JOHN C. WOOD HOUSE
FAIRFAX, VIRGINIA

MODIFIED HISTORIC STRUCTURE REPORT

February 2018

For

THE IDI GROUP COMPANIES
1700 North Moore Street, Suite 2020
Arlington, Virginia 22209

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View of House looking northeast

HISTORIC STRUCTURES REPORT

JOHN C. WOOD HOUSE

FAIRFAX, VIRGINIA

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INTRODUCTION

The John C. Wood House is located on a 1.25 acre site on Cedar Avenue, in the City of Fairfax, Virginia. The original building was built in 1911 and has multiple 20th century additions and renovations. The building was once home to the City of Fairfax's first mayor, John C. Wood, and a historic overlay district was created on the property in his honor in 2010. The building is currently owned by the Diocese of Arlington and is vacant due to environmental concerns.

From Preservation Brief 43: "A historic structure report (HSR) provides documentary, graphic, and physical information about a property's history and existing condition. Broadly recognized as an effective part of preservation planning, a historic structure report also addresses management or owner goals for the use or re-use of the property. It provides a thoughtfully considered argument for selecting the most appropriate approach to treatment, prior to the commencement of work, and outlines a scope of recommended work. The report serves as an important guide for all changes made to a historic property during a project-repair, rehabilitation, or restoration-and can also provide information for maintenance procedures. Finally, it records the findings of research and investigation, as well as the processes of physical work, for future researchers."

The IDI Group plans to demolish the building and redevelop the site for community and commercial retail use. This modified HSR report will evaluate the condition of the building and the appropriateness of its demolition based on the IDI Group's redevelopment proposal.

Study Summary

The building is approximately 2,654 sf and is located adjacent to Paul VI High School. Although not listed on the National Register, the building is significant under National Register Criterion B for its association with the lives of significant persons in our past.

The building and adjacent site appear to be in generally fair condition and contain major biological growth and systems at the end of their useful life within the building. The majority of the interior materials and building envelope will need to be replaced due to deteriorating and/or environmentally hazardous conditions. Since these materials will not be able to be replaced in kind there will be a loss of material integrity and authenticity within the building.

Although this is one of the few surviving large lot pre-World War I houses in the City, the building has been altered many times since originally constructed. Due to the building's altered condition and the proposed new use, the proposed demolition of the structure is an appropriate option. To mitigate impacts of demolition we recommend that the building be documented prior to demolition.

View of South Facade

Project Data

Encore Sustainable Design, LLC has been retained by Thunderbird Archeology, a division of Wetland Studies and Solutions, Inc., to provide consulting services to perform a modified format Historic Structures Report (HSR) on the John C. Wood House in Fairfax, Virginia.

Encore Sustainable Design, LLC performed an on-site visual inspection of the site and building to identify historic elements and provide insight to items of deferred maintenance.

The site was observed on January 18, 2018 by Nakita Reed, A.I.A of Encore Sustainable Design LLC. Mrs. Reed was accompanied Joseph Wojciechowski and Toni Schell also of Encore Sustainable Design as well as Pat Rhodes, Project Manager, IDI Group; Beau Hill, Maintenance Supervisor, Paul VI Catholic High School. Mrs. Reed is a licensed architect in Virginia, and meets the National Park Service's Professional Qualification Standards for Historic Architecture with a Master's of Science Degree in Historic Preservation from the University of Pennsylvania.

The site, the building exteriors, low roof, and all accessible interior areas of the building were observed. Deficiencies and conditions were photographically documented an appear in this report.

No selective demolition or testing of hazardous materials was completed by Encore staff. Previous conditions assessment studies have been completed on the structure but they lacked the attention to the preservation goals of the project. The following previously completed reports were reviewed by Encore Sustainable Design staff while preparing this report:

- Yellow House Conditions Assessment by McKeever Services Corporation, 11/10/17 (Appendix 2)
- Hazardous Materials and Structural Survey Yellow House at 1060 Cedar Avenue by ECS, 6/23/17 (Appendix 3)
- Board of Architectural Review Work Session minutes from 12/20/17
- Historic Property Survey Update of The City of Fairfax, VA by EHT Traceries, 2004

No existing drawings of the building were available prior to the assessment. While onsite Encore performed Measured Drawings of the building to document the spacing. Those measured drawings are included in Appendix 1.

View of North Facade, looking Southeast

PART 1. DEVELOPMENTAL HISTORY

Historical Background and Context

Previously recorded at the Virginia Department of Historic Resources (DHR) but not listed on the Virginia Landmarks Register or the NRHP, the John C. Wood House (DHR No. 151-5020) was constructed by Robert Allen and Laura Virginia (Love) Daniell in the Colonial Revival style in 1911. Mayor John C. Wood owned and occupied the house from 1959 to 1994. It is located in the Cedar Avenue neighborhood, which was established in 1904 and is the oldest strictly residential neighborhood in the City of Fairfax. Mayor Wood served as the City's first Mayor and was influential in the incorporation and expansion of Fairfax and in locating George Mason University. The house was locally landmarked in September 2010 with a restrictive zoning overlay.

When John Clinton "Jack" Wood began practicing law in the Town of Fairfax in 1944, nearly half of the county was still farmland. Between 1940 and 1950, the county and town population exploded respectively from 40,929 to 98,557 and 1,000 to almost 2,000. By 1960, the county population nearly tripled to 275,002 and the town increased by seven times to 14,045.[1] During this period of rapid expansion and growing conflict between the town and county, Jack Wood was elected mayor of the Town of Fairfax in 1953 and at first focused on expanding infrastructure such as water supply and sewage treatment. The following year, the county Board of Supervisors commissioned Francis Dodd McHugh to prepare a "Master Plan Report" for the town, which was completed in April 1955 but never adopted. Between 1955 and 1960, the town annexed county land to the east, north, and west and successfully pursued becoming an independent city by 1961.[2] Wood served as the first city mayor and appointed the first city planners. City Hall was completed the next year.[3] By 1964, an elementary school was named for him; however, despite the honor, he lost reelection in 1964 and again in 1966 as a write-in candidate.[4]

1 Nan Netherton et al., Fairfax County, Virginia. A History (Virginia: Fairfax County Board of Supervisors, 1992; repr., Anniversary Commemorative Edition).

2 Raus McDill Hanson, Virginia Place Names, Derivations, Historical Uses (Verona, Virginia: McClure Printing, 1969), 77. City of Fairfax, "Comprehensive Development Plan," (Fairfax, Virginia: Planning Commission and the Office of Planning, 1968).

3 "Mayor John C. Wood Appoints City Planners," Fairfax City Times, Dec 21, 1961.

4 "John C. Wood Loses Mayoral Election," Fairfax City Times, June 12, 1964; "Write-in Candidate for Mayor Loses," Fairfax City Times, Jun 17, 1966.

1920 View of Cedar Ave, Gillepsie Photo Collection

During his tenure, Mayor Wood and the Town Council became involved in establishing a Northern Virginia extension of his alma mater, the University of Virginia (UVa). Beginning in 1957, the two-year college temporarily operated at Bailey's Crossroads with 17 students. By 1959, Mayor Wood spearheaded the town's purchase of a 147-acre tract south of the project area owned by the Farr family who had been involved in early education efforts in the state and county. By donating the land, plus sewerage and utilities, the town beat out Arlington and Alexandria.[5] UVa's architects prepared a master plan for the extension in 1960. Within only six years, the demand was so great, the school became a four year college, and within six more years, it became independent of UVa, temporarily expanded into the old Fairfax High School next to Wood's house, and was renamed George Mason with Wood serving as the first rector of the Board of Visitors.[6]

In addition to these efforts, Wood was active in a wide variety of other activities even as he had completely lost eye sight in 1950. He was "founding director of the Potomac Bank and Trust Co., and of the Suburban Savings and Loan Assn. of Annandale; a member of the Board of Editors of the Virginia Law Review; former vice president of the Virginia State Bar Assn.; a charter member of the Fairfax Lions Club; founding director of the Country Club of Fairfax ; and in 1958, Fairfax County's 'Man of the Year.'"[7] After he lost reelection, he continued to practice law with partners John C. Testerman and Walter Stephens.

During the height of his work for the town-turned-city, Mayor Wood and his wife Louise Rebecca "Dickie" Parish moved in 1959 to the colonial revival house on Cedar Avenue, a street within the oldest subdivision in the town. The house had already been modernized with a sunken family room and attached garage. The Woods added a two-story wing in 1972. Mrs. Wood noted that one rule that they had for their son and daughter was to leave all the doors open throughout the house, so that Mayor Wood would not run into them, though, he had no trouble learning new spaces and walking throughout the city without assistance despite increasing traffic.[8]

Unlike older, larger cities in the mid-twentieth century, historic county seats and their gridiron neighborhoods with large lots were not experiencing population flight from their center. County courthouses and supporting businesses provided steady employment. The neighborhoods with lots as big a new suburban ones never lost appeal as they also contained mature landscaping and provided walkability. Towns on the edges of metros also became attractive to professionals who were fleeing cities, which were perceived to be cramped and dangerous. While a variety of subsets of colonial revival architecture reached their height of popularity between World War I and World War II across the U.S., it like county seat communities remained a perennial favorite in conservative Virginia despite other modern architectural trends in the mid-twentieth century.

Chronology of Development and Use

1904 The electric interurban streetcar, Washington, Alexandria & Falls Church, reaches Fairfax. Alice and Nathan Bond, former farmers who own present-day 10606 Cedar Ave (the "project area"), build a depot as the second to last stop before the line's terminus at the

5 William Fuchs, "The Problem Is That I Forget," The Washington Star, Mar 21, 1965.
6 Eron Ackerman, Jordan Patty, and Hal Barthold, "Guide to John C. Wood Papers, 1956-1974, Collection #C0115," George Mason University Libraries, Special Collections Research Center.
7 Fuchs, "The Problem Is That I Forget."
8 Ibid.

courthouse, lay out Cedar Avenue, and sell eight lots east of the project area.

1905 The Bonds sell 45 acres west of the railway, including the project area, to Thomas R. Keith and James W. Ballard.

Jul 29, 1911 Thomas and wife Edith Morris Moore Keith subdivide part of the acreage and sell 12 acres to Robert Allen and wife Laura Virginia Love Daniell for $1,500.

1911 Robert and Laura Daniell construct a three-bay colonial revival house and detached garage in the project area.

Apr 30, 1917 Laura Daniell (widowed in 1916) sells 10.75 acres of her 12 acres to Robert Wiley for $2,500.

1920 The lot value of the remaining land is $66 and buildings value is $550, totaling $616.

Apr 3, 1923 Laura Daniell sells the remaining 1.25-acre project area, including the house, to Emeruse Redgrave.

Oct 5, 1925 Emeruse Redgrave sells 1.25 acres to Arthur and Mamie Smith.

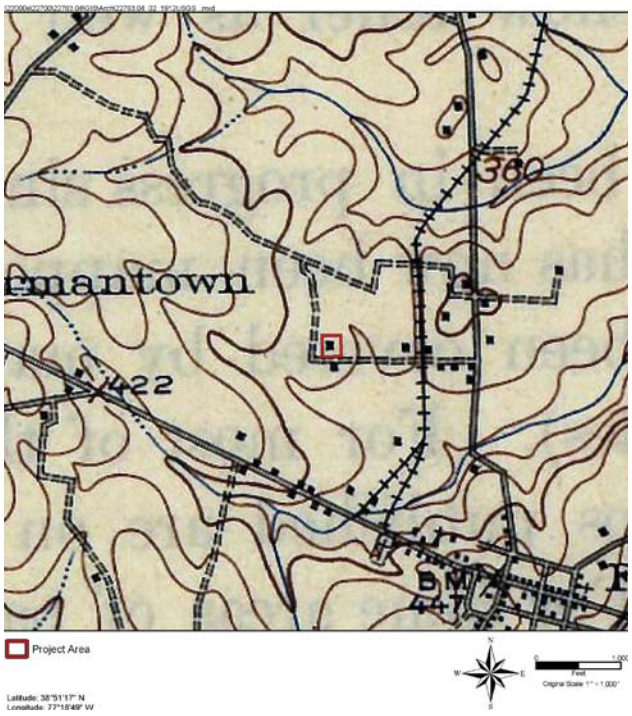
1927 The county fairgrounds, house, and associated outbuildings (no longer extant) are visible in what is thought to be the first aerial photograph of the Town of Fairfax.

Apr 3, 1928 Arthur and Mamie Smith sell 1.25 acres to Charles Pickett.

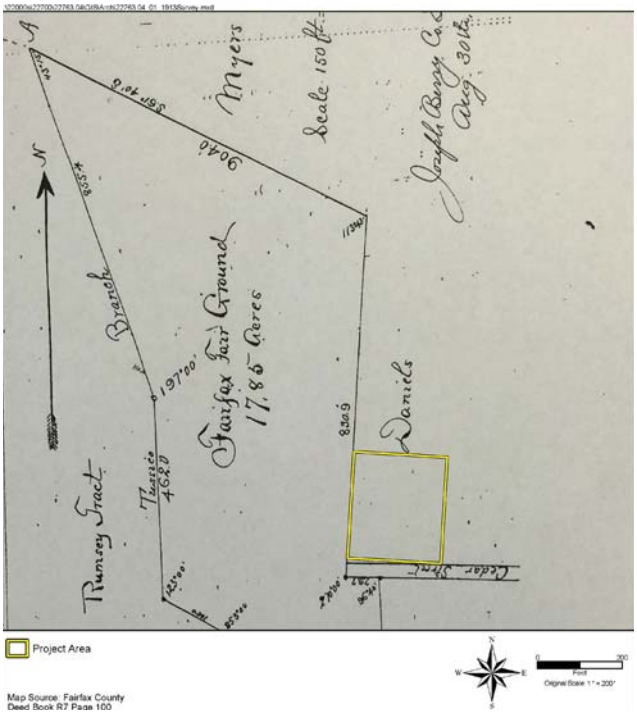
May 11, 1929 Charles Pickett sells 1.25 acres to F.S. McCandlish.

Aug 11, 1929 F.S. McCandlish sells 1.25 acres to John A. and Mary H. Millan.

1930 The lot value is $150 and buildings value is $700, totaling $850, an increase from 1920 commiserate with neighboring properties.



1912 USGS Quadrangle Map



1913 Joseph Berry, Co. Survey of Fairfax Fairgrounds

1927 Tussica Creek Fairgrounds

1931 The Lee Highway bypass is completed north of the property.

Oct 24, 1936 John A. and Mary H. Millan sell 1.25 acres to Robert D. and Ruth M. Graham.

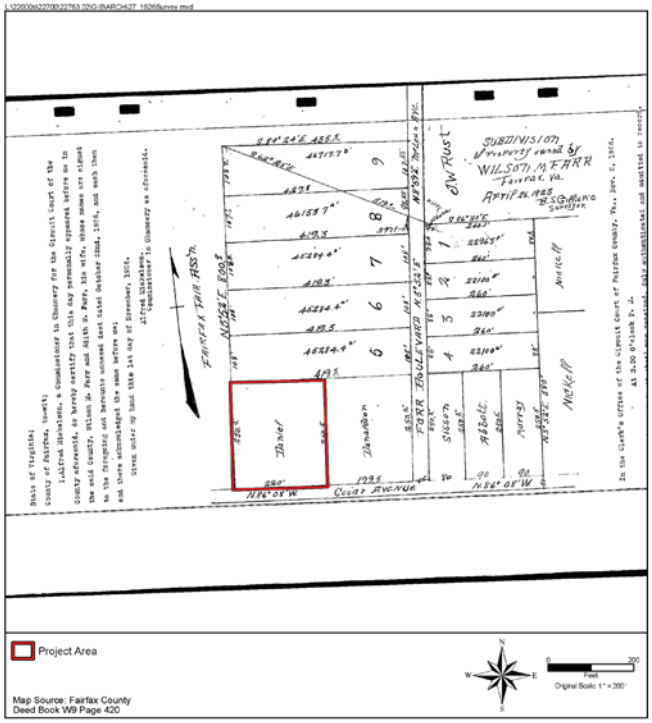
1937 An aerial image shows the original house with a screened porch on the east elevation and no additions.

1940 The lot value is $150 and buildings value is $668, totaling $818, possibly indicating a lack of maintenance during the Great Depression.

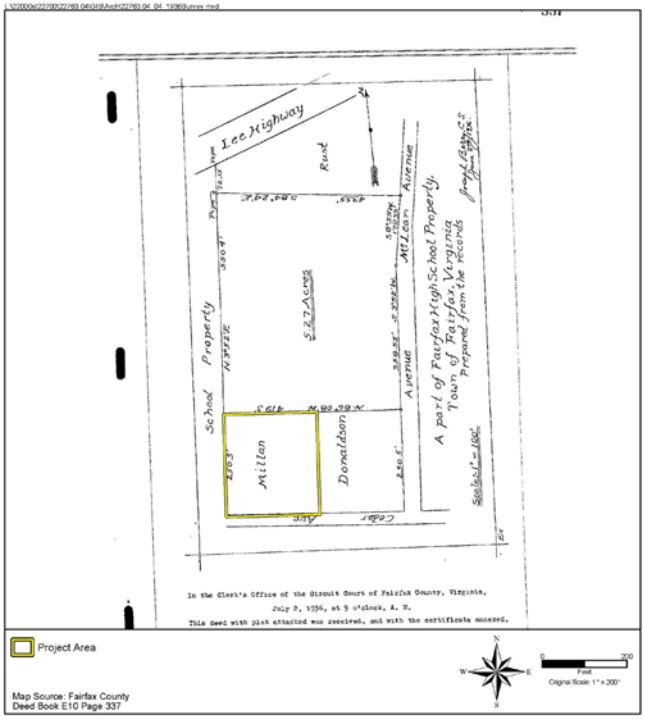
1941 The lot value increases to $200, but buildings value decreases to $600, totaling $800. The value remains the same in 1942.

