropene	ND		0.00307	1	07/16/2019 14:52	WG1311894
1,3-Dichloropropane	ND		0.00615	1	07/16/2019 14:52	WG1311894

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

9 of 61

BORING B

Collected date/time: 07/08/19 10:05

SAMPLE RESULTS - 02

L1117435

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
cis-1,3-Dichloropropene	ND		0.00307	1	07/16/2019 14:52	WG1311894
trans-1,3-Dichloropropene	ND		0.00615	1	07/16/2019 14:52	WG1311894
2,2-Dichloropropane	ND		0.00307	1	07/16/2019 14:52	WG1311894
Di-isopropyl ether	ND		0.00123	1	07/16/2019 14:52	WG1311894
Ethylbenzene	ND		0.00307	1	07/16/2019 14:52	WG1311894
Hexachloro-1,3-butadiene	ND		0.0307	1	07/16/2019 14:52	WG1311894
Isopropylbenzene	ND		0.00307	1	07/16/2019 14:52	WG1311894
p-Isopropyltoluene	ND		0.00615	1	07/16/2019 14:52	WG1311894
2-Butanone (MEK)	0.0354	<u>B</u>	0.0307	1	07/16/2019 14:52	WG1311894
Methylene Chloride	ND		0.0307	1	07/16/2019 14:52	WG1311894
4-Methyl-2-pentanone (MIBK)	ND		0.0307	1	07/16/2019 14:52	WG1311894
Methyl tert-butyl ether	ND		0.00123	1	07/16/2019 14:52	WG1311894
Naphthalene	ND		0.0154	1	07/16/2019 14:52	WG1311894
n-Propylbenzene	ND		0.00615	1	07/16/2019 14:52	WG1311894
Styrene	ND		0.0154	1	07/16/2019 14:52	WG1311894
1,1,1,2-Tetrachloroethane	ND	<u>J4</u>	0.00307	1	07/16/2019 14:52	WG1311894
1,1,2,2-Tetrachloroethane	ND		0.00307	1	07/16/2019 14:52	WG1311894
Tetrachloroethene	ND		0.00307	1	07/16/2019 14:52	WG1311894
Toluene	ND		0.00615	1	07/16/2019 14:52	WG1311894
1,2,3-Trichlorobenzene	ND		0.00307	1	07/16/2019 14:52	WG1311894
1,2,4-Trichlorobenzene	ND		0.0154	1	07/16/2019 14:52	WG1311894
1,1,1-Trichloroethane	ND		0.00307	1	07/16/2019 14:52	WG1311894
1,1,2-Trichloroethane	ND		0.00307	1	07/16/2019 14:52	WG1311894
1,1,2-Trichlorotrifluoroethane	ND		0.00307	1	07/16/2019 14:52	WG1311894
Trichloroethene	ND		0.00123	1	07/16/2019 14:52	WG1311894
Trichlorofluoromethane	ND		0.00307	1	07/16/2019 14:52	WG1311894
1,2,3-Trichloropropane	ND		0.0154	1	07/16/2019 14:52	WG1311894
1,2,4-Trimethylbenzene	ND		0.00615	1	07/16/2019 14:52	WG1311894
1,3,5-Trimethylbenzene	ND		0.00615	1	07/16/2019 14:52	WG1311894
Vinyl chloride	ND		0.00307	1	07/16/2019 14:52	WG1311894
Xylenes, Total	ND		0.00799	1	07/16/2019 14:52	WG1311894
(S) Toluene-d8	100		75.0-131		07/16/2019 14:52	WG1311894
(S) 4-Bromofluorobenzene	88.0		67.0-138		07/16/2019 14:52	WG1311894
(S) 1,2-Dichloroethane-d4	116		70.0-130		07/16/2019 14:52	WG1311894

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Acenaphthene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Acenaphthylene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Benzo(a)anthracene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Benzo(a)pyrene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Benzo(b)fluoranthene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Benzo(g,h,i)perylene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Benzo(k)fluoranthene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Chrysene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Dibenz(a,h)anthracene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Fluoranthene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Fluorene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Indeno(1,2,3-cd)pyrene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Naphthalene	ND		0.0246	1	07/18/2019 00:43	WG1312492
Phenanthrene	ND		0.00738	1	07/18/2019 00:43	WG1312492
Pyrene	ND		0.00738	1	07/18/2019 00:43	WG1312492
(S) Nitrobenzene-d5	64.4		14.0-149		07/18/2019 00:43	WG1312492
(S) 2-Fluorobiphenyl	67.8		34.0-125		07/18/2019 00:43	WG1312492

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

10 of 61

BORING B

Collected date/time: 07/08/19 10:05

SAMPLE RESULTS - 02

L1117435

ONE LAB. NATIONWIDE.



Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	62.2		23.0-120		07/18/2019 00:43	WG1312492

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

11 of 61

BORING B

Collected date/time: 07/08/19 10:10

SAMPLE RESULTS - 03

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.9		1	07/16/2019 15:07	WG1311711

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Mercury	0.0395	<u>B</u>	0.0250	1	07/15/2019 19:43	WG1311307

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	6.74		2.50	1	07/15/2019 21:46	WG1311169
Barium	191		0.626	1	07/15/2019 21:46	WG1311169
Cadmium	ND		0.626	1	07/15/2019 21:46	WG1311169
Chromium	17.6		1.25	1	07/15/2019 21:46	WG1311169
Lead	8.28		0.626	1	07/15/2019 21:46	WG1311169
Selenium	ND		2.50	1	07/15/2019 21:46	WG1311169
Silver	ND		1.25	1	07/15/2019 21:46	WG1311169

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		0.0313	1	07/16/2019 15:11	WG1311894
Acrylonitrile	ND	<u>J4</u>	0.0156	1	07/16/2019 15:11	WG1311894
Benzene	ND		0.00125	1	07/16/2019 15:11	WG1311894
Bromobenzene	ND		0.0156	1	07/16/2019 15:11	WG1311894
Bromodichloromethane	ND		0.00313	1	07/16/2019 15:11	WG1311894
Bromoform	ND		0.0313	1	07/16/2019 15:11	WG1311894
Bromomethane	ND		0.0156	1	07/16/2019 15:11	WG1311894
n-Butylbenzene	ND		0.0156	1	07/16/2019 15:11	WG1311894
sec-Butylbenzene	ND		0.0156	1	07/16/2019 15:11	WG1311894
tert-Butylbenzene	ND		0.00626	1	07/16/2019 15:11	WG1311894
Carbon tetrachloride	ND		0.00626	1	07/16/2019 15:11	WG1311894
Chlorobenzene	ND		0.00313	1	07/16/2019 15:11	WG1311894
Chlorodibromomethane	ND		0.00313	1	07/16/2019 15:11	WG1311894
Chloroethane	ND		0.00626	1	07/16/2019 15:11	WG1311894
Chloroform	ND		0.00313	1	07/16/2019 15:11	WG1311894
Chloromethane	ND	<u>J4</u>	0.0156	1	07/16/2019 15:11	WG1311894
2-Chlorotoluene	ND		0.00313	1	07/16/2019 15:11	WG1311894
4-Chlorotoluene	ND		0.00626	1	07/16/2019 15:11	WG1311894
1,2-Dibromo-3-Chloropropane	ND		0.0313	1	07/16/2019 15:11	WG1311894
1,2-Dibromoethane	ND		0.00313	1	07/16/2019 15:11	WG1311894
Dibromomethane	ND		0.00626	1	07/16/2019 15:11	WG1311894
1,2-Dichlorobenzene	ND		0.00626	1	07/16/2019 15:11	WG1311894
1,3-Dichlorobenzene	ND		0.00626	1	07/16/2019 15:11	WG1311894
1,4-Dichlorobenzene	ND		0.00626	1	07/16/2019 15:11	WG1311894
Dichlorodifluoromethane	ND		0.00313	1	07/16/2019 15:11	WG1311894
1,1-Dichloroethane	ND		0.00313	1	07/16/2019 15:11	WG1311894
1,2-Dichloroethane	ND		0.00313	1	07/16/2019 15:11	WG1311894
1,1-Dichloroethene	ND		0.00313	1	07/16/2019 15:11	WG1311894
cis-1,2-Dichloroethene	ND		0.00313	1	07/16/2019 15:11	WG1311894
trans-1,2-Dichloroethene	ND		0.00626	1	07/16/2019 15:11	WG1311894
1,2-Dichloropropane	ND		0.00626	1	07/16/2019 15:11	WG1311894
1,1-Dichloropropene	ND		0.00313	1	07/16/2019 15:11	WG1311894
1,3-Dichloropropane	ND		0.00626	1	07/16/2019 15:11	WG1311894

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

12 of 61

BORING B

Collected date/time: 07/08/19 10:10

SAMPLE RESULTS - 03

L1117435

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
cis-1,3-Dichloropropene	ND		0.00313	1	07/16/2019 15:11	WG1311894
trans-1,3-Dichloropropene	ND		0.00626	1	07/16/2019 15:11	WG1311894
2,2-Dichloropropane	ND		0.00313	1	07/16/2019 15:11	WG1311894
Di-isopropyl ether	ND		0.00125	1	07/16/2019 15:11	WG1311894
Ethylbenzene	ND		0.00313	1	07/16/2019 15:11	WG1311894
Hexachloro-1,3-butadiene	ND		0.0313	1	07/16/2019 15:11	WG1311894
Isopropylbenzene	ND		0.00313	1	07/16/2019 15:11	WG1311894
p-Isopropyltoluene	ND		0.00626	1	07/16/2019 15:11	WG1311894
2-Butanone (MEK)	ND		0.0313	1	07/16/2019 15:11	WG1311894
Methylene Chloride	ND		0.0313	1	07/16/2019 15:11	WG1311894
4-Methyl-2-pentanone (MIBK)	ND		0.0313	1	07/16/2019 15:11	WG1311894
Methyl tert-butyl ether	ND		0.00125	1	07/16/2019 15:11	WG1311894
Naphthalene	ND		0.0156	1	07/16/2019 15:11	WG1311894
n-Propylbenzene	ND		0.00626	1	07/16/2019 15:11	WG1311894
Styrene	ND		0.0156	1	07/16/2019 15:11	WG1311894
1,1,1,2-Tetrachloroethane	ND	J4	0.00313	1	07/16/2019 15:11	WG1311894
1,1,2,2-Tetrachloroethane	ND		0.00313	1	07/16/2019 15:11	WG1311894
Tetrachloroethene	ND		0.00313	1	07/16/2019 15:11	WG1311894
Toluene	ND		0.00626	1	07/16/2019 15:11	WG1311894
1,2,3-Trichlorobenzene	ND		0.00313	1	07/16/2019 15:11	WG1311894
1,2,4-Trichlorobenzene	ND		0.0156	1	07/16/2019 15:11	WG1311894
1,1,1-Trichloroethane	ND		0.00313	1	07/16/2019 15:11	WG1311894
1,1,2-Trichloroethane	ND		0.00313	1	07/16/2019 15:11	WG1311894
1,1,2-Trichlorotrifluoroethane	ND		0.00313	1	07/16/2019 15:11	WG1311894
Trichloroethene	ND		0.00125	1	07/16/2019 15:11	WG1311894
Trichlorofluoromethane	ND		0.00313	1	07/16/2019 15:11	WG1311894
1,2,3-Trichloropropane	ND		0.0156	1	07/16/2019 15:11	WG1311894
1,2,4-Trimethylbenzene	ND		0.00626	1	07/16/2019 15:11	WG1311894
1,3,5-Trimethylbenzene	ND		0.00626	1	07/16/2019 15:11	WG1311894
Vinyl chloride	ND		0.00313	1	07/16/2019 15:11	WG1311894
Xylenes, Total	ND		0.00814	1	07/16/2019 15:11	WG1311894
(S) Toluene-d8	98.3		75.0-131		07/16/2019 15:11	WG1311894
(S) 4-Bromofluorobenzene	88.3		67.0-138		07/16/2019 15:11	WG1311894
(S) 1,2-Dichloroethane-d4	115		70.0-130		07/16/2019 15:11	WG1311894

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Acenaphthene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Acenaphthylene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Benzo(a)anthracene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Benzo(a)pyrene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Benzo(b)fluoranthene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Benzo(g,h,i)perylene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Benzo(k)fluoranthene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Chrysene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Dibenz(a,h)anthracene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Fluoranthene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Fluorene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Indeno(1,2,3-cd)pyrene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Naphthalene	ND		0.0250	1	07/18/2019 01:05	WG1312492
Phenanthrene	ND		0.00751	1	07/18/2019 01:05	WG1312492
Pyrene	ND		0.00751	1	07/18/2019 01:05	WG1312492
(S) Nitrobenzene-d5	72.4		14.0-149		07/18/2019 01:05	WG1312492
(S) 2-Fluorobiphenyl	75.5		34.0-125		07/18/2019 01:05	WG1312492

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

13 of 61

BORING B

Collected date/time: 07/08/19 10:10

SAMPLE RESULTS - 03

L1117435

ONE LAB. NATIONWIDE.



Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	70.2		23.0-120		07/18/2019 01:05	WG1312492

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

14 of 61

BORING C

Collected date/time: 07/08/19 10:50

SAMPLE RESULTS - 04

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.1		1	07/16/2019 15:07	WG1311711

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Mercury	0.0302	<u>B</u>	0.0247	1	07/15/2019 19:45	WG1311307

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	4.35		2.47	1	07/15/2019 21:57	WG1311169
Barium	73.8		0.617	1	07/15/2019 21:57	WG1311169
Cadmium	ND		0.617	1	07/15/2019 21:57	WG1311169
Chromium	17.1		1.23	1	07/15/2019 21:57	WG1311169
Lead	6.84		0.617	1	07/15/2019 21:57	WG1311169
Selenium	ND		2.47	1	07/15/2019 21:57	WG1311169
Silver	ND		1.23	1	07/15/2019 21:57	WG1311169

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		0.0308	1	07/16/2019 15:30	WG1311894
Acrylonitrile	ND	<u>J4</u>	0.0154	1	07/16/2019 15:30	WG1311894
Benzene	ND		0.00123	1	07/16/2019 15:30	WG1311894
Bromobenzene	ND		0.0154	1	07/16/2019 15:30	WG1311894
Bromodichloromethane	ND		0.00308	1	07/16/2019 15:30	WG1311894
Bromoform	ND		0.0308	1	07/16/2019 15:30	WG1311894
Bromomethane	ND		0.0154	1	07/16/2019 15:30	WG1311894
n-Butylbenzene	ND		0.0154	1	07/16/2019 15:30	WG1311894
sec-Butylbenzene	ND		0.0154	1	07/16/2019 15:30	WG1311894
tert-Butylbenzene	ND		0.00617	1	07/16/2019 15:30	WG1311894
Carbon tetrachloride	ND		0.00617	1	07/16/2019 15:30	WG1311894
Chlorobenzene	ND		0.00308	1	07/16/2019 15:30	WG1311894
Chlorodibromomethane	ND		0.00308	1	07/16/2019 15:30	WG1311894
Chloroethane	ND		0.00617	1	07/16/2019 15:30	WG1311894
Chloroform	ND		0.00308	1	07/16/2019 15:30	WG1311894
Chloromethane	ND	<u>J4</u>	0.0154	1	07/16/2019 15:30	WG1311894
2-Chlorotoluene	ND		0.00308	1	07/16/2019 15:30	WG1311894
4-Chlorotoluene	ND		0.00617	1	07/16/2019 15:30	WG1311894
1,2-Dibromo-3-Chloropropane	ND		0.0308	1	07/16/2019 15:30	WG1311894
1,2-Dibromoethane	ND		0.00308	1	07/16/2019 15:30	WG1311894
Dibromomethane	ND		0.00617	1	07/16/2019 15:30	WG1311894
1,2-Dichlorobenzene	ND		0.00617	1	07/16/2019 15:30	WG1311894
1,3-Dichlorobenzene	ND		0.00617	1	07/16/2019 15:30	WG1311894
1,4-Dichlorobenzene	ND		0.00617	1	07/16/2019 15:30	WG1311894
Dichlorodifluoromethane	ND		0.00308	1	07/16/2019 15:30	WG1311894
1,1-Dichloroethane	ND		0.00308	1	07/16/2019 15:30	WG1311894
1,2-Dichloroethane	ND		0.00308	1	07/16/2019 15:30	WG1311894
1,1-Dichloroethene	ND		0.00308	1	07/16/2019 15:30	WG1311894
cis-1,2-Dichloroethene	ND		0.00308	1	07/16/2019 15:30	WG1311894
trans-1,2-Dichloroethene	ND		0.00617	1	07/16/2019 15:30	WG1311894
1,2-Dichloropropane	ND		0.00617	1	07/16/2019 15:30	WG1311894
1,1-Dichloropropene	ND		0.00308	1	07/16/2019 15:30	WG1311894
1,3-Dichloropropane	ND		0.00617	1	07/16/2019 15:30	WG1311894

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

15 of 61

BORING C

Collected date/time: 07/08/19 10:50

SAMPLE RESULTS - 04

L1117435

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
cis-1,3-Dichloropropene	ND		0.00308	1	07/16/2019 15:30	WG1311894
trans-1,3-Dichloropropene	ND		0.00617	1	07/16/2019 15:30	WG1311894
2,2-Dichloropropane	ND		0.00308	1	07/16/2019 15:30	WG1311894
Di-isopropyl ether	ND		0.00123	1	07/16/2019 15:30	WG1311894
Ethylbenzene	ND		0.00308	1	07/16/2019 15:30	WG1311894
Hexachloro-1,3-butadiene	ND		0.0308	1	07/16/2019 15:30	WG1311894
Isopropylbenzene	ND		0.00308	1	07/16/2019 15:30	WG1311894
p-Isopropyltoluene	ND		0.00617	1	07/16/2019 15:30	WG1311894
2-Butanone (MEK)	0.0713	<u>B</u>	0.0308	1	07/16/2019 15:30	WG1311894
Methylene Chloride	ND		0.0308	1	07/16/2019 15:30	WG1311894
4-Methyl-2-pentanone (MIBK)	ND		0.0308	1	07/16/2019 15:30	WG1311894
Methyl tert-butyl ether	ND		0.00123	1	07/16/2019 15:30	WG1311894
Naphthalene	ND		0.0154	1	07/16/2019 15:30	WG1311894
n-Propylbenzene	ND		0.00617	1	07/16/2019 15:30	WG1311894
Styrene	ND		0.0154	1	07/16/2019 15:30	WG1311894
1,1,1,2-Tetrachloroethane	ND	<u>J4</u>	0.00308	1	07/16/2019 15:30	WG1311894
1,1,2,2-Tetrachloroethane	ND		0.00308	1	07/16/2019 15:30	WG1311894
Tetrachloroethene	ND		0.00308	1	07/16/2019 15:30	WG1311894
Toluene	ND		0.00617	1	07/16/2019 15:30	WG1311894
1,2,3-Trichlorobenzene	ND		0.00308	1	07/16/2019 15:30	WG1311894
1,2,4-Trichlorobenzene	ND		0.0154	1	07/16/2019 15:30	WG1311894
1,1,1-Trichloroethane	ND		0.00308	1	07/16/2019 15:30	WG1311894
1,1,2-Trichloroethane	ND		0.00308	1	07/16/2019 15:30	WG1311894
1,1,2-Trichlorotrifluoroethane	ND		0.00308	1	07/16/2019 15:30	WG1311894
Trichloroethene	ND		0.00123	1	07/16/2019 15:30	WG1311894
Trichlorofluoromethane	ND		0.00308	1	07/16/2019 15:30	WG1311894
1,2,3-Trichloropropane	ND		0.0154	1	07/16/2019 15:30	WG1311894
1,2,4-Trimethylbenzene	ND		0.00617	1	07/16/2019 15:30	WG1311894
1,3,5-Trimethylbenzene	ND		0.00617	1	07/16/2019 15:30	WG1311894
Vinyl chloride	ND		0.00308	1	07/16/2019 15:30	WG1311894
Xylenes, Total	ND		0.00802	1	07/16/2019 15:30	WG1311894
(S) Toluene-d8	99.8		75.0-131		07/16/2019 15:30	WG1311894
(S) 4-Bromofluorobenzene	86.9		67.0-138		07/16/2019 15:30	WG1311894
(S) 1,2-Dichloroethane-d4	119		70.0-130		07/16/2019 15:30	WG1311894

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Acenaphthene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Acenaphthylene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Benzo(a)anthracene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Benzo(a)pyrene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Benzo(b)fluoranthene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Benzo(g,h,i)perylene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Benzo(k)fluoranthene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Chrysene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Dibenz(a,h)anthracene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Fluoranthene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Fluorene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Indeno(1,2,3-cd)pyrene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Naphthalene	ND		0.0247	1	07/18/2019 01:27	WG1312492
Phenanthrene	ND		0.00740	1	07/18/2019 01:27	WG1312492
Pyrene	ND		0.00740	1	07/18/2019 01:27	WG1312492
(S) Nitrobenzene-d5	71.2		14.0-149		07/18/2019 01:27	WG1312492
(S) 2-Fluorobiphenyl	73.8		34.0-125		07/18/2019 01:27	WG1312492

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

16 of 61

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	67.9		23.0-120		07/18/2019 01:27	WG1312492

- 1Cp
- 2Tc
- 3Ss
- 4Cn
- 5Sr
- 6Qc
- 7Gl
- 8Al
- 9Sc

BORING C

Collected date/time: 07/08/19 11:00

SAMPLE RESULTS - 05

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.1		1	07/16/2019 15:07	WG1311711

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Mercury	0.0403	<u>B</u>	0.0241	1	07/15/2019 19:47	WG1311307

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	6.79		2.41	1	07/15/2019 21:59	WG1311169
Barium	1390		0.602	1	07/15/2019 21:59	WG1311169
Cadmium	ND		0.602	1	07/15/2019 21:59	WG1311169
Chromium	19.2		1.20	1	07/15/2019 21:59	WG1311169
Lead	9.04		0.602	1	07/15/2019 21:59	WG1311169
Selenium	ND		2.41	1	07/15/2019 21:59	WG1311169
Silver	ND		1.20	1	07/15/2019 21:59	WG1311169

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		0.0301	1	07/16/2019 15:49	WG1311894
Acrylonitrile	ND	<u>J4</u>	0.0150	1	07/16/2019 15:49	WG1311894
Benzene	ND		0.00120	1	07/16/2019 15:49	WG1311894
Bromobenzene	ND		0.0150	1	07/16/2019 15:49	WG1311894
Bromodichloromethane	ND		0.00301	1	07/16/2019 15:49	WG1311894
Bromoform	ND		0.0301	1	07/16/2019 15:49	WG1311894
Bromomethane	ND		0.0150	1	07/16/2019 15:49	WG1311894
n-Butylbenzene	ND		0.0150	1	07/16/2019 15:49	WG1311894
sec-Butylbenzene	ND		0.0150	1	07/16/2019 15:49	WG1311894
tert-Butylbenzene	ND		0.00602	1	07/16/2019 15:49	WG1311894
Carbon tetrachloride	ND		0.00602	1	07/16/2019 15:49	WG1311894
Chlorobenzene	ND		0.00301	1	07/16/2019 15:49	WG1311894
Chlorodibromomethane	ND		0.00301	1	07/16/2019 15:49	WG1311894
Chloroethane	ND		0.00602	1	07/16/2019 15:49	WG1311894
Chloroform	ND		0.00301	1	07/16/2019 15:49	WG1311894
Chloromethane	ND	<u>J4</u>	0.0150	1	07/16/2019 15:49	WG1311894
2-Chlorotoluene	ND		0.00301	1	07/16/2019 15:49	WG1311894
4-Chlorotoluene	ND		0.00602	1	07/16/2019 15:49	WG1311894
1,2-Dibromo-3-Chloropropane	ND		0.0301	1	07/16/2019 15:49	WG1311894
1,2-Dibromoethane	ND		0.00301	1	07/16/2019 15:49	WG1311894
Dibromomethane	ND		0.00602	1	07/16/2019 15:49	WG1311894
1,2-Dichlorobenzene	ND		0.00602	1	07/16/2019 15:49	WG1311894
1,3-Dichlorobenzene	ND		0.00602	1	07/16/2019 15:49	WG1311894
1,4-Dichlorobenzene	ND		0.00602	1	07/16/2019 15:49	WG1311894
Dichlorodifluoromethane	ND		0.00301	1	07/16/2019 15:49	WG1311894
1,1-Dichloroethane	ND		0.00301	1	07/16/2019 15:49	WG1311894
1,2-Dichloroethane	ND		0.00301	1	07/16/2019 15:49	WG1311894
1,1-Dichloroethene	ND		0.00301	1	07/16/2019 15:49	WG1311894
cis-1,2-Dichloroethene	ND		0.00301	1	07/16/2019 15:49	WG1311894
trans-1,2-Dichloroethene	ND		0.00602	1	07/16/2019 15:49	WG1311894
1,2-Dichloropropane	ND		0.00602	1	07/16/2019 15:49	WG1311894
1,1-Dichloropropene	ND		0.00301	1	07/16/2019 15:49	WG1311894
1,3-Dichloropropane	ND		0.00602	1	07/16/2019 15:49	WG1311894

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

18 of 61

BORING C

Collected date/time: 07/08/19 11:00

SAMPLE RESULTS - 05

L1117435

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
cis-1,3-Dichloropropene	ND		0.00301	1	07/16/2019 15:49	WG1311894
trans-1,3-Dichloropropene	ND		0.00602	1	07/16/2019 15:49	WG1311894
2,2-Dichloropropane	ND		0.00301	1	07/16/2019 15:49	WG1311894
Di-isopropyl ether	ND		0.00120	1	07/16/2019 15:49	WG1311894
Ethylbenzene	ND		0.00301	1	07/16/2019 15:49	WG1311894
Hexachloro-1,3-butadiene	ND		0.0301	1	07/16/2019 15:49	WG1311894
Isopropylbenzene	ND		0.00301	1	07/16/2019 15:49	WG1311894
p-Isopropyltoluene	ND		0.00602	1	07/16/2019 15:49	WG1311894
2-Butanone (MEK)	0.0510	<u>B</u>	0.0301	1	07/16/2019 15:49	WG1311894
Methylene Chloride	ND		0.0301	1	07/16/2019 15:49	WG1311894
4-Methyl-2-pentanone (MIBK)	ND		0.0301	1	07/16/2019 15:49	WG1311894
Methyl tert-butyl ether	ND		0.00120	1	07/16/2019 15:49	WG1311894
Naphthalene	ND		0.0150	1	07/16/2019 15:49	WG1311894
n-Propylbenzene	ND		0.00602	1	07/16/2019 15:49	WG1311894
Styrene	ND		0.0150	1	07/16/2019 15:49	WG1311894
1,1,1,2-Tetrachloroethane	ND	<u>J4</u>	0.00301	1	07/16/2019 15:49	WG1311894
1,1,2,2-Tetrachloroethane	ND		0.00301	1	07/16/2019 15:49	WG1311894
Tetrachloroethene	ND		0.00301	1	07/16/2019 15:49	WG1311894
Toluene	ND		0.00602	1	07/16/2019 15:49	WG1311894
1,2,3-Trichlorobenzene	ND		0.00301	1	07/16/2019 15:49	WG1311894
1,2,4-Trichlorobenzene	ND		0.0150	1	07/16/2019 15:49	WG1311894
1,1,1-Trichloroethane	ND		0.00301	1	07/16/2019 15:49	WG1311894
1,1,2-Trichloroethane	ND		0.00301	1	07/16/2019 15:49	WG1311894
1,1,2-Trichlorotrifluoroethane	ND		0.00301	1	07/16/2019 15:49	WG1311894
Trichloroethene	ND		0.00120	1	07/16/2019 15:49	WG1311894
Trichlorofluoromethane	ND		0.00301	1	07/16/2019 15:49	WG1311894
1,2,3-Trichloropropane	ND		0.0150	1	07/16/2019 15:49	WG1311894
1,2,4-Trimethylbenzene	ND		0.00602	1	07/16/2019 15:49	WG1311894
1,3,5-Trimethylbenzene	ND		0.00602	1	07/16/2019 15:49	WG1311894
Vinyl chloride	ND		0.00301	1	07/16/2019 15:49	WG1311894
Xylenes, Total	ND		0.00782	1	07/16/2019 15:49	WG1311894
(S) Toluene-d8	99.9		75.0-131		07/16/2019 15:49	WG1311894
(S) 4-Bromofluorobenzene	86.1		67.0-138		07/16/2019 15:49	WG1311894
(S) 1,2-Dichloroethane-d4	120		70.0-130		07/16/2019 15:49	WG1311894

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Acenaphthene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Acenaphthylene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Benzo(a)anthracene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Benzo(a)pyrene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Benzo(b)fluoranthene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Benzo(g,h,i)perylene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Benzo(k)fluoranthene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Chrysene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Dibenz(a,h)anthracene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Fluoranthene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Fluorene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Indeno(1,2,3-cd)pyrene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Naphthalene	ND		0.0241	1	07/18/2019 15:37	WG1313275
Phenanthrene	ND		0.00722	1	07/18/2019 15:37	WG1313275
Pyrene	ND		0.00722	1	07/18/2019 15:37	WG1313275
(S) Nitrobenzene-d5	68.9		14.0-149		07/18/2019 15:37	WG1313275
(S) 2-Fluorobiphenyl	74.3		34.0-125		07/18/2019 15:37	WG1313275

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

19 of 61

BORING C

Collected date/time: 07/08/19 11:00

SAMPLE RESULTS - 05

L1117435

ONE LAB. NATIONWIDE.



Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	69.9		23.0-120		07/18/2019 15:37	WG1313275

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

20 of 61

BORING D

Collected date/time: 07/08/19 11:35

SAMPLE RESULTS - 06

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.4		1	07/16/2019 15:07	WG1311711

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Mercury	0.0342	<u>B</u>	0.0237	1	07/15/2019 19:49	WG1311307

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	2.93		2.37	1	07/15/2019 22:02	WG1311169
Barium	116		0.592	1	07/15/2019 22:02	WG1311169
Cadmium	ND		0.592	1	07/15/2019 22:02	WG1311169
Chromium	15.0		1.18	1	07/15/2019 22:02	WG1311169
Lead	9.41		0.592	1	07/15/2019 22:02	WG1311169
Selenium	ND		2.37	1	07/15/2019 22:02	WG1311169
Silver	ND		1.18	1	07/15/2019 22:02	WG1311169

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		0.0296	1	07/16/2019 16:08	WG1311894
Acrylonitrile	ND	<u>J4</u>	0.0148	1	07/16/2019 16:08	WG1311894
Benzene	ND		0.00118	1	07/16/2019 16:08	WG1311894
Bromobenzene	ND		0.0148	1	07/16/2019 16:08	WG1311894
Bromodichloromethane	ND		0.00296	1	07/16/2019 16:08	WG1311894
Bromoform	ND		0.0296	1	07/16/2019 16:08	WG1311894
Bromomethane	ND		0.0148	1	07/16/2019 16:08	WG1311894
n-Butylbenzene	ND		0.0148	1	07/16/2019 16:08	WG1311894
sec-Butylbenzene	ND		0.0148	1	07/16/2019 16:08	WG1311894
tert-Butylbenzene	ND		0.00592	1	07/16/2019 16:08	WG1311894
Carbon tetrachloride	ND		0.00592	1	07/16/2019 16:08	WG1311894
Chlorobenzene	ND		0.00296	1	07/16/2019 16:08	WG1311894
Chlorodibromomethane	ND		0.00296	1	07/16/2019 16:08	WG1311894
Chloroethane	ND		0.00592	1	07/16/2019 16:08	WG1311894
Chloroform	ND		0.00296	1	07/16/2019 16:08	WG1311894
Chloromethane	ND	<u>J4</u>	0.0148	1	07/16/2019 16:08	WG1311894
2-Chlorotoluene	ND		0.00296	1	07/16/2019 16:08	WG1311894
4-Chlorotoluene	ND		0.00592	1	07/16/2019 16:08	WG1311894
1,2-Dibromo-3-Chloropropane	ND		0.0296	1	07/16/2019 16:08	WG1311894
1,2-Dibromoethane	ND		0.00296	1	07/16/2019 16:08	WG1311894
Dibromomethane	ND		0.00592	1	07/16/2019 16:08	WG1311894
1,2-Dichlorobenzene	ND		0.00592	1	07/16/2019 16:08	WG1311894
1,3-Dichlorobenzene	ND		0.00592	1	07/16/2019 16:08	WG1311894
1,4-Dichlorobenzene	ND		0.00592	1	07/16/2019 16:08	WG1311894
Dichlorodifluoromethane	ND		0.00296	1	07/16/2019 16:08	WG1311894
1,1-Dichloroethane	ND		0.00296	1	07/16/2019 16:08	WG1311894
1,2-Dichloroethane	ND		0.00296	1	07/16/2019 16:08	WG1311894
1,1-Dichloroethene	ND		0.00296	1	07/16/2019 16:08	WG1311894
cis-1,2-Dichloroethene	ND		0.00296	1	07/16/2019 16:08	WG1311894
trans-1,2-Dichloroethene	ND		0.00592	1	07/16/2019 16:08	WG1311894
1,2-Dichloropropane	ND		0.00592	1	07/16/2019 16:08	WG1311894
1,1-Dichloropropene	ND		0.00296	1	07/16/2019 16:08	WG1311894
1,3-Dichloropropane	ND		0.00592	1	07/16/2019 16:08	WG1311894



ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

21 of 61

BORING D

Collected date/time: 07/08/19 11:35

SAMPLE RESULTS - 06

L1117435

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
cis-1,3-Dichloropropene	ND		0.00296	1	07/16/2019 16:08	WG1311894
trans-1,3-Dichloropropene	ND		0.00592	1	07/16/2019 16:08	WG1311894
2,2-Dichloropropane	ND		0.00296	1	07/16/2019 16:08	WG1311894
Di-isopropyl ether	ND		0.00118	1	07/16/2019 16:08	WG1311894
Ethylbenzene	ND		0.00296	1	07/16/2019 16:08	WG1311894
Hexachloro-1,3-butadiene	ND		0.0296	1	07/16/2019 16:08	WG1311894
Isopropylbenzene	ND		0.00296	1	07/16/2019 16:08	WG1311894
p-Isopropyltoluene	ND		0.00592	1	07/16/2019 16:08	WG1311894
2-Butanone (MEK)	0.0327	B	0.0296	1	07/16/2019 16:08	WG1311894
Methylene Chloride	ND		0.0296	1	07/16/2019 16:08	WG1311894
4-Methyl-2-pentanone (MIBK)	ND		0.0296	1	07/16/2019 16:08	WG1311894
Methyl tert-butyl ether	ND		0.00118	1	07/16/2019 16:08	WG1311894
Naphthalene	ND		0.0148	1	07/16/2019 16:08	WG1311894
n-Propylbenzene	ND		0.00592	1	07/16/2019 16:08	WG1311894
Styrene	ND		0.0148	1	07/16/2019 16:08	WG1311894
1,1,1,2-Tetrachloroethane	ND	J4	0.00296	1	07/16/2019 16:08	WG1311894
1,1,2,2-Tetrachloroethane	ND		0.00296	1	07/16/2019 16:08	WG1311894
Tetrachloroethene	ND		0.00296	1	07/16/2019 16:08	WG1311894
Toluene	ND		0.00592	1	07/16/2019 16:08	WG1311894
1,2,3-Trichlorobenzene	ND		0.00296	1	07/16/2019 16:08	WG1311894
1,2,4-Trichlorobenzene	ND		0.0148	1	07/16/2019 16:08	WG1311894
1,1,1-Trichloroethane	ND		0.00296	1	07/16/2019 16:08	WG1311894
1,1,2-Trichloroethane	ND		0.00296	1	07/16/2019 16:08	WG1311894
1,1,2-Trichlorotrifluoroethane	ND		0.00296	1	07/16/2019 16:08	WG1311894
Trichloroethene	ND		0.00118	1	07/16/2019 16:08	WG1311894
Trichlorofluoromethane	ND		0.00296	1	07/16/2019 16:08	WG1311894
1,2,3-Trichloropropane	ND		0.0148	1	07/16/2019 16:08	WG1311894
1,2,4-Trimethylbenzene	ND		0.00592	1	07/16/2019 16:08	WG1311894
1,3,5-Trimethylbenzene	ND		0.00592	1	07/16/2019 16:08	WG1311894
Vinyl chloride	ND		0.00296	1	07/16/2019 16:08	WG1311894
Xylenes, Total	ND		0.00770	1	07/16/2019 16:08	WG1311894
(S) Toluene-d8	98.7		75.0-131		07/16/2019 16:08	WG1311894
(S) 4-Bromofluorobenzene	84.2		67.0-138		07/16/2019 16:08	WG1311894
(S) 1,2-Dichloroethane-d4	118		70.0-130		07/16/2019 16:08	WG1311894

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Acenaphthene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Acenaphthylene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Benzo(a)anthracene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Benzo(a)pyrene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Benzo(b)fluoranthene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Benzo(g,h,i)perylene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Benzo(k)fluoranthene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Chrysene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Dibenz(a,h)anthracene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Fluoranthene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Fluorene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Indeno(1,2,3-cd)pyrene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Naphthalene	ND		0.0237	1	07/18/2019 15:58	WG1313275
Phenanthrene	ND		0.00711	1	07/18/2019 15:58	WG1313275
Pyrene	ND		0.00711	1	07/18/2019 15:58	WG1313275
(S) Nitrobenzene-d5	77.1		14.0-149		07/18/2019 15:58	WG1313275
(S) 2-Fluorobiphenyl	84.0		34.0-125		07/18/2019 15:58	WG1313275

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

22 of 61

BORING D

Collected date/time: 07/08/19 11:35

SAMPLE RESULTS - 06

L1117435

ONE LAB. NATIONWIDE.



Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	84.2		23.0-120		07/18/2019 15:58	WG1313275

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

23 of 61

BORING D

Collected date/time: 07/08/19 11:45

SAMPLE RESULTS - 07

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.4		1	07/16/2019 15:07	WG1311711

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Mercury	0.0329	<u>B</u>	0.0246	1	07/15/2019 19:51	WG1311307

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Arsenic	4.54		2.46	1	07/15/2019 22:04	WG1311169
Barium	147		0.614	1	07/15/2019 22:04	WG1311169
Cadmium	ND		0.614	1	07/15/2019 22:04	WG1311169
Chromium	16.5		1.23	1	07/15/2019 22:04	WG1311169
Lead	8.62		0.614	1	07/15/2019 22:04	WG1311169
Selenium	ND		2.46	1	07/15/2019 22:04	WG1311169
Silver	ND		1.23	1	07/15/2019 22:04	WG1311169

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Acetone	ND		0.0307	1	07/16/2019 16:27	WG1311894
Acrylonitrile	ND	<u>J4</u>	0.0153	1	07/16/2019 16:27	WG1311894
Benzene	ND		0.00123	1	07/16/2019 16:27	WG1311894
Bromobenzene	ND		0.0153	1	07/16/2019 16:27	WG1311894
Bromodichloromethane	ND		0.00307	1	07/16/2019 16:27	WG1311894
Bromoform	ND		0.0307	1	07/16/2019 16:27	WG1311894
Bromomethane	ND		0.0153	1	07/16/2019 16:27	WG1311894
n-Butylbenzene	ND		0.0153	1	07/16/2019 16:27	WG1311894
sec-Butylbenzene	ND		0.0153	1	07/16/2019 16:27	WG1311894
tert-Butylbenzene	ND		0.00614	1	07/16/2019 16:27	WG1311894
Carbon tetrachloride	ND		0.00614	1	07/16/2019 16:27	WG1311894
Chlorobenzene	ND		0.00307	1	07/16/2019 16:27	WG1311894
Chlorodibromomethane	ND		0.00307	1	07/16/2019 16:27	WG1311894
Chloroethane	ND		0.00614	1	07/16/2019 16:27	WG1311894
Chloroform	ND		0.00307	1	07/16/2019 16:27	WG1311894
Chloromethane	ND	<u>J4</u>	0.0153	1	07/16/2019 16:27	WG1311894
2-Chlorotoluene	ND		0.00307	1	07/16/2019 16:27	WG1311894
4-Chlorotoluene	ND		0.00614	1	07/16/2019 16:27	WG1311894
1,2-Dibromo-3-Chloropropane	ND		0.0307	1	07/16/2019 16:27	WG1311894
1,2-Dibromoethane	ND		0.00307	1	07/16/2019 16:27	WG1311894
Dibromomethane	ND		0.00614	1	07/16/2019 16:27	WG1311894
1,2-Dichlorobenzene	ND		0.00614	1	07/16/2019 16:27	WG1311894
1,3-Dichlorobenzene	ND		0.00614	1	07/16/2019 16:27	WG1311894
1,4-Dichlorobenzene	ND		0.00614	1	07/16/2019 16:27	WG1311894
Dichlorodifluoromethane	ND		0.00307	1	07/16/2019 16:27	WG1311894
1,1-Dichloroethane	ND		0.00307	1	07/16/2019 16:27	WG1311894
1,2-Dichloroethane	ND		0.00307	1	07/16/2019 16:27	WG1311894
1,1-Dichloroethene	ND		0.00307	1	07/16/2019 16:27	WG1311894
cis-1,2-Dichloroethene	ND		0.00307	1	07/16/2019 16:27	WG1311894
trans-1,2-Dichloroethene	ND		0.00614	1	07/16/2019 16:27	WG1311894
1,2-Dichloropropane	ND		0.00614	1	07/16/2019 16:27	WG1311894
1,1-Dichloropropene	ND		0.00307	1	07/16/2019 16:27	WG1311894
1,3-Dichloropropane	ND		0.00614	1	07/16/2019 16:27	WG1311894

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

24 of 61

BORING D

Collected date/time: 07/08/19 11:45

SAMPLE RESULTS - 07

L1117435

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
cis-1,3-Dichloropropene	ND		0.00307	1	07/16/2019 16:27	WG1311894
trans-1,3-Dichloropropene	ND		0.00614	1	07/16/2019 16:27	WG1311894
2,2-Dichloropropane	ND		0.00307	1	07/16/2019 16:27	WG1311894
Di-isopropyl ether	ND		0.00123	1	07/16/2019 16:27	WG1311894
Ethylbenzene	ND		0.00307	1	07/16/2019 16:27	WG1311894
Hexachloro-1,3-butadiene	ND		0.0307	1	07/16/2019 16:27	WG1311894
Isopropylbenzene	ND		0.00307	1	07/16/2019 16:27	WG1311894
p-Isopropyltoluene	ND		0.00614	1	07/16/2019 16:27	WG1311894
2-Butanone (MEK)	0.0408	<u>B</u>	0.0307	1	07/16/2019 16:27	WG1311894
Methylene Chloride	ND		0.0307	1	07/16/2019 16:27	WG1311894
4-Methyl-2-pentanone (MIBK)	ND		0.0307	1	07/16/2019 16:27	WG1311894
Methyl tert-butyl ether	ND		0.00123	1	07/16/2019 16:27	WG1311894
Naphthalene	ND		0.0153	1	07/16/2019 16:27	WG1311894
n-Propylbenzene	ND		0.00614	1	07/16/2019 16:27	WG1311894
Styrene	ND		0.0153	1	07/16/2019 16:27	WG1311894
1,1,1,2-Tetrachloroethane	ND	<u>J4</u>	0.00307	1	07/16/2019 16:27	WG1311894
1,1,2,2-Tetrachloroethane	ND		0.00307	1	07/16/2019 16:27	WG1311894
Tetrachloroethene	ND		0.00307	1	07/16/2019 16:27	WG1311894
Toluene	ND		0.00614	1	07/16/2019 16:27	WG1311894
1,2,3-Trichlorobenzene	ND		0.00307	1	07/16/2019 16:27	WG1311894
1,2,4-Trichlorobenzene	ND		0.0153	1	07/16/2019 16:27	WG1311894
1,1,1-Trichloroethane	ND		0.00307	1	07/16/2019 16:27	WG1311894
1,1,2-Trichloroethane	ND		0.00307	1	07/16/2019 16:27	WG1311894
1,1,2-Trichlorotrifluoroethane	ND		0.00307	1	07/16/2019 16:27	WG1311894
Trichloroethene	ND		0.00123	1	07/16/2019 16:27	WG1311894
Trichlorofluoromethane	ND		0.00307	1	07/16/2019 16:27	WG1311894
1,2,3-Trichloropropane	ND		0.0153	1	07/16/2019 16:27	WG1311894
1,2,4-Trimethylbenzene	ND		0.00614	1	07/16/2019 16:27	WG1311894
1,3,5-Trimethylbenzene	ND		0.00614	1	07/16/2019 16:27	WG1311894
Vinyl chloride	ND		0.00307	1	07/16/2019 16:27	WG1311894
Xylenes, Total	ND		0.00798	1	07/16/2019 16:27	WG1311894
(S) Toluene-d8	102		75.0-131		07/16/2019 16:27	WG1311894
(S) 4-Bromofluorobenzene	85.6		67.0-138		07/16/2019 16:27	WG1311894
(S) 1,2-Dichloroethane-d4	113		70.0-130		07/16/2019 16:27	WG1311894

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Acenaphthene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Acenaphthylene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Benzo(a)anthracene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Benzo(a)pyrene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Benzo(b)fluoranthene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Benzo(g,h,i)perylene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Benzo(k)fluoranthene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Chrysene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Dibenz(a,h)anthracene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Fluoranthene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Fluorene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Indeno(1,2,3-cd)pyrene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Naphthalene	ND		0.0246	1	07/18/2019 16:20	WG1313275
Phenanthrene	ND		0.00737	1	07/18/2019 16:20	WG1313275
Pyrene	ND		0.00737	1	07/18/2019 16:20	WG1313275
(S) Nitrobenzene-d5	74.7		14.0-149		07/18/2019 16:20	WG1313275
(S) 2-Fluorobiphenyl	81.0		34.0-125		07/18/2019 16:20	WG1313275

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

25 of 61

BORING D

Collected date/time: 07/08/19 11:45

SAMPLE RESULTS - 07

L1117435

ONE LAB. NATIONWIDE.



Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) p-Terphenyl-d14	79.3		23.0-120		07/18/2019 16:20	WG1313275

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

26 of 61

109 NORTH

Collected date/time: 07/09/19 12:35

SAMPLE RESULTS - 08

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	75.3		1	07/16/2019 15:07	WG1311711

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	1640		0.664	1	07/15/2019 22:09	WG1311169

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

27 of 61

109 WEST

Collected date/time: 07/09/19 12:40

SAMPLE RESULTS - 09

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.7		1	07/16/2019 14:56	WG1311713

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	3320		0.612	1	07/15/2019 22:11	WG1311169

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

28 of 61

110 NORTH

Collected date/time: 07/09/19 13:15

SAMPLE RESULTS - 10

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.4		1	07/16/2019 14:56	WG1311713

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	228		0.614	1	07/15/2019 22:14	WG1311169

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

29 of 61

110 WEST

Collected date/time: 07/09/19 13:20

SAMPLE RESULTS - 11

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.2		1	07/16/2019 14:56	WG1311713

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	337		0.608	1	07/15/2019 22:16	WG1311169

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

30 of 61

110 SOUTH

Collected date/time: 07/09/19 13:25

SAMPLE RESULTS - 12

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.7		1	07/16/2019 14:56	WG1311713

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	412		0.598	1	07/15/2019 22:19	WG1311169

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

31 of 61

111 NORTH

Collected date/time: 07/09/19 14:38

SAMPLE RESULTS - 13

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.7		1	07/16/2019 14:56	WG1311713

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	9510		0.627	1	07/15/2019 20:53	WG1311169

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

32 of 61

112 NORTH

Collected date/time: 07/09/19 13:46

SAMPLE RESULTS - 14

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.1		1	07/16/2019 14:56	WG1311713

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	483		0.640	1	07/15/2019 20:55	WG1311169

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

33 of 61

112 EAST

Collected date/time: 07/09/19 13:51

SAMPLE RESULTS - 15

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.3		1	07/16/2019 14:56	WG1311713

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	368		0.623	1	07/15/2019 20:58	WG1311169

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

34 of 61

112 SOUTH

Collected date/time: 07/09/19 13:57

SAMPLE RESULTS - 16

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.3		1	07/16/2019 14:56	WG1311713

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	126		0.593	1	07/15/2019 21:00	WG1311169

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

35 of 61

112 WEST

Collected date/time: 07/09/19 14:03

SAMPLE RESULTS - 17

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.7		1	07/16/2019 14:56	WG1311713

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	73.3		0.590	1	07/15/2019 21:03	WG1311169

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

36 of 61

113 NORTH

Collected date/time: 07/09/19 14:55

SAMPLE RESULTS - 18

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.8		1	07/16/2019 14:56	WG1311713

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	1070		0.576	1	07/15/2019 21:06	WG1311169

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

37 of 61

113 EAST

Collected date/time: 07/09/19 15:10

SAMPLE RESULTS - 19

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.2		1	07/16/2019 14:35	WG1311714

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	1730		0.561	1	07/15/2019 21:08	WG1311169

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

38 of 61

113 SOUTH

Collected date/time: 07/09/19 15:20

SAMPLE RESULTS - 20

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.5		1	07/16/2019 14:35	WG1311714

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	1450		0.621	1	07/16/2019 18:40	WG1311191

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

39 of 61

113 WEST

Collected date/time: 07/09/19 15:30

SAMPLE RESULTS - 21

L1117435

ONE LAB. NATIONWIDE.



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.4		1	07/16/2019 14:35	WG1311714

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	307		0.638	1	07/16/2019 18:42	WG1311191

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

40 of 61

WG1311711

Total Solids by Method 2540 G-2011

QUALITY CONTROL SUMMARY

[L1117435-01.02.03.04.05.06.07.08](#)

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3431339-1 07/16/19 15:07					
	MB Result	MB Qualifier	MB MDL	MB RDL	
Analyte	%		%	%	
Total Solids	0.000				

L1117435-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1117435-02 07/16/19 15:07 • (DUP) R3431339-3 07/16/19 15:07					
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier
Analyte	%	%		%	DUP RPD Limits %
Total Solids	81.3	80.7	1	0.743	10

Laboratory Control Sample (LCS)

(LCS) R3431339-2 07/16/19 15:07					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

WG1311713

Total Solids by Method 2540 G-2011

QUALITY CONTROL SUMMARY

L1117435-09,10,11,12,13,14,15,16,17,18

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3431336-1 07/16/19 14:56				
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	%		%	%
Total Solids	0.000			

L1117435-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1117435-11 07/16/19 14:56 • (DUP) R3431336-3 07/16/19 14:56						
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	%	%		%		%
Total Solids	82.2	83.4	1	1.37		10

Laboratory Control Sample (LCS)

(LCS) R3431336-2 07/16/19 14:56						
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier	
Analyte	%	%	%	%		
Total Solids	50.0	50.0	100	85.0-115		



ACCOUNT:

Wood EXI Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

42 of 61

Total Solids by Method 2540 G-2011

[L1117435-19,20,21](#)



Method Blank (MB)

(MB) R3431332-1 07/16/19 14:35				
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	%		%	%
Total Solids	0.00/100			

L1117435-21 Original Sample (OS) • Duplicate (DUP)

(OS) L1117435-21 07/16/19 14:35 • (DUP) R3431332-3 07/16/19 14:35				
	Original Result	DUP Result	Dilution	DUP RPD
Analyte	%	%	%	DUP Qualifier
Total Solids	78.4	79.6	1	1.59
				DUP RPD Limits
				%

Laboratory Control Sample (LCS)

(LCS) R3431332-2 07/16/19 14:35				
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits
Analyte	%	%	%	%
Total Solids	50.0	50.0	100	85.0-115
				LCS Qualifier



ACCOUNT:

Wood EXI Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

43 of 61

WG1311307

Mercury by Method 7471A

QUALITY CONTROL SUMMARY

L1177435-01.02.03.04.05.06.07

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3430834-1 07/15/19 19:21					
	MB Result	MB Qualifier	MB MDL	MB RDL	
Analyte	mg/kg		mg/kg	mg/kg	
Mercury	0.0102	J	0.00280	0.0200	

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3430834-2 07/15/19 19:23 • (LCSD) R3430834-3 07/15/19 19:25											
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%	
Mercury	0.500	0.460	0.472	92.0	94.3	80.0-120			2.50	20	

L117198-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L117198-01 07/15/19 19:27 • (MS) R3430834-4 07/15/19 19:29 • (MSD) R3430834-5 07/15/19 19:32													
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits	
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%	
Mercury	0.500	ND	0.329	0.339	63.7	65.7	1	75.0-125	J6	J6	2.97	20	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

ACCOUNT: Wood EXI Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L117435

DATE/TIME: 07/19/19 09:56

PAGE: 44 of 61

WG1311169

Metals (ICP) by Method 6010B

QUALITY CONTROL SUMMARY

L1117435-01.02.03.04.05.06.07.08.09.10.11.12.13.14.15.16.17.18.19

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3430864-1 07/15/19 21:16				
Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U	0.460	2.00	
Barium	U	0.170	0.500	
Cadmium	U	0.0700	0.500	
Chromium	U	0.140	1.00	
Lead	U	0.190	0.500	
Selenium	U	0.620	2.00	
Silver	U	0.120	1.00	

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3430864-2 07/15/19 21:18 • (LCSD) R3430864-3 07/15/19 21:21											
Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %	
Arsenic	100	97.6	95.2	97.6	95.2	80.0-120			2.52	20	7 Al
Barium	100	105	102	105	102	80.0-120			2.65	20	5 Sc
Cadmium	100	101	98.5	101	98.5	80.0-120			2.64	20	
Chromium	100	100	97.8	100	97.8	80.0-120			2.43	20	
Lead	100	98.4	95.9	98.4	95.9	80.0-120			2.55	20	
Selenium	100	102	98.9	102	98.9	80.0-120			2.64	20	
Silver	20.0	19.8	19.4	98.8	96.8	80.0-120			2.10	20	

L1118287-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1118287-01 07/15/19 21:23 • (MS) R3430864-6 07/15/19 21:31 • (MSD) R3430864-7 07/15/19 21:34													
Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution %	Rec. Limits	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %	
Arsenic	100	7.45	93.5	93.3	86.1	85.8	1	75.0-125			0.256	20	
Barium	100	104	213	219	109	115	1	75.0-125			2.81	20	
Cadmium	100	1.96	97.3	96.1	95.3	94.2	1	75.0-125			1.22	20	
Chromium	100	10.4	139	103	129	92.8	1	75.0-125			29.8	20	
Lead	100	81.8	212	222	130	141	1	75.0-125			4.73	20	
Selenium	100	ND	93.2	91.5	93.2	91.5	1	75.0-125			1.83	20	
Silver	20.0	ND	20.1	20.0	99.4	98.9	1	75.0-125			0.430	20	

ACCOUNT:

Wood EXI Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

45 of 61



Method Blank (MB)

(MB) R3431273-1 07/16/19 18:17				
	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Lead	U		0.190	0.500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3431273-2 07/16/19 18:20 • (LCSD) R3431273-3 07/16/19 18:23											
Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	
	mg/kg	mg/kg	mg/kg	%	%	%			%	%	
Lead	100	101	95.1	101	95.1	80.0-120			6.13	20	

L1117533-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1117533-02 07/16/19 18:25 • (MS) R3431273-6 07/16/19 18:34 • (MSD) R3431273-7 07/16/19 18:37											
Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%
Lead	5.00	4550	4640	4680	89.6	134	20	75.0-125			20

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

WG1311894

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117435-02.03,04,05,06,07

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3431026-2 07/16/19 08:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0137	0.0250
Acrylonitrile	U		0.00190	0.0125
Benzene	U		0.000400	0.00100
Bromobenzene	U		0.00105	0.0125
Bromodichloromethane	U		0.000788	0.00250
Bromoform	U		0.00598	0.0250
Bromomethane	U		0.00370	0.0125
n-Butylbenzene	U		0.00384	0.0125
sec-Butylbenzene	U		0.00253	0.0125
tert-Butylbenzene	U		0.00155	0.00500
Carbon tetrachloride	U		0.00108	0.00500
Chlorobenzene	U		0.000573	0.00250
Chlorodibromomethane	U		0.000450	0.00250
Chloroethane	U		0.00108	0.00500
Chloroform	U		0.000415	0.00250
Chloromethane	U		0.00139	0.0125
2-Chlorotoluene	U		0.000920	0.00250
4-Chlorotoluene	U		0.00113	0.00500
1,2-Dibromo-3-Chloropropane	U		0.00510	0.0250
1,2-Dibromoethane	U		0.000525	0.00250
Dibromomethane	U		0.00100	0.00500
1,2-Dichlorobenzene	U		0.00145	0.00500
1,3-Dichlorobenzene	U		0.00170	0.00500
1,4-Dichlorobenzene	U		0.00197	0.00500
Dichlorodifluoromethane	U		0.000818	0.00250
1,1-Dichloroethane	U		0.000575	0.00250
1,2-Dichloroethane	U		0.000475	0.00250
1,1-Dichloroethene	U		0.000500	0.00250
trans-1,2-Dichloroethene	U		0.000690	0.00250
trans-1,2-Dichloropropene	U		0.00143	0.00500
1,2-Dichloropropane	U		0.00127	0.00500
1,1-Dichloropropene	U		0.000700	0.00250
1,3-Dichloropropane	U		0.00175	0.00500
cis-1,3-Dichloropropene	U		0.000678	0.00250
trans-1,3-Dichloropropene	U		0.00153	0.00500
2,2-Dichloropropane	U		0.000793	0.00250
D-Isopropyl ether	U		0.000350	0.00100
Ethylbenzene	U		0.000530	0.00250
Hexachloro-1,3-butadiene	U		0.0127	0.0250
Isopropylbenzene	U		0.000863	0.00250

ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L117435

DATE/TIME:

07/19/19 09:56

PAGE:

47 of 61

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

WG1311894

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117435-02.03,04,05,06,07

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3431026-2 07/16/19 08:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.00233	0.00500
2-Butanone (MEK)	0.0139	J	0.0125	0.0250
Methylene Chloride	U		0.00664	0.0250
4-Methyl-2-pentanone (MIBK)	U		0.0100	0.0250
Methyl tert-butyl ether	U		0.000295	0.00100
Naphthalene	U		0.00312	0.0125
n-Propylbenzene	U		0.00118	0.00500
Styrene	U		0.00273	0.0125
1,1,1,2-Tetrachloroethane	U		0.000500	0.00250
1,1,2,2-Tetrachloroethane	U		0.000390	0.00250
Tetrachloroethene	U		0.000700	0.00250
Toluene	U		0.00125	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000675	0.00250
1,2,3-Trichlorobenzene	U		0.000625	0.00250
1,2,4-Trichlorobenzene	U		0.00482	0.0125
1,1,1-Trichloroethane	U		0.000275	0.00250
1,1,2-Trichloroethane	U		0.000883	0.00250
Trichloroethene	U		0.000400	0.00100
Trichlorofluoromethane	U		0.000500	0.00250
1,2,3-Trichloropropane	U		0.00510	0.0125
1,2,4-Trimethylbenzene	U		0.00116	0.00500
1,3,5-Trimethylbenzene	U		0.00108	0.00500
Vinyl chloride	U		0.000683	0.00250
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	100			75.0-131
(S) 4-Bromofluorobenzene	86.3			67.0-138
(S) 1,2-Dichloroethane-d4	105			70.0-130

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Laboratory Control Sample (LCS)

(LCS) R3431026-1 07/16/19 07:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	0.625	0.945	151	10.0-160	
Acrylonitrile	0.625	0.962	154	45.0-153	J4
Benzene	0.125	0.123	98.7	70.0-123	
Bromobenzene	0.125	0.112	89.3	73.0-121	
Bromodichloromethane	0.125	0.102	81.7	73.0-121	
Bromoforn	0.125	0.108	86.4	64.0-132	

ACCOUNT: Wood EXI Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117435

DATE/TIME: 07/19/19 09:56

PAGE: 48 of 61

WG1311894

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117435-02.03,04,05,06,07

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS)

(LCS) R3431026-1 07/16/19 07:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromomethane	0.125	0.126	100	56.0-147	
n-Butylbenzene	0.125	0.125	99.6	68.0-135	
sec-Butylbenzene	0.125	0.116	93.1	74.0-130	
tert-Butylbenzene	0.125	0.0960	76.8	75.0-127	
Carbon tetrachloride	0.125	0.111	88.6	66.0-128	
Chlorobenzene	0.125	0.101	81.1	76.0-128	
Chlorodibromomethane	0.125	0.0982	78.5	74.0-127	
Chloroethane	0.125	0.143	114	61.0-134	
Chloroform	0.125	0.113	90.4	72.0-123	
Chloromethane	0.125	0.180	144	51.0-138	J4
2-Chlorotoluene	0.125	0.101	81.0	75.0-124	
4-Chlorotoluene	0.125	0.131	105	75.0-124	
1,2-Dibromo-3-Chloropropane	0.125	0.115	92.1	59.0-130	
1,2-Dibromomethane	0.125	0.105	84.2	74.0-128	
Dibromomethane	0.125	0.103	82.4	75.0-122	
1,2-Dichlorobenzene	0.125	0.110	88.2	76.0-124	
1,3-Dichlorobenzene	0.125	0.106	84.8	76.0-125	
1,4-Dichlorobenzene	0.125	0.107	85.8	77.0-121	
Dichlorodifluoromethane	0.125	0.135	108	43.0-156	
1,1-Dichloroethane	0.125	0.136	109	70.0-127	
1,2-Dichloroethane	0.125	0.148	118	65.0-131	
1,1-Dichloroethene	0.125	0.137	110	65.0-131	
cis-1,2-Dichloroethene	0.125	0.116	93.2	73.0-125	
trans-1,2-Dichloroethene	0.125	0.110	88.0	71.0-125	
1,2-Dichloropropane	0.125	0.116	92.6	74.0-125	
1,1-Dichloropropene	0.125	0.115	92.3	73.0-125	
1,3-Dichloropropane	0.125	0.119	95.5	80.0-125	
trans-1,3-Dichloropropene	0.125	0.114	91.4	76.0-127	
2,2-Dichloropropane	0.125	0.142	113	59.0-135	
Diisopropyl ether	0.125	0.167	133	60.0-136	
Ethylbenzene	0.125	0.120	95.7	74.0-126	
Hexachloro-1,3-butadiene	0.125	0.108	86.2	57.0-150	
Isopropylbenzene	0.125	0.101	81.1	72.0-127	
p-Isopropyltoluene	0.125	0.106	84.8	72.0-133	
2-Butanone (MEK)	0.625	0.906	145	30.0-160	
Methylene Chloride	0.125	0.110	87.9	68.0-123	
4-Methyl-2-pentanone (MIBK)	0.625	0.885	142	56.0-143	
Methyl tert-butyl ether	0.125	0.137	110	66.0-132	
Napthalene	0.125	0.0967	77.4	59.0-130	

ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L117435

DATE/TIME:

07/19/19 09:56

PAGE:

49 of 61

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

WG1311894

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117435-02.03,04,05,06,07

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS)

(LCS) R3431026-1 07/16/19 07:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
n-Propylbenzene	0.125	0.120	95.7	74.0-126	
Styrene	0.125	0.100	80.2	72.0-127	
1,1,1,2-Tetrachloroethane	0.125	0.0898	71.8	74.0-129	J4
1,1,2,2-Tetrachloroethane	0.125	0.152	121	68.0-128	
Tetrachloroethene	0.125	0.100	80.2	70.0-136	
Toluene	0.125	0.118	94.4	75.0-121	
1,1,2-Trichlorotrifluoroethane	0.125	0.123	98.3	61.0-139	
1,2,3-Trichlorobenzene	0.125	0.0937	75.0	59.0-139	
1,2,4-Trichlorobenzene	0.125	0.0899	71.9	62.0-137	
1,1,1-Trichloroethane	0.125	0.126	101	69.0-126	
1,1,2-Trichloroethane	0.125	0.0988	79.0	78.0-123	
Trichloroethene	0.125	0.106	84.5	76.0-126	
Trichlorofluoromethane	0.125	0.124	99.4	61.0-142	
1,2,3-Trichloropropane	0.125	0.118	94.2	67.0-129	
1,2,4-Trimethylbenzene	0.125	0.102	81.7	70.0-126	
1,3,5-Trimethylbenzene	0.125	0.109	87.1	73.0-127	
Vinyl chloride	0.125	0.159	127	63.0-134	
Xylenes, Total	0.375	0.293	78.1	72.0-127	
(S) Toluene-d8			96.7	75.0-137	
(S) 4-Bromofluorobenzene			88.4	67.0-138	
(S) 1,2-Dichloroethane-d4			117	70.0-130	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

L1118250-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1118250-01 07/16/19 11:03 • (MS) R3431026-3 07/16/19 16:46 • (MSD) R3431026-4 07/16/19 17:05

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution %	Rec. Limits	MS Qualifier	MSD Qualifier	RPD %	RPD Limits
Acetone	0.625	ND	0.789	0.795	126	127	1	10.0-160			0.776	40
Acrylonitrile	0.625	ND	0.846	0.670	135	107	1	10.0-160			23.2	40
Benzene	0.125	ND	0.123	0.111	98.4	88.7	1	10.0-149			10.4	37
Bromobenzene	0.125	ND	0.113	0.101	90.1	80.7	1	10.0-156			11.0	38
Bromodichloromethane	0.125	ND	0.0948	0.0853	75.9	68.3	1	10.0-143			10.6	37
Bromoforn	0.125	ND	0.0963	0.0805	77.0	64.4	1	10.0-146			17.9	36
Bromomethane	0.125	ND	0.124	0.116	99.2	92.6	1	10.0-149			6.86	38
n-Butylbenzene	0.125	ND	0.122	0.109	97.3	86.9	1	10.0-160			11.4	40
sec-Butylbenzene	0.125	ND	0.115	0.102	91.7	81.8	1	10.0-159			11.4	39
tert-Butylbenzene	0.125	ND	0.0962	0.0893	76.9	71.4	1	10.0-156			7.40	39
Carbon tetrachloride	0.125	ND	0.103	0.0933	82.7	74.6	1	10.0-145			10.2	37
Chlorobenzene	0.125	ND	0.102	0.0902	81.3	72.2	1	10.0-152			11.9	39

ACCOUNT: Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117435

DATE/TIME: 07/19/19 09:56

PAGE: 50 of 61

WG1311894

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



L1118250-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1118250-01 07/16/19 11:03 • (MS) R3431026-3 07/16/19 16:46 • (MSD) R3431026-4 07/16/19 17:05

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution %	Rec. Limits	MS Qualifier	MSD Qualifier	RPD %	RPD Limits
Chlorodibromomethane	0.125	ND	0.0963	0.0829	77.1	66.3	1	10.0-146			15.0	37
Chloroethane	0.125	ND	0.103	0.0910	82.5	72.8	1	10.0-146			12.5	40
Chloroform	0.125	ND	0.125	0.104	100	83.5	1	10.0-146			18.0	37
Chloromethane	0.125	ND	0.149	0.0648	120	51.8	1	10.0-159	J3		79.0	37
2-Chlorobutene	0.125	ND	0.0999	0.0987	79.9	78.9	1	10.0-159			1.23	38
4-Chlorobutene	0.125	ND	0.128	0.117	103	93.9	1	10.0-155			8.92	39
1,2-Dibromo-3-Chloropropane	0.125	ND	0.0958	0.0836	76.7	66.9	1	10.0-151			13.7	39
1,2-Dibromomethane	0.125	ND	0.104	0.0882	83.6	70.6	1	10.0-148			16.9	34
Dibromomethane	0.125	ND	0.102	0.0927	81.4	74.1	1	10.0-147			9.36	35
1,2-Dichlorobenzene	0.125	ND	0.104	0.0947	83.1	75.7	1	10.0-155			9.28	37
1,3-Dichlorobenzene	0.125	ND	0.103	0.0963	82.8	77.0	1	10.0-153			7.22	38
1,4-Dichlorobenzene	0.125	ND	0.108	0.0988	86.8	79.0	1	10.0-151			9.35	38
Dichlorodifluoromethane	0.125	ND	0.131	0.121	105	97.0	1	10.0-160			7.99	35
1,1-Dichloroethane	0.125	ND	0.152	0.127	122	101	1	10.0-147			18.3	37
1,2-Dichloroethane	0.125	ND	0.140	0.123	112	98.3	1	10.0-148			13.1	35
1,1-Dichloroethene	0.125	ND	0.144	0.0655	116	52.4	1	10.0-155	J3		75.2	37
cis-1,2-Dichloroethene	0.125	ND	0.123	0.108	98.2	86.7	1	10.0-149			12.5	37
trans-1,2-Dichloroethene	0.125	ND	0.119	0.109	94.9	87.1	1	10.0-150			8.52	37
1,2-Dichloropropane	0.125	ND	0.113	0.106	90.7	84.4	1	10.0-148			7.15	37
1,1-Dichloropropene	0.125	ND	0.111	0.108	88.7	86.4	1	10.0-153			2.68	35
1,3-Dichloropropene	0.125	ND	0.119	0.102	95.1	81.6	1	10.0-154			15.3	35
cis-1,3-Dichloropropene	0.125	ND	0.108	0.101	86.2	80.5	1	10.0-151			6.87	37
trans-1,3-Dichloropropene	0.125	ND	0.122	0.105	97.3	83.7	1	10.0-148			15.0	37
2,2-Dichloropropane	0.125	ND	0.124	0.0898	99.0	71.8	1	10.0-138			31.9	36
Diisopropyl ether	0.125	ND	0.174	0.147	139	117	1	10.0-147			17.2	36
Ethylbenzene	0.125	ND	0.119	0.106	95.3	84.5	1	10.0-160			12.0	38
Hexachloro-1,3-butadiene	0.125	ND	0.0942	0.0888	75.4	71.1	1	10.0-160			5.90	40
Isopropylbenzene	0.125	ND	0.0998	0.0852	79.8	68.2	1	10.0-155			15.7	38
p-Isopropyltoluene	0.125	ND	0.105	0.0922	83.7	73.8	1	10.0-160			12.6	40
2-Butanone (MEK)	0.625	ND	0.806	0.629	127	98.5	1	10.0-160			24.7	40
Methylene Chloride	0.125	ND	0.136	0.0935	109	74.8	1	10.0-141	J3		37.2	37
4-Methyl-2-pentanone (MIBK)	0.625	ND	0.778	0.709	124	114	1	10.0-160			9.22	35
Methyl tert-butyl ether	0.125	ND	0.133	0.102	107	81.2	1	11.0-147			27.1	35
Naphthalene	0.125	ND	0.0872	0.0705	69.8	56.4	1	10.0-160			21.2	36
n-Propylbenzene	0.125	ND	0.117	0.107	93.6	85.8	1	10.0-158			8.74	38
Styrene	0.125	ND	0.0948	0.0787	75.8	63.0	1	10.0-160			18.5	40
1,1,1,2-Tetrachloroethane	0.125	ND	0.0858	0.0720	68.6	57.6	1	10.0-149			17.5	39
1,1,2,2-Tetrachloroethane	0.125	ND	0.144	0.122	115	97.7	1	10.0-160			16.3	35
Tetrachloroethene	0.125	ND	0.100	0.0875	80.1	70.0	1	10.0-156			13.4	39
Toluene	0.125	ND	0.119	0.109	95.2	87.1	1	10.0-156			8.85	38

ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L117435

DATE/TIME: 07/19/19 09:56

PAGE: 51 of 61



WG1311894

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



L1118250-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1118250-01 07/16/19 11:03 • (MS) R3431026-3 07/16/19 16:46 • (MSD) R3431026-4 07/16/19 17:05

[L1117435-02.03.04.05.06.07](#)

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,1,2-Trichloroethylfluoroethane	0.125	ND	0.123	0.112	98.6	89.4	1	10.0-160			9.86	36
1,2,3-Trichlorobenzene	0.125	ND	0.0846	0.0736	67.7	58.9	1	10.0-160			13.9	40
1,2,4-Trichlorobenzene	0.125	ND	0.0841	0.0757	67.3	60.5	1	10.0-160			10.6	40
1,1,1-Trichloroethane	0.125	ND	0.119	0.100	95.3	80.1	1	10.0-144			17.3	35
1,1,2-Trichloroethane	0.125	ND	0.0992	0.0852	79.4	68.2	1	10.0-160			15.2	35
Trichloroethene	0.125	ND	0.103	0.0953	82.5	76.3	1	10.0-156			7.85	38
Trichlorofluoromethane	0.125	ND	0.162	0.145	130	116	1	10.0-160			11.3	40
1,2,3-Trichloropropane	0.125	ND	0.114	0.101	91.3	80.7	1	10.0-156			12.3	35
1,2,4-Trimethylbenzene	0.125	ND	0.0959	0.0863	76.7	69.0	1	10.0-160			10.5	36
1,3,5-Trimethylbenzene	0.125	ND	0.108	0.0958	86.7	76.7	1	10.0-160			12.3	38
Vinyl chloride	0.125	ND	0.127	0.118	102	94.6	1	10.0-160			7.04	37
Xylenes, Total	0.375	ND	0.291	0.256	77.6	68.3	1	10.0-160			12.8	38
(S) Toluene-d8					101	98.3		75.0-131				
(S) 4-Bromofluorobenzene					89.6	85.4		67.0-138				
(S) 1,2-Dichloroethane-d4					116	117		70.0-130				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood EXI Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

52 of 61

WG1312492

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

QUALITY CONTROL SUMMARY

L117435-02.03.04

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R343757-2 07/18/19 00:21

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo[<i>a</i>]anthracene	U		0.000600	0.00600
Benzo[<i>a</i>]pyrene	U		0.000600	0.00600
Benzo[<i>b</i>]fluoranthene	U		0.000600	0.00600
Benzo[<i>g,h,i</i>]perylene	U		0.000600	0.00600
Benzo[<i>k</i>]fluoranthene	U		0.000600	0.00600
Chrysene	U		0.000600	0.00600
Dibenzo[<i>a,h</i>]anthracene	U		0.000600	0.00600
Fluoranthene	U		0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno[1,2,3- <i>cd</i>]pyrene	U		0.000600	0.00600
Naphthalene	U		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
<i>(S)</i> Nitrobenzene- <i>d</i> 5	79.9			14.0-149
<i>(S)</i> 2-Fluorobiphenyl	82.3			34.0-125
<i>(S)</i> <i>p</i> -Terphenyl- <i>d</i> 14	77.3			23.0-120

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Laboratory Control Sample (LCS)

(LCS) R343757-1 07/17/19 23:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0725	90.6	50.0-126	
Acenaphthene	0.0800	0.0650	81.3	50.0-120	
Acenaphthylene	0.0800	0.0672	84.0	50.0-120	
Benzo[<i>a</i>]anthracene	0.0800	0.0657	82.1	45.0-120	
Benzo[<i>a</i>]pyrene	0.0800	0.0600	75.0	42.0-120	
Benzo[<i>b</i>]fluoranthene	0.0800	0.0583	72.9	42.0-121	
Benzo[<i>g,h,i</i>]perylene	0.0800	0.0621	77.6	45.0-125	
Benzo[<i>k</i>]fluoranthene	0.0800	0.0639	79.9	49.0-125	
Chrysene	0.0800	0.0641	80.1	49.0-122	
Dibenzo[<i>a,h</i>]anthracene	0.0800	0.0653	81.6	47.0-125	
Fluoranthene	0.0800	0.0700	87.5	49.0-129	
Fluorene	0.0800	0.0667	83.4	49.0-120	
Indeno[1,2,3- <i>cd</i>]pyrene	0.0800	0.0653	81.6	46.0-125	
Naphthalene	0.0800	0.0615	76.9	50.0-120	

ACCOUNT:
Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L117435

DATE/TIME:
07/19/19 09:56

PAGE:
53 of 61

WG1312492

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

QUALITY CONTROL SUMMARY

L1177435-02.03.04

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS)

(LCS) R343757-1 07/17/19 23:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Phenanthrene	0.0800	0.0657	82.1	47.0-120	
Pyrene	0.0800	0.0603	75.4	43.0-123	
(S) Nitrobenzene-d5			83.8	14.0-149	
(S) 2-Fluorobiphenyl			84.4	34.0-125	
(S) p-Terphenyl-d14			77.6	23.0-120	

L117611-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L117611-01 07/18/19 02:55 • (MS) R343757-3 07/18/19 03:17 • (MSD) R343757-4 07/18/19 03:39

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution %	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0772	U	0.0622	0.0530	80.6	68.3	1	10.0-145			16.0	30
Acenaphthene	0.0772	U	0.0533	0.0429	69.0	55.3	1	14.0-127			21.6	27
Acenaphthylene	0.0772	U	0.0566	0.0450	73.3	58.0	1	21.0-124			22.8	25
Benz[a]anthracene	0.0772	0.000676	0.0549	0.0469	70.2	59.6	1	10.0-139			15.7	30
Benz[a]pyrene	0.0772	0.00182	0.0526	0.0449	65.8	55.5	1	10.0-141			15.8	31
Benz[b]fluoranthene	0.0772	0.00370	0.0522	0.0457	62.8	54.1	1	10.0-140			13.3	36
Benz[g,h,i]perylene	0.0772	0.00344	0.0541	0.0467	65.6	55.7	1	10.0-140			14.7	33
Benz[k]fluoranthene	0.0772	0.00154	0.0511	0.0424	64.2	52.7	1	10.0-137			18.6	31
Chrysene	0.0772	U	0.0528	0.0446	68.4	57.5	1	10.0-145			16.8	30
Dibenz[a,h]anthracene	0.0772	U	0.0543	0.0460	70.3	59.3	1	10.0-132			16.6	31
Fluoranthene	0.0772	0.00133	0.0592	0.0512	75.0	64.3	1	10.0-153			14.5	33
Fluorene	0.0772	U	0.0543	0.0446	70.3	57.5	1	11.0-130			19.6	29
Indeno[1,2,3-cd]pyrene	0.0772	0.00182	0.0548	0.0470	68.6	58.2	1	10.0-137			15.3	32
Naphthalene	0.0772	U	0.0511	0.0386	66.2	49.7	1	10.0-135		J3	27.9	27
Phenanthrene	0.0772	0.000873	0.0536	0.0451	68.3	57.0	1	10.0-144			17.2	31
Pyrene	0.0772	0.00177	0.0503	0.0431	62.9	53.3	1	10.0-148			15.4	35
(S) Nitrobenzene-d5					75.9	59.7		14.0-149				
(S) 2-Fluorobiphenyl					75.0	59.2		34.0-125				
(S) p-Terphenyl-d14					69.8	56.4		23.0-120				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1177435

DATE/TIME:

07/19/19 09:56

PAGE:

54 of 61

WG1313275

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3431969-2 07/18/19 12:41

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo[<i>a</i>]anthracene	U		0.000600	0.00600
Benzo[<i>a</i>]pyrene	U		0.000600	0.00600
Benzo[<i>b</i>]fluoranthene	U		0.000600	0.00600
Benzo[<i>g,h,i</i>]perylene	U		0.000600	0.00600
Benzo[<i>k</i>]fluoranthene	U		0.000600	0.00600
Chrysene	U		0.000600	0.00600
Dibenzo[<i>a,h</i>]anthracene	U		0.000600	0.00600
Fluoranthene	U		0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno[1,2,3- <i>cd</i>]pyrene	U		0.000600	0.00600
Naphthalene	U		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
<i>(S)</i> Nitrobenzene- <i>d</i> 5				
	90.2			14.0-149
<i>(S)</i> 2-Fluorobiphenyl				
	97.0			34.0-125
<i>(S)</i> <i>p</i> -Terphenyl- <i>d</i> 14				
	94.8			23.0-120

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Laboratory Control Sample (LCS)

(LCS) R3431969-1 07/18/19 12:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	0.0800	0.0669	83.6	50.0-126	
Acenaphthene	0.0800	0.0616	77.0	50.0-120	
Acenaphthylene	0.0800	0.0637	79.6	50.0-120	
Benzo[<i>a</i>]anthracene	0.0800	0.0609	76.1	45.0-120	
Benzo[<i>a</i>]pyrene	0.0800	0.0576	72.0	42.0-120	
Benzo[<i>b</i>]fluoranthene	0.0800	0.0542	67.8	42.0-121	
Benzo[<i>g,h,i</i>]perylene	0.0800	0.0592	74.0	45.0-125	
Benzo[<i>k</i>]fluoranthene	0.0800	0.0616	77.0	49.0-125	
Chrysene	0.0800	0.0601	75.1	49.0-122	
Dibenzo[<i>a,h</i>]anthracene	0.0800	0.0616	77.0	47.0-125	
Fluoranthene	0.0800	0.0640	80.0	49.0-129	
Fluorene	0.0800	0.0616	77.0	49.0-120	
Indeno[1,2,3- <i>cd</i>]pyrene	0.0800	0.0622	77.8	46.0-125	
Naphthalene	0.0800	0.0583	72.9	50.0-120	

ACCOUNT:
Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L117435

DATE/TIME:
07/19/19 09:56

PAGE:
55 of 61

WG13132275

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS)

(LCS) R3431969-4 07/18/19 12:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Phenanthrene	0.0800	0.0604	75.5	47.0-120	
Pyrene	0.0800	0.0558	69.8	43.0-123	
(S) Nitrobenzene-d5			78.5	14.0-149	
(S) 2-Fluorobiphenyl			82.5	34.0-125	
(S) p-Terphenyl-d14			79.6	23.0-120	

L1117366-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1117366-03 07/18/19 13:47 • (MS) R3431969-3 07/18/19 14:09 • (MSD) R3431969-4 07/18/19 14:31

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution %	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	ND	0.0551	0.0593	68.9	74.1	1	10.0-145			7.34	30
Acenaphthene	0.0800	ND	0.0512	0.0529	64.0	66.1	1	14.0-127			3.27	27
Acenaphthylene	0.0800	ND	0.0533	0.0553	66.6	69.1	1	21.0-124			3.68	25
Benz[a]anthracene	0.0800	ND	0.0506	0.0546	63.3	68.3	1	10.0-139			7.60	30
Benz[a]pyrene	0.0800	ND	0.0498	0.0533	62.3	66.6	1	10.0-141			6.79	31
Benz[b]fluoranthene	0.0800	ND	0.0449	0.0480	56.1	60.0	1	10.0-140			6.67	36
Benz[g,h,i]perylene	0.0800	ND	0.0490	0.0522	61.3	65.3	1	10.0-140			6.32	33
Benz[k]fluoranthene	0.0800	ND	0.0515	0.0548	64.4	68.5	1	10.0-137			6.21	31
Chrysene	0.0800	ND	0.0507	0.0542	63.4	67.8	1	10.0-145			6.67	30
Dibenz[a,h]anthracene	0.0800	ND	0.0530	0.0565	66.3	70.6	1	10.0-132			6.39	31
Fluoranthene	0.0800	ND	0.0508	0.0543	63.5	67.9	1	10.0-153			6.66	33
Fluorene	0.0800	ND	0.0508	0.0536	63.5	67.0	1	11.0-130			5.36	29
Indeno[1,2,3-cd]pyrene	0.0800	ND	0.0520	0.0553	65.0	69.1	1	10.0-137			6.15	32
Naphthalene	0.0800	ND	0.0508	0.0509	63.5	63.6	1	10.0-135			0.197	27
Phenanthrene	0.0800	ND	0.0476	0.0511	59.5	63.9	1	10.0-144			7.09	31
Pyrene	0.0800	ND	0.0454	0.0481	56.8	60.1	1	10.0-148			5.78	35
(S) Nitrobenzene-d5					74.1	78.9		14.0-149				
(S) 2-Fluorobiphenyl					77.7	83.5		34.0-125				
(S) p-Terphenyl-d14					73.0	78.7		23.0-120				



ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117435

DATE/TIME:

07/19/19 09:56

PAGE:

56 of 61

GLOSSARY OF TERMS

ONE LAB. NATIONWIDE.