Apr 8, 1942 Robert D. and Ruth M. Graham sell 1.25 acres to Matilda Jane and John N. Campbell.

1943 The lot value remains at $200, while the buildings value increases threefold from $600 to



1926 Survey John C. Wood House



1936 Survey John C. Wood House

$1,800. The tax record notes that an improvement was made, presumably the one-story sitting room west of the original house. The value remains the same through 1946.

Aug 10, 1943 Matilda Jane and John N. Campbell sell 1.25 acres to Marion R. and N.C. Humphrey.

Mar 22, 1944 Marion R. and N.C. Humphrey sell 1.25 acres to Varian and Zella Steele.

May 31, 1946 Varian and Zella Steele sell 1.25 acres to Kenneth E. and Nell C. Ropp.

1947 The lot value increases to $285, and the buildings value increases to $2,500. The tax record does not note improvements. The increase in both may be related to exponential growth of the population and thus land value, which began to occur in the region at this time. The value remains the same through 1950.

Jan 12, 1948 Kenneth E. and Nell C. Ropp sell 1.25 acres to Robert W. and Patricia M. Mavity.

Feb 18, 1949 Robert W. and Patricia M. Mavity sell 1.25 acres to Blake T. and Anne W. Newton.

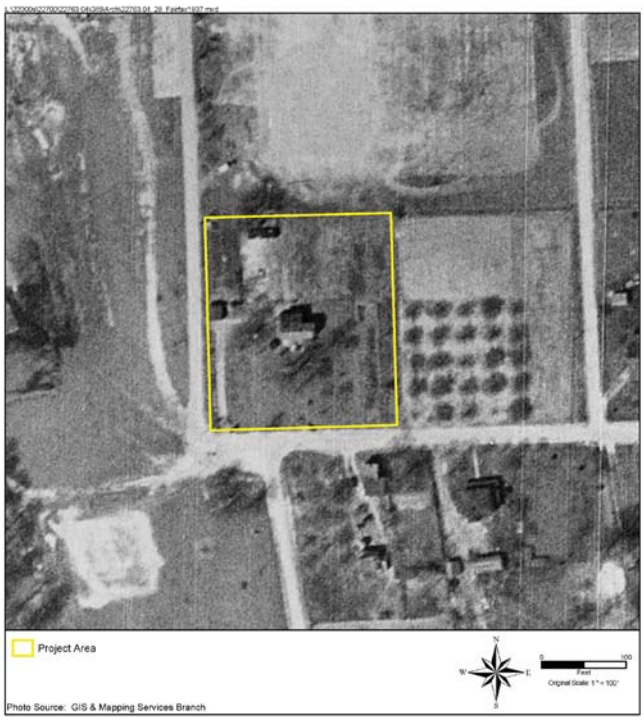
Dec 7, 1950 Blake T. and Anne W. Newton sell 1.25 acres to John A. and Marie W. Walters.

1951 The lot value increases to $1,000, and the buildings value increases to $3,730. Again, the tax record does not note improvements, and the increase in both is likely related to continued exponential growth throughout the region. The value remains the same through 1954.

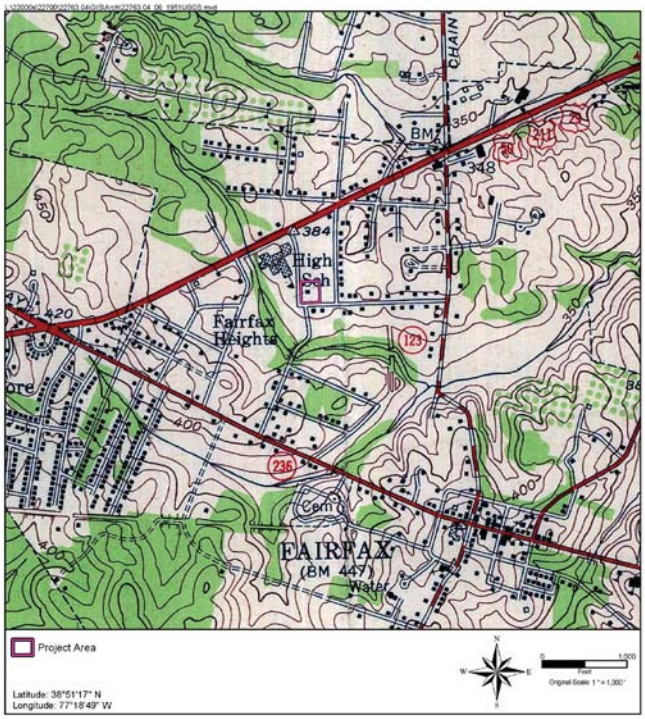
Aug 9, 1951 John A. and Marie W. Walters sell 1.25 acres to Orville D. and Beatrice C. Judd.

1954 An aerial image shows no evidence of the garage addition.

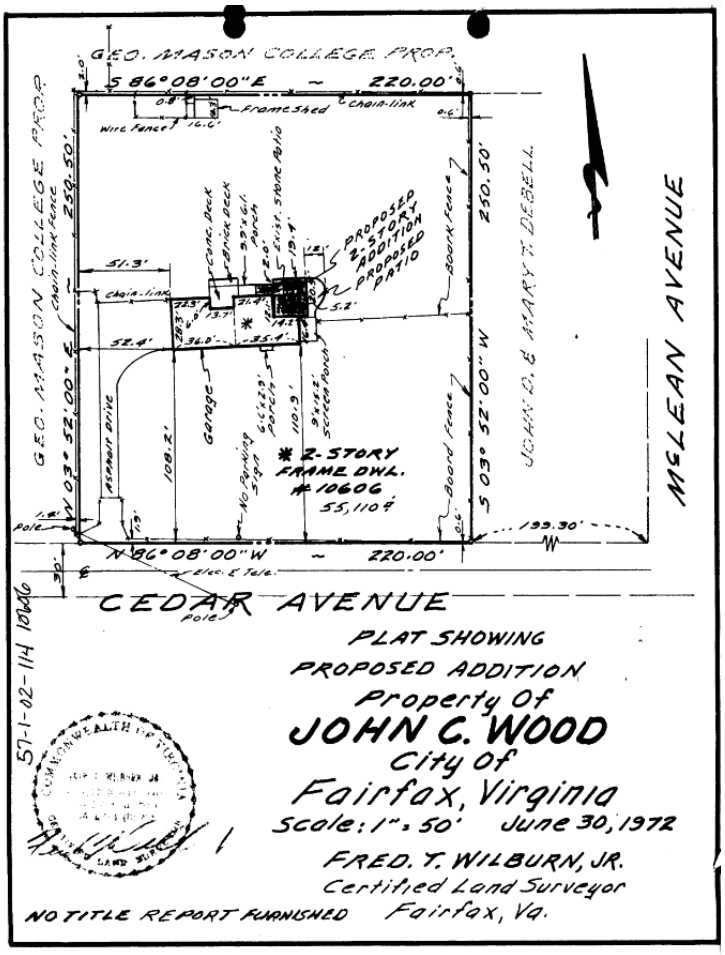
1955 The lot value remains at $1,000, while the buildings value increases by almost $1,000 to $4,715. The increase in only the buildings indicates an improvement was made, which was likely the attached garage. The value remains the same through 1960.



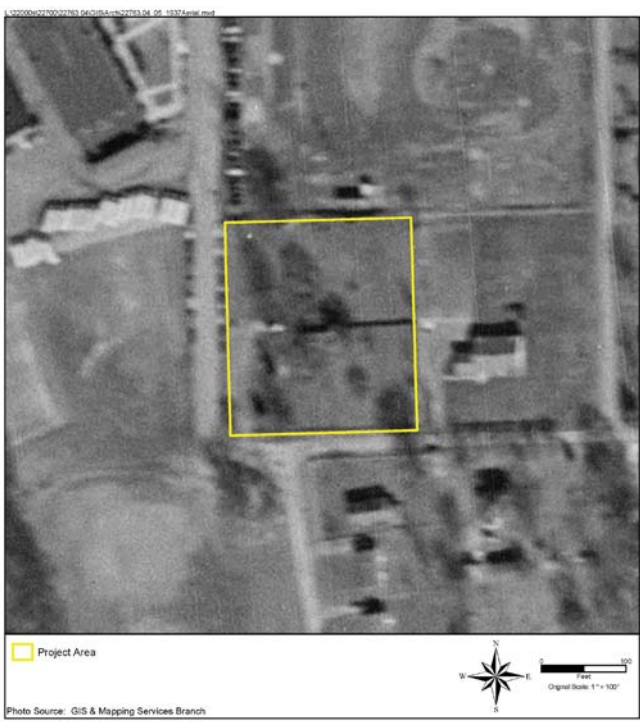
1937 Aerial John C.Wood House



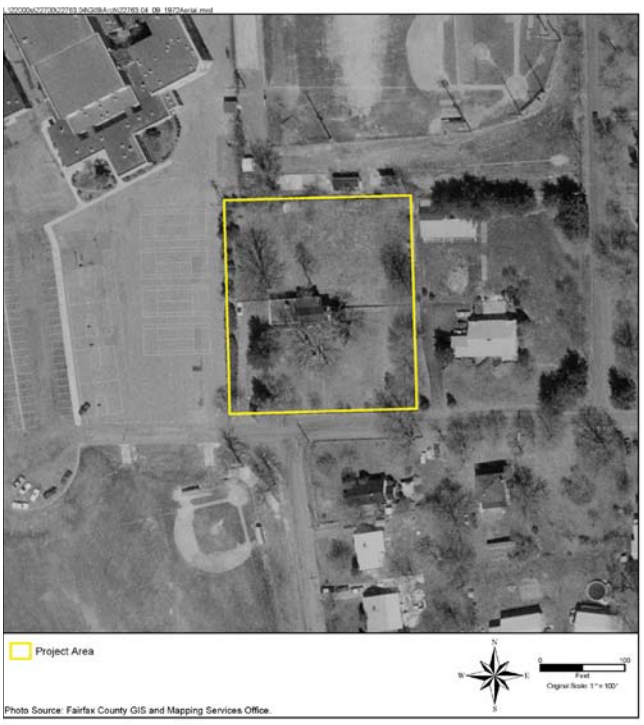
1951 USGS John C. Wood House



1972 Plat John C. Wood House



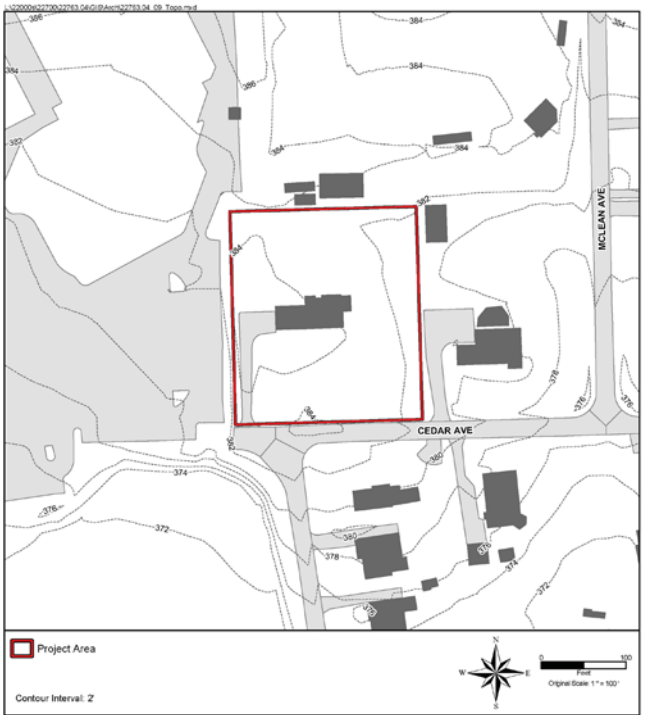
1954 Aerial John C. Wood House



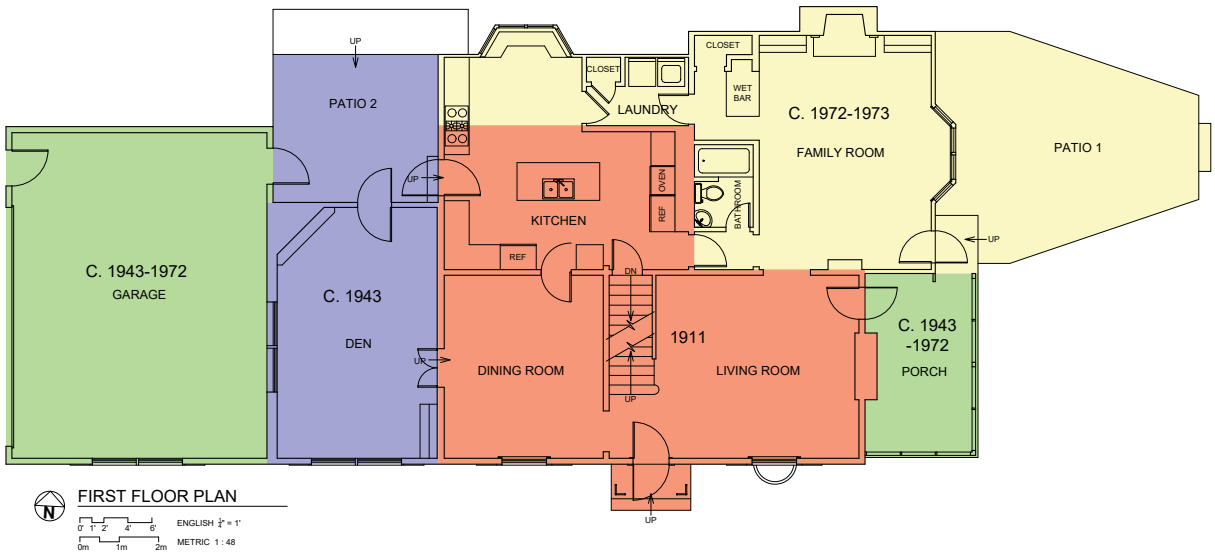
1972 Aerial John C. Wood House

Jul 22, 1959	Orville D. and Beatrice C. Judd sell 1.25 acres to Mayor Wood and wife Louise P. Wood.
1972	An aerial image shows garage addition. Two-story wing and kitchen addition has not been added.
Jun 30, 1972	Fred T. Wilburn, Jr., Certified Land Surveyor, submits "Plat Showing Proposed Addition to Property of John C. Wood."
Aug 31, 1972	Hall-Sutphin, Inc. pulls a permit for electrical upgrades. Permits also pulled for AC and furnace, electrical, and installation of seven fixtures for plumbing.
1978	The city Real Estate Assessment card notes, "Proximity to School is a minus factor."
Oct 1, 1985	Lindsay Electric pulls a permit for electrical work.
Aug 24, 1988	Consolidated Plumbing Service pulls a permit for new water service.
Apr 5, 1989	Morans Ref Svc., Inc. pulls a permit for plumbing and mechanical for oil-to-gas conversion.
Jan 26, 1993	Jim Corridon Electric Co. pulls permit to relocate meter and put lines underground.
Nov 6, 1995	Louise P. Wood (widowed in 1994) sells 1.25 acres, including house, to David B. and Robin S. Snell.
Nov 21, 2002	David B. and Robin S. Snell sell 1.25 acres to Catholic Diocese of Arlington.
2002 - 2007	Three Paul VI Catholic High School teachers occupy the house for five years. Two begin to complain of adverse reactions to mold.

2017 Aerial Photograph



2017 Map of John C Wood House



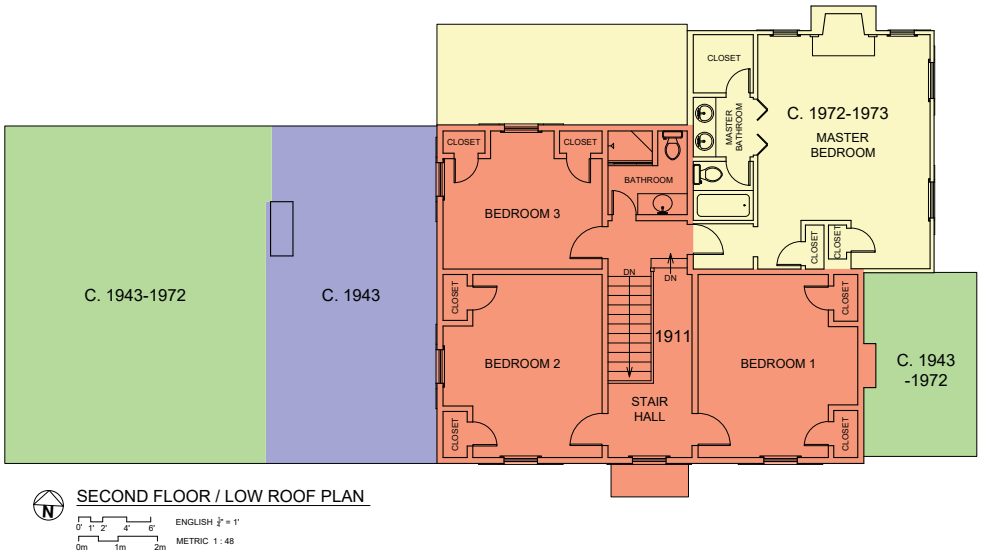


Diagram of approximate construction dates for the John C. Wood House

Property Description

Site Description

Location:

The property address is 10606 Cedar Ave, Fairfax, Virginia. The front of the building faces south and the site is comprised of one parcel located on the north side of Cedar Ave, at the intersection of Keith Ave.

Boundaries:

The site is composed of an rectangular shaped parcel.

The physical boundaries of the site are as follows:

North - Paul VI High School (sport fields)
East - Residential property then McLean Avenue
South - Cedar Ave (where it intersects with Keith Ave)
West - Paul VI High School (parking lot)

Area:

1.25 acres[9]

Topography:

Virtually flat.

Zoning:

The site is currently zoned RM Residential Medium and is within the John C. Wood House Historic Zoning Overlay District.

Easements:

No easements were noted on the surveys available for review.

9 City of Fairfax Zoning Text Amendment and Rezoning Z-10050032, pg 2.

View of entry to the property looking Northeast

PART 1. DEVELOPMENTAL HISTORY (continued)

Site Access & Parking:

Vehicular access to the house is via the driveway off of Cedar Ave.

Paving:

The drive and parking areas are paved with asphaltic concrete. There are two brick walkways – one leads from the driveway to the front door and the other leads from the front door to Cedar Ave. At the front door there is a small brick landing that consists of two steps up to the front door.

Landscaping:

The property is landscaped with grass and has various mature deciduous trees in the front and rear. The property line is landscaped with evergreen trees to provide privacy from the surrounding neighbors.

Fencing:

There is a painted wood, post and rail fence at the front of the property along Cedar Ave. Another post and rail fence the divides the front yard from the backyard on the eastern part of the property.

View of House looking Northeast

Site Utilities:

Water supply and waste water sewerage is provided by Fairfax Water via underground lines. Water has been shut off in the house.

Natural gas is supplied by Washington Gas through an underground pipe.

Prior to being shut off electric power was supplied by Virginia Dominion Power via underground conduit to the basement.

Site Lighting:

There are two wall mounted lights at the front entrance, one on either side of the main door.

Building Description

General:

The current building is a vacant, modified colonial style house with multiple additions. The original portion of the two-story residence was an L-shaped plan constructed circa 1911. Multiple one and two story additions have been added to the sides and rear of the structure.

View of basement looking Northeast, note wood framing under 1st floor

The first floor of the residence contains a Garage, Den, Dining Room, Living Room, and side Porch along the southern side of the building. Along the northern end of the building is a Patio (2), the Kitchen, Laundry Room, full Bathroom, Family Room, and side Patio (1). The kitchen is part of the one-story rear addition and includes a bay window. There is no interior access from the house to the garage. The closest access from the house to the garage is via a door on Patio 2. The access to the basement is via a set of stairs from the kitchen.

The second floor contains four bedrooms and two bathrooms (including one Master bedroom with bathroom). Access to the attic is via a pull down ladder in the hallway of the second floor.

The current floor area of the entire building is approximately 2,600 sqft.

The original two-story front façade is three bays wide. The current configuration of the house is a three bay addition to the west that includes the den and garage, as well as a one bay addition to the east that contains a side porch. The facade contains asbestos siding (yellow and white) which was likely installed when the two-story addition was added in the 1970s.

Structure

Basement:

A full basement with a concrete floor exists under the original Southern portion of the house and a crawl space exists under the northern portion of the original footprint.

View of front door screen

View of screen door of exterior door from Porch into Living Room

View of screen door of exterior door from Patio 1 into Family Room

Left) boarded up door from Patio 2 into Kitchen. Right) View of exterior door from Patio 2 to Den.

First Floor Level:

The first-floor level is wood framed with older, circular sawn, lumber measuring 7 1/2" x 2" at 16" on center. Some of the joists have been previously sistered.

Second Floor Level:

The 2nd floor framing of the original structure was not visible but it is likely wood framed like the first floor.

Roof Framing:

Roof framing of the main house is wood rafters without a ridge beam. The later garage addition is framed with open web steel joists.

Exterior walls:

The walls are covered with yellow asbestos siding on the south and east facades. The north and west facades have a mix of asbestos and vinyl siding. It is unclear if the original German siding remains under the asbestos shingles on the 1911 portion of the house or if plywood sheathing is utilized under the asbestos shingles instead.

View of roof framing in original portion of the house

View of north chimney

Windows:

The original windows in the 1911 portion of the building have been replaced with vinyl windows. The windows have wood frames and sills. On the front façade of the house the windows on the ground floor are wider than those on the second. The second floor windows are 6 over 1 lite, double hung windows, whereas the 1st floor windows are 8 over 8 lite, double hung windows. Windows located in the façades of the additions are 6 over 6 lite, double hung windows. Windows into the garage were boarded up from the exterior but appear to have been a pair of 8 over 8 true divided lite, double hung windows.

Exterior doors:

There are five wooden, entry doors into the house - all of which have damaged screen doors. The front entrance into the living room is a painted red, paneled door with 8 lites toward the top. The door from Patio 2 to the Den has nine lites (three over three) on the top half of the door. The side entrance from the porch into the living room and from Patio 2 to the kitchen are boarded up.

View of front stairs and walkway

View of Patio 1

View of Patio 2

View of Insulation in attic, above original footprint of the house

Roofing Systems:

There are two types of roofing systems evident on the building – asphalt shingle and rolled membrane. The rolled membrane roof is evident on the garage and asphalt shingle roofs are visible on all other roofs.

Chimneys:

There are three chimneys on the building that serve four fireplaces. The east chimney is located in the original footprint of the house and is likely original to the 1911 construction. The north chimney is part of the two-story addition and serves a fireplace in the Family Room and Master bedroom. The west chimney was added with the one story addition to the west and serves the Den on the first floor.

View of basement looking southwest

View of Living Room looking east

View of kitchen looking northwest

View of Den looking North

View of flooring in 1st floor bathroom & kitchen (in distance on the left)

Exterior Hardscape & Stairs:

The front walkway and steps are made of red brick. Side and rear patios are made of slate or flagstone and brick.

Insulation:

Fallen fiberglass insulation was observed on the floor of the laundry room but not in any exterior walls. Minimal insulation was observed in the attic above the 2nd floor ceiling.

Interior finishes:

The first and second floor flooring is typically wood flooring. The toilet room flooring is square ceramic tile. The kitchen floor is quarry tile. Vinyl asbestos tile was noted in the Den. Basement floor is concrete.

Second floor walls in the original footprint of the house are plaster. The walls in the northern portion of the original footprint appear to be drywall.

View of Dining Room looking northwest

View looking up the stairs to the second floor

Interior basement walls appear to be painted, parged brick and CMU. Door to the crawl space had biologic growth, much of the parging is water damaged and cracking.

The Den contains a wood paneled wainscot and exposed beams with decorative cross bracing.

The bathroom on the first floor has a ceramic tile wainscot.

Fireplaces are brick with quarry tile hearths inlaid in wood floors. The fireplace in the two-story addition on the ground floor has a wood surround and mantle.

The kitchen contains an island with a double sink, bay window, two refrigerators, door out to the patio, florescent tube fixtures, and dropped beams. The cabinetry finishes are integral to the appliances. Countertops are marble.

Ceilings in the original portion of the house appear to be plaster.

The attic above the original portion of the house is vented. The attic above the two-story addition was not accessible.

View of Electrical panels in basement

PART 1. DEVELOPMENTAL HISTORY (continued)

Interior Doors:

Wood doors are typically 6 paneled on the first and second floor with the exception of the master bedroom and the doors between the dining room and Den which are louvered doors.

Stairways:

Wood stairs to the second floor are centrally located directly behind the front door. Stairs down to the basement are accessed via the kitchen and are also centrally located below the central stair.

Vertical Transportation:

There are no elevators or other vertical transportation devices.

HVAC Systems:

An air handler unit was observed in the basement. Ducts are supplying air to the house from the basement. The HVAC system was not operational during the site visit and appears to have outlived its useful life cycle.

Plumbing Systems:

The house contains three full bathrooms, a dual sink in the kitchen, and a washer in the laundry room. The plumbing system was not operational during the visit and appears to have surpassed its useful life cycle.

Fire suppression:

No fire suppression (sprinkler) system exists in the building. Smoke detectors were noted in the kitchen.

Electrical Systems:

There are two circuit breaker service panels located in the basement at the bottom of the stairs. No working electricity was noted in the house, however, the building is wired with light switches and receptacles.

View of Master bedroom looking north

Evaluation of Significance

Historical Significance

Although constructed as an early house in one of the first subdivisons in Fairfax, VA, the primary period of significance of the home coincides with the occupation of John C. Wood, which is 1959 - 2004.

> "Deed research concludes that the estimated date of construction of the home is circa 1911, when Robert and Laura Daniell purchased the 1.5 acre lot "with buildings thereon" in 1911. In a February 2008 Phase I archaeological investigation report attached to a land use case associated with the subject site, the archaeological firm John Milner Associates, Inc. specified that "the house was built circa 1911 and was included in the historic building survey of the City of Fairfax at a reconnaissance level in 2004 by EHT Traceries" (Page 1). The lot itself was part of the Nathan Bond subdivision of properties that included the Cedar Avenue right-of-way, and the site is tied to the surrounding neighborhood that was established in 1904, which is the oldest residential neighborhood in the City of Fairfax."
> – Historic District Overlay report, page 2.

> "10606 Cedar Avenue is known as the Daneill/Wood House, and is significant historically and architecturally as an early house in the earliest residential subdivision in the City and as the residence of the first Mayor of the City, John Clinton Wood. 10606 Cedar Avenue is a two-story upright-and-wing house type, with a one-room-deep main block with additions to the sides and rear. The main block has a foyer, center stair, and brick end chimney; the left-side section includes a later garage addition and second brick chimney. The entire house is clad in asbestos shingle siding, with metal shutters and an asphalt single roof. The front door, with 8 lights and simple panels, is original and typical of the period....
>
> The historic Cedar Avenue subdivision was the Town of Fairfax's first residential subdivision, created in 1904 when the new Washington, Arlington, and Falls Church electric railroad was built through the area terminating at the town center and Fairfax Courthouse.
>
> 10606 Cedar Avenue was purchased by John C. Wood and Louise F. Wood in 1959, remaining in the same ownership until shortly after John Wood died in 1994. John C. Wood served 11 years as Mayor from 1953-1964. He had several major accomplishments during his tenure, including established a separate city water supply during the 1950s, which helped pave the way toward the town becoming an independent city in 1961 and ensuring economic stability thereafter." – pg 9, City Historic Overlay Ordinance.

Architectural Significance

Architecturally, the building has been altered numerous times from the simple 1911 colonial building which was part of one of the first subdivisions in the Town of Fairfax. The character defining features of the property relate to the 1911 symmetry of the colonial building. The additions expanded the width and depth of the building and used materials now known to be hazardous (asbestos siding, VAT flooring, lead paint, etc). The side and rear additions the Wood family added to the structure in the 1970s do not enhance the character defining elements of the structure nor do they add to the architecture significance of the property.

There is evidence of the original 1911 German siding clapboard behind the broken wood paneling in the Den, however, this style of siding is quite typical of houses from the early 20th century. The majority of the material within the 1911 portion of the home has been damaged by bacterial growth. Abating hazardous materials in the home would be necessary to occupy the building but would decrease the material integrity of the structure.

View of mature trees on the site

Condition Assessment

Site:

The site is relatively flat and contains a handful of mature deciduous trees.

Structure:

The building is a wood framed structure on a brick and CMU basement. The structure appears to be in good condition.

Facades:

There is noticeable organic material growing up on the structure on the north side of the building creating separations between the siding and structure of the building. The window wells on the southern side of the building into the basement are filled with leaves.

Organic material covers the majority of the rear two-story addition and bio-growth can be seen on the exterior façade where the roof one-story addition

View of window well into the basement and yellow shingles on the South facade

View of covered exterior German siding from 1911 portion of house behind Den door into Dining Room

View of fascia, gutter, and downspout at the Southwest corner of the original structure

connects to the main house. There is graffiti on the brick and siding of the northern façade. Vegetation has overgrown the garage and the railings above the garage have been removed.

The fascia boards have been repainted numerous times and are experiencing different crack patterns. Per the ECS report there is asbestos in the black sealant on the roof, roof vent, tan caulk on the chimney, and exterior gray siding cement board (Appendix 3, ECS pg 26). There are also evidences of lead paint on various exterior elements.

Windows:

All of the original windows in the original portion of the house have been replaced. The double-hung windows on the front façade with simulated divided lites and their original interior trims are in fair condition. The wood window frames on the north and east façade are in poor condition and are experience varying levels of wood rot. Storm windows were added over the 1970s addition windows but are broken and/or inoperable in most places.

View of storm window on 1970 addition, 2nd floor, north facade

View of non-original windows in the original portion of the building

View of 1970s addition, east facade

View of wood rot & attempted repair under bay window on the east facade

The shutters on the east façade are faded and deteriorated. There is deteriorated and rotten wood under window projections on the east porch. Windows in the kitchen are boarded up. The screen porch is missing the majority of the screens but retains the frame. Shutters on the rear of the house, 2nd floor is board and batten as opposed to louvered like the rest of the shutters.

Exterior Doors:

There are five doors into the building – the front door, door from Patio 2 to the Den, door from Patio 2 to the kitchen, door from screened porch to living room, and the door from the Family Room to Patio 1. Most doors have broken glass, deteriorating paint or have been secured with plywood to prevent use.

Exterior Hardscape:

The bricks on either corner of the first step of the brick porch landing the in

View of front door

View of exterior door into Den

View of door into garage from Patio 2

View of front brick steps, note missing corner

front are missing. Brick walkways are covered in leaves and could not be fully assessed. Patio 1, on the east side of the building, is overgrown.

Roof:

The roofing membrane above the garage is likely more than 10 years old, is covered with organic debris, and is warping in various areas. There is evidence of water damage on the roof sheathing in the garage. The shingle roof on the main house is failing in various areas as evidenced by the hole visible from the 2nd floor.

The roof above the one-story kitchen addition contains biologic growth and is covered in organic material debris.

Chimneys:

There are three chimneys in the structure. Most are uncapped. Some contain open mortar joints which are allowing water into the chimney.

View of hole in roof on 2nd floor

View of debris on garage roof

View of roof over kitchen

View of organic growth on building and in gutters

Gutters & Downspouts:

Organic growth is visible in the gutters. Numerous downspouts are not connected to ground. These conditions are preventing water from draining away from the building properly.

Interior:

The interior layout of the original portion of the house remains substantially as it was originally constructed. Additions to the building have expanded the floor plan and added more exits to the exterior.

The original floors in the main portion of the house are wood and appear to be extant.

View of hall bathroom, 2nd floor

View of double sink in Master bedroom

View of family room bar looking north-west

View of damaged drywall in Bedroom 3

View of damaged finishes in Second Floor Hallway

View of damaged finishes and attic access in Second Floor hallway

View of Family Room looking north

View of Master bathroom

View of rusted electric panel

View of basement water heater

There is biologic growth on the walls and ceilings in the interior. (Encore staff wore respirators to protect from inhaling mold during the assessment.) Floors from the 1970s addition are narrow hardwood as well as deteriorated paint throughout all of the finishes.

Interior walls are either painted or covered with paneling.

Ceiling above the laundry room has failed and the drywall and insulation from the ceiling have fallen to the floor.

The dining room contains a chair rail and has a painted wainscot. The majority of the interior finishes contain an environmental hazard. Refer to the ECS material report in appendix 3.

HVAC:

The mechanical systems have outlived their useful lives and are not functional. The exterior condenser unit is laying on side and no longer upright on the northern side of the building.

Plumbing:

The plumbing fixtures and equipment appear to have outlived their useful lives and need to be replaced.

Fire suppression:

No fire suppression system exists. New smoke detectors would need to be installed outside the bedrooms.

Electric:

The main panels are Cutler Hammer models have outlived their useful service life and would to be replaced.

View of kitchen & laundry room looking east

Treatment & Work Recommendations

Historic Preservation Objectives

The current development proposal from IDI group is to demolish the structure and redevelop this parcel and the surrounding land to new mixed used development.

The building and site are currently in fair condition but would require replacement of more than 80% of the material finishes due to biologic growth and material deterioration. The replacement of the materials would degrade the historic material integrity of the building. To mitigate the impacts of demolition, the preservation objective is to document the existing building through digital photography and measured drawings.

View of ceiling damage in 1st floor bathroom

PART 2. TREATMENT & WORK RECOMMENDATIONS (continued)

To assess the Demolition Criteria for Certificate of Historic Overlay Districts, Chapter 110. Article 6, section 6.5.7.B from the zoning ordinance is reviewed as follows:

1. *Whether or not the building or structure embodies distinctive character of a type, period, style, method of construction, represents that work of a master, possesses high artist values or is associated with events that make a significant contribution to the broad local history or is associated with historically significant persons.*

   This building is associated with a historically significant person as it was home to the first mayor of Fairfax from 1959-2004. This period of significance includes numerous changes to the building which decreased the architecturally character defining features of the house. Restoring the building back to its 1911 state - which contains architecturally character defining features - would remove the physical traces from when the Mayor owned the home.

2. *Whether or not the building or structure contributes visible architectural value to and provides historic continuity with properties within the same block, including both sides of the street and the view shed.*

   The building is located on a dead end street behind Paul VI Catholic High School, on axis with Keith Ave, and next to another residence. The various owners of the property, including the Wood family for which this home is significant, made alterations to the size and footprint of the building which have made the building less architecturally distinctive. The houses next to and across the street from the building are of varying architectural styles and do not provide significant historic continuity with the Wood House.