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117435

DATE/TIME:
07/19/19 09:56

PAGE:
57 of 61

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.



Pace National is the **only** environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117435

DATE/TIME:
07/19/19 09:56

PAGE:
58 of 61

APPENDIX D

GROUNDWATER ANALYTICAL REPORT



ANALYTICAL REPORT

July 17, 2019

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Wood E&I Solutions Inc. - St. Louis, MO

Sample Delivery Group: L1117399
Samples Received: 07/11/2019
Project Number:
Description:
Site: STGE
Report To: John R. Mittauer
15933 Clayton Road, Suite 215
Ballwin, MO 63011

Entire Report Reviewed By:

Jeff Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399

DATE/TIME:
07/17/19 14:03

PAGE:
1 of 49

TABLE OF CONTENTS

ONE LAB. NATIONWIDE.



Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	5	
Sr: Sample Results	6	³ Ss
B-7 L1117399-01	6	
B-4 L1117399-02	8	⁴ Cn
B-3 L1117399-03	10	⁵ Sr
B-B L1117399-04	12	
B-C L1117399-05	14	⁶ Qc
B-1 L1117399-06	16	
B-6 L1117399-07	18	⁷ Gl
B-5 L1117399-08	20	⁸ Al
B-8 L1117399-09	22	
B-2 L1117399-10	24	⁹ Sc
109 WELL L1117399-11	26	
Qc: Quality Control Summary	28	
Metals (ICP) by Method 6010B	28	
Volatile Organic Compounds (GC/MS) by Method 8260B	29	
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	42	
Gl: Glossary of Terms	46	
Al: Accreditations & Locations	47	
Sc: Sample Chain of Custody	48	

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



B-7 L1117399-01 GW

Collected by
Bryan Gatlin

Collected date/time
07/08/19 15:25

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1310074	2	07/12/19 03:17	07/12/19 03:17	JHH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1310064	1.11	07/12/19 07:08	07/12/19 19:27	DMG	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

B-4 L1117399-02 GW

Collected by
Bryan Gatlin

Collected date/time
07/08/19 15:50

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1310074	1	07/12/19 03:37	07/12/19 03:37	JHH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1310064	1.05	07/12/19 07:08	07/12/19 19:49	DMG	Mt. Juliet, TN

B-3 L1117399-03 GW

Collected by
Bryan Gatlin

Collected date/time
07/08/19 16:40

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1310114	1	07/12/19 04:51	07/12/19 04:51	JAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1310064	1.03	07/12/19 07:08	07/12/19 20:10	DMG	Mt. Juliet, TN

B-B L1117399-04 GW

Collected by
Bryan Gatlin

Collected date/time
07/09/19 07:15

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1310114	1	07/12/19 05:12	07/12/19 05:12	JAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1310064	1.05	07/12/19 07:08	07/12/19 20:31	DMG	Mt. Juliet, TN

B-C L1117399-05 GW

Collected by
Bryan Gatlin

Collected date/time
07/09/19 07:30

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1310114	5	07/12/19 05:32	07/12/19 05:32	JAH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1310064	1.29	07/12/19 07:08	07/12/19 20:52	DMG	Mt. Juliet, TN

B-1 L1117399-06 GW

Collected by
Bryan Gatlin

Collected date/time
07/09/19 07:50

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1310127	1	07/12/19 02:13	07/12/19 02:13	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1312316	1	07/16/19 22:43	07/16/19 22:43	JHH	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1310064	1.05	07/12/19 07:08	07/12/19 21:14	DMG	Mt. Juliet, TN

B-6 L1117399-07 GW

Collected by
Bryan Gatlin

Collected date/time
07/09/19 11:35

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1310127	2	07/12/19 02:34	07/12/19 02:34	DWR	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1311212	1	07/16/19 08:20	07/16/19 19:47	DMM	Mt. Juliet, TN

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

3 of 49

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



B-5 L1117399-08 GW

Collected by
Bryan Gatlin

Collected date/time
07/09/19 11:45

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1310127	1	07/12/19 02:55	07/12/19 02:55	DWR	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1311212	1	07/16/19 08:20	07/16/19 20:10	DMM	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

B-8 L1117399-09 GW

Collected by
Bryan Gatlin

Collected date/time
07/09/19 12:00

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1310127	1	07/12/19 03:16	07/12/19 03:16	DWR	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1311212	1	07/16/19 08:20	07/16/19 20:33	DMM	Mt. Juliet, TN

B-2 L1117399-10 GW

Collected by
Bryan Gatlin

Collected date/time
07/09/19 12:15

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1310127	5	07/12/19 03:37	07/12/19 03:37	DWR	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1311212	1	07/16/19 08:20	07/16/19 20:57	DMM	Mt. Juliet, TN

109 WELL L1117399-11 GW

Collected by
Bryan Gatlin

Collected date/time
07/08/19 16:20

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1310135	1	07/11/19 23:48	07/12/19 10:38	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1310127	1	07/12/19 03:58	07/12/19 03:58	DWR	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG1310064	1	07/12/19 07:08	07/12/19 21:35	DMG	Mt. Juliet, TN

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

4 of 49

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jeff Carr
Project Manager

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

B-7

Collected date/time: 07/08/19 15:25

SAMPLE RESULTS - 01

L1117399

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.100	2	07/12/2019 03:17	WG1310074
Acrylonitrile	ND		0.0200	2	07/12/2019 03:17	WG1310074
Benzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
Bromobenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
Bromodichloromethane	ND		0.00200	2	07/12/2019 03:17	WG1310074
Bromoform	ND		0.00200	2	07/12/2019 03:17	WG1310074
Bromomethane	ND		0.0100	2	07/12/2019 03:17	WG1310074
n-Butylbenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
sec-Butylbenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
tert-Butylbenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
Carbon tetrachloride	ND		0.00200	2	07/12/2019 03:17	WG1310074
Chlorobenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
Chlorodibromomethane	ND		0.00200	2	07/12/2019 03:17	WG1310074
Chloroethane	ND		0.0100	2	07/12/2019 03:17	WG1310074
Chloroform	ND		0.0100	2	07/12/2019 03:17	WG1310074
Chloromethane	ND		0.00500	2	07/12/2019 03:17	WG1310074
2-Chlorotoluene	ND		0.00200	2	07/12/2019 03:17	WG1310074
4-Chlorotoluene	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,2-Dibromo-3-Chloropropane	ND		0.0100	2	07/12/2019 03:17	WG1310074
1,2-Dibromoethane	ND		0.00200	2	07/12/2019 03:17	WG1310074
Dibromomethane	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,2-Dichlorobenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,3-Dichlorobenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,4-Dichlorobenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
Dichlorodifluoromethane	ND	J4	0.0100	2	07/12/2019 03:17	WG1310074
1,1-Dichloroethane	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,2-Dichloroethane	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,1-Dichloroethene	ND		0.00200	2	07/12/2019 03:17	WG1310074
cis-1,2-Dichloroethene	ND		0.00200	2	07/12/2019 03:17	WG1310074
trans-1,2-Dichloroethene	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,2-Dichloropropane	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,1-Dichloropropene	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,3-Dichloropropane	ND		0.00200	2	07/12/2019 03:17	WG1310074
cis-1,3-Dichloropropene	ND		0.00200	2	07/12/2019 03:17	WG1310074
trans-1,3-Dichloropropene	ND		0.00200	2	07/12/2019 03:17	WG1310074
2,2-Dichloropropane	ND		0.00200	2	07/12/2019 03:17	WG1310074
Di-isopropyl ether	ND		0.00200	2	07/12/2019 03:17	WG1310074
Ethylbenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
Hexachloro-1,3-butadiene	ND		0.00200	2	07/12/2019 03:17	WG1310074
Isopropylbenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
p-Isopropyltoluene	ND		0.00200	2	07/12/2019 03:17	WG1310074
2-Butanone (MEK)	ND		0.0200	2	07/12/2019 03:17	WG1310074
Methylene Chloride	ND		0.0100	2	07/12/2019 03:17	WG1310074
4-Methyl-2-pentanone (MIBK)	ND		0.0200	2	07/12/2019 03:17	WG1310074
Methyl tert-butyl ether	ND		0.00200	2	07/12/2019 03:17	WG1310074
Naphthalene	ND		0.0100	2	07/12/2019 03:17	WG1310074
n-Propylbenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
Styrene	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,1,1,2-Tetrachloroethane	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,1,2,2-Tetrachloroethane	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,1,2-Trichlorotrifluoroethane	ND		0.00200	2	07/12/2019 03:17	WG1310074
Tetrachloroethene	ND		0.00200	2	07/12/2019 03:17	WG1310074
Toluene	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,2,3-Trichlorobenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,2,4-Trichlorobenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,1,1-Trichloroethane	ND		0.00200	2	07/12/2019 03:17	WG1310074

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

6 of 49

B-7

SAMPLE RESULTS - 01

ONE LAB. NATIONWIDE.



Collected date/time: 07/08/19 15:25

L1117399

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,2-Trichloroethane	ND		0.00200	2	07/12/2019 03:17	WG1310074
Trichloroethene	ND		0.00200	2	07/12/2019 03:17	WG1310074
Trichlorofluoromethane	ND		0.0100	2	07/12/2019 03:17	WG1310074
1,2,3-Trichloropropane	ND		0.00500	2	07/12/2019 03:17	WG1310074
1,2,4-Trimethylbenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,2,3-Trimethylbenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
1,3,5-Trimethylbenzene	ND		0.00200	2	07/12/2019 03:17	WG1310074
Vinyl chloride	ND		0.00200	2	07/12/2019 03:17	WG1310074
Xylenes, Total	ND		0.00600	2	07/12/2019 03:17	WG1310074
(S) Toluene-d8	102		80.0-120		07/12/2019 03:17	WG1310074
(S) 4-Bromofluorobenzene	108		77.0-126		07/12/2019 03:17	WG1310074
(S) 1,2-Dichloroethane-d4	107		70.0-130		07/12/2019 03:17	WG1310074

Sample Narrative:

L1117399-01 WG1310074: Lowest possible dilution due to sediment in sample vial.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Acenaphthene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Acenaphthylene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Benzo(a)anthracene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Benzo(a)pyrene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Benzo(b)fluoranthene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Benzo(g,h,i)perylene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Benzo(k)fluoranthene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Chrysene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Dibenz(a,h)anthracene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Fluoranthene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Fluorene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Indeno(1,2,3-cd)pyrene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Naphthalene	ND		0.000278	1.11	07/12/2019 19:27	WG1310064
Phenanthrene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
Pyrene	ND		0.0000555	1.11	07/12/2019 19:27	WG1310064
(S) Nitrobenzene-d5	121		31.0-160		07/12/2019 19:27	WG1310064
(S) 2-Fluorobiphenyl	104		48.0-148		07/12/2019 19:27	WG1310064
(S) p-Terphenyl-d14	86.0		37.0-146		07/12/2019 19:27	WG1310064

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399DATE/TIME:
07/17/19 14:03PAGE:
7 of 49

B-4

Collected date/time: 07/08/19 15:50

SAMPLE RESULTS - 02

L1117399

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	07/12/2019 03:37	WG1310074
Acrylonitrile	ND		0.0100	1	07/12/2019 03:37	WG1310074
Benzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
Bromobenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
Bromodichloromethane	ND		0.00100	1	07/12/2019 03:37	WG1310074
Bromoform	ND		0.00100	1	07/12/2019 03:37	WG1310074
Bromomethane	ND		0.00500	1	07/12/2019 03:37	WG1310074
n-Butylbenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
sec-Butylbenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
tert-Butylbenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
Carbon tetrachloride	ND		0.00100	1	07/12/2019 03:37	WG1310074
Chlorobenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
Chlorodibromomethane	ND		0.00100	1	07/12/2019 03:37	WG1310074
Chloroethane	ND		0.00500	1	07/12/2019 03:37	WG1310074
Chloroform	ND		0.00500	1	07/12/2019 03:37	WG1310074
Chloromethane	ND		0.00250	1	07/12/2019 03:37	WG1310074
2-Chlorotoluene	ND		0.00100	1	07/12/2019 03:37	WG1310074
4-Chlorotoluene	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	07/12/2019 03:37	WG1310074
1,2-Dibromoethane	ND		0.00100	1	07/12/2019 03:37	WG1310074
Dibromomethane	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,2-Dichlorobenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,3-Dichlorobenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,4-Dichlorobenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
Dichlorodifluoromethane	ND	J4	0.00500	1	07/12/2019 03:37	WG1310074
1,1-Dichloroethane	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,2-Dichloroethane	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,1-Dichloroethene	ND		0.00100	1	07/12/2019 03:37	WG1310074
cis-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 03:37	WG1310074
trans-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,2-Dichloropropane	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,1-Dichloropropene	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,3-Dichloropropane	ND		0.00100	1	07/12/2019 03:37	WG1310074
cis-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 03:37	WG1310074
trans-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 03:37	WG1310074
2,2-Dichloropropane	ND		0.00100	1	07/12/2019 03:37	WG1310074
Di-isopropyl ether	ND		0.00100	1	07/12/2019 03:37	WG1310074
Ethylbenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
Hexachloro-1,3-butadiene	ND		0.00100	1	07/12/2019 03:37	WG1310074
Isopropylbenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
p-Isopropyltoluene	ND		0.00100	1	07/12/2019 03:37	WG1310074
2-Butanone (MEK)	ND		0.0100	1	07/12/2019 03:37	WG1310074
Methylene Chloride	ND		0.00500	1	07/12/2019 03:37	WG1310074
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	07/12/2019 03:37	WG1310074
Methyl tert-butyl ether	ND		0.00100	1	07/12/2019 03:37	WG1310074
Naphthalene	ND		0.00500	1	07/12/2019 03:37	WG1310074
n-Propylbenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
Styrene	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,1,1,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,1,2,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	07/12/2019 03:37	WG1310074
Tetrachloroethene	ND		0.00100	1	07/12/2019 03:37	WG1310074
Toluene	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,2,3-Trichlorobenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,2,4-Trichlorobenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,1,1-Trichloroethane	ND		0.00100	1	07/12/2019 03:37	WG1310074

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

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7 Gl

8 Al

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ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

8 of 49

B-4

SAMPLE RESULTS - 02

ONE LAB. NATIONWIDE.



Collected date/time: 07/08/19 15:50

L1117399

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,2-Trichloroethane	ND		0.00100	1	07/12/2019 03:37	WG1310074
Trichloroethene	ND		0.00100	1	07/12/2019 03:37	WG1310074
Trichlorofluoromethane	ND		0.00500	1	07/12/2019 03:37	WG1310074
1,2,3-Trichloropropane	ND		0.00250	1	07/12/2019 03:37	WG1310074
1,2,4-Trimethylbenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,2,3-Trimethylbenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
1,3,5-Trimethylbenzene	ND		0.00100	1	07/12/2019 03:37	WG1310074
Vinyl chloride	ND		0.00100	1	07/12/2019 03:37	WG1310074
Xylenes, Total	ND		0.00300	1	07/12/2019 03:37	WG1310074
(S) Toluene-d8	100		80.0-120		07/12/2019 03:37	WG1310074
(S) 4-Bromofluorobenzene	106		77.0-126		07/12/2019 03:37	WG1310074
(S) 1,2-Dichloroethane-d4	107		70.0-130		07/12/2019 03:37	WG1310074

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Acenaphthene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Acenaphthylene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Benzo(a)anthracene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Benzo(a)pyrene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Benzo(b)fluoranthene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Benzo(g,h,i)perylene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Benzo(k)fluoranthene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Chrysene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Dibenz(a,h)anthracene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Fluoranthene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Fluorene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Indeno(1,2,3-cd)pyrene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Naphthalene	ND		0.000263	1.05	07/12/2019 19:49	WG1310064
Phenanthrene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
Pyrene	ND		0.0000525	1.05	07/12/2019 19:49	WG1310064
(S) Nitrobenzene-d5	123		31.0-160		07/12/2019 19:49	WG1310064
(S) 2-Fluorobiphenyl	106		48.0-148		07/12/2019 19:49	WG1310064
(S) p-Terphenyl-d14	85.7		37.0-146		07/12/2019 19:49	WG1310064

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

9 of 49

B-3

Collected date/time: 07/08/19 16:40

SAMPLE RESULTS - 03

L1117399

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	07/12/2019 04:51	WG1310114
Acrylonitrile	ND		0.0100	1	07/12/2019 04:51	WG1310114
Benzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
Bromobenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
Bromodichloromethane	ND		0.00100	1	07/12/2019 04:51	WG1310114
Bromoform	ND		0.00100	1	07/12/2019 04:51	WG1310114
Bromomethane	ND		0.00500	1	07/12/2019 04:51	WG1310114
n-Butylbenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
sec-Butylbenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
tert-Butylbenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
Carbon tetrachloride	ND		0.00100	1	07/12/2019 04:51	WG1310114
Chlorobenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
Chlorodibromomethane	ND		0.00100	1	07/12/2019 04:51	WG1310114
Chloroethane	ND		0.00500	1	07/12/2019 04:51	WG1310114
Chloroform	ND		0.00500	1	07/12/2019 04:51	WG1310114
Chloromethane	ND		0.00250	1	07/12/2019 04:51	WG1310114
2-Chlorotoluene	ND		0.00100	1	07/12/2019 04:51	WG1310114
4-Chlorotoluene	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	07/12/2019 04:51	WG1310114
1,2-Dibromoethane	ND		0.00100	1	07/12/2019 04:51	WG1310114
Dibromomethane	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,2-Dichlorobenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,3-Dichlorobenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,4-Dichlorobenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
Dichlorodifluoromethane	ND		0.00500	1	07/12/2019 04:51	WG1310114
1,1-Dichloroethane	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,2-Dichloroethane	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,1-Dichloroethene	ND		0.00100	1	07/12/2019 04:51	WG1310114
cis-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 04:51	WG1310114
trans-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,2-Dichloropropane	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,1-Dichloropropene	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,3-Dichloropropane	ND		0.00100	1	07/12/2019 04:51	WG1310114
cis-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 04:51	WG1310114
trans-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 04:51	WG1310114
2,2-Dichloropropane	ND		0.00100	1	07/12/2019 04:51	WG1310114
Di-isopropyl ether	ND		0.00100	1	07/12/2019 04:51	WG1310114
Ethylbenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
Hexachloro-1,3-butadiene	ND		0.00100	1	07/12/2019 04:51	WG1310114
Isopropylbenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
p-Isopropyltoluene	ND		0.00100	1	07/12/2019 04:51	WG1310114
2-Butanone (MEK)	ND		0.0100	1	07/12/2019 04:51	WG1310114
Methylene Chloride	ND		0.00500	1	07/12/2019 04:51	WG1310114
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	07/12/2019 04:51	WG1310114
Methyl tert-butyl ether	ND		0.00100	1	07/12/2019 04:51	WG1310114
Naphthalene	ND		0.00500	1	07/12/2019 04:51	WG1310114
n-Propylbenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
Styrene	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,1,1,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,1,2,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	07/12/2019 04:51	WG1310114
Tetrachloroethene	ND		0.00100	1	07/12/2019 04:51	WG1310114
Toluene	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,2,3-Trichlorobenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,2,4-Trichlorobenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,1,1-Trichloroethane	ND		0.00100	1	07/12/2019 04:51	WG1310114

1 Cp

2 Tc

3 Ss

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5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

10 of 49

B-3

SAMPLE RESULTS - 03

ONE LAB. NATIONWIDE.



Collected date/time: 07/08/19 16:40

L1117399

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,2-Trichloroethane	ND		0.00100	1	07/12/2019 04:51	WG1310114
Trichloroethene	ND		0.00100	1	07/12/2019 04:51	WG1310114
Trichlorofluoromethane	ND		0.00500	1	07/12/2019 04:51	WG1310114
1,2,3-Trichloropropane	ND		0.00250	1	07/12/2019 04:51	WG1310114
1,2,4-Trimethylbenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,2,3-Trimethylbenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
1,3,5-Trimethylbenzene	ND		0.00100	1	07/12/2019 04:51	WG1310114
Vinyl chloride	ND		0.00100	1	07/12/2019 04:51	WG1310114
Xylenes, Total	ND		0.00300	1	07/12/2019 04:51	WG1310114
(S) Toluene-d8	109		80.0-120		07/12/2019 04:51	WG1310114
(S) 4-Bromofluorobenzene	102		77.0-126		07/12/2019 04:51	WG1310114
(S) 1,2-Dichloroethane-d4	99.8		70.0-130		07/12/2019 04:51	WG1310114

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Acenaphthene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Acenaphthylene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Benzo(a)anthracene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Benzo(a)pyrene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Benzo(b)fluoranthene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Benzo(g,h,i)perylene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Benzo(k)fluoranthene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Chrysene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Dibenz(a,h)anthracene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Fluoranthene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Fluorene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Indeno(1,2,3-cd)pyrene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Naphthalene	ND		0.000258	1.03	07/12/2019 20:10	WG1310064
Phenanthrene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
Pyrene	ND		0.0000515	1.03	07/12/2019 20:10	WG1310064
(S) Nitrobenzene-d5	124		31.0-160		07/12/2019 20:10	WG1310064
(S) 2-Fluorobiphenyl	107		48.0-148		07/12/2019 20:10	WG1310064
(S) p-Terphenyl-d14	78.5		37.0-146		07/12/2019 20:10	WG1310064

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399DATE/TIME:
07/17/19 14:03PAGE:
11 of 49

B-B

Collected date/time: 07/09/19 07:15

SAMPLE RESULTS - 04

L1117399

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	07/12/2019 05:12	WG1310114
Acrylonitrile	ND		0.0100	1	07/12/2019 05:12	WG1310114
Benzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
Bromobenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
Bromodichloromethane	ND		0.00100	1	07/12/2019 05:12	WG1310114
Bromoform	ND		0.00100	1	07/12/2019 05:12	WG1310114
Bromomethane	ND		0.00500	1	07/12/2019 05:12	WG1310114
n-Butylbenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
sec-Butylbenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
tert-Butylbenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
Carbon tetrachloride	ND		0.00100	1	07/12/2019 05:12	WG1310114
Chlorobenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
Chlorodibromomethane	ND		0.00100	1	07/12/2019 05:12	WG1310114
Chloroethane	ND		0.00500	1	07/12/2019 05:12	WG1310114
Chloroform	ND		0.00500	1	07/12/2019 05:12	WG1310114
Chloromethane	ND		0.00250	1	07/12/2019 05:12	WG1310114
2-Chlorotoluene	ND		0.00100	1	07/12/2019 05:12	WG1310114
4-Chlorotoluene	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	07/12/2019 05:12	WG1310114
1,2-Dibromoethane	ND		0.00100	1	07/12/2019 05:12	WG1310114
Dibromomethane	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,2-Dichlorobenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,3-Dichlorobenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,4-Dichlorobenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
Dichlorodifluoromethane	ND		0.00500	1	07/12/2019 05:12	WG1310114
1,1-Dichloroethane	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,2-Dichloroethane	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,1-Dichloroethene	ND		0.00100	1	07/12/2019 05:12	WG1310114
cis-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 05:12	WG1310114
trans-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,2-Dichloropropane	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,1-Dichloropropene	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,3-Dichloropropane	ND		0.00100	1	07/12/2019 05:12	WG1310114
cis-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 05:12	WG1310114
trans-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 05:12	WG1310114
2,2-Dichloropropane	ND		0.00100	1	07/12/2019 05:12	WG1310114
Di-isopropyl ether	ND		0.00100	1	07/12/2019 05:12	WG1310114
Ethylbenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
Hexachloro-1,3-butadiene	ND		0.00100	1	07/12/2019 05:12	WG1310114
Isopropylbenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
p-Isopropyltoluene	ND		0.00100	1	07/12/2019 05:12	WG1310114
2-Butanone (MEK)	ND		0.0100	1	07/12/2019 05:12	WG1310114
Methylene Chloride	ND		0.00500	1	07/12/2019 05:12	WG1310114
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	07/12/2019 05:12	WG1310114
Methyl tert-butyl ether	ND		0.00100	1	07/12/2019 05:12	WG1310114
Naphthalene	ND		0.00500	1	07/12/2019 05:12	WG1310114
n-Propylbenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
Styrene	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,1,1,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,1,2,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	07/12/2019 05:12	WG1310114
Tetrachloroethene	ND		0.00100	1	07/12/2019 05:12	WG1310114
Toluene	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,2,3-Trichlorobenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,2,4-Trichlorobenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,1,1-Trichloroethane	ND		0.00100	1	07/12/2019 05:12	WG1310114

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

12 of 49

B-B

SAMPLE RESULTS - 04

ONE LAB. NATIONWIDE.



Collected date/time: 07/09/19 07:15

L1117399

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,2-Trichloroethane	ND		0.00100	1	07/12/2019 05:12	WG1310114
Trichloroethene	ND		0.00100	1	07/12/2019 05:12	WG1310114
Trichlorofluoromethane	ND		0.00500	1	07/12/2019 05:12	WG1310114
1,2,3-Trichloropropane	ND		0.00250	1	07/12/2019 05:12	WG1310114
1,2,4-Trimethylbenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,2,3-Trimethylbenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
1,3,5-Trimethylbenzene	ND		0.00100	1	07/12/2019 05:12	WG1310114
Vinyl chloride	ND		0.00100	1	07/12/2019 05:12	WG1310114
Xylenes, Total	ND		0.00300	1	07/12/2019 05:12	WG1310114
(S) Toluene-d8	110		80.0-120		07/12/2019 05:12	WG1310114
(S) 4-Bromofluorobenzene	104		77.0-126		07/12/2019 05:12	WG1310114
(S) 1,2-Dichloroethane-d4	102		70.0-130		07/12/2019 05:12	WG1310114

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Acenaphthene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Acenaphthylene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Benzo(a)anthracene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Benzo(a)pyrene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Benzo(b)fluoranthene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Benzo(g,h,i)perylene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Benzo(k)fluoranthene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Chrysene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Dibenz(a,h)anthracene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Fluoranthene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Fluorene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Indeno(1,2,3-cd)pyrene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Naphthalene	ND		0.000263	1.05	07/12/2019 20:31	WG1310064
Phenanthrene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
Pyrene	ND		0.0000525	1.05	07/12/2019 20:31	WG1310064
(S) Nitrobenzene-d5	120		31.0-160		07/12/2019 20:31	WG1310064
(S) 2-Fluorobiphenyl	104		48.0-148		07/12/2019 20:31	WG1310064
(S) p-Terphenyl-d14	86.2		37.0-146		07/12/2019 20:31	WG1310064

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

13 of 49

B-C

Collected date/time: 07/09/19 07:30

SAMPLE RESULTS - 05

L1117399

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.250	5	07/12/2019 05:32	WG1310114
Acrylonitrile	ND		0.0500	5	07/12/2019 05:32	WG1310114
Benzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
Bromobenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
Bromodichloromethane	ND		0.00500	5	07/12/2019 05:32	WG1310114
Bromoform	ND		0.00500	5	07/12/2019 05:32	WG1310114
Bromomethane	ND		0.0250	5	07/12/2019 05:32	WG1310114
n-Butylbenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
sec-Butylbenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
tert-Butylbenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
Carbon tetrachloride	ND		0.00500	5	07/12/2019 05:32	WG1310114
Chlorobenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
Chlorodibromomethane	ND		0.00500	5	07/12/2019 05:32	WG1310114
Chloroethane	ND		0.0250	5	07/12/2019 05:32	WG1310114
Chloroform	ND		0.0250	5	07/12/2019 05:32	WG1310114
Chloromethane	ND		0.0125	5	07/12/2019 05:32	WG1310114
2-Chlorotoluene	ND		0.00500	5	07/12/2019 05:32	WG1310114
4-Chlorotoluene	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,2-Dibromo-3-Chloropropane	ND		0.0250	5	07/12/2019 05:32	WG1310114
1,2-Dibromoethane	ND		0.00500	5	07/12/2019 05:32	WG1310114
Dibromomethane	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,2-Dichlorobenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,3-Dichlorobenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,4-Dichlorobenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
Dichlorodifluoromethane	ND		0.0250	5	07/12/2019 05:32	WG1310114
1,1-Dichloroethane	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,2-Dichloroethane	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,1-Dichloroethene	ND		0.00500	5	07/12/2019 05:32	WG1310114
cis-1,2-Dichloroethene	ND		0.00500	5	07/12/2019 05:32	WG1310114
trans-1,2-Dichloroethene	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,2-Dichloropropane	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,1-Dichloropropene	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,3-Dichloropropane	ND		0.00500	5	07/12/2019 05:32	WG1310114
cis-1,3-Dichloropropene	ND		0.00500	5	07/12/2019 05:32	WG1310114
trans-1,3-Dichloropropene	ND		0.00500	5	07/12/2019 05:32	WG1310114
2,2-Dichloropropane	ND		0.00500	5	07/12/2019 05:32	WG1310114
Di-isopropyl ether	ND		0.00500	5	07/12/2019 05:32	WG1310114
Ethylbenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
Hexachloro-1,3-butadiene	ND		0.00500	5	07/12/2019 05:32	WG1310114
Isopropylbenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
p-Isopropyltoluene	ND		0.00500	5	07/12/2019 05:32	WG1310114
2-Butanone (MEK)	ND		0.0500	5	07/12/2019 05:32	WG1310114
Methylene Chloride	ND		0.0250	5	07/12/2019 05:32	WG1310114
4-Methyl-2-pentanone (MIBK)	ND		0.0500	5	07/12/2019 05:32	WG1310114
Methyl tert-butyl ether	ND		0.00500	5	07/12/2019 05:32	WG1310114
Naphthalene	ND		0.0250	5	07/12/2019 05:32	WG1310114
n-Propylbenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
Styrene	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,1,1,2-Tetrachloroethane	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,1,2,2-Tetrachloroethane	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,1,2-Trichlorotrifluoroethane	ND		0.00500	5	07/12/2019 05:32	WG1310114
Tetrachloroethene	ND		0.00500	5	07/12/2019 05:32	WG1310114
Toluene	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,2,3-Trichlorobenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,2,4-Trichlorobenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,1,1-Trichloroethane	ND		0.00500	5	07/12/2019 05:32	WG1310114

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

14 of 49

B-C

SAMPLE RESULTS - 05

ONE LAB. NATIONWIDE.



Collected date/time: 07/09/19 07:30

L1117399

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,2-Trichloroethane	ND		0.00500	5	07/12/2019 05:32	WG1310114
Trichloroethene	ND		0.00500	5	07/12/2019 05:32	WG1310114
Trichlorofluoromethane	ND		0.0250	5	07/12/2019 05:32	WG1310114
1,2,3-Trichloropropane	ND		0.0125	5	07/12/2019 05:32	WG1310114
1,2,4-Trimethylbenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,2,3-Trimethylbenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
1,3,5-Trimethylbenzene	ND		0.00500	5	07/12/2019 05:32	WG1310114
Vinyl chloride	ND		0.00500	5	07/12/2019 05:32	WG1310114
Xylenes, Total	ND		0.0150	5	07/12/2019 05:32	WG1310114
(S) Toluene-d8	108		80.0-120		07/12/2019 05:32	WG1310114
(S) 4-Bromofluorobenzene	105		77.0-126		07/12/2019 05:32	WG1310114
(S) 1,2-Dichloroethane-d4	102		70.0-130		07/12/2019 05:32	WG1310114

Sample Narrative:

L1117399-05 WG1310114: Elevated RL due to sediment in sample vial.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Acenaphthene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Acenaphthylene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Benzo(a)anthracene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Benzo(a)pyrene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Benzo(b)fluoranthene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Benzo(g,h,i)perylene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Benzo(k)fluoranthene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Chrysene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Dibenz(a,h)anthracene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Fluoranthene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Fluorene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Indeno(1,2,3-cd)pyrene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Naphthalene	ND		0.000323	1.29	07/12/2019 20:52	WG1310064
Phenanthrene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
Pyrene	ND		0.0000645	1.29	07/12/2019 20:52	WG1310064
(S) Nitrobenzene-d5	122		31.0-160		07/12/2019 20:52	WG1310064
(S) 2-Fluorobiphenyl	107		48.0-148		07/12/2019 20:52	WG1310064
(S) p-Terphenyl-d14	76.0		37.0-146		07/12/2019 20:52	WG1310064

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

15 of 49

B-1

Collected date/time: 07/09/19 07:50

SAMPLE RESULTS - 06

L1117399

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	07/12/2019 02:13	WG1310127
Acrylonitrile	ND		0.0100	1	07/12/2019 02:13	WG1310127
Benzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
Bromobenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
Bromodichloromethane	ND		0.00100	1	07/12/2019 02:13	WG1310127
Bromoform	ND		0.00100	1	07/16/2019 22:43	WG1312316
Bromomethane	ND		0.00500	1	07/12/2019 02:13	WG1310127
n-Butylbenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
sec-Butylbenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
tert-Butylbenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
Carbon tetrachloride	ND		0.00100	1	07/12/2019 02:13	WG1310127
Chlorobenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
Chlorodibromomethane	ND		0.00100	1	07/16/2019 22:43	WG1312316
Chloroethane	ND		0.00500	1	07/12/2019 02:13	WG1310127
Chloroform	ND		0.00500	1	07/12/2019 02:13	WG1310127
Chloromethane	ND		0.00250	1	07/12/2019 02:13	WG1310127
2-Chlorotoluene	ND		0.00100	1	07/12/2019 02:13	WG1310127
4-Chlorotoluene	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	07/12/2019 02:13	WG1310127
1,2-Dibromoethane	ND		0.00100	1	07/12/2019 02:13	WG1310127
Dibromomethane	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,2-Dichlorobenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,3-Dichlorobenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,4-Dichlorobenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
Dichlorodifluoromethane	ND		0.00500	1	07/12/2019 02:13	WG1310127
1,1-Dichloroethane	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,2-Dichloroethane	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,1-Dichloroethene	ND		0.00100	1	07/12/2019 02:13	WG1310127
cis-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 02:13	WG1310127
trans-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,2-Dichloropropane	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,1-Dichloropropene	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,3-Dichloropropane	ND		0.00100	1	07/12/2019 02:13	WG1310127
cis-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 02:13	WG1310127
trans-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 02:13	WG1310127
2,2-Dichloropropane	ND		0.00100	1	07/12/2019 02:13	WG1310127
Di-isopropyl ether	ND		0.00100	1	07/12/2019 02:13	WG1310127
Ethylbenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
Hexachloro-1,3-butadiene	ND		0.00100	1	07/12/2019 02:13	WG1310127
Isopropylbenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
p-Isopropyltoluene	ND		0.00100	1	07/12/2019 02:13	WG1310127
2-Butanone (MEK)	ND		0.0100	1	07/12/2019 02:13	WG1310127
Methylene Chloride	ND		0.00500	1	07/12/2019 02:13	WG1310127
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	07/12/2019 02:13	WG1310127
Methyl tert-butyl ether	ND		0.00100	1	07/12/2019 02:13	WG1310127
Naphthalene	ND		0.00500	1	07/12/2019 02:13	WG1310127
n-Propylbenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
Styrene	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,1,1,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,1,2,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	07/12/2019 02:13	WG1310127
Tetrachloroethene	ND		0.00100	1	07/12/2019 02:13	WG1310127
Toluene	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,2,3-Trichlorobenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,2,4-Trichlorobenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,1,1-Trichloroethane	ND		0.00100	1	07/12/2019 02:13	WG1310127

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

16 of 49

B-1

SAMPLE RESULTS - 06

ONE LAB. NATIONWIDE.



Collected date/time: 07/09/19 07:50

L1117399

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,2-Trichloroethane	ND		0.00100	1	07/12/2019 02:13	WG1310127
Trichloroethene	ND		0.00100	1	07/12/2019 02:13	WG1310127
Trichlorofluoromethane	ND		0.00500	1	07/12/2019 02:13	WG1310127
1,2,3-Trichloropropane	ND		0.00250	1	07/12/2019 02:13	WG1310127
1,2,4-Trimethylbenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,2,3-Trimethylbenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
1,3,5-Trimethylbenzene	ND		0.00100	1	07/12/2019 02:13	WG1310127
Vinyl chloride	ND		0.00100	1	07/12/2019 02:13	WG1310127
Xylenes, Total	ND		0.00300	1	07/12/2019 02:13	WG1310127
(S) Toluene-d8	104		80.0-120		07/12/2019 02:13	WG1310127
(S) Toluene-d8	109		80.0-120		07/16/2019 22:43	WG1312316
(S) 4-Bromofluorobenzene	109		77.0-126		07/12/2019 02:13	WG1310127
(S) 4-Bromofluorobenzene	113		77.0-126		07/16/2019 22:43	WG1312316
(S) 1,2-Dichloroethane-d4	98.2		70.0-130		07/12/2019 02:13	WG1310127
(S) 1,2-Dichloroethane-d4	95.0		70.0-130		07/16/2019 22:43	WG1312316

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Acenaphthene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Acenaphthylene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Benzo(a)anthracene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Benzo(a)pyrene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Benzo(b)fluoranthene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Benzo(g,h,i)perylene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Benzo(k)fluoranthene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Chrysene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Dibenz(a,h)anthracene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Fluoranthene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Fluorene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Indeno(1,2,3-cd)pyrene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Naphthalene	ND		0.000263	1.05	07/12/2019 21:14	WG1310064
Phenanthrene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
Pyrene	ND		0.0000525	1.05	07/12/2019 21:14	WG1310064
(S) Nitrobenzene-d5	122		31.0-160		07/12/2019 21:14	WG1310064
(S) 2-Fluorobiphenyl	106		48.0-148		07/12/2019 21:14	WG1310064
(S) p-Terphenyl-d14	85.7		37.0-146		07/12/2019 21:14	WG1310064

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399

DATE/TIME:
07/17/19 14:03

PAGE:
17 of 49

B-6

Collected date/time: 07/09/19 11:35

SAMPLE RESULTS - 07

L1117399

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.100	2	07/12/2019 02:34	WG1310127
Acrylonitrile	ND		0.0200	2	07/12/2019 02:34	WG1310127
Benzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
Bromobenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
Bromodichloromethane	ND		0.00200	2	07/12/2019 02:34	WG1310127
Bromoform	ND		0.00200	2	07/12/2019 02:34	WG1310127
Bromomethane	ND		0.0100	2	07/12/2019 02:34	WG1310127
n-Butylbenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
sec-Butylbenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
tert-Butylbenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
Carbon tetrachloride	ND		0.00200	2	07/12/2019 02:34	WG1310127
Chlorobenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
Chlorodibromomethane	ND		0.00200	2	07/12/2019 02:34	WG1310127
Chloroethane	ND		0.0100	2	07/12/2019 02:34	WG1310127
Chloroform	ND		0.0100	2	07/12/2019 02:34	WG1310127
Chloromethane	ND		0.00500	2	07/12/2019 02:34	WG1310127
2-Chlorotoluene	ND		0.00200	2	07/12/2019 02:34	WG1310127
4-Chlorotoluene	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,2-Dibromo-3-Chloropropane	ND		0.0100	2	07/12/2019 02:34	WG1310127
1,2-Dibromoethane	ND		0.00200	2	07/12/2019 02:34	WG1310127
Dibromomethane	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,2-Dichlorobenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,3-Dichlorobenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,4-Dichlorobenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
Dichlorodifluoromethane	ND		0.0100	2	07/12/2019 02:34	WG1310127
1,1-Dichloroethane	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,2-Dichloroethane	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,1-Dichloroethene	ND		0.00200	2	07/12/2019 02:34	WG1310127
cis-1,2-Dichloroethene	ND		0.00200	2	07/12/2019 02:34	WG1310127
trans-1,2-Dichloroethene	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,2-Dichloropropane	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,1-Dichloropropene	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,3-Dichloropropane	ND		0.00200	2	07/12/2019 02:34	WG1310127
cis-1,3-Dichloropropene	ND		0.00200	2	07/12/2019 02:34	WG1310127
trans-1,3-Dichloropropene	ND		0.00200	2	07/12/2019 02:34	WG1310127
2,2-Dichloropropane	ND		0.00200	2	07/12/2019 02:34	WG1310127
Di-isopropyl ether	ND		0.00200	2	07/12/2019 02:34	WG1310127
Ethylbenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
Hexachloro-1,3-butadiene	ND		0.00200	2	07/12/2019 02:34	WG1310127
Isopropylbenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
p-Isopropyltoluene	ND		0.00200	2	07/12/2019 02:34	WG1310127
2-Butanone (MEK)	ND		0.0200	2	07/12/2019 02:34	WG1310127
Methylene Chloride	ND		0.0100	2	07/12/2019 02:34	WG1310127
4-Methyl-2-pentanone (MIBK)	ND		0.0200	2	07/12/2019 02:34	WG1310127
Methyl tert-butyl ether	ND		0.00200	2	07/12/2019 02:34	WG1310127
Naphthalene	ND		0.0100	2	07/12/2019 02:34	WG1310127
n-Propylbenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
Styrene	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,1,1,2-Tetrachloroethane	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,1,2,2-Tetrachloroethane	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,1,2-Trichlorotrifluoroethane	ND		0.00200	2	07/12/2019 02:34	WG1310127
Tetrachloroethene	ND		0.00200	2	07/12/2019 02:34	WG1310127
Toluene	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,2,3-Trichlorobenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,2,4-Trichlorobenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,1,1-Trichloroethane	ND		0.00200	2	07/12/2019 02:34	WG1310127

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

18 of 49

B-6

SAMPLE RESULTS - 07

ONE LAB. NATIONWIDE.



Collected date/time: 07/09/19 11:35

L1117399

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,2-Trichloroethane	ND		0.00200	2	07/12/2019 02:34	WG1310127
Trichloroethene	ND		0.00200	2	07/12/2019 02:34	WG1310127
Trichlorofluoromethane	ND		0.0100	2	07/12/2019 02:34	WG1310127
1,2,3-Trichloropropane	ND		0.00500	2	07/12/2019 02:34	WG1310127
1,2,4-Trimethylbenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,2,3-Trimethylbenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
1,3,5-Trimethylbenzene	ND		0.00200	2	07/12/2019 02:34	WG1310127
Vinyl chloride	ND		0.00200	2	07/12/2019 02:34	WG1310127
Xylenes, Total	ND		0.00600	2	07/12/2019 02:34	WG1310127
(S) Toluene-d8	101		80.0-120		07/12/2019 02:34	WG1310127
(S) 4-Bromofluorobenzene	100		77.0-126		07/12/2019 02:34	WG1310127
(S) 1,2-Dichloroethane-d4	95.3		70.0-130		07/12/2019 02:34	WG1310127

Sample Narrative:

L1117399-07 WG1310127: Lowest possible dilution due to sediment in sample vial.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Acenaphthene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Acenaphthylene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Benzo(a)anthracene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Benzo(a)pyrene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Benzo(b)fluoranthene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Benzo(g,h,i)perylene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Benzo(k)fluoranthene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Chrysene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Dibenz(a,h)anthracene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Fluoranthene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Fluorene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Indeno(1,2,3-cd)pyrene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Naphthalene	ND		0.000250	1	07/16/2019 19:47	WG1311212
Phenanthrene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
Pyrene	ND		0.0000500	1	07/16/2019 19:47	WG1311212
(S) Nitrobenzene-d5	119		31.0-160		07/16/2019 19:47	WG1311212
(S) 2-Fluorobiphenyl	90.3		48.0-148		07/16/2019 19:47	WG1311212
(S) p-Terphenyl-d14	98.4		37.0-146		07/16/2019 19:47	WG1311212

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

19 of 49

B-5

Collected date/time: 07/09/19 11:45

SAMPLE RESULTS - 08

L1117399

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	07/12/2019 02:55	WG1310127
Acrylonitrile	ND		0.0100	1	07/12/2019 02:55	WG1310127
Benzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
Bromobenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
Bromodichloromethane	ND		0.00100	1	07/12/2019 02:55	WG1310127
Bromoform	ND		0.00100	1	07/12/2019 02:55	WG1310127
Bromomethane	ND		0.00500	1	07/12/2019 02:55	WG1310127
n-Butylbenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
sec-Butylbenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
tert-Butylbenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
Carbon tetrachloride	ND		0.00100	1	07/12/2019 02:55	WG1310127
Chlorobenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
Chlorodibromomethane	ND		0.00100	1	07/12/2019 02:55	WG1310127
Chloroethane	ND		0.00500	1	07/12/2019 02:55	WG1310127
Chloroform	ND		0.00500	1	07/12/2019 02:55	WG1310127
Chloromethane	ND		0.00250	1	07/12/2019 02:55	WG1310127
2-Chlorotoluene	ND		0.00100	1	07/12/2019 02:55	WG1310127
4-Chlorotoluene	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	07/12/2019 02:55	WG1310127
1,2-Dibromoethane	ND		0.00100	1	07/12/2019 02:55	WG1310127
Dibromomethane	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,2-Dichlorobenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,3-Dichlorobenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,4-Dichlorobenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
Dichlorodifluoromethane	ND		0.00500	1	07/12/2019 02:55	WG1310127
1,1-Dichloroethane	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,2-Dichloroethane	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,1-Dichloroethene	ND		0.00100	1	07/12/2019 02:55	WG1310127
cis-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 02:55	WG1310127
trans-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,2-Dichloropropane	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,1-Dichloropropene	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,3-Dichloropropane	ND		0.00100	1	07/12/2019 02:55	WG1310127
cis-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 02:55	WG1310127
trans-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 02:55	WG1310127
2,2-Dichloropropane	ND		0.00100	1	07/12/2019 02:55	WG1310127
Di-isopropyl ether	ND		0.00100	1	07/12/2019 02:55	WG1310127
Ethylbenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
Hexachloro-1,3-butadiene	ND		0.00100	1	07/12/2019 02:55	WG1310127
Isopropylbenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
p-Isopropyltoluene	ND		0.00100	1	07/12/2019 02:55	WG1310127
2-Butanone (MEK)	ND		0.0100	1	07/12/2019 02:55	WG1310127
Methylene Chloride	ND		0.00500	1	07/12/2019 02:55	WG1310127
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	07/12/2019 02:55	WG1310127
Methyl tert-butyl ether	ND		0.00100	1	07/12/2019 02:55	WG1310127
Naphthalene	ND		0.00500	1	07/12/2019 02:55	WG1310127
n-Propylbenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
Styrene	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,1,1,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,1,2,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	07/12/2019 02:55	WG1310127
Tetrachloroethene	ND		0.00100	1	07/12/2019 02:55	WG1310127
Toluene	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,2,3-Trichlorobenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,2,4-Trichlorobenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,1,1-Trichloroethane	ND		0.00100	1	07/12/2019 02:55	WG1310127

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

20 of 49

B-5

SAMPLE RESULTS - 08

ONE LAB. NATIONWIDE.



Collected date/time: 07/09/19 11:45

L1117399

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,2-Trichloroethane	ND		0.00100	1	07/12/2019 02:55	WG1310127
Trichloroethene	ND		0.00100	1	07/12/2019 02:55	WG1310127
Trichlorofluoromethane	ND		0.00500	1	07/12/2019 02:55	WG1310127
1,2,3-Trichloropropane	ND		0.00250	1	07/12/2019 02:55	WG1310127
1,2,4-Trimethylbenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,2,3-Trimethylbenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
1,3,5-Trimethylbenzene	ND		0.00100	1	07/12/2019 02:55	WG1310127
Vinyl chloride	ND		0.00100	1	07/12/2019 02:55	WG1310127
Xylenes, Total	ND		0.00300	1	07/12/2019 02:55	WG1310127
(S) Toluene-d8	108		80.0-120		07/12/2019 02:55	WG1310127
(S) 4-Bromofluorobenzene	101		77.0-126		07/12/2019 02:55	WG1310127
(S) 1,2-Dichloroethane-d4	96.6		70.0-130		07/12/2019 02:55	WG1310127

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Acenaphthene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Acenaphthylene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Benzo(a)anthracene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Benzo(a)pyrene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Benzo(b)fluoranthene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Benzo(g,h,i)perylene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Benzo(k)fluoranthene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Chrysene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Dibenz(a,h)anthracene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Fluoranthene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Fluorene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Indeno(1,2,3-cd)pyrene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Naphthalene	ND		0.000250	1	07/16/2019 20:10	WG1311212
Phenanthrene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
Pyrene	ND		0.0000500	1	07/16/2019 20:10	WG1311212
(S) Nitrobenzene-d5	116		31.0-160		07/16/2019 20:10	WG1311212
(S) 2-Fluorobiphenyl	88.2		48.0-148		07/16/2019 20:10	WG1311212
(S) p-Terphenyl-d14	96.2		37.0-146		07/16/2019 20:10	WG1311212

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399DATE/TIME:
07/17/19 14:03PAGE:
21 of 49

B-8

Collected date/time: 07/09/19 12:00

SAMPLE RESULTS - 09

L1117399

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	07/12/2019 03:16	WG1310127
Acrylonitrile	ND		0.0100	1	07/12/2019 03:16	WG1310127
Benzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
Bromobenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
Bromodichloromethane	ND		0.00100	1	07/12/2019 03:16	WG1310127
Bromoform	ND		0.00100	1	07/12/2019 03:16	WG1310127
Bromomethane	ND		0.00500	1	07/12/2019 03:16	WG1310127
n-Butylbenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
sec-Butylbenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
tert-Butylbenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
Carbon tetrachloride	ND		0.00100	1	07/12/2019 03:16	WG1310127
Chlorobenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
Chlorodibromomethane	ND		0.00100	1	07/12/2019 03:16	WG1310127
Chloroethane	ND		0.00500	1	07/12/2019 03:16	WG1310127
Chloroform	ND		0.00500	1	07/12/2019 03:16	WG1310127
Chloromethane	ND		0.00250	1	07/12/2019 03:16	WG1310127
2-Chlorotoluene	ND		0.00100	1	07/12/2019 03:16	WG1310127
4-Chlorotoluene	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	07/12/2019 03:16	WG1310127
1,2-Dibromoethane	ND		0.00100	1	07/12/2019 03:16	WG1310127
Dibromomethane	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,2-Dichlorobenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,3-Dichlorobenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,4-Dichlorobenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
Dichlorodifluoromethane	ND		0.00500	1	07/12/2019 03:16	WG1310127
1,1-Dichloroethane	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,2-Dichloroethane	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,1-Dichloroethene	ND		0.00100	1	07/12/2019 03:16	WG1310127
cis-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 03:16	WG1310127
trans-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,2-Dichloropropane	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,1-Dichloropropene	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,3-Dichloropropane	ND		0.00100	1	07/12/2019 03:16	WG1310127
cis-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 03:16	WG1310127
trans-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 03:16	WG1310127
2,2-Dichloropropane	ND		0.00100	1	07/12/2019 03:16	WG1310127
Di-isopropyl ether	ND		0.00100	1	07/12/2019 03:16	WG1310127
Ethylbenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
Hexachloro-1,3-butadiene	ND		0.00100	1	07/12/2019 03:16	WG1310127
Isopropylbenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
p-Isopropyltoluene	ND		0.00100	1	07/12/2019 03:16	WG1310127
2-Butanone (MEK)	ND		0.0100	1	07/12/2019 03:16	WG1310127
Methylene Chloride	ND		0.00500	1	07/12/2019 03:16	WG1310127
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	07/12/2019 03:16	WG1310127
Methyl tert-butyl ether	ND		0.00100	1	07/12/2019 03:16	WG1310127
Naphthalene	ND		0.00500	1	07/12/2019 03:16	WG1310127
n-Propylbenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
Styrene	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,1,1,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,1,2,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	07/12/2019 03:16	WG1310127
Tetrachloroethene	ND		0.00100	1	07/12/2019 03:16	WG1310127
Toluene	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,2,3-Trichlorobenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,2,4-Trichlorobenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,1,1-Trichloroethane	ND		0.00100	1	07/12/2019 03:16	WG1310127

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

22 of 49

B-8

SAMPLE RESULTS - 09

ONE LAB. NATIONWIDE.



Collected date/time: 07/09/19 12:00

L1117399

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,2-Trichloroethane	ND		0.00100	1	07/12/2019 03:16	WG1310127
Trichloroethene	ND		0.00100	1	07/12/2019 03:16	WG1310127
Trichlorofluoromethane	ND		0.00500	1	07/12/2019 03:16	WG1310127
1,2,3-Trichloropropane	ND		0.00250	1	07/12/2019 03:16	WG1310127
1,2,4-Trimethylbenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,2,3-Trimethylbenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
1,3,5-Trimethylbenzene	ND		0.00100	1	07/12/2019 03:16	WG1310127
Vinyl chloride	ND		0.00100	1	07/12/2019 03:16	WG1310127
Xylenes, Total	ND		0.00300	1	07/12/2019 03:16	WG1310127
(S) Toluene-d8	106		80.0-120		07/12/2019 03:16	WG1310127
(S) 4-Bromofluorobenzene	103		77.0-126		07/12/2019 03:16	WG1310127
(S) 1,2-Dichloroethane-d4	93.0		70.0-130		07/12/2019 03:16	WG1310127

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Acenaphthene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Acenaphthylene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Benzo(a)anthracene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Benzo(a)pyrene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Benzo(b)fluoranthene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Benzo(g,h,i)perylene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Benzo(k)fluoranthene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Chrysene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Dibenz(a,h)anthracene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Fluoranthene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Fluorene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Indeno(1,2,3-cd)pyrene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Naphthalene	ND		0.000250	1	07/16/2019 20:33	WG1311212
Phenanthrene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
Pyrene	ND		0.0000500	1	07/16/2019 20:33	WG1311212
(S) Nitrobenzene-d5	112		31.0-160		07/16/2019 20:33	WG1311212
(S) 2-Fluorobiphenyl	84.4		48.0-148		07/16/2019 20:33	WG1311212
(S) p-Terphenyl-d14	90.9		37.0-146		07/16/2019 20:33	WG1311212

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

23 of 49

B-2

Collected date/time: 07/09/19 12:15

SAMPLE RESULTS - 10

L1117399

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.250	5	07/12/2019 03:37	WG1310127
Acrylonitrile	ND		0.0500	5	07/12/2019 03:37	WG1310127
Benzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
Bromobenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
Bromodichloromethane	ND		0.00500	5	07/12/2019 03:37	WG1310127
Bromoform	ND		0.00500	5	07/12/2019 03:37	WG1310127
Bromomethane	ND		0.0250	5	07/12/2019 03:37	WG1310127
n-Butylbenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
sec-Butylbenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
tert-Butylbenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
Carbon tetrachloride	ND		0.00500	5	07/12/2019 03:37	WG1310127
Chlorobenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
Chlorodibromomethane	ND		0.00500	5	07/12/2019 03:37	WG1310127
Chloroethane	ND		0.0250	5	07/12/2019 03:37	WG1310127
Chloroform	ND		0.0250	5	07/12/2019 03:37	WG1310127
Chloromethane	ND		0.0125	5	07/12/2019 03:37	WG1310127
2-Chlorotoluene	ND		0.00500	5	07/12/2019 03:37	WG1310127
4-Chlorotoluene	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,2-Dibromo-3-Chloropropane	ND		0.0250	5	07/12/2019 03:37	WG1310127
1,2-Dibromoethane	ND		0.00500	5	07/12/2019 03:37	WG1310127
Dibromomethane	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,2-Dichlorobenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,3-Dichlorobenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,4-Dichlorobenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
Dichlorodifluoromethane	ND		0.0250	5	07/12/2019 03:37	WG1310127
1,1-Dichloroethane	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,2-Dichloroethane	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,1-Dichloroethene	ND		0.00500	5	07/12/2019 03:37	WG1310127
cis-1,2-Dichloroethene	ND		0.00500	5	07/12/2019 03:37	WG1310127
trans-1,2-Dichloroethene	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,2-Dichloropropane	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,1-Dichloropropene	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,3-Dichloropropane	ND		0.00500	5	07/12/2019 03:37	WG1310127
cis-1,3-Dichloropropene	ND		0.00500	5	07/12/2019 03:37	WG1310127
trans-1,3-Dichloropropene	ND		0.00500	5	07/12/2019 03:37	WG1310127
2,2-Dichloropropane	ND		0.00500	5	07/12/2019 03:37	WG1310127
Di-isopropyl ether	ND		0.00500	5	07/12/2019 03:37	WG1310127
Ethylbenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
Hexachloro-1,3-butadiene	ND		0.00500	5	07/12/2019 03:37	WG1310127
Isopropylbenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
p-Isopropyltoluene	ND		0.00500	5	07/12/2019 03:37	WG1310127
2-Butanone (MEK)	ND		0.0500	5	07/12/2019 03:37	WG1310127
Methylene Chloride	ND		0.0250	5	07/12/2019 03:37	WG1310127
4-Methyl-2-pentanone (MIBK)	ND		0.0500	5	07/12/2019 03:37	WG1310127
Methyl tert-butyl ether	ND		0.00500	5	07/12/2019 03:37	WG1310127
Naphthalene	ND		0.0250	5	07/12/2019 03:37	WG1310127
n-Propylbenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
Styrene	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,1,1,2-Tetrachloroethane	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,1,2,2-Tetrachloroethane	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,1,2-Trichlorotrifluoroethane	ND		0.00500	5	07/12/2019 03:37	WG1310127
Tetrachloroethene	ND		0.00500	5	07/12/2019 03:37	WG1310127
Toluene	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,2,3-Trichlorobenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,2,4-Trichlorobenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,1,1-Trichloroethane	ND		0.00500	5	07/12/2019 03:37	WG1310127

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

24 of 49

B-2

SAMPLE RESULTS - 10

ONE LAB. NATIONWIDE.



Collected date/time: 07/09/19 12:15

L1117399

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,2-Trichloroethane	ND		0.00500	5	07/12/2019 03:37	WG1310127
Trichloroethene	ND		0.00500	5	07/12/2019 03:37	WG1310127
Trichlorofluoromethane	ND		0.0250	5	07/12/2019 03:37	WG1310127
1,2,3-Trichloropropane	ND		0.0125	5	07/12/2019 03:37	WG1310127
1,2,4-Trimethylbenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,2,3-Trimethylbenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
1,3,5-Trimethylbenzene	ND		0.00500	5	07/12/2019 03:37	WG1310127
Vinyl chloride	ND		0.00500	5	07/12/2019 03:37	WG1310127
Xylenes, Total	ND		0.0150	5	07/12/2019 03:37	WG1310127
(S) Toluene-d8	102		80.0-120		07/12/2019 03:37	WG1310127
(S) 4-Bromofluorobenzene	100		77.0-126		07/12/2019 03:37	WG1310127
(S) 1,2-Dichloroethane-d4	92.0		70.0-130		07/12/2019 03:37	WG1310127

Sample Narrative:

L1117399-10 WG1310127: Lowest possible dilution due to sediment in sample vial.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Acenaphthene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Acenaphthylene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Benzo(a)anthracene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Benzo(a)pyrene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Benzo(b)fluoranthene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Benzo(g,h,i)perylene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Benzo(k)fluoranthene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Chrysene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Dibenz(a,h)anthracene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Fluoranthene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Fluorene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Indeno(1,2,3-cd)pyrene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Naphthalene	ND		0.000250	1	07/16/2019 20:57	WG1311212
Phenanthrene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
Pyrene	ND		0.0000500	1	07/16/2019 20:57	WG1311212
(S) Nitrobenzene-d5	110		31.0-160		07/16/2019 20:57	WG1311212
(S) 2-Fluorobiphenyl	82.8		48.0-148		07/16/2019 20:57	WG1311212
(S) p-Terphenyl-d14	91.9		37.0-146		07/16/2019 20:57	WG1311212

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

25 of 49

109 WELL

Collected date/time: 07/08/19 16:20

SAMPLE RESULTS - 11

L1117399

ONE LAB. NATIONWIDE.



Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Lead	0.0106	B	0.00500	1	07/12/2019 10:38	WG1310135

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	07/12/2019 03:58	WG1310127
Acrylonitrile	ND		0.0100	1	07/12/2019 03:58	WG1310127
Benzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
Bromobenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
Bromodichloromethane	ND		0.00100	1	07/12/2019 03:58	WG1310127
Bromoform	ND		0.00100	1	07/12/2019 03:58	WG1310127
Bromomethane	ND		0.00500	1	07/12/2019 03:58	WG1310127
n-Butylbenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
sec-Butylbenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
tert-Butylbenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
Carbon tetrachloride	ND		0.00100	1	07/12/2019 03:58	WG1310127
Chlorobenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
Chlorodibromomethane	ND		0.00100	1	07/12/2019 03:58	WG1310127
Chloroethane	ND		0.00500	1	07/12/2019 03:58	WG1310127
Chloroform	ND		0.00500	1	07/12/2019 03:58	WG1310127
Chloromethane	ND		0.00250	1	07/12/2019 03:58	WG1310127
2-Chlorotoluene	ND		0.00100	1	07/12/2019 03:58	WG1310127
4-Chlorotoluene	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	07/12/2019 03:58	WG1310127
1,2-Dibromoethane	ND		0.00100	1	07/12/2019 03:58	WG1310127
Dibromomethane	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,2-Dichlorobenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,3-Dichlorobenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,4-Dichlorobenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
Dichlorodifluoromethane	ND		0.00500	1	07/12/2019 03:58	WG1310127
1,1-Dichloroethane	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,2-Dichloroethane	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,1-Dichloroethene	ND		0.00100	1	07/12/2019 03:58	WG1310127
cis-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 03:58	WG1310127
trans-1,2-Dichloroethene	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,2-Dichloropropane	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,1-Dichloropropene	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,3-Dichloropropane	ND		0.00100	1	07/12/2019 03:58	WG1310127
cis-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 03:58	WG1310127
trans-1,3-Dichloropropene	ND		0.00100	1	07/12/2019 03:58	WG1310127
2,2-Dichloropropane	ND		0.00100	1	07/12/2019 03:58	WG1310127
Di-isopropyl ether	ND		0.00100	1	07/12/2019 03:58	WG1310127
Ethylbenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
Hexachloro-1,3-butadiene	ND		0.00100	1	07/12/2019 03:58	WG1310127
Isopropylbenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
p-Isopropyltoluene	ND		0.00100	1	07/12/2019 03:58	WG1310127
2-Butanone (MEK)	ND		0.0100	1	07/12/2019 03:58	WG1310127
Methylene Chloride	ND		0.00500	1	07/12/2019 03:58	WG1310127
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	07/12/2019 03:58	WG1310127
Methyl tert-butyl ether	ND		0.00100	1	07/12/2019 03:58	WG1310127
Naphthalene	ND		0.00500	1	07/12/2019 03:58	WG1310127
n-Propylbenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
Styrene	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,1,1,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,1,2,2-Tetrachloroethane	ND		0.00100	1	07/12/2019 03:58	WG1310127

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

26 of 49

109 WELL

Collected date/time: 07/08/19 16:20

SAMPLE RESULTS - 11

L1117399

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	07/12/2019 03:58	WG1310127
Tetrachloroethene	ND		0.00100	1	07/12/2019 03:58	WG1310127
Toluene	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,2,3-Trichlorobenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,2,4-Trichlorobenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,1,1-Trichloroethane	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,1,2-Trichloroethane	ND		0.00100	1	07/12/2019 03:58	WG1310127
Trichloroethene	ND		0.00100	1	07/12/2019 03:58	WG1310127
Trichlorofluoromethane	ND		0.00500	1	07/12/2019 03:58	WG1310127
1,2,3-Trichloropropane	ND		0.00250	1	07/12/2019 03:58	WG1310127
1,2,4-Trimethylbenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,2,3-Trimethylbenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
1,3,5-Trimethylbenzene	ND		0.00100	1	07/12/2019 03:58	WG1310127
Vinyl chloride	ND		0.00100	1	07/12/2019 03:58	WG1310127
Xylenes, Total	ND		0.00300	1	07/12/2019 03:58	WG1310127
(S) Toluene-d8	105		80.0-120		07/12/2019 03:58	WG1310127
(S) 4-Bromofluorobenzene	101		77.0-126		07/12/2019 03:58	WG1310127
(S) 1,2-Dichloroethane-d4	94.7		70.0-130		07/12/2019 03:58	WG1310127

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Acenaphthene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Acenaphthylene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Benzo(a)anthracene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Benzo(a)pyrene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Benzo(b)fluoranthene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Benzo(g,h,i)perylene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Benzo(k)fluoranthene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Chrysene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Dibenz(a,h)anthracene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Fluoranthene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Fluorene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Indeno(1,2,3-cd)pyrene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Naphthalene	ND		0.000250	1	07/12/2019 21:35	WG1310064
Phenanthrene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
Pyrene	ND		0.0000500	1	07/12/2019 21:35	WG1310064
(S) Nitrobenzene-d5	121		31.0-160		07/12/2019 21:35	WG1310064
(S) 2-Fluorobiphenyl	105		48.0-148		07/12/2019 21:35	WG1310064
(S) p-Terphenyl-d14	93.2		37.0-146		07/12/2019 21:35	WG1310064

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399DATE/TIME:
07/17/19 14:03PAGE:
27 of 49



Method Blank (MB)

(MB) R3430147-1 07/12/19 09:17					
	MB Result	MB Qualifier	MB MDL	MB RDL	
Analyte	mg/l		mg/l	mg/l	
Lead	0.00485	J	0.00190	0.00500	

1

Cp

2

Tc

3

Ss

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3430147-2 07/12/19 09:19 • (LCSD) R3430147-3 07/12/19 09:22											
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCSD Qualifier	LCSD Qualifier	RPD	RPD Limits	
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%	
Lead	1.00	0.968	0.959	96.8	95.9	80.0-120			0.974	20	

4

Cn

5

Sr

6

Qc

L1115520-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1115520-01 07/12/19 09:25 • (MS) R3430147-5 07/12/19 09:30 • (MSD) R3430147-6 07/12/19 09:33											
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%
Lead	1.00	ND	0.992	0.987	99.2	98.7	1	75.0-125			0.523

7

Gl

8

Al

9

Sc

ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

28 of 49

WG1310074

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3429996-3 07/17/19 20:50

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00187	0.0100
Benzene	U		0.000331	0.00100
Bromobenzene	U		0.000352	0.00100
Bromodichloromethane	U		0.000380	0.00100
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
n-Butylbenzene	U		0.000361	0.00100
sec-Butylbenzene	U		0.000365	0.00100
tert-Butylbenzene	U		0.000399	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
2-Chlorotoluene	U		0.000375	0.00100
4-Chlorotoluene	U		0.000351	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00133	0.00500
1,2-Dibromoethane	U		0.000381	0.00100
Dibromomethane	U		0.000346	0.00100
1,2-Dichlorobenzene	U		0.000349	0.00100
1,3-Dichlorobenzene	U		0.000220	0.00100
1,4-Dichlorobenzene	U		0.000274	0.00100
Dichlorodifluoromethane	U		0.000551	0.00500
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
cis-1,2-Dichloroethene	U		0.000260	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
1,1-Dichloropropene	U		0.000352	0.00100
1,3-Dichloropropane	U		0.000366	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
2,2-Dichloropropane	U		0.000321	0.00100
D-Isopropyl ether	U		0.000320	0.00100
Ethylbenzene	U		0.000384	0.00100
Hexachloro-1,3-butadiene	0.000289	J	0.000256	0.00100
Isopropylbenzene	U		0.000326	0.00100

ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L117399

DATE/TIME:

07/17/19 14:03

PAGE:

29 of 49



WG1310074

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117399-01.02

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3429996-3 07/11/19 20:50					
Analyte	MB Result	MB Qualifier	MB MDL	MB RDL	
mg/l		mg/l		mg/l	
p-Isopropyltoluene	U		0.000350	0.0100	1 Cp
2-Butanone (MEK)	U		0.000393	0.0100	
Methylene Chloride	U		0.00100	0.00500	3 Ss
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	4 Cn
Methyl tert-butyl ether	U		0.000367	0.0100	5 Sr
Naphthalene	U		0.00100	0.00500	
n-Propylbenzene	U		0.000349	0.0100	6 Qc
Styrene	U		0.000307	0.0100	
1,1,2-Tetrachloroethane	U		0.000385	0.0100	7 Gl
1,1,2,2-Tetrachloroethane	U		0.000130	0.0100	
Tetrachloroethane	U		0.000372	0.0100	9 Sc
Toluene	U		0.000412	0.0100	
1,1,2-Trichlorotrifluoroethane	U		0.000303	0.0100	AI
1,2,3-Trichlorobenzene	U		0.000230	0.0100	
1,2,4-Trichlorobenzene	U		0.000355	0.0100	AI
1,1,1-Trichloroethane	U		0.000319	0.0100	
1,1,2-Trichloroethane	U		0.000383	0.0100	AI
Trichloroethene	U		0.000398	0.0100	
Trichlorofluoromethane	U		0.00120	0.00500	AI
1,2,3-Trichloropropane	U		0.000807	0.00250	
1,2,3-Trimethylbenzene	U		0.000321	0.0100	AI
1,2,4-Trimethylbenzene	U		0.000373	0.0100	
1,3,5-Trimethylbenzene	U		0.000387	0.0100	AI
Vinyl chloride	U		0.000259	0.0100	
Xylenes, Total	U		0.00106	0.00300	AI
(S) Toluene-d8	100			80.0-120	
(S) 4-Bromofluorobenzene	109			77.0-126	AI
(S) 1,2-Dichloroethane-d4	109			70.0-130	

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3429996-1 07/11/19 19:49 • (LCSD) R3429996-2 07/11/19 20:10

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
mg/l	mg/l	mg/l	mg/l	%	%	%			%	%
Acetone	0.125	0.0928	0.0898	74.3	71.8	19.0-160			3.36	27
Acrylonitrile	0.125	0.115	0.119	91.9	94.8	55.0-149			3.16	20
Benzene	0.0250	0.0237	0.0250	94.8	99.9	70.0-123			5.20	20
Bromobenzene	0.0250	0.0218	0.0221	87.1	88.4	73.0-121			1.53	20
Bromodichloromethane	0.0250	0.0276	0.0276	111	110	75.0-120			0.0707	20

ACCOUNT: Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117399

DATE/TIME: 07/17/19 14:03

PAGE: 30 of 49

WG1310074

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117399-01.02

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3429996-1 07/11/19 19:49 • (LCSD) R3429996-2 07/11/19 20:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromoforn	0.0250	0.0234	0.0242	93.4	96.7	68.0-132			3.47	20
Bromomethane	0.0250	0.0254	0.0256	102	103	10.0-160			0.999	25
n-Butylbenzene	0.0250	0.0255	0.0266	102	106	73.0-125			4.07	20
sec-Butylbenzene	0.0250	0.0246	0.0251	98.5	100	75.0-125			1.95	20
tert-Butylbenzene	0.0250	0.0239	0.0241	95.7	96.3	76.0-124			0.581	20
Carbon tetrachloride	0.0250	0.0274	0.0281	109	112	68.0-126			2.56	20
Chlorobenzene	0.0250	0.0219	0.0232	87.7	92.7	80.0-121			5.54	20
Chlorodibromomethane	0.0250	0.0230	0.0235	92.1	94.2	77.0-125			2.19	20
Chloroethane	0.0250	0.0250	0.0272	99.9	109	47.0-150			8.40	20
Chloroform	0.0250	0.0250	0.0261	100	104	73.0-120			4.06	20
Chloromethane	0.0250	0.0264	0.0292	106	117	41.0-142			10.1	20
2-Chlorotoluene	0.0250	0.0221	0.0224	88.2	89.7	76.0-123			1.66	20
4-Chlorotoluene	0.0250	0.0233	0.0234	93.2	93.4	75.0-122			0.271	20
1,2-Dibromo-3-Chloropropane	0.0250	0.0222	0.0208	88.9	83.3	58.0-134			6.50	20
1,2-Dibromomethane	0.0250	0.0226	0.0225	90.3	90.1	80.0-122			0.276	20
1,2-Dichlorobenzene	0.0250	0.0241	0.0237	96.4	94.9	79.0-121			1.64	20
1,3-Dichlorobenzene	0.0250	0.0233	0.0233	93.2	93.2	79.0-120			0.0125	20
1,4-Dichlorobenzene	0.0250	0.0231	0.0232	92.3	92.7	79.0-120			0.428	20
Dichlorodifluoromethane	0.0250	0.0382	0.0414	153	166	51.0-149	J4	J4	8.15	20
1,1-Dichloroethane	0.0250	0.0261	0.0270	105	108	70.0-126			3.14	20
1,2-Dichloroethane	0.0250	0.0266	0.0265	106	106	70.0-128			0.518	20
1,1-Dichloroethene	0.0250	0.0263	0.0271	105	108	71.0-124			3.05	20
cs-1,2-Dichloroethene	0.0250	0.0246	0.0253	98.3	101	73.0-120			2.89	20
trans-1,2-Dichloroethene	0.0250	0.0251	0.0272	100	109	73.0-120			8.04	20
1,2-Dichloropropane	0.0250	0.0236	0.0251	94.5	101	77.0-125			6.18	20
1,1-Dichloropropene	0.0250	0.0250	0.0281	106	113	74.0-126			6.36	20
1,3-Dichloropropene	0.0250	0.0214	0.0218	85.6	87.3	80.0-120			1.98	20
cs-1,3-Dichloropropene	0.0250	0.0260	0.0261	104	104	80.0-123			0.321	20
trans-1,3-Dichloropropene	0.0250	0.0220	0.0225	87.8	89.8	78.0-124			2.24	20
2,2-Dichloropropane	0.0250	0.0267	0.0277	107	111	58.0-130			3.55	20
Di-isopropyl ether	0.0250	0.0241	0.0246	96.2	98.4	58.0-138			2.22	20
Ethylbenzene	0.0250	0.0228	0.0240	91.4	96.0	79.0-123			4.96	20
Hexachloro-1,3-butadiene	0.0250	0.0262	0.0274	105	109	54.0-138			4.47	20
Isopropylbenzene	0.0250	0.0236	0.0245	94.4	98.1	76.0-127			3.89	20
p-Isopropyltoluene	0.0250	0.0257	0.0257	103	103	76.0-125			0.141	20
2-Butanone (MEK)	0.125	0.115	0.119	92.3	94.9	44.0-160			2.83	20
Methylene Chloride	0.0250	0.0235	0.0246	93.9	98.6	67.0-120			4.79	20
4-Methyl-2-pentanone (MIBK)	0.125	0.106	0.107	84.5	85.8	68.0-142			1.52	20
Methyl tert-butyl ether	0.0250	0.0253	0.0256	101	102	68.0-125			1.21	20

ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

31 of 49

1

Cp

2

Tc

3

Ss

4

Cn

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Sr

6

Qc

7

Gl

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Al

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Sc

WG1310074

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117399-01.02

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3429996-1 07/11/19 19:49 • (LCSD) R3429996-2 07/11/19 20:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.0250	0.0239	0.0237	95.5	94.9	54.0-135			0.692	20
n-Propylbenzene	0.0250	0.0232	0.0234	93.0	93.5	77.0-124			0.511	20
Syrene	0.0250	0.0232	0.0235	92.9	94.2	73.0-130			1.40	20
1,1,1,2-Tetrachloroethane	0.0250	0.0222	0.0226	88.9	90.4	75.0-125			1.74	20
1,1,2,2-Tetrachloroethane	0.0250	0.0206	0.0196	82.3	78.3	65.0-130			4.96	20
Tetrachloroethene	0.0250	0.0234	0.0234	93.6	93.6	72.0-132			0.0574	20
Toluene	0.0250	0.0209	0.0221	83.5	88.4	79.0-120			5.65	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0250	0.0256	100	102	69.0-132			2.27	20
1,2,3-Trichlorobenzene	0.0250	0.0244	0.0255	97.8	102	50.0-138			4.25	20
1,2,4-Trichlorobenzene	0.0250	0.0253	0.0258	101	103	57.0-137			1.78	20
1,1,1-Trichloroethane	0.0250	0.0273	0.0281	109	112	73.0-124			2.86	20
1,1,2-Trichloroethane	0.0250	0.0210	0.0215	83.9	85.8	80.0-120			2.29	20
Trichloroethene	0.0250	0.0266	0.0277	106	111	78.0-124			4.06	20
Trichlorofluoromethane	0.0250	0.0281	0.0295	113	118	59.0-147			4.62	20
1,2,3-Trichloropropane	0.0250	0.0230	0.0220	91.8	88.2	73.0-130			4.09	20
1,2,3-Trimethylbenzene	0.0250	0.0235	0.0232	94.0	92.9	77.0-120			1.15	20
1,2,4-Trimethylbenzene	0.0250	0.0244	0.0237	97.7	94.6	76.0-121			3.17	20
1,3,5-Trimethylbenzene	0.0250	0.0251	0.0250	100	100	76.0-122			0.295	20
Vinyl chloride	0.0250	0.0249	0.0277	99.8	111	67.0-131			10.6	20
Xylenes, Total	0.0750	0.0685	0.0719	91.3	95.9	79.0-123			4.84	20
(S) Toluene-d8				92.5	96.4	80.0-120				
(S) 4-Bromofluorobenzene				101	106	77.0-126				
(S) 1,2-Dichloroethane-d4				116	114	70.0-130				



ACCOUNT:

Wood EXl Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

32 of 49

WG1310114

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117399-03.04.05

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3430621-3 07/11/19 21:18

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00187	0.0100
Benzene	U		0.000331	0.00100
Bromodichloromethane	U		0.000380	0.00100
Bromobenzene	U		0.000352	0.00100
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
n-Butylbenzene	U		0.000361	0.00100
Carbon tetrachloride	U		0.000379	0.00100
sec-Butylbenzene	U		0.000365	0.00100
Chlorobenzene	U		0.000348	0.00100
tert-Butylbenzene	U		0.000399	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
2-Chlorotoluene	U		0.000375	0.00100
4-Chlorotoluene	U		0.000351	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00133	0.00500
1,2-Dichlorobenzene	U		0.000349	0.00100
1,2-Dibromoethane	U		0.000381	0.00100
1,3-Dichlorobenzene	U		0.000220	0.00100
1,4-Dichlorobenzene	U		0.000274	0.00100
Dibromomethane	U		0.000346	0.00100
Dichlorodifluoromethane	U		0.000551	0.00500
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
trans-1,2-Dichloroethene	U		0.000398	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
cis-1,2-Dichloroethene	U		0.000260	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
1,1-Dichloropropene	U		0.000352	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
1,3-Dichloropropane	U		0.000366	0.00100
2,2-Dichloropropane	U		0.000321	0.00100
Ethylbenzene	U		0.000384	0.00100
Di-isopropyl ether	U		0.000320	0.00100
Hexachloro-1,3-butadiene	U		0.000256	0.00100
Isopropylbenzene	U		0.000326	0.00100

ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

33 of 49

1

Cp

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Tc

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Ss

4

Cn

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Sr

6

Qc

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Gl

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Al

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Sc

WG1310114

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117399-03.04.05

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3430621-3 07/11/19 21:18					
Analyte	MB Result	MB Qualifier	MB MDL	MB RDL	
	mg/l		mg/l	mg/l	
Methylene Chloride	U		0.00100	0.00500	
p-Isopropyltoluene	U		0.000350	0.00100	
2-Butanone (MEK)	U		0.00393	0.0100	
Methyl tert-butyl ether	U		0.000367	0.00100	
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100	
Naphthalene	U		0.00100	0.00500	
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100	
Tetrachloroethene	U		0.000372	0.00100	
n-Propylbenzene	U		0.000349	0.00100	
Toluene	U		0.000412	0.00100	
Syrene	U		0.000307	0.00100	
1,1,1,2-Tetrachloroethane	U		0.000385	0.00100	
1,1,1-Trichloroethane	U		0.000319	0.00100	
1,1,2-Trichloroethane	U		0.000383	0.00100	
Trichloroethene	U		0.000398	0.00100	
1,1,2-Trichlorotrifluoroethane	U		0.000303	0.00100	
Trichlorofluoromethane	U		0.00120	0.00500	
1,2,3-Trichlorobenzene	U		0.000230	0.00100	
1,2,4-Trichlorobenzene	U		0.000355	0.00100	
1,2,3-Trichloropropene	U		0.000807	0.00250	
Vinyl chloride	U		0.000259	0.00100	
1,2,3-Trimethylbenzene	U		0.000321	0.00100	
1,2,4-Trimethylbenzene	U		0.000373	0.00100	
1,3,5-Trimethylbenzene	U		0.000387	0.00100	
Xylenes, Total	U		0.00106	0.00300	
(S) Toluene-d8	109			80.0-120	
(S) 4-Bromofluorobenzene	102			77.0-126	
(S) 1,2-Dichloroethane-d4	98.0			70.0-130	

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3430621-1 07/11/19 20:18 • (LCSD) R3430621-2 07/11/19 20:38									
Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD
	mg/l	mg/l	mg/l	%	%	%			%
Acetone	0.125	0.111	0.106	89.0	85.1	19.0-160			4.52
Acrylonitrile	0.125	0.126	0.124	101	99.4	55.0-149			1.13
Benzene	0.0250	0.0223	0.0233	89.3	93.0	70.0-123			4.12
Bromodichloromethane	0.0250	0.0242	0.0248	96.7	99.3	75.0-120			2.63
Bromoforn	0.0250	0.0225	0.0233	90.0	93.4	68.0-132			3.74

ACCOUNT: Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117399

DATE/TIME: 07/17/19 14:03

PAGE: 34 of 49

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

WG1310114

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117399-03.04.05

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3430621-1 07/11/19 20:18 • (LCSD) R3430621-2 07/11/19 20:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromomethane	0.0250	0.0193	0.0204	77.4	81.6	10.0-160			5.35	25
Carbon tetrachloride	0.0250	0.0230	0.0248	92.2	99.1	68.0-126			7.21	20
Chlorobenzene	0.0250	0.0205	0.0214	82.1	85.7	80.0-121			4.28	20
Chlorodibromomethane	0.0250	0.0235	0.0239	94.1	95.4	77.0-125			1.43	20
Chloroethane	0.0250	0.0211	0.0217	84.6	86.8	47.0-150			2.61	20
Chloroform	0.0250	0.0226	0.0241	90.4	96.5	73.0-120			6.54	20
Chloromethane	0.0250	0.0192	0.0212	77.0	84.8	41.0-142			9.66	20
Bromobenzene	0.0250	0.0246	0.0241	98.5	96.5	73.0-121			2.02	20
1,2-Dichlorobenzene	0.0250	0.0220	0.0220	87.8	88.1	79.0-121			0.327	20
1,3-Dichlorobenzene	0.0250	0.0227	0.0226	91.0	90.5	79.0-120			0.594	20
1,4-Dichlorobenzene	0.0250	0.0218	0.0214	87.0	85.5	79.0-120			1.72	20
n-Butylbenzene	0.0250	0.0210	0.0215	84.2	86.0	73.0-125			2.10	20
Dichlorodifluoromethane	0.0250	0.0231	0.0260	92.5	104	51.0-149			11.7	20
sec-Butylbenzene	0.0250	0.0214	0.0216	85.6	86.4	75.0-125			0.904	20
tert-Butylbenzene	0.0250	0.0219	0.0220	87.7	88.2	76.0-124			0.560	20
1,1-Dichloroethane	0.0250	0.0219	0.0232	87.6	92.8	70.0-126			5.77	20
1,2-Dichloroethane	0.0250	0.0220	0.0221	87.8	88.5	70.0-128			0.806	20
1,1-Dichloroethene	0.0250	0.0213	0.0237	85.1	94.7	71.0-124			10.7	20
trans-1,2-Dichloroethene	0.0250	0.0213	0.0220	85.0	88.1	73.0-120			3.59	20
1,2-Dichloropropane	0.0250	0.0229	0.0242	91.6	96.8	77.0-125			5.60	20
cis-1,3-Dichloropropene	0.0250	0.0246	0.0251	98.4	100	80.0-123			2.04	20
2-Chlorotoluene	0.0250	0.0236	0.0238	94.5	95.0	76.0-123			0.574	20
trans-1,3-Dichloropropene	0.0250	0.0233	0.0238	93.0	95.0	78.0-124			2.09	20
4-Chlorotoluene	0.0250	0.0227	0.0221	90.6	88.5	75.0-122			2.39	20
1,2-Dibromo-3-Chloropropane	0.0250	0.0240	0.0224	96.0	89.7	58.0-134			6.76	20
1,2-Dibromoethane	0.0250	0.0227	0.0230	91.0	91.9	80.0-122			1.01	20
Dibromomethane	0.0250	0.0233	0.0228	93.4	91.1	80.0-120			2.42	20
Ethylbenzene	0.0250	0.0204	0.0210	81.5	84.1	79.0-123			3.16	20
cis-1,2-Dichloroethene	0.0250	0.0216	0.0232	86.5	92.7	73.0-120			6.92	20
Methylene Chloride	0.0250	0.0204	0.0214	81.5	85.7	67.0-120			5.08	20
Methyl tert-butyl ether	0.0250	0.0235	0.0238	93.9	95.3	68.0-125			1.47	20
1,1-Dichloropropene	0.0250	0.0216	0.0236	86.4	94.3	74.0-126			8.81	20
1,3-Dichloropropane	0.0250	0.0219	0.0221	87.6	88.4	80.0-120			0.915	20
Naphthalene	0.0250	0.0213	0.0218	85.1	87.2	54.0-135			2.42	20
2,2-Dichloropropane	0.0250	0.0223	0.0238	89.3	95.4	58.0-130			6.63	20
Diisopropyl ether	0.0250	0.0225	0.0234	90.1	93.4	58.0-138			3.63	20
1,1,2,2-Tetrachloroethane	0.0250	0.0274	0.0259	110	104	65.0-130			5.58	20
Tetrachloroethene	0.0250	0.0212	0.0227	84.7	90.9	72.0-132			6.99	20
Hexachloro-1,3-butadiene	0.0250	0.0191	0.0209	76.4	83.6	54.0-138			9.00	20
Toluene	0.0250	0.0201	0.0209	80.6	83.6	79.0-120			3.68	20



WG1310114

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117399-03.04.05

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3430621-1 07/11/19 20:18 • (LCSD) R3430621-2 07/11/19 20:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,1,1-Trichloroethane	0.0250	0.0232	0.0244	92.7	97.8	73.0-124			5.27	20
Isopropylbenzene	0.0250	0.0208	0.0219	83.1	87.4	76.0-127			5.13	20
1,1,2-Trichloroethane	0.0250	0.0224	0.0230	89.7	92.2	80.0-120			2.74	20
p-Isopropyltoluene	0.0250	0.0220	0.0219	88.0	87.4	76.0-125			0.682	20
2-Butanone (MEK)	0.125	0.119	0.119	94.8	95.3	44.0-160			0.476	20
Trichloroethene	0.0250	0.0229	0.0243	91.5	97.3	78.0-124			6.16	20
Trichlorofluoromethane	0.0250	0.0229	0.0250	91.6	100	59.0-147			8.97	20
4-Methyl-2-pentanone (MIBK)	0.125	0.114	0.112	91.1	89.3	68.0-142			1.91	20
Vinyl chloride	0.0250	0.0215	0.0229	86.0	91.8	67.0-131			6.43	20
n-Propylbenzene	0.0250	0.0254	0.0255	102	102	77.0-124			0.376	20
Styrene	0.0250	0.0226	0.0229	90.5	91.6	73.0-130			1.21	20
1,1,1,2-Tetrachloroethane	0.0250	0.0210	0.0214	83.8	85.6	75.0-125			2.11	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0237	0.0266	94.9	106	69.0-132			11.2	20
1,2,3-Trichlorobenzene	0.0250	0.0184	0.0194	73.5	77.5	50.0-138			5.38	20
1,2,4-Trichlorobenzene	0.0250	0.0202	0.0209	80.9	83.4	57.0-137			3.00	20
1,2,3-Trichloropropane	0.0250	0.0249	0.0240	99.6	95.9	73.0-130			3.77	20
1,2,3-Trimethylbenzene	0.0250	0.0218	0.0218	87.2	87.1	77.0-120			0.118	20
1,2,4-Trimethylbenzene	0.0250	0.0219	0.0221	87.8	88.5	76.0-121			0.756	20
1,3,5-Trimethylbenzene	0.0250	0.0230	0.0229	92.2	91.6	76.0-122			0.607	20
Xylenes, Total	0.0750	0.0610	0.0641	81.3	85.5	79.0-123			4.96	20
(S) Toluene-d8				99.3	99.3	80.0-120				
(S) 4-Bromofluorobenzene				99.2	98.3	77.0-126				
(S) 1,2-Dichloroethane-d4				110	111	70.0-130				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

36 of 49

WG1310127

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117399-06,07,08,09,10,11

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R343124-2 07/17/19 21:44

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00187	0.0100
Benzene	U		0.000331	0.00100
Bromobenzene	U		0.000352	0.00100
Bromodichloromethane	U		0.000380	0.00100
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
n-Butylbenzene	U		0.000361	0.00100
sec-Butylbenzene	U		0.000365	0.00100
tert-Butylbenzene	U		0.000399	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
2-Chlorotoluene	U		0.000375	0.00100
4-Chlorotoluene	U		0.000351	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00133	0.00500
1,2-Dibromoethane	U		0.000381	0.00100
Dibromomethane	U		0.000346	0.00100
1,2-Dichlorobenzene	U		0.000349	0.00100
1,3-Dichlorobenzene	U		0.000220	0.00100
1,4-Dichlorobenzene	U		0.000274	0.00100
Dichlorodifluoromethane	U		0.000551	0.00500
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
cis-1,2-Dichloroethene	U		0.000260	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
1,1-Dichloropropene	U		0.000352	0.00100
1,3-Dichloropropane	U		0.000366	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
2,2-Dichloropropane	U		0.000321	0.00100
D-Isopropyl ether	U		0.000320	0.00100
Ethylbenzene	U		0.000384	0.00100
Hexachloro-1,3-butadiene	0.000533	J	0.000256	0.00100
Isopropylbenzene	U		0.000326	0.00100

ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

37 of 49

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

WG1310127

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117399-06.07.08.09.10.11

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3431124-2 07/11/19 21:44

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
p-Isopropyltoluene	U		0.000350	0.00100
2-Butanone (MEK)	U		0.000393	0.00100
Methylene Chloride	U		0.001000	0.005000
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.00100
Methyl tert-butyl ether	U		0.000367	0.00100
Naphthalene	U		0.001000	0.005000
n-Propylbenzene	U		0.000349	0.00100
Styrene	U		0.000307	0.00100
1,1,1,2-Tetrachloroethane	U		0.000385	0.00100
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000412	0.00100
1,1,2-Trichlorotrifluoroethane	U		0.000303	0.00100
1,2,3-Trichlorobenzene	0.000696	U	0.000230	0.00100
1,2,4-Trichlorobenzene	0.000415	U	0.000355	0.00100
1,1,1-Trichloroethane	U		0.000319	0.00100
1,1,2-Trichloroethane	U		0.000383	0.00100
Trichloroethene	U		0.000398	0.00100
Trichlorofluoromethane	U		0.00120	0.00500
1,2,3-Trichloropropane	U		0.000807	0.00250
1,2,3-Trimethylbenzene	U		0.000321	0.00100
1,2,4-Trimethylbenzene	U		0.000373	0.00100
1,3,5-Trimethylbenzene	U		0.000387	0.00100
Vinyl chloride	U		0.000259	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	100			80.0-120
(S) 4-Bromofluorobenzene	107			77.0-126
(S) 1,2-Dichloroethane-d4	99.7			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3431124-1 07/11/19 21:02

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	0.125	0.127	101	19.0-160	
Acrylonitrile	0.125	0.115	92.0	55.0-149	
Benzene	0.0250	0.0263	105	70.0-123	
Bromobenzene	0.0250	0.0225	90.0	73.0-121	
Bromodichloromethane	0.0250	0.0253	101	75.0-120	

ACCOUNT: Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117399

DATE/TIME: 07/17/19 14:03

PAGE: 38 of 49

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

WG1310127

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117399-06,07,08,09,10,11

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS)

(LCS) R343124-1 07/17/19 21:02

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromofom	0.0250	0.0221	88.5	68.0-132	
Bromomethane	0.0250	0.0278	111	10.0-160	
n-Butylbenzene	0.0250	0.0241	96.5	73.0-125	
sec-Butylbenzene	0.0250	0.0259	103	75.0-125	
tert-Butylbenzene	0.0250	0.0259	103	76.0-124	
Carbon tetrachloride	0.0250	0.0282	113	68.0-126	
Chlorobenzene	0.0250	0.0249	99.7	80.0-121	
Chlorodibromomethane	0.0250	0.0240	95.8	77.0-125	
Chloroethane	0.0250	0.0270	108	47.0-150	
Chloroform	0.0250	0.0261	104	73.0-120	
Chloromethane	0.0250	0.0244	97.6	41.0-142	
2-Chlorotoluene	0.0250	0.0233	93.2	76.0-123	
4-Chlorotoluene	0.0250	0.0248	99.2	75.0-122	
1,2-Dibromo-3-Chloropropane	0.0250	0.0190	75.9	58.0-134	
1,2-Dibromomethane	0.0250	0.0245	98.0	80.0-122	
1,2-Dichlorobenzene	0.0250	0.0256	102	79.0-121	
1,3-Dichlorobenzene	0.0250	0.0272	109	79.0-120	
1,4-Dichlorobenzene	0.0250	0.0252	101	79.0-120	
Dichlorodifluoromethane	0.0250	0.0242	97.0	51.0-149	
1,1-Dichloroethane	0.0250	0.0252	101	70.0-126	
1,2-Dichloroethane	0.0250	0.0233	93.3	70.0-128	
1,1-Dichloroethene	0.0250	0.0297	119	71.0-124	
cis-1,2-Dichloroethene	0.0250	0.0256	102	73.0-120	
trans-1,2-Dichloroethene	0.0250	0.0254	102	73.0-120	
1,2-Dichloropropane	0.0250	0.0250	99.9	77.0-125	
1,1-Dichloropropene	0.0250	0.0251	100	74.0-126	
1,3-Dichloropropane	0.0250	0.0233	93.3	80.0-120	
cis-1,3-Dichloropropene	0.0250	0.0227	90.7	80.0-123	
trans-1,3-Dichloropropene	0.0250	0.0242	96.7	78.0-124	
2,2-Dichloropropane	0.0250	0.0227	90.9	58.0-130	
Di-isopropyl ether	0.0250	0.0242	96.7	58.0-138	
Ethylbenzene	0.0250	0.0268	107	79.0-123	
Hexachloro-1,3-butadiene	0.0250	0.0228	91.4	54.0-138	
Isopropylbenzene	0.0250	0.0271	108	76.0-127	
p-Isopropyltoluene	0.0250	0.0267	107	76.0-125	
2-Butanone (MEK)	0.125	0.121	96.7	44.0-160	
Methylene Chloride	0.0250	0.0254	101	67.0-120	
4-Methyl-2-pentanone (MIBK)	0.125	0.115	91.8	68.0-142	
Methyl tert-butyl ether	0.0250	0.0239	95.5	68.0-125	

ACCOUNT: Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117399

DATE/TIME: 07/17/19 14:03

PAGE: 39 of 49



WG1310127

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117399-06,07,08,09,10,11

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS)

(LCS) R3431124-1 07/17/19 21:02

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Naphthalene	0.0250	0.0775	70.1	54.0-135	
n-Propylbenzene	0.0250	0.0232	92.9	77.0-124	
Styrene	0.0250	0.0253	101	73.0-130	
1,1,1,2-Tetrachloroethane	0.0250	0.0253	101	75.0-125	
1,1,2,2-Tetrachloroethane	0.0250	0.0206	82.5	65.0-130	
Tetrachloroethene	0.0250	0.0281	112	72.0-132	
Toluene	0.0250	0.0263	105	79.0-120	
1,1,2-Trichloro-1,1,2-difluoroethane	0.0250	0.0312	125	69.0-132	
1,2,3-Trichlorobenzene	0.0250	0.0184	73.5	50.0-138	
1,2,4-Trichlorobenzene	0.0250	0.0199	79.4	57.0-137	
1,1,1-Trichloroethane	0.0250	0.0276	110	73.0-124	
1,1,2-Trichloroethane	0.0250	0.0244	97.7	80.0-120	
Trichloroethene	0.0250	0.0267	107	78.0-124	
Trichlorofluoromethane	0.0250	0.0307	123	59.0-147	
1,2,3-Trichloropropane	0.0250	0.0239	95.6	73.0-130	
1,2,3-Trimethylbenzene	0.0250	0.0254	101	77.0-120	
1,2,4-Trimethylbenzene	0.0250	0.0260	104	76.0-121	
1,3,5-Trimethylbenzene	0.0250	0.0241	96.5	76.0-122	
Vinyl chloride	0.0250	0.0266	106	67.0-131	
Xylenes, Total	0.0750	0.0790	105	79.0-123	
(S) Toluene-d8			100	80.0-120	
(S) 4-Bromofluorobenzene			102	77.0-126	
(S) 1,2-Dichloroethane-d4			109	70.0-130	



ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

40 of 49

WG1312316

Volatile Organic Compounds (GC/MS) by Method 8260B

QUALITY CONTROL SUMMARY

L1117399-06

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3431492-3 07/16/19 20:01

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Bromoform	U		0.000469	0.00100
Chlorodibromomethane	U		0.000327	0.00100
(S) Toluene-d8	107			80.0-120
(S) 4-Bromofluorobenzene	108			77.0-126
(S) 1,2-Dichloroethane-d4	89.4			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3431492-1 07/16/19 19:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Bromoform	0.0250	0.0240	96.0	68.0-132	
Chlorodibromomethane	0.0250	0.0237	94.7	77.0-125	
(S) Toluene-d8			96.8	80.0-120	
(S) 4-Bromofluorobenzene			108	77.0-126	
(S) 1,2-Dichloroethane-d4			92.4	70.0-130	

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Cp

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Tc

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Ss

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Cn

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Sr

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Qc

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Al

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ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

41 of 49

WG1310064

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3430286-3 07/12/19 13:26

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Anthracene	U		0.0000140	0.0000500
Acenaphthene	U		0.0000100	0.0000500
Acenaphthylene	U		0.0000120	0.0000500
Benz[<i>a</i>]anthracene	0.00000567	J	0.00000410	0.0000500
Benz[<i>a</i>]pyrene	U		0.000016	0.0000500
Benz[<i>b</i>]fluoranthene	U		0.00000212	0.0000500
Benz[<i>g,h,i</i>]perylene	U		0.00000227	0.0000500
Benz[<i>k</i>]fluoranthene	U		0.0000136	0.0000500
Chrysene	U		0.0000108	0.0000500
Dibenz[<i>a,h</i>]anthracene	U		0.00000396	0.0000500
Fluoranthene	U		0.0000157	0.0000500
Fluorene	U		0.00000850	0.0000500
Indeno[1,2,3- <i>cd</i>]pyrene	U		0.0000148	0.0000500
Naphthalene	0.0000408	J	0.0000198	0.000250
Phenanthrene	U		0.00000820	0.0000500
Pyrene	U		0.0000117	0.0000500
(<i>S</i>) Nitrobenzene- <i>d</i> 5	133		31.0-160	
(<i>S</i>) 2-Fluorobiphenyl	118		48.0-148	
(<i>S</i>) <i>p</i> -Terphenyl- <i>d</i> 14	108		37.0-146	

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Cp

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Tc

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Ss

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Sr

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Qc

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Gl

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Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3430286-1 07/12/19 12:43 • (LCSD) R3430286-2 07/12/19 13:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.00200	0.00222	0.00219	111	109	67.0-150			1.36	20
Acenaphthene	0.00200	0.00233	0.00228	117	114	65.0-138			2.17	20
Acenaphthylene	0.00200	0.00257	0.00251	129	125	66.0-140			2.36	20
Benz[<i>a</i>]anthracene	0.00200	0.00219	0.00210	109	105	61.0-140			4.20	20
Benz[<i>a</i>]pyrene	0.00200	0.00224	0.00215	112	108	60.0-143			4.10	20
Benz[<i>b</i>]fluoranthene	0.00200	0.00222	0.00207	111	103	58.0-141			6.99	20
Benz[<i>g,h,i</i>]perylene	0.00200	0.00211	0.00204	105	102	52.0-153			3.37	20
Benz[<i>k</i>]fluoranthene	0.00200	0.00213	0.00214	106	107	58.0-148			0.468	20
Chrysene	0.00200	0.00209	0.00204	105	102	64.0-144			2.42	20
Dibenz[<i>a,h</i>]anthracene	0.00200	0.00206	0.00199	103	99.5	52.0-155			3.46	20
Fluoranthene	0.00200	0.00221	0.00218	111	109	69.0-153			1.37	20
Fluorene	0.00200	0.00228	0.00222	114	111	64.0-136			2.67	20
Indeno[1,2,3- <i>cd</i>]pyrene	0.00200	0.00213	0.00207	106	103	54.0-153			2.86	20
Naphthalene	0.00200	0.00221	0.00215	111	108	61.0-137			2.75	20

ACCOUNT: Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L117399

DATE/TIME: 07/17/19 14:03

PAGE: 42 of 49

WG1310064

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

[L1117399-01.02.03.04.05.06.11](#)

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3430286-1 07/12/19 12:43 • (LCSD) R3430286-2 07/12/19 13:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Phenanthrene	0.00200	0.00207	0.00199	103	99.5	62.0-137			3.94	20
Pyrene	0.00200	0.00228	0.00218	114	109	60.0-142			4.48	20
(S) Nitrobenzene-d5				120	116	31.0-160				
(S) 2-Fluorobiphenyl				107	104	48.0-148				
(S) p-Terphenyl-d14				97.5	94.0	37.0-146				



ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

43 of 49

WG1311212

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3431272-3 07/16/19 14:45

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Anthracene	U	0.0000140	0.0000500	
Acenaphthene	U	0.0000100	0.0000500	
Acenaphthylene	U	0.0000120	0.0000500	
Benz[a]anthracene	U	0.00000410	0.0000500	
Benz[a]pyrene	U	0.000016	0.0000500	
Benz[b]fluoranthene	U	0.00000212	0.0000500	
Benz[g,h,i]perylene	U	0.00000227	0.0000500	
Benz[k]fluoranthene	U	0.0000136	0.0000500	
Chrysene	U	0.0000108	0.0000500	
Dibenz[a,h]anthracene	U	0.00000396	0.0000500	
Fluoranthene	U	0.0000157	0.0000500	
Fluorene	U	0.00000850	0.0000500	
Indeno[1,2,3-cd]pyrene	U	0.0000148	0.0000500	
Naphthalene	0.0000392	J	0.000198	0.000250
Phenanthrene	U	0.00000820	0.0000500	
Pyrene	U	0.0000117	0.0000500	
(S) Nitrobenzene-d5	110		31.0-160	
(S) 2-Fluorobiphenyl	86.5		48.0-148	
(S) p-Terphenyl-d14	99.0		37.0-146	

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Cp

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Tc

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Ss

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Cn

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Sr

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Qc

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Gl

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Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3431272-1 07/16/19 13:59 • (LCSD) R3431272-2 07/16/19 14:22

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Anthracene	0.00200	0.00222	0.00225	111	112	67.0-150			1.34	20
Acenaphthene	0.00200	0.00220	0.00221	110	111	65.0-138			0.454	20
Acenaphthylene	0.00200	0.00237	0.00240	118	120	66.0-140			1.26	20
Benz[a]anthracene	0.00200	0.00192	0.00192	96.0	96.0	61.0-140			0.000	20
Benz[a]pyrene	0.00200	0.00192	0.00192	96.0	96.0	60.0-143			0.000	20
Benz[b]fluoranthene	0.00200	0.00181	0.00198	90.5	99.0	58.0-141			8.97	20
Benz[g,h,i]perylene	0.00200	0.00183	0.00182	91.5	91.0	52.0-153			0.548	20
Benz[k]fluoranthene	0.00200	0.00200	0.00183	100	91.5	58.0-148			8.88	20
Chrysene	0.00200	0.00200	0.00200	100	100	64.0-144			0.000	20
Dibenz[a,h]anthracene	0.00200	0.00190	0.00191	95.0	95.5	52.0-155			0.525	20
Fluoranthene	0.00200	0.00209	0.00212	104	106	69.0-153			1.43	20
Fluorene	0.00200	0.00209	0.00208	104	104	64.0-136			0.480	20
Indeno[1,2,3-cd]pyrene	0.00200	0.00187	0.00188	93.5	94.0	54.0-153			0.533	20
Naphthalene	0.00200	0.00201	0.00208	100	104	61.0-137			3.42	20

WG1311212

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

[L1117399-07.08.09.10](#)



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3431272-1 07/16/19 13:59 • (LCSD) R3431272-2 07/16/19 14:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Phenanthrene	0.00200	0.00220	0.00222	110	111	62.0-137			0.905	20
Pyrene	0.00200	0.00185	0.00187	92.5	93.5	60.0-142			1.08	20
(S) Nitrobenzene-d5				106	106	31.0-160				
(S) 2-Fluorobiphenyl				82.0	83.5	48.0-148				
(S) p-Terphenyl-d14				96.0	95.0	37.0-146				



ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399

DATE/TIME:

07/17/19 14:03

PAGE:

45 of 49

GLOSSARY OF TERMS

ONE LAB. NATIONWIDE.



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399

DATE/TIME:
07/17/19 14:03

PAGE:
46 of 49

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.



Pace National is the **only** environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117399

DATE/TIME:
07/17/19 14:03

PAGE:
47 of 49

Wood E&I Solutions Inc. - St. Louis, MO

John R. Mitterauer
15933 Clayton Rd., Ste. 215
Ballwin, MO 63011

15933 Clayton Road, Suite 215

Report To: John R. Mitterauer
Email To: john.mitterauer@woodpic.com

Project: City/State: Collected: Lab Project # HARDMO-CEC

Phone: 314-209-5900
Fax: 314-209-5929

Collected By (Print): BRADY GASTLIN
STGE

Collected By (Signature): *BRADY GASTLIN*

Immediately Packed on Ice: N Y
Rush? (Lab MUST be Notified)
Same Day Y Five Day Y
Next Day Y 10 Day (Rad Only) Y
Three Day Y

Quote #
Date Results Needed
STANDARD

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Ctrs
B-7	G	GW		7-8-19	3:25	5
B-4	G	GW			3:50	5
B-3	G	GW			4:40	5
B-B	G	GW		7-9-19	7:15	5
B-C	G	GW			7:30	5
B-1	G	GW			7:50	5
B-6	G	GW			11:35	5
B-5	G	GW			11:45	5
B-8	G	GW			12:00	5
B-2	G	GW			12:15	5

Remarks:

* Matrix: SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - Wastewater
DW - Drinking Water
OT - Other

Samples returned via: UPS FedEx Courier

Relinquished by: (Signature) *John* Date: 7/10/19 Time: 16:23
Relinquished by: (Signature) *John* Date: Time:
Relinquished by: (Signature) Date: Time:

Analysis / Container / Preservative

Pres Chk

Lead - 6010 250mlHDPE-HNO3
PAHs 8270-SIM LVI 40mlAmb-NoPres-WT
V8260 40mlAmb-TSP

Chain of Custody

Page 1 of 2

Peace Analytical
National Center for Testing & Innovation

12065 Lebanon Rd.
Memphis, TN 37122
Phone: 615-728-5858
Phone: 615-728-5859
Fax: 615-728-5859



L# B061
4117399

Accum: HARDMO
Template: T152635
Prelogin: P717810
TSR: 206 - Jeff Carr
PB:

Shipped Via:

Remarks: Sample # (Lab only)

Sample Receipt Checklist
COC Seal Present/Intact: Y NP Y N
COC Signed/Accurate: Y N
Bottles active/Intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
IL Analytical: Y N
VCA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD SCREEN: <0.5 mR/hr

If preservation required by login: Date/Time

Hold: Condition: NCF / 100

Received for lab by: (Signature) *John*

Date: 7-11-19 Time: 8:15

Temp: 55.65 °C
Bottles Received: 56
TBR

Received by: (Signature) *John*

Date: 7/10/19 Time: 16:23

Tracking # 4876 1689 5826 -15

Temp: 55.65 °C
Bottles Received: 56
TBR

Hold: Condition: NCF / 100

APPENDIX E

VAPOR SAMPLING FIELD FORM

VAPOR SAMPLING

[illegible]

APPENDIX F

TABLE 2 – SUB-SLAB SOIL VAPOR ANALYTICAL RESULTS

Table 2
Sub-Slab Soil Vapor Analytical Data - July 10, 2019 - Exceedances Only
National Park Service - Tracts 01-109, 01-110, and 01-111
99 South Main, 101 South Main, & 116 South Main
Ste Genevieve, Missouri

Sample ID Sample Depth	Units	110-SV1	110-SV2	111-SV1	109-SV1	109-SV2	RBT1 - Table B-3 - Residential Indoor Air- mg/m ³ (1)	RBT1 - Table B-6 - Non-Residential Indoor Air - mg/m ³ (2)
Analyte		Result / AF⁽⁴⁾	Result / AF	Result / AF	Result / AF	Result / AF		
ACETONE	mg/m ³ (3)	0.196 / 0.00588	0.379 / 0.01137	0.146 / 0.000438	0.158 / 0.00474	0.0995 / 0.002985	1.88	6.13
BENZENE	mg/m ³	<0.00128 ⁽⁵⁾	0.00129 / 0.0000387	0.0144 / 0.000432	<0.00128	<0.00128	0.00498	0.0106
CARBON DISULFIDE	mg/m ³	<0.00174	0.00383 / 0.0001149	<0.00124	<0.00124	<0.00124	0.418	1.36
CHLOROFORM	mg/m ³	<0.00195	<0.00195	0.0207 / 0.000621	<0.00195	<0.00195	0.00111	0.00237
CHLOROMETHANE	mg/m ³	0.00101 / 0.0000303	0.00168 / 0.0000504	<0.00826	<0.00826	0.00119 / 0.0000357	0.0142	0.0303
CYCLOHEXANE	mg/m ³	0.00146 / 0.0000438	0.00218 / 0.0000654	0.0113 / 0.0000339	<0.00138	<0.00138	N/A ⁽⁶⁾	N/A
1,4-DIOXANE	mg/m ³	0.00263 / 0.0000789	<0.00144	<0.00144	<0.00144	<0.00144	N/A	N/A
ETHANOL	mg/m ³	0.223 / 0.00669	0.28 / 0.0084	0.225 / 0.00675	0.0674 / 0.002022	0.0623 / 0.001869	1.13	3.68
ETHYLBENZENE	mg/m ³	<0.00173	<0.00173	0.00802 / 0.0002406	<0.00173	<0.00173	0.606	1.98
4-ETHYLTOLUENE	mg/m ³	<0.00196	<0.00196	0.00668 / 0.0002004	<0.00196	<0.00196	N/A	N/A
DICHLORODIFLUOROMETHANE	mg/m ³	0.00205 / 0.000615	0.0023 / 0.000069	0.00232 / 0.0000696	0.00223 / 0.0000669	0.00217 / 0.0000651	0.119	0.389
HEPTANE	mg/m ³	0.00301 / 0.0000903	0.00572 / 0.0001716	0.00761 / 0.0002283	<0.00164	<0.00164	N/A	N/A
N-HEXANE	mg/m ³	0.00538 / 0.0001614	0.00856 / 0.0002568	0.0154 / 0.000462	<0.00141	<0.00141	0.418	1.36
METHYLENE CHLORIDE	mg/m ³	0.00333 / 0.0000999	0.00215 / 0.0000645	<0.00139	0.00167 / 0.0000501	0.00328 / 0.0000984	0.0545	0.116
2-BUTANONE (MEK)	mg/m ³	0.00863 / 0.0002589	0.0235 / 0.000705	0.0241 / 0.000723	0.014 / 0.0042	<0.00737	2.98	9.74
2-PROPANOL	mg/m ³	0.0107 / 0.000321	0.0161 / 0.000483	0.0197 / 0.000591	0.0205 / 0.000615	<0.00615	N/A	N/A
TETRACHLOROETHENE	mg/m ³	<0.00272	<0.00272	0.0267 / 0.000801	<0.00272	<0.00272	0.00427	0.00909
TOLUENE	mg/m ³	0.00502 / 0.0001506	0.004 / 0.00012	0.028 / 0.00084	0.00299 / 0.0000897	0.00302 / 0.0000906	2.92	9.54
1,2,4-TRIMETHYLBENZENE	mg/m ³	<0.00196	<0.00196	0.0129 / 0.000387	<0.00196	<0.00196	0.00358	0.0117
1,3,5-TRIMETHYLBENZENE	mg/m ³	<0.00196	<0.00196	0.00574 / 0.0001722	<0.00196	<0.00196		
M&P-XYLENE	mg/m ³	<0.00347	<0.00347	0.0145 / 0.000435	<0.00347	<0.00347		
O-XYLENE	mg/m ³	<0.00173	<0.00173	0.00663 / 0.0001989	<0.00173	<0.00173	0.0606 (total)	0.198 (total)

⁽¹⁾ Missouri Risk Based Cleanup Criteria Draft Tables published June 2006 (Table B-3). Based on conversations with MDNR on August 1, 2019, the Tier 1 RBT1s are for Residential Indoor Air

⁽²⁾ Missouri Risk Based Cleanup

⁽³⁾ mg/m³ = milligram per cubic meter of air

⁽⁴⁾ Result / AF = Laboratory Result / Laboratory Result x 0.03 EPA Attenuation Factor

⁽⁵⁾ < = below laboratory reporting limits

⁽⁶⁾ N/A = No value identified in Table B-3 or Table B-6 Tier 1 Risk Based Target Levels

APPENDIX G

SUB-SLAB SOIL VAPOR ANALYTICAL RESULTS



ANALYTICAL REPORT

July 16, 2019

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Wood E&I Solutions Inc. - St. Louis, MO

Sample Delivery Group: L1117967
Samples Received: 07/11/2019
Project Number:
Description:
Site: STGE
Report To: John R. Mittauer
15933 Clayton Road, Suite 215
Ballwin, MO 63011

Entire Report Reviewed By:

Jeff Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117967

DATE/TIME:
07/16/19 09:21

PAGE:
1 of 22

TABLE OF CONTENTS

ONE LAB. NATIONWIDE.



Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
110-SV1 L1117967-01	5	
110-SV2 L1117967-02	7	⁴ Cn
111-SV1 L1117967-03	9	⁵ Sr
109-SV1 L1117967-04	11	
109-SV2 L1117967-05	13	⁶ Qc
Qc: Quality Control Summary	15	⁷ Gl
Volatile Organic Compounds (MS) by Method TO-15	15	
Gl: Glossary of Terms	20	⁸ Al
Al: Accreditations & Locations	21	
Sc: Sample Chain of Custody	22	⁹ Sc

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



110-SV1 L1117967-01 Air

Collected by
Bryan Gatlin

Collected date/time
07/10/19 10:03

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1310887	2	07/13/19 22:49	07/13/19 22:49	MBF	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1311550	20	07/15/19 15:56	07/15/19 15:56	MBF	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

110-SV2 L1117967-02 Air

Collected by
Bryan Gatlin

Collected date/time
07/10/19 10:17

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1310887	2	07/13/19 23:34	07/13/19 23:34	MBF	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1311550	20	07/15/19 16:38	07/15/19 16:38	MBF	Mt. Juliet, TN

111-SV1 L1117967-03 Air

Collected by
Bryan Gatlin

Collected date/time
07/10/19 10:37

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1310887	2	07/14/19 00:21	07/14/19 00:21	MBF	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1311550	20	07/15/19 17:20	07/15/19 17:20	MBF	Mt. Juliet, TN

109-SV1 L1117967-04 Air

Collected by
Bryan Gatlin

Collected date/time
07/10/19 11:02

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1310887	2	07/14/19 01:06	07/14/19 01:06	MBF	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG1311550	20	07/15/19 18:02	07/15/19 18:02	MBF	Mt. Juliet, TN

109-SV2 L1117967-05 Air

Collected by
Bryan Gatlin

Collected date/time
07/10/19 11:14

Received date/time
07/11/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1310887	2	07/14/19 01:50	07/14/19 01:50	MBF	Mt. Juliet, TN

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117967

DATE/TIME:
07/16/19 09:21

PAGE:
3 of 22

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jeff Carr
Project Manager

- 1
Cp
- 2
Tc
- 3
Ss
- 4
Cn
- 5
Sr
- 6
Qc
- 7
Gl
- 8
Al
- 9
Sc

110-SV1

Collected date/time: 07/10/19 10:03

SAMPLE RESULTS - 01

L1117967

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	82.7	196		2	WG1310887
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1310887
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1310887
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1310887
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1310887
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1310887
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1310887
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1310887
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1310887
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1310887
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1310887
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1310887
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1310887
Chloromethane	74-87-3	50.50	0.400	0.826	0.487	1.01		2	WG1310887
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1310887
Cyclohexane	110-82-7	84.20	0.400	1.38	0.424	1.46		2	WG1310887
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1310887
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1310887
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1310887
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1310887
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1310887
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1310887
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1310887
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1310887
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1310887
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1310887
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1310887
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1310887
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1310887
1,4-Dioxane	123-91-1	88.10	0.400	1.44	0.731	2.63		2	WG1310887
Ethanol	64-17-5	46.10	12.6	23.8	119	223		20	WG1311550
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1310887
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1310887
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1310887
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.414	2.05		2	WG1310887
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1310887
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1310887
Heptane	142-82-5	100	0.400	1.64	0.736	3.01		2	WG1310887
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1310887
n-Hexane	110-54-3	86.20	0.400	1.41	1.53	5.38		2	WG1310887
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1310887
Methylene Chloride	75-09-2	84.90	0.400	1.39	0.959	3.33		2	WG1310887
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1310887
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	2.92	8.63		2	WG1310887
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1310887
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1310887
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1310887
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1310887
2-Propanol	67-63-0	60.10	2.50	6.15	4.33	10.7		2	WG1310887
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1310887
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1310887
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1310887
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1310887
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1310887
Toluene	108-88-3	92.10	0.400	1.51	1.33	5.02		2	WG1310887
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1310887

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117967

DATE/TIME:

07/16/19 09:21

PAGE:

5 of 22

110-SV1

SAMPLE RESULTS - 01

ONE LAB. NATIONWIDE.



Collected date/time: 07/10/19 10:03

L1117967

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1310887
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1310887
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1310887
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1310887
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1310887
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1310887
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1310887
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1310887
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND	J4	2	WG1310887
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1310887
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1310887
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		98.6				WG1310887
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		97.8				WG1311550

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117967

DATE/TIME:

07/16/19 09:21

PAGE:

6 of 22

110-SV2

Collected date/time: 07/10/19 10:17

SAMPLE RESULTS - 02

L1117967

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	25.0	59.4	159	379		20	WG1311550
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1310887
Benzene	71-43-2	78.10	0.400	1.28	0.402	1.29		2	WG1310887
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1310887
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1310887
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1310887
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1310887
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1310887
Carbon disulfide	75-15-0	76.10	0.400	1.24	1.23	3.83		2	WG1310887
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1310887
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1310887
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1310887
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1310887
Chloromethane	74-87-3	50.50	0.400	0.826	0.815	1.68		2	WG1310887
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1310887
Cyclohexane	110-82-7	84.20	0.400	1.38	0.633	2.18		2	WG1310887
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1310887
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1310887
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1310887
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1310887
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1310887
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1310887
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1310887
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1310887
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1310887
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1310887
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1310887
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1310887
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1310887
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1310887
Ethanol	64-17-5	46.10	12.6	23.8	148	280		20	WG1311550
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1310887
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1310887
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1310887
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.464	2.30		2	WG1310887
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1310887
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1310887
Heptane	142-82-5	100	0.400	1.64	1.40	5.72		2	WG1310887
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1310887
n-Hexane	110-54-3	86.20	0.400	1.41	2.43	8.56		2	WG1310887
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1310887
Methylene Chloride	75-09-2	84.90	0.400	1.39	0.618	2.15		2	WG1310887
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1310887
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	7.98	23.5		2	WG1310887
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1310887
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1310887
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1310887
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1310887
2-Propanol	67-63-0	60.10	2.50	6.15	6.53	16.1		2	WG1310887
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1310887
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1310887
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1310887
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1310887
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1310887
Toluene	108-88-3	92.10	0.400	1.51	1.06	4.00		2	WG1310887
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1310887

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117967

DATE/TIME:

07/16/19 09:21

PAGE:

7 of 22

110-SV2

SAMPLE RESULTS - 02

ONE LAB. NATIONWIDE.



Collected date/time: 07/10/19 10:17

L1117967

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1310887
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1310887
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1310887
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1310887
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1310887
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1310887
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1310887
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1310887
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND	J4	2	WG1310887
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1310887
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1310887
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		97.9				WG1310887
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		97.1				WG1311550

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117967

DATE/TIME:

07/16/19 09:21

PAGE:

8 of 22

111-SV1

Collected date/time: 07/10/19 10:37

SAMPLE RESULTS - 03

L1117967

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	61.3	146		2	WG1310887
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1310887
Benzene	71-43-2	78.10	0.400	1.28	4.50	14.4		2	WG1310887
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1310887
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1310887
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1310887
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1310887
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1310887
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1310887
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1310887
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1310887
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1310887
Chloroform	67-66-3	119	0.400	1.95	4.26	20.7		2	WG1310887
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1310887
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1310887
Cyclohexane	110-82-7	84.20	0.400	1.38	3.28	11.3		2	WG1310887
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1310887
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1310887
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1310887
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1310887
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1310887
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1310887
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1310887
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1310887
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1310887
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1310887
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1310887
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1310887
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1310887
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1310887
Ethanol	64-17-5	46.10	12.6	23.8	119	225		20	WG1311550
Ethylbenzene	100-41-4	106	0.400	1.73	1.85	8.02		2	WG1310887
4-Ethyltoluene	622-96-8	120	0.400	1.96	1.36	6.68		2	WG1310887
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1310887
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.469	2.32		2	WG1310887
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1310887
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1310887
Heptane	142-82-5	100	0.400	1.64	1.86	7.61		2	WG1310887
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1310887
n-Hexane	110-54-3	86.20	0.400	1.41	4.37	15.4		2	WG1310887
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1310887
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1310887
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1310887
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	8.19	24.1		2	WG1310887
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1310887
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1310887
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1310887
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1310887
2-Propanol	67-63-0	60.10	2.50	6.15	8.03	19.7		2	WG1310887
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1310887
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1310887
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1310887
Tetrachloroethylene	127-18-4	166	0.400	2.72	3.94	26.7		2	WG1310887
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1310887
Toluene	108-88-3	92.10	0.400	1.51	7.44	28.0		2	WG1310887
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1310887

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117967

DATE/TIME:

07/16/19 09:21

PAGE:

9 of 22

111-SV1

SAMPLE RESULTS - 03

ONE LAB. NATIONWIDE.



Collected date/time: 07/10/19 10:37

L1117967

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1310887
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1310887
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1310887
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	2.63	12.9		2	WG1310887
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	1.17	5.74		2	WG1310887
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1310887
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1310887
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1310887
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND	J4	2	WG1310887
m&p-Xylene	1330-20-7	106	0.800	3.47	3.35	14.5		2	WG1310887
o-Xylene	95-47-6	106	0.400	1.73	1.53	6.63		2	WG1310887
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		98.7				WG1310887
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		96.5				WG1311550

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117967

DATE/TIME:

07/16/19 09:21

PAGE:

10 of 22

109-SV1

Collected date/time: 07/10/19 11:02

SAMPLE RESULTS - 04

L1117967

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	25.0	59.4	66.5	158		20	WG1311550
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1310887
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1310887
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1310887
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1310887
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1310887
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1310887
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1310887
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1310887
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1310887
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1310887
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1310887
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1310887
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1310887
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1310887
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1310887
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1310887
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1310887
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1310887
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1310887
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1310887
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1310887
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1310887
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1310887
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1310887
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1310887
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1310887
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1310887
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1310887
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1310887
Ethanol	64-17-5	46.10	12.6	23.8	35.7	67.4		20	WG1311550
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1310887
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1310887
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1310887
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.452	2.23		2	WG1310887
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1310887
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1310887
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1310887
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1310887
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1310887
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1310887
Methylene Chloride	75-09-2	84.90	0.400	1.39	0.481	1.67		2	WG1310887
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1310887
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	4.76	14.0		2	WG1310887
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1310887
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1310887
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1310887
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1310887
2-Propanol	67-63-0	60.10	2.50	6.15	8.33	20.5		2	WG1310887
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1310887
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1310887
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1310887
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1310887
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1310887
Toluene	108-88-3	92.10	0.400	1.51	0.794	2.99		2	WG1310887
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1310887

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117967

DATE/TIME:

07/16/19 09:21

PAGE:

11 of 22

109-SV1

SAMPLE RESULTS - 04

ONE LAB. NATIONWIDE.



Collected date/time: 07/10/19 11:02

L1117967

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1310887
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1310887
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1310887
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1310887
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1310887
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1310887
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1310887
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1310887
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND	J4	2	WG1310887
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1310887
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1310887
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		98.2				WG1310887
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		96.2				WG1311550

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117967

DATE/TIME:

07/16/19 09:21

PAGE:

12 of 22

109-SV2

Collected date/time: 07/10/19 11:14

SAMPLE RESULTS - 05

L1117967

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	41.9	99.5		2	WG1310887
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1310887
Benzene	71-43-2	78.10	0.400	1.28	ND	ND		2	WG1310887
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1310887
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1310887
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1310887
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1310887
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1310887
Carbon disulfide	75-15-0	76.10	0.400	1.24	ND	ND		2	WG1310887
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1310887
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1310887
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1310887
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1310887
Chloromethane	74-87-3	50.50	0.400	0.826	0.577	1.19		2	WG1310887
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1310887
Cyclohexane	110-82-7	84.20	0.400	1.38	ND	ND		2	WG1310887
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1310887
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1310887
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1310887
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1310887
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1310887
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1310887
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1310887
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1310887
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1310887
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1310887
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1310887
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1310887
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1310887
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1310887
Ethanol	64-17-5	46.10	1.26	2.38	33.1	62.3		2	WG1310887
Ethylbenzene	100-41-4	106	0.400	1.73	ND	ND		2	WG1310887
4-Ethyltoluene	622-96-8	120	0.400	1.96	ND	ND		2	WG1310887
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1310887
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	0.438	2.17		2	WG1310887
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1310887
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1310887
Heptane	142-82-5	100	0.400	1.64	ND	ND		2	WG1310887
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1310887
n-Hexane	110-54-3	86.20	0.400	1.41	ND	ND		2	WG1310887
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1310887
Methylene Chloride	75-09-2	84.90	0.400	1.39	0.944	3.28		2	WG1310887
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1310887
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1310887
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1310887
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1310887
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1310887
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1310887
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG1310887
Propene	115-07-1	42.10	0.800	1.38	ND	ND		2	WG1310887
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1310887
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1310887
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1310887
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1310887
Toluene	108-88-3	92.10	0.400	1.51	0.801	3.02		2	WG1310887
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1310887

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117967

DATE/TIME:

07/16/19 09:21

PAGE:

13 of 22

109-SV2

Collected date/time: 07/10/19 11:14

SAMPLE RESULTS - 05

L1117967

ONE LAB. NATIONWIDE.



Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1310887
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1310887
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1310887
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	ND	ND		2	WG1310887
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	ND	ND		2	WG1310887
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1310887
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1310887
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1310887
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND	J4	2	WG1310887
m&p-Xylene	1330-20-7	106	0.800	3.47	ND	ND		2	WG1310887
o-Xylene	95-47-6	106	0.400	1.73	ND	ND		2	WG1310887
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		96.5				WG1310887

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:

L1117967

DATE/TIME:

07/16/19 09:21

PAGE:

14 of 22

WG1310887

Volatile Organic Compounds (MS) by Method TO-15

QUALITY CONTROL SUMMARY

L1117967-01,02,03,04,05

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3430670-3 07/13/19 10:43

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
Allyl Chloride	U		0.0546	0.200
Benzene	U		0.0460	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0436	0.200
Bromoform	U		0.0786	0.600
Bromomethane	U		0.0609	0.200
1,3-Butadiene	U		0.0563	2.00
Carbon disulfide	U		0.0544	0.200
Carbon tetrachloride	U		0.0585	0.200
Chlorobenzene	U		0.0601	0.200
Chloroethane	U		0.0489	0.200
Chloroform	U		0.0574	0.200
Chloromethane	U		0.0544	0.200
2-Chlorobutene	U		0.0605	0.200
Cyclohexane	U		0.0534	0.200
Dibromochloromethane	U		0.0494	0.200
1,2-Dibromoethane	U		0.085	0.200
1,2-Dichlorobenzene	U		0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0616	0.200
1,1-Dichloroethane	U		0.0514	0.200
1,1-Dichloroethene	U		0.0490	0.200
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
1,2-Dichloropropane	U		0.0599	0.200
cis-1,3-Dichloropropene	U		0.0588	0.200
trans-1,3-Dichloropropene	U		0.0435	0.200
1,4-Dioxane	U		0.0554	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Trichlorofluoromethane	U		0.0673	0.200
Dichlorodifluoromethane	U		0.0601	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200
Heptane	U		0.0626	0.200
Hexachloro-1,3-butadiene	U		0.0656	0.630
n-Hexane	U		0.0457	0.200
Isopropylbenzene	U		0.0563	0.200

ACCOUNT:

Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117967

DATE/TIME:

07/16/19 09:21

PAGE:

15 of 22

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

WG1310887

Volatile Organic Compounds (MS) by Method TO-15

QUALITY CONTROL SUMMARY

L1117967-01,02,03,04,05

ONE LAB. NATIONWIDE.



Method Blank (MB)

(MB) R3430670-3 07/13/19 10:43						
Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv		
Methylene Chloride	U	0.0465	0.200			
Methyl Butyl Ketone	U	0.0682	1.25			
2-Butanone (MEK)	U	0.0493	1.25			
4-Methyl-2-pentanone (MIBK)	U	0.0650	1.25			
Methyl Methacrylate	U	0.0773	0.200			
MTBE	U	0.0505	0.200			
Naphthalene	U	0.154	0.630			
2-Propanol	U	0.0882	1.25			
Propene	U	0.0932	0.400			
Styrene	U	0.0465	0.200			
1,1,2,2-Tetrachloroethane	U	0.0576	0.200			
Tetrachloroethylene	U	0.0497	0.200			
Tetrahydrofuran	U	0.0508	0.200			
Toluene	U	0.0499	0.200			
1,2,4-Trichlorobenzene	U	0.148	0.630			
1,1,1-Trichloroethane	U	0.0665	0.200			
1,1,2-Trichloroethane	U	0.0287	0.200			
Trichloroethylene	U	0.0545	0.200			
1,2,4-Trimethylbenzene	U	0.0483	0.200			
1,3,5-Trimethylbenzene	U	0.0631	0.200			
2,2,4-Trimethylpentane	U	0.0456	0.200			
Vinyl chloride	U	0.0457	0.200			
Vinyl Bromide	U	0.0727	0.200			
Vinyl acetate	U	0.0639	0.200			
m&p-Xylene	U	0.0946	0.400			
o-Xylene	U	0.0633	0.200			
Ethanol	U	0.0832	0.630			
(S) 1,4-Bromofluorobenzene	97.1		60.0-140			

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3430670-1 07/13/19 09:13 • (LCSD) R3430670-2 07/13/19 09:57

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	4.91	4.71	131	126	55.0-148			4.24	25
Propene	3.75	3.88	3.62	104	96.4	64.0-144			7.13	25
Dichlorodifluoromethane	3.75	3.85	3.77	103	100	64.0-139			2.31	25
1,2-Dichlorotetrafluoroethane	3.75	3.81	3.91	102	104	70.0-130			2.67	25
Chloromethane	3.75	4.32	4.39	115	117	70.0-130			1.66	25

ACCOUNT: Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117967

DATE/TIME: 07/16/19 09:21

PAGE: 16 of 22



WG1310887

Volatile Organic Compounds (MS) by Method TO-15

QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3430670-1 07/13/19 09:13 • (LCSD) R3430670-2 07/13/19 09:57

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	3.75	3.93	4.13	105	110	70.0-130			4.88	25
1,3-Butadiene	3.75	3.56	3.59	94.8	95.6	70.0-130			0.878	25
Bromomethane	3.75	3.68	3.77	98.0	100	70.0-130			2.50	25
Chloroethane	3.75	3.82	3.81	102	102	70.0-130			0.141	25
Trichlorofluoromethane	3.75	3.82	3.85	102	103	70.0-130			0.775	25
1,1,2-Trichlorotrifluoroethane	3.75	4.11	4.18	110	112	70.0-130			1.73	25
1,1-Dichloroethene	3.75	4.30	4.28	115	114	70.0-130			0.525	25
1,1-Dichloroethane	3.75	4.30	4.24	115	113	70.0-130			1.26	25
Acetone	3.75	4.50	4.38	120	117	70.0-130			2.53	25
2-Propanol	3.75	4.87	4.66	130	124	70.0-139			4.40	25
Carbon disulfide	3.75	4.18	4.16	111	111	70.0-130			0.313	25
Methylene Chloride	3.75	4.43	4.25	118	113	70.0-130			4.03	25
MTBE	3.75	4.09	4.07	109	109	70.0-130			0.445	25
trans-1,2-Dichloroethene	3.75	4.32	4.33	115	115	70.0-130			0.186	25
n-Hexane	3.75	4.55	4.45	121	119	70.0-130			2.16	25
Vinyl acetate	3.75	4.91	4.76	131	127	70.0-130		J4	3.17	25
Methyl Ethyl Ketone	3.75	4.36	4.35	116	116	70.0-130			0.294	25
cs-1,2-Dichloroethene	3.75	4.34	4.34	116	116	70.0-130			0.0866	25
Chloroform	3.75	3.98	3.97	106	106	70.0-130			0.115	25
Cyclohexane	3.75	4.07	4.10	108	109	70.0-130			0.918	25
1,1,1-Trichloroethane	3.75	3.91	3.94	104	105	70.0-130			0.943	25
Carbon tetrachloride	3.75	3.93	3.95	105	105	70.0-130			0.549	25
Benzene	3.75	4.07	3.99	109	106	70.0-130			2.15	25
1,2-Dichloroethane	3.75	4.08	4.01	109	107	70.0-130			1.62	25
Heptane	3.75	4.75	4.62	127	123	70.0-130			2.76	25
Trichloroethylene	3.75	3.94	3.89	105	104	70.0-130			1.10	25
1,2-Dichloropropane	3.75	4.34	4.21	116	112	70.0-130			3.23	25
1,4-Dioxane	3.75	4.10	4.09	109	109	70.0-140			0.184	25
Bromodichloromethane	3.75	3.94	3.92	105	105	70.0-130			0.299	25
cs-1,3-Dichloropropene	3.75	4.12	4.08	110	109	70.0-130			0.867	25
4-Methyl-2-pentanone (MIBK)	3.75	4.64	4.65	124	124	70.0-139			0.269	25
Toluene	3.75	3.94	3.98	105	106	70.0-130			1.20	25
trans-1,3-Dichloropropene	3.75	4.13	4.15	110	111	70.0-130			0.552	25
1,1,2-Trichloroethane	3.75	3.84	3.89	102	104	70.0-130			1.34	25
Tetrachloroethylene	3.75	3.72	3.75	99.3	100	70.0-130			0.790	25
Methyl Butyl Ketone	3.75	4.77	4.79	127	128	70.0-149			0.407	25
Dibromochloromethane	3.75	3.79	3.89	101	104	70.0-130			2.53	25
1,2-Dibromoethane	3.75	3.88	3.96	104	106	70.0-130			1.98	25
Chlorobenzene	3.75	3.79	3.83	101	102	70.0-130			1.16	25
Ethylbenzene	3.75	4.03	4.05	107	108	70.0-130			0.429	25

ACCOUNT: Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L117967

DATE/TIME: 07/16/19 09:21

PAGE: 17 of 22

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

WG1310887

Volatile Organic Compounds (MS) by Method TO-15

QUALITY CONTROL SUMMARY

L1171967-01.02.03.04.05

ONE LAB. NATIONWIDE.



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3430670-1 07/13/19 09:13 • (LCSD) R3430670-2 07/13/19 09:57

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
m&p-Xylene	7.50	7.89	7.95	105	106	70.0-130			0.800	25
o-Xylene	3.75	4.01	4.10	107	109	70.0-130			2.21	25
Styrene	3.75	4.05	4.14	108	111	70.0-130			2.25	25
Bromoform	3.75	3.65	3.97	97.2	106	70.0-130			8.55	25
1,1,2,2-Tetrachloroethane	3.75	3.69	4.07	98.5	108	70.0-130			9.60	25
4-Ethyltoluene	3.75	3.77	4.18	101	111	70.0-130			10.1	25
1,3,5-Trimethylbenzene	3.75	3.70	4.07	98.7	109	70.0-130			9.52	25
1,2,4-Trimethylbenzene	3.75	3.75	4.17	99.9	111	70.0-130			10.7	25
1,3-Dichlorobenzene	3.75	3.77	4.06	100	108	70.0-130			7.51	25
1,4-Dichlorobenzene	3.75	3.77	4.08	100	109	70.0-130			8.12	25
Benzyl Chloride	3.75	3.93	4.39	105	117	70.0-152			11.0	25
1,2-Dichlorobenzene	3.75	3.78	4.08	101	109	70.0-130			7.60	25
1,2,4-Trichlorobenzene	3.75	3.99	4.28	106	114	70.0-160			7.02	25
Hexachloro-1,3-butadiene	3.75	3.71	3.96	98.9	106	70.0-151			6.61	25
Naphthalene	3.75	3.99	4.02	106	107	70.0-159			0.627	25
Allyl Chloride	3.75	4.78	4.56	128	121	70.0-130			4.88	25
2-Chlorotoluene	3.75	3.63	4.04	96.7	108	70.0-130			10.8	25
Methyl Methacrylate	3.75	4.57	4.40	122	117	70.0-130			3.69	25
Tetrahydrofuran	3.75	4.87	4.65	130	124	70.0-137			4.61	25
2,2,4-Trimethylpentane	3.75	4.53	4.50	121	120	70.0-130			0.839	25
Vinyl Bromide	3.75	3.84	3.89	102	104	70.0-130			1.36	25
Isopropylbenzene	3.75	3.65	4.06	97.4	108	70.0-130			10.6	25
(S) 1,4-Bromofluorobenzene				92.4	103	60.0-140				

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

ACCOUNT: Wood EXL Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1171967

DATE/TIME: 07/16/19 09:21

PAGE: 18 of 22



Method Blank (MB)

(MB) R3430683-3 07/15/19 10:28					
Analyte	MB Result	MB Qualifier	MB MDL	MB RDL	
	ppbv	ppbv	ppbv	ppbv	
Acetone	U	0.0569	1.25		
Ethanol	U	0.0832	0.630		
(S) 1,4-Bromofluorobenzene 100 60.0-140					

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3430683-1 07/15/19 08:58 • (LCSD) R3430683-2 07/15/19 09:43											
Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits	
	ppbv	ppbv	ppbv	%	%	%			%	%	
Ethanol	3.75	5.39	4.97	144	133	55.0-148			8.11	25	
Acetone	3.75	4.86	4.59	129	122	70.0-130			5.66	25	
(S) 1,4-Bromofluorobenzene 102 101 60.0-140											



ACCOUNT:

Wood EXI Solutions Inc. - St. Louis, MO

PROJECT:

SDG: L1117967

DATE/TIME:

07/16/19 09:21

PAGE:

19 of 22

GLOSSARY OF TERMS

ONE LAB. NATIONWIDE.