3. *Whether the building or structure is of such age, authenticity and unusual or uncommon design, setting, workmanship, and materials, and whether such design, quality and worksmanship and traditional materials could be reproduced.*

View of overgrown East

View of front walkway

The original portion of the building more than 100 years old, however, it is not unusual or uncommon in its design, setting, or workmanship. Due to the condition of the materials, the majority of the building would need to be replaced in order to be put back in use, which would degrade the authenticity of the building.

View ontop of garage looking South towards Cedar Ave

4. *Specific plans for the site should the building or structure be demolished and the architectural compatibility of those plans and uses with properties within the same block, including both sides of the street and the view shed*.

   There are specific plans to replace this house and the neighboring house with a new mixed use townhouse development. The proposed, mid density residential use would fit in with the setting of the neighborhood.

5. *Whether is economically and practically feasible in the opinion of a quailed structural engineers and/or building trades professional to preserve or restore the building or structure;*

   Due to the use of recognized hazardous materials (asbestos, lead, etc.), and the outdated building systems, the cost to restore this house back to usable condition is impractical. Refer to Appendix 3: ECS Material Report for additional information on material content.

6. *Whether the property owner can make alternate, economical viable uses of the property;*

   The house sits in the center of the property with one driveway access. No other viable uses of the site are possible with the proposed development plan if the house remains in-situ.

7. *Whether relocation may be appropriate and feasible as an alternative to demolition*;

   The original portion of the building sits on a brick and CMU basement, which would be difficult to move without causing structural damage. In addition, due to deterioration,

View of front door and stairs to 2nd floor.

the majority of the finishes inside the home and on the building envelope will need to be replaced or abated. Therefore, the only viable elements of the existing home that could be relocated are the wood structural frame and chimneys. The rest of the house would have to be reconstructed with new materials on a new basement foundation.

8. *Whether the existing structure is suited to or can be adapted to a proposed changes in land use;*

   Due to the siting of the existing structure, adapting it to the proposed density change is not feasible.

9. *Whether the structure or building is a contributing or noncontributing resource within the historic overlay districts of Section 3.7.2.*

   This building is the only contributing building in the historic overlay district.

View of Dining Room looking southeast

The National Park Service evaluates the integrity of a building based on the following seven qualities: Location, Design, Setting, Materials, Workmanship, Feeling, Association. If the John C. Wood house were eligible for listing on the National Register the building's integrity would be evaluated as follows:

Location - The building has not been moved or relocated since it was constructed.

Design - The building has been substantially altered over time and has lost its design integrity.

Setting - The physical environment to the south and east of the property as it faces Cedar Ave has remained relatively unchanged. However, the setting to the north and west have changed multiple times since the house was constructed and the school building evolved.

Materials - The materials in and on the building are hazardous and deteriorating. The replacement of the failing materials would need to happen in order to put the building back in use, however, the material replacement would eliminate the authenticity of the house. As stated within this guideline "Integrity of materials determines whether or not an authentic historic resource still exists."

Workmanship - The only workmanship visible on the house is the 1911 German siding which can be seen under the broken wood wainscot in the Den. It is unclear how much of this material remains under the asbestos siding.

Feeling - Walking through the house does not evoke a particular time period but rather multiple eras passed.

Association - The property is associated with John C. Wood and retains the same setting, location, design and workmanship since he lived in the residence. However the work needed to put the building back in service will result in the lost of the historic authenticity of the house.

Requirements for Work

The following State codes must be taken into consideration for any work on the property:

2012 Virginia Construction Code (IBC) | USBC, Part I
2009 Accessible and Usable Buildings and Facilities (ICC/ANSI A117.1)
2012 Virginia Residential Code (IRC)
2012 Virginia Energy Conservation Code
2012 Virginia Mechanical Code (IMC)
2012 Virginia Plumbing Code (IPC)
2012 Virginia Fuel Gas Code (IFGC)
2011 National Electrical Code | www.nfpa.org
2012 Virginia Rehabilitation Code (IBC) | USBC, Part II
2012 Virginia Maintenance Code (IBC) | USBC, Part III
2012 Virginia Fire Prevention Code (IFC)
2012 Related Laws Package

The following County codes must be taken into consideration for any work on the property:

Chapter 61, Building Provision
Chapter 62, Fire Prevention Code
Chapter 65, Plumbing and Gas Provisions
Chapter 67.1, Sanitary Sewers and Sewage Disposal
Chapter 71, Expedited Building Plan Review
Chapter 109.1, Solid Waste Management
Chapter 112, Zoning Ordinance
Appendix Q, Land Development Services Fee Schedule

The following Site Development, Technical Bulletins and Codes must be taken into consideration for any work on the property:

Public Facilities Manual, Proposed and recently adopted amendments
Chapter 2, Property Under County Control
Chapter 101, Subdivision Provisions
Chapter 102, Streets and Sidewalks
Chapter 104, Erosion and Sediment Control
Chapter 107, Problem Soils
Chapter 112, Zoning Ordinance
Chapter 117, Expedited Land Development Review
Chapter 118, Chesapeake Bay Preservation
Chapter 119, Grass or Lawn Area
Chapter 122, Tree Conservation Ordinance
Chapter 124, Stormwater Management Ordinance
Appendix Q, Land Development Services Fee Schedule, Proposed and recently adopted amendments

In addition, any road work must take into consideration the Virginia Department of Transportation State Roads and Manuals.

Work Recommendations & Alternatives

Since the house is privately held and will require significant alterations to the building materials to make the building habitable, the developer's proposal to demolish the building is an appropriate suggestion.

Other alternatives that were considered include the following options:

1. Restore the building back to 1911 house footprint
   - Due to the various additions added to the building and the lack of photographic documentation of the original elevations, restoring the building back to its 1911 appearance would result in an exterior conjecture.
2. Rehabilitate into a single family home
   - There would be no return on investment for abating the hazardous materials, replacing all of the

View or North facade looking South

building systems and building envelope.

3. Relocate the building
   - Due to the amount of material that would need to be replaced, the majority of the building would be made of new materials. In addition, moving the building from the site would negatively impact the historic integrity of the building.
4. Demolish the building
   - The history of John C. Wood and his impact on the City of Fairfax is not explicitly contained to this house nor does the building possess distinctive architectural significance.

Treatment Recommendations

We recommend the following steps be taken prior to demolition.

Site

1. Photograph the site from each corner of the site looking towards the house.

Building Exterior/Interior Treatment Recommendations

1. Measure the interior and exterior of the building to produce floor plans and elevations in a Computer Aided Design (CAD) software.
2. Burn the following to a CD and give to the City of Fairfax: Native CAD files, pdfs of floor plans and elevations, as well as photographs.
3. Demolish the building and install interpretive panels in the future nearby park.

View of garage looking northeast

View of garage interior looking southwest

View of Family Room looking northeast

This report has been prepared for the sole use and information of IDI Group Companies. The information, observations and recommendations contained herein have been developed as a result of a limited visual observation of the property on the dates noted. Encore Sustainable Design LLC did not perform physical tests of any equipment or building systems, nor investigate for hazardous materials. Encore Sustainable Design LLC is not a warrantor or guarantor of the structure or its systems.

REFERENCES CITED

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Netherton, Nan, Donald Sweig, Janice Artemel, Patricia Hickin, and Patrick Reed. Fairfax County, Virginia. A History. Virginia: Fairfax County Board of Supervisors, 1992. Anniversary Commemorative Edition.

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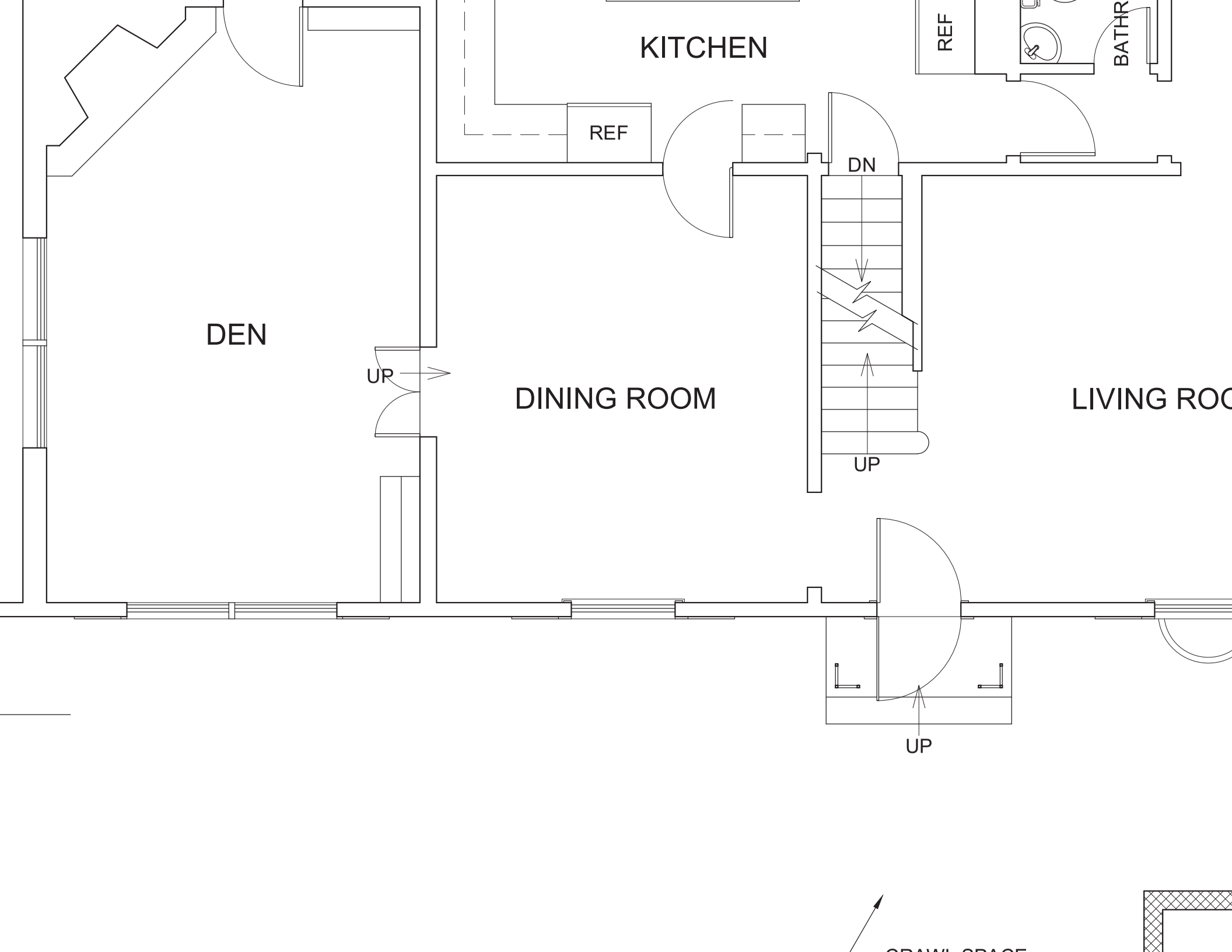
APPENDIX 1:

JOHN C. WOOD HOUSE MEASURED DRAWINGS


KITCHEN
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DEN
UP
DINING ROOM
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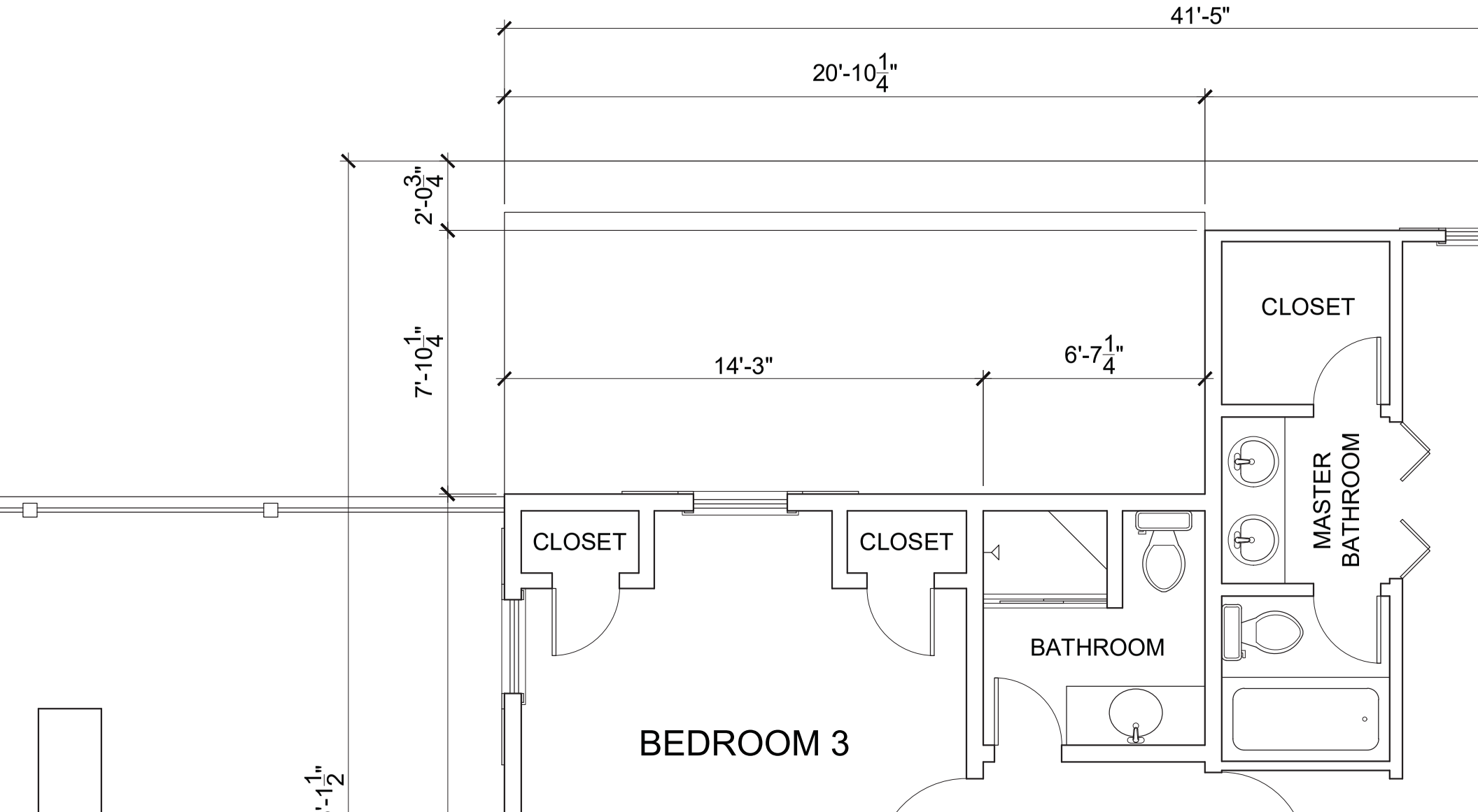
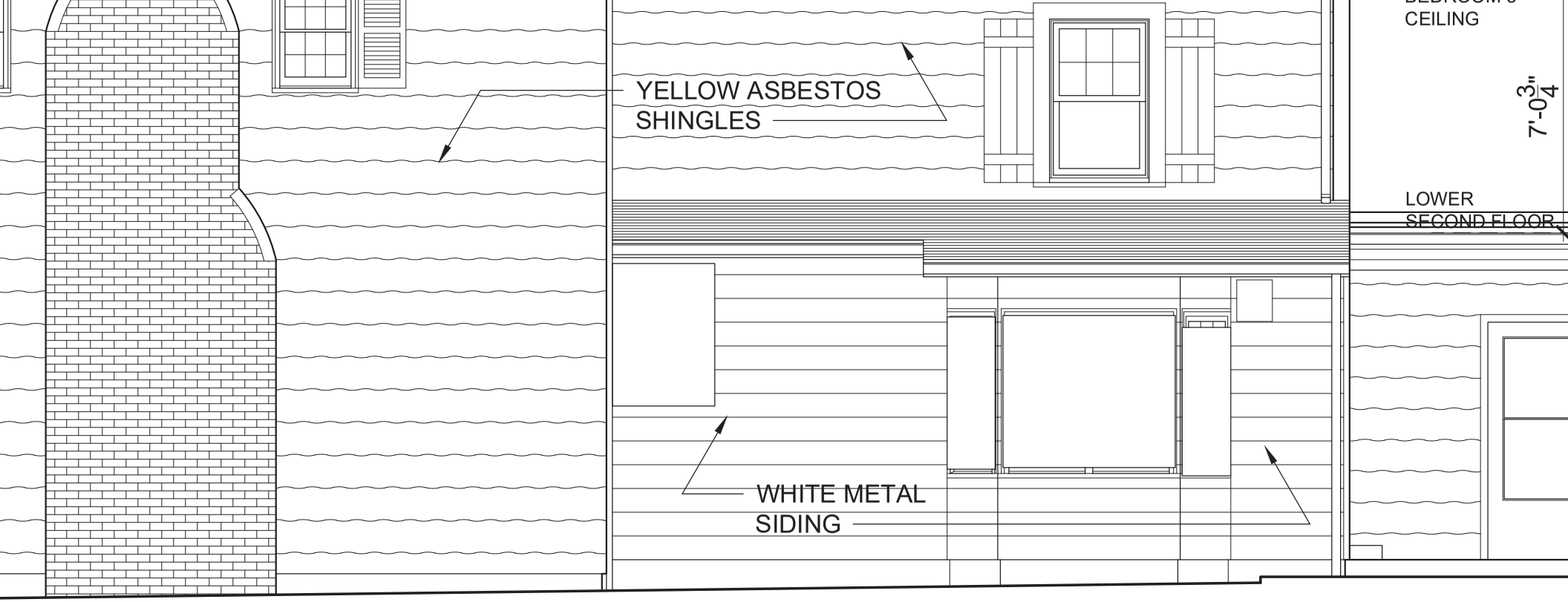
CRAWL SPACE