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Qualifier Description

J4	The associated batch QC was outside the established quality control range for accuracy.
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ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117967

DATE/TIME:
07/16/19 09:21

PAGE:
20 of 22

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.



Pace National is the **only** environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

SDG:
L1117967

DATE/TIME:
07/16/19 09:21

PAGE:
21 of 22

Wood E&I Solutions Inc. St. Louis, MO

15333 Clayton Road, Suite 215
Baltimore, MD 21031

15333 Clayton Road, Suite 215

John R. McIntyre

Phone: 314-209-5920
Fax: 314-209-5929

Company: GELV

Contract: B-2-1-1

Sample ID: 110-SV1

110-SV2

111-SV1

109-SV1

109-SV2

109-SV2

109-SV2

109-SV2

109-SV2

109-SV2

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Hardman CEC

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APPENDIX H

ASBESTOS & LEAD INSPECTOR CERTIFICATION

CERTIFICATION NUMBER:
7118120718MOIR5258

THIS CERTIFIES
Bryan N Gatlin
HAS COMPLETED THE CERTIFICATION
REQUIREMENTS FOR
Inspector



APPROVED: **12/26/2018**
EXPIRES: **12/26/2019**

TRAINING DATE: **12/07/2018**

Angela R. Bigham
Director of Air Pollution Control Program



**Missouri Department of Health
and Senior Services**

Lead Occupation License - ID Badge
License Number: 971119-200033535

Lead Inspector



**Bryan
Gatlin**

Expiration Date: **11/19/2019**

APPENDIX I

ASBESTOS SURVEY PHOTOGRAPHIC DOCUMENTATION

Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 1

Description:

Tract 01-112
Louis Bolduc House
View of west side of house



Photograph No. 2

Description:

Tract 01-112
Louis Bolduc House
View of stone cottage



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 3

Description:

Tract 01-112
Louis Bolduc House

View of HA-1

Non-ACM
Stone mortar.



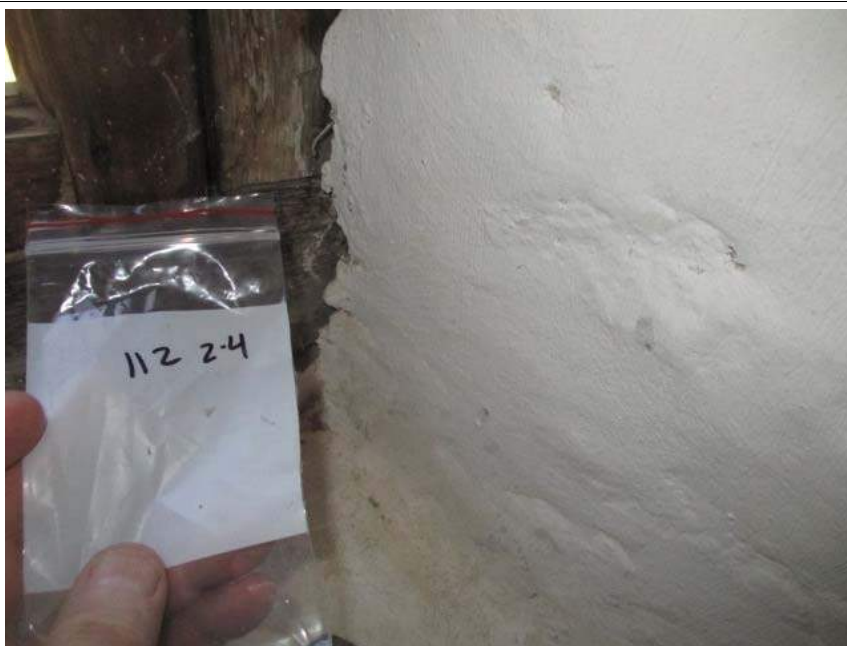
Photograph No. 4

Description:

Tract 01-112
Louis Bolduc House

View of HA-2

Non-ACM
Kitchen mortar.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 5

Description:

Tract 01-112
Louis Bolduc House

View of HA-3

Non-ACM
Plaster.



Photograph No. 6

Description:

Tract 01-112
Louis Bolduc House

View of HA-4

Non-ACM
Surfacing in basement.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 7

Description:

Tract 01-112
Louis Bolduc House

View of HA-5

Non-ACM
Window glazing.



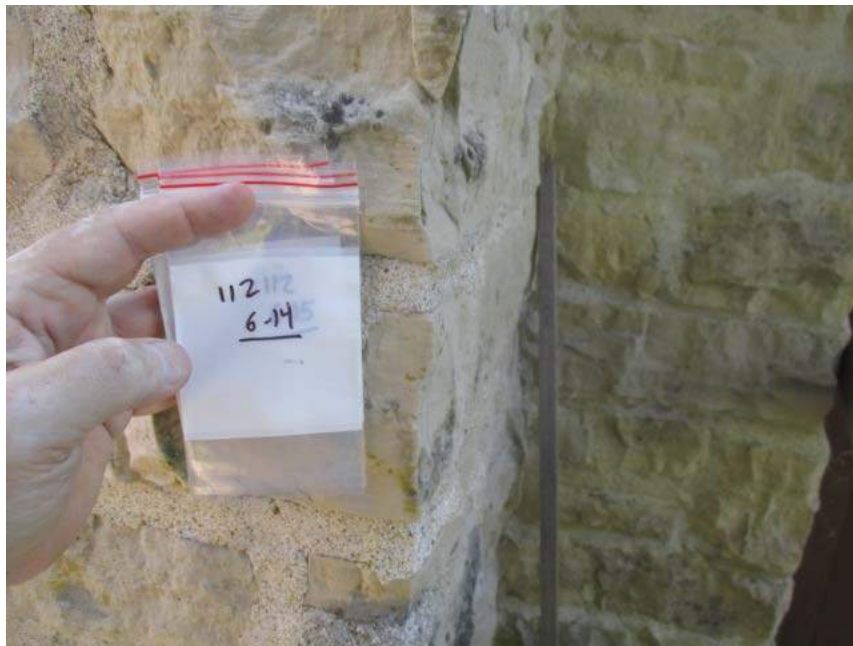
Photograph No. 8

Description:

Tract 01-112
Louis Bolduc House

View of HA-6

Non-ACM
Stone cottage mortar.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 9

Description:

Tract 01-110
Rene LeMeilleur House

View of house from west.



Photograph No. 10

Description:

Tract 01-110
Rene LeMeilleur House

View of HA-7

Non-ACM
Window glazing.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 11

Description:

Tract 01-110
Rene LeMeilleur House

View of HA-8

Non-ACM
Plaster.



Photograph No. 12

Description:

Tract 01-111
Linden House

View of house from west.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

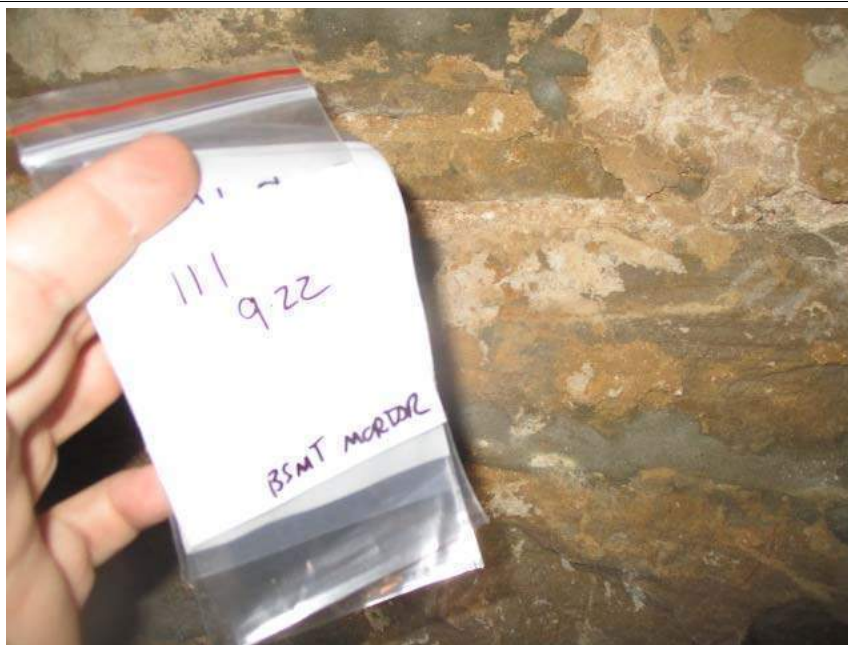
Photograph No. 13

Description:

Tract 01-111
Linden House

View of HA-9

Non-ACM
Basement mortar.



Photograph No. 14

Description:

Tract 01-111
Linden House

View of HA-10

Non-ACM
Mortar on flue.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 15

Description:

Tract 01-111
Linden House

View of HA-11

Non-ACM
Surfacing on basement
garden walls.



Photograph No. 16

Description:

Tract 01-111
Linden House

View of HA-12

Non-ACM
Wall plaster.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 17

Description:

Tract 01-111
Linden House

View of HA-13

Non-ACM
12" x 12" Blue floor tile
and brown mastic.



Photograph No. 18

Description:

Tract 01-111
Linden House

View of HA-14

Non-ACM
"Stone" pattern sheet vinyl
flooring and brown mastic.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 19

Description:

Tract 01-111
Linden House

View of HA-15

Non-ACM
Pipe insulation.



Photograph No. 20

Description:

Tract 01-111
Linden House

View of HA-16

“Hexagon” pattern sheet
vinyl flooring.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

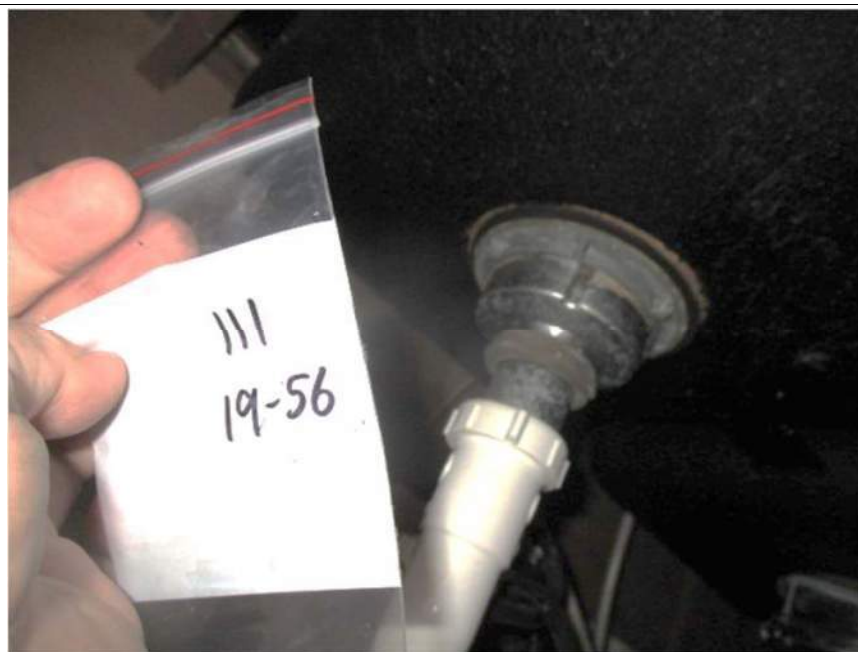
Photograph No. 23

Description:

Tract 01-111
Linden House

View of HA-19

ACM-Containing
Black sink insulation.



Photograph No. 24

Description:

Tract 01-111
Linden House

View of HA-20

Non-ACM
Bathroom sheet vinyl
flooring.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 25

Description:

Tract 01-111
Linden House

View of HA-21

ACM-Containing
Duct wrap.



Photograph No. 26

Description:

Tract 01-111
Linden House

View of HA-22

Non-ACM
Window glazing.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 27

Description:

Tract 01-111
Linden House

View of HA-23

Non-ACM
Exterior surfacing.



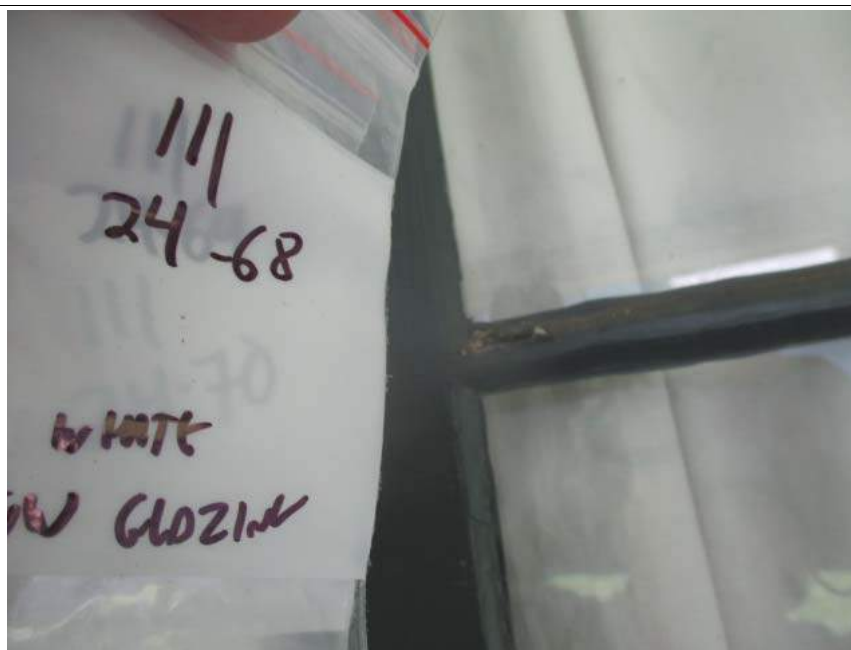
Photograph No. 28

Description:

Tract 01-111
Linden House

View of HA-24

Non-ACM
Window glazing.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 29

Description:

Tract 01-109
Jean Baptiste
Valle (JBV)
House

View of house from west.



Photograph No. 30

Description:

Tract 01-109
JBV House

View of garage building.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 31

Description:

Tract 01-109
JBV House

View of HA-25

Non-ACM
Wall plaster.



Photograph No. 32

Description:

Tract 01-109
JBV House

View of HA-26

Non-ACM
Basement plaster walls.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

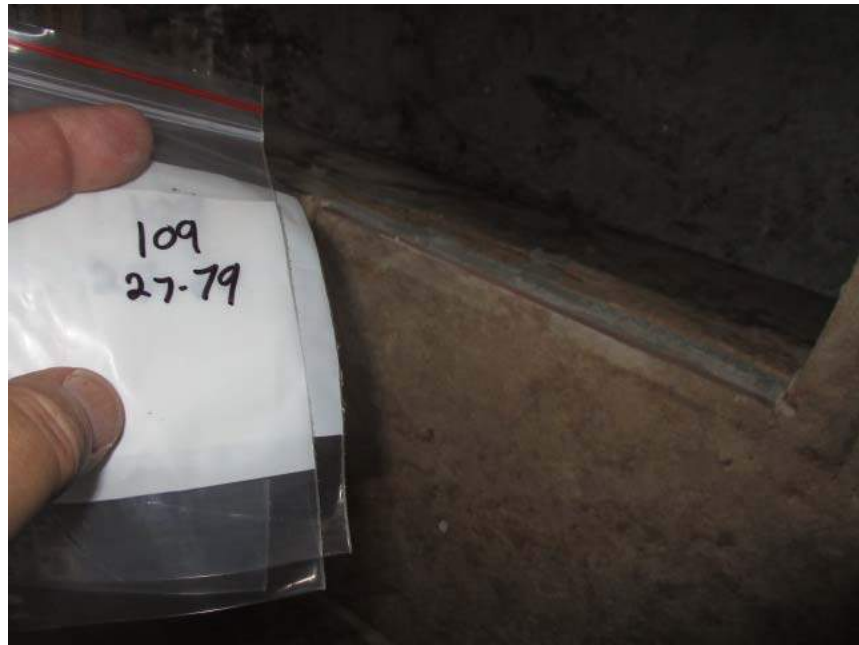
Photograph No. 33

Description:

Tract 01-109
JBV House

View of HA-27

Non-ACM
Ceramic floor tile thinset.



Photograph No. 34

Description:

Tract 01-109
JBV House

View of HA-28

Non-ACM
Faux brick vinyl floor tile
and
Non-ACM (<1%)
black mastic.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 35

Description:

Tract 01-109
JBV House

View of HA-29

Non-ACM
Drywall and joint
compound.



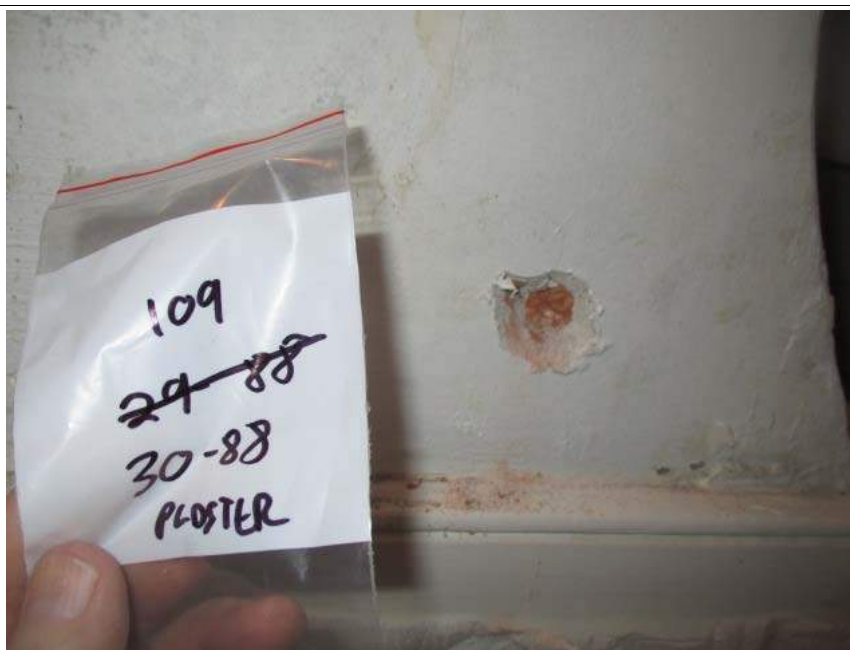
Photograph No. 36

Description:

Tract 01-109
JBV House

View of HA-30

Non-ACM
Wall plaster and brick.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 37

Description:

Tract 01-109
JBV House

View of HA-31

Non-ACM
Ceramic wall tile adhesive.



Photograph No. 38

Description:

Tract 01-109
JBV House

View of HA-32

Non-ACM
Carpet adhesive.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 39

Description:

Tract 01-109
JBV House

View of HA-33

ACM-Containing
9" x 9" White/gold vinyl
floor tile.

Non-ACM
Black mastic.

Non-ACM
Felt.



Photograph No. 40

Description:

Tract 01-109
JBV House

View of HA-34

Non-ACM
Carpet adhesive.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 41

Description:

Tract 01-109
JBV House

View of HA-35

Non-ACM
Ceramic floor tile thinset.



Photograph No. 42

Description:

Tract 01-109
JBV House

View of HA-36

Non-ACM
Ceramic wall tile adhesive.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 43

Description:

Tract 01-109
JBV House

View of HA-37

ACM-Containing
Roof capstone asphalt
sealer.



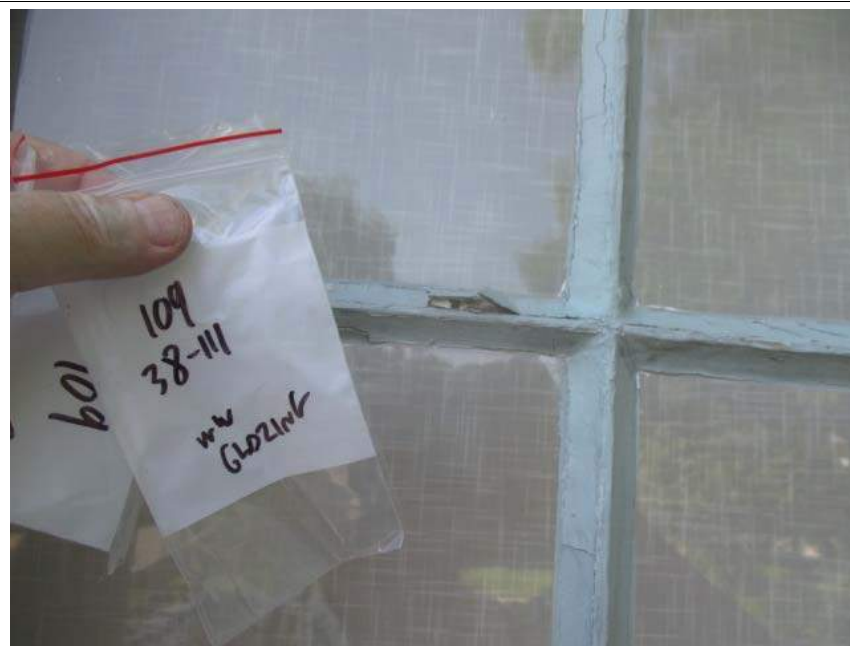
Photograph No. 44

Description:

Tract 01-109
JBV House

View of HA-38

Non-ACM
Window glazing.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

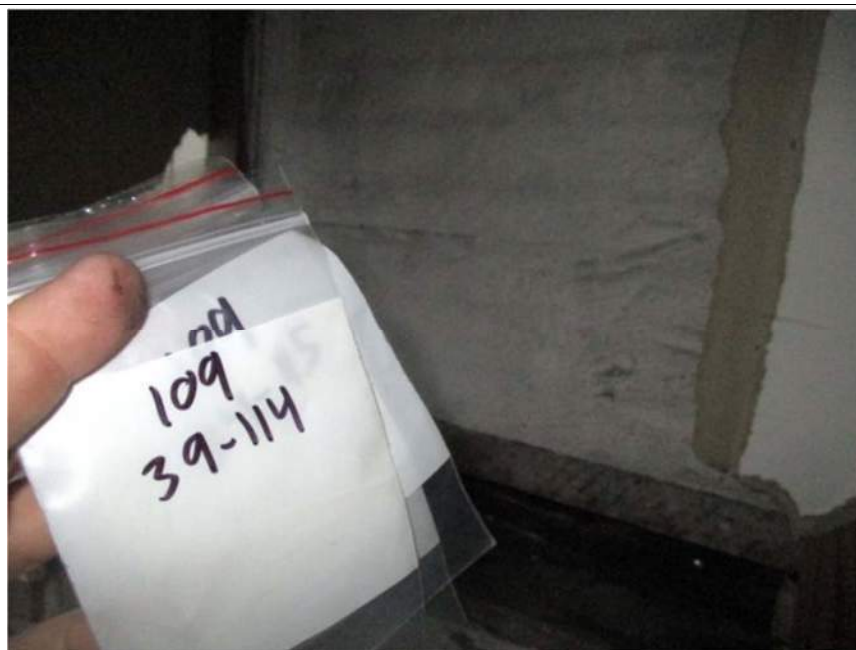
Photograph No. 45

Description:

Tract 01-109
JBV House

View of HA-39

Non-ACM
Old exposed plaster.



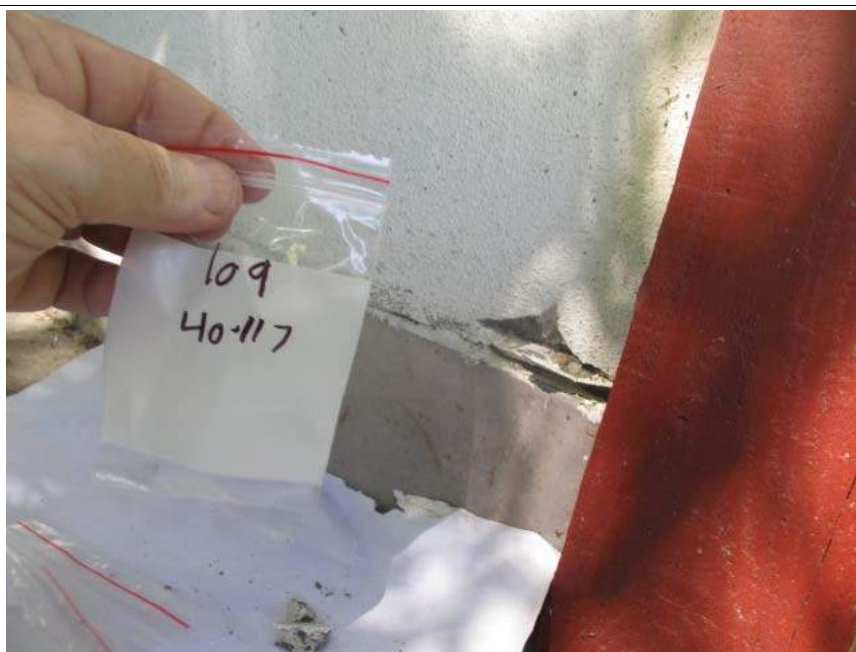
Photograph No. 46

Description:

Tract 01-109
JBV House

View of HA-40

Non-ACM
Wall stucco.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 47

Description:

Tract 01-109
JBV House

View of HA-41

Non-ACM
Window glazing.



Photograph No. 48

Description:

Tract 01-113
Francois Valle II House

View of house from south.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 49

Description:

Tract 01-113
Francois Valle II House

View of shed.



Photograph No. 50

Description:

Tract 01-113
Francois Valle II House

View of HA-42

Non-ACM
Drywall and joint
compound.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 53

Description:

Tract 01-113
Francois Valle II House

View of HA-45

Non-ACM
Ceiling tile.



Photograph No. 54

Description:

Tract 01-113
Francois Valle II House

View of HA-46

Non-ACM
Bathroom sheet vinyl
flooring.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 55

Description:

Tract 01-113
Francois Valle II House

View of HA-47
ACM-Containing
Red sheet vinyl flooring.

View of HA-48
Non-ACM
White sheet vinyl flooring.

View HA-49
Non-ACM
“Squares” pattern sheet
vinyl flooring.



Photograph No. 56

Description:

Tract 01-113
Francois Valle II House

View of HA-50

Non-ACM
Ceiling tile.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 57

Description:

Tract 01-113
Francois Valle II House

View of HA-51

ACM-Containing
Duct tape.



Photograph No. 58

Description:

Tract 01-113
Francois Valle II House

View of HA-52

Non-ACM
Stone mortar.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

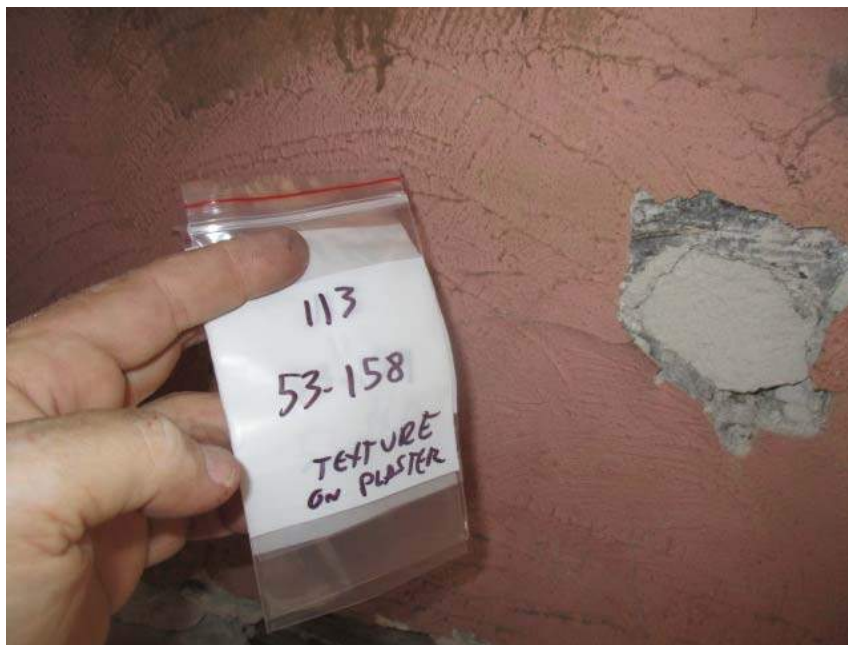
Photograph No. 59

Description:

Tract 01-113
Francois Valle II House

View of HA-53

Non-ACM
Texture on plaster.



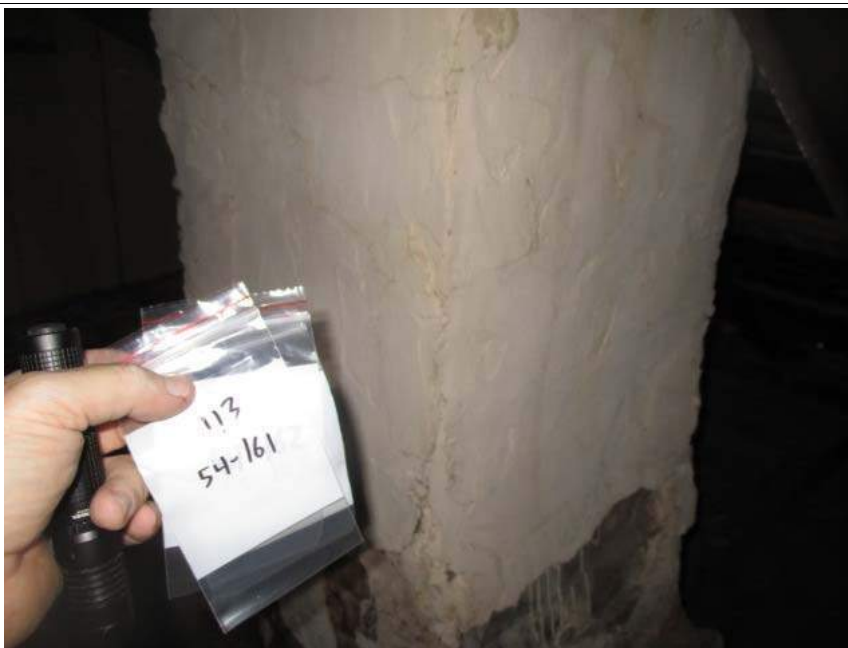
Photograph No. 60

Description:

Tract 01-113
Francois Valle II House

View of HA-54

Non-ACM
Surfacing on chimney.



Photographic Documentation
Asbestos Survey – Tracts 01-109, 01-110, 01-111, 01-112, and 01-113
Ste. Genevieve, Missouri
Project No. 193-188

Photograph No. 61

Description:

Tract 01-113
Linden House

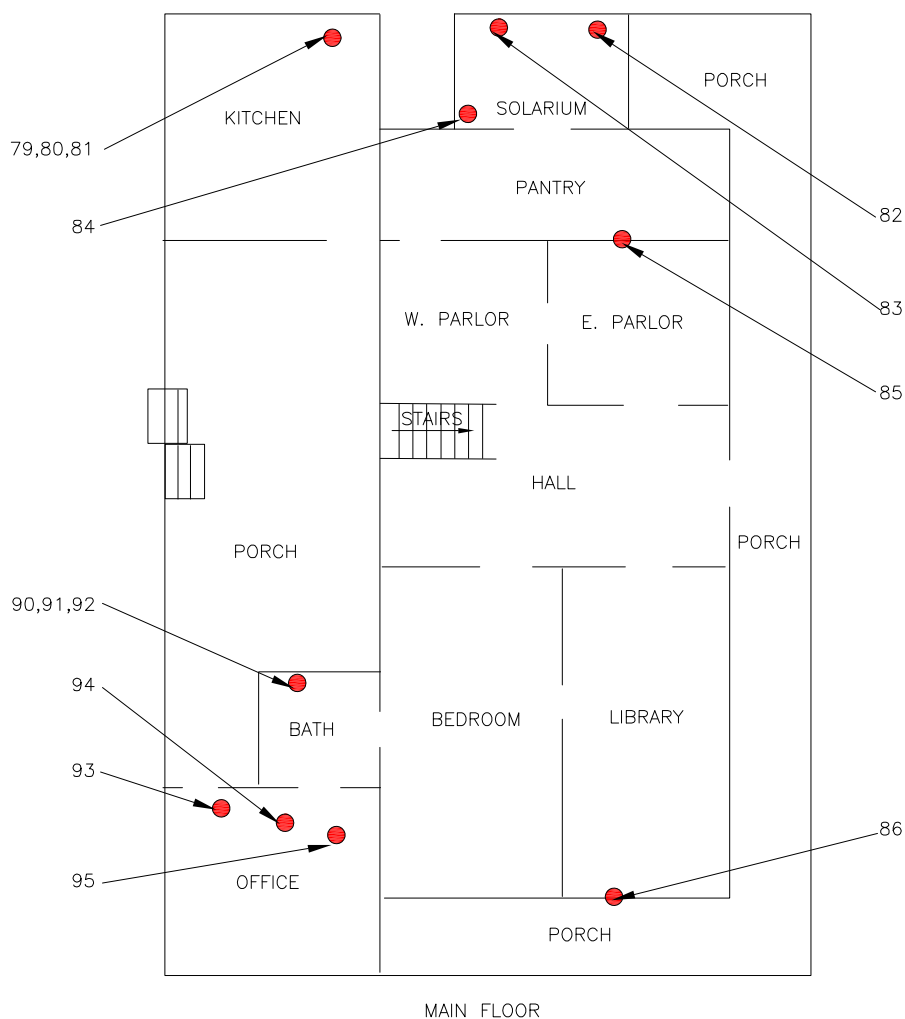
View of HA-55

Non-ACM
Window glazing.



APPENDIX J

ASBESTOS SAMPLE LOCATION MAPS



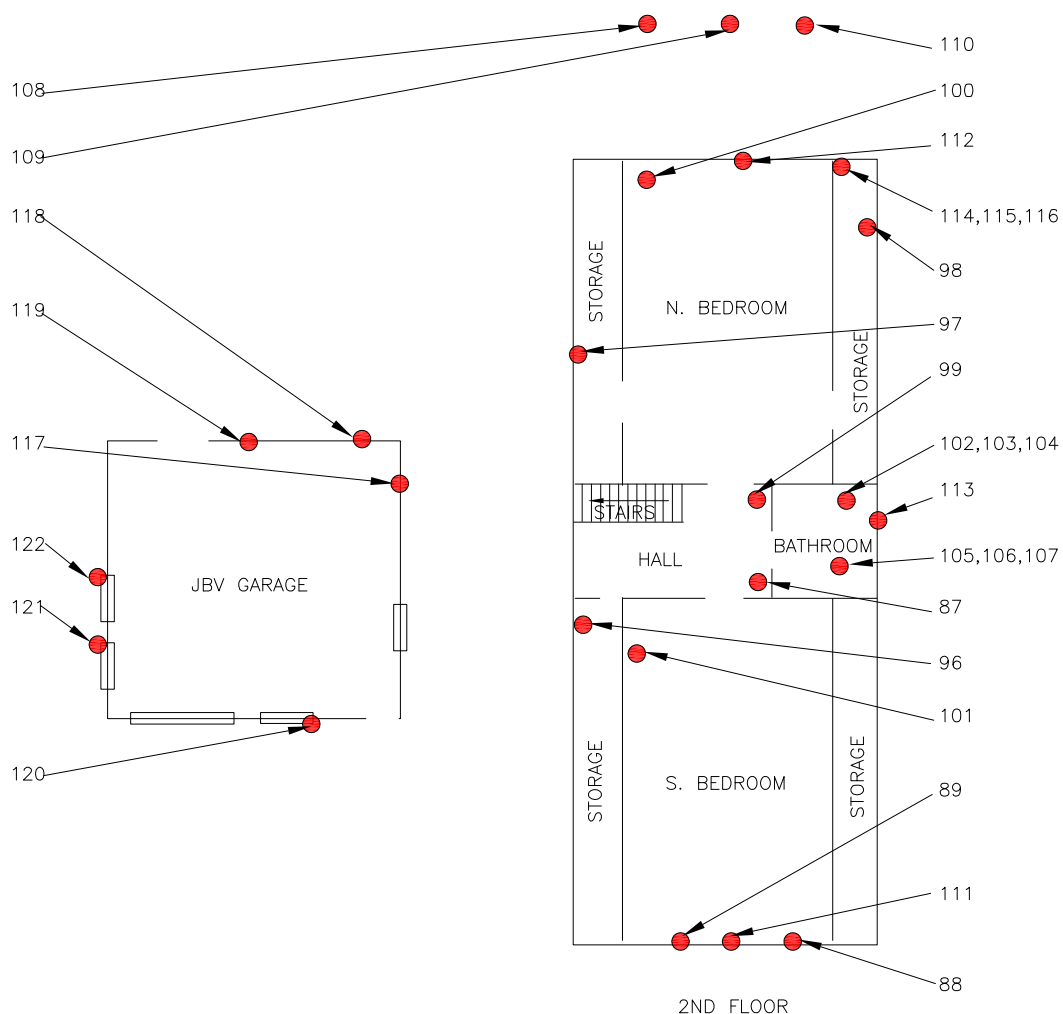
Civil & Environmental Consultants, Inc.

4848 Park 370 Blvd., Suite F - Hazelwood, MO 63042
314-656-4566 · 866-250-3679
www.cecinc.com

NATIONAL PARK SERVICE
JEAN BAPTISTE VALLE HOUSE - TRACT 01-109
99 S. MAIN STREET
STE. GENEVIEVE, MISSOURI

ASBESTOS SAMPLE LOCATION MAP

DRAWN BY: DJB	CHECKED BY: BNG	APPROVED BY: BNG	FIGURE NO.:
DATE: JULY 31, 2019	DWG SCALE: NOT TO SCALE	PROJECT NO: 193-188	



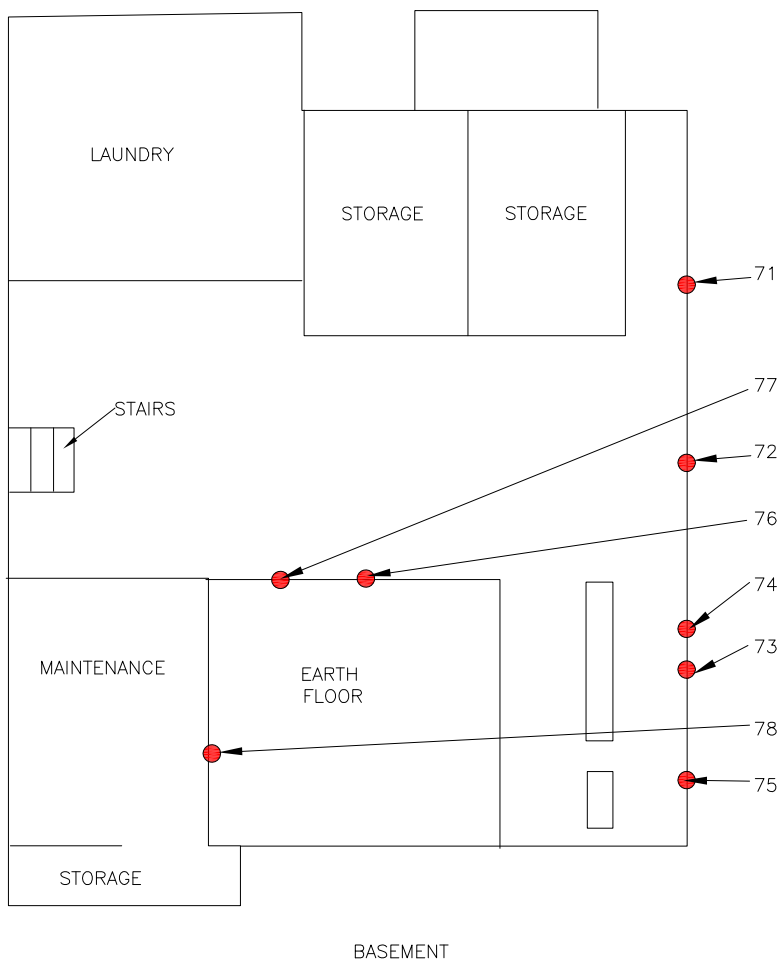
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NATIONAL PARK SERVICE
JEAN BAPTISTE VALLE HOUSE - TRACT 01-109
99 S. MAIN STREET
STE. GENEVIEVE, MISSOURI

ASBESTOS SAMPLE LOCATION MAP

DRAWN BY: DJB	CHECKED BY: BNG	APPROVED BY: BNG	FIGURE NO.:
DATE: JULY 31, 2019	DWG SCALE: NOT TO SCALE	PROJECT NO: 193-188	



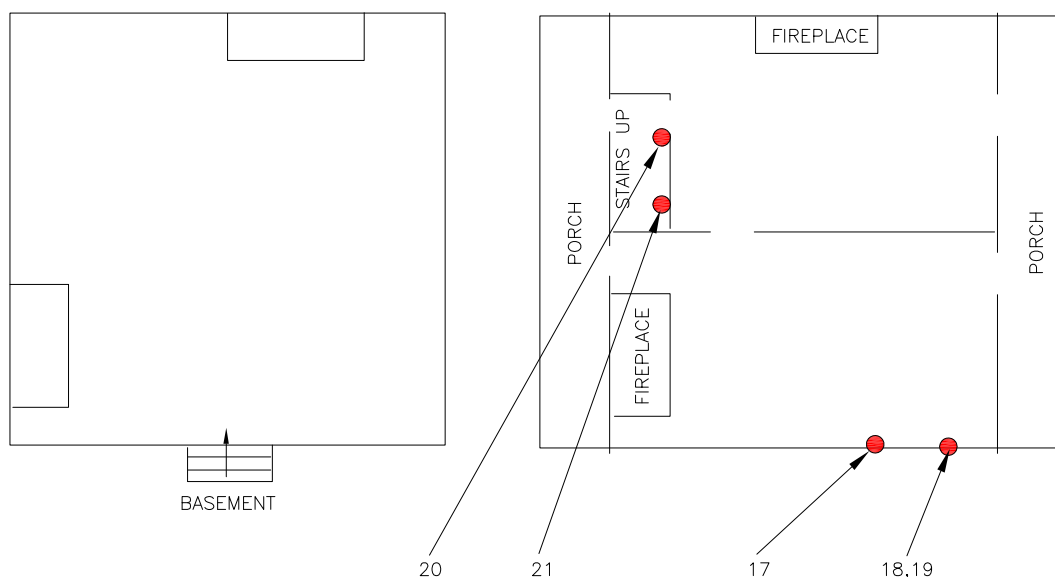
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NATIONAL PARK SERVICE
JEAN BAPTISTE VALLE HOUSE - TRACT 01-109
99 S. MAIN STREET
STE. GENEVIEVE, MISSOURI

ASBESTOS SAMPLE LOCATION MAP

DRAWN BY: DJB	CHECKED BY: BNG	APPROVED BY: BNG	FIGURE NO.:
DATE: JULY 31, 2019	DWG SCALE: NOT TO SCALE	PROJECT NO: 193-188	



Civil & Environmental Consultants, Inc.

4848 Park 370 Blvd., Suite F - Hazelwood, MO 63042

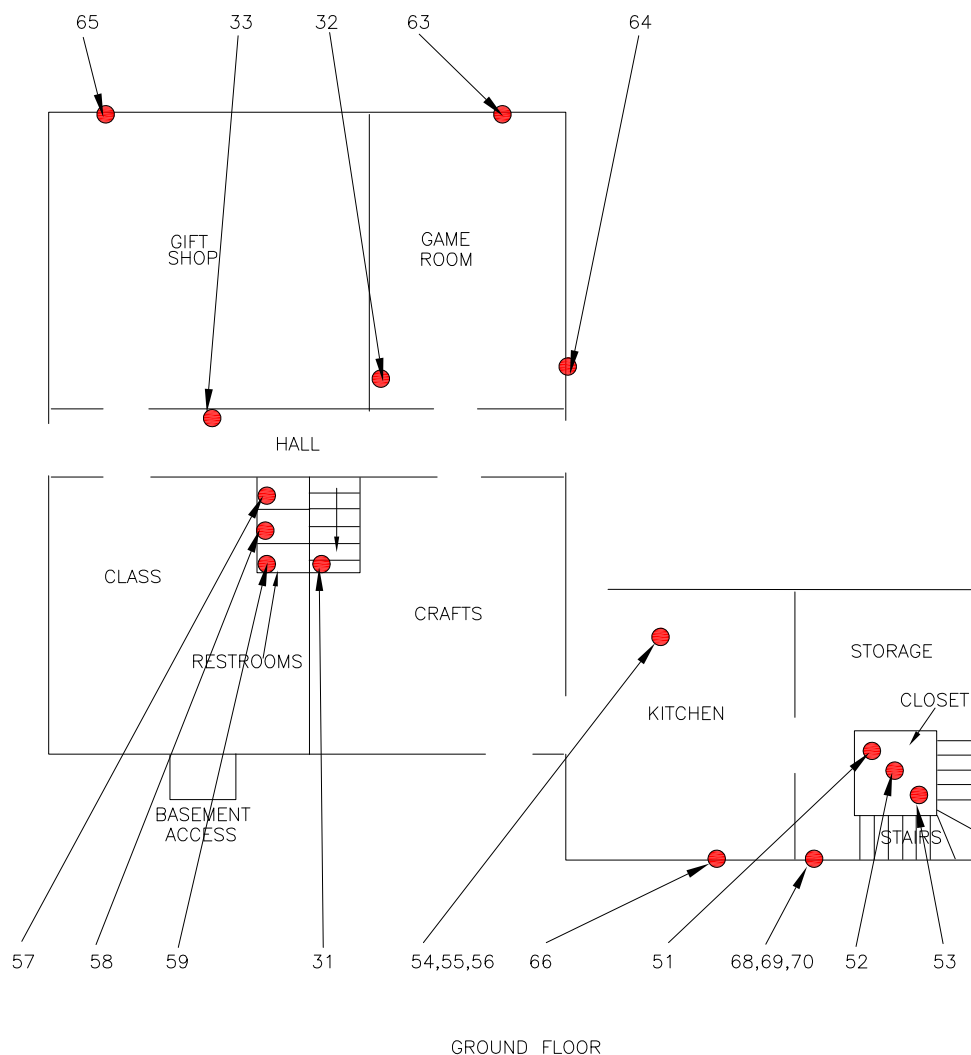
314-656-4566 · 866-250-3679

www.cecinc.com

NATIONAL PARK SERVICE
RENE LEMEILLEUR HOUSE - TRACT 01-110
101 S. MAIN STREET
STE. GENEVIEVE, MO

ASBESTOS SAMPLE LOCATION MAP

DRAWN BY:	DJB	CHECKED BY:	BNG	APPROVED BY:	BNG	FIGURE NO.:
DATE:	JULY 30, 2019	DWG SCALE:	NOT TO SCALE	PROJECT NO:	193-188	



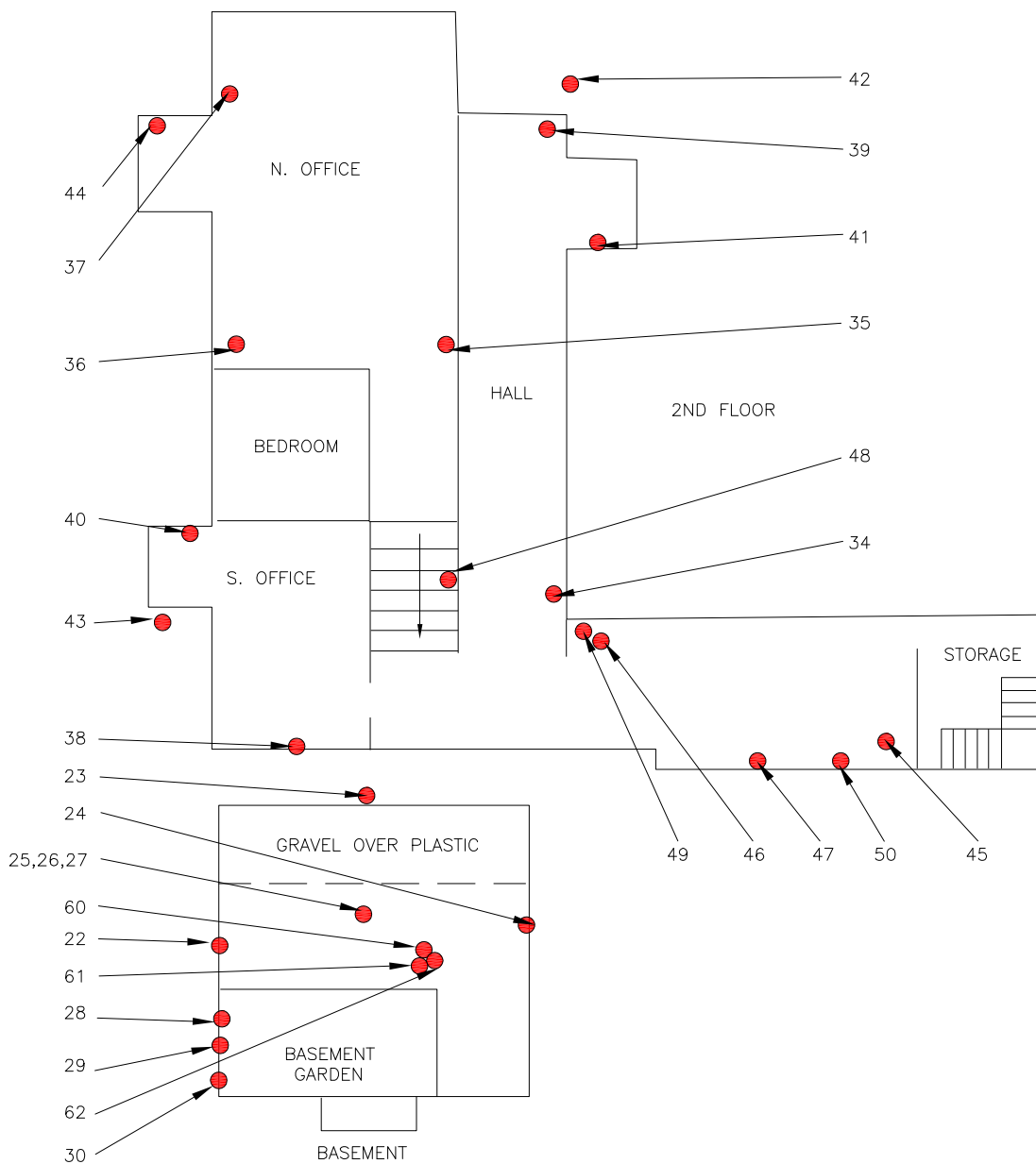
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NATIONAL PARK SERVICE
LINDEN HOUSE - TRACT 01-111
S. MAIN STREET
STE. GENEVIEVE, MISSOURI

ASBESTOS SAMPLE LOCATION MAP

DRAWN BY: DJB	CHECKED BY: BNG	APPROVED BY: BNG	FIGURE NO.:
DATE: JULY 30, 2019	DWG SCALE: NOT TO SCALE	PROJECT NO: 193-188	



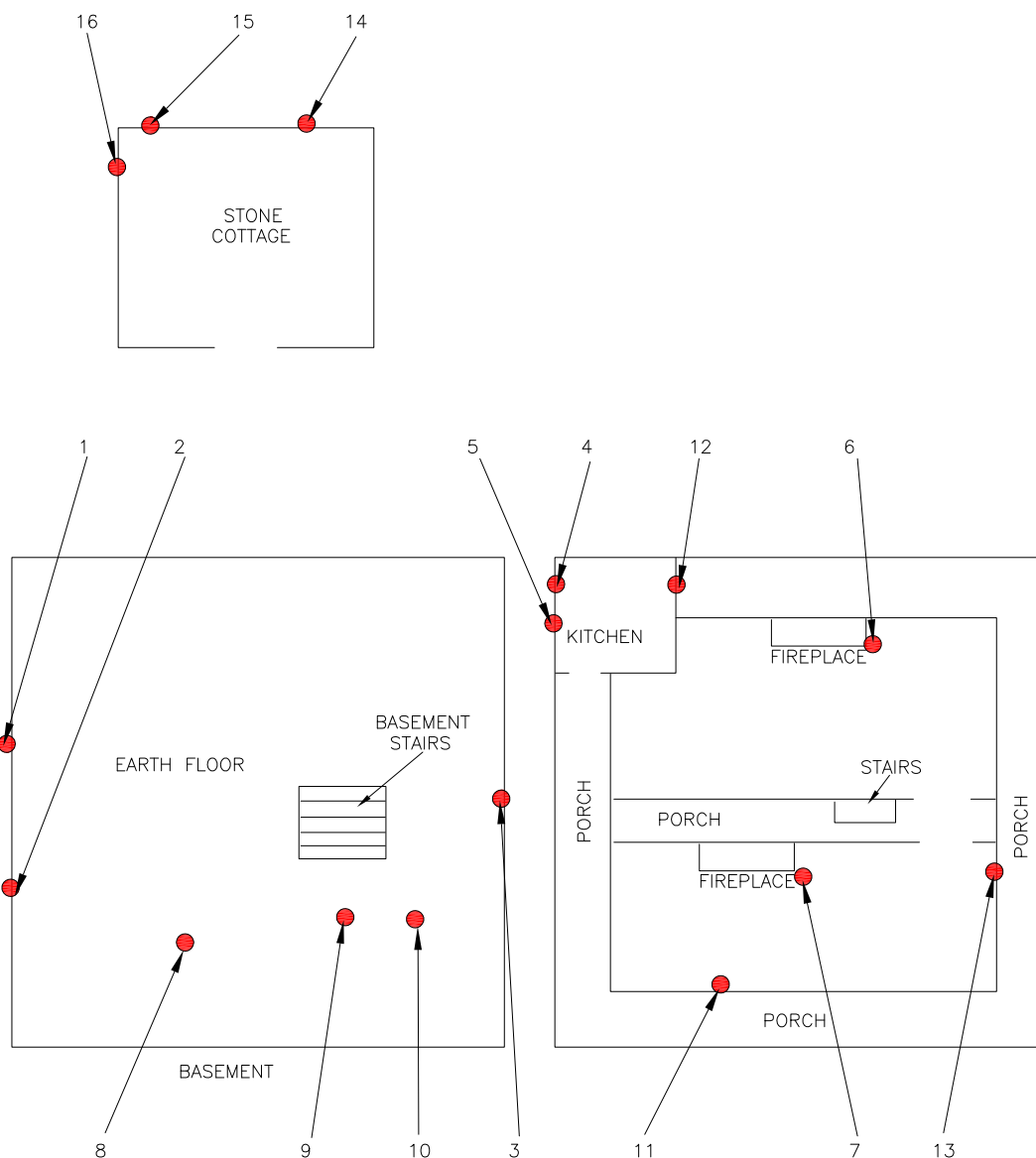
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NATIONAL PARK SERVICE
LINDEN HOUSE - TRACT 01-111
S. MAIN STREET
STE. GENEVIEVE, MISSOURI

ASBESTOS SAMPLE LOCATION MAP

DRAWN BY:	DJB	CHECKED BY:	BNG	APPROVED BY:	BNG	FIGURE NO.:
DATE:	JULY 30, 2019	DWG SCALE:	NOT TO SCALE	PROJECT NO:	193-188	



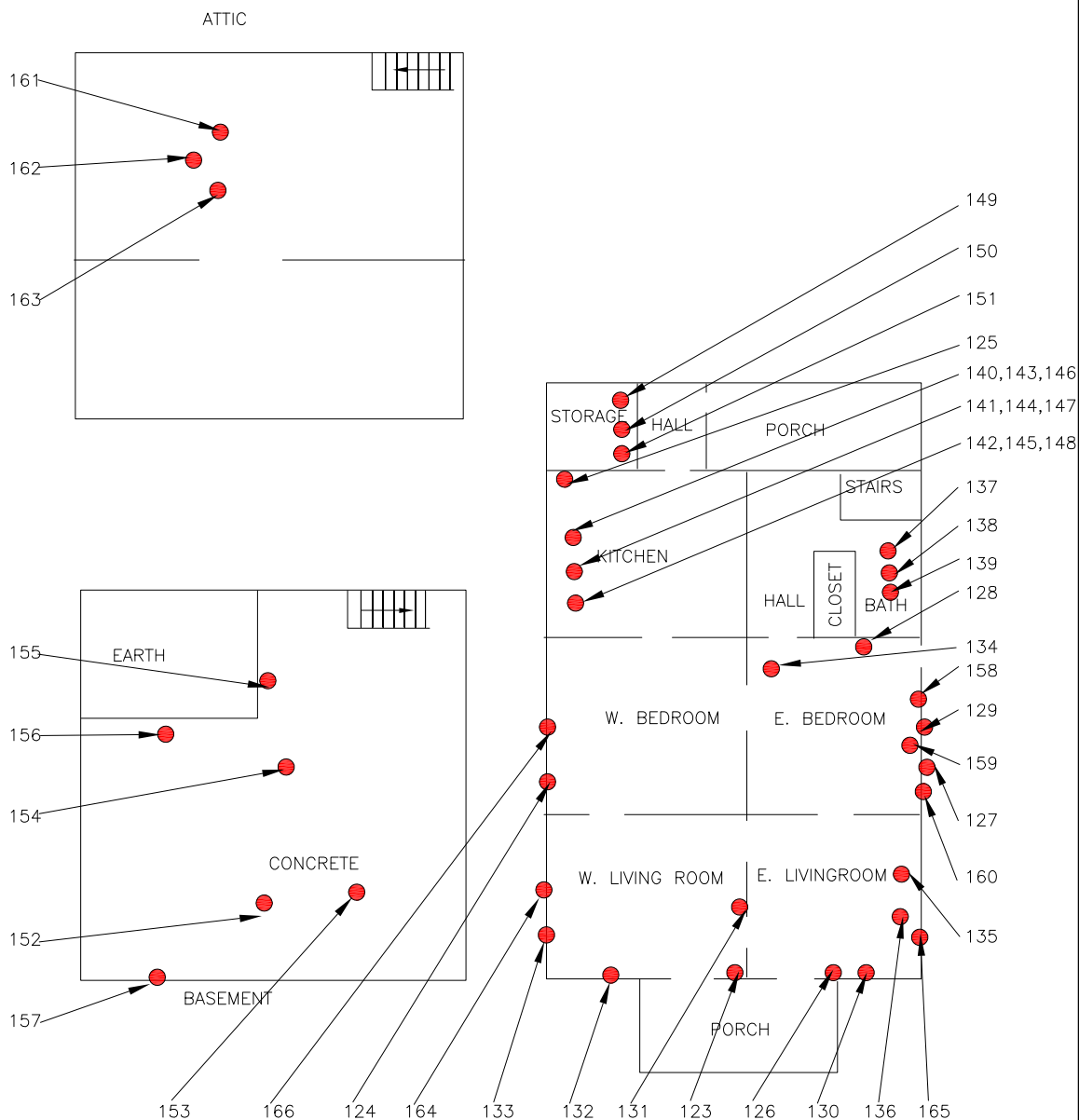
Civil & Environmental Consultants, Inc.

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314-656-4566 · 866-250-3679
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NATIONAL PARK SERVICE
LOUIS BOLDUC HOUSE - TRACT 01-112
123 SOUTH MAIN STREET
STE. GENEVIEVE, MO

ASBESTOS SAMPLE LOCATION MAP

DRAWN BY: DJB	CHECKED BY: BNG	APPROVED BY: BNG	FIGURE NO.:
DATE: JULY 30, 2019	DWG SCALE: NOT TO SCALE	PROJECT NO: 193-188	



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NATIONAL PARK SERVICE
FRANCOIS VALLE II HOUSE - TRACT 01-113
167 SOUTH GABOURI STREET
STE. GENEVIEVE, MO

ASBESTOS SAMPLE LOCATION MAP

DRAWN BY:	DJB	CHECKED BY:	BNG	APPROVED BY:	BNG	FIGURE NO.:
DATE:	JULY 30, 2019	DWG SCALE:	NOT TO SCALE	PROJECT NO:	193-188	

APPENDIX K

ASBESTOS SURVEY SAMPLE SUMMARY

ASBESTOS SURVEY SAMPLE SUMMARY			
Ste. Genevieve Five Structures			
CEC Project No. 193-188			
HA	Sample No.	Description	Sample Location
Tract 01-112 - Louis Bolduc House			
1	1	Mortar	Basement walls
	2		Basement walls
	3		Basement walls
2	4	Mortar	Kitchen
	5		Kitchen
3	6	Wall plaster	North room
	7		South room
4	8	Surfacing	Basement walls
	9		Basement walls
	10		Basement walls
5	11	Window glazing	Windows
	12		Windows
	13		windows
6	14	Stone mortar	Stone cottage
	15		Stone cottage
	16		Stone cottage
Tract 110 – Rene LeMeilleur House			
7	17	Window glazing	Windows
	18		Windows
	19		Windows
8	20	Plaster walls	Stairs
	21		stairs
Tract 111 – Linden House			
9	22	Stone mortar	Basement walls
	23		Basement walls
	24		Basement walls
10	25	Mortar	Basement flue
	26		Basement flue
	27		Basement flue
11	28	Surfacing	Basement garden room
	29		Basement garden room
	30		Basement garden room
12	31	Hard plaster	Closet
	32		Parlor
	33		First floor hall
	34		Second floor hall
	35		Second floor hall
13	36	12” x 12” Blue vinyl floor tile and brown mastic	Second floor offices
	37		Second floor offices
	38		Second floor offices
14	39	“Stone” pattern sheet vinyl flooring	Second floor hall
	40		Second floor hall
	41		Second floor hall
15	42	Pipe insulation	Second floor
	43		Second floor
	44		Second floor
16	45	“Hexagon” pattern sheet vinyl flooring	Second floor addition

ASBESTOS SURVEY SAMPLE SUMMARY			
Ste. Genevieve Five Structures			
CEC Project No. 193-188			
HA	Sample No.	Description	Sample Location
17	46	Drywall and joint compound	Second floor addition
	47		Second floor addition
	48		Stairs
	49		Second floor
	50		Second floor
18	51	Sheet vinyl flooring	First floor addition closet
	52		First floor addition closet
	53		First floor addition closet
19	54	Black sink insulation	Kitchen sink
	55		Kitchen sink
	56		Kitchen sink
20	57	Sheet vinyl flooring	Class room restrooms
	58		Class room restrooms
	59		Class room restrooms
21	60	Duct tape	Basement duct
	61		Basement duct
	62		Basement duct
22	63	Window glazing	Exterior windows
	64		Exterior windows
	65		Exterior windows
23	66	Exterior wall surfacing	Addition
No sample 67			
24	68	Window glazing	Addition
	69		Addition
	70		Addition
Tract 01-109 – Jean Baptist Valle House			
25	71	Exterior surfacing on lower walls	Exterior walls
	72		Exterior walls
	73		Exterior walls
	74		Exterior walls
	75		Exterior walls
26	76	Plaster walls	Basement
	77		Basement
	78		Basement
27	79	Ceramic floor tile thinset	Kitchen
	80		Kitchen
	81		Kitchen
28	82	“Brick” pattern vinyl floor tile and black mastic	Solarium
	83		Solarium
	84		Solarium
29	85	Drywall and joint compound	Parlor
	86		Parlor
	87		Second floor hall
30	88	Plaster walls and brick	Second floor bedroom
	89		Second floor bedroom
31	90	Ceramic wall tile adhesive	First floor bathroom
	91		First floor bathroom
	92		First floor bathroom

ASBESTOS SURVEY SAMPLE SUMMARY			
Ste. Genevieve Five Structures			
CEC Project No. 193-188			
HA	Sample No.	Description	Sample Location
32	93	Carpet mastic	First floor office
	94		First floor office
	95		First floor office
33	96	9” x 9” white and gold floor tile and black mastic	Second floor closet
	97		Second floor closet
	98		Second floor closet
34	99	Carpet adhesive	Second floor hall
	100		Second floor bedroom
	101		Second floor bedroom
35	102	Ceramic floor tile thinset	Second floor bathroom
	103		Second floor bathroom
	104		Second floor bathroom
36	105	Ceramic wall tile adhesive	Second floor bathroom
	106		Second floor bathroom
	107		Second floor bathroom
37	108	Capstone roof sealer	Roof
	109		Roof
	110		Roof
38	111	Window glazing	Second floor windows
	112		Second floor windows
	113		Second floor windows
39	114	Exposed plaster wall	Second floor bedroom
	115		Second floor bedroom
	116		Second floor bedroom
40	117	Stucco	Garage
	118		Garage
	119		Garage
41	120	Window glazing	Garage
	121		Garage
	122		Garage
Tract 01-113 – Francois Valle II House			
42	123	Drywall and joint compound	Living room
	124		Bedroom
	125		Kitchen
43	126	Wall plaster	Bedroom
	127		Bedroom
	128		Bedroom
	129		Bedroom
	130		Bedroom
44	131	Texture on drywall	Living room
	132		Living room
	133		Living room
45	134	Ceiling tile	Bedroom
	135		Bedroom
	136		Bedroom
46	137	Sheet vinyl flooring	Bathroom
	138		Bathroom
	139		Bathroom

ASBESTOS SURVEY SAMPLE SUMMARY Ste. Genevieve Five Structures CEC Project No. 193-188			
HA	Sample No.	Description	Sample Location
47	140	Red sheet vinyl flooring (top layer)	Kitchen
	141		Kitchen
	142		Kitchen
48	143	White sheet vinyl flooring (second layer)	Kitchen
	144		Kitchen
	145		Kitchen
49	146	"Square" pattern sheet vinyl flooring (third layer)	Kitchen
	147		Kitchen
	148		kitchen
50	149	Ceiling tile	Storage room
	150		Storage room
	151		Storage room
51	152	Duct tape	Basement
	153		Basement
	154		Basement
52	155	Stone mortar	Basement
	156		Basement
	157		Basement
53	158	Texture on plaster wall	Bedroom
	159		Bedroom
	160		Bedroom
54	161	Surfacing on chimney	Attic
	162		Attic
	163		Attic
55	164	Window glazing	Windows
	165		Windows
	166		Windows

APPENDIX L

CONFIRMED ASBESTOS CONTAINING MATERIALS

CONFIRMED ASBESTOS-CONTAINING MATERIALS						
Ste Genevieve Five Houses CEC Project No. 193-188						
HA	Description	Material Location	Percent/Type Asbestos	NESHAP	Condition	Estimated Quantity
19	Black sink insulation	Linden House / Kitchen	Black insulation: 5% C	I	Good	4 SF
21	Duct tape	Linden House / Basement	Tape: 60% C	RACM	Fair	2 LF
33	9" x 9" White /gold vinyl floor tile	Jean Baptiste Valle House / Second floor closets	Tile: 3% C Mastic: ND Felt: ND	I	Good	900 SF
37	Capstone asphalt sealer	Jean Baptiste Valle House / North roof	Sealer: 5% C	I	Poor	20 LF
47	Red sheet vinyl flooring	Francois Valle II House / Kitchen (top layer)	Vinyl flooring: 20% C	RACM	Fair	400 SF
51	Duct tape	Francois Valle II House / Basement	Tape: 50% Chrysotile	RACM	Fair	50 LF
Materials Containing Less than 1% asbestos – Not regulated						
17	Joint compound	Linden House	Compound: <1% C PLM <0.25% PC		NA	
24	Window glazing	Linden House – addition	Glazing: <1% PLM Glazing: <0.25% C PC		NA	
28	Floor tile mastic	Jean Baptist Valle House – Solarium, Pantry	Mastic: <1% C PLM Unable to verify by point count*		NA	
29	Joint compound	Jean Baptist Valle House	Compound: <1% C PLM <0.25% C PC		NA	
42	Joint compound	Francis Valle II House	Compound: <1% C PLM Compound : <0.25% C PC		NA	
ND = None Detected C = Chrysotile LF = Linear feet SF = Square feet NA = Not Applicable * = Insufficient material for point count analysis PLM = Asbestos analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy. PC = Asbestos analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy. Quantitation using 400 Point Count Procedure.						