41'-5"
20'-10 1/4"
2'-0 3/4"
7'-10 1/4"
14'-3"
6'-7 1/4"
CLOSET
CLOSET
CLOSET
MASTER BATHROOM
BATHROOM
BEDROOM 3
6'-1 1/2"



ELEVATION (REAR)

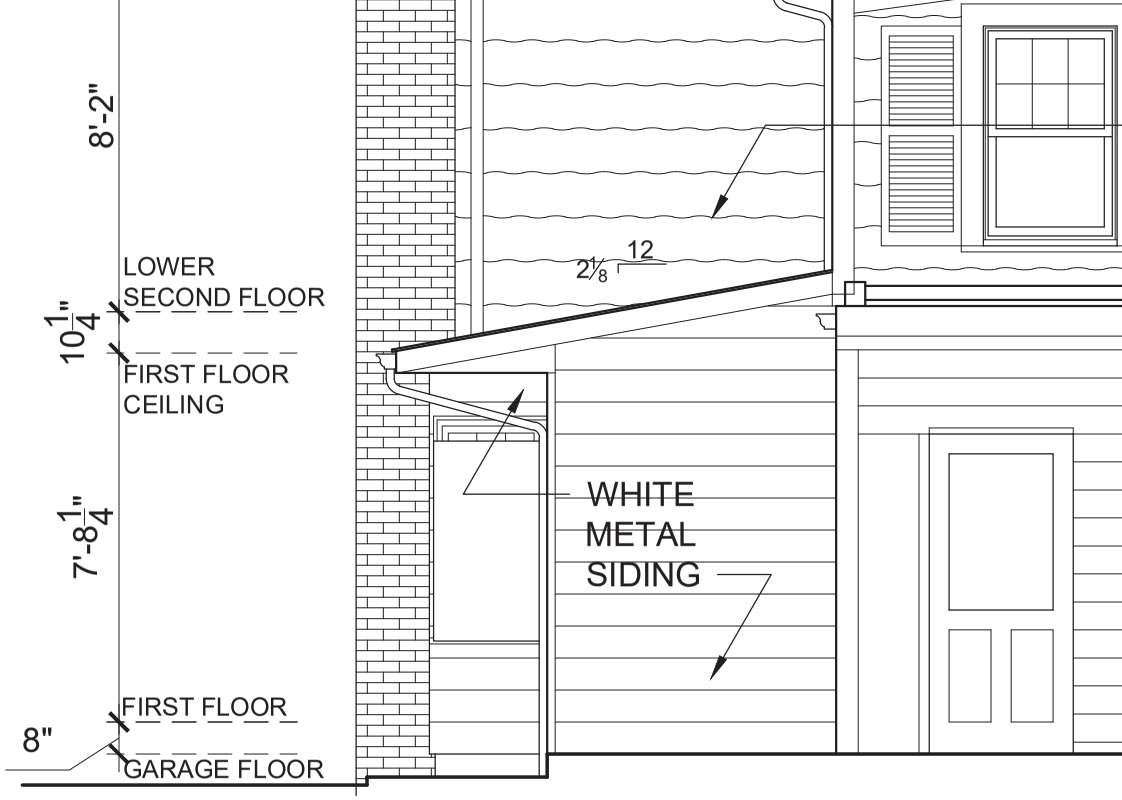
6'

ENGLISH $\frac{1}{4}$" = 1'

2m

METRIC 1 : 48

ASPHALT COMPOSI
SHINGLES



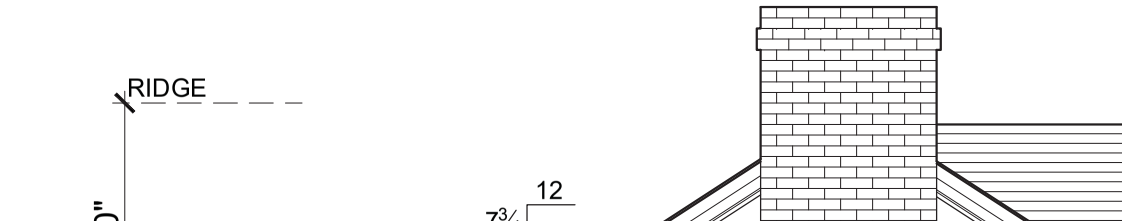
WEST ELEVATION (S

0' 1' 2' 4' 6'

ENGLISH 1/4" = 1'

0m 1m 2m

METRIC 1 : 48



APPENDIX 2: MSC CONDITION ASSESSMENT

HAZARDOUS MATERIALS AND STRUCTURAL SURVEY

YELLOW HOUSE AT 10606 CEDAR AVENUE

10606 CEDAR AVENUE
FAIRFAX, VIRGINIA
ECS PROJECT NO. 46:3107 & 47:4166

FOR

IDI GROUP COMPANIES

AUGUST 28, 2017

August 28, 2017

Mr. Carlos Cecchi
IDI Group Companies
1700 North Moore Street, Suite 2020
Arlington, VA 22209

ECS Project No. 47:4166 and 46:3107 & 47:4166

Reference: Report of Hazardous Materials and Structural Survey, Yellow House at 10606 Cedar Avenue, 10606 Cedar Avenue, Fairfax, Virginia

Dear Mr. Cecchi:

ECS Mid-Atlantic, LLC (ECS) is pleased to provide the results of the Hazardous Materials and Structural Survey for the Yellow House at 10606 Cedar Avenue. ECS services were provided in general accordance with ECS Proposal No. 46:47:4214-EPR authorized on May 31, 2017.

We are pleased to have this opportunity to provide consulting services for this project. If you have any questions or comments concerning this report, please do not hesitate to contact us.

ECS Mid-Atlantic, LLC

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1.0 INTRODUCTION

1.1 Project Information

ECS Mid-Atlantic, LLC (ECS) is pleased to provide you with the results of our Hazardous Materials and Structural Survey for 10606 Cedar Avenue located in Fairfax, Virginia.

The property consists of a two-story residential building that is approximately 2,654 square feet and is located at 10606 Cedar Avenue in Fairfax, Virginia. The building was reportedly built in 1898 and is currently zoned as a historic building. Based on the information provided by the client, a pipe rupture occurred within the building several years ago which caused a flood within the structure. The building is currently vacant. ECS has performed a Hazardous Materials and Structural Survey of the building.

1.2 Scope of Services

ECS is pleased to provide you with the results of our Report of Hazardous Materials and Structural Survey for the Yellow House at 10606 Cedar Avenue project. ECS services were provided in general accordance with ECS Proposal No. 46:47:4214-EPR authorized on May 31, 2017.

1.3 Limitations

Our observations of the building were limited to readily accessible areas only. Exterior areas obscured by vegetation, debris, equipment, etc are not considered readily accessible areas. Interior areas such as crawl spaces or areas obscured by stored items, furniture, equipment, etc. are not considered readily accessible.

2.0 STRUCTURAL SURVEY

On June 7, 2017, ECS Senior Project Manager Alexis Herr, PE , ECS Staff Project Manager Peter Mamola, and ECS intern Norrington Peng visited the site to perform observations of the accessible structure features.

The building is a two-story single family house located at the center of the site. The main residence was observed to consit of wood framed floors supported by wood stud walls and brick exterior walls. The house featured a basement under the south side of the structure and a crawl space under the west side of the structure. The basement was observed to be slab on grade floor construction with parged masonry walls. The crawl space was elevated wood floor framing supported by wooden beams, posts, and masonry foundation walls.

The house features included three brick chimneys, a slab on grade side porch, a garage extension, and an accessible attic. Multiple roof systems were observed including a pitched asphalt shingle and flat, likely bitumen, roof over the garage and porches.

2.1 Exterior observation

2.1.1 Structure

The exterior structure of the building consists of brick walls covered by siding. The brick exterior walls are supported by a brick foundation/basement wall.

2.1.2 Organic growth

ECS observed organic growth along the bottom of the exterior of the building. Organic growth also appeared to be growing from the gutters on the roof, on the west side of the building on the side porch, and on the exterior walls of the garage. This growth had spread from the earth to inside of the wood siding. This enables water and insects to be able to penetrate the siding and into the brick exterior. It will also cause the wood siding to separate.

Photographs

Organic grow into the wall

Organic on the wall

Growth on side porch

Growth on side door near porch

2.1.3 Wood rot

ECS observed that the wood window frames of various windows are rotted. ECS tested the severity of the wood rot using hand force which resulted in the wood falling off. This indicates that there is water damage in the wood. The rot will allow for more water to become trapped and penetrate farther into the frame causing more deterioration.

Photographs

Window frame wood rot

Window frame wood rot

Window frame wood rot

Window frame wood rot

2.1.4 Front step damaged

The steps in front of the main entrance are made of bricks. Some pieces of brick are missing at the right section. This may be a safety concern for people walking on them.

Photographs

Bricks missing

2.1.5 Soil Erosion

Soil erosion was observed at the rear chimney. In particular, the concrete foundation slab appeared to be exposed. The soil was soft and easily movable to the touch. This may cause washout or settlement of the chimney that can result in instabilities or cracking.

Photographs

Rear chimney bottom

Rear chimney bottom

Rear chimney bottom

2.1.6 Downspout damaged

Observations were made of the downspouts on the exterior of the building. Some of these downspouts were not connected to the path of drainage for water to safely move away from the foundation soil. This may cause erosion of the soil around the foundation or create ways for water to penetrate the foundation.

Photographs

Downspout path blocked

Downspout path blocked

Downspout damaged

Downspout damaged

2.1.7 Gutters damaged

ECS observed that the gutters around the roof edge are not functional. The gutter on the front of the roof is sagging. There is also debris that fills some areas of the gutters. This may result in water not being able to drain properly into the downspouts and causing damage to the building soffits and fascia. Improper drainage may also result in soil erosion, washout of soil at the foundation, or settlement issues.

Photographs

Gutters filled with debris

Gutter sagging

Gutters at the front

damaged gutters

2.1.8 Roof Condition

There were multiple types of roof observed on the residence. The main structure featured a gabled roof which appeared to have asphalt shingles. Flat roofs were observed over the garage, porch, sun room and other features of the building. The flat roofs appeared to have modified bitumen roofing.

ECS observed the roofs to be in poor condition with the materials at the end of their useful life.

There is a hole in the roof that penetrated through the building into the second floor allowing for debris, water, and animals to collect inside.

Photographs

Typical roof condition

Typical roof condition

Flat roof at garage and laundry area

Shingles over bay window

Garage roof

Hole in Roof

Hole in Roof

2.1.9 Chimney Repointing

The residence featured three chimneys. The chimneys were observed to be in fair to poor condition.

The east chimney was in poor condition. The east chimney of the building was observed to have extensive mortar loss. Mortar loss (loss of the binder material) appears to have resulted in movement and dislocation of the bricks. In particular large voids between bricks were observed along the mortar joints.

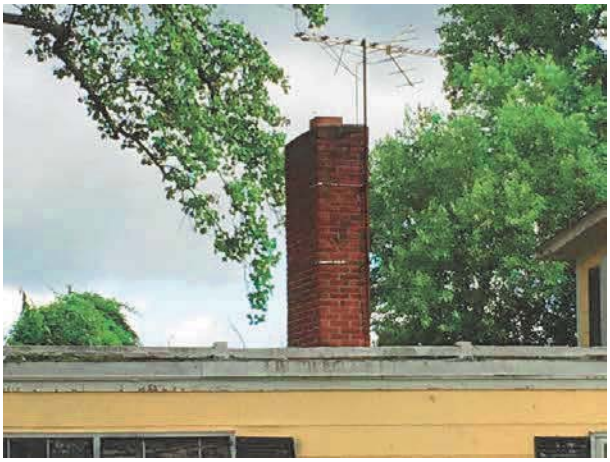
The north and west chimneys were in fair condition. There appeared to be mortar loss in the joints at the upper half of the chimneys.

Loss of mortar may result in instabilities of the chimneys and lead to eventually collapse.

Photographs

East chimney

East chimney



West chimney

West chimney

North chimney

North chimney

2.2 Garage

On the west side of the structure is an attached garage which appeared to have been added after original construction. The garage structure was observed to have wood roof sheathing supported by steel joists. The steel joists bear on wood framed walls. The garage floor appeared to be slab on grade construction.

Water damage was observed at locations throughout the garage. In particular, water damage was observed on the underside of the roof sheathing. This may be an indication of problems with the roofing material on the garage. Additionally, water damage can result in a loss of strength to the sheathing. Damaged sheathing will require replacement.

Damage was also observed at the door and garage door frames. These damages appeared to include wood rot and deterioration, likely the result of water intrusion. Areas of damaged wood will require replacement. Shorting maybe be required in order to safely perform this work.

The bearing walls had interior finishes, however the garage was open to the weather and there are concerns as to the condition of the wood studs forming the bearing walls. A further study would be required to determine if the studs have damage that would affect their bearing capacity.

The steel joints were observed to have corrosion throughout. The corrosion appeared to be surface rust with some pitting. At this time the joist strength did not appear to be reduced due to the corrosion. If not addressed, the corrosion will continue to worsen which may eventually lead to section loss of the steel and reduced strength. To address this concern, the garage will either need to be enclosed and conditioned to prevent high humidity and other moisture from corroding the steel further, or it may be cleaned and painted with a protective coating.

Photographs

Wood roof water damaged

Door Frame damaged

Door Frame damaged

Door Frame damaged

Steel surface rusted

2.3 Interior Observations

2.3.1 Structure

The structure of the building consists of wood joists framing the floors and wood stud walls. One area of floor above the kitchen was observed to be supported by beams which were encased in finish material. At a damanged area of the finish, ECS observed a steel wide flange beam at this location.

Drywall generally covers both the ceiling and walls in various rooms. The floors in many of the rooms are hardwood floors but some rooms have tiled flooring. There is an accessible attic and multiple roof systems were observed including a pitched asphalt shingle and flat, likely bitumen, roofs over the garage and porches. The pitched room was observed to be supported by wood rafters with collar ties and purlins.

Photographs

Exposed joists in room adjacent to garage

Dry wall with hardwood floor

Rafter system supporting roof

2.3.2 Water Damage

Most of the rooms throughout the building have paint peeling from the ceilings and walls. This is most likely due to moisture exposure that causes the paint to de-bond from the substrate. Some water pockets were observed to have formed in the ceiling of various rooms. Water in this amount is typically the result of leaks, either in the building envelope or from plumbing.

ECS tested the severity of the condition of the dry wall by applying some force to a water damaged section of the ceiling in the kitchen and it penetrated through the dry wall easily.

While the drywall is not an integral part of the building's structure, it can provide an indication as to the condition of the wooden members behind it. Water damage to the drywall may indicate

the members beyond were also exposed to moisture which can result in wood rot and a loss of strength. Damaged areas of drywall throughout the should should be removed to allow for structural observations of the members beyond.

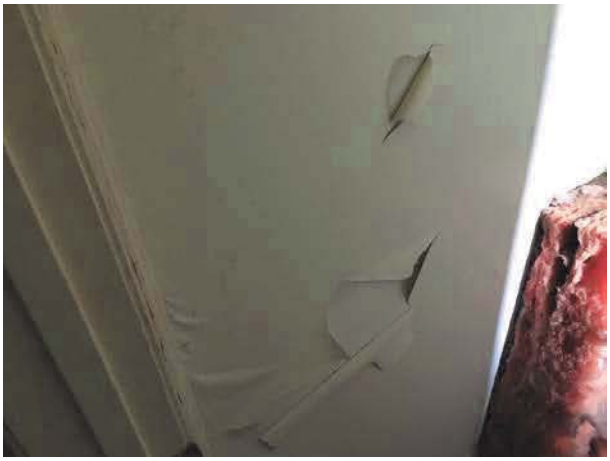
Photographs

Water damaged drywall in kitchen

Ceiling paint peeling

Water damage on ceiling in room adjacent to garage

Paint peeling above door frame



Paint peeling from wall in laundry room

2.3.3 Ceiling Sag

On the second floor of the building, ECS observed that the ceiling under the attic in the main hallway appears to be sagging toward the center of the room. ECS was able to perform limited observations from the attic hatch. The cause and extent of the sagging (if it was limited to the ceiling or a result of damaged floor joists) could not be observed due to a attic platform floor in that location. The floor did appear to be level.

The sagging ceiling may be a result of moisture intrusion or of a damaged joist either from overstress or cracking. Further investigation of this area may be required, however shoring should be used to support the attic prior to entrance.

Photographs

Second floor hallway ceiling sag

2.3.4 Cracks in Ceiling and Walls

ECS observed cracks on the walls and ceilings throughout the inside of the building. Generally, the cracking was in dry wall or other finishes. In particular, many cracks started or terminated near reentrant corners of door frames. Cracks were observed in most rooms, however cracks did not appear to be continuous between the first and second levels. Multiple cracks were observed to be greater than 1/16" in thickness, which may be considered significant.

The cracks in the ceiling finishes may have resulted from swelling of the wooden joists, deflections of the joists or from moisture intrusion. Cracks in the walls may be caused by the wood studs moving due to foundation settlement issues or by moisture intrusion.