APPENDIX M

ASBESTOS ANALYTICAL RESULTS

**EMSL Analytical, Inc.**

6340 CastlePlace Dr. Indianapolis, IN 46250

Tel/Fax: (317) 803-2997 / (317) 803-3047

<http://www.EMSL.com> / indianapolislabs@emsl.com**EMSL Order:** 161913777**Customer ID:** CIVL78**Customer PO:****Project ID:**

Attention: Kevin Arnold
 Civil & Environmental Consultants
 4848 Park 370 Blvd.
 Suite F
 Hazelwood, MO 63042

Project: STGE**Phone:** (314) 447-3608**Fax:** (314) 656-4595**Received Date:** 07/15/2019 9:40 AM**Analysis Date:** 07/18/2019 - 07/19/2019**Collected Date:** 07/11/2019 - 07/12/2019

**Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized
 Light Microscopy**

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
112-1-1 161913777-0001	Bsmt - Mortar	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
112-1-2 161913777-0002	Bsmt - Mortar	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
112-1-3 161913777-0003	Bsmt - Mortar	Gray Non-Fibrous Homogeneous		15% Quartz 85% Non-fibrous (Other)	None Detected
112-2-4 161913777-0004	Kitchen - Mortar	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
112-2-5 161913777-0005	Kitchen - Mortar	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
112-3-6-Texture 161913777-0006	North Rm - Plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
112-3-6-Finish Coat 161913777-0006A	North Rm - Plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
112-3-6-Base Coat 161913777-0006B	North Rm - Plaster	Gray Non-Fibrous Homogeneous	<1% Cellulose	20% Quartz 80% Non-fibrous (Other)	None Detected
112-3-7 161913777-0007	South Rm - Plaster	Gray Non-Fibrous Homogeneous		10% Perlite 90% Non-fibrous (Other)	None Detected
112-4-8 161913777-0008	Bsmt Column - White Surfacing	White Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
112-4-9 161913777-0009	Bsmt Column - White Surfacing	White Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
112-4-10 161913777-0010	Bsmt Column - White Surfacing	White Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
112-5-11 161913777-0011	South Window - Window Glazing	Red/Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
112-5-12 161913777-0012	Kitchen Window - Window Glazing	Red/Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
112-5-13 161913777-0013	Front Window - Window Glazing	Red/Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
112-6-14 161913777-0014	Stone Cottage - Mortar	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected

Initial report from: 07/19/2019 12:58:38

**EMSL Analytical, Inc.**

6340 CastlePlace Dr. Indianapolis, IN 46250

Tel/Fax: (317) 803-2997 / (317) 803-3047

<http://www.EMSL.com / indianapolislaboratory@emsl.com>**EMSL Order:** 161913777**Customer ID:** CIVL78**Customer PO:****Project ID:****Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy**

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
112-6-15 161913777-0015	Stone Cottage - Mortar	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
112-6-16 161913777-0016	Stone Cottage - Mortar	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
110-7-17 161913777-0017	South Window - Window Glazing	Gray/Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
110-7-18 161913777-0018	South Window - Window Glazing	Gray/Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
110-7-19 161913777-0019	South Window - Window Glazing	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
110-8-20 161913777-0020	Stairs - Plaster Walls	White Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
110-8-21-Finish Coat 161913777-0021	Stairs - Plaster Walls	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
110-8-21-Base Coat 161913777-0021A	Stairs - Plaster Walls	White Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
111-9-22 161913777-0022	Bsmt Walls - Mortar	Tan Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
111-9-23 161913777-0023	Bsmt Walls - Mortar	Tan Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
111-9-24 161913777-0024	Bsmt Walls - Mortar	Tan Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
111-10-25 161913777-0025	Bsmt Flue - Mortar	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
111-10-26 161913777-0026	Bsmt Flue - Mortar	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
111-10-27 161913777-0027	Bsmt Flue - Mortar	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
111-11-28 161913777-0028	Bsmt Garden - Surfacing	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
111-11-29 161913777-0029	Bsmt Garden - Surfacing	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
111-11-30 161913777-0030	Bsmt Garden - Surfacing	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
111-12-31-Finish Coat 161913777-0031	Closet - Plaster Walls	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-12-31-Base Coat 161913777-0031A	Closet - Plaster Walls	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected

Initial report from: 07/19/2019 12:58:38



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Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
111-12-32-Finish Coat 161913777-0032	Parlor - Plaster Walls	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-12-32-Base Coat 161913777-0032A	Parlor - Plaster Walls	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
111-12-33-Finish Coat 161913777-0033	Hall - Plaster Walls	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-12-33-Base Coat 161913777-0033A	Hall - Plaster Walls	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
111-12-34-Finish Coat 161913777-0034	Hall - Plaster Walls	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-12-34-Base Coat 161913777-0034A	Hall - Plaster Walls	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
111-12-35-Finish Coat 161913777-0035	Hall - Plaster Walls	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-12-35-Base Coat 161913777-0035A	Hall - Plaster Walls	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
111-13-36-Floor Tile 161913777-0036	2nd Floor - 12"x12" Blue FT Brown Mastic	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-13-36-Mastic 161913777-0036A	2nd Floor - 12"x12" Blue FT Brown Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-13-37-Floor Tile 161913777-0037	2nd Floor - 12"x12" Blue FT Brown Mastic	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-13-37-Mastic 161913777-0037A	2nd Floor - 12"x12" Blue FT Brown Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-13-38-Floor Tile 161913777-0038	2nd Floor - 12"x12" Blue FT Brown Mastic	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-13-38-Mastic 161913777-0038A	2nd Floor - 12"x12" Blue FT Brown Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-14-39-Flooring 161913777-0039	2nd Floor - Stone Pattern Sheet Vinyl Flooring & Mastic	Gray/Tan Fibrous Heterogeneous	40% Cellulose	60% Non-fibrous (Other)	None Detected
111-14-39-Mastic 161913777-0039A	2nd Floor - Stone Pattern Sheet Vinyl Flooring & Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-14-40-Flooring 161913777-0040	2nd Floor - Stone Pattern Sheet Vinyl Flooring & Mastic	Gray/Tan Fibrous Heterogeneous	40% Cellulose	60% Non-fibrous (Other)	None Detected
111-14-40-Mastic 161913777-0040A	2nd Floor - Stone Pattern Sheet Vinyl Flooring & Mastic	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-14-40-Backing 161913777-0040B	2nd Floor - Stone Pattern Sheet Vinyl Flooring & Mastic	Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
111-14-41-Flooring 161913777-0041	2nd Floor - Stone Pattern Sheet Vinyl Flooring & Mastic	Gray/Tan Fibrous Heterogeneous	40% Cellulose	60% Non-fibrous (Other)	None Detected
111-14-41-Mastic 161913777-0041A	2nd Floor - Stone Pattern Sheet Vinyl Flooring & Mastic	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-14-41-Backing 161913777-0041B	2nd Floor - Stone Pattern Sheet Vinyl Flooring & Mastic	Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
111-15-42-Wrap 161913777-0042	2nd Floor - Pipe Insulation	Tan/White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
111-15-42-Insulation 161913777-0042A	2nd Floor - Pipe Insulation	Yellow Fibrous Homogeneous	95% Glass	5% Non-fibrous (Other)	None Detected
111-15-43-Wrap 161913777-0043	2nd Floor - Pipe Insulation	Tan/White Fibrous Homogeneous	90% Cellulose	10% Non-fibrous (Other)	None Detected
111-15-43-Insulation 161913777-0043A	2nd Floor - Pipe Insulation	Yellow Fibrous Homogeneous	95% Glass	5% Non-fibrous (Other)	None Detected
111-15-44-Wrap 161913777-0044	2nd Floor - Pipe Insulation	White Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
111-15-44-Insulation 161913777-0044A	2nd Floor - Pipe Insulation	Yellow Fibrous Homogeneous	98% Glass	2% Non-fibrous (Other)	None Detected
111-16-45 161913777-0045	2nd Floor - Hexagon Sheet Flooring	Tan/Black/Blue Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
111-16-46 161913777-0046	2nd Floor - Hexagon Sheet Flooring	Tan/Black/Blue Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
111-16-47 161913777-0047	2nd Floor - Hexagon Sheet Flooring	Tan/Black/Blue Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
111-17-48-Drywall 161913777-0048	Stairs - Drywall & JC	Brown/White Fibrous Heterogeneous	20% Cellulose 5% Glass	70% Gypsum 5% Non-fibrous (Other)	None Detected
111-17-48-Joint Compound 161913777-0048A <i>The sample group is not homogeneous</i>	Stairs - Drywall & JC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
111-17-49-Drywall 161913777-0049	2nd Flr - Drywall & JC	Brown/White Fibrous Heterogeneous	20% Cellulose 5% Glass	70% Gypsum 5% Non-fibrous (Other)	None Detected
111-17-49-Joint Compound 161913777-0049A <i>The sample group is not homogeneous</i>	2nd Flr - Drywall & JC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-17-50-Drywall 161913777-0050	2nd Flr - Drywall & JC	Brown/White Fibrous Heterogeneous	20% Cellulose	70% Gypsum 10% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
111-17-50-Joint Compound	2nd Flr - Drywall & JC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
161913777-0050A The sample group is not homogeneous					
111-18-51-Flooring	Closet - Sheet Vinyl Flooring & Felt Layer	Tan/Red/Black Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
161913777-0051					
111-18-51-Felt	Closet - Sheet Vinyl Flooring & Felt Layer	Brown Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
161913777-0051A					
111-18-52-Flooring	Closet - Sheet Vinyl Flooring & Felt Layer	Tan/Red/Black Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
161913777-0052					
111-18-52-Felt	Closet - Sheet Vinyl Flooring & Felt Layer	Brown Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
161913777-0052A					
111-18-53-Flooring	Closet - Sheet Vinyl Flooring & Felt Layer	Tan/Red/Black Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
161913777-0053					
111-18-53-Felt	Closet - Sheet Vinyl Flooring & Felt Layer	Brown Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
161913777-0053A					
111-19-54	Kitchen - Sink Insulation	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
161913777-0054					
111-19-55	Kitchen - Sink Insulation	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
161913777-0055					
111-19-56	Kitchen - Sink Insulation	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
161913777-0056					
111-20-57-Flooring	Restrooms - Sheet Vinyl Flooring	Gray/Tan Fibrous Heterogeneous	30% Cellulose 5% Glass	65% Non-fibrous (Other)	None Detected
161913777-0057					
111-20-57-Mastic	Restrooms - Sheet Vinyl Flooring	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
161913777-0057A					
111-20-58-Flooring	Restrooms - Sheet Vinyl Flooring	Gray/Tan Fibrous Heterogeneous	30% Cellulose 5% Glass	65% Non-fibrous (Other)	None Detected
161913777-0058					
111-20-58-Mastic	Restrooms - Sheet Vinyl Flooring	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
161913777-0058A					
111-20-59-Flooring	Restrooms - Sheet Vinyl Flooring	Gray/Tan Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
161913777-0059					
111-20-59-Mastic	Restrooms - Sheet Vinyl Flooring	Brown/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
161913777-0059A					
111-21-60	Bsmt - Duct Tape	Gray/Black Fibrous Homogeneous	20% Cellulose	20% Non-fibrous (Other)	60% Chrysotile
161913777-0060					
111-21-61	Bsmt - Duct Tape	Gray/Black Fibrous Homogeneous	20% Cellulose	20% Non-fibrous (Other)	60% Chrysotile
161913777-0061					

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
111-21-62 161913777-0062	Bsmt - Duct Tape	Gray Fibrous Homogeneous	20% Cellulose	20% Non-fibrous (Other)	60% Chrysotile
111-22-63 161913777-0063	N Window - Window Glazing, Gray	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-22-64 161913777-0064	E Window - Window Glazing, Gray	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-22-65 161913777-0065	N Window - Window Glazing, Gray	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
111-23-66 161913777-0066	Exterior Surfacing on Brick Wall	Gray/White Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
111-24-68 161913777-0067	Addition - Window Glazing, White	Gray/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
111-24-69 161913777-0068	Addition - Window Glazing, White	Gray/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
111-24-70 161913777-0069	Addition - Window Glazing, White	Gray/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
109-25-71-Finish Coat 161913777-0070	E Wall - Exterior Surfacing on Brick Wall	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-25-71-Base Coat 161913777-0070A	E Wall - Exterior Surfacing on Brick Wall	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
109-25-72-Finish Coat 161913777-0071	E Wall - Exterior Surfacing on Brick Wall	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-25-72-Base Coat 161913777-0071A	E Wall - Exterior Surfacing on Brick Wall	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
109-25-73-Finish Coat 161913777-0072	E Wall - Exterior Surfacing on Brick Wall	Tan/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-25-73-Base Coat 161913777-0072A	E Wall - Exterior Surfacing on Brick Wall	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
109-25-74-Finish Coat 161913777-0073	E Wall - Exterior Surfacing on Brick Wall	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-25-74-Base Coat 161913777-0073A	E Wall - Exterior Surfacing on Brick Wall	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
109-25-75-Finish Coat 161913777-0074	E Wall - Exterior Surfacing on Brick Wall	White Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
109-25-75-Base Coat 161913777-0074A	E Wall - Exterior Surfacing on Brick Wall	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
109-26-76-Finish Coat 161913777-0075	Bsmt - Plaster Walls	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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109-26-76-Base Coat <i>161913777-0075A</i>	Bsmt - Plaster Walls	Gray Non-Fibrous Homogeneous	<1% Hair	20% Quartz 80% Non-fibrous (Other)	None Detected
109-26-77-Finish Coat <i>161913777-0076</i>	Bsmt - Plaster Walls	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-26-77-Base Coat <i>161913777-0076A</i>	Bsmt - Plaster Walls	Gray Non-Fibrous Homogeneous	<1% Hair	20% Quartz 80% Non-fibrous (Other)	None Detected
109-26-78-Finish Coat <i>161913777-0077</i>	Bsmt - Plaster Walls	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-26-78-Base Coat <i>161913777-0077A</i>	Bsmt - Plaster Walls	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
109-27-79 <i>161913777-0078</i> <i>Result includes a small amount of inseparable attached material</i>	Kitchen - Ceramic Tile Thinset	Gray Non-Fibrous Homogeneous	5% Cellulose	20% Quartz 75% Non-fibrous (Other)	None Detected
109-27-80 <i>161913777-0079</i>	Kitchen - Ceramic Tile Thinset	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
109-27-81 <i>161913777-0080</i>	Kitchen - Ceramic Tile Thinset	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
109-28-82-Floor Tile <i>161913777-0081</i>	Solarium - Brick Pattern Vinyl FT, Mastic & Felt Layer	Gray/Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-28-82-Mastic <i>161913777-0081A</i>	Solarium - Brick Pattern Vinyl FT, Mastic & Felt Layer	Brown/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
109-28-82-Felt <i>161913777-0081B</i>	Solarium - Brick Pattern Vinyl FT, Mastic & Felt Layer	Black Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
109-28-83-Floor Tile <i>161913777-0082</i>	Solarium - Brick Pattern Vinyl FT, Mastic & Felt Layer	Gray/Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-28-83-Mastic <i>161913777-0082A</i>	Solarium - Brick Pattern Vinyl FT, Mastic & Felt Layer	Brown/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
109-28-83-Felt <i>161913777-0082B</i>	Solarium - Brick Pattern Vinyl FT, Mastic & Felt Layer	Black Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
109-28-84-Floor Tile <i>161913777-0083</i>	Solarium - Brick Pattern Vinyl FT, Mastic & Felt Layer	Gray/Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-28-84-Mastic <i>161913777-0083A</i>	Solarium - Brick Pattern Vinyl FT, Mastic & Felt Layer	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
109-28-84-Felt <i>161913777-0083B</i>	Solarium - Brick Pattern Vinyl FT, Mastic & Felt Layer	Black Non-Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
109-28-84-Mastic <i>161913777-0083C</i>	Solarium - Brick Pattern Vinyl FT, Mastic & Felt Layer	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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109-29-85-Drywall 161913777-0084	Parlor - Drywall & JC	Brown/White Fibrous Heterogeneous	25% Cellulose	70% Gypsum 5% Non-fibrous (Other)	None Detected
109-29-85-Joint Compound 161913777-0084A	Parlor - Drywall & JC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
109-29-86-Drywall 161913777-0085	Parlor - Drywall & JC	Brown/White Fibrous Heterogeneous	25% Cellulose	70% Gypsum 5% Non-fibrous (Other)	None Detected
109-29-86-Joint Compound 161913777-0085A	Parlor - Drywall & JC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
109-29-87-Drywall 161913777-0086	2nd Hall - Drywall & JC	Brown/White Fibrous Heterogeneous	20% Cellulose	70% Gypsum 10% Non-fibrous (Other)	None Detected
109-29-87-Joint Compound 161913777-0086A	2nd Hall - Drywall & JC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
109-30-88-Plaster 161913777-0087	2nd Floor - Wall Plaster & 2nd Layer Brick	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
109-30-88-Brick 161913777-0087A	2nd Floor - Wall Plaster & 2nd Layer Brick	Red Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
109-30-89-Plaster 161913777-0088	2nd Floor - Wall Plaster & 2nd Layer Brick	Gray Non-Fibrous Homogeneous	<1% Hair	20% Quartz 80% Non-fibrous (Other)	None Detected
109-30-89-Brick 161913777-0088A	2nd Floor - Wall Plaster & 2nd Layer Brick	Red Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
109-31-90 161913777-0089	1st FI Bathroom - Ceramic Wall Tile Adhesive	Tan/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-31-91 161913777-0090	1st FI Bathroom - Ceramic Wall Tile Adhesive	Tan/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-31-92 161913777-0091	1st FI Bathroom - Ceramic Wall Tile Adhesive	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-32-93-Pad 161913777-0092	1st FI Office - Carpet Adhesive	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-32-93-Mastic 161913777-0092A	1st FI Office - Carpet Adhesive	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-32-94-Pad 161913777-0093	1st FI Office - Carpet Adhesive	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-32-94-Mastic 161913777-0093A	1st FI Office - Carpet Adhesive	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-32-95-Pad 161913777-0094	1st FI Office - Carpet Adhesive	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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<http://www.EMSL.com / indianapolislaboratory@emsl.com>**EMSL Order:** 161913777**Customer ID:** CIVL78**Customer PO:****Project ID:****Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy**

Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
109-32-95-Mastic 161913777-0094A	1st Fl Office - Carpet Adhesive	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-33-96-Floor Tile 161913777-0095	2nd Floor - 9"x9" White/Gold FT, Black Mastic & Felt Layer	Gray Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
109-33-96-Mastic 161913777-0095A	2nd Floor - 9"x9" White/Gold FT, Black Mastic & Felt Layer	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-33-96-Felt 161913777-0095B	2nd Floor - 9"x9" White/Gold FT, Black Mastic & Felt Layer	Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
109-33-97-Floor Tile 161913777-0096	2nd Floor - 9"x9" White/Gold FT, Black Mastic & Felt Layer	Gray Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
109-33-97-Mastic 161913777-0096A	2nd Floor - 9"x9" White/Gold FT, Black Mastic & Felt Layer	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-33-97-Felt 161913777-0096B	2nd Floor - 9"x9" White/Gold FT, Black Mastic & Felt Layer	Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected
109-33-98-Floor Tile 161913777-0097	2nd Floor - 9"x9" White/Gold FT, Black Mastic & Felt Layer	Gray Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
109-33-98-Mastic 161913777-0097A	2nd Floor - 9"x9" White/Gold FT, Black Mastic & Felt Layer	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-33-98-Felt 161913777-0097B	2nd Floor - 9"x9" White/Gold FT, Black Mastic & Felt Layer	Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
109-34-99 161913777-0098	2nd Hall - Carpet Adhesive	Tan Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
109-34-100 161913777-0099	2nd Bedroom - Carpet Adhesive	Tan Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
109-34-101 161913777-0100	2nd Bedroom - Carpet Adhesive	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-35-102 161913777-0101	2nd Bath - Ceramic FT Thinset	Gray/Tan Non-Fibrous Homogeneous	10% Cellulose	10% Quartz 80% Non-fibrous (Other)	None Detected
109-35-103 161913777-0102	2nd Bath - Ceramic FT Thinset	Gray/Tan Non-Fibrous Homogeneous	10% Cellulose	10% Quartz 80% Non-fibrous (Other)	None Detected
109-35-104 161913777-0103	2nd Bath - Ceramic FT Thinset	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-36-105 161913777-0104	2nd Bath - Ceramic Wall Tile Adhesive	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-36-106 161913777-0105	2nd Bath - Ceramic Wall Tile Adhesive	Beige Non-Fibrous Homogeneous	10% Glass	90% Non-fibrous (Other)	None Detected
109-36-107 161913777-0106	2nd Bath - Ceramic Wall Tile Adhesive	Gray/Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
109-37-108 <i>161913777-0107</i>	Roof - Roof Capstone Asphalt Sealer	Gray/Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
109-37-109 <i>161913777-0108</i>	Roof - Roof Capstone Asphalt Sealer	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
109-37-110 <i>161913777-0109</i>	Roof - Roof Capstone Asphalt Sealer	Gray/Black/Silver Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
109-38-111 <i>161913777-0110</i>	2nd Fl Windows - Window Glazing	Gray/Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-38-112 <i>161913777-0111</i>	2nd Fl Windows - Window Glazing	Gray/Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-38-113 <i>161913777-0112</i>	2nd Fl Windows - Window Glazing	White/Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-39-114 <i>161913777-0113</i>	2nd Fl Closet - Old Exposed Plaster	Gray/White Non-Fibrous Homogeneous	<1% Hair	20% Perlite 80% Non-fibrous (Other)	None Detected
109-39-115 <i>161913777-0114</i> <i>Inseparable paint / coating layer included in analysis</i>	2nd Fl Closet - Old Exposed Plaster	Gray/White Non-Fibrous Homogeneous	<1% Hair	20% Perlite 80% Non-fibrous (Other)	None Detected
109-39-116 <i>161913777-0115</i>	2nd Fl Closet - Old Exposed Plaster	Gray Non-Fibrous Homogeneous	<1% Hair	20% Quartz 80% Non-fibrous (Other)	None Detected
109-40-117-Texture <i>161913777-0116</i>	Garage - Stucco	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-40-117-Stucco <i>161913777-0116A</i>	Garage - Stucco	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
109-40-118-Texture <i>161913777-0117</i>	Garage - Stucco	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-40-118-Stucco <i>161913777-0117A</i>	Garage - Stucco	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
109-40-119-Texture <i>161913777-0118</i>	Garage - Stucco	White Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
109-40-119-Stucco <i>161913777-0118A</i>	Garage - Stucco	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
109-41-120 <i>161913777-0119</i>	Garage - Window Glazing	White/Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-41-121 <i>161913777-0120</i>	Garage - Window Glazing	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
109-41-122 <i>161913777-0121</i>	Garage - Window Glazing	White/Red Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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EMSL Order: 161913777

Customer ID: CIVL78

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
109-42-123-Drywall	Liv Rm - Drywall & JC	Brown/White Fibrous Heterogeneous	20% Cellulose 5% Glass	70% Gypsum 5% Non-fibrous (Other)	None Detected
161913777-0122					
109-42-123-Joint Compound	Liv Rm - Drywall & JC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
161913777-0122A					
109-42-124-Drywall	Bedroom - Drywall & JC	Brown/White Fibrous Heterogeneous	20% Cellulose 5% Glass	70% Gypsum 5% Non-fibrous (Other)	None Detected
161913777-0123					
109-42-124-Joint Compound	Bedroom - Drywall & JC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
161913777-0123A					
109-42-125-Drywall	Kitchen - Drywall & JC	Brown/White Fibrous Heterogeneous	20% Cellulose	70% Gypsum 10% Non-fibrous (Other)	None Detected
161913777-0124					
109-42-125-Joint Compound	Kitchen - Drywall & JC	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
161913777-0124A					
109-43-126	Bedroom - Plaster	Gray/White Non-Fibrous Homogeneous	2% Hair	20% Quartz 78% Non-fibrous (Other)	None Detected
161913777-0125					
109-43-127	Bedroom - Plaster	Gray/White Non-Fibrous Homogeneous	2% Hair	20% Quartz 78% Non-fibrous (Other)	None Detected
161913777-0126					
109-43-128-Finish Coat	Bedroom - Plaster	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
161913777-0127					
109-43-128-Base Coat	Bedroom - Plaster	Gray Non-Fibrous Homogeneous	<1% Hair	20% Quartz 80% Non-fibrous (Other)	None Detected
161913777-0127A					
109-43-129	Bedroom - Plaster	Gray Non-Fibrous Homogeneous	<1% Hair	20% Quartz 80% Non-fibrous (Other)	None Detected
161913777-0128					
109-43-130-Finish Coat	Living Rm - Plaster	Tan Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
161913777-0129					
Inseparable paint / coating layer included in analysis					
109-43-130-Base Coat	Living Rm - Plaster	Gray Non-Fibrous Homogeneous	<1% Hair	20% Quartz 80% Non-fibrous (Other)	None Detected
161913777-0129A					
113-44-131-Texture	Living Rm - Texture on Wall	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
161913777-0130					
Inseparable paint / coating layer included in analysis					
113-44-131-Drywall	Living Rm - Texture on Wall	Brown/White Fibrous Heterogeneous	35% Cellulose	60% Gypsum 5% Non-fibrous (Other)	None Detected
161913777-0130A					
113-44-132-Texture	Living Rm - Texture on Wall	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
161913777-0131					
113-44-132-Drywall	Living Rm - Texture on Wall	Brown/White Fibrous Heterogeneous	35% Cellulose	60% Gypsum 5% Non-fibrous (Other)	None Detected
161913777-0131A					

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Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
113-44-133-Texture 161913777-0132 <i>Inseparable paint / coating layer included in analysis</i>	Living Rm - Texture on Wall	White Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
113-44-133-Drywall 161913777-0132A	Living Rm - Texture on Wall	Brown/White Fibrous Heterogeneous	25% Cellulose	65% Gypsum 10% Non-fibrous (Other)	None Detected
113-45-134 161913777-0133	Bedroom - Ceiling Tile	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
113-45-135 161913777-0134	Bedroom - Ceiling Tile	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
113-45-136 161913777-0135	Bedroom - Ceiling Tile	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
113-46-137-Flooring 161913777-0136	Bathroom - Sheet Vinyl Flooring	Gray/Beige Non-Fibrous Homogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
113-46-137-Mastic 161913777-0136A	Bathroom - Sheet Vinyl Flooring	Black/Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
113-46-138-Flooring 161913777-0137	Bathroom - Sheet Vinyl Flooring	Gray/Beige Non-Fibrous Homogeneous	5% Glass	95% Non-fibrous (Other)	None Detected
113-46-138-Mastic 161913777-0137A	Bathroom - Sheet Vinyl Flooring	Tan/Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
113-46-139-Flooring 161913777-0138	Bathroom - Sheet Vinyl Flooring	Gray/Beige Non-Fibrous Homogeneous	2% Glass	98% Non-fibrous (Other)	None Detected
113-46-139-Mastic 161913777-0138A	Bathroom - Sheet Vinyl Flooring	Tan/Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
113-47-140 161913777-0139	Kitchen Top Layer - Red Sheet Vinyl Flooring	Gray/Red Fibrous Heterogeneous	15% Cellulose	65% Non-fibrous (Other)	20% Chrysotile
113-47-141 161913777-0140	Kitchen Top Layer - Red Sheet Vinyl Flooring	Gray/Red Fibrous Heterogeneous	15% Cellulose	65% Non-fibrous (Other)	20% Chrysotile
113-47-142 161913777-0141	Kitchen Top Layer - Red Sheet Vinyl Flooring	Gray/Red/Black Fibrous Heterogeneous	10% Cellulose	70% Non-fibrous (Other)	20% Chrysotile
113-48-143 161913777-0142	Kitchen 2nd Layer - White Sheet Vinyl Flooring	Gray/Black Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
113-48-144 161913777-0143	Kitchen 2nd Layer - White Sheet Vinyl Flooring	Gray/Black Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
113-48-145 161913777-0144	Kitchen 2nd Layer - White Sheet Vinyl Flooring	Gray/Black Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
113-49-146 161913777-0145	Kitchen 3rd Layer - "Squares" Sheet Vinyl Flooring	Tan/Red/Black Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
113-49-147 161913777-0146	Kitchen 3rd Layer - "Squares" Sheet Vinyl Flooring	Tan/Red/Black Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
113-49-148 161913777-0147	Kitchen 3rd Layer - "Squares" Sheet Vinyl Flooring	Tan/Red/Black Fibrous Heterogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
113-50-149 161913777-0148	Storage Room - Ceiling Tile	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
113-50-150 161913777-0149	Storage Room - Ceiling Tile	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
113-50-151 161913777-0150	Storage Room - Ceiling Tile	Tan/White Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected
113-51-152 161913777-0151	Bsmt Ducts - Duct Tape	Gray Fibrous Homogeneous	30% Cellulose	20% Non-fibrous (Other)	50% Chrysotile
113-51-153 161913777-0152	Bsmt Ducts - Duct Tape	Gray Fibrous Homogeneous	30% Cellulose	20% Non-fibrous (Other)	50% Chrysotile
113-51-154 161913777-0153	Bsmt Ducts - Duct Tape	Gray Fibrous Homogeneous	50% Cellulose	20% Non-fibrous (Other)	30% Chrysotile
113-52-155 161913777-0154	Bsmt - Mortar on Stone Walls	Brown Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
113-52-156 161913777-0155	Bsmt - Mortar on Stone Walls	Brown Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
113-52-157 161913777-0156	Bsmt - Mortar on Stone Walls	Brown Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
113-53-158 161913777-0157	Bedroom - Texture on Plaster Wall	White/Pink Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
113-53-159-Texture 161913777-0158	Bedroom - Texture on Plaster Wall	White/Pink Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
113-53-159-Plaster 161913777-0158A	Bedroom - Texture on Plaster Wall	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
113-53-160-Texture 161913777-0159	Bedroom - Texture on Plaster Wall	Gray Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
113-53-160-Plaster 161913777-0159A	Bedroom - Texture on Plaster Wall	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
113-54-161 161913777-0160	Attic - Surfacing on Chimney	Gray/Black Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
113-54-162 161913777-0161	Attic - Surfacing on Chimney	Gray/Tan Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
113-54-163 161913777-0162	Attic - Surfacing on Chimney	Gray/Tan Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected

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Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type
113-55-164 161913777-0163	Windows - Window Glazing	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
113-55-165 161913777-0164	Windows - Window Glazing	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
113-55-166-Glazing 161913777-0165	Windows - Window Glazing	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
113-55-166-Glazing 161913777-0165A	Windows - Window Glazing	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s) _____

Paul Rihm (80)

Ross Matlock (159)

Richard Harding, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN NVLAP Lab Code 200188-0, AZ0939, CA 2575, CO AL-15132, TX 300262

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Attention: Kevin Arnold
Civil & Environmental Consultants
4848 Park 370 Blvd.
Suite F
Hazelwood, MO 63042

Project: STGE

Phone: (314) 447-3608
Fax: (314) 656-4595
Received: 07/15/2019 9:40 AM
Analysis Date: 07/18/2019 - 07/19/2019
Collected: 07/11/2019 - 07/12/2019

**Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using
Polarized Light Microscopy. Quantitation using 400 Point Count Procedure**

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
111-17-48-Joint Compound 161913777-0048A	Stairs - Drywall & JC	White Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	<0.25% Chrysotile
111-24-68 161913777-0067	Addition - Window Glazing, White	Gray/Tan Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	<0.25% Chrysotile
111-24-69 161913777-0068	Addition - Window Glazing, White	Gray/Tan Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	<0.25% Chrysotile
111-24-70 161913777-0069	Addition - Window Glazing, White	Gray/Tan Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	<0.25% Chrysotile
109-29-85-Joint Compound 161913777-0084A	Parlor - Drywall & JC	White Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	<0.25% Chrysotile
109-29-86-Joint Compound 161913777-0085A	Parlor - Drywall & JC	White Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	<0.25% Chrysotile
109-29-87-Joint Compound 161913777-0086A	2nd Hall - Drywall & JC	White Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	<0.25% Chrysotile
109-42-123-Joint Compound 161913777-0122A	Liv Rm - Drywall & JC	White Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	<0.25% Chrysotile
109-42-124-Joint Compound 161913777-0123A	Bedroom - Drywall & JC	White Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	<0.25% Chrysotile
109-42-125-Joint Compound 161913777-0124A	Kitchen - Drywall & JC	White Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	<0.25% Chrysotile

Disclaimer: Some samples may contain asbestos fibers present in dimensions below PLM resolution limits. The limit of detection as stated in the method is 0.25%. EMSL Analytical Inc suggests that samples reported as <0.25% or none detected undergo additional analysis via TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval of EMSL Analytical Inc. This test report must not be used by the client to claim product endorsement by NVLAP or any agency of the United States Government. EMSL Analytical Inc., bears no responsibility for sample collection activities, analytical method limitations, or the accuracy of results when requested to separate layered samples. EMSL Analytical Inc., liability is limited to the cost of sample analysis. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Initial report from: 07/19/2019 12:58:44

ASB_PLMPC_0006_0003 Printed 7/22/2019 8:13:27AM

Page 1 of 2

**EMSL Analytical, Inc.**

6340 CastlePlace Dr. Indianapolis, IN 46250

Phone/Fax: (317) 803-2997 / (317) 803-3047

<http://www.EMSL.com> / indianapolislaboratory@emsl.com**EMSL Order:** 161913777**Customer ID:** CIVL78**Customer PO:****Project ID:****Attention:** Kevin Arnold

Civil & Environmental Consultants

4848 Park 370 Blvd.

Suite F

Hazelwood, MO 63042

Project: STGE**Phone:** (314) 447-3608**Fax:** (314) 656-4595**Received:** 07/15/2019 9:40 AM**Analysis Date:** 07/18/2019 - 07/19/2019**Collected:** 07/11/2019 - 07/12/2019**Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using
Polarized Light Microscopy. Quantitation using 400 Point Count Procedure**

Sample	Description	Appearance	<u>Non-Asbestos</u>		<u>Asbestos</u>
			% Fibrous	% Non-Fibrous	% Type

Analyst(s)

Paul Rihm (3)

Ross Matlock (7)

Richard Harding, Laboratory Manager
or other approved signatory

Disclaimer: Some samples may contain asbestos fibers present in dimensions below PLM resolution limits. The limit of detection as stated in the method is 0.25%. EMSL Analytical Inc suggests that samples reported as <0.25% or none detected undergo additional analysis via TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval of EMSL Analytical Inc. This test report must not be used by the client to claim product endorsement by NVLAP or any agency of the United States Government. EMSL Analytical Inc., bears no responsibility for sample collection activities, analytical method limitations, or the accuracy of results when requested to separate layered samples. EMSL Analytical Inc., liability is limited to the cost of sample analysis. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Initial report from: 07/19/2019 12:58:44

**EMSL Analytical, Inc.**

6340 CastlePlace Dr., Indianapolis, IN 46250

Phone/Fax: (317) 803-2997 / (317) 803-3047

<http://www.EMSL.com>indianapolislab@emsl.com

EMSL Order: 161913777

CustomerID: CIVL78

CustomerPO:

ProjectID:

Attn: **Kevin Arnold**
Civil & Environmental Consultants
4848 Park 370 Blvd.
Suite F
Hazelwood, MO 63042

Phone: (314) 656-4566
Fax: (314) 656-4595
Received: 07/15/19 9:40 AM
Analysis Date: 7/23/2019
Collected: 7/12/2019

Project: STGE

Test Report: Polarized Light Microscopy (PLM) - Point Count Performed by EPA 600/R-93/116 Method with Gravimetric Reduction and 400 Point Count

SAMPLE ID	DESCRIPTION	APPEARANCE	(%) Matrix Organic Acid	NON- ASBESTOS % Fibrous	NON- ASBESTOS % NON-FIBROUS	ASBESTOS % TYPES
109-28-82- Mastic 161913777-0081A	Solarium - Brick Pattern Vinyl FT, Mastic & Felt Layer					Insufficient Material
Insufficient Material						
109-28-83- Mastic 161913777-0082A	Solarium - Brick Pattern Vinyl FT, Mastic & Felt Layer					Insufficient Material
Insufficient Material						
109-28-84- Mastic 161913777-0083A	Solarium - Brick Pattern Vinyl FT, Mastic & Felt Layer					Insufficient Residue
Insufficient Residue						

Analyst(s)

Richard Harding, Laboratory Manager
or other approved signatory

Disclaimers: Some samples may contain asbestos fibers present in dimensions below PLM resolution limits. The limit of detection as stated in the method is 0.25%. EMSL Analytical Inc. suggests that samples reported as <0.25% or none detected undergo additional analysis via TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical Inc. This report must not be used to claim product endorsement by NVLAP or any agency of the United States Government. EMSL Analytical Inc. bears no responsibility for sample collection activities, analytical method limitations, or the accuracy of results when requested to separate layer samples. EMSL Analytical Inc. liability is limited to the cost of sample analysis. The test results contained within this report meet the requirements of NELAC unless otherwise noted. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

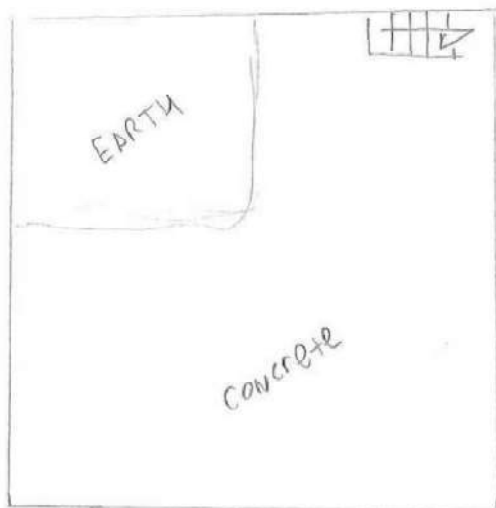
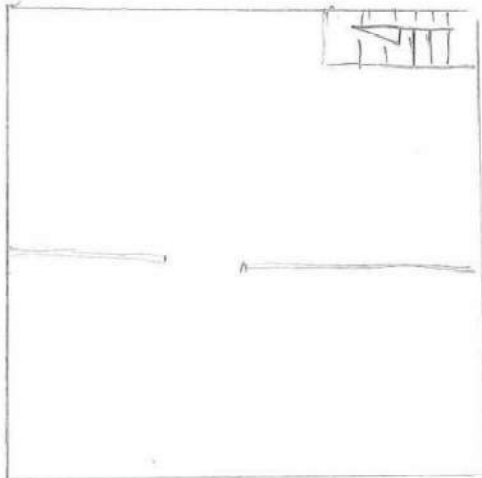
Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN

Initial report from 07/23/2019 10:07:33

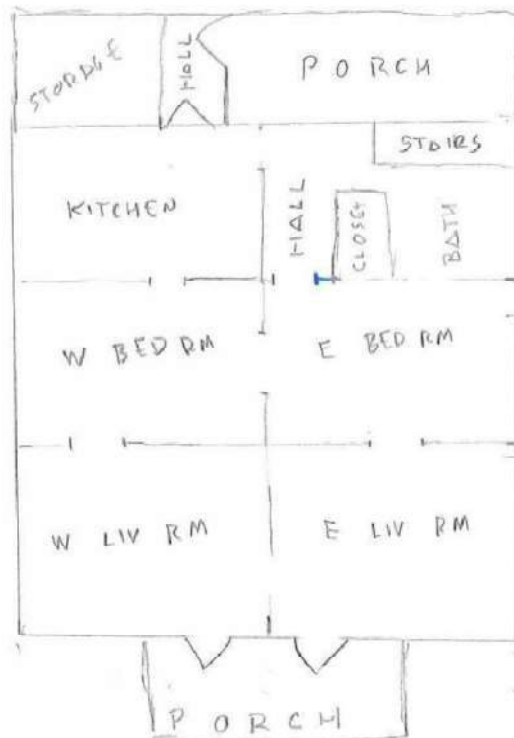
APPENDIX N

XRF ROOM NAMING SKETCHES – FIELD DATA // XRF SUMMARIES

ATTIC



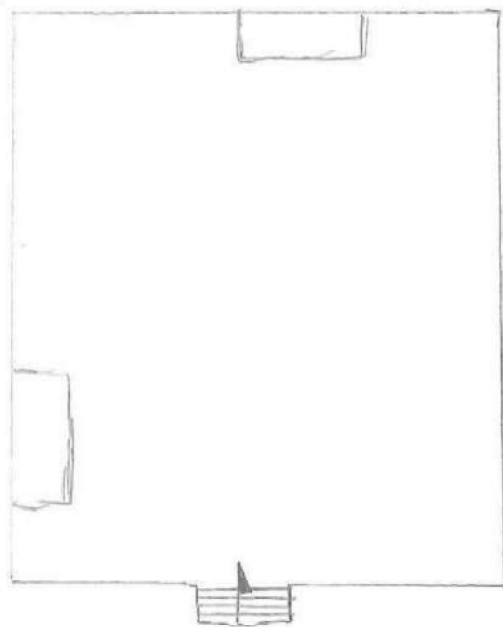
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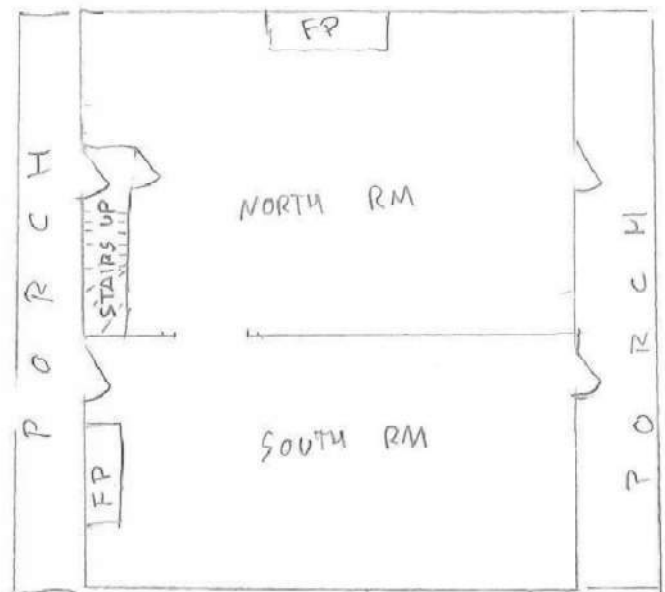
TRACT 01-113

FRANCOIS VALLE II HOUSE
167 SOUTH GABOURI STREET
STE GENEVIEVE, MO





BASEMENT

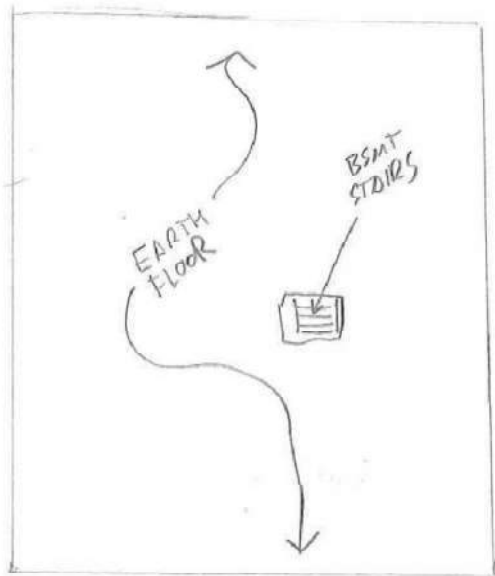
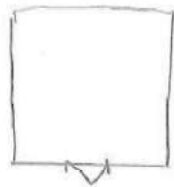


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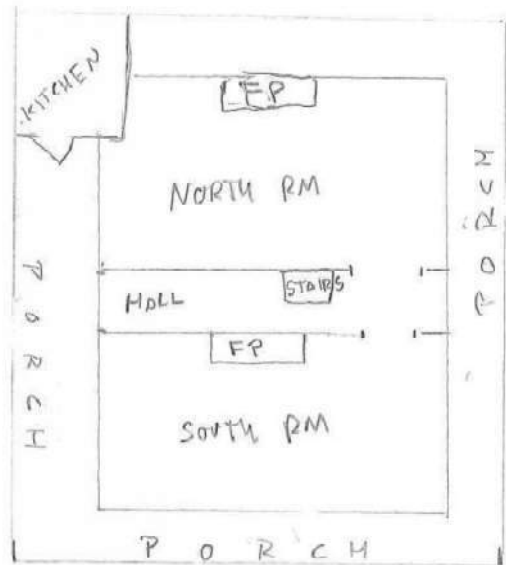
RENE LEMEILLEUR HOUSE
101 S. MAIN STREET
STE GENEVIEVE, MO



STONE COTTAGE



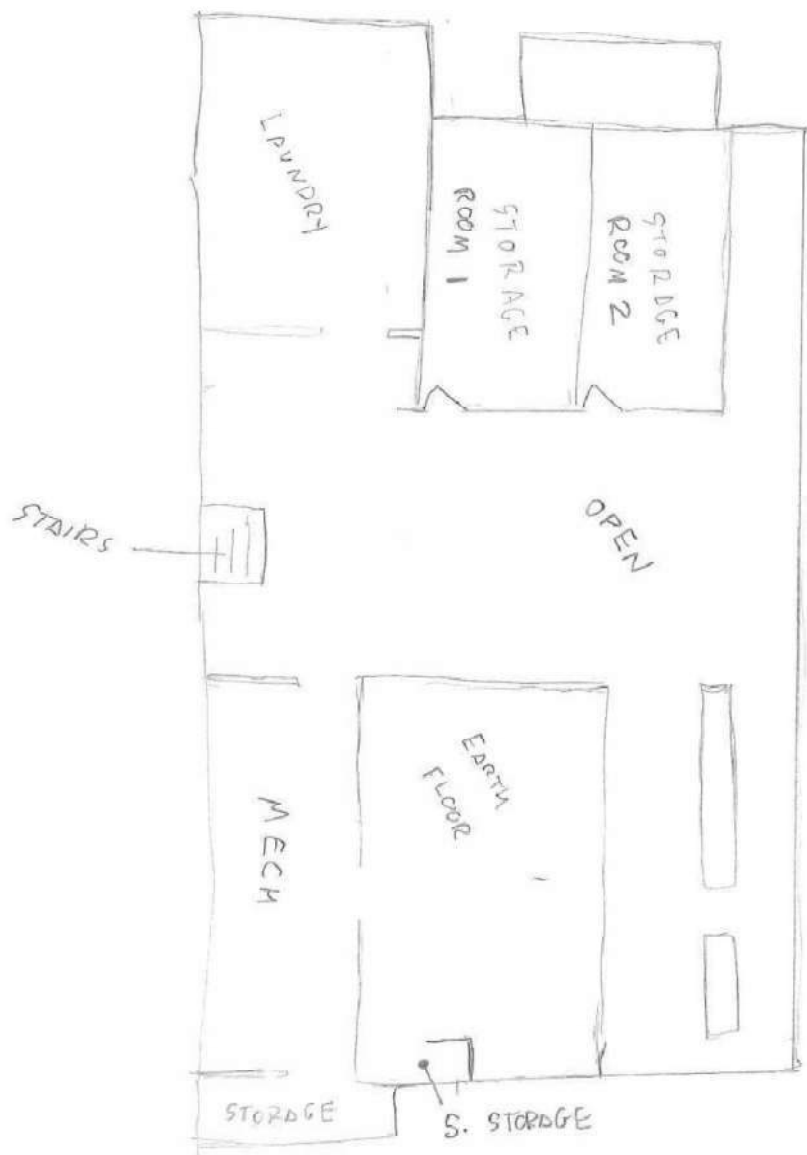
BASEMENT



LOUIS BOLDUC HOUSE
123 SOUTH MAIN STREET
STE. GENEVIEVE, MO

TRACT 01-112

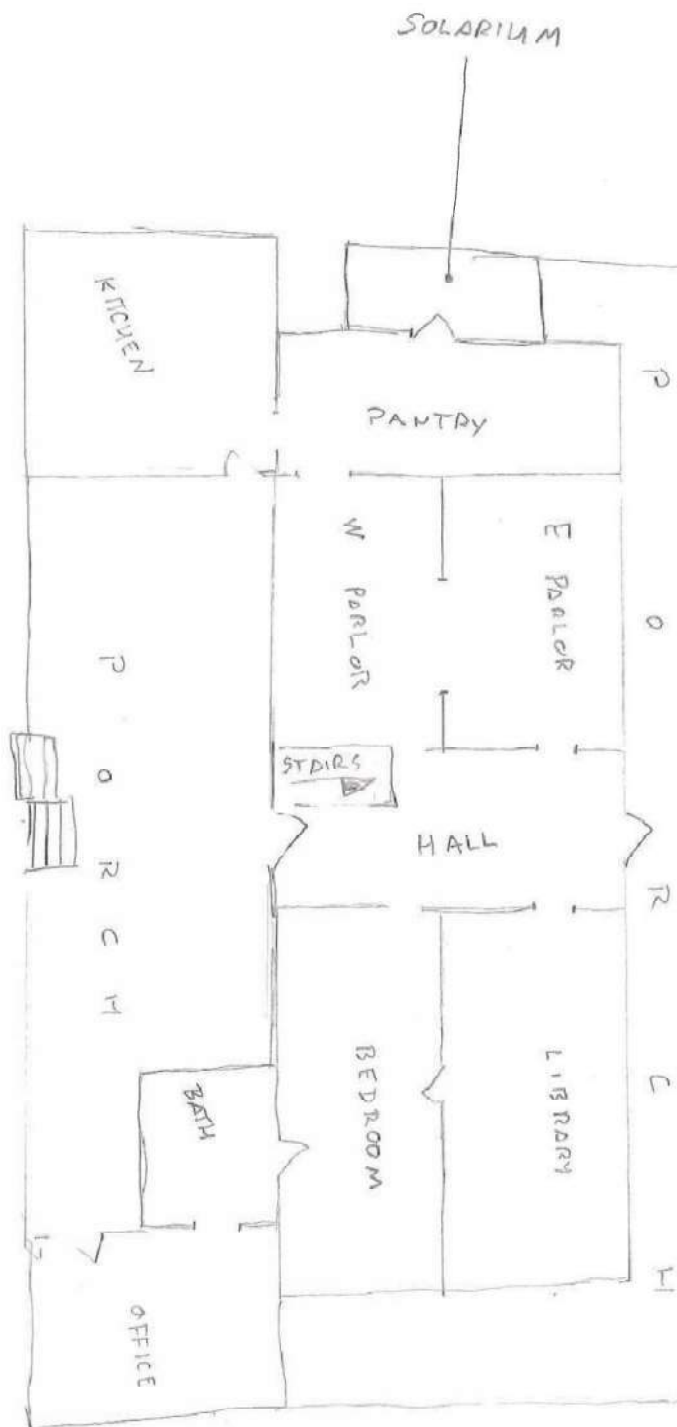




JEAN BAPTISTE VALLE HOUSE
BASEMENT

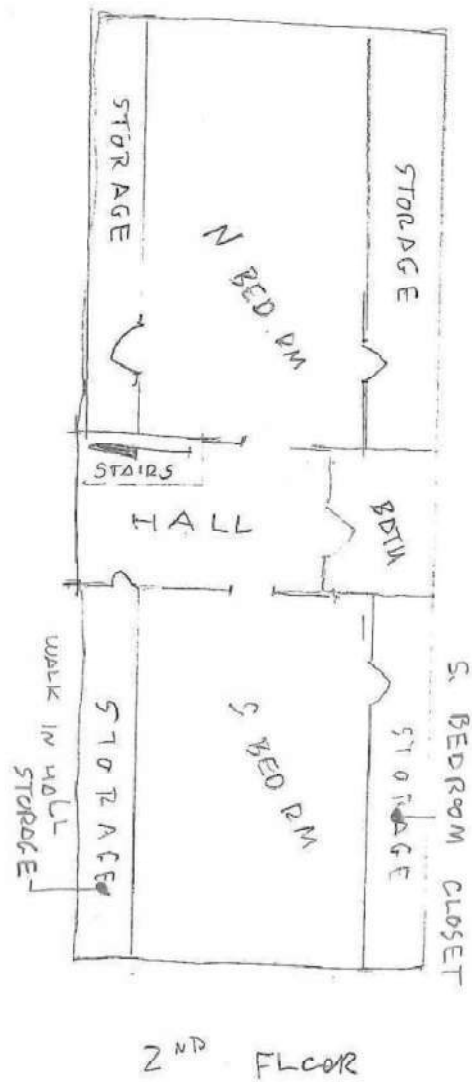
TRACT
01-109





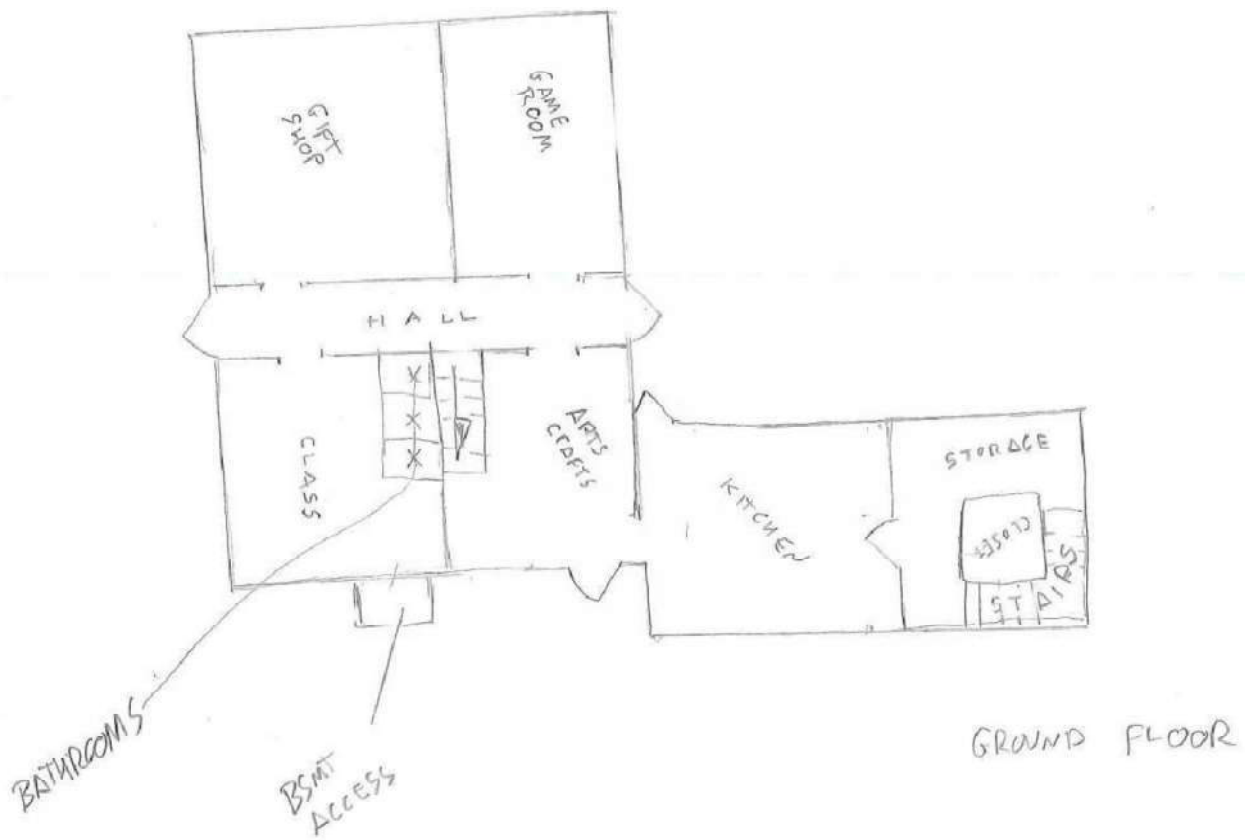
TRACT 01-109

JEAN BAPTISTE VALLE HOUSE
 99 S. MAIN
 STE. GENEVIEVE, MO



JEAN BAPTISTE VALLE HOUSE

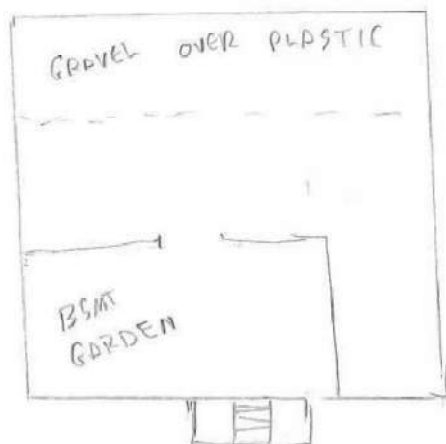
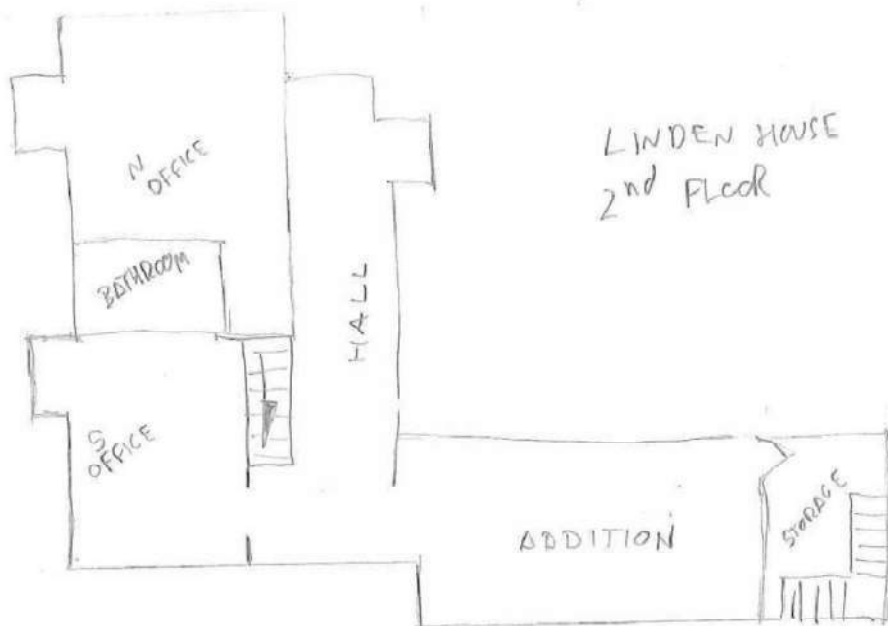
TRAC 01-109



TRACT 01-111

LINDEN HOUSE
S. MAIN STREET
STE. GENEVIEVE, MO





LINDEN HOUSE
2nd Floor

TRACT 01-111

LINDEN HOUSE
BASEMENT

Reading	Mode	Date	Time	Pb	Pb +/-	Pb Pass	LiveTime	Pass/Fail	Seal/Fail	Match1	MNI	PD	Facility	Nar/Bldg	Room/Area	Component	Substrate	Color	Wall	Condition
1	Standardiz	15-Jul-19	8:31:59				48.29	PASS	-0.01837	0.019827	182									
2	Lead Paint	15-Jul-19	8:35:57	0	0		20.77	Negative			0									
3	Lead Paint	15-Jul-19	8:37:39	1.07	0.04		20.89	Positive	surface	1.07	0.08									
4	Standardiz	15-Jul-19	9:10:25				48.34	PASS	-0.02039	0.019839	183									
5	Lead Paint	15-Jul-19	9:12:23	1.02	0.04		22.14	Positive	surface	1.02	0.07									
6	Lead Paint	15-Jul-19	9:13:49	0	0		17.68	Negative			0									
7	Standardiz	15-Jul-19	11:23:00				48.24	PASS	-0.02155	0.019827	182									
8	Lead Paint	15-Jul-19	11:25:06	0.25	0.09		22.25	Negative	surface	0.25	0.18									
9	Lead Paint	15-Jul-19	11:26:36	1.07	0.04		22.42	Positive	surface	1.07	0.08									
10	Lead Paint	15-Jul-19	11:27:49	2.34	0.08		23.12	Positive	surface	2.34	0.16		01-113	Valle II	W. Liv Rm	Wall	DW	Green	N	Intact
11	Lead Paint	15-Jul-19	11:29:07	1	0.06		6.93	Positive		> 1.00	0.11				W. Liv Rm	Wall	DW	Green	E	Intact
12	Lead Paint	15-Jul-19	11:30:58	1	0.03		20.22	Positive		> 1.00	0.05				W. Liv Rm	Wall	DW	Green	E	Intact
13	Lead Paint	15-Jul-19	11:32:17	0.62	0.03		24.47	Negative	surface	0.62	0.06				W. Liv Rm	Wall	DW	Green	S	Intact
14	Lead Paint	15-Jul-19	11:33:07	0.84	0.04		23.59	Negative	surface	0.84	0.07				W. Liv Rm	Wall	Wood	Green	W	Intact
15	Lead Paint	15-Jul-19	11:34:01	0.37	0.02		21.68	Negative	surface	0.37	0.05				W. Liv Rm	Sill	Wood	Green	W	Fair
16	Lead Paint	15-Jul-19	11:34:51	2.51	0.11		23.92	Positive	surface	> 2.51	0.21				W. Liv Rm	WW Casing	Wood	Green	W	Fair
17	Lead Paint	15-Jul-19	11:48:58	2.07	0.08		23	Positive	surface	> 2.07	0.16				W. Liv Rm	Dr Frame	Wood	Green	N	Intact
18	Lead Paint	15-Jul-19	11:50:42	0.45	0.03		21.6	Negative	surface	0.45	0.05				W. Liv Rm	baseboard	Wood	Green	S	Intact
19	Lead Paint	15-Jul-19	11:52:22	1.89	0.1		23.62	Positive	surface	1.89	0.2				W. Liv Rm	Door	Wood	Green	S	Fair
20	Lead Paint	15-Jul-19	11:54:29	3.7	0.13		23.43	Positive	surface	3.7	0.31				W. Liv Rm	Dr Frame	Wood	Green	S	Fair
21	Lead Paint	15-Jul-19	11:56:14	3.38	0.17		23.29	Positive	surface	3.38	0.34				W. Liv Rm	door (ext s	Wood	White	S	Fair
22	Lead Paint	15-Jul-19	12:00:49	1.64	0.09		22.95	Positive	surface	1.64	0.11				W. Liv Rm	Ceiling	DW	Green	n/a	Fair
23	Lead Paint	15-Jul-19	12:01:32	1.94	0.06		24.07	Positive	surface	1.94	0.12				W. Liv Rm	ceiling (wo	Wood	Green	n/a	Fair
24	Lead Paint	15-Jul-19	12:02:26	0	0		22.57	Negative		0	0				W. Liv Rm	ceiling	plaster	white	n/a	Fair
25	Lead Paint	15-Jul-19	12:07:52	5	0.24		24.1	Positive	surface	> 5.00	0.48				E. Liv Rm	Door	Wood	Pink	N	Fair
26	Lead Paint	15-Jul-19	12:09:06	2.86	0.13		24.33	Positive	surface	> 2.86	0.26				E. Liv Rm	Dr Frame	Wood	Pink	N	Fair
27	Lead Paint	15-Jul-19	12:11:29	2.06	0.09		23.41	Positive	surface	> 2.06	0.18				E. Liv Rm	Sill	Wood	Gray	E	Fair
28	Lead Paint	15-Jul-19	12:12:19	4.85	0.28		12.66	Positive	surface	4.85	0.55				E. Liv Rm	WW Casing	Wood	Gray	E	Fair
29	Lead Paint	15-Jul-19	12:13:45	0.02	0.06		22.68	Negative		0.02	0.11				E. Liv Rm	Wall	Plaster	White	S	Poor
30	Lead Paint	15-Jul-19	12:14:33	4.07	0.2		23.92	Positive	surface	4.07	0.39				E. Liv Rm	Door	Wood	White	S	Fair
31	Lead Paint	15-Jul-19	12:15:22	2.99	0.1		21.94	Positive	surface	> 2.99	0.2				E. Liv Rm	Dr Frame	Wood	Pink	S	Fair
32	Lead Paint	15-Jul-19	12:16:50	2.26	0.1		23.41	Positive	surface	> 2.26	0.21				E. Liv Rm	Door	Wood	Pink	W	Fair
33	Lead Paint	15-Jul-19	12:18:06	2.58	0.11		23.47	Positive	surface	> 2.58	0.21				E. Liv Rm	Dr Frame	Wood	Green	W	Fair
34	Lead Paint	15-Jul-19	12:23:14	1	0.12		2.2	Positive		> 1.00	0.24				E. Bedroom	Wall	Plaster	Pink	N	Fair
35	Lead Paint	15-Jul-19	12:24:26	1	0.07		3.42	Positive		> 1.00	0.14				E. Bedroom	Wall	Plaster	Pink	E	Fair
36	Lead Paint	15-Jul-19	12:25:42	0.79	0.05		21.96	Negative	surface	0.79	0.1				E. Bedroom	Sill	Wood	Gray	E	Fair
37	Lead Paint	15-Jul-19	12:26:33	5	0.38		24.08	Positive	surface	> 5.00	0.76				E. Bedroom	WW Casing	Wood	Gray	E	Fair
38	Lead Paint	15-Jul-19	12:27:54	2.35	0.11		22.47	Positive	surface	> 2.35	0.21				E. Bedroom	WW Rail	Wood	Gray	E	Fair
39	Lead Paint	15-Jul-19	12:29:00	5	0.27		23.41	Positive	surface	> 5.00	0.54				E. Bedroom	Door	Wood	Pink	S	Intact
40	Lead Paint	15-Jul-19	12:30:50	1.96	0.11		24.22	Positive	surface	> 1.96	0.23				E. Bedroom	Door	Wood	Pink	W	Fair
41	Lead Paint	15-Jul-19	12:32:11	2.82	0.13		22.75	Positive	surface	2.82	0.27				E. Bedroom	Wall	Wood	Pink	N	Fair
42	Lead Paint	15-Jul-19	12:33:32	2.66	0.19		9.81	Positive	surface	> 2.66	0.37				E. Bedroom	Door	Wood	Pink	W	Fair
43	Lead Paint	15-Jul-19	12:35:08	0	0		23.43	Negative		0	0				E. Bedroom	Wall	Plaster	White	N	Fair
44	Lead Paint	15-Jul-19	12:36:01	0	0.25		24.92	Positive	surface	> 5.00	0.51				E. Bedroom	Door	Wood	Pink	N	Fair
45	Lead Paint	15-Jul-19	12:37:16	5	0.31		24.15	Positive	surface	> 5.00	0.62				E. Bedroom	Door frame	Wood	Pink	N	Fair
46	Lead Paint	15-Jul-19	12:38:24	0.51	0.1		3.33	Negative		0.51	0.2				W. Bedroom	Wall	DW	Yellow	N	Fair
47	Lead Paint	15-Jul-19	12:54:25	1	0.07		10.42	Positive		> 1.00	0.15				W. Bedroom	Wall	DW	Yellow	E	Fair
48	Lead Paint	15-Jul-19	12:55:54	1	0.09		4.56	Positive		> 1.00	0.18				W. Bedroom	Wall	DW	Yellow	S	Fair
49	Lead Paint	15-Jul-19	12:57:13	1	0.09		2.14	Positive		> 1.00	0.19				W. Bedroom	Wall	DW	Yellow	W	Fair
50	Lead Paint	15-Jul-19	12:58:34	0.19	0.02		22.35	Negative	surface	0.19	0.04				W. Bedroom	Sill	Wood	White	W	Poor
51	Lead Paint	15-Jul-19	12:59:24	3.54	0.15		23.56	Positive	surface	3.54	0.3				W. Bedroom	WW casing	Wood	White	W	Intact
52	Lead Paint	15-Jul-19	13:00:26	3.59	0.15		23.87	Positive	surface	> 3.59	0.31				W. Bedroom	WW Rail	Wood	White	W	Intact
53	Lead Paint	15-Jul-19	13:02:19	0.55	0.03		23.08	Negative	surface	0.55	0.06				W. Bedroom	Baseboard	Wood	White	N	Intact
54	Lead Paint	15-Jul-19	13:03:12	3.06	0.16		23.65	Positive	surface	3.06	0.32				W. Bedroom	Door frame	Wood	White	N	Intact
55	Lead Paint	15-Jul-19	13:06:32	5	0.2		19.83	Positive	surface	> 5.00	0.41				W. Bedroom	Door Frame	Wood	Green	N	Intact
56	Lead Paint	15-Jul-19	13:08:21	1.1	0.06		22.15	Positive	surface	1.1	0.13				W. Bedroom	Door	Wood	Yellow	E	Intact
57	Lead Paint	15-Jul-19	13:09:37	2.81	0.14		22.69	Positive	surface	> 2.81	0.27				W. Bedroom	Door frame	Wood	Yellow	S	Intact
58	Lead Paint	15-Jul-19	13:10:59	2.18	0.07		21.04	Positive	surface	2.18	0.13				W. Bedroom	Door frame	Wood	Green	S	Intact
59	Lead Paint	15-Jul-19	13:14:56	1.67	0.1		23.6	Positive	surface	> 1.67	0.19				W. Bedroom	Ceiling	DW	Yellow	n/a	Intact
60	Lead Paint	15-Jul-19	13:29:45	1.36	0.07		23.33	Positive	surface	1.36	0.15				Bathroom	Wall	Wood	Green	N	Intact
61	Lead Paint	15-Jul-19	13:30:46	0	0		22.71	Negative		0	0				Bathroom	Wall	DW	Green	E	Intact
62	Lead Paint	15-Jul-19	13:32:06	0	0		22.88	Negative		0	0				Bathroom	Wall	DW	Yellow	S	Intact
63	Lead Paint	15-Jul-19	13:33:02	0	0		22.75	Negative		0	0				Bathroom	Wall	DW	Yellow	W	Intact
64	Lead Paint	15-Jul-19	13:34:03	0	0		22.24	Negative		0	0				Bathroom	Sill	Wood	Yellow	E	Intact
65	Lead Paint	15-Jul-19	13:34:51	2.55	0.13		24.27	Positive	surface	> 2.55	0.25				Bathroom	ww casing	Wood	Yellow	E	Intact
66	Lead Paint	15-Jul-19	13:35:55	2.36	0.12		24.28	Positive	surface	> 2.36	0.24				Bathroom	Door	Wood	Yellow	N	Intact
67	Lead Paint	15-Jul-19	13:37:09	0	0		7.65	Negative		0	0.01				Bathroom	Baseboard	Wood	Yellow	E	Intact
68	Lead Paint	15-Jul-19	13:38:06	2.06	0.12		22.42	Positive	surface	2.06	0.23				Bathroom	Door frame	Wood	Yellow	W	Intact
69	Lead Paint	15-Jul-19	13:39:50	1.35	0.08		23.11	Positive	surface	1.35	0.16				Bathroom	Door frame	Wood	Yellow	W	Intact
70	Lead Paint	15-Jul-19	13:41:13	1	0.02		2.22	Positive		> 1.00	0.05				Stairs Up	Wall	Plaster	White	N	Intact
71	Lead Paint	15-Jul-19	13:43:17	0	0		22.66	Negative		0	0				Stairs Up	Wall	Plaster	Blue	E	Intact
72	Lead Paint	15-Jul-19	13:44:45	0.05	0.02		6.16	Negative	surface	0.05	0.04				Stairs Up	Wall	Wood	Yellow	S	Intact
73	Lead Paint	15-Jul-19	13:46:10	0.05	0.01		22.15	Negative	surface	0.05	0.02				Stairs Up	Stairs	Wood	white	n/a	Fair
74	Lead Paint	15-Jul-19	13:48:02	0.05	0.01		22.13	Negative	surface	0.05	0.02				Stairs Up	Stairs	Wood	white	n/a	Fair
75	Lead Paint	15-Jul-19	13:49:50	0.01	0.02		23.16	Negative		0.01	0.03				Attic	Wall	Wood	Yellow	S	Fair
76	Lead Paint	15-Jul-19	13:50:42	0	0		21.57	Negative		0	0				Attic	Wall	Wood	White	N	Intact
77	Lead Paint	15-Jul-19	13:51:34	2.49	0.07		21.09	Positive	surface	2.49	0.15				Attic	ww casing	Wood	White	S	Fair
78	Lead Paint	15-Jul-19	14:02:38	0.27	0.02		24.02	Negative	surface	0.27	0.04				Hall	Wall	DW	Green	N	Intact
79	Lead Paint	15-Jul-19	14:03:27	0.25	0.03		23.11	Negative	surface	0.25	0.05				Hall	Wall	Wood	Green	E	Intact
80	Lead Paint	15-Jul-19	14:04:18	0.08	0.01		22.54	Negative	surface	0.08	0.02				Hall	Wall	DW	Green	W	Intact
81	Lead Paint	15-Jul-19	14:05:14	4.04	0.2		24.8	Positive	surface</											

101	Lead Paint	15-Jul-19	14:40:23	0.02	0.01	22.71	Negative	surface	0.02	0.01				Basement	Wall	Concrete	White	E	Intact
102	Lead Paint	15-Jul-19	14:41:21	0.12	0.02	22.27	Negative	surface	0.12	0.04				Basement	Stairs	Wood	White	N	Intact
103	Lead Paint	15-Jul-19	14:42:57	5	0.28	23.79	Positive	surface	> 5.00	0.57				Exterior	Wall	Wood	White	S	Poor
104	Lead Paint	15-Jul-19	14:45:10	3.81	0.17	22.8	Positive	surface	3.81	0.35				Exterior	Door	Wood	White	S	Poor
105	Lead Paint	15-Jul-19	14:46:35	3.93	0.24	25.12	Positive	surface	3.93	0.48				Exterior	Dr Frame	Wood	White	S	Poor
106	Lead Paint	15-Jul-19	14:48:01	0.43	0.02	23.45	Negative	surface	0.43	0.05				Exterior	Door	Wood	Black	S	Fair
107	Lead Paint	15-Jul-19	14:48:53	2.6	0.18	23.73	Positive	surface	2.6	0.36				Exterior	Column	Wood	White	n/a	Intact
108	Lead Paint	15-Jul-19	14:50:52	2.39	0.17	23.71	Positive	surface	> 2.39	0.34				Exterior	Ceiling	Wood	White	n/a	Fair
109	Lead Paint	15-Jul-19	14:52:34	0.41	0.06	22.09	Negative	surface	0.41	0.12				Exterior	Floor	Wood	Gray	n/a	Intact
110	Lead Paint	15-Jul-19	14:54:50	1.12	0.07	23.08	Positive	surface	1.12	0.13				Exterior	Wall	Wood	White	E	Poor
111	Lead Paint	15-Jul-19	14:56:39	0.23	0.03	22.44	Negative	surface	0.23	0.05				Exterior	Sill	Wood	White	E	Poor
112	Lead Paint	15-Jul-19	14:58:18	0.8	0.05	22.15	Negative	surface	0.8	0.1				Exterior	Wall	Wood	White	W	Fair
113	Lead Paint	15-Jul-19	14:59:09	0.4	0.03	22.04	Negative	surface	0.4	0.07				Exterior	Sill	Wood	White	W	Poor
114	Lead Paint	15-Jul-19	14:59:57	1.2	0.07	22.3	Positive	surface	1.2	0.15				Exterior	Ww casing	Wood	White	W	Poor
115	Lead Paint	15-Jul-19	15:01:18	3.93	0.17	24.03	Positive	surface	> 3.93	0.34				Exterior	Ww casing	wood	White	W	Poor
116	Lead Paint	15-Jul-19	15:04:58	4.52	0.21	23.32	Positive	surface	> 4.52	0.42				Exterior	Wall	Wood	White	N	Poor
117	Lead Paint	15-Jul-19	15:06:32	4.31	0.18	23.94	Positive	surface	4.31	0.37				Porch	Wall	Wood	White	N	Fair
118	Lead Paint	15-Jul-19	15:07:57	3.32	0.16	23.3	Positive	surface	3.32	0.32				Porch	Sill	Wood	White	N	Fair
119	Lead Paint	15-Jul-19	15:09:24	4.26	0.17	22.67	Positive	surface	4.26	0.34				Porch	Ww casing	Wood	White	N	Fair
120	Lead Paint	15-Jul-19	15:10:50	0.08	0.02	23.36	Negative	surface	0.08	0.04				Porch	Ceiling	Wood	White	n/a	Intact
121	Lead Paint	15-Jul-19	15:11:59	3.16	0.11	23.02	Positive	surface	> 3.16	0.23				Porch	Wall	Wood	Green	N	Fair
122	Lead Paint	15-Jul-19	15:13:41	0.74	0.03	21.25	Negative	surface	0.74	0.06				Shed	Wall	Wood	Red	N	Poor
123	Lead Paint	15-Jul-19	15:14:54	0.15	0.02	22.05	Negative	surface	0.15	0.04				Shed	Wall	Wood	Red	S	Poor
124	Lead Paint	15-Jul-19	15:16:27	0.67	0.05	23.49	Negative	surface	0.67	0.1				Exterior	Wall	Wood	White	E	Poor
125	Standard	15-Jul-19	15:17:01			48.11	PASS		-0.01694	0.019816	182								
126	Lead Paint	15-Jul-19	15:38:32	0	0	21.23	Negative		0	0									
127	Lead Paint	15-Jul-19	15:39:27	1.03	0.04	21.45	Positive	surface	1.03	0.07									
128	Lead Paint	15-Jul-19	15:42:33	0	0	23.94	Negative		0	0		01-110	Lemelleur	N. Room	Wall	Plaster	White	N	Intact
129	Lead Paint	15-Jul-19	15:43:38	0	0	22.94	Negative		0	0				N. Room	Wall	Plaster	White	E	Intact
130	Lead Paint	15-Jul-19	15:44:24	0	0	22.91	Negative		0	0				N. Room	Wall	Plaster	White	S	Intact
131	Lead Paint	15-Jul-19	15:45:13	0	0	23.66	Negative		0	0				N. Room	Wall	Plaster	White	W	Intact
132	Lead Paint	15-Jul-19	15:46:09	0.05	0.02	23.41	Negative	surface	0.05	0.04				N. Room	Door	Wood	Blue	E	Intact
133	Lead Paint	15-Jul-19	15:47:22	0.04	0.01	21.2	Negative	surface	0.04	0.03				N. Room	Dr Frame	Wood	Blue	W	Intact
134	Lead Paint	15-Jul-19	15:48:11	0.02	0.01	22.76	Negative	surface	0.02	0.02				N. Room	Chair Rail	Wood	Blue	N	Intact
135	Lead Paint	15-Jul-19	15:49:03	0.03	0.01	21.7	Negative	surface	0.03	0.03				N. Room	Baseboard	Wood	Blue	S	Intact
136	Lead Paint	15-Jul-19	15:50:10	0.04	0.02	22.11	Negative	surface	0.04	0.03				N. Room	Ww casing	Wood	Blue	N	Intact
137	Lead Paint	15-Jul-19	15:51:29	0.03	0.01	21.62	Negative	surface	0.03	0.03				N. Room	Ww Rail	Wood	Blue	E	Intact
138	Lead Paint	15-Jul-19	15:52:31	0	0	23.01	Negative		0	0				Stairs	Wall	Plaster	White	N	Intact
139	Lead Paint	15-Jul-19	15:53:30	0	0	22.67	Negative		0	0				Stairs	Wall	Plaster	White	E	Intact
140	Lead Paint	15-Jul-19	15:54:19	4.21	0.19	22.95	Positive	surface	> 4.21	0.37				Stairs	Wall	Wood	Blue	S	Intact
141	Lead Paint	15-Jul-19	15:56:05	0	0	22.7	Negative		0	0				Stairs	Wall	Plaster	White	W	Intact
142	Lead Paint	15-Jul-19	15:57:31	0	0	23.5	Negative		0	0				Stairs	Ceiling	Plaster	White	n/a	Intact
143	Lead Paint	15-Jul-19	15:58:39	0.4	0.04	21.93	Negative	surface	0.4	0.08				Stairs	Stairs	Wood	Blue	n/a	Intact
144	Lead Paint	15-Jul-19	15:59:11	0.02	0.01	21.1	Negative	surface	0.02	0.02				Stairs	Door	Wood	Blue	W	Intact
145	Lead Paint	15-Jul-19	16:00:15	0.05	0.02	21.15	Negative	surface	0.05	0.04				Stairs	Dr Frame	Wood	Blue	W	Intact
146	Lead Paint	15-Jul-19	16:01:32	0	0	24.38	Negative		0	0				S. Room	Wall	Plaster	White	N	Intact
147	Lead Paint	15-Jul-19	16:02:26	0	0	24.16	Negative		0	0				S. Room	Wall	Plaster	White	E	Intact
148	Lead Paint	15-Jul-19	16:03:12	0	0	23.12	Negative		0	0				S. Room	Wall	Plaster	White	S	Intact
149	Lead Paint	15-Jul-19	16:04:00	0	0	23.11	Negative		0	0				S. Room	Wall	Plaster	White	W	Intact
150	Lead Paint	15-Jul-19	16:04:54	0.13	0.02	21.74	Negative	surface	0.13	0.04				S. Room	Fireplace	Wood	Black	W	Intact
151	Lead Paint	15-Jul-19	16:05:42	0.08	0.01	14.82	Negative	surface	0.08	0.03				S. Room	Chair Rail	Wood	Blu/Grn	N	Intact
152	Lead Paint	15-Jul-19	16:06:30	5	0.49	12.27	Positive	surface	> 5.00	0.98				S. Room	Baseboard	Wood	Blu/Grn	E	Intact
153	Lead Paint	15-Jul-19	16:08:24	0.07	0.01	21.42	Negative	surface	0.07	0.02				S. Room	Ww Casing	Wood	Blu/Grn	S	Intact
154	Lead Paint	15-Jul-19	16:09:08	0.06	0.01	22.38	Negative	surface	0.06	0.02				S. Room	Ww Rail	Wood	Yellow	S	Intact
155	Lead Paint	15-Jul-19	16:10:36	0	0	19.29	Negative		0	0				S. Room	Ceiling	Wood	Blu/Grn	n/a	Intact
156	Lead Paint	15-Jul-19	16:11:57	0.11	0.01	23.28	Negative	surface	0.11	0.02				S. Room	Door	Wood	Yellow	E	Intact
157	Lead Paint	15-Jul-19	16:12:51	0.1	0.01	22.53	Negative	surface	0.1	0.03				S. Room	Dr Frame	Wood	Blu/Grn	W	Intact
158	Lead Paint	15-Jul-19	16:13:50	0.1	0.01	21.96	Negative	surface	0.1	0.02				S. Room	Ww Casing	Wood	Yellow	W	Intact
159	Lead Paint	15-Jul-19	16:14:55	1.5	0.06	22.02	Positive	surface	1.5	0.11				Exterior	Wall	Wood	White	E	Intact
160	Lead Paint	15-Jul-19	16:16:34	3.9	0.26	24.58	Positive	surface	> 3.90	0.52				Exterior	Sill	Wood	Olive	E	Intact
161	Lead Paint	15-Jul-19	16:18:22	5	0.53	18.86	Positive	surface	> 5.00	1.06				Exterior	Ww casing	Wood	Olive	E	Intact
162	Lead Paint	15-Jul-19	16:20:21	0.53	0.05	22.12	Negative	surface	0.53	0.1				Exterior	Ww rail	Wood	Olive	E	Intact
163	Lead Paint	15-Jul-19	16:21:43	0.16	0.02	21.19	Negative	surface	0.16	0.03				Exterior	Door	Wood	Black	E	Intact
164	Lead Paint	15-Jul-19	16:22:52	0.37	0.04	23.09	Negative	surface	0.37	0.07				Exterior	Dr Frame	Wood	Olive	E	Intact
165	Lead Paint	15-Jul-19	16:23:39	0.29	0.02	21.48	Negative	surface	0.29	0.04				Exterior	Shutter	Wood	Black	E	Intact
166	Lead Paint	15-Jul-19	16:24:26	0.74	0.04	21.79	Negative	surface	0.74	0.07				Exterior	Column	Wood	Olive	W	Intact
167	Lead Paint	15-Jul-19	16:25:28	0.04	0.02	21.16	Negative	surface	0.04	0.05				Exterior	Porch rail	Wood	Olive	W	Intact
168	Lead Paint	15-Jul-19	16:26:51	0.46	0.03	21.82	Negative	surface	0.46	0.06				Exterior	Wall	Wood	Olive	N	Fair
169	Lead Paint	15-Jul-19	16:27:38	0.44	0.03	22.32	Negative	surface	0.44	0.05				Exterior	Sill	Wood	Olive	N	Intact
170	Lead Paint	15-Jul-19	16:28:23	0.07	0.07	21.6	Negative		0.07	0.15				Exterior	Ww rail	Wood	Olive	N	Intact
171	Lead Paint	15-Jul-19	16:29:16	1.39	0.07	21.28	Positive	surface	1.39	0.14				Exterior	Ww Casing	Wood	Olive	N	Intact
172	Lead Paint	15-Jul-19	16:36:10	5	0.21	22.53	Positive	surface	> 5.00	0.43				Exterior	Wall	Wood	White	W	Intact
173	Lead Paint	15-Jul-19	16:38:14	0.16	0.02	21.31	Negative	surface	0.16	0.03				Exterior	Door	Wood	Black	W	Intact
174	Lead Paint	15-Jul-19	16:39:01	5	0.49	23.47	Positive	surface	> 5.00	0.98				Exterior	Dr Frame	Wood	Olive	W	Intact
175	Lead Paint	15-Jul-19	16:40:34	0.55	0.03	22.64	Negative	surface	0.55	0.06				Exterior	Column	Wood	Olive	W	Intact
176	Lead Paint	15-Jul-19	16:41:22	0.23	0.16	20.75	Negative		0.23	0.33				Exterior	Hand rail	Wood	Olive	W	Intact
177	Lead Paint	15-Jul-19	16:43:03	0.44	0.04	21.79	Negative	surface	0.44	0.07				Exterior	Wall	Wood	Olive	S	Intact
178	Lead Paint	15-Jul-19	16:43:53	0.35	0.02	21.85	Negative	surface	0.35	0.05				Exterior	Ww casing	Wood	Olive	S	Intact
179	Lead Paint	15-Jul-19	16:44:55	0.05	0.02	20.29	Negative		0.05	0.05				Exterior	Ww rail	Wood	Olive	S	Intact