Corners where materials (both structural or finish) may change or door frame corners are common areas to observe cracks. Cracks in these locations may be the result of differential movements between materials or of slightly unintended settlement or loading. These cracks are often not an indication of large structural problems. However, the size of the observed cracks observed in the residence was noted to be greater than those expected under typical conditions. Lack of moisture control may have resulted in larger differential movements, or settlement may have occurred. Cracks may also be an indication of problems with the structural studs and joists behind the finishes. Further investigation, such as observations of the wood substrate after finishes are removed, is likely required.

Photographs

Cracks along a wall

Cracks along a wall

Crack along a wall

Crack along a wall

Cracks on a ceiling

2.3.5 Roof Collapse

A collapsed area of roof and ceiling was observed from inside of the building on the second floor. The resulting hole has allowed water, debris and animals to collect inside of the building. The wood flooring below the hole appears to be damaged by water let in from the hole in the roof. The floor in the area below the hole was discolored and soft. The roof sheathing around the hole also showed signs of damage which may effect the strength of the roof. At this time, damage to the ceiling joists was not observed.

If the resulting hole is not addressed, moisture and debris intrusion will result in continued structural deterioration and the collapsed area expanding. While the specific cause of the hole is unknown, the most likely explanation is that the roofing material failed resulting in leaks and water damage to the structure and ultimately collapse. Other possible causes would include an impact load of a falling tree branch or similar.

The collapsed area is a serious condition and failure of the structural system.

Photographs

Hole penetrating from roof

Hole penetrating from roof

Debris fallen through hole creating possible water damage

2.3.6 Laundry Room Ceiling Hole

ECS observed a hole in the ceiling of the laundry room. In this area, the drywall that had not fallen completely was observed to have detached from the wood joists running across the ceiling resulting in a sag and instability. At this time damage to the exposed floor joists was not observed. The floor of the laundry was observed to be laminate tile on slab on grade. While damages to the tile were observed, the slab appeared intact.

The hole is likely the result of a water leak from above the ceiling. In particular this may be caused by a leak in plumbing. Water from the leak was trapped in the ceiling and over time resulted in the ceiling failure.

The overall structure in this location appears stable, however the finishes which have not fallen remain a safety concern should they fall at a later time.

Photographs

Hole in Laundry Room

Hole in Laundry Room

Insulation from ceiling in laundry room exposed

Flooring in the laundry room

2.4 Basement

The basement was observed to be comprised of a slab on grade floor with parged masonry walls. To the west of the basement was a crawl space constructed of elevated wood floor framing supported by wooden beams, posts, and masonry foundation walls.

ECS observed organic growth penetrating through the exterior walls of the building into the basement. The base of the walls appeared to have been affected by the pipe burst as stated in section 1.1. There were also extensive cracking visible in the parged masonry foundation walls. This may be a result of settlement movement or water penetration.

One area of the east wall was observed to have exposed brick. The mortar in this area was sandy and loose to the touch. Mortar and binder loss of this type are typically caused by water intrusion and moisture damage and can result in cracking and instabilities.

In particular, severe damage was observed at the basement window sill. Cracking and overall material deterioration were observed. This window will likely require replacement with some amount of demolition and rebuilding of the brick adjacent to it.

Photographs

Organic growth penetrating from outside into basement

Water damage of the walls

Cracks in the parged walls

Exposed area of basement wall

Crawl space

Basement window

3.0 STRUCTURAL EVALUATION CONCLUSIONS AND RECOMMENDATIONS

At this time, the residence was in poor condition. The structural frame of the building appeared to have integrity in most areas, however finishes prevented observations of all areas of concern. In particular, water damage to finishes observed throughout the building may be an indication that damage has also occurred to the structural members in these locations.

A few severe conditions were noted and should be addressed. These include the collapsed area of roof, collapsed ceiling in the laundry room, and wood rot observed on window and door frames.

The following recommendations are provided;

The area of the collapsed roof needs to be repaired. The hole creates an entry point into the structure for water, debris, and animals to enter. Further more severe structural damages will occur if left untreated. ECS recommends patching all holes found on the roof to prevent any further damages to the structure.

The wood rot throughout the structure, on the exterior windows and window frames creates another entry point for water, harmful penetration of bacteria and animals to collect inside the structure. This may lead to holes forming where wood rot deteriorates. ECS recommends that wood rot throughout the structure as well as inside be taken out and replaced with new wood and framing.

The organic growth that is present growing on the exterior of the structure and inside the basement walls needs to be removed. This can lead to more entry points of water and deteriorating mortar integrity. The basement walls will eventually lose its structural strength if left untreated. ECS recommends removing the growth however extensive removal is required to prevent further damages.

The downspouts around the perimeter of the structure should be replaced and extended away from the building foot print. Allowing water to not drain properly gives a passage way for it to seep into the soil beneath the foundation and cause settlement movement overtime. Additional drainage system may be required. ECS recommends that the gutters on the structure's roof, including areas of fascia and soffit damage should be replaced to allow water to flow from the roof and away from the structure. Gutters that are filled with debris or damaged in anyway can cause damage to the roof.

The drywall throughout the structure including walls and ceilings should be replaced. Water damage to the drywall was present which causes other bacteria to grow. If left untreated the bacteria will continue to grow and move into different areas of the interior. During replacement, ECS recommends a structural engineer or knowledgeable contractor observe the condition of the exposed studs, beams, and joists. If areas of wood rot, deflection, splitting, or other damages are observed the damaged member is to be replaced.

The flat roof above the garage and the gabled roof above the main structure need to be replaced. Debris and water will continue to collect and damage the roof overtime. ECS recommends that when replacing the original roof that it be completely removed so that repairs to the roof sheathing and substrate can be made as needed.

The chimneys and basement wall of the structure should be replaced. Continuing damage to the chimneys may cause them to collapse which is a safety concern and may create further damage to the structure. ECS recommends either re-pointing the chimneys or replacing them fully.

The basement wall if left untreated will allow a passage way for water intrusion which creates an opportunity for settlement movement or foundation issues. The window in the basement area of the structure including the brick area near this location should also be replaced. Water, debris and animals are able to enter the structure through this area. ECS recommends patching or replacing any damaged part of the wall and near the window to prevent any further damage to the foundation. Re-pointing of areas of the basement wall is also recommended.

The steel joists supporting the flat roof of the garage may require coating with a protective material to ensure structural stability and integrity. Overtime the steel can rust and lose its strength by coming into contact with water. ECS recommends treating the steel member in the garage to ensure structural stability and a prolonged lifespan.

The front steps of the structure should be repaired or replaced. The bricks that create the steps have sharp edges that can cause harm to people walking on them. ECS recommends a full replacement of the stairs or repair the existing bricks to prevent people from getting hurt on them.

Although not observed for nonstructural concerns; the additional systems require investigation and replacement.

- Plumbing
- HVAC
- New building insulation
- Electrical work
- Clearing of the chimneys and ducts
- Replacement of the water heater and boiler

4.0 ENVIRONMENTAL SURVEY

ECS performed a survey for asbestos-containing materials, lead-based paint, universal waste materials, and mold and moisture for the structure. The purpose of this evaluation was to determine if the materials within the building that may become disturbed as part of renovations or demolition efforts will require special handling, worker protection, and/or proper disposal efforts.

To assess the building for suspect asbestos-containing materials, ECS performed a survey of the interior, exterior, and roofing materials within areas that were readily accessible. Based on the analytical results of the collected samples, the following materials were reported to contain asbestos:

- 9" x 9" Black Floor Tile with Green Streaks
- Interior Light Gray Wall Caulk
- Drywall Joint Compound
- White Sink Undercoat
- Black Sealant on Roof
- Black Cement on Roof Vent
- Exterior Tan Caulk on Chimney
- Exterior Gray Siding Cement Board

The drywall joint compound was observed to be within the debris on the floor in some areas. The 9" x 9" black floor tiles were also observed to be broken in some areas of the dining room. The floor surfaces within the structure should be assumed to contain asbestos in the dust from the degradation of the wall materials containing drywall joint compound.

The readily accessible interior and exterior surfaces and substrates were evaluated for lead based paint (LBP) within the structure. The survey was performed as a preliminary screening to assess the substrates and components for lead concentrations. The screening at this time, does not intend to represent a HUD scope survey or for lead clearance purposes. Painted and/or glazed surfaces were assessed for lead content using a Direct-Read X-Ray Fluorescence (XRF) Spectrometer. Based on the collected readings, the following surfaces were detected to contain lead above 1.0 milligrams per square centimeter (≥ 1.0 mg/cm2):

- Brick - White Wall
- Ceramic - Blue Walls; White Walls White Floor; White Sink; White Toilet; White Tub
- Concrete Block - White Wall
- Plaster – White Wall; Yellow Wall
- Wood –Gray Stair Riser
- Wood - Natural Door Jamb; Red Door; White Door; White Door Casing; White Baseboard; White Chair Rail; White Door Jamb; White Window Casing; Black Shutter; White Window Casing; Yellow Wall; White Wall

Peeling and chipped paint was observed in several areas, interior and exterior, of the structure. The floor surfaces within the structure should be assumed to contain lead dust from the degradation of the painted surfaces. Table 8 attached to this report contains a list of the collected readings, associated locations, and results.

In addition, ECS was requested to perform lead in soil sampling along the exterior drip-line/ foundation surrounding the structure. Two representative composite samples were obtained from the front and rear sides of the structure. The sample collected from the front of the structure was reported to have a lead concentration of 660 parts per million (ppm), and the soil sample collected from the rear side of the house was reported at 160 ppm. The concentrations of lead were reported to be below the Housing and Urban Development (HUD) criteria for lead in bare soils at drip line/ foundation areas at 1,200 ppm.

ECS surveyed the building for various materials classified as hazardous and/or universal wastes which may require special handling or disposal if removed. The following materials were identified within the building:

- Fluorescent Lamps and Light Ballasts
- Mercury Thermostats
- Lead- Acid Batteries associated with Alarm Panels, Emergency Lights, etc.
- Roadway Salt Stockpile in the Garage

ECS also collected two representative composite samples of window caulk/glaze from the structure. The samples were analyzed for Polychlorinated Biphenyls (PCBs). Based on the analytical results, PCBs were not detected above the laboratory reporting limits.

Observations and testing services were performed for obvious conditions such as mold and/or moisture on readily accessible surfaces that may contribute to poor indoor air quality. Testing services were provided for temperature, relative humidity, and fungal spore concentrations in representative areas. Briefly summarized are our findings at the time of our site visit.

- Visible Mold and/or Water Staining on Interior Surfaces (walls, ceilings, floors) Throughout the Structure
- Peeling Paint/Delaminating Plaster/Drywall Materials
- Large Opening in Roof, Roof Leaks
- Bird Guano, Dead Animals and Other Pests
- Elevated Relative Humidity Levels associated with Unconditioned Environmental Conditions
- Elevated Levels of Airborne and Surface Fungal Concentrations

Building materials located beneath the areas of the roof leaks were impacted on each floor level from rainfall (water intrusion) events. Visible mold and water staining was present in these areas. Interior wall, ceiling, and floor cavities are assumed to be impacted with mold and water staining due to the unconditioned environment of the structure.

ECS recommends that during entry or use of the structure by visitors or contractors, proper Personal Protective Equipment (PPE) should be used due to the presence of lead, asbestos, and mold on materials that appear to be present on surfaces or within debris throughout various areas of the structure. Mold remediation efforts would need to be performed for all surfaces and materials within each room of the structure. These efforts would need to be performed in coordination with regulated work performed for asbestos and lead.

Since the structure has been vacant and unmaintained for a long period of time with active roof leaks, interior wall, floor, and ceiling cavities are likely compromised by hidden mold and water impacts as either a result of leaks or high humidity and unconditioned environment. Consideration should be made in regards to the cost for mold/asbestos/lead removal efforts and the value of the structure.

4.1 Methods and Results

4.1.1 Asbestos-Containing Materials

The asbestos survey was performed by a Commonwealth of Virginia licensed asbestos inspector (VA License No. 3303003186). Samples were collected in general accordance with US EPA NESHAP Regulations (40 CFR 61 Subpart E) and OSHA Standard 29 CFR 1926.1101 Inspection Protocol. Multiple samples of each unique material were submitted. Samples were analyzed using "Positive Stop" methodology. If one sample of a homogeneous material is detected to contain asbestos, the remaining samples of that material are not analyzed. EPA regulations stipulate that if one sample contains asbestos the entire quantity of that material contains asbestos, regardless of additional analysis.

Samples of suspect Asbestos Containing Materials (ACMs) were collected utilizing hand tools and placed into individual, labeled plastic bags. Unique bulk suspect ACM samples were sent to Scientific Analytical Institute, Inc. (SAI) in Greensboro, North Carolina for analysis via Polarized Light Microscopy (PLM) in accordance with current EPA-600 methodology. Materials consisting of additional layers were analyzed separately. SAI is listed as an accredited laboratory by the National Voluntary Laboratory Accreditation Plan (NVLAP) managed by the National Institute of Standards and Technology (NIST) for bulk sample analysis. In total, 78 bulk representative samples were submitted to the laboratory of which 109 layers were analyzed.

An ACM is defined as any building material containing more than one percent (>1%) asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, PLM. Friable ACMs are defined as any ACM that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure. A non-friable ACM is defined as any ACM that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. Category I non-friable ACMs include: packing, gaskets, resilient floor coverings and asphalt roofing products containing more than one percent (>1%) asbestos. Category II non-friable ACMs are any non-friable material, excluding Category I non-friable ACBM, containing more than one percent (>1%) asbestos.

Table 1 below summarizes the materials reported to contain asbestos. A list of the sampled materials and reported results is located in Table 7 attached to this report. Photographs of collected samples reported as asbestos containing are also attached to this report.

Table 1 - Asbestos Containing Building Materials Summary

Location	Material	Friability
Den (Room off Garage)	9" x 9" Black Floor Tile with Green Streaks	Category I Non-Friable

Location	Material	Friability
Den (Room off Garage) – Near Fireplace	Light Gray Interior Wall Caulk	Category II Non-Friable
Drywall (Gypsum) Wall/Ceiling Board Systems	Drywall Joint Compound	Category II Non-Friable
Kitchen	White Sink Undercoat	Category II Non-Friable
Roof Over Northwest Bedroom	Black Seam Sealant on Asphalt Shingle Roll	Category II Non-Friable
Roof Over Northwest Bedroom	Black Cement on Roof Vent	Category II Non-Friable
Side Porch	Exterior Tan Caulk on Chimney	Category II Non-Friable
Exterior Siding	Exterior Gray Siding Cement Board	Category II Non-Friable

Note: The location provided specifies the general location of the material. Please see below for a narrative of the identified locations of ACMs. Materials identified as asbestos containing should be assumed to be located in other areas of the building if not otherwise identified.

The asbestos containing 9" x 9" black floor tile was observed within the den area (a room adjoining the garage). The floor tiles may be located in other areas and beneath cabinetry, fixed furniture, shelving units, partition walls etc. The asbestos wall caulk was observed along wall seams at the fireplace in the den. The asbestos containing white sink undercoat was only observed in the kitchen.

The drywall/ceiling boards were observed in various areas where additions or renovations appear to have occurred. The northeast section of the house appears to be an addition for both the main and upper floor levels. Although the drywall joint compound is listed as a Category II non-friable material, when disturbed this material will become friable and should be handled as a friable material.

The roofing system over the northwest bedroom was observed to have an asphalt sheet roll shingle-like material. The seam sealant on this material is reported to contain asbestos. The black cement on the roof vents is also reported to contain asbestos.

The structure is sided with asbestos cement board panels. The felt paper associated with these panels is assumed to be contaminated with asbestos since the installation of the panels most likely utilized nails that penetrated the felt paper. The laundry room at the north side of the structure appears to have been an addition as cement panels were observed in the ceiling cavity of the laundry room where the ceiling was collapsed and exposed the interior ceiling/wall cavities.

ECS recommends where a material type has been identified as asbestos containing that materials exhibiting similar color and/or texture (i.e. homogenous) throughout the building's interior and exterior be assumed to contain asbestos.

4.1.1.1 Materials Assumed to Contain Asbestos

Due to the inaccessibility or the destructive means that asbestos sampling requires, additional suspect ACMs may remain within the building hidden behind inaccessible areas that include, but are not limited to, sub-grade walls, exterior areas, sub-grade sealants, flooring located below underlayments, areas behind solid walls or above solid ceilings, pipe chases, vapor barriers, etc. These areas were deemed inaccessible and were not assessed.

If these materials are discovered during renovations they should be presumed to contain asbestos and be treated as asbestos-containing materials (ACMs) or, otherwise, sampled immediately upon discovery and prior to disturbance for asbestos content by a certified asbestos inspector in accordance with 29 CFR 1926.1101.

The following list of materials assumed to contain asbestos is not comprehensive, but does include materials typically present in similarly constructed buildings:

- Air Handler Components in the air handlers (interior components);
- Concrete Masonry Unit (Blocks/Walls) with Vermiculite filler;
- Electrical Panels Asbestos Cement Components in electrical systems;
- Light shield Insulation in light shields;
- Mastics or cement boards associated with Baseboard Heaters/Radiators Components/Wall Mounted Fan Coil Units in and/or behind radiators/baseboards;
- Mirror Mastics behind/under mirrors;
- Soffit and materials within exterior soffit cavity at exterior locations;
- Thermal System Insulation (TSI) on pipes within chases behind walls and above ceilings;
- Waterproofing Membrane/Mastics/vapor barriers within exterior wall cavities, behind interior finishes, exterior veneer and/or subgrade walls;
- Wood Panels and/or Paneling Mastic/Felt Paper behind panels and/or paneling;

4.1.2 Lead-Based Paints and Glazes

The lead-based paint (LBP) survey was performed by a Commonwealth of Virginia licensed lead risk assessor (VA License No. 3356000966). Painted and/or glazed surfaces were assessed for lead content using a Direct-Read X-Ray Fluorescence (XRF) Spectrometer manufactured by Innov-X Systems.