Reading	Mode	Date	Time	Pb	Pb +/-	Pb Pass	LiveTime	Pass/Fail	Pass/Fail	Match1	MNI	PD	Facility	Nar	Building	Room/Area	Component	Substrate	Color	Wall	Condition
1	Standard	16-Jul-19	9:06:06				47.95	Pass	-0.01856	0.019828	182										
2	Lead Paint	16-Jul-19	9:08:03	0	0		13.07	Negative		0	0										
3	Lead Paint	16-Jul-19	9:09:05	1	0.04		16.61	Insufficient	surface	0	0.08										
4	Lead Paint	16-Jul-19	9:09:46	0.99	0.03		23.43	Negative	surface	0.99	0.07										
5	Lead Paint	16-Jul-19	9:25:12	0	0		17.26	Negative		0	0		01-112	Bolduc	N. Room	Wall	Plaster	White	N	Intact	
6	Lead Paint	16-Jul-19	9:25:47	0	0		17.33	Negative		0	0				N. Room	Wall	Plaster	White	E	Intact	
7	Lead Paint	16-Jul-19	9:26:27	0	0		13.65	Negative		0	0				N. Room	Wall	Plaster	White	S	Intact	
8	Lead Paint	16-Jul-19	9:27:01	0	0		14.81	Negative		0	0				N. Room	Wall	Plaster	White	W	Intact	
9	Lead Paint	16-Jul-19	9:27:45	0.2	0.14		17.65	Negative		0.2	0.28				N. Room	Ww casing	Wood	Brown	E	Intact	
10	Lead Paint	16-Jul-19	9:28:30	0.03	0.02		15.11	Negative		0.03	0.04				N. Room	Ww rail	Wood	Brown	W	Intact	
11	Lead Paint	16-Jul-19	9:34:48	0	0		10.48	Negative		0	0				N. Room	Beam	Wood	White	n/a	Intact	
12	Lead Paint	16-Jul-19	9:35:40	0	0		13.64	Negative		0	0				N. Room	Ceiling	Wood	White	n/a	Intact	
13	Lead Paint	16-Jul-19	9:36:24	0.14	0.02		14.34	Negative	surface	0.14	0.04				N. Room	Door	Wood	Brown	S	Intact	
14	Lead Paint	16-Jul-19	9:37:20	0.05	0.03		14.13	Negative	surface	0.05	0.05				N. Room	Dr Frame	Wood	Brown	S	Intact	
15	Lead Paint	16-Jul-19	9:37:52	0	0		17.18	Negative		0	0				Hall	Wall	Plaster	White	N	Intact	
16	Lead Paint	16-Jul-19	9:38:26	0	0		11.46	Negative		0	0				Hall	Wall	Plaster	White	E	Intact	
17	Lead Paint	16-Jul-19	9:38:52	0	0		11.46	Negative		0	0				Hall	Wall	Plaster	White	S	Intact	
18	Lead Paint	16-Jul-19	9:39:19	0	0		13.66	Negative		0	0				Hall	Wall	Plaster	White	W	Intact	
19	Lead Paint	16-Jul-19	9:39:48	0.01	0.02		14.78	Negative		0.01	0.03				Hall	Door	Wood	Brown	W	Intact	
20	Lead Paint	16-Jul-19	9:40:23	0.06	0.04		13.75	Negative		0.06	0.08				Hall	Dr Frame	Wood	Brown	E	Intact	
21	Lead Paint	16-Jul-19	9:40:55	0.01	0.01		11.22	Negative		0.01	0.03				Hall	Ww casing	Wood	Brown	E	Intact	
22	Lead Paint	16-Jul-19	9:41:24	0.04	0.03		11.01	Negative		0.04	0.07				Hall	Ww rail	Wood	Brown	W	Intact	
23	Lead Paint	16-Jul-19	9:42:20	0	0		14.72	Negative		0	0				Hall	Beam	Wood	White	n/a	Intact	
24	Lead Paint	16-Jul-19	9:42:52	0	0		9.18	Negative		0	0				Hall	Ceiling	Wood	White	n/a	Intact	
25	Lead Paint	16-Jul-19	9:43:29	0.24	0.03		10.25	Negative	surface	0.24	0.06				Hall	Baseboard	Wood	Brown	S	Intact	
26	Lead Paint	16-Jul-19	9:44:31	0	0		18.53	Negative		0	0				S. Room	Wall	Plaster	White	N	Intact	
27	Lead Paint	16-Jul-19	9:45:21	0	0		18.59	Negative		0	0				S. Room	Wall	Plaster	White	E	Intact	
28	Lead Paint	16-Jul-19	9:45:58	0	0		11.51	Negative		0	0				S. Room	Wall	Plaster	White	S	Intact	
29	Lead Paint	16-Jul-19	9:46:25	0	0		11.46	Negative		0	0				S. Room	Wall	Plaster	White	W	Intact	
30	Lead Paint	16-Jul-19	9:47:42	0	0		12.55	Negative		0	0				S. Room	Ceiling	Wood	White	n/a	Intact	
31	Lead Paint	16-Jul-19	9:48:25	0.2	0.18		10.21	Negative		0.2	0.36				S. Room	Chair rail	Wood	Brown	E	Intact	
32	Lead Paint	16-Jul-19	9:49:02	0.07	0.14		8.14	Negative		0.07	0.28				S. Room	Baseboard	Wood	Brown	W	Intact	
33	Lead Paint	16-Jul-19	9:49:46	0.23	0.17		12.28	Negative		0.23	0.35				S. Room	Ww Rail	Wood	Brown	S	Intact	
34	Lead Paint	16-Jul-19	9:50:16	0.14	0.13		13.52	Negative		0.14	0.27				S. Room	Ww Casing	Wood	Brown	E	Intact	
35	Lead Paint	16-Jul-19	9:52:55	0	0		16.81	Negative		0	0				Kitchen	Wall	Plaster	White	N	Intact	
36	Lead Paint	16-Jul-19	9:53:37	0	0		10.14	Negative		0	0				Kitchen	Wall	Plaster	White	E	Intact	
37	Lead Paint	16-Jul-19	9:54:05	0	0		13.53	Negative		0	0				Kitchen	Wall	Plaster	White	S	Intact	
38	Lead Paint	16-Jul-19	9:54:36	0	0		9.98	Negative		0	0				Kitchen	Wall	Plaster	White	W	Intact	
39	Lead Paint	16-Jul-19	9:55:35	0.09	0.12		9.21	Negative		0.09	0.24				Kitchen	Ceiling	Wood	Brown	n/a	Intact	
40	Lead Paint	16-Jul-19	9:56:56	0.04	0.02		12.17	Negative		0.04	0.04				Kitchen	Ww rail	Wood	Brown	W	Intact	
41	Lead Paint	16-Jul-19	9:57:39	0	0		15.48	Negative		0	0.01				Kitchen	Ww casing	Wppd	White	E	Intact	
42	Lead Paint	16-Jul-19	9:58:24	0.81	0.05		10.62	Negative	surface	0.81	0.11				Kitchen	Door	Wood	Brown	S	Intact	
43	Lead Paint	16-Jul-19	9:59:10	0	0		8.23	Negative		0	0				Kitchen	Dr Frame	Wood	Brown	S	Intact	
44	Lead Paint	16-Jul-19	10:01:10	0	0		14.78	Negative		0	0				Exterior	Wall	Wood	White	E	Intact	
45	Lead Paint	16-Jul-19	10:01:49	0.06	0.03		15.77	Negative		0.06	0.07				Exterior	Sill	Wood	White	W	Intact	
46	Lead Paint	16-Jul-19	10:02:22	0.06	0.07		11.23	Negative		0.06	0.15				Exterior	Ww casing	Wood	White	W	Intact	
47	Lead Paint	16-Jul-19	10:03:11	0.01	0		8.36	Negative		0.01	0.01				Exterior	Ceiling	Wood	White	n/a	Intact	
48	Lead Paint	16-Jul-19	10:05:14	0	0		11.5	Negative		0	0				Exterior	Wall	Wood	White	E	Intact	
49	Lead Paint	16-Jul-19	10:05:52	0.02	0.02		12.66	Negative		0.02	0.04				Exterior	Shutter	Wood	Brown	E	Intact	
50	Lead Paint	16-Jul-19	10:06:33	0.07	0.04		13.72	Negative		0.07	0.07				Exterior	Sill	Wood	Brown	E	Intact	
51	Lead Paint	16-Jul-19	10:07:05	0.02	0.01		12.39	Negative		0.02	0.02				Exterior	Ww casing	Wood	Brown	E	Intact	
52	Lead Paint	16-Jul-19	10:07:42	0.06	0.03		14.3	Negative		0.06	0.07				Exterior	Door	Wood	Brown	E	Intact	
53	Lead Paint	16-Jul-19	10:08:13	0.05	0.05		10.21	Negative		0.05	0.1				Exterior	Dr Frame	Wood	Brown	E	Intact	
54	Lead Paint	16-Jul-19	10:09:06	0	0		8.46	Negative		0	0.01				Exterior	Ceiling	Wood	White	n/a	Intact	
55	Lead Paint	16-Jul-19	10:10:42	0.03	0.02		14.78	Negative		0.03	0.04				Exterior	Shutter	Wood	Brown	S	Intact	
56	Lead Paint	16-Jul-19	10:11:13	0.03	0.03		12.7	Negative		0.03	0.05				Exterior	Sill	Wood	Brown	S	Intact	
57	Lead Paint	16-Jul-19	10:12:26	0.25	0.27		12.65	Negative		0.25	0.54				Stone Cott	Door	Wood	Brown	S	Intact	
58	Lead Paint	16-Jul-19	10:12:56	0.02	0.04		7.99	Negative		0.02	0.08				Stone Cott	Dr Frame	Wood	Brown	S	Intact	
59	Lead Paint	16-Jul-19	10:13:26	0	0		9.14	Negative		0	0				Stone Cott	Ww casing	Wood	Brown	E	Intact	
60	Lead Paint	16-Jul-19	10:13:52	0.07	0.1		11.73	Negative		0.07	0.21				Stone Cott	Ww rail	Wood	Brown	E	Intact	
61	Lead Paint	16-Jul-19	10:14:33	0.01	0		10.21	Negative		0.01	0.01				Stone Cott	Door	Wood	Brown	N	Intact	
62	Lead Paint	16-Jul-19	10:17:05	1.17	0.13		16.97	Insufficient	surface	1.17	0.26										
63	Lead Paint	16-Jul-19	10:17:28	1.29	0.11		23.4	Positive	surface	1.29	0.19		01-110	Lemellieur	Porch	Ceiling	Wood	White	E	Intact	
64	Lead Paint	16-Jul-19	10:20:45	1.73	0.11		22.75	Positive	surface	1.73	0.23										
65	Lead Paint	16-Jul-19	10:55:05	0	0		16.71	Negative		0	0		01-109	JBV	Laundry	Wall	Plaster	White	W	P	
66	Lead Paint	16-Jul-19	10:56:11	0	0		12.22	Negative		0	0				Laundry	Wall	Plaster	White	E	Intact	
67	Lead Paint	16-Jul-19	10:56:40	0	0		13.46	Negative		0	0				Laundry	Wall	Plaster	White	S	Intact	
68	Lead Paint	16-Jul-19	10:57:05	0	0		13.32	Negative		0	0				Laundry	Wall	Plaster	White	B	Intact	
69	Lead Paint	16-Jul-19	10:57:39	5	0.23		20.89	Positive	surface	> 5.00	0.47				Laundry	Ww rail	Wood	Red	W	Intact	
70	Lead Paint	16-Jul-19	10:59:14	3.92	0.1		22.7	Positive	surface	> 3.92	0.2				Laundry	Ww casing	Wood	Red	N	Intact	
71	Lead Paint	16-Jul-19	11:00:54	2.76	0.08		21.17	Positive	surface	2.76	0.16				Laundry	Door	Wood	Red	S	Intact	
72	Lead Paint	16-Jul-19	11:01:40	2.32	0.1		19.5	Positive	surface	2.32	0.19				Laundry	Dr Frame	Wood	Red	S	Intact	
73	Lead Paint	16-Jul-19	11:03:58	0	0		12.2	Negative		0	0				Bsmt Entry	Wall	Plaster	White	N	Intact	
74	Lead Paint	16-Jul-19	11:04:26	0	0		15.57	Negative		0	0				Bsmt Entry	Wall	Plaster	White	E	Intact	
75	Lead Paint	16-Jul-19	11:04:57	0	0		11.99	Negative		0	0				Bsmt Entry	Wall	Plaster	White	S	Intact	
76	Lead Paint	16-Jul-19	11:05:26	0	0		14.32	Negative		0	0				Bsmt Entry	Wall	Plaster	White	W	Intact	
77	Lead Paint	16-Jul-19	11:05:58	1.17	0.05		21.36	Positive	surface	1.17	0.09				Bsmt Entry	Shutter	Wood	White	W	Intact	
78	Lead Paint	16-Jul-19	11:07:30	0.03	0.01		21.45	Negative	surface	0.03	0.02				Bsmt Entry	Opening	Wood	White	E	Intact	
79	Lead Paint	16-Jul-19	11:08:19	0.99	0.04		22.15	Negative	surface	0.99	0.08				Bsmt Entry	Door	Wood	Green	W	Intact	
80	Lead Paint	16-Jul-19	11:09:50	0.81	0.04		13.98	Negative	surface	0.81	0.09				Bsmt Entry	Dr Frame	Wood	Green	W	Intact	
81	Lead Paint	16-Jul-19	11:11:00	5	0.21		19.89	Positive	surface	> 5.00	0.43				Bsmt Entry	Door	Wood	Red	S	Intact	
82	Lead Paint	16-Jul-19	11:11:51	5	0.28		15.73	Positive	surface	> 5.00	0.55				Bsmt Entry	Dr Frame	Wood	White	S	Intact	
83	Lead Paint	16-Jul-19	11:13:36	0	0		15.58	Negative		0	0				Storage	Wall	Plaster	White	N	Intact	
84																					

101	Lead Paint	16-Jul-19	11:30:20	0.01	0.02	15.97	Negative		0.01	0.03	S Store	W wall	Wood	White	W	Intact
102	Lead Paint	16-Jul-19	11:31:38	5	0.22	21.08	Positive	surface	> 5.00	0.45	S Store	Ww rail	Wood	White	S	Intact
103	Lead Paint	16-Jul-19	11:32:23	2.72	0.11	20.87	Positive	surface	2.72	0.22	S Store	Ww casing	Wood	White	S	Intact
104	Lead Paint	16-Jul-19	11:34:30	5	0.22	17.62	Positive	surface	> 5.00	0.43	S Store	Doorway	Wood	White	N	Intact
105	Lead Paint	16-Jul-19	11:38:47	0	0	16.16	Negative		0	0	Room 1	W wall	Plaster	White	N	Intact
106	Lead Paint	16-Jul-19	11:39:17	0	0	10.99	Negative		0	0	Room 1	W wall	Plaster	White	E	Intact
107	Lead Paint	16-Jul-19	11:39:45	0	0	13.19	Negative		0	0	Room 1	W wall	Plaster	White	S	Intact
108	Lead Paint	16-Jul-19	11:40:14	0	0	16.82	Negative		0	0	Room 1	W wall	Plaster	White	W	Intact
109	Lead Paint	16-Jul-19	11:40:51	5	0.21	18.28	Positive	surface	> 5.00	0.41	Room 1	Ww rail	Wood	Red	N	Intact
110	Lead Paint	16-Jul-19	11:41:28	5	0.21	15.17	Positive	surface	> 5.00	0.42	Room 1	Ww casing	Wood	White	N	Intact
111	Lead Paint	16-Jul-19	11:43:38	0.05	0.04	2.95	Insufficient Test Time		0.05	0.08	Room 1	Insufficient time				
112	Lead Paint	16-Jul-19	11:44:00	0.07	0.02	17.92	Negative	surface	0.07	0.03	Room 1	Frame bet	Wood	White	E	Intact
113	Lead Paint	16-Jul-19	11:45:04	5	0.19	18.31	Positive	surface	> 5.00	0.39	Room 1	Door	Wood	Red	S	Intact
114	Lead Paint	16-Jul-19	11:45:39	5	0.22	13.58	Positive	surface	> 5.00	0.45	Room 1	Dr Frame	Wood	Red	S	Intact
115	Lead Paint	16-Jul-19	11:48:07	0	0	21.2	Negative		0	0	Room 2	W wall	Plaster	White	N	Intact
116	Lead Paint	16-Jul-19	11:48:46	0	0	9.92	Negative		0	0	Room 2	W wall	Plaster	White	E	Intact
117	Lead Paint	16-Jul-19	11:49:14	0	0	11.14	Negative		0	0	Room 2	W wall	Plaster	White	S	Intact
118	Lead Paint	16-Jul-19	11:49:43	0	0	10.95	Negative		0	0	Room 2	W wall	Plaster	White	W	Intact
119	Lead Paint	16-Jul-19	11:50:54	5	0.16	20.35	Positive	surface	> 5.00	0.31	Room 2	Ww rail	Wood	Red	N	Intact
120	Lead Paint	16-Jul-19	11:51:35	1.12	0.04	21.61	Positive	surface	1.12	0.03	Room 2	Ww casing	Wood	White	N	Intact
121	Lead Paint	16-Jul-19	11:53:45	0.07	0.01	21.97	Negative	surface	0.07	0.02	Room 2	Door	Wood	Red	S	Intact
122	Lead Paint	16-Jul-19	11:54:28	0.14	0.02	10.88	Negative	surface	0.14	0.04	Room 2	Dr Frame	Wood	Red	S	Intact
123	Lead Paint	16-Jul-19	11:55:30	0	0.01	19.31	Insufficient Test Time		0	0.01	Open Area	Insufficient time				
124	Lead Paint	16-Jul-19	11:56:16	0	0	19.03	Negative		0	0	Open Area	W wall	Plaster	White	E	Intact
125	Lead Paint	16-Jul-19	11:56:52	0	0	19.43	Negative		0	0	Open Area	W wall	Plaster	White	S	Intact
126	Lead Paint	16-Jul-19	11:57:35	0.01	0.01	18.35	Negative		0.01	0.02	Open Area	W wall	Plaster	White	W	Intact
127	Lead Paint	16-Jul-19	11:58:23	1.33	0.05	21.14	Positive	surface	1.33	0.09	Open Area	Ww rail	Wood	Red	E	Intact
128	Lead Paint	16-Jul-19	12:00:02	5	0.15	15.5	Positive	surface	> 5.00	0.29	Open Area	Ww casing	Wood	White	E	Intact
129	Lead Paint	16-Jul-19	12:01:49	0.06	0.02	21.69	Negative	surface	0.06	0.03	Open Area	Ww casing	Wood	White	W	Intact
130	Lead Paint	16-Jul-19	12:08:33	0	0	11.39	Negative		0	0.01	Open Area	Ww rail	Wood	Brown	N	Intact
131	Lead Paint	16-Jul-19														

202	Lead Paint	16-Jul-19	13:51:20	5	0.21	17.9	Positive	surface	> 5.00	0.42	Hall	Ceiling	bea	Wood	White	n/a	Intact
203	Lead Paint	16-Jul-19	13:53:27	0.05	0.01	22.12	Negative	surface	0.05	0.03	Hall	Baseboard	Wood	White	S	Intact	
204	Lead Paint	16-Jul-19	13:54:48	0.09	0.01	22.34	Negative	surface	0.09	0.02	Hall	Door	Wood	Varnish	E	Intact	
205	Lead Paint	16-Jul-19	13:55:29	5	0.23	21.82	Positive	surface	> 5.00	0.46	Hall	Dr Frame	Wood	White	E	Intact	
206	Lead Paint	16-Jul-19	13:57:05	5	0.24	21.83	Positive	surface	> 5.00	0.48	Hall	Central do	Wood	White	n/a	Intact	
207	Lead Paint	16-Jul-19	13:58:36	5	0.17	22.86	Positive	surface	> 5.00	0.33	Hall	Wall	Wood	White	N	Intact	
208	Lead Paint	16-Jul-19	14:00:07	0.4	0.02	21.99	Negative	surface	0.4	0.04	Hall	Door	Wood	Varnish	W	Intact	
209	Lead Paint	16-Jul-19	14:00:48	5	0.25	15.33	Positive	surface	> 5.00	0.5	Hall	Dr Frame	Wood	White	W	Intact	
210	Lead Paint	16-Jul-19	14:02:15	5	0.2	21.3	Positive	surface	> 5.00	0.4	Hall	Dr Frame	Wood	White	S	Intact	
211	Lead Paint	16-Jul-19	14:03:06	5	0.19	16.19	Positive	surface	> 5.00	0.38	Hall	Door	Wood	White	S	Intact	
212	Lead Paint	16-Jul-19	14:09:21	0.01	0.02	22.81	Negative	surface	0.01	0.04	Bedroom	Wall	DW	Green	N	Intact	
213	Lead Paint	16-Jul-19	14:10:03	0	0	13.44	Negative	surface	0	0	Bedroom	Wall	DW	Green	E	Intact	
214	Lead Paint	16-Jul-19	14:10:33	0	0	11.25	Negative	surface	0	0	Bedroom	Wall	DW	Green	S	Intact	
215	Lead Paint	16-Jul-19	14:11:00	0	0.01	23.83	Negative	surface	0	0.01	Bedroom	Wall	DW	Green	W	Intact	
216	Lead Paint	16-Jul-19	14:11:51	5	0.25	22.32	Positive	surface	> 5.00	0.5	Bedroom	Baseboard	Wood	White	E	Intact	
217	Lead Paint	16-Jul-19	14:14:42	5	0.18	20.31	Positive	surface	> 5.00	0.35	Bedroom	Ceiling	Wood	White	n/a	Intact	
218	Lead Paint	16-Jul-19	14:16:48	5	0.3	21.44	Positive	surface	> 5.00	0.61	Bedroom	Sill	Wood	White	S	Intact	
219	Lead Paint	16-Jul-19	14:18:38	5	0.24	14.86	Positive	surface	> 5.00	0.47	Bedroom	Ww rail	Wood	White	W	Intact	
220	Lead Paint	16-Jul-19	14:19:10	5	0.33	12.62	Positive	surface	> 5.00	0.66	Bedroom	Ww casing	Wood	White	W	Intact	
221	Lead Paint	16-Jul-19	14:21:41	0	0	14.62	Negative	surface	0	0	Bedroom	Wall	DW	Blue	N	Intact	
222	Lead Paint	16-Jul-19	14:22:46	0	0	15.87	Negative	surface	0	0	Bathroom	Wall	DW	Blue	E	Intact	
223	Lead Paint	16-Jul-19	14:23:17	0	0	11.13	Negative	surface	0	0	Bathroom	Wall	DW	Blue	S	Intact	
224	Lead Paint	16-Jul-19	14:23:44	0	0	11.34	Negative	surface	0	0	Bathroom	Wall	DW	Blue	W	Intact	
225	Lead Paint	16-Jul-19	14:24:22	0.15	0.02	17.45	Negative	surface	0.15	0.04	Bathroom	Door	Wood	White	N	Intact	
226	Lead Paint	16-Jul-19	14:25:01	0.05	0.02	14.8	Negative	surface	0.05	0.03	Bathroom	Dr Frame	Wood	White	E	Intact	
227	Lead Paint	16-Jul-19	14:25:48	0	0	12.78	Negative	surface	0	0	Bathroom	Dr Frame	Wood	White	S	Intact	
228	Lead Paint	16-Jul-19	14:26:40	0	0	12.51	Negative	surface	0	0	Bathroom	Ceiling	Wood	White	n/a	Intact	
229	Lead Paint	16-Jul-19	14:28:08	0	0	18.08	Negative	surface	0	0	Office	Wall	DW	Blue	N	Intact	
230	Lead Paint	16-Jul-19	14:28:48	0	0	21.58	Negative	surface	0	0	Office	Wall	DW	Blue	E	Intact	
231	Lead Paint	16-Jul-19	14:29:34	0	0	13.37	Negative	surface	0	0	Office	Wall	DW	Blue	S	Intact	
232	Lead Paint	16-Jul-19	14:30:00	0	0	14.85	Negative	surface	0	0	Office	Wall	DW	Blue	W	Intact	
233	Lead Paint	16-Jul-19	14:30:45	5	0.21	24.17	Positive	surface	> 5.00	0.43	Office	Ceiling	Wood	White	n/a	Intact	
234	Lead Paint	16-Jul-19	14:32:46	0.12	0.14	21.68	Negative	surface	0.12	0.28	Office	Baseboard	Wood	White	W	Intact	
235	Lead Paint	16-Jul-19	14:34:09	2.09	0.08	16.52	Positive	surface	2.09	0.15	Office	Door	Wood	White	N	Intact	
236	Lead Paint	16-Jul-19	14:34:48	0	0	15.19	Negative	surface	0	0.01	Office	Dr Frame	Wood	White	N	Intact	
237	Lead Paint	16-Jul-19	14:36:25	0.03	0.03	21.21	Negative	surface	0.03	0.07	Office	Sill	Wood	White	W	Intact	
238	Lead Paint	16-Jul-19	14:37:18	0	0	17.99	Negative	surface	0	0	Office	Ww rail	Wood	White	S	Intact	
239	Lead Paint	16-Jul-19	14:38:18	0	0	14.87	Negative	surface	0	0	Office	Ww casing	Wood	White	S	Intact	
240	Lead Paint	16-Jul-19	14:42:45	0	0	11.43	Negative	surface	0	0	2nd Hall	Wall	DW	Brown	N	Intact	
241	Lead Paint	16-Jul-19	14:43:11	0	0	11.29	Negative	surface	0	0	2nd Hall	Wall	DW	Brown	E	Intact	
242	Lead Paint	16-Jul-19	14:43:39	0	0	12.23	Negative	surface	0	0	2nd Hall	Wall	DW	Brown	S	Intact	
243	Lead Paint	16-Jul-19	14:44:06	0	0.01	13.44	Negative	surface	0	0.02	2nd Hall	Wall	DW	Brown	W	Intact	
244	Lead Paint	16-Jul-19	14:44:58	0	0	12.22	Negative	surface	0	0	2nd Hall	Ceiling	DW	White	n/a	Intact	
245	Lead Paint	16-Jul-19	14:45:47	0.09	0.02	16.83	Negative	surface	0.09	0.04	2nd Hall	Baseboard	Wood	White	N	Intact	
246	Lead Paint	16-Jul-19	14:46:51	5	0.29	17.97	Positive	surface	> 5.00	0.59	2nd Hall	Stair rail	Wood	White	n/a	Intact	
247	Lead Paint	16-Jul-19	14:47:32	5	0.3	14.07	Positive	surface	> 5.00	0.59	2nd Hall	Stair rail	Wood	White	n/a	Intact	
248	Lead Paint	16-Jul-19	14:49:59	0.1	0.02	18.21	Negative	surface	0.1	0.04	2nd Hall	Dr Frame	Wood	White	N	Intact	
249	Lead Paint	16-Jul-19	14:50:48	5	0.33	17.58	Positive	surface	> 5.00	0.67	2nd Hall	Door	Wood	White	E	Intact	
250	Lead Paint	16-Jul-19	14:52:42	0.22	0.02	22.87	Negative	surface	0.22	0.05	2nd Hall	Sill	Wood	White	W	Intact	
251	Lead Paint	16-Jul-19	14:53:27	0.07	0.02	21.09	Negative	surface	0.07	0.03	2nd Hall	Ww casing	Wood	White	W	Intact	
252	Lead Paint	16-Jul-19	14:54:15	5	0.23	21.3	Positive	surface	> 5.00	0.46	2nd Hall	Door	Wood	White	S	Intact	
253	Lead Paint	16-Jul-19	14:55:55	5	0.25	15.47	Positive	surface	> 5.00	0.5	2nd Hall	Door	Wood	White	S	Intact	
254	Lead Paint	16-Jul-19	14:57:58	0	0	17.02	Negative	surface	0	0	Walk in Stc	Wall	Wood	White	N	Intact	
255	Lead Paint	16-Jul-19	14:58:32	0	0	12.37	Negative	surface	0	0	Walk in Stc	Wall	Wood	White	E	Intact	
256	Lead Paint	16-Jul-19	14:59:00	0.01	0.02	11.16	Negative	surface	0.01	0.04	Walk in Stc	Wall	Wood	White	S	Intact	
257	Lead Paint	16-Jul-19	14:59:34	0	0	11.13	Negative	surface	0	0	Walk in Stc	Wall	Wood	White	W	Intact	
258	Lead Paint	16-Jul-19	15:00:08	2.76	0.08	21.77	Positive	surface	2.76	0.15	Walk in Stc	Ww rail	Wood	White	S	Intact	
259	Lead Paint	16-Jul-19	15:00:55	2.29	0.07	22.44	Positive	surface	2.29	0.14	Walk in Stc	Ww casing	Wood	White	S	Intact	
260	Lead Paint	16-Jul-19	15:03:56	0.02	0.03	22.45	Negative	surface	0.02	0.06	Bathroom	Wall	DW	White	N	Intact	
261	Lead Paint	16-Jul-19	15:04:45	0	0.01	17.82	Negative	surface	0	0.02	Bathroom	Wall	DW	White	S	Intact	
262	Lead Paint	16-Jul-19	15:05:38	5	0.36	18.82	Positive	surface	> 5.00	0.72	Bathroom	Door	Wood	White	W	Intact	
263	Lead Paint	16-Jul-19	15:06:16	0.08	0.01	20.64	Negative	surface	0.08	0.03	Bathroom	Dr Frame	Wood	White	W	Intact	
264	Lead Paint	16-Jul-19	15:08:50	0	0	18.78	Negative	surface	0	0	S. Bed Rm	Wall	Plaster	White	N	Intact	
265	Lead Paint	16-Jul-19	15:09:32	0	0	19.86	Negative	surface	0	0	S. Bed Rm	Wall	Plaster	White	S	Intact	
266	Lead Paint	16-Jul-19	15:10:19	5	0.35	17.13	Positive	surface	> 5.00	0.69	S. Bed Rm	Door	Wood	White	N	Intact	
267	Lead Paint	16-Jul-19	15:10:57	5	0.47	13.87	Positive	surface	> 5.00	0.94	S. Bed Rm	Dr Frame	Wood	White	N	Intact	
268	Lead Paint	16-Jul-19	15:12:49	5	0.36	24.45	Positive	surface	> 5.00	0.72	S. Bed Rm	Baseboard	Wood	White	N	Intact	
269	Lead Paint	16-Jul-19	15:14:55	0	0	15.65	Negative	surface	0	0	S. Bed Rm	Ceiling	Plaster	White	n/a	Intact	
270	Lead Paint	16-Jul-19	15:17:06	0	0.01	22.5	Negative	surface	0	0.01	S. Bed Rm	Wall	Wood	White	N	Intact	
271	Lead Paint	16-Jul-19	15:17:56	0.03	0.02	21.51	Negative	surface	0.03	0.04	S. Bed Rm	Wall	Wood	White	E	Intact	
272	Lead Paint	16-Jul-19	15:18:42	0.09	0.02	20.24	Negative	surface	0.09	0.05	S. Bed Rm	Wall	Wood	White	S	Intact	
273	Lead Paint	16-Jul-19	15:19:24	0.02	0.02	16.97	Negative	surface	0.02	0.03	S. Bed Rm	Wall	Wood	White	W	Intact	
274	Lead Paint	16-Jul-19	15:26:59	4.81	0.16	20.6	Positive	surface	> 4.81	0.31	S. Bed Rm	Ww Rail	Wood	White	S	Intact	
275	Lead Paint	16-Jul-19	15:28:03	4.51	0.16	16.55	Positive	surface	> 4.51	0.33	S. Bed Rm	Ww casing	Wood	White	S	Intact	
276	Lead Paint	16-Jul-19	15:30:21	3.36	0.19	22.91	Positive	surface	> 3.36	0.37	S. Bedroom	Ww rail	Wood	White	S	Intact	
277	Lead Paint	16-Jul-19	15:31:51	5	0.42	15.11	Positive	surface	> 5.00	0.83	S. Bedroom	Ww casing	Wood	White	S	Intact	
278	Lead Paint	16-Jul-19	15:33:11	0	0	17.03	Negative	surface	0	0	N. Bed Rm	Wall	DW	White	E	Intact	
279	Lead Paint	16-Jul-19	15:33:45	0	0	14.67	Negative	surface	0	0	N. Bed Rm	Wall	DW	White	W	Intact	
280	Lead Paint	16-Jul-19	15:34:29	0.06	0.01	21.95	Negative	surface	0.06	0.02	N. Bed Rm	Baseboard	Wood	White	N	Intact	
281	Lead Paint	16-Jul-19	15:35:39	0	0	17.11	Negative	surface	0	0	N. Bed Rm	Ceiling	DW	White	n/a	Intact	
282	Lead Paint	16-Jul-19	15:36:59	0	0	16.37	Negative	surface	0	0.01	N. Bed Rm	Door	Wood	White	S	Intact	
283	Lead Paint	16-Jul-19	15:37:33	0.18	0.13	20.62	Negative	surface	0.18	0.26	N. Bed Rm	Dr Frame	Wood	White	S	Intact	
284	Lead Paint	16-Jul-19	15:38:28	0.08	0.1	21.06	Negative	surface	0.08	0.19	N. Bed Rm	Door	Wood	White	E	Intact	
285	Lead Paint	16-Jul-19	15:39:08	0	0	11.54	Negative	surface	0	0	N. Bed Rm	Dr Frame	Wood	White	W	Intact	
286	Lead Paint	16-Jul-19	15:40:07	0	0.01	21.72	Negative	surface	0	0.02	N. Bed Rm	Sill	Wood	White	N	Intact	
287	Lead Paint	16-Jul-19	15:40:57	0.91	0.04	22.87	Negative	surface	0.91	0.08	N. Bed Rm	Ww rail	Wood	White	N	Intact	
288	Lead Paint	16-Jul-19	15:42:19	0.09	0.03	15.81	Negative	surface	0.09	0.05	Closet	Wall	Wood	White	N	Intact	
289	Lead Paint	16-Jul-19	15:42:52	0.02	0.02	15.02	Negative	surface	0.02	0.04	Closet	Wall	Wood	White	E	Intact	
290	Lead Paint	16-Jul-19	15:43:27	0	0.01	17.07	Negative	surface	0	0.03	Closet	Wall	Wood	White	S	Intact	
291	Lead Paint	16-Jul-19	15:44:02	0.05	0.05	15.05	Negative	surface	0.05	0.1	Closet	Wall	Wood	White	W	Intact	
292	Lead Paint	16-Jul-19	15:44:43	4.77	0.45	3.31	Positive	surface	> 4.77	0.9	Closet	Ww rail	Wood	White	N	Intact	
293	Lead Paint	16-Jul-19	15:44:54	5	0.26	11.26											

303	Lead Paint	16-Jul-19	16:01:03	1.11	0.05	21.68	Positive	surface	1.11	0.1							Roof Ext	Ww casing	Wood	Green	S	Poor
304	Lead Paint	16-Jul-19	16:02:25	0.95	0.06	10.79	Insufficient	surface	0.95	0.12							Roof Ext	Insufficient time				
305	Lead Paint	16-Jul-19	16:03:28	0.82	0.04	22.7	Negative	surface	0.82	0.09							Roof Ext	Wall	Wood	Yellow	S	Poor
306	Lead Paint	16-Jul-19	16:04:20	0.29	0.03	22.28	Negative	surface	0.29	0.06							Roof Ext	Wall	Wood	Yellow	S	Poor
307	Lead Paint	16-Jul-19	16:05:06	0.52	0.03	22.03	Negative	surface	0.52	0.06							Roof Ext	Ww rail	Wood	Green	E	Poor
308	Lead Paint	16-Jul-19	16:06:10	1.25	0.07	22.91	Positive	surface	1.25	0.14							Roof Ext	Ww casing	Wood	Green	E	Poor
309	Lead Paint	16-Jul-19	16:07:41	0.92	0.04	22.86	Negative	surface	0.92	0.07							Roof Ext	Shutter	Wood	Green	N	Poor
310	Lead Paint	16-Jul-19	16:18:19	0	0	16.11	Negative		0	0							Garage	Wall	Stucco	White	N	Intact
311	Lead Paint	16-Jul-19	16:18:53	0	0	17.17	Negative		0	0							Garage	Wall	Stucco	White	E	Intact
312	Lead Paint	16-Jul-19	16:19:28	0	0	23.71	Negative		0	0							Garage	Wall	Stucco	White	S	Intact
313	Lead Paint	16-Jul-19	16:20:16	0	0	13.77	Negative		0	0							Garage	Wall	Stucco	White	W	Intact
314	Lead Paint	16-Jul-19	16:20:49	5	0.14	20.53	Positive	surface	> 5.00	0.28							Garage	Ww rail	Wood	Red	S	Intact
315	Lead Paint	16-Jul-19	16:21:33	0.07	0.08	23.17	Negative		0.07	0.16							Garage	Ww casing	Wood	Red	S	Intact
316	Lead Paint	16-Jul-19	16:23:03	5	0.3	11.13	Positive	surface	> 5.00	0.6							Garage	Door	Wood	Red	S	Intact
317	Lead Paint	16-Jul-19	16:23:55	0.07	0.08	22.93	Negative		0.07	0.15							Garage	Dr Frame	Wood	Red	S	Intact
318	Lead Paint	16-Jul-19	16:25:32	3.75	0.11	14.57	Positive	surface	3.75	0.22							Garage	Ww rail	Wood	Red	S	Intact
319	Lead Paint	16-Jul-19	16:27:54	0	0	13.66	Negative		0	0							Ext Garage	Wall	Stucco	White	N	Intact
320	Lead Paint	16-Jul-19	16:28:26	0	0	19.3	Negative		0	0							Ext Garage	Wall	Stucco	White	E	Intact
321	Lead Paint	16-Jul-19	16:29:14	0	0	14.91	Negative		0	0							Ext Garage	Wall	Stucco	White	S	Intact
322	Lead Paint	16-Jul-19	16:29:56	0	0	5.39	Negative		0	0							Ext Garage	Wall	Stucco	White	W	Intact
323	Lead Paint	16-Jul-19	16:30:41	0.03	0.01	21.56	Negative	surface	0.03	0.02							Ext Garage	Sill	Wood			Intact
324	Lead Paint	16-Jul-19	16:31:36	0	0	3.14	Insufficient	Test Time	0	0.01							Ext Garage	Insufficient time				
325	Lead Paint	16-Jul-19	16:32:01	0.01	0.02	13.12	Negative		0.01	0.04							Ext Garage	Ww casing	Wood	Red	W	Intact
326	Lead Paint	16-Jul-19	16:32:54	3.48	0.13	16.48	Positive	surface	> 3.48	0.25							Ext Garage	Door	Wood	Red	S	Intact
327	Lead Paint	16-Jul-19	16:34:20	3.33	0.09	22.34	Positive	surface	3.33	0.19							Ext Garage	Door	Wood	Red	N	Intact
328	Lead Paint	16-Jul-19	16:51:22	0	0	22.59	Negative		0	0								Negative Calibration				
329	Lead Paint	16-Jul-19	16:52:09	0.96	0.03	24.03	Negative	surface	0.96	0.07								Positive Calibration				

Reading	Mode	Date	Time	Pb	Pb +/-	Pb Pass	LiveTime	Pass Fail	Se	Pass/Fail	Match1	MNI	PD	Facility	Nar	Building	Room/Area	Component	Substrate	Color	Wall	Condition
1	Standardize	17-Jul-19	8:35:25				21.7			0		0	0						Standardization			
2	Standardize	17-Jul-19	8:36:19				21.7			0		0	0						Standardization			
3	Standardize	17-Jul-19	8:36:36				47.96	PASS		-0.02004	0.019833	182							Standardization			
4	Lead Paint	17-Jul-19	8:38:08	0	0		15.07	Negative				0	0						Negative Calibration			
5	Lead Paint	17-Jul-19	8:40:13	1.05	0.02		21.66	Positive			1.05	0.04							Positive Calibration			
6	Lead Paint	17-Jul-19	8:41:53	0	0		19.74	Negative			0	0	0		01-109	JBV	Exterior	Wall	Plaster	Yellow	W	Intact
7	Lead Paint	17-Jul-19	8:42:40	1.32	0.05		22	Positive	surface		1.32	0.09					Exterior	Ww casing	Wood	Blue	W	Poor
8	Lead Paint	17-Jul-19	8:43:28	1.17	0.05		18.89	Positive	surface		1.17	0.1					Exterior	Bumt WW	Wood	White	W	Poor
9	Lead Paint	17-Jul-19	8:46:30	0	0		12.69	Negative			0	0	0				Exterior	Ww rail	Wood	White	W	Intact
10	Lead Paint	17-Jul-19	8:47:02	3.29	0.13		18.31	Positive	surface		3.29	0.25					Exterior	Ww casing	Wood	White	W	Intact
11	Lead Paint	17-Jul-19	8:48:41	5	0.41		14.76	Positive	surface		> 5.00	0.82					Back porch	Ceiling	Wood	Blue	n/a	Intact
12	Lead Paint	17-Jul-19	8:50:33	0	0		13.76	Negative			0	0	0				Back porch	Wall	Plaster	Yellow	W	Intact
13	Lead Paint	17-Jul-19	8:51:09	5	0.27		15.11	Positive	surface		> 5.00	0.53					Back porch	Column	Wood	White	W	Intact
14	Lead Paint	17-Jul-19	8:52:31	0.3	0.02		17.63	Negative	surface		0.3	0.05					Back porch	Handrail	Wood	White	W	Intact
15	Lead Paint	17-Jul-19	8:53:19	4.41	0.17		20.92	Positive	surface		> 4.41	0.34					Back porch	Baluster	Wood	White	W	Intact
16	Lead Paint	17-Jul-19	8:54:50	1.91	0.1		14.1	Positive	surface		1.91	0.19					Back porch	Door	Wood	Green	W	Intact
17	Lead Paint	17-Jul-19	8:55:56	0.1	0.02		19.47	Negative	surface		0.1	0.04					Back porch	Dr Frame	Wood	Blue	W	Intact
18	Lead Paint	17-Jul-19	8:56:38	1.4	0.07		18.73	Positive	surface		1.4	0.14					Back porch	Shutter	Wood	Green	W	Intact
19	Lead Paint	17-Jul-19	8:57:54	0.93	0.04		21.03	Negative	surface		0.93	0.08					Back porch	Sill	Wood	Blue	W	Intact
20	Lead Paint	17-Jul-19	8:58:43	5	0.38		14.94	Positive	surface		> 5.00	0.75					Back porch	Ww Rail	Wood	Blue	W	Intact
21	Lead Paint	17-Jul-19	8:59:22	5	0.34		13.87	Positive	surface		> 5.00	0.69					Back porch	Ww Casing	Wood	Blue	W	Intact
22	Lead Paint	17-Jul-19	9:01:10	5	0.46		11.12	Positive	surface		> 5.00	0.92					Back porch	Baseboard	Wood	Green	W	Intact
23	Lead Paint	17-Jul-19	9:03:06	1.25	0.05		20.11	Positive	surface		1.25	0.09					Back porch	Door	Wood	Green	W	Intact
24	Lead Paint	17-Jul-19	9:03:51	0.83	0.04		21.46	Negative	surface		0.83	0.07					Back porch	Dr Frame	Wood	DK Green	W	Intact
25	Lead Paint	17-Jul-19	9:05:40	0.1	0.02		17.88	Negative	surface		0.1	0.04					Back porch	Edge of po	Wood	Blue	W	Intact
26	Lead Paint	17-Jul-19	9:06:34	0.07	0.01		22.56	Negative	surface		0.07	0.02					Back porch	Edge of po	Wood	Green	W	Intact
27	Lead Paint	17-Jul-19	9:07:34	1.51	0.08		16.58	Positive	surface		1.51	0.16					Exterior	Door	Wood	Green	W	Intact
28	Lead Paint	17-Jul-19	9:08:11	0.96	0.04		22.46	Negative	surface		0.96	0.08					Exterior	Dr Frame	Wood	Blue	W	Intact
29	Lead Paint	17-Jul-19	9:10:50	0	0		16.53	Negative			0	0	0				Exterior	Ww rail	Wood	Blue	W	Intact
30	Lead Paint	17-Jul-19	9:11:26	5	0.22		19.4	Positive	surface		> 5.00	0.44					Exterior	Ww casing	Wood	Green	W	Intact
31	Lead Paint	17-Jul-19	9:13:31	0	0.01		12.57	Insufficient Test Time			0	0.02					Exterior	Insufficient Time				
32	Lead Paint	17-Jul-19	9:14:04	0	0		19.46	Negative			0	0	0				Exterior	Wall	Brick	Yellow	N	Intact
33	Lead Paint	17-Jul-19	9:14:58	0	0		23.09	Negative			0	0	0				Exterior	Dr Frame	Wood	Blue	N	Intact
34	Lead Paint	17-Jul-19	9:15:55	0.13	0.16		20.59	Negative			0.13	0.31					Exterior	Door	Wood	Blue	N	Intact
35	Lead Paint	17-Jul-19	9:17:09	0	0		22.34	Negative			0	0	0				Exterior	Railing	Wood	Green	N	Intact
36	Lead Paint	17-Jul-19	9:17:54	0.02	0.05		18.29	Negative			0.02	0.09					Exterior	Railing	Wood	Green	N	Intact
37	Lead Paint	17-Jul-19	9:18:57	0	0		21.24	Negative			0	0	0				Exterior	Ww casing	Wood	Blue	N	Intact
38	Lead Paint	17-Jul-19	9:21:53	1	0.01		6.91	Positive			> 1.00	0.01					Front Porch	Wall	Plaster	Yellow	N	Intact
39	Lead Paint	17-Jul-19	9:23:16	1.72	0.06		22.38	Positive	surface		1.72	0.12					Front Porch	Shutter	Wood	Green	E	Intact
40	Lead Paint	17-Jul-19	9:24:46	3.01	0.16		20.44	Positive	surface		> 3.01	0.32					Front Porch	Ww rail	Wood	Blue	E	Intact
41	Lead Paint	17-Jul-19	9:26:09	4.24	0.17		23.38	Positive	surface		4.24	0.35					Front Porch	Ceiling	Wood	Blue	E	Intact
42	Lead Paint	17-Jul-19	9:27:59	2.99	0.24		15.98	Positive	surface		> 2.99	0.48					Front Porch	Column	Wood	White	E	Intact
43	Lead Paint	17-Jul-19	9:30:07	0.08	0.02		17.87	Negative	surface		0.08	0.04					Front Porch	Railing	Wood	Green	E	Intact
44	Lead Paint	17-Jul-19	9:30:44	3.64	0.2		19.69	Positive	surface		> 3.64	0.4					Front Porch	Railing	Wood	White	E	Fair
45	Lead Paint	17-Jul-19	9:32:32	2.37	0.13		23.85	Positive	surface		2.37	0.26					Front Porch	Dr Frame	Wood	White	E	Intact
46	Lead Paint	17-Jul-19	9:33:58	1.86	0.08		21.15	Positive	surface		1.86	0.16					Front Porch	Shutter	Wood	Green	E	Intact
47	Lead Paint	17-Jul-19	9:35:14	2.99	0.13		22.67	Positive	surface		> 2.99	0.26					Front Porch	Baseboard	Wood	Green	E	Intact
48	Lead Paint	17-Jul-19	9:36:35	1.18	0.05		22.15	Positive	surface		1.18	0.11					Front Porch	Sill	Wood	Blue	E	Intact
49	Lead Paint	17-Jul-19	9:39:04	2.29	0.13		22.66	Positive	surface		2.29	0.26					Front Porch	Ww rail	Wood	Blue	E	Intact
50	Lead Paint	17-Jul-19	9:39:52	3.26	0.17		23.07	Positive	surface		> 3.26	0.33					Front Porch	Ww casing	Wood	Blue	E	Intact
51	Lead Paint	17-Jul-19	9:41:46	4.08	0.18		22.66	Positive	surface		> 4.08	0.36					Front Porch	Door	Wood	Green	S	Intact
52	Lead Paint	17-Jul-19	9:42:32	2.45	0.43		2.04	Insufficient surface			2.45	0.87					Front Porch	Insufficient Time				
53	Lead Paint	17-Jul-19	9:42:52	2.34	0.14		16.55	Positive	surface		2.34	0.29					Front Porch	Dr Frame	Wood	Blue	S	Intact
54	Lead Paint	17-Jul-19	9:45:12	0.03	0.07		5.58	Negative			0.03	0.14					Exterior	Lower wall	Plaster	Yellow	S	Fair
55	Lead Paint	17-Jul-19	9:51:34	0	0		17.24	Negative			0	0	0				Exterior	Lower wall	Plaster	Yellow	E	Fair
56	Lead Paint	17-Jul-19	9:52:09	1.56	0.12		18.62	Positive	surface		1.56	0.24					Exterior	Molding	Wood	Green	E	Intact
57	Lead Paint	17-Jul-19	9:53:02	0.01	0.03		13.86	Negative			0.01	0.07					Exterior	Molding	Wood	Blue	E	Intact
58	Lead Paint	17-Jul-19	9:53:55	5	0.27		21.98	Positive	surface		> 5.00	0.55					Exterior	Ww rail	Wood	Green	E	Fair
59	Lead Paint	17-Jul-19	9:54:38	1.95	0.12		16.95	Positive	surface		> 1.95	0.24					Exterior	Ww casing	Wood	Green	E	Fair
60	Lead Paint	17-Jul-19	9:56:49	0	0		16.31	Negative			0	0	0				Exterior	Lower Wall	Plaster	Yellow	S	Fair
61	Lead Paint	17-Jul-19	9:58:00	0	0		17.24	Negative			0	0	0				Exterior	Lower wall	Plaster	Yellow	S	Fair
62	Lead Paint	17-Jul-19	10:14:30	0	0		14.84	Negative			0	0	0		01-111	Unden	Kitchen	Wall	Plaster	White	N	Intact
63	Lead Paint	17-Jul-19	10:15:00	0	0		12.24	Negative			0	0	0				Kitchen	Wall	Plaster	White	E	Intact
64	Lead Paint	17-Jul-19	10:15:54	0	0		11.41	Negative			0	0	0				Kitchen	Wall	Plaster	White	S	Intact
65	Lead Paint	17-Jul-19	10:16:08	0	0		17.27	Negative			0	0	0				Kitchen	Wall	Plaster	White	W	Intact
66	Lead Paint	17-Jul-19	10:17:06	0	0		15.1	Negative			0	0	0				Kitchen	Ceiling	Plaster	White	n/a	Intact
67	Lead Paint	17-Jul-19	10:17:59	0.04	0.02		16.09	Negative	surface		0.04	0.04					Kitchen	Cabinet	Wood	Green	W	Intact
68	Lead Paint	17-Jul-19	10:18:35	0.03	0.02		11.98	Negative			0.03	0.05					Kitchen	Cabinet	Wood	Green	N	Intact
69	Lead Paint	17-Jul-19	10:19:06	0.01	0.01		12.75	Negative			0.01	0.03					Kitchen	Door	Wood	Green	N	Intact
70	Lead Paint	17-Jul-19	10:20:15	5	0.55		24.69	Positive	surface		> 5.00	1.09					Kitchen	Doorway	Wood	Green	W	Intact
71	Lead Paint	17-Jul-19	10:21:48	0.1	0.03		14.88	Negative	surface		0.1	0.05					Kitchen	Corner cab	Wood	Green	E	Intact
72	Lead Paint	17-Jul-19	10:22:21	0.03	0.02		14.88	Negative			0.03	0.05					Kitchen	Door	Wood	Green	E	Intact
73	Lead Paint	17-Jul-19	10:22:54	3.08	0.16		16.71	Positive	surface		3.08	0.33					Kitchen	Dr Frame	Wood	Green	E	Intact
74	Lead Paint	17-Jul-19	10:24:23	0.06	0.02		15.13	Negative	surface		0.06	0.04					Kitchen	Sill	Wood	Green	N	Intact
75	Lead Paint	17-Jul-19	10:25:02	1.18	0.06		22.05	Positive	surface		1.18	0.12					Kitchen	Ww rail	Wood	Green	N	Intact
76	Lead Paint	17-Jul-19	10:25:54	5	0.37		22.23	Positive	surface		> 5.00	0.74					Kitchen	Ww casing	Wood	Green	N	Intact
77	Lead Paint	17-Jul-19	10:27:43	0.36	0.03		21.46	Negative	surface		0.36	0.06					Kitchen	Door	Wood	Green	S	Intact
78	Lead																					

101	Lead Paint	17-Jul-19	10:52:51	0	0.01	13.21	Negative		0	0.02	Art Room	Dr Frame	Wood	Gray	S	Intact
102	Lead Paint	17-Jul-19	10:53:26	0.09	0.05	15.45	Negative	surface	0.09	0.09	Art Room	Door	Wood	Gray	N	Intact
103	Lead Paint	17-Jul-19	10:54:00	0.01	0.01	13.99	Negative		0.01	0.03	Art Room	Dr Frame	Wood	Gray	N	Intact
104	Lead Paint	17-Jul-19	10:54:37	0	0	17.09	Negative		0	0	Hall	Wall	Plaster	White	N	Intact
105	Lead Paint	17-Jul-19	10:55:20	0	0	15.93	Negative		0	0	Hall	Wall	Plaster	White	S	Intact
106	Lead Paint	17-Jul-19	10:56:20	0	0	14.9	Negative		0	0	Hall	Ceiling	Plaster	White	n/a	Intact
107	Lead Paint	17-Jul-19	10:57:22	0.03	0.01	16.42	Negative	surface	0.03	0.02	Hall	Wall	Plaster	White	W	Intact
108	Lead Paint	17-Jul-19	10:58:22	0.02	0.01	16.35	Negative		0.02	0.03	Hall	Baseboard	Wood	Green	N	Intact
109	Lead Paint	17-Jul-19	10:58:55	5	0.54	13.87	Positive	surface	> 5.00	1.09	Hall	Dr Frame	Wood	Green	E	Intact
110	Lead Paint	17-Jul-19	11:00:27	0.03	0.02	22.5	Negative		0.03	0.03	Hall	Door	Wood	Green	W	Intact
111	Lead Paint	17-Jul-19	11:01:09	0	0.01	16.17	Negative		0	0.01	Hall	Dr Frame	Wood	Green	W	Intact
112	Lead Paint	17-Jul-19	11:01:43	0.01	0.01	13.96	Negative		0.01	0.03	Hall	Dr Frame	Wood	Green	S	Intact
113	Lead Paint	17-Jul-19	11:02:15	0.01	0.01	16.34	Negative		0.01	0.01	Hall	Door	Wood	Green	N	Intact
114	Lead Paint	17-Jul-19	11:03:31	0	0	13.86	Negative		0	0	Game Rm	Wall	Plaster	White	N	Intact
115	Lead Paint	17-Jul-19	11:03:59	0	0	12.62	Negative		0	0	Game Rm	Wall	Plaster	White	E	Intact
116	Lead Paint	17-Jul-19	11:04:30	0	0	11.39	Negative		0	0	Game Rm	Wall	Plaster	White	S	Intact
117	Lead Paint	17-Jul-19	11:05:00	0	0	16.87	Negative		0	0	Game Rm	Wall	Plaster	White	W	Intact
118	Lead Paint	17-Jul-19	11:05:58	5	0.31	11.31	Positive	surface	> 5.00	0.62	Game Rm	Ceiling	Wood	Brown	n/a	Intact
119	Lead Paint	17-Jul-19	11:08:10	0.04	0.02	16.07	Negative		0.04	0.05	Game Rm	Baseboard	Wood	Green	S	Intact
120	Lead Paint	17-Jul-19	11:09:34	0.05	0.02	17.68	Negative	surface	0.05	0.03	Game Rm	Sill	Wood	Green	E	Intact
121	Lead Paint	17-Jul-19	11:10:14	0.02	0.02	14.04	Negative		0.02	0.03	Game Rm	Ww casing	Wood	Green	E	Intact
122	Lead Paint	17-Jul-19	11:10:49	5	0.59	12.44	Positive	surface	> 5.00	1.17	Game Rm	Ww rail	Wood	Green	E	Intact
123	Lead Paint	17-Jul-19	11:12:24	0.03	0.02	13.01	Negative		0.03	0.04	Game Rm	Door	Wood	Green	W	Intact
124	Lead Paint	17-Jul-19	11:13:01	0.02	0.02	12.59	Negative		0.02	0.03	Game Rm	Dr Frame	Wood	Green	W	Intact
125	Lead Paint	17-Jul-19	11:18:24	0	0	20.76	Negative		0	0	Gift Shop	Hall	Plaster	White	N	Intact
126	Lead Paint	17-Jul-19	11:19:03	0	0	12.26	Negative		0	0	Gift Shop	Wall	Plaster	White	E	Intact
127	Lead Paint	17-Jul-19	11:19:37	0	0	14.6	Negative		0	0	Gift Shop	Wall	Plaster	White	S	Intact
128	Lead Paint	17-Jul-19	11:20:10	0	0	11.33	Negative		0	0	Gift Shop	Wall	Plaster	White	W	Intact
129	Lead Paint	17-Jul-19	11:21:01	5	0.27	8.61	Positive	surface	> 5.00	0.54	Gift Shop	Ceiling	Wood	Green	n/a	Intact
130	Lead Paint	17-Jul-19	11:22:47	0.03	0.02	13.98	Negative		0.03	0.04	Gift Shop	Baseboard	Wood	Green	N	Intact
131	Lead Paint	17-Jul-19	11:23:52	0.04	0.02	16.27	Negative	surface	0.04	0.03	Gift Shop	Sill	Wood	Green	W	Intact
132	Lead Paint	17-Jul-19	11:24:43	0.02	0.01	14.74	Negative		0.02	0.03	Gift Shop	Ww casing	Wood	Green	W	Intact
133	Lead Paint	17-Jul-19	11:27:00	5	0.42	17	Positive	surface	> 5.00	0.84	Gift Shop	Ww rail	Wood	Green	W	Intact
134	Lead Paint	17-Jul-19	11:28:44	0	0	15.96	Negative		0	0.01	Gift Shop	Heater	Metal	Green	W	Intact
135	Lead Paint	17-Jul-19	11:29:43	0.03	0.02	18.64	Negative		0.03	0.04	Gift Shop	Doorway	Wood	Green	S	Intact
136	Lead Paint	17-Jul-19	11:31:00	0	0	17.87	Negative		0	0	Classroom	Wall	Plaster	White	N	Intact
137	Lead Paint	17-Jul-19	11:31:46	0	0	11.33	Negative		0	0	Classroom	Wall	Plaster	White	E	Intact
138	Lead Paint	17-Jul-19	11:32:14	0	0	10.01	Negative		0	0	Classroom	Wall	Plaster	White	S	Intact
139	Lead Paint	17-Jul-19	11:32:36	0	0	18.2	Negative		0	0	Classroom	Wall	Plaster	White	W	Intact
140	Lead Paint	17-Jul-19	11:33:23	0	0	14.61	Negative		0	0	Classroom	Ceiling	Plaster	White	n/a	Intact
141	Lead Paint	17-Jul-19	11:34:08	0.02	0.02	13.1	Negative		0.02	0.04	Classroom	Baseboard	Wood	White	S	Intact
142	Lead Paint	17-Jul-19	11:34:46	0	0	23.65	Negative		0	0.01	Classroom	Heater	Metal	White	S	Intact
143	Lead Paint	17-Jul-19	11:35:30	0.02	0.01	15.39	Negative		0.02	0.02	Classroom	Sill	Wood	White	S	Intact
144	Lead Paint	17-Jul-19	11:36:02	0.01	0.01	18.68	Negative		0.01	0.02	Classroom	Ww casing	Wood	White	W	Intact
145	Lead Paint	17-Jul-19	11:36:44	5	0.6	11.76	Positive	surface	> 5.00	1.2	Classroom	Ww rail	Wood	White	W	Intact
146	Lead Paint	17-Jul-19	11:38:24	5	0.41	23.45	Positive	surface	> 5.00	0.82	Classroom	Door	Wood	White	E	Intact
147	Lead Paint	17-Jul-19	11:39:14	0	0	12.05	Negative		0	0	Classroom	Dr Frame	Wood	White	E	Intact
148	Lead Paint	17-Jul-19	11:41:13	0	0.01	13.77	Negative		0	0.03	Classroom	Door	Wood	White	E	Intact
149	Lead Paint	17-Jul-19	11:41:42	0.04	0.03	14.02	Negative		0.04	0.06	Classroom	Dr Frame	Wood	White	E	Intact
150	Lead Paint	17-Jul-19	11:51:26	5	0.21	17.91	Positive	surface	> 5.00	0.41	Bsmt Gard	Door	Wood	White	S	Intact
151	Lead Paint	17-Jul-19	11:52:56	0	0.01	10.99	Negative		0	0.02	Bsmt Gard	Wall	Plaster	White	N	Intact
152	Lead Paint	17-Jul-19	11:53:23	0	0	21.69	Negative		0	0	Bsmt Gard	Wall	Plaster	White	E	Intact
153	Lead Paint	17-Jul-19	11:54:06	0	0	12.01	Negative		0	0	Bsmt Gard	Wall	Plaster	White	W	Intact
154	Lead Paint	17-Jul-19	11:55:03	0.04	0.02	18.77	Negative	surface	0.04	0.04	Bsmt Hatch	Door	Wood	White	S	Intact
155	Lead Paint	17-Jul-19	11:56:57	2.17	0.09	13.81	Positive	surface	2.17	0.17	Stairs	Stairs	Wood	Gray	n/a	Fair
156	Lead Paint	17-Jul-19	11:58:20	1	0.01	5.67	Positive		> 1.00	0.02	Stairs	Wall	Plaster	White	W	Intact
157	Lead Paint	17-Jul-19	11:59:15	0	0	23.85	Negative		0	0	Stairs	Toilet	Ceramic	White	B	Intact
158	Lead Paint	17-Jul-19	12:01:34	0	0	11.44	Negative		0	0	Stairs	Re-do 157				
159	Lead Paint	17-Jul-19	12:01:57	0	0	14.96	Negative		0	0	N. Office	Wall	Plaster	White	N	Intact
160	Lead Paint	17-Jul-19	12:02:39	0	0	11.26	Negative		0	0	N. Office	Wall	Plaster	White	E	Intact
161	Lead Paint	17-Jul-19	12:03:05	0	0	11.16	Negative		0	0	N. Office	Wall	Plaster	White	S	Intact
162	Lead Paint	17-Jul-19	12:04:01	0	0	14.99	Negative		0	0	N. Office	Wall	Plaster	White	W	Intact
163	Lead Paint	17-Jul-19	12:04:54	0	0	11.75	Negative		0	0	N. Office	Ceiling	Plaster	White	n/a	Intact
164	Lead Paint	17-Jul-19	12:06:08	0.01	0.01	12.65	Negative		0.01	0.03	N. Office	Sill	Wood	Blue	W	Intact
165	Lead Paint	17-Jul-19	12:06:47	0.01	0.01	17.17	Negative		0.01	0.03	N. Office	Ww casing	Wood	Blue	N	Intact
166	Lead Paint	17-Jul-19	12:07:21	5	0.47	13.63	Positive	surface	> 5.00	0.94	N. Office	Ww rail	Wood	Blue	N	Intact
167	Lead Paint	17-Jul-19	12:09:53	0	0	11.76	Negative		0	0.01	N. Office	Door	Wood	Blue	S	Intact
168	Lead Paint	17-Jul-19	12:11:16	0	0.01	17.02	Insufficient Test Time		0	0.01	2nd Bath	Insufficient Time				
169	Lead Paint	17-Jul-19	12:12:30	0	0	12.2	Negative		0	0	2nd Bath	Wall	Plaster	Blue	N	Intact
170	Lead Paint	17-Jul-19	12:12:57	1	0.01	11.41	Positive		> 1.00	0.01	2nd Bath	Wall	Plaster	Blue	E	Intact
171	Lead Paint	17-Jul-19	12:14:44	0	0	17.24	Negative		0	0	2nd Bath	Wall	Plaster	Blue	S	Intact
172	Lead Paint	17-Jul-19	12:15:17	0	0.01	10.3	Insufficient Test Time		0	0.03	2nd Bath	Insufficient Time				
173	Lead Paint	17-Jul-19	12:16:03	1	0.01	4.52	Positive		> 1.00	0.01	2nd Bath	Wall	Plaster	Blue	W	Intact
174	Lead Paint	17-Jul-19	12:17:31	0	0	17.14	Negative		0	0.01	2nd Bath	Door	Wood	White	E	Intact
175	Lead Paint	17-Jul-19	12:18:04	0	0	18.24	Negative		0	0	2nd Bath	Dr Frame	Wood	White	E	Intact
176	Lead Paint	17-Jul-19	12:19:04	0	0	14.76	Negative		0	0	Hall	Wall	Plaster	White	N	Intact
177	Lead Paint	17-Jul-19	12:19:35	0	0	13.86	Negative		0	0	Hall	Wall	Plaster	White	E	Intact
178	Lead Paint	17-Jul-19	12:20:05	0	0	18.22	Negative		0	0	Hall	Wall	Plaster	White	S	Intact
179	Lead Paint	17-Jul-19	12:20:39	0	0	14.99	Negative		0	0	Hall	Wall	Plaster	White	W	Intact
180	Lead Paint	17-Jul-19	12:21:27	0	0	10.37	Negative		0	0	Hall	Ceiling	Plaster	White	n/a	Intact
181	Lead Paint	17-Jul-19	12:21:58	0.04	0.08	12.74	Negative		0.04	0.17	Hall	Baseboard	Wood	White	W	Intact
182	Lead Paint	17-Jul-19	12:29:11	0.06	0.05	17.16	Negative		0.06	0.11	Hall	Sill	Wood	White	E	Intact
183	Lead Paint	17-Jul-19	12:29:49	0.03	0.03	20.16	Negative		0.03	0.05	Hall	Ww casing	Wood	White	S	Intact
184	Lead Paint	17-Jul-19	12:30:29	0.01	0.02	15.23	Negative		0.01	0.03	Hall	Ww rail	Wood	White	S	Intact
185	Lead Paint	17-Jul-19	12:31:30	0	0	12.7	Negative		0	0	Hall	Dr Frame	Wood	White	W	Intact
186	Lead Paint	17-Jul-19	12:31:56	0.02	0.03	11.86	Negative		0.02	0.05	Hall	Door	Wood	White	W	Intact
187	Lead Paint	17-Jul-19	12:32:25	0.03	0.03	16.17	Negative		0.03	0.06	Hall	Dr Frame	Wood	White	E	Intact
188	Lead Paint	17-Jul-19	12:32:56	5	0.39	12.68	Positive	surface	> 5.00	0.78	Hall	Door	Wood	White	E	Intact
189	Lead Paint	17-Jul-19	12:36:16	0.01	0.01	14.59	Negative		0.01	0.01	S. Office	Wall	Plaster	White	N	Intact
190	Lead Paint	17-Jul-19	12:36:51	0	0	12.12	Negative		0	0	S. Office	Wall	Plaster	White	E	Intact
191	Lead Paint	17-Jul-19	12:37:27	0.11	0.13	18.2	Negative		0.11	0.26	S. Office	Door	Wood	White	N	Intact
192	Standardiz	17-Jul-19	12:41:16			48.16	PASS	-0.0174	0.019805	186		Standardization				
193	Lead Paint	17-Jul-19	12:43:35	0	0	21.68	Negative		0	0		Negative Calibration				
194	Lead Paint	17-Jul-19	12:44:24	0.98	0.03	23.09	Negative	surface	0.98	0.07		Positive Calibration				</