The survey was conducted utilizing the VA and U.S. EPA definition of lead-based paint. Under this definition, painted surfaces which contain lead in concentrations equal to or greater than 1.0 milligrams per square centimeter ($\geq$ 1.0 mg/cm2) are classified as coated with LBP. Paints with concentrations of lead detectable by the XRF are considered lead-containing paints. Additionally, fixtures or components that are manufactured with a factory applied glazing (i.e., sinks, toilets, ceramic tiles, etc.) are tested as these factory-applied finishes often contain lead. Lead-containing glazes, while not lead-based paints by the EPA definition, are regulated by OSHA (29 CFR 1926.62).

The representative survey included taking readings from walls, windows, doors, and miscellaneous components. Walls are listed by letter with wall "A" being the entrance of the subject building, proceeding clockwise to "B, C, D", etc. The survey was not performed for compliance with HUD Chapter 7 requirements or lead clearance certifications purposes. A total of 184 readings were collected during the survey, including calibration and standardization readings.

Painted and glazed surfaces which contain lead in concentrations equal to or greater than 1.0 milligrams per square centimeter (≥ 1.0 mg/cm2) are listed below.

Table 2 - XRF Lead-Based Paint Summary

Reading	Location	Substrate	Color	Component	Pb (mg/cm^2)
10	1st Floor – Den	Wood	Natural	Door Jamb	3.41
18	1st Floor – Den	Wood	White	Wall	3.53
26	1st Floor – Dining Room	Wood	White	Chair Rail	2.48
27	1st Floor – Dining Room	Wood	White	Chair Rail	2.35
40	1st Floor – Dining Room	Plaster	Yellow	Wall	1.00
41	1st Floor – Dining Room	Plaster	Yellow	Wall	1.00
62	1st Floor - Bathroom	Ceramic	White	Wall	1.37
64	1st Floor - Bathroom	Ceramic	Blue	Wall	2.16
65	1st Floor - Bathroom	Ceramic	White	Sink	1.00
66	1st Floor - Bathroom	Ceramic	White	Toilet	1.00
67	1st Floor - Bathroom	Ceramic	White	Tub	5.00
97	Basement	Wood	Gray	Stair Riser	4.45
99	Basement	Concrete Block	White	Wall	1.18
100	Basement	Concrete Block	White	Wall	2.66
103	Basement	Brick	White	Wall	1.16
104	Basement	Plaster	White	Wall	1.54
109	2nd Floor - Hallway	Wood	White	Window Casing	2.28
113	2nd Floor – Bathroom	Ceramic	White	Wall	1.00
115	2nd Floor – Bathroom	Ceramic	White	Toilet	1.00
116	2nd Floor – Bathroom	Ceramic	White	Floor	5.00
117	2nd Floor – Bathroom	Ceramic	White	Floor	1.00

Reading	Location	Substrate	Color	Component	Pb (mg/cm^2)
123	2nd Floor – Bathroom	Wood	White	Baseboard	1.00
132	2nd Floor – Bathroom	Ceramic	White	Sink	5.00
135	2nd Floor – Bathroom	Ceramic	White	Toilet	1.00
136	2nd Floor – Bathroom	Ceramic	White	Wall	1.00
148	2nd Floor - Bedroom	Plaster	White	Wall	1.00
151	2nd Floor - Bedroom	Plaster	White	Wall	1.00
157	Exterior	Wood	Yellow	Wall	1.00
158	Exterior	Wood	Black	Shutter	2.67
159	Exterior	Wood	White	Window Casing	1.81
165	Garage	Wood	White	Door Jamb	1.02
166	Garage	Wood	White	Door	1.25
171	Exterior	Wood	Black	Shutter	1.72
175	Exterior	Wood	White	Door Casing	1.35
176	Exterior	Wood	Red	Door	1.79

Note: Pb – Lead in milligrams per square centimeter (mg/cm2)

Various components painted or coated with glazings were reported as lead-based paint. Painted and glazed surfaces which contain lead in concentrations less than 1.0 milligrams per square centimeter (< 1.0 mg/cm2) are considered “lead-containing paints”. Several components were reported as lead containing with concentrations ranging from 0.01 to 0.91 mg/cm2. OSHA has no specific action level for lead in paint or glazings and they consider any amount of lead in a material as a potential concern with respect to occupational exposure. Work activities disturbing painted or glazed surfaces with measurable concentrations of lead should be performed in accordance with 29 CFR 1926.62. Please refer to the attached Table 8 for the complete listing of readings and results. Disturbance of LBP is also regulated under US EPA Renovation, Repair, and Paint Regulations under 40 CFR 745.

Peeling paint and degraded wall and ceiling surfaces were observed in several areas of the structure. Dust and paint chips on the floor surfaces are assumed to contain lead from the identified lead-based/containing paints.

4.1.2.1 Lead in Soils

ECS collected two representative soil samples from the drip line/foundation of the front and rear sides of the structure. Sampling was performed in general accordance with EPA/HUD guidelines. One composite of sub samples was collected each the front and rear sides of the structure. The samples were submitted to Scientific Analytical Institute, Inc. (SAI) labs in Greensboro, North Carolina per

chain of custody protocol per EPA methodology: Flame Atomic Absorption Spectroscopy EPA SW-846 3050B/6010C/7000B.

Based on the analytical results of the collected samples, Sample S-1 collected from the front side of the structure was reported to have a lead concentration of 660 ppm. Sample S-2 collected from the rear side of the structure was reported to have a lead concentration of 160 ppm. These levels are reported to be below the EPA/HUD compliance level of 1,200 ppm for lead in bare soil along the drip line/foundation.

4.1.3 Universal Waste

ECS assessed the building for various selected materials which may require special handling or disposal as universal or hazardous waste if removed from the building. Materials which may require sampling or characterization prior to disposal are summarized below.

4.1.3.1 Suspect Polychlorinated Biphenyls (PCBs)

Polychlorinated biphenyls (PCBs) are toxic coolants or lubricating oils used in some electrical transformers and capacitors, hydraulically-operated equipment, light ballasts, and other similar equipment.

Observations were made for potential liquid PCB containing materials and equipment. At the time of the survey, several of the fluorescent light ballasts were observed throughout the structure in an attempt to identify labeling indicating the presence/absence of PCB containing fluids.

Several light ballasts were observed within the building. Labeling was not observed on the ballasts that were accessible. At this time, is it is recommended that all ballasts be assumed to be suspect PCB containing until they are removed during construction and can be segregated. At the time of our investigation, no evidence of damage or leaking was observed on or in the vicinity of the inspected fixtures.

ECS collected two representative window caulk and glazing samples for analysis of PCBs. Interior and exterior window caulk and glazing were included in the sampling event. Two samples of each glazing and caulks were collected as composite samples. The samples were submitted to Environmental Hazard Services, LLC (EHS) in Richmond, Virginia per chain of custody protocol per EPA Method SW846 8082A.

Based on the results, two collected samples were not reported to contain PCBs above the laboratory reporting limit. A copy of the analytical results and chain of custody are attached to this report.

4.1.3.2 Mercury Containing COmponents

The EPA classifies mercury as both hazardous and toxic. The survey included observations for building components, equipment or other apparatus, which could contain mercury, such as thermostats, fluorescent lamps, and switch-containing devices.

As previously discussed, fluorescent lamps were observed throughout the building. The fluorescent lamps may contain small quantities of mercury and are regulated for disposal.

4.1.3.3 Other Potential Hazardous/Regulated Substances and Building Condition Concerns

Lead-acid batteries located in emergency lamps, exit signs, alarm panels and associated with electrical components, etc. were observed. The following materials were also observed which may require special handling and disposal during renovation activities:

- Fluorescent Lamps and Light Ballasts
- Mercury Thermostats
- Lead- Acid Batteries associated with Alarm Panels, Emergency Lights, etc.
- Roadway Salt Stockpile in the Garage

4.1.4 Mold and Moisture Testing

Observations for evidence of mold and moisture conditions were made for readily accessible surfaces within the structure. Photographs of our observations are attached to this report.

Based on our observations, visible mold was observed on the walls, ceilings, and floors of each room of the structure. A roof leak was observed at the upper level with degraded wall, ceiling, and floor materials on each floor below. Various other leaks and evidence of water staining were observed in other areas. The structure appears to have been vacant and unconditioned for a period of time. Elevated seasonal humidity conditions appear to have contributed to mold on most all surfaces in the structure. Doors, ceilings, and walls were observed to have sporadic mold growth. Peeling paint and degraded plaster were observed in several areas. These surfaces where impacted may also contain lead based paints and asbestos.

4.1.4.1 Spore-Trap Air Sampling

Spore-trap air sampling was performed at representative areas at each floor level. For air sample collection, a high volume sampling pump and Air-O-CellTM cassettes were utilized in sampling for airborne fungal spores, hyphal fragments, insect fragments, and pollen. Analytical background levels on the slide of skin fragments, fibers, and other debris are also reported. Air samples were collected with an air flow of 15 liters/minute verified by a pre-calibrated rotameter for 5 minutes (75 liters). The collected samples were submitted to Scientific Analytical Institute, Inc. (SAI) located in Greensboro, North Carolina for analysis. SAI is an AIHA (American Industrial Hygiene Association) EMLAP (Environmental Microbiology Laboratory Accreditation Program) accredited laboratory. The samples were analyzed per Direct Microscopic Exam in accordance to the laboratory's quantification methods. The analytical results and chain of custody are attached in the Appendix of the report.

Airborne fungal spore counts can be used as an indicator of the possible presence of mold growth generated by sources of moisture within a building. However, lack of elevations in spore count levels does not necessarily indicate that moisture intrusion concerns do not exist. Please note, there are currently no accepted regulatory standards or guidelines with respect to acceptable fungal levels inside buildings.

Spore-trap air samples were collected from the main living room, second floor stairwell, kitchen, and basement. Representative exterior samples were also collected during each sampling event

for comparison purposes to interior results. The following table summarizes the reported total concentrations from the collected samples.

Table 3 - Spore-Trap Air Sample Summary

Sample Number	Sample Location	Total Fungal Spore Concentration (count/m^3)
A1	Exterior	9,720
A2	Kitchen	17,000
A3	Basement	9,800
A4	Living Room	13,400
A5	2nd Floor Stairwell	10,300
A6	Exterior	10,800

Key: count/m3 - spores counts per cubic meter of air

In reviewing the overall total spore concentrations, each of the interior collected samples was reported to be above at least one of the exterior samples results for total spore concentrations.

In reviewing the individual spore genera reported, levels of Penicillium/Aspergillus, Cladosporium sp., and Chaetomium sp. spores were reported to be above exterior levels generally throughout the interior sampled areas. Levels of hyphal fragments were also reported to be above the exterior levels at each interior sample location.

Trace levels of a few spore groups were noted in the interior collected samples, however, based on the results, the concentrations do not appear to be significant as some small variability is typical when comparing indoor and outdoor fungal spore concentrations.

Overall, elevations of fungal spore concentrations appear to be present within the interior areas of the structure as compared to the exterior. Please note, there are currently no accepted regulatory standards or guidelines with respect to acceptable fungal levels inside buildings.

4.1.4.2 Swab/Bulk Surface Samples

One swab sample was collected using a pre-packaged sterile/pre-moistened swab to sample a suspect surface or material. One bulk sample of attic insulation was also collected and submitted to the laboratory for analysis. This is a semi-quantitative test and only indicative of the location sampled and primarily meant to identify the type of mold spores present and associated concentration from the sampled area only. The results may also present concentration ratings reported for hyphal fragments pollen, insect fragments, skin fragments, fibrous particulate, and background matter.

The collected sample was submitted to SAI. The samples were analyzed per Direct Microscopic Exam in accordance to the laboratory's quantification methods. The analytical results and chain of custody are provided in the Appendix of this report.

ECS collected a surface sample from the door within the kitchen that displayed obvious visible mold across the surface of the door. The results are summarized below.

Table 4 - Swab/Bulk Surface Sample Summary

Sample Number	Sample Location	Analytical Results	
		Type	Density Rating
S-1 (Swab)	Kitchen Interior Wood Door	*Cladosporium* sp. Fruiting Bodies Hyphal Fragments Debris	**Loaded** **Loaded** **Loaded** Trace
B-1 (Bulk)	Attic Brown Insulation	*Ascospores* sp. *Basidiospores* sp. *Cladosporium* sp. *Curvularia* sp. *Epicoccum* sp. Hyphal Fragments	**Abundant** Trace Light Trace Trace Trace

Key: Density Rating: Trace – 1-10 spore counts/area; Light – 11-100 spore counts/area; Abundant - 101-300 spore counts/area; Loaded - >300 spore counts/area

Elevated levels of Cladosporium sp. fungal spores, fruiting bodies, and hyphal fragments were detected in the sample from the door in the kitchen. The presence of fruiting bodies and hyphal fragments is often an indicator of mold growth.

Notable levels of spores were reported for the attic insulation. Some levels of spores within dust are expected to be associated with attic insulation since this material is located in an area not normally considered a conditioned and clean environment. Please note, this sample only represents the location of the material assessed. Due to the roof leaks, the attic insulation and associated ceiling boards (drywall/plaster) should be considered compromised.

It is important to note however that spore measurements can fluctuate rapidly and the readings reported should not be used as a definitive indication that mold and or health hazards related to mold are present or absent.

4.1.4.3 Temperature and Relative Humidity

Environmental conditions, including temperature and relative humidity (RH), were recorded using a Fluke meter. The purpose of these measurements was to evaluate if interior temperature and RH were sufficient to support mold growth and also to measure general indoor comfort parameters related to temperature/relative humidity. The relative humidity is the ratio of the amount of moisture contained in the air to the maximum amount of moisture the air can contain at a specific temperature.

The key to controlling mold growth is moisture control. The EPA recommends maintaining the relative humidity (RH) below 60%, ideally 30 to 50%, to prevent mold growth. ASHRAE recommends general temperature a range of 68 to 76°F (comfort range) assuming relative humidity is between 30 to 65% RH.

Table 5 - Temperature and Relative Humidity Summary

Location	Relative Humidity (%)	Temperature (° F)
Exterior	54.2	68.9
Kitchen	61.0	68.4
Basement	64.7	66.5
Living Room	64.5	67.6
2nd Floor Hallway	62.4	68.9
Exterior	58.6	68.8

Key: ° F – Degree Fahrenheit; % - percent

The exterior conditions were sunny and warm during our site visit. Precipitation was not encountered during our survey. The interior relative humidity levels were slightly elevated. Interior temperature and relative humidity levels are generally influenced by exterior conditions since the structure is not conditioned and an opening in the roof is present.

4.1.4.4 Delmhorst Moisture Meter

ECS measured the moisture content in various building materials in select locations within the surveyed areas utilizing a Delmhorst brand hand-held moisture probe (Model BD 2100). Based on the Delmhorst moisture meter scales for materials, moisture levels greater than 0.5% are considered elevated for drywall wallboard materials and are considered at risk for mold growth. Levels greater than 15% for wood materials and greater than 85% for plaster surfaces are considered elevated. This was not a comprehensive moisture mapping survey of all building materials within the areas surveyed but rather a non-invasive survey of moisture in select areas of specific building materials which may be impacted by moisture.

Table 6 - Delmhorst Moisture Meter Probe Summary

Location	Area	Substrate	Moisture Content (%)
Kitchen	Ceiling (Damaged)	Drywall	0.3 – 0.4
2nd Floor Stairwell	Wall (Damaged)	Plaster	40.8
2nd Floor Stairwell	Wall (Damaged)	Drywall	0.4
2nd Floor Stairwell	Baseboard	Wood	**20.6**
2nd Floor Stairwell	Floor	Wood	**40+**

Key: ° F – Degree Fahrenheit; % - percent

Moisture readings were collected from select areas where moisture intrusions appeared to be present. Not all water stained or impacted surfaces were tested. The baseboards and flooring in the second floor hallway where the roof is opened were noted to have elevated moisture levels. ECS also observed the subflooring materials in the main floor bathroom were saturated which was determined by physical contact.

Although moisture readings were not detected to be elevated in all areas tested, this does not mean that these areas have not been impacted by water intrusions in the past. It is possible that concealed areas of impact may be present within solid walls and/or above hard ceilings.

5.0 ENVIRONMENTAL CONCLUSIONS AND RECOMMENDATIONS

5.1 Asbestos-Containing Materials

Federal, state and local regulations require asbestos-containing materials be removed prior to disturbance by either renovations or demolishing the building. ECS recommends the identified asbestos-containing materials and any assumed asbestos-containing materials found to be present within the building be removed by a certified/licensed asbestos abatement contractor prior to disturbance. Any assumed or newly discovered material(s) should be sampled by an accredited asbestos inspector prior to disturbance.

Prior to removal of Regulated Asbestos Containing Materials (RACMs) and selected non-friable materials, notification may be required by either by VA and/or the EPA. This notification, if appropriate, must be filed by a certified asbestos abatement contractor 20 calendar days before starting asbestos abatement activities.