202	Lead Paint	17-Jul-19	12:51:35	0.51	0.06	16.78	Negative	surface	0.51	0.12				Addition	Wall	DW	White	W	Intact
203	Lead Paint	17-Jul-19	12:52:12	0	0	14.95	Negative			0				Addition	Ceiling	DW	White	n/a	Intact
204	Lead Paint	17-Jul-19	12:52:55	1	0.01	2.22	Positive		> 1.00	0.02				Addition	Chimney	Plaster	White	E	Intact
205	Lead Paint	17-Jul-19	12:54:38	0.03	0.02	16.21	Negative	surface	0.03	0.03				Addition	Sill	Wood	White	S	Intact
206	Lead Paint	17-Jul-19	12:55:12	0	0	13.84	Negative		0	0				Addition	Ww casing	Wood	White	S	Intact
207	Lead Paint	17-Jul-19	12:55:47	0	0	11.75	Negative		0	0				Addition	Ww rail	Wood	White	S	Intact
208	Lead Paint	17-Jul-19	12:56:51	3.46	0.24	12.27	Positive	surface	3.46	0.48				Addition	Door	Wood	Brown	E	Intact
209	Lead Paint	17-Jul-19	12:58:27	0	0	12.42	Negative		0	0				Storage	Wall	DW	White	N	Intact
210	Lead Paint	17-Jul-19	13:03:14	0	0	12.31	Negative		0	0				Storage	Wall	DW	White	E	Intact
211	Lead Paint	17-Jul-19	13:03:41	0	0	12.52	Negative		0	0				Storage	Wall	DW	White	S	Intact
212	Lead Paint	17-Jul-19	13:04:13	0	0	12.54	Negative		0	0				Storage	Wall	DW	White	W	Intact
213	Lead Paint	17-Jul-19	13:04:59	0	0	12.26	Negative		0	0				Storage	Ceiling	DW	White	n/a	Intact
214	Lead Paint	17-Jul-19	13:05:31	0.07	0.01	14.84	Negative	surface	0.07	0.03				Storage	Dr Frame	Wood	Brown	W	Intact
215	Lead Paint	17-Jul-19	13:06:24	5	0.4	18.83	Positive	surface	> 5.00	0.8				Storage	Ww rail	Wood	White	E	Intact
216	Lead Paint	17-Jul-19	13:08:21	4.07	0.16	11.36	Positive	surface	4.07	0.33				Storage	Steps	Wood	Gray	S	Intact
217	Lead Paint	17-Jul-19	13:09:59	5	0.35	13.4	Positive	surface	> 5.00	0.7				Storage	Beam/stair	Wood	Gray	S	Intact
218	Lead Paint	17-Jul-19	13:46:01	5	0.47	24.14	Positive	surface	> 5.00	0.94				Front Porch	Wall	Wood	White	W	Intact
219	Lead Paint	17-Jul-19	13:47:21	0.35	0.03	15.62	Negative	surface	0.35	0.05				Front Porch	Shutter	Wood	Green	W	Intact
220	Lead Paint	17-Jul-19	13:47:56	1.01	0.08	22.13	Positive	surface	1.01	0.16				Front Porch	Sill	Wood	White	W	Intact
221	Lead Paint	17-Jul-19	13:49:16	0.23	0.02	15.06	Negative	surface	0.23	0.05				Front Porch	Ww rail	Wood	Green	W	Intact
222	Lead Paint	17-Jul-19	13:49:55	2.46	0.13	17.21	Positive	surface	2.46	0.26				Front Porch	Handrail	Wood	White	W	Intact
223	Lead Paint	17-Jul-19	13:51:29	0.07	0.02	15.08	Negative	surface	0.07	0.04				Front Porch	Column	Wood	White	W	Intact
224	Lead Paint	17-Jul-19	13:52:09	0.27	0.03	12.9	Negative	surface	0.27	0.05				Front Porch	Door	Wood	Green	W	Intact
225	Lead Paint	17-Jul-19	13:52:41	5	0.62	12.44	Positive	surface	> 5.00	1.24				Front Porch	Dr Frame	Wood	White	W	Intact
226	Lead Paint	17-Jul-19	13:54:51	5	0.62	13.8	Positive	surface	> 5.00	1.24				Front Porch	Ceiling	Wood	White	n/a	Intact
227	Lead Paint	17-Jul-19	13:56:34	5	0.58	17.39	Positive	surface	> 5.00	1.15				Front Porch	Ceiling Beel	Wood	White	W	Intact
228	Lead Paint	17-Jul-19	13:58:09	5	0.34	21.07	Positive	surface	> 5.00	0.68				Front Porch	Dr Thresh	Wood	Blue	W	Intact
229	Lead Paint	17-Jul-19	13:59:41	5	0.43	19.84	Positive	surface	> 5.00	0.85				Front Porch	Ww casing	Wood	White	W	Intact
230	Lead Paint	17-Jul-19	14:01:15	5	0.25	18.93	Positive	surface	> 5.00	0.5				Exterior	Front gate	Wood	White	W	Intact
231	Lead Paint	17-Jul-19	14:04:01	0.25	0.15	2.24	Negative		0.25	0.31				South Ext	Wall	Wood	White	S	Intact
232	Lead Paint	17-Jul-19	14:05:02	5	0.49	13.73	Positive	surface	> 5.00	0.98				South Ext	Ceiling	Wood	White	S	Intact
233	Lead Paint	17-Jul-19	14:06:44	0.95	0.06	19.36	Insufficient	surface	0.95	0.12				South Ext	Insufficient	Time			
234	Lead Paint	17-Jul-19	14:07:28	2.25	0.1	17.28	Positive	surface	2.25	0.2				South Ext	Column	Wood	White	S	Intact
235	Lead Paint	17-Jul-19	14:09:03	2.62	0.14	16.39	Positive	surface	> 2.62	0.27				South Ext	Wall	Wood	White	S	Intact
236	Lead Paint	17-Jul-19	14:10:46	1.69	0.11	20.52	Positive	surface	> 1.69	0.22				South Ext	Sill	Wood	White	S	Intact
237	Lead Paint	17-Jul-19	14:11:51	2.75	0.1	18.44	Positive	surface	2.75	0.2				South Ext	Ww rail	Wood	Green	S	Intact
238	Lead Paint	17-Jul-19	14:13:06	1.59	0.1	16.48	Positive	surface	1.59	0.2				South Ext	Ww casing	Wood	White	S	Intact
239	Lead Paint	17-Jul-19	14:15:21	0.32	0.03	15.21	Negative	surface	0.32	0.05				South Ext	Door	Wood	White	S	Intact
240	Lead Paint	17-Jul-19	14:16:05	5	0.46	17.92	Positive	surface	> 5.00	0.92				South Ext	Dr Frame	Wood	White	S	Intact
241	Lead Paint	17-Jul-19	14:17:36	5	0.43	15.53	Positive	surface	> 5.00	0.85				South Ext	Dr Frame	Wood	White	S	Intact
242	Lead Paint	17-Jul-19	14:19:17	5	0.55	13.97	Positive	surface	> 5.00	1.09				South Ext	Wall	Wood	White	S	Intact
243	Lead Paint	17-Jul-19	14:19:53	4.48	0.16	18.37	Positive	surface	> 4.48	0.33				South Ext	Door	Wood	Green	S	Intact
244	Lead Paint	17-Jul-19	14:20:32	5	0.71	11.52	Positive	surface	> 5.00	1.42				South Ext	Dr casing	Wood	White	S	Intact
245	Lead Paint	17-Jul-19	14:21:05	5	0.69	10.26	Positive	surface	> 5.00	1.37				South Ext	Dr Thresh	Wood	White	S	Intact
246	Lead Paint	17-Jul-19	14:24:40	0.35	0.03	21.85	Negative	surface	0.35	0.06				Exterior	Wall	Wood	White	N	Intact
247	Lead Paint	17-Jul-19	14:25:34	0	0	15.33	Negative		0	0.01				Exterior	Door	Wood	Green	N	Intact
248	Lead Paint	17-Jul-19	14:26:08	5	0.59	13.58	Positive	surface	> 5.00	1.17				Exterior	Dr Frame	Wood	White	N	Intact
249	Lead Paint	17-Jul-19	14:27:42	0.01	0.02	3.37	Negative		0.01	0.04				Exterior	Wall	Brick	White	N	Intact
250	Lead Paint	17-Jul-19	14:28:27	0.13	0.02	15.02	Negative	surface	0.13	0.04				Exterior	Ww rail	Wood	Green	N	Intact
251	Lead Paint	17-Jul-19	14:29:02	1.91	0.08	22.45	Positive	surface	1.91	0.16				Exterior	Ww casing	Wood	White	N	Intact
252	Lead Paint	17-Jul-19	14:30:32	0	0.01	4.59	Negative		0	0.02				Back porch	Wall	Concrete	White	W	Intact
253	Lead Paint	17-Jul-19	14:31:23	0.53	0.06	17.59	Negative	surface	0.53	0.12				Back porch	Floor	Wood	Blue	W	Intact
254	Lead Paint	17-Jul-19	14:32:05	5	0.77	12.63	Positive	surface	> 5.00	1.54				Back porch	Ceiling	Wood	White	n/a	Intact
255	Lead Paint	17-Jul-19	14:33:46	5	0.61	17.5	Positive	surface	> 5.00	1.23				Back porch	Column	Wood	White	W	Intact
256	Lead Paint	17-Jul-19	14:35:04	5	0.59	16.37	Positive	surface	> 5.00	1.18				Back Porch	Sill	Wood	White	W	Intact
257	Lead Paint	17-Jul-19	14:40:24	5	0.56	17.2	Positive	surface	> 5.00	1.12				Back porch	Ww casing	Wood	White	W	Intact
258	Lead Paint	17-Jul-19	14:41:35	5	0.36	11.95	Positive	surface	> 5.00	0.72				Back Porch	Ww rail	Wood	Green	W	Intact
259	Lead Paint	17-Jul-19	14:43:20	0.21	0.02	16.75	Negative	surface	0.21	0.04				Exterior	Wall	Wood	White	W	Intact
260	Lead Paint	17-Jul-19	14:44:11	0	0	12.41	Negative		0	0.01				Exterior	Shutter	Wood	Green	W	Intact
261	Lead Paint	17-Jul-19	14:44:58	0.03	0.04	20.39	Negative		0.03	0.07				Exterior	Sill	Wood	White	W	Intact
262	Lead Paint	17-Jul-19	14:46:17	4.37	0.15	17.41	Positive	surface	> 4.37	0.31				North Ext	Ww Casing	Wood	White	N	Intact
263	Lead Paint	17-Jul-19	14:47:19	5	0.29	18.75	Positive	surface	> 5.00	0.58				North Ext	Ww rail	Wood	Green	N	Intact
264	Lead Paint	17-Jul-19	14:49:02	5	0.31	19.55	Positive	surface	> 5.00	0.61				North Ext	Fence	Wood	White	N	Intact
265	Lead Paint	17-Jul-19	14:50:48	5	0.3	13.65	Positive	surface	> 5.00	0.61				North Ext	Ww Casing	Wood	White	N	Intact
266	Lead Paint	17-Jul-19	14:53:25	0.05	0.02	17.09	Negative	surface	0.05	0.04				Shed	Wall	Wood	White	N	Intact
267	Lead Paint	17-Jul-19	14:54:16	0.04	0.01	19.79	Negative	surface	0.04	0.02				Shed	Wall	Wood	White	W	Intact
268	Lead Paint	17-Jul-19	14:54:53	0.81	0.04	16.52	Negative	surface	0.81	0.09				Shed	Door	Wood	Green	N	Intact
269	Lead Paint	17-Jul-19	15:00:04	0	0	21.52	Negative		0	0					Negative Calibration				
270	Lead Paint	17-Jul-19	15:00:47	0.99	0.04	21.89	Negative	surface	0.99	0.07					Positive Calibration				

APPENDIX O

XRF SURVEY POSITIVE MATERIALS

XRF SURVEY – POSITIVE MATERIALS
NPS TRACTS 01-109, 01-110, 01-111, 01-112, AND 01-113
STE. GENEVIEVE, MISSOURI

Reading Number (Chip Sample)	XRF Result	Room / Component	Substrate / Color	Estimated Quantity	Paint Condition
Tract 01-113 - Francois Valle II House					
10	2.34	W. Liv Rm / N Wall	Drywall / Green	100 SF	Intact
11	1.0	W. Liv Rm / E. Wall	Drywall / Green	130 SF	Intact
(L-1)	5,700 ppm				
12	1.0	W. Liv Rm / E. Wall	Drywall / Green		Intact
16	2.51	W. Liv Rm / Window casing	Wood / Green	15 SF	Intact
17	2.07	W. Liv Rm / North Dr. Frame	Wood / Green	20 SF	Intact
19	1.89	W. Liv Rm / S. Door	Green / Wood	20 SF	Intact
20	3.70	W. Liv Rm / S. Door Frame	Wood / Black	19 SF	Fair
21	3.38	W. Liv Rm / S. Door	Wood / White (exterior of door)	20 SF	Fair
22	1.64	W. Liv Rm / Ceiling	Drywall / Green	185 SF	Intact
23	1.94	W. Liv Rm / Ceiling wood strips	Wood / Green	32 SF	Intact
25	5.00	E. Liv Rm / N. Door	Wood / Pink	17 SF	Intact
26	2.86	E. Liv Rm / N. Dr. Frame	Wood / Pink	16 SF	Intact
27	2.06	E. Liv Rm / E. Window sill	Wood / Gray	15 SF	Fair
28	4.85	E. Liv Rm / E. Window Frame	Wood / Gray	13 SF	Fair
30	4.07	E. Liv Rm / South Door	Wood / White	21 SF	Intact
31	2.99	E. Liv Rm / South Dr. Frame	Wood / Pink	17 SF	Intact
32	2.26	E. Liv Rm / West Door	Wood / Pink	21 SF	Intact
33	2.58	E. Liv Rm / West Door	Wood / Pink	21 SF	Intact
34 (L-2)	1.0	E. Bed Rm / N. Wall	Plaster / Pink	N/A	Fair

Reading Number (Chip Sample)	XRF Result	Room / Component	Substrate / Color	Estimated Quantity	Paint Condition
	3,820 ppm				
35 (L-3)	1.0 1,460 ppm	E. Bed Rm / S. Wall	Plaster / Pink	N/A	Intact
37	5.00	E. Bed Rm / E. window casing	Wood / Gray	16 SF	Intact
38	2.35	E. Bed Rm / E. Window rail	Wood / Gray	7 SF	Intact
39	5.00	E. Bed Rm / S. Door	Wood / Pink	16 SF	Intact
40	1.96	E. Bed Rm / W. Door	Wood / Pink	16 SF	Intact
41	2.82	E. Bed Rm / N. Closet wall	Wood / Pink	100 SF	Intact
42	2.66	E. Bed Rm / W Door	Wood / Pink	16 SF	Intact
44	5.00	E. Bed Rm / N. Door	Wood / Pink	16 SF	Intact
45	5.00	E. Bed Rm / N. Dr. Frame	Wood / Pink	17 SF	Intact
47 (L-4)	1.0 16,300 ppm	W. Bed Rm / E. Wall	Drywall / Yellow	140 SF	Intact
48 (L-5)	1.0 10,300 ppm	W. Bed Rm / S. Wall	Drywall / Yellow	130 SF	Intact
49 (L-6)	1.0 12,300 ppm	W. Bed Rm / W. Wall	Drywall / Green/Yellow	130 SF	Intact
51	3.54	W. Bed Rm / W. Window casing	Wood / White	15 SF	Intact
52	3.59	W. Bed Rm / W Window Rail	Wood / White	7 SF	Intact
54	3.00	W. Bed Rm / N Dr Frame	Wood / White	18 SF	Fair
55	5.00	W. Bed Rm / N. Dr Frame	Wood / Green	17 SF	Intact
56	1.10	W. Bed Rm / E. Door	Wood / Yellow	18 SF	Intact
57	2.81	W. Bed Rm / S. Dr.	Wood / Yellow	12 SF	Intact

Reading Number (Chip Sample)	XRF Result	Room / Component	Substrate / Color	Estimated Quantity	Paint Condition
		Frame			
58	2.18	W. Bed Rm / S Dr. Frame	Wood / Green	14 SF	Intact
59	1.67	W. Bed Rm / Ceiling	Drywall / Yellow	200 SF	Intact
60	1.36	Bathroom / N. Wall	Drywall Green	75 SF	Intact
65	2.55	Bathroom / E Window casing	Wood / Yellow	13 SF	Intact
66	2.36	Bathroom / N. Door	Wood / Yellow	12 SF	Intact
68	2.00	Bathroom / W Door	Wood / Yellow	16 SF	Intact
69	1.35	Bathroom / W Dr Frame	Wood / Yellow	16 SF	Intact
70 (L-7)	1.0 50.6 ppm	Stairs UP / N. Wall	Plaster / White/Blue	N/A	Poor
77	2.48	Attic / Window casing	Wood / White	9 SF	Fair
81	4.04	Hall / S Door	Wood / Green	17 SF	Intact
82	3.00	Hall / S Dr Frame	Wood / Green	17 SF	Intact
83	1.02	Hall / E Door to stairs	Wood / Pink	12 SF	Intact
86	1.17	Hall / N Window casing	Wood / Green	11 SF	Fair
91 (L-8)	1.0 4,150 ppm	Kitchen / W. Wall	Drywall / Yellow	N/A	Intact
94	4.07	Kitchen / W Window casing	Wood / Yellow	16 SF	Intact
96	1.57	Kitchen / N Door	Wood / Green	17 SF	Intact
97	2.61	Kitchen / N Dr Frame	Wood / Green	17 SF	Intact
98	1.94	Kitchen / N. Cabinet	Wood / Green	32 SF	Fair
103	5.00	Exterior / Front wall	Wood / White	450 SF	Fair
104	3.81	Exterior / E. Front Door	Wood / White	21 SF	Fair
105	3.93	Exterior / E. Door Frame	Wood / White	18 SF	Fair
107	2.60	Exterior / Porch Column	Wood / White	32 LF	Fair
108	2.39	Exterior / Porch floor	Wood / White	100 SF	Intact

Reading Number (Chip Sample)	XRF Result	Room / Component	Substrate / Color	Estimated Quantity	Paint Condition
110	1.12	Exterior / E Wall	Wood / White	460 SF	Fair
114	1.20	Exterior / W Window Casing	Wood / White	15 SF	Fair
115	3.93	Exterior / W Window Rail	Wood / White	3 SF	Fair
116	4.52	Exterior / Rear Porch wall	Wood / White	112 SF	Fair
117	4.31	Exterior / Rear Porch wall	Wood / White	100 SF	Intact
118	3.32	Exterior / Porch window sill	Wood / White	3 SF	Poor
119	4.26	Exterior / Porch Window casing	Wood / White	13 SF	Fair
121	3.16	Exterior / N Porch Wall	Wood / Green	80 SF	Fair
Tract 01-110 – Rene LeMeilleur House					
140	4.21	Stairs / N. Wall	Wood / White	40 SF	Intact
152	5.00	S. Room / E. Baseboard	Wood / Green	16 SF	Intact
159	1.50	Exterior / E. Wall	Wood / White	340 SF	Intact
160	3.90	Exterior / E Window sill	Wood / Green	3 SF	Intact
161	5.00	Exterior / E Window casing	Wood / Green	16 SF	Intact
171	1.39	Exterior / Bsmt Window casing	Wood / Green	10 SF	Fair
172	5.00	Exterior / W Wall	Wood / White	340 SF	Intact
174	5.00	Exterior / W Dr Frame	Wood / Green	21 SF	Intact
63	1.29	Exterior / Front porch ceiling	Wood / White	340 SF	Intact
64	1.73	Exterior / Rear porch ceiling	Wood, White	340 SF	Intact
Tract 01-112 – Louis Bolduc House – No Positive Materials Identified					

Reading Number (Chip Sample)	XRF Result	Room / Component	Substrate / Color	Estimated Quantity	Paint Condition
Tract 01-109 – Jean Baptiste Valle House					
69	5.00	Bsmt Laundry / West window Rail	Wood / Red	2 SF	Intact
70	3.92	Bsmt Laundry / W Window casing	Wood / white	5 SF	Fair
71	2.76	Bsmt Laundry / S Door	Wood / Red	18 SF	Intact
72	2.32	Bsmt Laundry / S. Dr Frame	Wood / Red	15 SF	Intact
77	1.17	Bsmt Entry / W Window Shutter	Wood / white	6 SF	Intact
79 23	0.99 1.23	Interior Bsmt door Exterior Bsmt door	Wood / Green Wood / Green	23 SF	Intact Intact
81	5.00	Bsmt Entry / S Door	Wood / Red	17 SF	Intact
82	5.00	Bsmt Entry / S Dr Frame	Wood / White	15 SF	Intact
87	5.00	Bsmt Storage / S Window rail	Wood / White	4 SF	Intact
93	1.22	Bsmt Mech / E Dr. Frame	Wood / White	15 SF	Intact
102	5.00	Bsmt S. Storage / S Window rail	Wood / white	4 SF	Intact
103	2.72	Bsmt S. Storage / S Window Casing	Wood / white	5 SF	Intact
104	5.00	Bsmt S. Storage / Doorway	Wood / white	18 SF	Fair
109	5.00	Bsmt Rm 1 / N Window Rail	Wood / Red	4 SF	Intact
110	5.00	Bsmt Rm 1 / N Window casing	Wood / White	9 SF	Intact
113	5.00	Bsmt Rm 1 / S Door	Wood / Red	13 SF	Intact
114	5.00	Bsmt Rm 1 / S Dr Frame	Wood / Red	15 SF	Intact
119	5.00	Bsmt Rm 2 / N Window rail	Wood / Red	4 SF	Intact

Reading Number (Chip Sample)	XRF Result	Room / Component	Substrate / Color	Estimated Quantity	Paint Condition
120	1.12	Bsmt Rm 2 / Window Casing	Wood / White	9 SF	Intact
127	1.33	Bsmt Open / E Window rail	Wood / Red	4 SF	Intact
128	5.00	Bsmt Open / E Window Casing	Wood / White	4 SF	Poor
144	2.25	Solarium / Ceiling	Wood / White	145 SF	Intact
145	5.00	Solarium / S Dr Frame	Wood / White	20 SF	Intact
146	5.00	Solarium / S Door	Wood / White	30 SF	Intact
148	4.73	Solarium / N Window sill	Wood / White	2 SF	Intact
149	5.00	Pantry / Upper Cabinet	Wood / White	36 SF	Intact
150	2.82	Pantry / Lower Cabinet	Wood / White	20 SF	Intact
158	5.00	W. Parlor / West Window Rail	Wood / White	12 SF	Intact
159	5.00	W. Parlor / West Window Casing	Wood / White	8 SF	Intact
160	5.00	W. Parlor / W Window sill	Wood / White	2 SF	Intact
161	5.00	W. Parlor / E Baseboard	Wood / White	16 LF	Fair
162	5.00	W. Parlor / Ceiling	Wood / White	290 SF	Intact
163	5.00	W. Parlor / Sliding Dr	Wood / White	60 SF	Intact
164	5.00	W. Parlor / Slide Dr Frame	Wood / White	30 SF	Intact
165	5.00	W. Parlor / S Door	Wood / White	21 SF	Intact
166	5.00	W. Parlor / S Dr Frame	Wood / White	20 SF	Intact
171	5.00	E. Parlor / E Baseboard	Wood / White	10 SF	Intact
172	5.00	E. Parlor / E Window sill	Wood / White	3 SF	Intact
173	4.38	E. Parlor / North window rail	Wood / White	12 SF	Intact
174	5.00	E. Parlor / North	Wood / White	12 SF	Intact

Reading Number (Chip Sample)	XRF Result	Room / Component	Substrate / Color	Estimated Quantity	Paint Condition
		window casing			
175	5.00	E. Parlor / Ceiling	Wood / White	305 SF	Intact
180	5.00	E. Parlor / South Door	Wood / White	21 SF	Intact
181	5.00	E. Parlor / S Dr Frame	Wood / White	20 SF	Intact
185	4.60	Library / W Dr. Frame	Wood / White	18 SF	Intact
188	2.04	Library / S Window rail	Wood / White	12 SF	Intact
189	5.00	Library / S Window casing	Wood / White	8 SF	Intact
191	5.00	Library / Ceiling	Wood / White	320 SF	Intact
193	5.00	Library / N Door	Wood / white	21 SF	Intact
194	5.00	Library / N Dr Frame	Wood / white	20 SF	Intact
195	1.44	Library / N Wall -East Bookcase	Wood / white	60 SF	Intact
196	4.17	Library / N Wall-West Bookcase	Wood / White	110 SF	Intact
201	5.00	Hall / Ceiling	Wood / White	275 SF	Intact
202	5.00	Hall / Beam Cover	Wood / White	115 SF	Intact
205	5.00	Hall / E Dr Frame	Wood / White	32 SF	Intact
206	5.00	Hall / Doorway	Wood / White	20 SF	Intact
207	5.00	Hall / N Wall (closet)	Wood / White	40 SF	Intact
209	5.00	Hall / W Dr. Frame	Wood / White	22 SF	Intact
210	5.00	Hall / S. Dr Frame	Wood / White	20 SF	Intact
211	5.00	Hall / S. Door	Wood / White	21 SF	Intact
216	5.00	Bedroom / E Baseboard	Wood / White	15 LF	Intact
217	5.00	Bedroom / Ceiling	Wood / White	119 SF	Intact
218	5.00	Bedroom / S Window Sill	Wood / White	3 SF	Intact
219	5.00	Bedroom / S Window Rail	Wood / White	12 SF	Intact
220	5.00	Bedroom / S Window casing	Wood / White	8 SF	Intact
233	5.00	Office / Ceiling	Wood / White	210 SF	Intact
235	2.09	Office / N Door	Wood / White	20 SF	Intact

Reading Number (Chip Sample)	XRF Result	Room / Component	Substrate / Color	Estimated Quantity	Paint Condition
246	5.00	2 nd Hall / Stairs	Wood / White	12 SF	Intact
247	5.00	2 nd Hall / Stair Rail	Wood / White	15 SF	Intact
249	5.00	2 nd Hall / E Door	Wood / White	19 SF	Intact
252	5.00	2 nd Hall / South Dr - Storage	Wood / White	6 SF	Intact
253	5.00	2 nd Hall / Dr - Walk In Storage	Wood / White	12 SF	Intact
258	2.76	Walk in Storage / S Window Rail	Wood / White	3 SF	Intact
259	2.29	Walk in Storage / S. Window casing	Wood / White	3 SF	Intact
262	5.00	2 nd Bath / W Door	Wood / White	19 SF	Intact
266	5.00	S. Bed Rm / N Door	Wood / White	19 SF	Intact
267	5.00	S. Bed Rm / N Dr Frame	Wood / White	18 SF	Intact
268	5.00	S. Bed Rm / N Baseboard	Wood / White	18 LF	Intact
274	4.81	S. Bed Rm Closet / Window rail	Wood / White	3 SF	Intact
275	4.51	S. Bed Rm Closet / Window casing	Wood / White	3 SF	Intact
276	3.36	S. Bed Rm/ Window Rail	Wood / White	12 SF	Intact
277	5.00	S. Bed Rm / Window casing	Wood / White	8 SF	Intact
292	4.77	S. Bed Rm Closet / Window rail	Wood / White	3 SF	Intact
293	5.00	S. Bed Rm Closet / Window rail	Wood / White	3 SF	Intact
294	4.42	S. Bed Rm Closet / Window casing	Wood / white	3 SF	Intact
296	3.75	Ext Roof / W. Window casing	Wood / Green	16 SF	Fair
298	1.34	Ext Roof / N. Window Rail	Wood / Green	16 SF	Fair
299	1.45	Ext Roof / N. Window	Wood / Green	3 SF	Fair

Reading Number (Chip Sample)	XRF Result	Room / Component	Substrate / Color	Estimated Quantity	Paint Condition
		sill			
300	1.13	Ext Roof / N. Window casing	Wood / Green	3 SF	Intact
303	1.11	Ext Roof / S. Window Casing	Wood / Green	16 SF	Fair
308	1.25	Ext Roof / E. Window casing	Wood / Green	16 SF	Fair
314	5.00	Garage / Window Rail	Wood / Red	5 SF	Intact
316	5.00	Garage / S. Dr Frame	Wood / Red	18 SF	Intact
318	3.75	Garage / E. Window Rail	Wood / Red	5 SF	Intact
326	3.48	Ext Garage / S. Door	Wood / Red	18 SF	Intact
327	3.33	Ext Garage / N. Door	Wood / Red	18 SF	Intact
7	1.32	Exterior / W. Bsmt Window Casing	Wood / Blue	10 SF	Poor
8	1.17	Exterior / W. Bsmt Window Frame	Wood / Blue	10 SF	Poor
10	3.29	Exterior / W. Window Casing	Wood / Blue	16 SF	Fair
11	5.00	Rear Porch / Ceiling	Wood / Blue	420 SF	Intact
13	5.00	Rear Porch / Column	Wood White	9 SF	Intact
15	4.41	Rear Porch / Stair baluster	Wood / White	6 SF	Intact
16	1.91	Rear Porch / Door to bedroom	Wood / Green	18 SF	Intact
18	1.40	Rear Porch / Shutter	Wood / Green	18 SF	Intact
20	5.00	Rear Porch / Window Rail	Wood / Blue	12 SF	Intact
21	5.00	Rear Porch / Window Casing	Wood / Blue	10 SF	Intact
22	5.00	Rear Porch / Wall Baseboard	Wood / Green	27 LF	Intact
23	1.25	Rear Porch / Door to Bsmt	Wood / Green	23 SF	Intact
27	1.51	East Ext / Door to cellar	Wood / Green	21 SF	Intact

Reading Number (Chip Sample)	XRF Result	Room / Component	Substrate / Color	Estimated Quantity	Paint Condition
30	5.00	East Ext / Window Casing	Wood / Blue	16 SF	Intact
38 (L-12)	1.00 63.0 ppm	Front Porch / N. Wall	Plaster / Yellow	N/A	Intact
39	1.72	Front Porch / Shutter	Wood / Green	18 SF	Intact
40	3.01	Front Porch / Window Rail	Wood / Blue	12 SF	Intact
41	4.24	Front Porch / Ceiling	Wood / Blue	890 SF	Intact
42	2.99	Front Porch / Column	Wood / White	10 LF	Intact
44	3.64	Front Porch / Railing	Wood / White	250 LF	Fair
45	2.37	Front Porch / Front Door Frame	Wood / White	22 SF	Intact
46	1.80	Front Porch / Shutter	Wood / White	18 SF	Intact
47	2.99	Front Porch / Baseboard	Wood / Green	110 LF	Intact
48	1.18	Front Porch / Window Sill	Wood / Blue	3 SF	Intact
49	2.29	Front Porch / Window Rail	Wood / Blue	12 SF	Intact
50	3.26	Front Porch / Window Casing	Wood / Blue	16 SF	Intact
51	4.08	Front Porch / Door to bedroom	Wood / Green	19 SF	Intact
53	2.34	Front Porch / Door to bedroom frame	Wood / White	17 SF	Intact
56	1.56	Exterior / E. Wall Wood strip	Wood / Green	100 LF	Intact
58	5.00	Exterior / S. Bsmt Window Casing	Wood / Green	14 SF	Fair
59	1.95	Exterior / S. Bsmt Window Rail	Wood / Green	5 SF	Fair
Tract 01-113 – Linden House					
70	5.00	Kitchen / W. Doorway	Wood / Green	15 LF	Intact

Reading Number (Chip Sample)	XRF Result	Room / Component	Substrate / Color	Estimated Quantity	Paint Condition
73	3.08	Kitchen / E. Dr. Frame	Wood / Green	15 LF	Intact
75	1.18	Kitchen / Window rail	Wood / Green	10 SF	Intact
76	5.00	Kitchen / Window Casing	Wood / Green	11 SF	Intact
79	5.00	Storage / N. Door	Wood / White	18 SF	Intact
81	4.87	Storage / N. Wall	Wood / White	80 SF	Intact
82	5.00	Storage / E. Wall	Wood / White	112 SF	Intact
83	4.61	Storage / S. Wall	Wood / White	90 SF	Intact
84	3.92	Storage / W. Wall	Wood / White	112 SF	Intact
87	5.00	Storage / S. Door	Wood / White	21 SF	Intact
88	5.00	Storage / S. Dr. Frame	Wood / White	17 SF	Intact
89	5.00	Storage / Ceiling	Wood / White	210 SF	Intact
99	5.00	Arts / S. Window Rail	Wood / Gray	11 SF	Intact
109	5.00	Hall / E. Door Surround	Wood / Green	14 LF	Intact
118	5.00	Game Rm / Ceiling	Wood / Brown	230 SF	Intact
122	5.00	Game Rm / E. Window Rail	Wood / Green	11 SF	Intact
129	5.00	Gift Shop / Ceiling	Wood / Green	340 SF	Intact
133	5.00	Gift Shop / N. Window Rail	Wood / Green	11 SF	Intact
145	5.00	Classroom / W. Window Rail	Wood / White	11 SF	Intact
146	5.00	Classroom / E. Door	Wood / White	18 SF	Intact
150	5.00	Bsmt / Door	Wood / White	18 SF	Fair
155	5.00	Stairs / Stairs	Wood / Gray	60 SF	Fair
156	1.00	Stairs / W. Wall	Drywall / White	N/A	Intact
157	0.00	Stairs / W. Wall	Drywall / White		Intact
166	5.00	2 nd N. Office / N. Window Rail	Wood / Blue	11 SF	Intact
170 (L-9)	1.00 601 ppm	2 nd Bath / E. Wall	Plaster / Blue	N/A	Intact
173 (L-10)	1.00 186 ppm	2 nd Bath / W. Wall	Plaster / Blue	N/A	Intact

Reading Number (Chip Sample)	XRF Result	Room / Component	Substrate / Color	Estimated Quantity	Paint Condition
188	5.00	2 nd Hall / E. Door (to addition)	Wood / White	17 SF	Intact
204 (L-11)	1.00 <49.1 ppm	2 nd Addition / Chimney	Concrete / White	N/A	Intact
208	3.46	2 nd Addition / Door	Wood / Gray	10 SF	Intact
215	5.00	2 nd Storage / E. Window Rail	Wood / White	5 SF	Intact
216	4.07	2 nd Storage / E. Steps	Wood / Gray	44 SF	Intact
217	5.00	2 nd Storage / Steps beam	Wood / Gray	10 SF	Intact
218	5.00	Front Porch / E. Wall	Wood / White	400 SF	Intact
220	1.01	Front Porch / Window sill	Wood / White	3 SF	Intact
222	2.46	Front Porch / Handrail	Wood / White	50 SF	Intact
225	5.00	Front Porch / Door Frame	Wood / White	18 SF	Intact
226	5.00	Front Porch / Ceiling	Wood / White	295 SF	Intact
227	5.00	Front Porch / Ceiling Beam	Wood / White	126 SF	Intact
228	5.00	Front Porch / Door Threshold	Wood / Blue	4 SF	Fair
229	5.00	Front Porch / Window Casing	Wood / White	16 SF	Intact
230	5.00	Exterior / Fence	Wood / White	300 SF	Intact
232	5.00	Exterior / South Porch Ceiling	Wood / White	260 SF	Intact
234	2.25	Exterior / S. Porch Column	Wood / White	14 LF	Intact
235	2.62	Exterior / S. Porch Wall	Wood / White	140 SF	Intact
236	1.69	Exterior / S. Window sill	Wood / White	3 SF	Intact
237	2.75	Exterior / S. Window rail	Wood / Green	10 SF	Intact
238	1.59	Exterior / S. Window	Wood / White	16 SF	Intact

Reading Number (Chip Sample)	XRF Result	Room / Component	Substrate / Color	Estimated Quantity	Paint Condition
		Casing			
240	5.00	Exterior / Dr Frame	Wood / White	18 SF	Intact
241	5.00	Exterior / Dr Frame	Wood / White	15 SF	Intact
242	5.00	Exterior / S. Wall	Wood / White	100 SF	Intact
243	4.48	Exterior / Door	Wood / Green	18 SF	Intact
244	5.00	Exterior / Dr Frame	Wood / White	15 SF	Intact
245	5.00	Exterior / Door threshold	Wood / Blue	3 SF	Intact
248	5.00	Exterior / Door Casing	Wood White	16 SF	Intact
251	1.91	Exterior / Door Frame	Wood / White	16 SF	Intact
254	5.00	Back Porch / Ceiling	Wood / White	200 SF	Intact
255	5.00	Back Porch / Column	Wood / White	10 LF	Intact
256	5.00	Back Porch / Window sill	Wood / White	4 SF	Intact
257	5.00	Back Porch / Window Casing	Wood / White	16 SF	Intact
258	5.00	Back Porch / Window Rail	Wood / Green	11 SF	Intact
262	4.37	Ext / N. Window Casing	Wood / White	16 SF	Intact
263	5.00	Ext / N. Window Rail	Wood / Green	11 SF	Intact
264 (see #230)	5.00	Exterior / North Fence	Wood / White	300 SF	Intact
265	5.00	Exterior / N. Bsmt Window	Wood / White	8 SF	Intact
LBP = paint with lead levels equal to, or exceeding 1.0 milligrams per square centimeter (mg/cm ²), or 0.5% by weight, or 5,000 parts per million (ppm).					

APPENDIX P

PAINT CHIP ANALYTICAL REPORT



ANALYTICAL REPORT

July 23, 2019

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Wood E&I Solutions Inc. - St. Louis, MO

Sample Delivery Group: L1120454

Samples Received: 07/19/2019

Project Number: 193-188

Description:

Report To: John R. Mittauer
15933 Clayton Road, Suite 215
Ballwin, MO 63011

Entire Report Reviewed By:

Jeff Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:
193-188

SDG:
L1120454

DATE/TIME:
07/23/19 10:32

PAGE:
1 of 22

TABLE OF CONTENTS

ONE LAB. NATIONWIDE.



Cp: Cover Page	1	
Tc: Table of Contents	2	
Ss: Sample Summary	3	
Cn: Case Narrative	5	
Sr: Sample Results	6	
L-1 L1120454-01	6	
L-2 L1120454-02	7	
L-3 L1120454-03	8	
L-4 L1120454-04	9	
L-5 L1120454-05	10	
L-6 L1120454-06	11	
L-7 L1120454-07	12	
L-8 L1120454-08	13	
L-9 L1120454-09	14	
L-10 L1120454-10	15	
L-11 L1120454-11	16	
L-12 L1120454-12	17	
Qc: Quality Control Summary	18	
Metals (ICP) by Method 6010B	18	
Gl: Glossary of Terms	19	
Al: Accreditations & Locations	20	
Sc: Sample Chain of Custody	21	

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



L-1 L1120454-01 PAINT

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1315139	1	07/22/19 07:41	07/22/19 21:26	EL	Mt. Juliet, TN

Collected by
Bryan Gatlin

Collected date/time
07/15/19 00:00

Received date/time
07/19/19 08:45

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

L-2 L1120454-02 PAINT

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1315139	1	07/22/19 07:41	07/22/19 21:29	EL	Mt. Juliet, TN

Collected by
Bryan Gatlin

Collected date/time
07/15/19 00:00

Received date/time
07/19/19 08:45

L-3 L1120454-03 PAINT

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1315139	1	07/22/19 07:41	07/22/19 21:00	EL	Mt. Juliet, TN

Collected by
Bryan Gatlin

Collected date/time
07/15/19 00:00

Received date/time
07/19/19 08:45

L-4 L1120454-04 PAINT

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1315139	1	07/22/19 07:41	07/22/19 21:32	EL	Mt. Juliet, TN

Collected by
Bryan Gatlin

Collected date/time
07/15/19 00:00

Received date/time
07/19/19 08:45

L-5 L1120454-05 PAINT

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1315139	1	07/22/19 07:41	07/22/19 21:35	EL	Mt. Juliet, TN

Collected by
Bryan Gatlin

Collected date/time
07/15/19 00:00

Received date/time
07/19/19 08:45

L-6 L1120454-06 PAINT

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1315139	1	07/22/19 07:41	07/22/19 21:37	EL	Mt. Juliet, TN

Collected by
Bryan Gatlin

Collected date/time
07/15/19 00:00

Received date/time
07/19/19 08:45

L-7 L1120454-07 PAINT

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1315139	1	07/22/19 07:41	07/22/19 21:40	EL	Mt. Juliet, TN

Collected by
Bryan Gatlin

Collected date/time
07/15/19 00:00

Received date/time
07/19/19 08:45

L-8 L1120454-08 PAINT

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1315139	1	07/22/19 07:41	07/22/19 21:43	EL	Mt. Juliet, TN

Collected by
Bryan Gatlin

Collected date/time
07/15/19 00:00

Received date/time
07/19/19 08:45

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:
193-188

SDG:
L1120454

DATE/TIME:
07/23/19 10:32

PAGE:
3 of 22

SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



L-9 L1120454-09 PAINT

Collected by
Bryan GatlinCollected date/time
07/17/19 00:00Received date/time
07/19/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1315139	1	07/22/19 07:41	07/22/19 21:46	EL	Mt. Juliet, TN

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

L-10 L1120454-10 PAINT

Collected by
Bryan GatlinCollected date/time
07/17/19 00:00Received date/time
07/19/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1315139	1	07/22/19 07:41	07/22/19 21:49	EL	Mt. Juliet, TN

L-11 L1120454-11 PAINT

Collected by
Bryan GatlinCollected date/time
07/17/19 00:00Received date/time
07/19/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1315139	1	07/22/19 07:41	07/22/19 21:52	EL	Mt. Juliet, TN

L-12 L1120454-12 PAINT

Collected by
Bryan GatlinCollected date/time
07/17/19 00:00Received date/time
07/19/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010B	WG1315139	1	07/22/19 07:41	07/22/19 20:43	EL	Mt. Juliet, TN

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MOPROJECT:
193-188SDG:
L1120454DATE/TIME:
07/23/19 10:32PAGE:
4 of 22

CASE NARRATIVE

ONE LAB. NATIONWIDE.



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jeff Carr
Project Manager

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

193-188

SDG:

L1120454

DATE/TIME:

07/23/19 10:32

PAGE:

5 of 22

L-1

Collected date/time: 07/15/19 00:00

SAMPLE RESULTS - 01

L1120454

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Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Lead	5700		47.9	1	07/22/2019 21:26	WG1315139

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

193-188

SDG:

L1120454

DATE/TIME:

07/23/19 10:32

PAGE:

6 of 22

L-2

Collected date/time: 07/15/19 00:00

SAMPLE RESULTS - 02

L1120454

ONE LAB. NATIONWIDE.



Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Lead	3820		45.8	1	07/22/2019 21:29	WG1315139

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

193-188

SDG:

L1120454

DATE/TIME:

07/23/19 10:32

PAGE:

7 of 22

L-3

Collected date/time: 07/15/19 00:00

SAMPLE RESULTS - 03

L1120454

ONE LAB. NATIONWIDE.



Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Lead	1460	<u>J5</u>	48.2	1	07/22/2019 21:00	WG1315139

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

193-188

SDG:

L1120454

DATE/TIME:

07/23/19 10:32

PAGE:

8 of 22

L-4

Collected date/time: 07/15/19 00:00

SAMPLE RESULTS - 04

L1120454

ONE LAB. NATIONWIDE.



Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Lead	16300		49.7	1	07/22/2019 21:32	WG1315139

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

193-188

SDG:

L1120454

DATE/TIME:

07/23/19 10:32

PAGE:

9 of 22

L-5

Collected date/time: 07/15/19 00:00

SAMPLE RESULTS - 05

L1120454

ONE LAB. NATIONWIDE.



Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Lead	10300		49.2	1	07/22/2019 21:35	WG1315139

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

193-188

SDG:

L1120454

DATE/TIME:

07/23/19 10:32

PAGE:

10 of 22

L-6

Collected date/time: 07/15/19 00:00

SAMPLE RESULTS - 06

L1120454

ONE LAB. NATIONWIDE.



Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Lead	12300		47.0	1	07/22/2019 21:37	WG1315139

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

193-188

SDG:

L1120454

DATE/TIME:

07/23/19 10:32

PAGE:

11 of 22

L-7

Collected date/time: 07/15/19 00:00

SAMPLE RESULTS - 07

L1120454

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Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Lead	50.6		47.3	1	07/22/2019 21:40	WG1315139

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

193-188

SDG:

L1120454

DATE/TIME:

07/23/19 10:32

PAGE:

12 of 22

L-8

Collected date/time: 07/15/19 00:00

SAMPLE RESULTS - 08

L1120454

ONE LAB. NATIONWIDE.



Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Lead	4150		48.0	1	07/22/2019 21:43	WG1315139

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

193-188

SDG:

L1120454

DATE/TIME:

07/23/19 10:32

PAGE:

13 of 22

L-9

Collected date/time: 07/17/19 00:00

SAMPLE RESULTS - 09

L1120454

ONE LAB. NATIONWIDE.



Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Lead	601		46.5	1	07/22/2019 21:46	WG1315139

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

193-188

SDG:

L1120454

DATE/TIME:

07/23/19 10:32

PAGE:

14 of 22

L-10

Collected date/time: 07/17/19 00:00

SAMPLE RESULTS - 10

L1120454

ONE LAB. NATIONWIDE.



Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Lead	186		45.8	1	07/22/2019 21:49	WG1315139

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

193-188

SDG:

L1120454

DATE/TIME:

07/23/19 10:32

PAGE:

15 of 22

L-11

Collected date/time: 07/17/19 00:00

SAMPLE RESULTS - 11

L1120454

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Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Lead	ND		49.1	1	07/22/2019 21:52	WG1315139

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

193-188

SDG:

L1120454

DATE/TIME:

07/23/19 10:32

PAGE:

16 of 22

L-12

Collected date/time: 07/17/19 00:00

SAMPLE RESULTS - 12

L1120454

ONE LAB. NATIONWIDE.



Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Lead	63.0		48.6	1	07/22/2019 20:43	WG1315139

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

ACCOUNT:

Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:

193-188

SDG:

L1120454

DATE/TIME:

07/23/19 10:32

PAGE:

17 of 22

WG1315139

Metals (ICP) by Method 6010B

QUALITY CONTROL SUMMARY

[L1120454-01.02.03.04.05.06.07.08.09.10.11.12](#)

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Method Blank (MB)

(MB) R3433089-1 07/22/19 20:52			
	MB Result	MB Qualifier	MB MDL
Analyte	mg/kg	mg/kg	mg/kg
Lead	U	15.8	50.0

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3433089-2 07/22/19 20:54 • (LCSD) R3433089-3 07/22/19 20:57			
	Spike Amount	LCS Result	LCSD Result
Analyte	mg/kg	mg/kg	mg/kg
Lead	604	599	601

L1120454-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1120454-03 07/22/19 21:00 • (MS) R3433089-6 07/22/19 21:08 • (MSD) R3433089-7 07/22/19 21:11			
	Spike Amount	Original Result	MS Result
Analyte	mg/kg	mg/kg	mg/kg
Lead	500	1460	2490

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

ACCOUNT: Wood EXI Solutions Inc. - St. Louis, MO

PROJECT: 193-188

SDG: L1120454

DATE/TIME: 07/23/19 10:32

PAGE: 18 of 22

GLOSSARY OF TERMS

ONE LAB. NATIONWIDE.



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
----	--

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:
193-188

SDG:
L1120454

DATE/TIME:
07/23/19 10:32

PAGE:
19 of 22

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.



Pace National is the **only** environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



ACCOUNT:
Wood E&I Solutions Inc. - St. Louis, MO

PROJECT:
193-188

SDG:
L1120454

DATE/TIME:
07/23/19 10:32

PAGE:
20 of 22

APPENDIX Q

TABLE 3 – SOIL LEAD ANALYTICAL RESULTS

TABLE 3

SOIL LEAD ANALYTICAL RESULTS⁽¹⁾
National Park Service Tracts 01-109, 01-110, 01-111, 01-112, & 01-113
Ste. Genevieve, Missouri

Sample Location	Lead (mg/kg) ⁽²⁾	REGULATORY LEVELS			
		MDOH ⁽³⁾ Bare Soil Areas Where Children Have Access to Site	MDOH ⁽³⁾ Bare Soil Areas Where Children Don't Have Access To The Site	USEPA ⁽⁴⁾ Bare Soil Play Areas	USEPA ⁽⁴⁾ Rest Of The Yard
Sample Date – 7/09/19					
109 North	1,640	400	2,000	400	1,200
109 West	3,320				
110 North	228				
110 West	337				
110 South	412				
111 North	9,510				
112 North	483				
112 East	368				
112 South	126				
112 West	73.3				
113 North	1,070				
113 East	1,730				
113 South	1,450				
113 West	307				

- (1) Metals analyzed using USEPA method 6010B
(2) mg/kg– Results reported in milligram per kilogram.
(3) Missouri Department of Health and Senior Services, Division 30, Chapter 70 – Lead Abatement and Assessment Licensing, Training and Accreditation – 19 CSR 30-70.620 Work Practice Standards for a Lead Risk Assessment, dated July 31, 2018
(4) Title 24 – HUD – Part 35, Lead Based Paint Poisoning Prevention in Certain Residential Structures, Sec 35.1320 – Lead Based Paint Inspections and Risk Assessments, dated June 21, 2004.

Appendix D – Ligno-Logic Wood Assessment and Species Identification Report

REPORT

WOOD ASSESSMENT OF THE JEAN BAPTISTE VALLE HOUSE, NPS, STE. GENEVIEVE, MO



Prepared for:

Raths, Raths & Johnson, Inc.

500 Joliet Road, Suite 200. Willowbrook, IL 60527-5618

Prepared by:

Anthony & Associates, Inc.

P. O. Box 271400. Fort Collins, CO 80527-1400

and

Ligno Logic LLC

1919 Woodlawn Ave. Eugene, OR 97403-1887

February 28, 2023

REPORT:

Wood Assessment of the Jean Baptiste Valle House, NPS, Ste. Genevieve, MO

BACKGROUND

This work was performed based on information provided by Rath's, Rath's & Johnson, Inc. (RRJ). The site visit was conducted on October 4-6, 2022, with the RRJ project team. The purpose of the assessment was originally only to determine the wood species of selected structural members of the Jean Baptiste Valle House (JBV House). Laboratory analysis of collected wood samples was performed at the Ligno Logic lab. Based on the assessment, the RRJ project team should have the necessary information to make informed decisions about structural interventions and treatment recommendations.

SCOPE OF WORK

The scope of work for the wood assessment was determined after a review of the existing documentation provided by RRJ, and confirmed on site after a walk-through of the building with the project team.

The original scope of work included the following tasks:

- Collect up to ten wood samples to identify the wood species or wood species groups for structural members of the Jean Baptiste Valle House (JBV House).
- Conduct data analysis and summarize the findings in a written report.
- Assist the project team in formulating appropriate treatment recommendations.

Following the discussion with the RRJ project team about their concerns regarding deterioration of structural members at the JBV House, the scope of work was expanded to include limited resistance drilling of floor beams and joists in the basement.

FIELD AND LABORATORY PROCEDURES

WOOD SPECIES IDENTIFICATION

Identifying wood species in building components makes it possible to select compatible materials for repair and replacement interventions. Additionally, knowing the wood species along with the structural grade and wood condition of structural members allows for determination of design properties for conducting engineering analysis.

Samples for wood species identification were removed from a selection of vertical wall logs accessed from the second floor and floor beams and joists in the basement. The sample removed corresponds to the smallest amount of wood required for analysis (Figure 1). Wood species were identified using standard microscopic and macroscopic wood identification techniques.



Figure 1. Sampling location for Sample #2.



Figure 2. Use of a resistance drill to investigate the internal wood condition in a floor beam.

RESISTANCE DRILLING

Resistance drilling is a quasi-nondestructive technique for determining the relative density of wood. The resistance drill measures the torque applied to a small diameter needle (typically between 1.5 and 3 mm) as it penetrates wood at a constant speed. The relative density profile is plotted against the depth of needle penetration. Resistance drilling is best suited for determining internal problems in large wood cross-sections that do not show obvious signs of deterioration, such as surface decay. Any internal void or early stage of decay at the drilled location can be detected by determining the relative density of the wood.

Limited resistance drilling was used to verify internal conditions of structural members in the basement of the JBV House identified by the RRJ structural engineering team as requiring additional testing. Resistance drilling was done using a Rinntech Resistograph R650-PR Resistance Drill (Figure 2).

The condition of wood seen on the resistance drilling profiles is termed as *solid*, *punky* or *void*. Solid wood has a resistance drilling (relative density) profile typical for healthy and sound wood (free of decay or insect damage). Punky wood is soft and easy to penetrate but has not yet deteriorated to

the point where there is a void; the resistance drilling profile has lower relative density range than sound wood and lacks a sharp definition of wood features such as growth rings. Voids develop after deterioration of the wood fibers and loss of structural integrity and is represented as a flat resistance drilling profile with a relative density at the baseline.

Resistance drilling profiles are classified as having less or more than 50% of the section loss relative to the dimension of a drilled element. The distinction between less than or greater than 50% of section loss is arbitrary and adopted only for the purpose of sorting the members that are more severely deteriorated. An engineering analysis would allow for determining whether 50% remaining solid wood on the members subjected to resistance drilling is sufficient based on anticipated loads, wood species, and structural grade.

NOMENCLATURE

The nomenclature for the basement of the JBV House, used for the wood identification sampling and resistance drilling locations was adopted from the RRJ project team.

FINDINGS

WOOD SPECIES IDENTIFICATION

Table 1. Wood identification results for the samples from Jean Baptiste Valle House, Ste. Genevieve, MO.

Sample number	Location	Component	Sample description	Wood species/species group
1	Room 6	Beam	Beam	White oak group (<i>Quercus</i> spp.)
2	Room 4	Joist	Third joist from east near south wall	Southern pine group (<i>Pinus</i> spp.)
3	Room 4	Joist	Second joist from west, south end	Southern pine group (<i>Pinus</i> spp.)
4	Room 7	Beam	Third beam from west, north end	Southern pine group (<i>Pinus</i> spp.)
5	Room 5	Beam	Over doorway, west end	Red oak group (<i>Quercus</i> spp.)
6	Room 9	Beam	East-west beam through the opening along west wall	White oak group (<i>Quercus</i> spp.)
7	Room 10	Beam	East-west beam near door	Southern pine group (<i>Pinus</i> spp.)
8	Room 11A	Beam	East end, north of masonry opening	White oak group (<i>Quercus</i> spp.)
9	Room 11B	Beam	East-west beam south of north wall at east	White oak group (<i>Quercus</i> spp.)
10	Room 11	Beam	East end, immediately north of sample #8	White oak group (<i>Quercus</i> spp.)
11	Room 13	Beam	Left of the masonry opening near east porch	Southern pine group (<i>Pinus</i> spp.)
12	2 nd floor	Vertical wall log	North elevation, east end	Red oak group (<i>Quercus</i> spp.)
13	2 nd floor	Top plate	North elevation	White oak group (<i>Quercus</i> spp.)
14		Decking board	Tongue and Groove decking board	Southern pine group (<i>Pinus</i> spp.)

Wood identification results for samples collected from the JBV House are shown in Table 1. Sampling locations for Samples 1-10 are shown in Figures 3-13. Based on the wood identification results for basement framing members, hand-hewn beams are mixed white and red oak species (*Quercus* spp.), and the sawn joists are Southern pine species group (*Pinus* spp.). The vertical wall log on the second floor is red oak, and the top plate is white oak.

The individual species within red oak and white oak groups cannot be separated with certainty based on the wood anatomy. The red oak group includes all species of red oaks listed in 'Northern Red Oak' and 'Red Oak' sawn lumber species and species combinations under the National Design Specification for Wood Construction.¹ White oaks are listed under the 'White Oak' species group under the National Design Specification for Wood Construction. Numerous species of white and red oaks are native to Missouri and have been used in building construction. Similarly, southern pines which include several economically important species such as loblolly (*Pinus taeda* L.), longleaf (*P. palustris* Mill.), shortleaf (*P. echinata* Mill.), and slash pine (*P. elliottii* Engelm.) cannot be separated into species based on the wood anatomy. The lumber (and timber) of southern pines is marketed and known in the trade as Southern Yellow Pine (SYP)².



Figure 3. Sample 1. Room 6, beam, white oak.



Figure 4. Sample 2. Room 4, joist, southern pine.



Figure 5. Sample 3. Room 4, joist, southern pine.



Figure 6. Sample 4. Room 7, beam, southern pine.

¹ National Design Specification (NDS) Supplement: Design Values for Wood Construction, 2018.

² Gaby. L.I. 1985. The Southern Pines. U.S. Department of Agriculture, Forest Service, FS-256.



Figure 7. Sample 5. Room 5, beam, red oak.



Figure 8. Sample 6. Room 9, beam, white oak.



Figure 9. Sample 7. Room 10, beam, southern pine.



Figure 10. Samples 8, 9, and 10. Beams in Rooms 11, 11A, and 11B, white oak.



Figure 11. Sample 8. Room 11A, beam, white oak.



Figure 12. Sample 9. Room 11B, beam, white oak.



Figure 13. Sample 10. Room 11, beam, white oak.

RESISTANCE DRILLING

Resistance drilling was performed for first-floor framing members selected by the RRJ project team due to concerns about internal conditions. The floor framing members were assessed from the basement, and their locations are marked using a basement plan provided by the RRJ project team.

Resistance drilling results are shown in the Appendix. Members subjected to resistance drilling were generally free of advanced fungal decay or voids, but often have up to 1 ½ inches punky section on the surface (surface deterioration). The extent of the punky section in the resistance drilling profiles is associated with a lower relative wood density due to extensive powderpost beetle damage of sapwood or the presence of bark. The lengths of solid sections that correspond to either thickness (drilled upward) or width (drilled horizontally) are provided in the Appendix. An exception is the E-W Beam in Room 12A (3rd from the south), which is severely deteriorated throughout its length between the east and west walls, as confirmed by resistance drilling in multiple locations. This beam, measuring approximately 10 x 10 inches, has a large internal void extending through the entire investigated length (Appendix). The void is U-shaped (resistance drilling profiles #80190, 80191, and 80193) or restricted to the center of the beam (resistance drilling profiles #80189, 80192, and 80194). Depending on the resistance drilling location and direction, the dimension of the void ranges from four to eight inches. The solid wood shell along the perimeter is ¾ - 2 ¾ inches wide.

SUMMARY

- First-floor beams and joists are identified as mixed white and red oak or the southern pine species group. It appears that the hand-hewn floor beams are mixed white and red oak species, and the sawn members, possibly of a later construction date, are the southern pine species group.
- A sample of vertical wall log from the east end on the north elevation was identified as the red oak species group. The sample from the top plate on the north elevation was identified as the white oak species group.
- The tongue-and-groove decking board sample was identified as the southern pine species group.
- All identified wood species are native to the geographic location of the JBV House. It is recommended that the material for repairs and replacement of the building elements be of the same wood species (or species group) and comparable wood quality as the original material.
- Resistance drilling of floor framing members selected for testing by the RRJ team confirms generally fair to good condition of beams, with solid interiors and frequently punky outer layer ranging from ½" to 1 ½" in depth.
- E-W Beam in Room 12A (3rd from the south) is in poor condition, with an internal void that extends along the length of the member and is approximately four to eight inches in diameter, resulting in about 20% to 65% section loss. It is recommended that this beam be evaluated for structural capacity and considered for reinforcement or replacement.

Appendix E – Other Treatment Options Considered

OTHER TREATMENT OPTIONS CONSIDERED

In the course of developing conceptual treatments for the Jean Baptiste Vallé House, multiple options for addressing site, landscape, circulation, and accessibility were developed to facilitate discussion during the participatory workshop which included NPS staff, the project consultant team, park partners, and other stakeholders. The outcome of that workshop was a consensus agreement on the preferred treatment recommendations; included here the alternative options presented.

Site and Landscape Options Considered

Three options offer alternatives for consideration related to the provision of accessible parking, site access, and house and landscape circulation systems that meet ABAAS. Each option suggests potential ways in which visitors may arrive, park, and reach entrances into the Jean Baptiste Vallé House property. Given the proximity of the Jean Baptiste Vallé House to other historic properties of interest within Ste. Genevieve National Historical Park and the Ste. Genevieve Historic District, these options also indicate the potential to establish a walking tour within the vicinity of the Jean Baptiste Vallé House. Features such as wayfinding signs intended to guide visitors to the park, their destinations, orientation, and other interpretive information will be addressed in later submissions. The figures below illustrate the site access treatment options described below.

Existing Conditions

No ABAAS Compliant Access to the Jean Baptiste Vallé House and Landscape

Treatment Option 1 (Figure 1) is based on the existing conditions without making significant improvements or alterations to the site circulation and access.

The list below is presented to better understand the extent of accessibility interventions required to provide a meaningful experience for all visitors, as well as the extent of potential impacts to significant historic features.

Issues pertaining to Treatment Option 1 include:

- There is currently no accessible entrance to the house. The entries at both the east and west galleries of the house require access a wooden staircase.
- The current entrance into the site from the Market Street sidewalk has no accessible path through the garden or directly to the house.
- The current driveway entrance to the garage from the Market Street sidewalk also has no accessible path to the house.
- The landscape walkways are in variable condition, with slope and cross-slope issues not in compliance with ABAAS requirements, and are generally in need of repair.
- The grape arbor is in poor condition and cannot be accessed by the public currently. Repairs are needed to the structure and the walkway.
- There are no accessible pathways along the public sidewalks from the Visitors Center parking lot or street parking to the historic site. Curb cuts, sidewalk widths, obstacles in the walkway, and walking surfaces are not compliant with ABAAS requirements.

Currently, the existing conditions do not respond to NPS goals or objectives for interpretation for the House and site and do not provide a barrier-free experience for visitors. Repairs and improvements to the problematic features listed above can be performed with little to no impact to the historic resource. As such, this option was not identified as the preferred treatment.



Figure 1. Treatment Option 1: Existing Conditions: No ABAAS Compliant Access to the Jean Baptiste Vallé House and Landscape. (Source: LSHLA)

Treatment Option 2**Accessible Site and House Entrances and Landscape Pathways**

Treatment Option 2 (Figure 2) proposes an accessible circulation route to the Jean Baptiste Vallé parcel between the parking area west of the Ste. Genevieve National Historical Park Welcome Center and the west entrance into the house. In this option, visitors would cross South Main Street at the intersection of Market and South Main and continue north along the South Main Street sidewalk toward a proposed new entrance to the site at the north end of the parterre garden. An accessible entrance and walkway leading west would provide access to the grape arbor and an opportunity to continue west and encircle the landscape that was once the site of the vegetable gardens and orchards. A paved landing would provide wayside interpretation as visitors look east across the landscape to the grape arbor, the garden beyond, and the house.

At the intersection with the grape arbor, an accessible walkway would lead south toward the house through the grape arbor. Views would be afforded through the grape arbor to the parterre garden. This walkway would continue to the west entrance of the house. The

proposed changes to the walkways in this option would occur in terms of surfacing and width but would follow the current alignments. The circulation pattern and individual pathways within the parterre garden would not be impacted by the proposed accessibility improvements but would be made accessible through interpretation and the provision of views along the proposed accessible circulation route. The current entrance to the site from the Market Street sidewalk would remain, along with the turf path west of the house.

Treatment Option 2 addresses many of the deficiencies to a barrier-free experience described above in “Existing Conditions,” as well as incorporating new features to improve visitor experience and provide interpretive opportunities in the site and garden. Based on discussions during the treatment workshop, the park identified a desire to enable visitors to have a deeper interaction with the western portion of the site, which is currently underutilized due to the condition of the walkways and lack of visitor engagement. For this reason, this option was not selected as the preferred treatment.

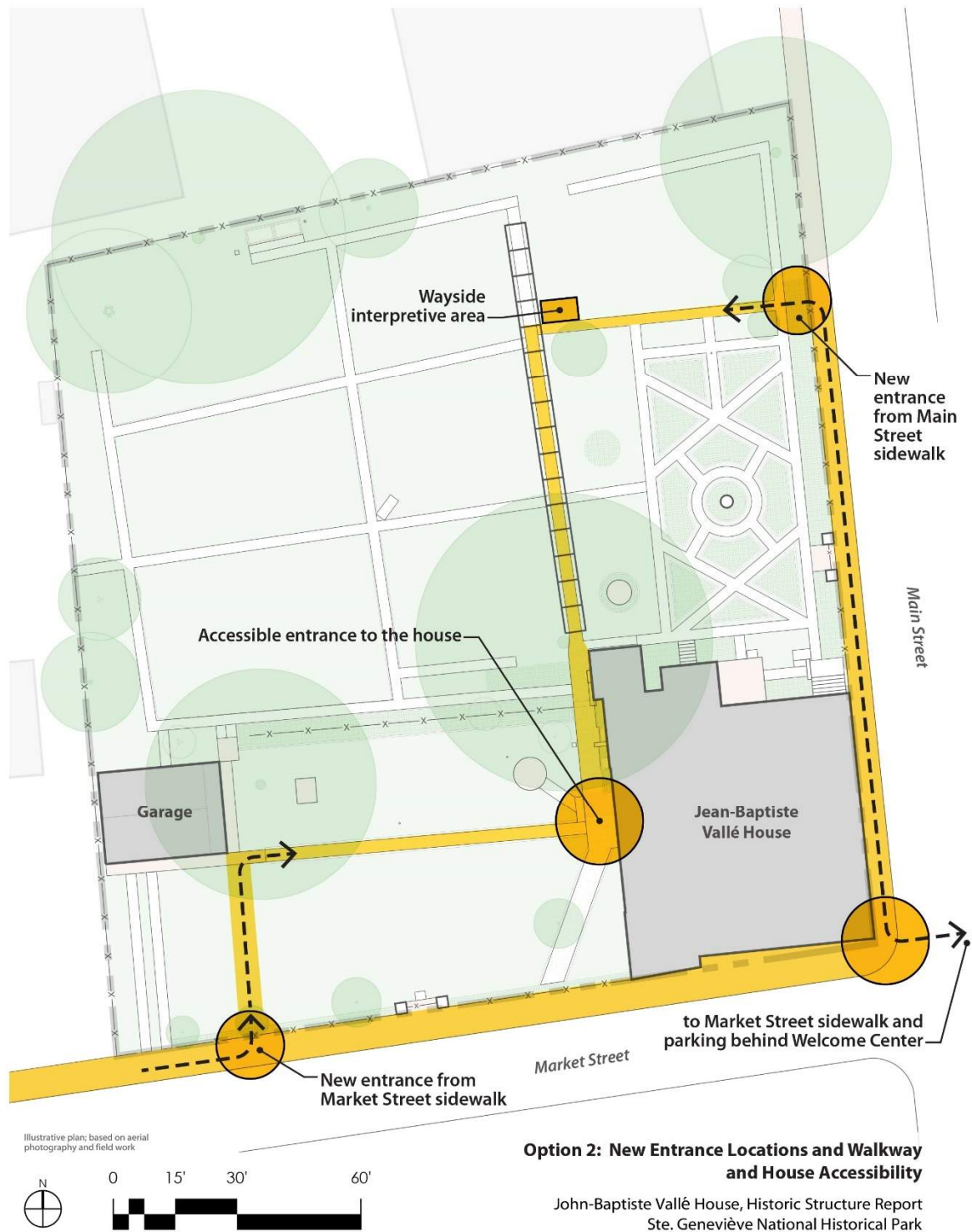


Figure 2. Treatment Option 2: Accessible Site and House Entrances and Landscape Pathways. (Source: LSHLA)

Treatment Option 3**Accessible Site and House Entrances and Landscape Pathways**

Treatment Option 3 (Figure 3) entails the establishment of an accessible circulation route to the Jean Baptiste Vallé parcel from the parking area west of the Ste. Genevieve National Historical Park Welcome Center. Visitors would cross South Main Street at the intersection of Market and South Main and continue north along the South Main Street sidewalk toward a proposed new entrance to the site at the north end of the parterre garden. An accessible site entrance and walkway leading west would provide access to the grape arbor and a landing for interpretation. At the intersection with the grape arbor, the accessible walkway would provide visitors with the experience of moving through the structure. Views would be afforded toward the parterre garden. The accessible route through the grape arbor would continue west and intersect with the west entrance to the house. A new site entrance from the Market Street sidewalk would meet an accessible walkway intersecting with the existing walkway extending through the turf grass area. The new walkway would connect with the proposed accessible walkway leading from the grape arbor.

Visitors would have a choice of two entrance and exit points from the Market and South Main Street sidewalks.

Existing walkways would be made accessible but remain in their current footprints. The circulation pattern and individual pathways within the parterre garden would not be impacted by the proposed accessibility route but would be made accessible through interpretation and the provision of views along the proposed accessible circulation route. A new 20- to 25-foot-long segment of walkway would be added to connect the Market Street entrance to an accessible pathway. This change provides an accessible route on a paved surface from Market Street.

Treatment Option 3 builds upon and expands Option 2 to introduce pathways and opportunities for visitor engagement throughout the parcel. During the treatment workshop, Option 3 was the better approach, but site accessibility was not coordinated with the preferred approach to provide an accessible entry at the west entrance of the house.

Option 3 was redeveloped to incorporate other treatment decisions from the workshop to develop the preferred treatment plan presented as Figure 398.

Jean Baptiste Vallé House Historic Structure Report

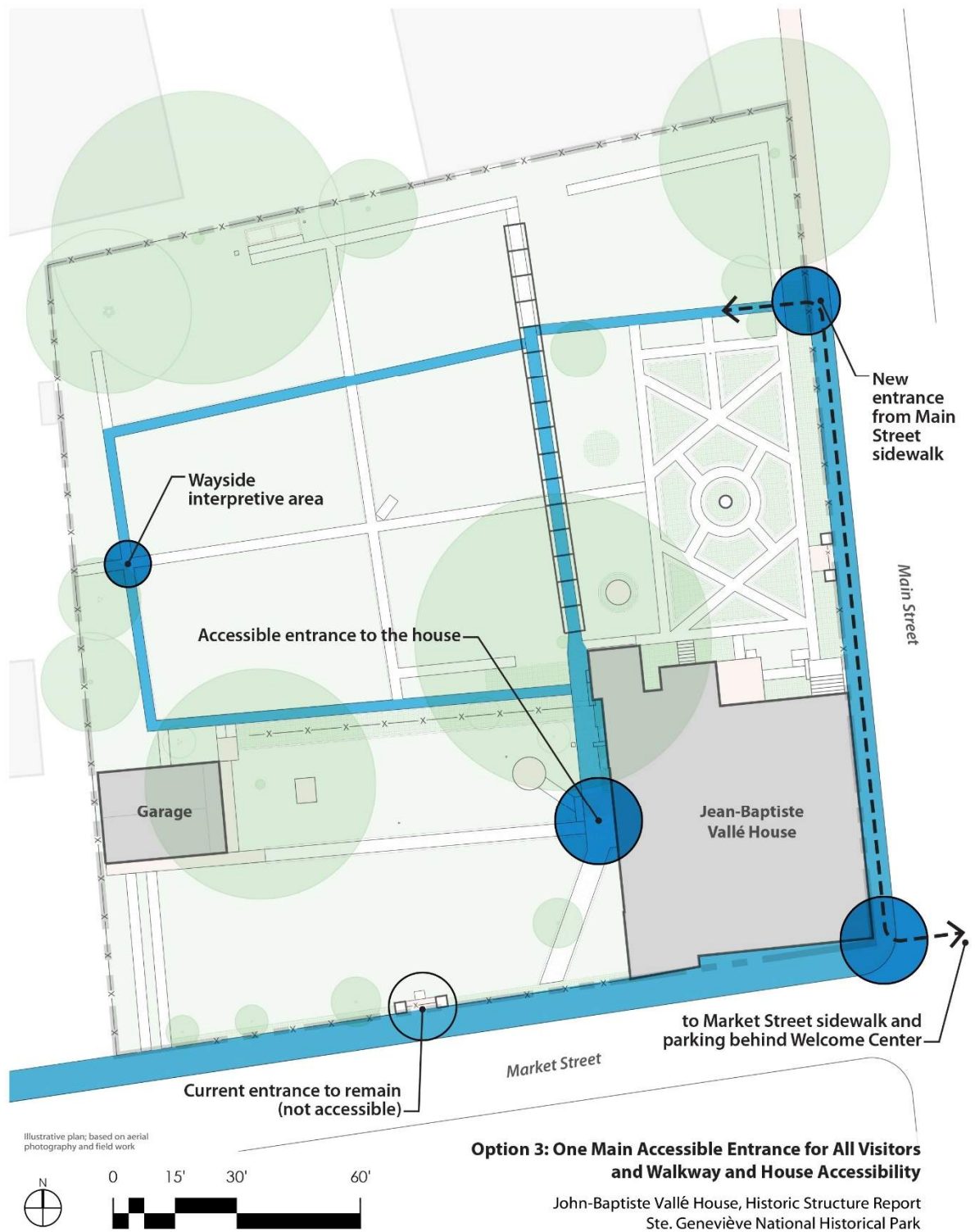


Figure 3. Option 3: Accessible Site and House Entrances and Landscape Pathways. (Source: LSHLA)

Accessibility Options Considered

No accessible route currently exists to bring mobility challenged visitors to the main level of the house. Multiple options were considered for providing an accessible entry to the main level, as well as options that could provide accessible circulation to the basement and second levels. These options, which included the addition of motorized lifts and elevators to make various levels of the structure accessible, were determined to have an adverse effect on the historic resource due to the level of physical intervention required for construction, as well as a significant negative impact to the exterior appearance and integrity.

Option 1: Exterior Chair Lifts

Options for adding an accessible route to the main level were considered which included the addition of a motorized chair lift at either the east or west gallery (Figure 4 and Figure 5). A vertical wheelchair lift would be suitable to bring a visitor from grade to the porch elevation. These lifts are typically electric with battery backup and can bridge a 5-foot difference in elevation between two level surfaces. Larger models capable of supporting heavier, motorized wheelchairs and mobility devices are available.

Two access locations for a motorized chair lift were considered, at the east gallery and the west gallery.

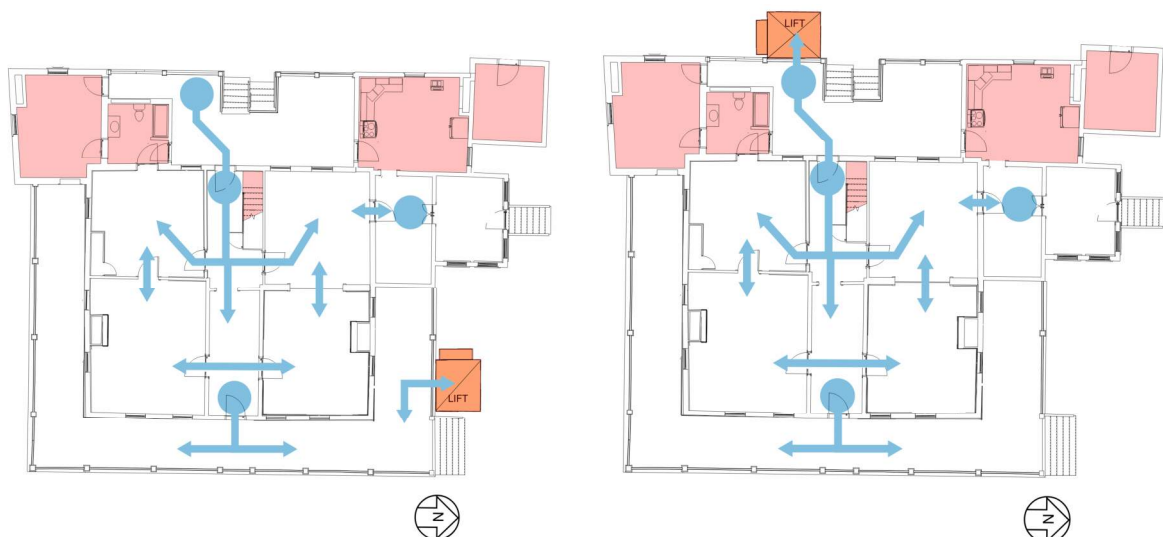


Figure 4. Optional placement for chair lifts to access the east gallery (left) or west gallery (right) (in yellow); rooms that remain inaccessible due to changes in floor elevation are shown in red; and circulation within the first level that is ABAAS compliant for door widths, floor slopes, and turning radii are indicated in blue. (Source: RRJ)

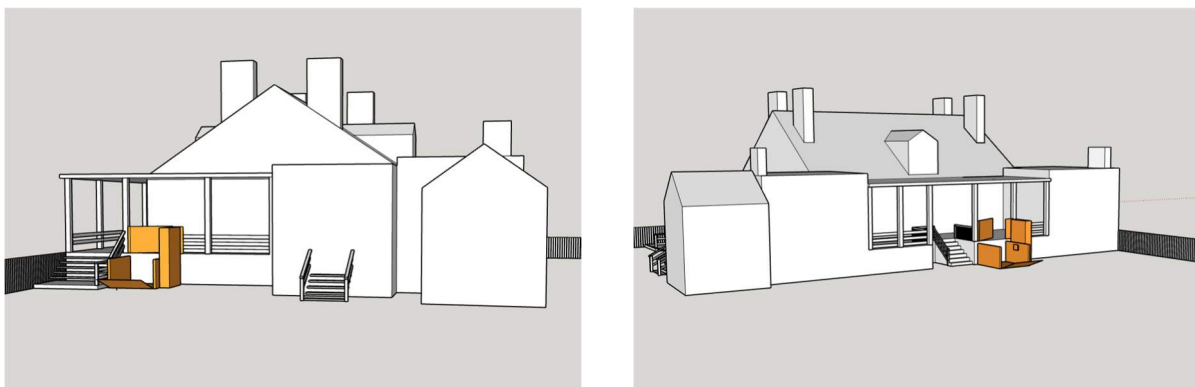


Figure 5. Massing model of the north (left) and west (right) exterior walls, showing the chair lift to the east gallery (left) and the west gallery (right) with the chair lifts highlighted in yellow. (Source: RRJ)

Both options would provide full access to public spaces on the first level but would not provide universal access to the basement or second floor.

The primary advantage of a motorized chair lift is the relatively small footprint the equipment requires, compared to space intensive options, such as ramps. Disadvantages of chair lifts include that they require power to operate and require regular maintenance. When the motorized chair lift is out of service, there are no secondary options for barrier free access to the site. Additionally, a lift is more expensive in both initial costs and periodic maintenance costs than a ramp.

For these reasons, a lift was not selected as the preferred treatment option.

Option 2: Elevator

Options were also considered for providing universal access to all interior levels of the house, which would require installing an elevator (Figure 6 and Figure 7).

The primary issue with installing an elevator at the Jean Baptiste Vallé House is the space required by the equipment and chase. Limited Use/Limited Application (LULA) Elevators are smaller than standard passenger elevators. The enclosure for LULA elevators can be wood framed rather than concrete, and the cabs and controls are fully compatible with ABAAS requirements for elevators. The maximum vertical travel distance for a LULA elevator is typically 25-feet, which would meet the needs at the House.

LULA elevators are available in both electric, machine room-less (MRL) options or a standard hydraulic drive. Both options eliminate the need for a traditional elevator pit, requiring less than 2-feet depth. This reduces the need for excavation inside the footprint of the historic structure, which would require archeological review and compliance and potentially localized stabilization of the existing foundation footing. Since LULA elevators are less expensive and require less maintenance than

traditional passenger elevators, they are considered an economical option for small commercial use and for retrofit applications.

Advantages of an elevator include the ease of use for visitors and the ability to make the House fully accessible. However, installing an elevator at the Jean Baptiste Vallé House has several challenges and presents adverse effects to the historic resource.

The primary challenge is the lack of available space within the historic footprint that can accommodate the enclosure dimensions and overhead clearances required even for LULA elevators. A 42-inch by 60-inch elevator cab will require a hoistway (shaft) of approximately 70-inches by 80-inches, plus the thickness of the shaft walls, a total footprint of approximately 7-feet by 8-feet; this is a significant amount of space within the modest footprint of the House and would negatively impact interior historic spaces and finishes.

The second challenge is the required overhead clearance, which is not compatible with the variable ceiling height on the second floor of the House. To accommodate even a LULA elevator, a new elevator structure would be required that would visibly modify the building massing and roofline. If the elevator structure were added outside the historic footprint on the west gallery, the shaft structure would be highly visible and incompatible with the historic character. If located at the east gallery, the structure would have a lesser, but still significant, visual impact on the north gable end wall.

Additionally, the high initial cost to install an elevator, along with required maintenance and inspections, makes this option significantly more expensive than a lift or ramp, and an exterior lift would still be required to bring visitors from the garden to the first level. Since the park does not anticipate a programmatic need for the public to access the basement or second floor and given the adverse impact of the new construction, this option was not selected as the preferred treatment.

Jean Baptiste Vallé House Historic Structure Report

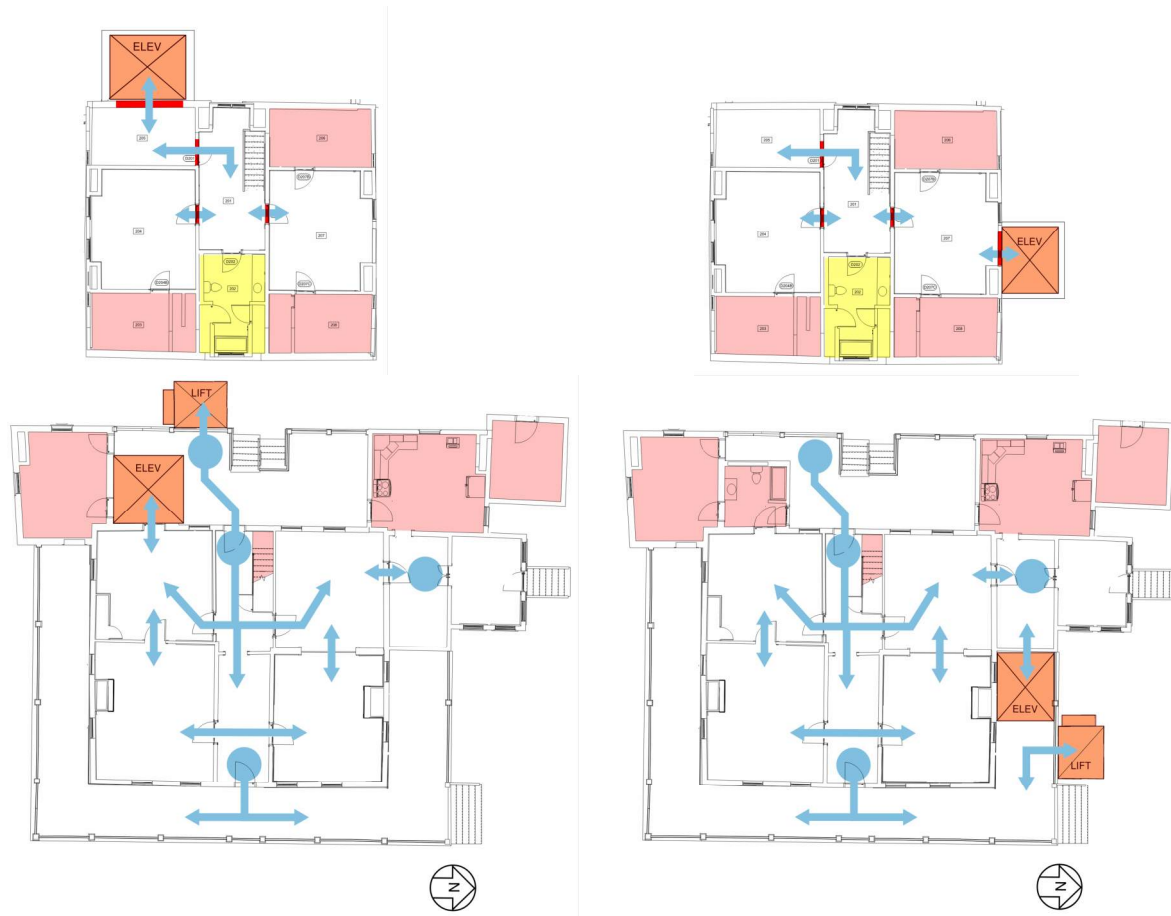


Figure 6. Optional placement for a new elevator structure at the west gallery (left) or east gallery (right); rooms that remain inaccessible due to changes in floor elevation are shown in red; and interior circulation that is ABAAS compliant for door widths, floor slopes, and turning radii are indicated in blue. With renovation, the second floor restroom in yellow could be made accessible. (Source: RRJ)

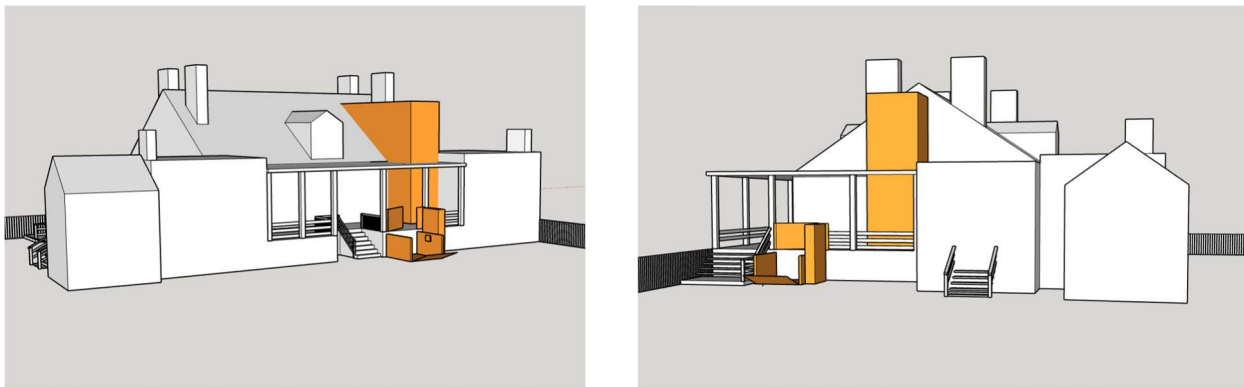


Figure 7. Massing models showing the optional placement of a new elevator structure at either the west gallery (left) or the east gallery (right), showing the size and massing of the new construction required and the adverse effect on the historic character. (Source: RRJ)

Appendix F – Treatment Workshop Meeting Minutes

TREATMENT WORKSHOP MEETING MINS

IDIQ Contract No.: 140P6020D0002 **Task Order No.:** 140P6022F0085
Project: Jean Baptiste Vallé House HSR
RRJ Project No.: 19203.11
Date: July 11, 2023, at 8:00 am to 12:00 pm Central

WORKSHOP ATTENDEES		
CONTACT	FIRM AND ROLE	EMAIL
Lurita Blank	Raths, Raths, and Johnson, Inc. (RRJ) Project Manager Historical Architect	lmblank@rrj.com
Liz Sargent	Liz Sargent HLA (LSHLA) Historical Landscape Architect	lizsargenthla@gmail.com
Jane Jacobs	LSHLA Historical Landscape Architect	janejacobshla@gmail.com
Christina Osborn	LSHLA Historical Landscape Specialist	cosbornhlp@gmail.com
Bob Foust	Alvine Engineering Electrical	bfoust@alvine.com
Mike Gregory	Alvine Engineering Mechanical	mgregory@alvine.com
John Rosemurgy	NPS MWRO Cultural Resources COR/Historical Architect	john_rosemurgy@nps.gov
Christopher Collins	NPS Ste. Geneviève NHP Park Superintendent	christopher_collins@nps.gov
Anderson Newman-Johnson	NPS Ste. Geneviève NHP Park Maintenance	anderson_newman-johnson@nps.gov
Tavis Hill	NPS Ste. Geneviève NHP Administration	Tavis_Hill@nps.gov
David Newmann	NPS Ste. Geneviève NHP Interpretation Program Manager	david_newmann@nps.gov
Leah Edwards	NPS MWRO Historical Landscape Architect	leah_edwards@nps.gov
Jacob Moody	NPS MWRO MWAC Archeologist	jacob_moody@nps.gov
Mark Buechel	NPS MWRO Cultural Resources Historical Architect	mark_buechel@nps.gov
Laura Johnson	NPS Gateway Arch National Park Historical Architect	laura_johnson@nps.gov
Timothy Schilling	NPS Midwest Archeological Center Archeologist	tim_schilling@nps.gov
Robert Mueller	Foundation for the Restoration of Ste. Geneviève	muellerjr13@yahoo.com
Jesse Francis	St. Louis County Cultural Site Manager	JFrancis@stlouiscountymmo.gov
Doug Record	Missouri SHPO	Doug.Record@dnr.mo.gov

MEETING MINUTES

A treatment discussion meeting was conducted virtually via Microsoft Teams on July 11, 2023, at 8:00 am to 12:00 pm CDT. In attendance were representatives of the NPS MWRO, STGE, the project consultant team, and community stakeholders by invitation. The following meeting minutes are provided to summarize discussions and decisions made during this meeting for the project record. Should there be any questions or additions to these minutes, RRJ would appreciate the opportunity to update this document, as appropriate.

I. Project Overview

- A. Meeting attendees are documented for the record in the table above.
- B. An overview of the workshop agenda and goals was given by Lurita Blank with RRJ.

II. History and Overview

- A. Lurita summarized the social history and changes over time as presented in draft Historic Structure Report (HSR). Liz Sargent and Jane Jacobs of LSHLA summarized analysis of the historic landscape.
 - a. A general discussion of spelling conventions was held. Per Bob Mueller with the Foundation for the Restoration of Ste. Geneviève indicated that “Jean Baptiste” Vallé did not hyphenate his name, based on signatures from the 1770s and suggested that “François” Vallé should include the accent.
 - b. Bob Mueller discussed a now missing sun porch constructed on the north side of the house in 1880. He has a newspaper reference to this feature that he will share with the project team.
 - c. Jesse Frances with St. Louis County described a fire that occurred at the house, possibly in the 1970s. There are newspaper articles about the fire that the project team should research.
 - d. Jesse France also discussed evidence of a central double fireplace (now missing) that can be seen in the floor framing. He recommended looking for other signs of alterations before the second floor was added.
 - e. The brick pillars at the site entrances on Market and Main Streets were added in the 2010s. They are not contributing and could be considered for removal. There is photograph documentation and physical evidence for the location of early entrances to the site.
 - f. The current garage structure dates to after 1982 and is not contributing. It is on the site of an earlier structure that collapsed after a storm.
- B. An extended discussion was held on the parterre garden history, design, and precedents.
 - a. Jane Jacobs with LSHLA discussed the known history of the garden design. A flower garden was known to be present on the site in the 1810s and was created by Marie Jeanne Vallé. No maps or sketches of the original garden have been found to date, only the 1811 letter between Vallé and Chouteau discussing plants.
 - b. The existing parterre garden design is likely from a later date, possibly mid to late-19th century. Later alterations are known to have been made in the 1930s through 1950s.
 - c. Bob Mueller suggested reviewing the 1935 aerial photographs of Ste. Genevieve, as well as the centennial scrapbooks in the local library for historic photographs.
 - d. Liz Sargent with LSHLA recommended that future archeological study could be conducted that may assist with understanding changes to the garden design. Investigation into the planting beds might be considered during winter before the plants come in. Liz also recommended further investigation of boundaries and fences.
 - e. Jacob Moody with NPS discussed MWAC work performed on the property in the summer of 2022. MWAC performed a geophysical survey. The survey did not identify evidence of early garden feature, but did potentially identify evidence of an outbuilding or other feature to the northwest of the house. The report for the survey is under preparation and will likely not be available for some time. MWAC may return to the property in the summer of 2024 to perform additional investigation.

- f. Tim Schilling with NPS recommended that the project team research early French-Canadian garden design and traditions in more depth and to expand the history narrative. He recommended considering whether garden design from French Canada or Louisiana were more influential in Ste. Genevieve at this time.
 - g. Bob Mueller indicated that the fountain currently at the center of the parterre garden was added in the 2010s and is not historic.
 - C. The working period of significance (POS) was presented as c. 1794 to 1875, starting with the original construction of the oldest portions of the house based on dendrochronology and ending at the approximate date of the last major alteration of the property.
 - a. The property is listed as a contributing resource to both the Ste. Genevieve National Register Historic District and the Ste. Genevieve National Historic Landmark District but is not listed as an individual landmark.
 - b. Mark Buechel with NPS recommended revisiting the working POS. Three major periods of ownership are included within this general time. He did not find the proposed end date compelling and recommended that the project team review and revise the proposed POS. There was general agreement by attendees to review and revise the end date for the POS.
 - c. An end date of 1877, with the death of Leon Vion was suggested for consideration.

III. Treatment Alternatives

- A. A general discuss was held regarding the future proposed use of the property. Park administrative and office space is being transitioned out of the house and to the new headquarter building at Wilhawk House. The general use of the house will continue as interpretive space and visitor tours.
- B. A Long Range Interpretive Plan (LRIP) has not yet been prepared for the park. It is anticipated to start development soon but will not be available before the end of the HSR project. The park is currently undergoing interpretive planning.
 - a. Currently the house has two unrelated layers of interpretation: the Jean Baptiste Vallé House and the School of Ste. Genevieve art circle.
 - i. David Newmann with NPS indicated that the School of Ste. Genevieve collection does not belong to NPS and could potentially be relocated or returned to the owners. The second floor is likely not an appropriate storage or display location for the collection.
- C. A Cultural Landscape Report is planned for the park in the next year. The CLR may focus on accessibility for select locations but will not include an assessment or treatment recommendations for park-wide accessibility and circulation issues. This is a known challenge.
- D. A detailed discussion as held on site circulation and accessibility.
 - a. There is currently parking along the street and behind the Welcome Center that can be used by visitors. Parking is not aligned with the site entry, and there is not a clear accessible path to the property.

- b. The proximity of the house to the Welcome Center is beneficial, but municipal improvements beyond the control of the park are needed to establish an accessible path from the park to the property.
- c. Lurita Blank proposed redeveloping the southwest corner of the property (near the garage) for limited accessible parking. This was not preferred by participants due to other available parking options.
- d. The main entrance to the garden on Main Street encourages mid-block crossing by pedestrians without a marked crosswalk. This intersection is somewhat hazardous due to blindspots for vehicles turning north on Main Street from Market Street. A marked crosswalk should be considered but would need to be coordinated with the City.
- e. The Welcome Center provides some opportunity of interpretation where site access challenges are present. The Welcome Center is managed under a cooperative agreement between the park and the city.
- f. Participants were generally in favor of alternatives and solutions that the park can execute independently or with minimal coordination with the city.

E. Jane Jacobs presented the treatment options for site circulation and accessibility.

- a. The spatial organization of the parterre garden is a character-defining feature and all treatment alternatives should take this into consideration. However, the garden pathways are not accessible due to pathway width and paving materials; this could be sensitively improved.
- b. Landscape Treatment Alternatives:
 - i. Option 1 (Existing Conditions): Minimal changes to existing circulation with minimal accessibility improvements. This option was not preferred by participants as it did not respond to park needs.
 - ii. Option 2: Expanded circulation to the northeast and southwest quadrants of the site to create an accessible site circulation loop. Participants liked the increased use of the landscape and the improvements to paving and circulation but preferred to see more engagement with the west side of the property, which is currently little used by visitors. This option was not preferred by participants as it did not respond to park needs.
 - iii. Option 3: Expanded circulation to activate the whole of the property with new accessible walkways and interpretive waysides that extend into the west lawn areas. The increased use of the site was attractive. Participants preferred to maintain a pedestrian entry on Market Street. Participants preferred this treatment approach with incorporation of some aspects of Option 2.

F. Lurita Blank presented accessibility treatment options.

- a. Accessibility Treatment Alternatives:
 - i. Option 1: Provide a ramp on the west side of the house to provide an accessible pathway from the ground to the level of the porch. The ramp can have wood railings to blend with the historic railings or a low-visibility modern material such as metal rail with wire. Participants agreed the west elevation provided the best location to connect with the proposed site circulation and site entries and presented the lowest impact on the historic resource. This option was preferred by participants.

- ii. Option 2: Provide a mechanized lift to bring visitors from grade to the level of the porch. Options for locating the lift at the west and north sides were included. This option was not preferred by participants due to the maintenance needs of a lift.
 - iii. Option 3: Provide an interior elevator to make the second floor accessible. Two potential locations for an elevator shaft were presented. Per Chris Collins with NPS, the second floor will not be used for interpretive space, and there is no planned use that would allow visitors on the second floor; additionally, it will not be used by the park for administrative space. This option was not preferred by participants due to the adverse effect on the elevator would have on the property.
- G. Mike Gregory and Bob Foust presented recommendations and treatment options for MEP/FP systems.
- a. MEP/FP Treatment Recommendations:
 - i. Mike Gregory with Alvine Engineering (Alvine) presented treatment recommendations for mechanical and plumbing systems.
 - 1. Most recommendations are general maintenance to keep systems in good working order.
 - 2. Mechanical, HVAC, and plumbing utilities are generally in good repair. The furnace and AC units have service life remaining and later could be replaced in kind.
 - 3. The condensing units on the north side could potentially be relocated to a less visually impactful site, such as the west side.
 - 4. Chris Collins preferred a light touch on mechanical and plumbing alterations. Geothermal and solar options are not preferred at the site.
 - ii. Bob Foust with Alvine presented treatment recommendations for the electrical system.
 - 1. Most recommendations are general maintenance to keep systems in good working order.
 - 2. The electrical system should be considered for replacement, including replacement of the panel and rewiring of the house. A new 200 amp 240/120 panel is recommended. This is not an immediate need, but a recommendation for future rehabilitation.
 - 3. Grounding for the building is highly recommended.
 - iii. Mike Gregory presented options for a fire suppression system. Currently, there is no fire suppression system at the house and the existing alarm system may not be fully functional.
 - 1. Participants generally agreed with the recommendation for a combination wet pipe/dry pipe fire suppressing system and a new fire alarm system.
 - 2. John Rosemurgy recommended the project team review NPS RM-58 Structural Fire Management for fire suppression system guidelines.
- H. Other Treatment Recommendations Discussed
- i. Andy Newman-Johnson with NPS indicated that there are two cisterns on site. The cisterns are partially filled with water and have not been properly decommissioned. This should be part of the recommendations for the site.

- ii. The grape arbor is in poor condition and has been stabilized. Replacement of rotten posts and significant repairs are needed. It is a character-defining feature and should be retained.
 - 1. Lurita Blank suggested that an arborist be consulted regarding trimming the existing grape vines. The vines are likely very old.
- iii. Recommendations for the exterior were generally maintenance related. Bob Mueller believed that the wood siding was stripped to bare wood during the 2010s. An exterior color analysis is recommended to determine if the historic color scheme can be determined.
- iv. The sun porch on the north wall requires masonry repairs to the parapet and lintels. This structure was added in the 20th century and replaced the 1880 portico.
 - 1. David Newmann indicated that the park does not use this room currently and there may be interpretive advantages to restoring the historic portico.
 - 2. Chris Collins recommended a more detailed discussion of this structure in the future to inform rehabilitation plans.

IV. Summary and Closing

- A. Lurita Blank briefly reviewed the action items for the project team and the preferred treatment options selected.
- B. The workshop concluded at approximately 12:40 pm.

Appendix G – Treatment Cost Estimates

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate
LINE ITEM COST SUMMARY

Class C Construction Cost Estimate Template

National Park Service (NPS) - Denver Service Center (DSC) | 5-27-21

By using this Construction Cost Estimate template, you acknowledge you read and understand the corresponding Inst

PROJECT INFORMATION

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Apha: STGE
PMIS: 311236
Estimate Date: 8/5/2024
Prepared By: Lurita Blank
Company: Raths, Raths and Johnson, Inc.
Address: 500 Joliet Road, Suite 200
City, State Zip: Willowbrook, IL 60526
Phone: 630.325.6160

BACKGROUND SUPPORTING MATERIAL (Scope of Work):

Preferred treatment and treatment recommendations for the Jean Baptiste Valle House Historic Structure Report.

SOURCE OF COST DATA:

Historic data, RS Means, and current pricing from active projects.

ESTIMATE ASSUMPTIONS:

Class C estimate level.

MAJOR CHANGES FROM PREVIOUS ESTIMATE:

Added markups for location factor and taxes below, with revisions to "Project Cost Summary" and "Bid Item Summary" tabs.

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate
LINE ITEM COST SUMMARY

PROJECT INFORMATION

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Apha: STGE
PMIS: 311236
Estimate Date: 8/5/2024

DESCRIPTION OF MARK-UP & ADD-ONS:

Design Contingency:	<u>25.00%</u>	This is due to the unforeseen conditions on the project, percentage aligns with recommendation per the NPS Cost Estimating Handbook.
Location Factor:	<u>7.00%</u>	
State and Local Taxes:	<u>9.23%</u>	Missouri State, Ste. Genevieve County, and City of Ste. Genevieve sales taxes
Standard. General Conditions:	<u>10.00%</u>	
Government General Conditions:	<u>5.00%</u>	
Contractor Overhead:	<u>15.00%</u>	
Contractor Profit:	<u>10.00%</u>	
Contracting Method Adjustment:	<u>8.00%</u>	Standard competitive bid without SBA set-asides. Includes 3% bonds.
Annual Inflation Escalation Factor:	<u>7.00%</u>	Projected annual inflation rate.
Time Until Project Midpoint (Months)	<u>12</u>	Number of months from estimate (or data) date until the projects midpoint of construction.

OTHER COMMENTS:

Immediate priority repairs.

Estimate By:	Lurita Blank
Date:	08/05/24
Reviewed By:	Lurita Blank
Date:	10/14/24

10/14/2024 5:19 PM

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate
LINE ITEM COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS Number: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Bid Item Number	Asset / Project Element / Description	Size/Count	Units
BID ITEM	Asset / Project Element / Description	6,633	SF

Item No.	WBS	Description	Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Direct Cost/Unit	Total Direct Costs	NET Cost/Unit	Total NET Costs
1		Foundations	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2		Basement Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3	B10	Superstructure	\$ 0.04	\$ 250.00	\$ 0.33	\$ 2,200.00	\$ -	\$ -	\$ 0.37	\$ 2,450.00	\$ 0.83	\$ 5,484.46
4	B20	Exterior Enclosure	\$ 0.00	\$ 15.00	\$ 0.05	\$ 350.00	\$ -	\$ -	\$ 0.06	\$ 365.00	\$ 0.12	\$ 817.07
5	B30	Roofing	\$ 0.14	\$ 935.00	\$ 0.56	\$ 3,658.38	\$ -	\$ -	\$ 0.72	\$ 4,793.38	\$ 1.62	\$ 10,730.24
6		Interior Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7	B10	Stairs	\$ 0.22	\$ 1,487.50	\$ 0.26	\$ 1,750.00	\$ -	\$ -	\$ 0.49	\$ 3,237.50	\$ 1.09	\$ 7,247.32
8		Interior Finishes	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9		Conveying Systems	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
10	D40	Plumbing Systems	\$ -	\$ -	\$ 0.15	\$ 1,000.00	\$ -	\$ -	\$ 0.15	\$ 1,000.00	\$ 0.34	\$ 2,238.56
11		HVAC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12		Fire Protection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
13		Electrical	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
14		Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15		Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
16		Special Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17		Selective Building Demolition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
18		Site Preparation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
19	G20	Site Improvements	\$ 0.50	\$ 3,319.25	\$ 1.28	\$ 8,475.00	\$ 0.01	\$ 42.50	\$ 1.78	\$ 11,836.75	\$ 3.99	\$ 26,497.22
20	G30	Site Mechanical Utilities	\$ 1.70	\$ 11,300.00	\$ 2.67	\$ 17,700.00	\$ 0.79	\$ 5,250.00	\$ 5.16	\$ 34,250.00	\$ 11.56	\$ 76,670.53
21		Site Electrical Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
22		Other Site Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
23		Special Use - 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24		Special Use - 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
25		Special Use - 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Direct Construction Costs			\$ 2.61	\$ 17,306.75	\$ 5.33	\$ 35,333.38	\$ 0.80	\$ 5,292.50	\$ 8.73	\$ 57,932.63	\$ 19.55	\$ 129,685.40
Total Value of Government Furnished Property (GFP) Inc. in Direct Cost			\$ -	\$ 0.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Direct Cost Subtotal without GFP			\$ -	\$ 17,307	\$ -	\$ 35,333.38	\$ -	\$ 5,292.50	\$ -	\$ 57,933	\$ -	\$ -
Design Contingency			25.00%							\$14,483		
Total Direct Construction Costs										\$72,416		
Location Factor			7.00%	Applied to Total Direct Construction Cost less GFP						\$4,055		
State and Local Taxes			9.23%	Applied to Total Direct Construction Cost less GFP						\$1,597		
Standard General Conditions			10.00%	Applied to Total Direct Construction Cost less GFP						\$7,807		
Government General Conditions			5.00%	Applied to Total Direct Construction Cost less GFP						\$3,903		
Subtotal NET Construction Cost										\$89,775		
Overhead			15.00%							\$13,467		
Profit			10.00%							\$8,978		
Estimated NET Construction Cost										\$112,223		
Contracting Method Adjustment			8.00%	includes bonds						\$8,978		
Inflation Escalation			12	Months	Annual Rate =	7.00%				\$8,484		
Total Estimated NET Cost of Construction										\$129,685		

GFP costs only apply when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

LINE ITEM COST SUMMARY

Summary Item: 1 Exteriors

Total Cost: \$8,396

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
B30	ROOFING										
B301001	Repair misc shingles	150	SQFT	\$ 2.50	\$375	\$ 15.00	\$2,250	\$ -	\$0	\$ 17.50	\$2,625
B301004	Repair flashing at chimney	20	SQFT	\$ 5.50	\$110	\$ 35.00	\$700	\$ -	\$0	\$ 40.50	\$810
B301006	Clean gutters, all	111.5	LNFT	\$ -	\$0	\$ 7.25	\$808	\$ -	\$0	\$ 7.25	\$808
B301007	Provide downspout extensions, west yard	50	LNFT	\$ 9.00	\$450	\$ 2.00	\$100	\$ -	\$0	\$ 11.00	\$550
SUBTOTAL	ROOFING	6633	SF	\$17	\$935	\$59	\$3,858	\$0	\$0	\$76	\$4,793

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
B20	EXTERIOR DOORS										
B203006	Rehang Door D110 to prevent dragging	1	EA	\$ 15.00	\$15	\$ 350.00	\$350	\$ -	\$0	\$ 365.00	\$365
SUBTOTAL	EXTERIOR DOORS	6633	SF	\$15	\$15	\$350	\$350	\$0	\$0	\$365	\$365

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
B10	GALLERIES AND EXTERIOR STAIRS										
B101501	Replace base, deteriorated, or damaged handrails in kind, 2x pressure-treated, painted	300	LNFT	\$ 4.25	\$1,275	\$ 5.00	\$1,500	\$ -	\$0	\$ 9.25	\$2,775
B101502	Repairs to sunroom stairs, pressure-treated pine	50	LNFT	\$ 4.25	\$213	\$ 5.00	\$250	\$ -	\$0	\$ 9.25	\$463
SUBTOTAL	GALLERIES AND EXTERIOR STAIRS	6633	SF	\$9	\$1,488	\$10	\$1,750	\$0	\$0	\$19	\$3,238

Summary Item: 1 Exteriors

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
1	Exteriors	6633	SF	\$ 0.37	\$2,438	\$ 0.90	\$5,958	\$ -	\$0	\$ 1.27	\$8,396

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Summary Item: 2 Structure

Total Cost: \$2,450

LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
B1010	FLOOR CONSTRUCTION										
B101001	Install supplemental floor joist in Room U12A, 8x10 white oak timber	20	LNFT	\$ 12.50	\$250	\$ 110.00	\$2,200	\$ -	\$0	\$ 122.50	\$2,450
SUBTOTAL		6633	SF	\$ 0.04	\$250	\$ 0.33	\$2,200	\$ -	\$0	\$ 0.37	\$2,450

Summary Item: 2 Structure

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
2	Structure	6633	SF	\$ 0.04	\$250	\$ 0.33	\$2,200	\$ -	\$0	\$ 0.37	\$2,450

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Summary Item: 3 Site Features

Total Cost: \$46,087

LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
G3013	WELL SYSTEMS										
G301301	Decommission/backfill parterre garden cistern, clean common fill	75	CUYD	\$ 72.00	\$5,400	\$ 62.00	\$4,650	\$ 35.00	\$2,625	\$ 169.00	\$12,675
G301301	Decommission/backfill west yard cistern, clean common fill	75	CUYD	\$ 72.00	\$5,400	\$ 62.00	\$4,650	\$ 35.00	\$2,625	\$ 169.00	\$12,675
G301301	Repair masonry walls above grade	200	SQFT	\$ 2.50	\$500	\$ 42.00	\$8,400	-	\$0	\$ 44.50	\$8,900
SUBTOTAL	WELL SYSTEMS	6633	SF	\$ 1.70	\$11,300	\$ 2.67	\$17,700	\$ 0.79	\$5,250	\$ 5.16	\$34,250

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
G2049	GRAPE ARBOR										
G204902	Reconstruct grape arbor with new pressure-treated posts and lumber, match existing	685	LMFT	\$ 4.25	\$2,911	\$ 5.00	\$3,425	-	\$0	\$ 9.25	\$6,336
G204902	Provide new concrete footings for posts	34	EA	\$ 12.00	\$408	\$ 75.00	\$2,550	\$ 1.25	\$43	\$ 88.25	\$3,001
G204902	Engage a horticulturist to prune grape vines to perform arbor repairs	1	LS	\$ -	\$0	\$ 2,500.00	\$2,500	-	\$0	\$ 2,500.00	\$2,500
SUBTOTAL	GRAPE ARBOR	6633	SF	\$ 0.50	\$3,319	\$ 1.28	\$8,475	\$ 0.01	\$43	\$ 1.78	\$11,837

Summary Item: 3 Site Features

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
3	Site Features	6633	SF	\$ 2.20	\$14,619	\$ 3.95	\$26,175	\$ 0.80	\$5,293	\$ 6.95	\$46,087

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

LINE ITEM COST SUMMARY

Summary Item: 4 Plumbing				Total Cost: \$1,000							
Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
D4010	SANITARY WASTE										
D401001	Scope and inspect sanitary sewer lines for condition	1	LS	\$ -	\$0	\$ 1,000.00	\$1,000	-	\$0	\$ 1,000.00	\$1,000
SUBTOTAL		6633	SF	\$ -	\$0	\$ 0.15	\$1,000	-	\$0	\$ 0.15	\$1,000

Summary Item: 4 Plumbing											
Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
4	Plumbing	6633	SF	\$ -	\$0	\$ 0.15	\$1,000	\$ -	\$0	\$ 0.15	\$1,000

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

BASIS OF ESTIMATE

Class C Construction Cost Estimate Template

National Park Service (NPS) - Denver Service Center (DSC) | 5-27-21

By using this Construction Cost Estimate template, you acknowledge you read and understand the corresponding Ins

PROJECT INFORMATION

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Apha: STGE
PMIS: 311236
Estimate Date: 8/5/2024
Prepared By: Lurita Blank
Company: Raths, Raths and Johnson, Inc.
Address: 500 Joliet Road, Suite 200
City, State Zip: Willowbrook, IL 60526
Phone: 630.325.6160

BACKGROUND SUPPORTING MATERIAL (Scope of Work):

Preferred treatment and treatment recommendations for the Jean Baptiste Valle House Historic Structure Report.

SOURCE OF COST DATA:

Historic data, RS Means, and current pricing from active projects.

ESTIMATE ASSUMPTIONS:

Class C estimate level.

MAJOR CHANGES FROM PREVIOUS ESTIMATE:

Added markups for location factor and taxes below, with revisions to "Project Cost Summary" and "Bid Item Summary" tabs.

**United States Department of the Interior
National Park Service
Class A Construction Cost Estimate**

BASIS OF ESTIMATE

PROJECT INFORMATION

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Apha: STGE
PMIS: 311236
Estimate Date: 8/5/2024

DESCRIPTION OF MARK-UP & ADD-ONS:

Design Contingency:	<u>25.00%</u>	This is due to the unforeseen conditions on the project, percentage aligns with recommendation per the NPS Cost Estimating Handbook.
Location Factor:	<u>7.00%</u>	
State and Local Taxes:	<u>9.23%</u>	Missouri State, Ste. Genevieve County, and City of Ste. Genevieve sales taxes
Standard. General Conditions:	<u>10.00%</u>	
Government General Conditions:	<u>5.00%</u>	
Contractor Overhead:	<u>15.00%</u>	
Contractor Profit:	<u>10.00%</u>	
Contracting Method Adjustment:	<u>8.00%</u>	Standard competitive bid without SBA set-asides. Includes 3% bonds.
Annual Inflation Escalation Factor:	<u>7.00%</u>	Projected annual inflation rate.
Time Until Project Midpoint (Months)	<u>12</u>	Number of months from estimate (or data) date until the projects midpoint of construction.

OTHER COMMENTS:

Medium-term priority repairs (approx. 5 years)

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

PROJECT COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS Number: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Bid Item Number		Asset / Project Element / Description		Size/Count	Units
BID ITEM		Asset / Project Element / Description		6,633	SF

Item No.	WBS	Description	Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cos	Equipment Cost/Unit	Total Equipment Cost	Direct Cost/Unit	Total Direct Costs	NET Cost/Unit	Total NET Costs
1		Foundations	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2		Basement Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3	B10	Superstructure	\$ 0.14	\$ 925.00	\$ 0.36	\$ 2,375.00	\$ -	\$ -	\$ 0.50	\$ 3,300.00	\$ 1.10	\$ 7,293.10
4	B20	Exterior Enclosure	\$ 9.35	\$ 62,021.75	\$ 21.68	\$ 143,831.50	\$ -	\$ 87.50	\$ 31.05	\$ 205,940.75	\$ 68.62	\$ 455,135.45
5	B30	Roofing	\$ 2.65	\$ 17,569.00	\$ 1.67	\$ 11,093.00	\$ -	\$ 5,330.00	\$ 5.12	\$ 33,992.00	\$ 11.33	\$ 75,123.37
6		Interior Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7		Stairs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
8	C30	Interior Finishes	\$ 1.58	\$ 10,454.50	\$ 17.81	\$ 118,163.75	\$ 0.29	\$ 1,950.00	\$ 19.68	\$ 130,568.25	\$ 43.50	\$ 288,559.88
9		Conveying Systems	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
10		Plumbing Systems	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
11		HVAC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12		Fire Protection	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
13		Electrical	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
14		Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15		Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
16		Special Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17		Selective Building Demolition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
18		Site Preparation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
19		Site Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
20		Site Mechanical Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
21		Site Electrical Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
22		Other Site Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
23		Special Use - 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24		Special Use - 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
25		Special Use - 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Direct Construction Costs			\$ 13.71	\$ 90,970.25	\$ 41.53	\$ 275,463.25	\$ 0.29	\$ 7,367.50	\$ 56.35	\$ 373,801.00	\$ 124.55	\$ 826,111.81
Total Value of Government Furnished Property (GFP) Inc. in Direct Cost			\$0.00			\$ -		\$ -	\$ -	\$0	In most cases GFP is normally zero - see footnote-	
Direct Cost Subtotal without GFP			\$ 90,970			\$ 275,463.25		\$ 7,367.50		\$373,801		
Design Contingency			25.00%									
Total Direct Construction Costs											\$467,251	
Location Factor			7.00%		Applied to Total Direct Construction Cost less GFP						\$26,166	
State and Local Taxes			9.23%		Applied to Total Direct Construction Cost less GFP						\$8,397	
Standard General Conditions			10.00%		Applied to Total Direct Construction Cost less GFP						\$46,725	
Government General Conditions			5.00%		Applied to Total Direct Construction Cost less GFP						\$23,363	
Subtotal NET Construction Cost											\$571,902	
Overhead			15.00%								\$85,785	
Profit			10.00%								\$57,190	
Estimated NET Construction Cost											\$714,877	
Contracting Method Adjustment			8.00%		includes bonds						\$57,190	
Inflation Escalation			12		Months		Annual Rate =		7.00%		Inc. Bonds & CMA	
Total Estimated NET Cost of Construction											\$826,112	

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate
PROJECT COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Summary Item: 1 Exteriors

Total Cost: \$243,233

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
B3010	ROOFING										
B301002	Demo existing roofing	2500	SQFT	-	\$0	\$ 2.50	\$6,250	\$ 0.75	\$1,875	\$ 3.25	\$8,125
B301002	Replace EPDM Roofing	2500	SQFT	6.50	\$16,250	\$ 3.00	\$7,500	\$ 2.00	\$5,000	\$ 11.50	\$28,750
B301002	Metal trim and counterflashing	285	LNFT	1.10	\$314	\$ 3.00	\$855	-	\$0	\$ 4.10	\$1,169
B301001	Replace laminated shingles on shed	165	SQFT	2.50	\$413	\$ 6.50	\$1,073	\$ 2.00	\$330	\$ 11.00	\$1,815
B301001	Ice and water shield/underlayment on shed	165	SQFT	0.75	\$124	\$ 2.50	\$413	-	\$0	\$ 3.25	\$536
B301006	Replace gutters on shed	10	LNFT	1.25	\$13	\$ 3.50	\$35	-	\$0	\$ 4.75	\$48
B301006	Repairs to box gutters on main house	101.5	LNFT	4.50	\$457	\$ 12.00	\$1,218	-	\$0	\$ 16.50	\$1,675
SUBTOTAL	ROOFING	6633	SF	\$17	\$17,569	\$31	\$11,093	\$4	\$5,330	\$51	\$33,992

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
B2010	EXTERIOR WALLS										
B201003	Petrographic analysis of existing mortar	1	LS		\$0	\$ 15,000.00	\$15,000	-	\$0	\$ 15,000.00	\$15,000
B201003	Repoint brick masonry exterior walls, misc	2500	SQFT	5.00	\$12,500	\$ 17.00	\$42,500	-	\$0	\$ 22.00	\$55,000
B201003	Repoint brick and stone masonry interior walls, misc	1000	SQFT	5.00	\$5,000	\$ 17.00	\$17,000	-	\$0	\$ 22.00	\$22,000
B201003	Repaint exterior masonry walls	2500	SQFT	2.25	\$5,625	\$ 3.50	\$8,750	-	\$0	\$ 5.75	\$14,375
B201002	Repair and repaint exterior stucco, misc	500	SQFT	4.25	\$2,125	\$ 6.50	\$3,250	-	\$0	\$ 10.75	\$5,375
B201004	Rebuild sunroom brick masonry parapet walls	60	SQFT	55.00	\$3,300	\$ 25.00	\$1,500	-	\$0	\$ 80.00	\$4,800
B201004	Replace lintels and insiall flashing at sunroom windows and door	25	LNFT	75.00	\$1,875	\$ 105.00	\$2,625	\$ 3.50	\$88	\$ 183.50	\$4,588
B1029.4	Rebuild brick masonry chimney over Room 113	70	SQFT	55.00	\$3,850	\$ 25.00	\$1,750	-	\$0	\$ 80.00	\$5,600
B1029.2	Rebuild brick masonry chimney over Room 109	70	SQFT	55.00	\$3,850	\$ 25.00	\$1,750	-	\$0	\$ 80.00	\$5,600
B1029	Repoint brick joints other chimneys	280	SQFT	2.25	\$630	\$ 17.00	\$4,760	-	\$0	\$ 19.25	\$5,390
B1029	Replace chimney caps, galvanized	6	EA	120.00	\$720	-	\$0	-	\$0	\$ 120.00	\$720
SUBTOTAL	EXTERIOR WALLS	6633	SF	\$379	\$39,475	\$15,241	\$98,885	\$4	\$88	\$15,623	\$138,448

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate
PROJECT COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Summary Item: 1 Exteriors		Total Cost: \$243,233									
Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
B2020	WINDOWS										
	Finishes analysis of existing windows	1	LS		\$0	\$ 8,000.00	\$8,000	-		\$0	\$8,000
	Provide and install missing shutters - wood to match existing, painted	14	EA	\$ 325.00	\$4,550	\$ 35.00	\$490	-		\$0	\$5,040
	Clean, repair, and repaint existing shutters	648	SQFT	\$ 2.25	\$1,458	\$ 5.50	\$3,564	-		\$0	\$5,022
	Replace damaged or missing shutter hardware	50	EA	\$ 9.00	\$450	\$ 3.00	\$150	-		\$0	\$600
	Repair and paint all windows	35	EA	\$ 45.00	\$1,575	\$ 265.00	\$9,275	-		\$0	\$10,850
	Replace glazing putty at all windows	35	EA	\$ 75.00	\$2,625	\$ 300.00	\$10,500	-		\$0	\$13,125
	Replace and paint failed window sills and trim in kind	400	LNFT	\$ 4.25	\$1,700	\$ 9.50	\$3,800	-		\$0	\$5,500
	Replace missing windows at basement, new wood windows to match existing	7	EA	\$ 800.00	\$5,600	\$ 175.00	\$1,225	-		\$0	\$6,825
	Replace heavily deteriorated windows at basement, new wood windows to match existing	5	EA	\$ 800.00	\$4,000	\$ 225.00	\$1,125	-		\$0	\$5,125
	Repair and paint at transoms	3	EA	\$ 45.00	\$135	\$ 230.00	\$690	-		\$0	\$825
	Replace glazing putty at transoms	3	EA	\$ 40.00	\$120	\$ 280.00	\$840	-		\$0	\$960
SUBTOTAL	WINDOWS	6633	SF	\$2,146	\$22,213	\$9,528	\$39,659	\$0		\$11,674	\$61,872

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
B2030	EXTERIOR DOORS										
	Finishes analysis of existing doors	1	LS	\$ -	\$0	\$ 3,500.00	\$3,500	-		\$0	\$3,500
	Repaint or refinish exterior doors	125	SQFT	\$ 2.25	\$281	\$ 3.50	\$438	-		\$0	\$719
	Replace glazing putty at all doors	3	EA	\$ 17.50	\$53	\$ 450.00	\$1,350	-		\$0	\$1,403
SUBTOTAL	EXTERIOR DOORS	6633	SF	\$20	\$334	\$3,954	\$5,288	\$0		\$3,973	\$5,621

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate
PROJECT COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Summary Item: 1 Exteriors		Total Cost: \$243,233									
Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
B1013	GALLERIES										
B201008	Replace and paint deteriorated soffit boards, cedar	100	LNFT	\$ 2.50	\$250	\$ 4.75	\$475	-	\$0	\$ 7.25	\$725
B201008	Resecure loose soffit boards	500	SQFT	\$ 0.25	\$125	\$ 2.50	\$1,250	-	\$0	\$ 2.75	\$1,375
B201008	Replace and paint wood trim at gutters where required, cedar	100	LNFT	\$ 5.50	\$550	\$ 6.50	\$650	-	\$0	\$ 12.00	\$1,200
					\$0		\$0	-	\$0	\$ -	\$0
SUBTOTAL	GALLERIES	6633	SF	\$8	\$925	\$14	\$2,375	\$0	\$0	\$22	\$3,300

Summary Item: 1 Exteriors											
Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
1	Exteriors	6633	SF	\$ 12.14	\$80,516	\$ 23.71	\$157,300	\$ 0.82	\$5,418	\$ 36.67	\$243,233

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate
PROJECT COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Summary Item: 2 Interiors

Total Cost: \$130,568

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
C30	INTERIOR FINISHES										
	Finishes analysis of interior painted surfaces	1	LS	\$ -	\$0	\$ 15,000.00	\$15,000	-	\$0	\$ 15,000.00	\$15,000
	Wash wall surfaces with detergent, hand wash	1845	SQFT	\$ 0.10	\$185	\$ 2.25	\$4,151	-	\$0	\$ 2.35	\$4,336
	Replace deteriorated brick in kind, misc	300	SQFT	\$ 3.50	\$1,050	\$ 65.00	\$19,500	\$ 1.50	\$450	\$ 70.00	\$21,000
	Perform repairs to deteriorated limestone masonry walls, misc	1000	SQFT	\$ 3.50	\$3,500	\$ 65.00	\$65,000	\$ 1.50	\$1,500	\$ 70.00	\$70,000
	Replace damaged plaster on second floor	40	SQFT	\$ 1.25	\$50	\$ 35.00	\$1,400	-	\$0	\$ 36.25	\$1,450
	Repaint walls in second floor rooms with plaster repairs	500	SQFT	\$ 2.25	\$1,125	\$ 3.50	\$1,750	-	\$0	\$ 5.75	\$2,875
	Abate ACM-containing linoleum on the second floor	505	SQFT	\$ 2.50	\$1,263	\$ 18.00	\$9,090		\$0	\$ 20.50	\$10,353
	Install new composite or vinyl flooring	505	SQFT	\$ 6.50	\$3,283	\$ 4.50	\$2,273	-	\$0	\$ 11.00	\$5,555
SUBTOTAL	INTERIOR FINISHES	6633	SF	\$ 1.58	\$10,455	\$ 17.81	\$118,164	\$ 0.29	\$1,950	\$ 19.68	\$130,568

Summary Item: 2 Interiors

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
2	Interiors	6633	SF	\$ 1.58	\$10,455	\$ 17.81	\$118,164	\$ 0.29	\$1,950	\$ 19.68	\$130,568

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

BASIS OF ESTIMATE

Class C Construction Cost Estimate Template

National Park Service (NPS) - Denver Service Center (DSC) | 5-27-21

By using this Construction Cost Estimate template, you acknowledge you read and understand the corresponding Ins

PROJECT INFORMATION

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Apha: STGE
PMIS: 311236
Estimate Date: 8/5/2024
Prepared By: Lurita Blank
Company: Raths, Raths and Johnson, Inc.
Address: 500 Joliet Road, Suite 200
City, State Zip: Willowbrook, IL 60526
Phone: 630.325.6160

BACKGROUND SUPPORTING MATERIAL (Scope of Work):

Preferred treatment and treatment recommendations for the Jean Baptiste Valle House Historic Structure Report.

SOURCE OF COST DATA:

Historic data, RS Means, and current pricing from active projects.

ESTIMATE ASSUMPTIONS:

Class C estimate level.

MAJOR CHANGES FROM PREVIOUS ESTIMATE:

Added markups for location factor and taxes below, with revisions to "Project Cost Summary" and "Bid Item Summary" tabs.

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

BASIS OF ESTIMATE

PROJECT INFORMATION

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Apha: STGE
PMIS: 311236
Estimate Date: 8/5/2024

DESCRIPTION OF MARK-UP & ADD-ONS:

Design Contingency:	<u>25.00%</u>	This is due to the unforeseen conditions on the project, percentage aligns with recommendation per the NPS Cost Estimating Handbook.
Location Factor:	<u>7.00%</u>	
State and Local Taxes:	<u>9.23%</u>	Missouri State, Ste. Genevieve County, and City of Ste. Genevieve sales taxes
Standard. General Conditions:	<u>10.00%</u>	
Government General Conditions:	<u>5.00%</u>	
Contractor Overhead:	<u>15.00%</u>	
Contractor Profit:	<u>10.00%</u>	
Contracting Method Adjustment:	<u>8.00%</u>	Standard competitive bid without SBA set-asides. Includes 3% bonds.
Annual Inflation Escalation Factor:	<u>7.00%</u>	Projected annual inflation rate.
Time Until Project Midpoint (Months)	<u>12</u>	Number of months from estimate (or data) date until the projects midpoint of construction.

OTHER COMMENTS:

Long-term priority repairs (beyond 5 years)

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

PROJECT COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Repc
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS Number: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Bid Item No.	Bid Item Description	Total Material Cost	Total Labor Cost	Total Equipment Cost	Total Direct Construction Costs	Design Contingency	Location Factor	State and Local Taxes	General Conditions	General Contractor Overhead	General Contractor Profit	Contracting Method Adjustment	Inflation Escalation		Bid Item Total
						25.00%	7.00%	9.23%	15.00%	15.00%	10.00%	8.00%	APR	Months	
Bid Item:													TOTAL VALUE OF GOVERNMENT FURNISHED PROPERTY (if any):		\$ -
1	Exteriors	\$ 7,415.00	\$ 33,510.00	\$ 1,365.00	\$ 42,290.00										
2	Electrical	\$ 33,993.00	\$ 179,563.00	\$ 1,550.00	\$ 215,106.00										
3	Fire Suppression	\$ 77,856.50	\$ 81,763.75	\$ 4,581.75	\$ 164,202.00										
4	Landscape	\$ 18,135.00	\$ 32,175.00	\$ 2,060.00	\$ 52,370.00										
5	Accessibility	\$ 5,672.00	\$ 15,712.50	\$ 207.50	\$ 21,592.00										
Total - Bid Item	0	\$ 143,071.50	\$ 342,724.25	\$ 9,764.25	\$ 495,560.00	\$ 123,890.00	\$ 34,689.20	\$ 13,205.50	\$ 92,917.50	\$ 114,039.33	\$ 76,026.22	\$ 76,026.22	\$	71,844.78	\$ 1,098,198.75
Total Bid Items 1-10		\$ 143,071.50	\$ 342,724.25	\$ 9,764.25	\$ 495,560.00	\$ 123,890.00	\$ 34,689.20	\$ 13,205.50	\$ 92,917.50	\$ 114,039.33	\$ 76,026.22	\$ 76,026.22	\$	71,844.78	\$ 1,098,198.75

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS Number: 311236

PROJECT COST SUMMARY

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Bid Item Number	Asset / Project Element / Description	Size/Count	Units
BID ITEM	Asset / Project Element / Description	6,633	SF

Item No.	WBS	Description	Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cos	Equipment Cost/Unit	Total Equipmen Cost	Direct Cost/Unit	Total Direct Costs	NET Cost/Unit	Total NET Costs
1		Foundations	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2		Basement Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3		Superstructure	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
4		Exterior Enclosure	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5	B30	Roofing	\$ 1.12	\$ 7,415.00	\$ 5.05	\$ 33,510.00	\$ -	\$ 1,365.00	\$ 6.38	\$ 42,290.00	\$ 14.13	\$ 93,717.86
6		Interior Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7		Stairs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
8	C10	Interior Finishes	\$ -	\$ 1,741.50	\$ -	\$ 10,025.00	\$ 0.02	\$ 160.00	\$ -	\$ 11,926.50	\$ -	\$ 26,430.03
9		Conveying Systems	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
10		Plumbing Systems	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
11		HVAC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
12	D40	Fire Protection	\$ 9.79	\$ 64,909.00	\$ 10.93	\$ 72,470.00	\$ 0.28	\$ 1,878.00	\$ 20.99	\$ 139,257.00	\$ 46.53	\$ 308,604.13
13	D50	Electrical	\$ 5.12	\$ 33,993.00	\$ 27.07	\$ 179,563.00	\$ 0.23	\$ 1,550.00	\$ 32.43	\$ 215,106.00	\$ 71.87	\$ 476,691.30
14		Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15		Furnishings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
16		Special Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
17		Selective Building Demolition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
18		Site Preparation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
19	G20	Site Improvements	\$ 3.33	\$ 22,065.50	\$ 5.71	\$ 37,862.50	\$ 0.32	\$ 2,107.50	\$ 9.35	\$ 62,035.50	\$ 20.73	\$ 137,475.40
20	G30	Site Mechanical Utilities	\$ 1.95	\$ 12,947.50	\$ 1.40	\$ 9,293.75	\$ 0.41	\$ 2,703.75	\$ 3.76	\$ 24,945.00	\$ 8.33	\$ 55,280.02
21		Site Electrical Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
22		Other Site Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
23		Special Use - 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24		Special Use - 2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
25		Special Use - 3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Direct Construction Costs			\$ 21.31	\$ 143,071.50	\$ 50.16	\$ 342,724.25	\$ 1.27	\$ 9,764.25	\$ 72.91	\$ 495,560.00	\$ 161.58	\$ 1,098,198.75

**United States Department of the Interior
National Park Service
Class A Construction Cost Estimate**

PROJECT COST SUMMARY

Total Value of Government Furnished Property (GFP) Inc. in Direct Cost										\$0.00		\$	-		\$	-	\$	\$0				
Direct Cost Subtotal without GFP										\$	143,072		\$	342,724.25		\$	9,764.25	\$495,560				
Design Contingency																	\$123,890					
Total Direct Construction Costs																		\$619,450				
Location Factor										Applied to Total Direct Construction Cost less GFP								\$34,689				
State and Local Taxes										Applied to Total Direct Construction Cost less GFP								\$13,205				
Standard General Conditions										Applied to Total Direct Construction Cost less GFP								\$61,945				
Government General Conditions										Applied to Total Direct Construction Cost less GFP								\$30,973				
Subtotal NET Construction Cost																		\$760,262				
Overhead										15.00%								\$114,039				
Profit										10.00%								\$76,026				
Estimated NET Construction Cost																		\$950,328				
Contracting Method Adjustment										includes bonds								\$76,026				
Inflation Escalation										12								Months	Annual Rate =	7.00%	\$71,845	
Total Estimated NET Cost of Construction																						\$1,098,199
In most cases GFP is normally zero - see footnote-																						

GFP costs only apply when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

PROJECT COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Report

Park: St. Genevieve National Historic Park

Park Alpha: STGE

PMIS: 311236

Estimate By: Lurita Blank

Date: 08/05/24

Reviewed By: Lurita Blank

Date: 10/14/24

Summary Item: 1 Exteriors

Total Cost: \$42,290

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
B3010	ROOFING										
	Demo existing roofing	1820	SQFT	\$ -	\$0	\$ 3.50	\$6,370	\$ 0.75	\$1,365	\$ 4.25	\$7,735
	Replace laminated shingles on main house	1820	SQFT	\$ 2.50	\$4,550	\$ 12.00	\$21,840	\$ -	\$0	\$ 14.50	\$26,390
	Ice and water shield/underlayment	1820	SQFT	\$ 0.75	\$1,365	\$ 2.50	\$4,550	\$ -	\$0	\$ 3.25	\$5,915
	Metal flashing and trim	165	LNFT	\$ -	\$0	\$ -	\$0	\$ -	\$0	\$ -	\$0
	Counterflashing and rake flashing	65	LNFT	\$ -	\$0	\$ -	\$0	\$ -	\$0	\$ -	\$0
	Decking replacement, 1x pine boards	50	SQFT	\$ -	\$0	\$ -	\$0	\$ -	\$0	\$ -	\$0
	Roofing accessories, vents, boots, misc	1	LS	\$ 1,500.00	\$1,500	\$ 750.00	\$750	\$ -	\$0	\$ 2,250.00	\$2,250
SUBTOTAL	ROOFING	6633	SF	\$1	\$7,415	\$5	\$33,510	\$0	\$1,365	\$6	\$42,290

Summary Item: 1 Exteriors

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
1	Exteriors	6633	SF	\$ 1.12	\$7,415	\$ 5.05	\$33,510	\$ 0.21	\$1,365	\$ 6.38	\$42,290

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

PROJECT COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Summary Item: 2 Electrical

Total Cost: \$215,106

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
D5010	ELECTRICAL, WIRING AND SERVICE										
D501201	Replace the existing indoor load center with a new 240/120, 200-amp panel	1	LS	\$ 6,500.00	\$6,500	\$ 8,300.00	\$8,300	-	\$0	\$ 14,800.00	\$14,800
D509101	Install a grounding electrode system	1	LS	\$ 3,200.00	\$3,200	\$ 8,500.00	\$8,500	-	\$0	\$ 11,700.00	\$11,700
D502101	Electrical demo, allowance per SF	6633	SQFT	\$ -	\$0	\$ 2.50	\$16,583	-	\$0	\$ 2.50	\$16,583
	Replace existing NMVC with NMVC wiring, remove abandoned wiring systems, throughout building, Replace existing receptacles and light switches, provide GFCI receptacles where required by code, SF allowance	6633	SQFT	\$ 1.00	\$6,633	\$ 8.50	\$56,381	-	\$0	\$ 9.50	\$63,014
D502101	Repair historic finishes disturbed by electrical replacement work	5000	SQFT	\$ 1.25	\$6,250	\$ 15.00	\$75,000	-	\$0	\$ 16.25	\$81,250
D503701	Replace fire alarm system	1	EA	\$ 2,500.00	\$2,500	\$ 2,500.00	\$2,500	-	\$0	\$ 5,000.00	\$5,000
					\$0				\$0	\$ -	\$0
SUBTOTAL	ELECTRICAL, WIRING AND SERVICE	6633	SF	\$ 3.78	\$25,083	\$ 25.22	\$167,263	-	\$0	\$ 29.00	\$192,346

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
D5092	ELECTRICAL FIXTURES										
D5092	Replace existing incandescent fixtures with LED fixtures/bulbs	100	EA	\$ 1.10	\$110	\$ 3.50	\$350	-	\$0	\$ 4.60	\$460
D509201	Provide battery-backup exit lighting/regress lighting	6	EA	\$ 175.00	\$1,050	\$ 150.00	\$900	-	\$0	\$ 325.00	\$1,950
SUBTOTAL	ELECTRICAL FIXTURES	6633	SF	\$ 0.17	\$1,160	\$ 0.19	\$1,250	-	\$0	\$ 0.36	\$2,410

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

PROJECT COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Summary Item: 2 Electrical		Total Cost: \$215,106									
Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
D5030	TELECOMMUNICATIONS										
D503201	Extend fiber optic service to new panel	1	EA	\$ 3,750.00	\$3,750	\$ 3,750.00	\$3,750		\$0	\$ 7,500.00	\$7,500
D503801	Replace the existing intrusion alarm system	1	EA	\$ 2,500.00	\$2,500	\$ 3,500.00	\$3,500		\$0	\$ 6,000.00	\$6,000
					\$0				\$0	\$ -	\$0
SUBTOTAL				\$ 0.94	\$6,250	\$ 1.09	\$7,250	-	\$0	\$ 2.04	\$13,500

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
D5090	LIGHTNING PROTECTION										
D509401	Install a lightning protection system	1	EA	\$ 1,500.00	\$1,500	\$ 3,800.00	\$3,800	\$ 1,550.00	\$1,550	\$ 6,850.00	\$6,850
					\$0		\$0		\$0	\$ -	\$0
SUBTOTAL				\$ 0.23	\$1,500	\$ 0.57	\$3,800	\$ 0.23	\$1,550	\$ 1.03	\$6,850

Summary Item: 2 Electrical											
Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
2	Electrical	6633	SF	\$ 5.12	\$33,993	\$ 27.07	\$179,563	\$ 0.23	\$1,550	\$ 32.43	\$215,106

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

PROJECT COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Summary Item: 3 Fire Suppression

Total Cost: \$164,202

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
G30	FIRE WATER LINE										
G3010	Cutting and patching municipal roadway for new connection	1	EA	\$ 500.00	\$500	\$ 4,500.00	\$4,500	\$ 1,500.00	\$1,500	\$ 6,500.00	\$6,500
G3010	Trenching and 4" line	75	LNFT	\$ 36.00	\$2,700	\$ 12.00	\$900	\$ 9.00	\$675	\$ 57.00	\$4,275
G3010	Backfill and reseed at trench	75	LNFT	\$ 0.50	\$38	\$ 1.25	\$94	\$ 0.25	\$19	\$ 2.00	\$150
G3010	Connection to main and new valve	1	EA	\$ 9,400.00	\$9,400	\$ 3,600.00	\$3,600	\$ 500.00	\$500	\$ 13,500.00	\$13,500
G3010	Fittings, accessories, and misc	1	EA	\$ 310.00	\$310	\$ 200.00	\$200	\$ 10.00	\$10	\$ 520.00	\$520
G3010	FDC			\$ 750.00	\$0	\$ 275.00	\$0	\$ 50.00	\$0	\$ 1,075.00	\$0
SUBTOTAL	FIRE WATER LINE	6633	SF	\$2	\$12,948	\$1	\$9,294	\$0	\$2,704	\$3	\$24,945

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
D40	FIRE PROTECTION										
D4010	Sprinkler Heads - 1st Floor	24	EA	\$ 28.00	\$672	\$ 40.00	\$960	\$ 1.75	\$42	\$ 69.75	\$1,674
D4010	Sprinkler Heads - 2nd Floor	18	EA	\$ 28.00	\$504	\$ 40.00	\$720	\$ 1.75	\$32	\$ 69.75	\$1,256
D4010	Sprinkler Heads - Attic	14	EA	\$ 28.00	\$392	\$ 40.00	\$560	\$ 1.75	\$25	\$ 69.75	\$977
D4010	Sprinkler Heads - Basement	32	EA	\$ 28.00	\$896	\$ 40.00	\$1,280	\$ 1.75	\$56	\$ 69.75	\$2,232
D4010	Wet Pipe - 1st Floor	375	LF	\$ 14.00	\$5,250	\$ 30.00	\$11,250	\$ 1.00	\$375	\$ 45.00	\$16,875
D4010	Wet Pipe - 2nd Floor	290	LF	\$ 14.00	\$4,060	\$ 30.00	\$8,700	\$ 1.00	\$290	\$ 45.00	\$13,050
D4010	Dry Pipe - Attic	240	LF	\$ 14.00	\$3,360	\$ 30.00	\$7,200	\$ 1.00	\$240	\$ 45.00	\$10,800
D4010	Dry Pipe - Basement	425	LF	\$ 14.00	\$5,950	\$ 30.00	\$12,750	\$ 1.00	\$425	\$ 45.00	\$19,125
D4010	Water Service to Mechanical Room	1	EA	\$ 4,700.00	\$4,700	\$ 900.00	\$900	\$ 120.00	\$120	\$ 5,720.00	\$5,720
D4010	Repair historic finishes disturbed by electrical replacement work	1500	SQFT	\$ 1.25	\$1,875	\$ 15.00	\$22,500	-	\$0	\$ 16.25	\$24,375
SUBTOTAL	FIRE PROTECTION	6633	SF	\$4,869	\$27,659	\$1,195	\$66,820	\$131	\$1,604	\$1	\$96,083

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

PROJECT COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Summary Item: 3 Fire Suppression											Total Cost: \$164,202	
Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS		
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost	
D40	FIRE PROTECTION											
	Fire pump, 500 GPM, 100 psi	1	EA	\$ 28,000.00	\$28,000	\$ 3,900.00	\$3,900	\$ 230.00	\$230	\$ 32,130.00	\$32,130	
	Air compressor for dry pipe	1	EA	\$ 1,650.00	\$1,650	\$ 500.00	\$500	-	\$0	\$ 2,150.00	\$2,150	
	Dry pipe valves and controls	2	EA	\$ 3,800.00	\$7,600	\$ 625.00	\$1,250	\$ 22.00	\$44	\$ 4,447.00	\$8,894	
SUBTOTAL	FIRE PROTECTION	6633	SF	\$5.0	\$37,250	\$1	\$5,650	\$0	\$274	\$6	\$43,174	

Summary Item: 3 Fire Suppression											
Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
3	Fire Suppression	6633	SF	\$ 11.74	\$77,857	\$ 12.33	\$81,764	\$ 0.69	\$ 4,582	\$ 24.76	\$164,202

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

PROJECT COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Summary Item: 4 Landscape

Total Cost: \$52,370

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
G2050	ROOFING										
	Provide new accessible site walkways, 4-ft paved walkways, concrete slab-on-grade, pebbledash finish	2400	SQFT	\$ 4.00	\$9,600	\$ 7.50	\$18,000	\$ 0.50	\$1,200	\$ 12.00	\$28,800
G205001	Reconfigure perimeter walkways around parterre garden, 3-ft paved or ABAAS compliant crushed stone walkways	690	SQFT	\$ 4.00	\$2,760	\$ 7.50	\$5,175	\$ 0.50	\$345	\$ 12.00	\$8,280
G205001	Remove non-contributing brick masonry piers at east and south site entries	300	SQFT	\$ -	\$0	\$ 9.00	\$2,700	\$ 1.00	\$300	\$ 10.00	\$3,000
G205001	Install new historically compatible entry gates, lockable gates	2	EA	\$ 1,500.00	\$3,000	\$ 900.00	\$1,800	\$ -	\$0	\$ 2,400.00	\$4,800
G205001	Repair fence line on Main Street, match existing Concrete landing for interpretive area, concrete slab-on-grade, pebbledash finish	15	LNFT	\$ 35.00	\$525	\$ 75.00	\$1,125	\$ 1.00	\$15	\$ 111.00	\$1,665
G205001	Restore grass/awn and misc plantings, sod and overseed	400	SQFT	\$ 5.00	\$2,000	\$ 7.50	\$3,000	\$ 0.50	\$200	\$ 13.00	\$5,200
G205001		2500	SQFT	\$ 0.10	\$250	\$ 0.15	\$375	\$ -	\$0	\$ 0.25	\$625
SUBTOTAL	ROOFING	6633	SF	\$3	\$18,135	\$5	\$32,175	\$0	\$2,060	\$8	\$52,370

Summary Item: 4 Landscape

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
4	Landscape	6633	SF	\$ 2.73	\$18,135	\$ 4.85	\$32,175	\$ 0.31	\$2,060	\$ 7.90	\$52,370

United States Department of the Interior
National Park Service
Class A Construction Cost Estimate

PROJECT COST SUMMARY

Project: Jean Baptiste Valle House Historic Structure Report
Park: St. Genevieve National Historic Park
Park Alpha: STGE
PMIS: 311236

Estimate By: Lurita Blank
Date: 08/05/24
Reviewed By: Lurita Blank
Date: 10/14/24

Summary Item: 5 Accessibility Total Cost: \$21,592

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
G20	ACCESSIBLE RAMP										
G2010	New wood ABAAS ramp at west gallery, pressure treated pine, painted	280	SQFT	\$ 12.50	\$3,500	\$ 12.50	\$3,500			\$0	\$7,000
G2010	New concrete footings	24	EA	\$ 12.00	\$288	\$ 75.00	\$1,800	\$ 1.25	\$30	\$88.25	\$2,118
G2010	Ramp landing pad, concrete slab on grade	35	SQFT	\$ 4.00	\$140	\$ 7.50	\$263	\$ 0.50	\$18	\$12.00	\$420
G2010	Modify west gallery railing	5	LNFT	\$ 0.50	\$3	\$ 25.00	\$125	-	\$0	\$25.50	\$128
					\$0		\$0		\$0	\$-	\$0
SUBTOTAL				\$1	\$3,931	\$1	\$5,688	\$0	\$48	\$1	\$9,666

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
C10	ABAAS RESTROOM										
	Demo existing restroom, fixtures, flooring, wall tile, plumbing	80	SQFT		\$0	\$ 15.00	\$1,200	\$ 1.00	\$80	\$ 16.00	\$1,280
	Provide new plumbing, reroute supply and waste lines	80	SQFT	\$ 5.00	\$400	\$ 15.00	\$1,200	\$ 1.00	\$80	\$ 21.00	\$1,680
	New ABAAS fixtures: lavatory, water closet, hand dryer, etc	1	EA	\$ 600.00	\$600	\$ 1,500.00	\$1,500	-	\$0	\$ 2,100.00	\$2,100
	New subflooring, cementboard	80	SQFT	\$ 1.10	\$88	\$ 2.50	\$200	-	\$0	\$ 3.60	\$288
	Replace flooring with new ceramic tile, underlayment, threshold, and accessories	80	SQFT	\$ 1.10	\$88	\$ 18.00	\$1,440	-	\$0	\$ 19.10	\$1,528
	New wall splash tile	130	SQFT	\$ 1.10	\$143	\$ 22.00	\$2,860	-	\$0	\$ 23.10	\$3,003
	Prep and finish cementboard walls	260	SQFT	\$ 0.50	\$130	\$ 4.50	\$1,170	-	\$0	\$ 5.00	\$1,300
	Paint walls and trim	130	SQFT	\$ 2.25	\$293	\$ 3.50	\$455	-	\$0	\$ 5.75	\$748
SUBTOTAL		6633	SF	\$0	\$1,742	\$2	\$10,025	\$0	\$160	\$2	\$11,927

Summary Item: 5 Accessibility

Uniformat II WBS Code	Description	Quantity	Unit	MATERIAL		LABOR		EQUIPMENT		TOTALS	
				Material Cost/Unit	Total Material Cost	Labor Cost/Unit	Total Labor Cost	Equipment Cost/Unit	Total Equipment Cost	Total Cost/Unit	Total Cost
5	Accessibility	6633	SF	\$ 0.86	\$5,672	\$ 2.37	\$15,713	\$ 0.03	\$208	\$ 3.26	\$21,592