If asbestos-containing materials are to be removed, it is generally required that a certified/licensed asbestos Project Monitor observe the project and collect final clearance samples. This involves collecting air samples from within and outside abatement work areas to review the abatement contractor's work practices over the course of the project. The Project Monitor should inform the building owner if the asbestos abatement contractor is not performing the work in accordance with project specifications, and federal and state regulations for asbestos.

The project monitor should assess each work area and monitor the removal of asbestos-containing materials. Only after the monitor has determined the identified ACMs have been removed should final clearance air samples be collected. ECS can provide these services for an additional fee is requested.

Suspect asbestos containing materials not observed due to inaccessibility or not sampled due to the destructive means that sampling requires during the survey may be encountered during renovation activities. At the time of the survey, destructive means were not used to locate or sample suspect ACMs; therefore, additional suspect ACMs may remain within the building hidden behind inaccessible areas that include, but are not limited to, sub-grade walls, exterior areas, sub-grade sealants, flooring located below underlayments, areas behind solid walls or above solid ceiling, pipe chases, vapor barriers, etc. were deemed inaccessible and were not assessed. If additional suspect asbestos-containing materials are uncovered during renovation activities which were not accessible during this survey, it is recommended that these materials be sampled immediately upon discovery for asbestos content by a certified asbestos inspector in accordance with 29 CFR 1926.1101.

Under OSHA regulations for asbestos (29 CR 1926.1101), ECS also recommends that the site develop an Operations and Maintenance (O&M) plan to manage any asbestos containing materials remaining within the building. The OSHA regulations call for development of maintenance procedures, proper training, and notification for employees working around asbestos materials. The purpose of these regulations is to protect employees and also outside contractors and the public from potential asbestos exposures.

Please note, that the drywall joint compound is reported as asbestos-containing. Several walls and ceilings were observed to be degraded from roof leaks and elevated humidity conditions. The dust on the floor surfaces are assumed to be contaminated with asbestos dust. Those who access the building should utilize proper PPE when accessing or performing work within the structure. ECS recommends the debris be immediately abated and the impacted materials that are impacted be abated or repaired.

5.2 Lead-Based Paints and Glazes

Lead-based paint/glaze and lead-containing paint/glaze is an environmental concern primarily when it becomes airborne or is ingested. Contractors performing work that could impact paint films or glazing (i.e. scrapped or flaked off, or made airborne in a dust media) that have detectable concentrations of lead should be informed of the testing results and should take appropriate actions to comply with OSHA Standard 29 CFR 1926.62. – Lead in Construction.

Painted surfaces containing lead in concentrations less than 1.0 milligrams per square centimeter (< 1.0 mg/cm2), may, during disturbance, generate lead dust greater than the Permissible Exposure Limit (PEL) of 50 micrograms per cubic millimeter (µg/m3) as an 8-hour Time Weighted Average (TWA) established by U.S. Occupational Safety and Health Administration (OSHA) Standard 29 CFR 1926.62 – Lead in Construction.

The OSHA standard also gives no guidance on acceptable levels of lead in paint at which no exposure to airborne lead (above the action level) would be expected. Rather, OSHA defines airborne concentrations, and references specific types of work practices and operations from which a lead hazard may be generated (reference 29 CFR 1926.62, section d). Environmental and personnel monitoring should be conducted during any removal/demolition process (as appropriate) to verify that actual personal exposures are below the Permissible Exposure Limit (PEL). Under OSHA requirements, the contractor performing renovation work will be required to conduct this monitoring and follow applicable requirements under 29 CFR 1926.62 if disturbing lead-containing paint.

Please note, that several surfaces were noted as LBP or lead-containing paint. Several walls and ceilings were observed to be in a degraded condition with paint chips and debris on the floor. The dust on the floor surfaces are considered contaminated with lead dust. Those who access the building shall utilize proper PPE when accessing or performing work within the residence. ECS recommends the debris be immediately abated and the impacted materials that are damaged be abated or repaired.

It is important to note that the house may be classified as a child occupied facility under US EPA RRP regulations and is potentially subject to those regulations for any future renovation, re-painting activities, etc. Additional testing may be needed per HUD/EPA requirements for renovations prior to planned renovations. Lead safe work practices should be performed per EPA RRP regulations.

5.3 Universal Waste

Fluorescent lamp ballasts manufactured prior to 1979 may contain small quantities of PCBs. Additionally, regardless of “PCB labeling,” ballasts produced between 1980 and 1991 may contain di-ethyl hexyl phthalate (DEHP) which is classified as a potential carcinogen by the EPA. Ballasts

removed as part of renovations to the building, should be treated as universal waste and disposed of accordingly.

Fluorescent lamps and lamp ballasts, if removed, should be recycled in accordance with EPA and Commonwealth of Virginia regulations and local regulations at other jurisdictions if disposed of outside of Virginia. Recycling is the most environmental friendly means of disposal for these materials. Fluorescent lamps may be disposed as universal waste if they remain unbroken during removal. If bulbs are crushed or broken prior to disposal, they are classified as hazardous waste by the EPA.

Lamp ballasts, mercury containing switches, lead-acid batteries and other hazardous and/or regulated waste materials must be segregated and disposed of properly as required by the EPA and Commonwealth of Virginia. If any of these materials are observed to be leaking or otherwise damaged prior to disposal they must be disposed of as hazardous waste in accordance with EPA and Commonwealth of Virginia regulations. Handling, packaging, labeling, and disposal of hazardous materials should be performed in accordance with EPA and Commonwealth of Virginia regulations. ECS recommends that under the project specifications prepared for this site that requirements are made within the base bid scope of work to mandate that the contractor assist with this process through use of a hazardous waste broker.

5.4 Mold and Moisture

Based on visual observations, evidence of mold and water intrusions are present throughout the structure in various areas. A large hole was observed in the roof at the second floor level where materials below this area where impacted. Visible mold was observed sporadically on the walls, ceilings, and floors in each room and likely associated with former leaks, roof leaks, and elevated humidity conditions. Since the residence has been in an unconditioned environment, interior wall, ceiling, and floor cavities are also assumed to have possible hidden mold present.

Based on the analytical results, elevations in fungal spore concentrations are present in the air and on horizontal and vertical surfaces. The HVAC system is also assumed to be compromised with elevated mold conditions due to its lack of maintenance and presence of elevated spores in the air of the structure. Consideration should be made in regards to the cost of remediating the HVAC system compared to replacement of a new system if the structure will be reoccupied.

ECS recommends consideration is made in regards to the cost of mold abatement to the value of the structure. Should mold abatement occur, this work will need to be performed by an abatement contractor who is licensed for asbestos and lead removal efforts.

Mold abatement efforts would be necessary for all walls, ceiling, floors, and interior cavities throughout the structure. This includes all materials that have been subjected to elevated moisture conditions for greater than 48 hours without proper drying efforts and materials within obvious visible mold present. ECS recommends removal of porous materials such as impacted wallboards, plaster, carpet, tack strips, paper, cardboard, etc. All associated insulation within the cavities and attic should be removed. As part of this effort professional drying efforts should also be performed to ensure that the wall cavity and masonry flooring are properly dried prior to installation of new materials.

Repairs will be needed for all water intrusions within this structure. Further evaluation by a building engineer to assess the building envelopes and routes of water entry is recommended.

ECS highly recommends that a qualified mold remediation contractor licensed for asbestos and lead abatement by the Commonwealth of Virginia be retained to properly remove mold/water impacted materials. Remediation activities should be performed in general accordance with the guidelines described in EPA's March 2001 document "Mold Remediation in Schools and Commercial Buildings" and under the OSHA 2010 Guidelines for mold removal. Additional remedial guidance documents are also referenced in Section at the end of this report. Workers performing this work should wear proper personal protective equipment (PPE) including HEPA filtered respirators and disposable clothing (per OSHA standards for PPE).

As good practice and in general accordance with the EPA and OSHA guidelines, ECS recommends full containment of the work areas using plastic barriers and tape to create negative pressure containment during removal of mold impacted materials. Pressure differential in the containment should be -0.02 inches of water gauge between the outside and inside of containment. A HEPA-filtered local exhaust ventilation (negative air machine) should be utilized directly adjacent to the area(s) being cleaned and should maintain negative pressure and HEPA filtration continuously inside the containment during remediation activities and prior to clearance sampling.

All impacted drywall wallboards, floor tiles, carpeting, etc. that has visible mold and/or water staining should be removed in excess of 2 feet beyond visible mold or water staining. Delineation of the wallboard system may be necessary during remedial efforts to determine if additional material will need to be removed. Where wallboard is removed, all associated insulation within the wall cavity should be removed and the cavity cleaned. All associated carpet insulation and tack strips should be discarded. All degraded wood materials should be discarded.

Following remediation/removal of mold-impacted materials, ECS recommends that the contained areas of the building undergo a thorough cleaning following guidelines described in EPA's March 2001 document "Mold Remediation in Schools and Commercial Buildings." Surface remediation should include HEPA vacuuming of all surfaces and a clean-wipe with a mild detergent. The surfaces should not be saturated and discard cleaning cloths. All areas (affected and unaffected) should be left dry, visibly free from contamination and debris prior to build back activities.

Post-remediation observations and sampling should be performed to verify that obvious visible impacted materials have been removed and a reduction in airborne and/or surface fungal spore levels. Prior to final clearance observations and testing, the industrial hygienist will require that the negative air machines be turned off for a period of 24 to 48 hours prior to sampling activities.

Because of the nature of this environment, complete remediation of all microbial organisms within a building cannot be guaranteed. It is important to note that the reported mold levels are only reflective of conditions at the time of this test and that mold populations can vary over time, depending upon a number of conditions, including environmental factors (i.e., temperature and relative humidity). If significant mold growth reappears, or if the occupants experience prolonged allergic-type health complaints, they should seek further investigation of the problem.

Note: The purpose of this environmental portion of the survey was to evaluate areas where visible or apparent mold growth and/or moisture intrusion has occurred and provide findings and recommendations for remedial work efforts. Identification and recommendation(s) for correction of all moisture intrusion concerns was outside of the scope of services for the environmental testing services. As good practice all moisture intrusion concerns should be identified and corrected by a qualified contractor/engineer.

5.5 General

ECS recommends a project specification be developed to delineate and quantify known and suspect hazardous materials in the building and to outline proper procedures for the abatement. This will help protect the owner's liability in better defining the scope of work and contractors' roles and responsibilities in the abatement process and holding the contractor accountable for the performance of the project. The specification typically defines the Contractor's scope of work and outline requirements and procedures that must be followed for this project. The intent of the specification is to give performance requirements for the Contractor so that the project can be completed safely and in compliance with applicable federal and state regulations. Typically, the specification document also serves as part of the site owner's contract with the contractor.

ECS recommends that during entry or use of the structure by visitors or contractors, proper Personal Protective Equipment (PPE) should be used due to the presence of lead, asbestos, and mold on materials that appear to be in a degraded condition throughout various areas of the structure. Surfaces are also considered to be contaminated with mold, lead dust, and asbestos due to degraded building materials. Since the structure has been vacant and unmaintained for a long period of time with active roof leaks, interior wall, floor, and ceiling cavities are likely compromised by hidden mold and water impacts as either a result of leaks or high humidity and unconditioned environment. Consideration should be made in regards to the cost for mold/asbestos/lead based paint abatement efforts and the value of the structure.

5.6 Limitations

Information contained herein is based on information available to and data gathered by ECS during the performance of this project. Conclusions and recommendations pertaining to environmental conditions at the subject site are limited to the conditions observed at the time this study was undertaken. This survey is not intended to represent an exhaustive research of every potential hazard or condition that may exist, nor does it claim to represent indoor conditions or events that arise after the survey. This report has been prepared in accordance with generally accepted environmental practices. No other warranty, expressed or implied, is made. Our conclusions and findings are based, in part, upon information provided to us by others and our site observations. We have not verified the completeness or accuracy of the information provided by others. Our observations and findings are based upon conditions readily visible at the site at the time of our site visit, analytical tests, and upon current accepted industry standards. The scope of services performed was limited to those requested by the Client and does not constitute a full microbial assessment of the site or a comprehensive moisture survey of the site. The data provided in this study is only indicative of conditions sampled at the immediate time of the study. The work performed in conjunction with this assessment and the data developed is intended as a description of available information at the dates and locations given. This report does not warrant against future operations or conditions, nor does it warrant

against extant, or future, conditions of a type or at a location not investigated. Because of the nature of this type of work (microbial contamination reduction) and the difficulties involved in conducting remediation work, ECS cannot guarantee that the methods or recommendations described in this report will eliminate all potential indoor air quality issues. Since performance of the remediation work is also beyond ECS scope of services, ECS also cannot be held responsible for the execution of the remediation work.

ECS is not liable for the discovery and elimination of hazards that may potentially cause damage, accidents, injury, or disease. The conclusions and recommendations presented in this report are based on a reasonable level of evaluation within the normal bounds and standards of professional practice for an evaluation of this nature. The recommendations have no relationship to insurance coverage. This document is not a legal mandate and should be used as a guideline only. It is important to note that the reported microbial levels are only reflective of conditions at the time of this test and that microbial populations can vary over time, depending upon a number of conditions, including environmental factors (i.e., temperature and relative humidity). The work performed in conjunction with this assessment and the data developed is intended as a description of available information at the dates and locations given. This report does not warrant against future operations or conditions, nor does it warrant against extent, or future, conditions of a type or at a location not investigated.

ECS in providing the services described in this report, does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state, or federal public agencies any conditions at the site that may present a potential danger to public health, safety, or the environment. In areas that require notification of local, state, or federal agencies as required by law, it is the Client's responsibility to so notify. Under this scope of services, ECS assumes no responsibility regarding any response actions or additional studies, which may be required as a result of these findings. Response actions are the sole responsibility of the Client and should be conducted in accordance with local, state, and/or federal requirements, and should be performed by appropriate trained and qualified personnel, as warranted.

No other warranty, expressed or implied, is made with regard to the conclusions and recommendations presented within this report. This report is provided for the exclusive use of the Client or their agents. The scope of services performed in the execution of this evaluation may not be appropriate to satisfy the needs of other users. This report is not intended to be used or relied upon in connection with other projects or by other unidentified third parties. The use of this report or the findings, conclusions, or recommendations by any undesignated third party or parties will be at such party's sole risk and ECS disclaims liability for any such third party's use or reliance.

During this study, suspect asbestos samples were submitted for analysis at an NVLAP-accredited laboratory via polarized light microscopy. As with any similar survey of this nature, actual conditions exist only at the precise locations from which suspect asbestos samples were collected. Certain inferences are based on the results of this sampling and related testing to form a professional opinion of conditions in areas beyond those from which the samples were collected. No other warranty, expressed or implied, is made.

The client agrees to notify the appropriate local, state, or federal public agencies as required by law, or otherwise to disclose, in a timely manner, information that may be necessary to prevent any danger to public health, safety, or the environment.

Appendix I: Environmental Results Summary Tables

TABLE 7

BULK SAMPLING OF SUSPECT ASBESTOS-CONTAINING MATERIALS

Sample #	Sample Location	Material/Description	Analytical Results
1 - A	**Room Next to Garage**	**9" x 9" Black Floor Tile with Green Streaks**	**5% Chrysotile**
1 - B	Room Next to Garage	Black Mastic of 9" x 9" Black Floor Tile	NAD
2 - A	Room Next to Garage	9" x 9" Black Floor Tile with Green Streaks	N/A
2 - B	Room Next to Garage	Black Mastic of 9" x 9" Black Floor Tile	NAD
3	Room Next to Garage	Fiberboard Ceiling with White Coating	NAD
4	Room Next to Garage	Fiberboard Ceiling with White Coating	NAD
5	**Room Next to Garage**	**Light Gray Interior Wall Caulk**	**6% Chrysotile**
6	Room Next to Garage	Light Gray Interior Wall Caulk	N/A
7	Dining Room	Electrical Wire Cloth	NAD
8	Dining Room	Electrical Wire Cloth	NAD
9	Dining Room	Interior White Window Caulk	NAD
10	Bedroom 1	Interior White Window Caulk	NAD
11 - A	Dining Room	Wall Plaster- Finish	NAD
11 - B	Dining Room	Wall Plaster- Base	NAD
12 - A	Living Room 1	Wall Plaster- Finish	NAD
12 - B	Living Room 1	Wall Plaster- Base	NAD
13 - A	Bedroom 1	Wall Plaster- Finish	NAD
13 - B	Bedroom 1	Wall Plaster- Base	NAD
14 - A	Hall at Stairwell 2nd FL	Wall Plaster- Finish	NAD
14 - B	Hall at Stairwell 2nd FL	Wall Plaster- Base	NAD
15 - A	Bedroom 4	Wall Plaster- Finish	NAD
15 - B	Bedroom 4	Wall Plaster- Base	NAD
16 - A	Bedroom 3	Wall Plaster- Finish	NAD

Notes:
Bold = Asbestos-Containing Material
NAD = No Asbestos Detected
N/A = Sample Not Analyzed; Positive Stop

TABLE 7

BULK SAMPLING OF SUSPECT ASBESTOS-CONTAINING MATERIALS

Sample #	Sample Location	Material/Description	Analytical Results
16 - B	Bedroom 3	Wall Plaster- Base	NAD
17 - A	Dining Room	Wall Plaster- Finish	NAD
17 - B	Dining Room	Wall Plaster- Base	NAD
18 - A	Dining Room	Ceiling Plaster- Finish	NAD
18 - B	Dining Room	Ceiling Plaster- Base	NAD
19 - A	Living Room 1	Ceiling Plaster- Finish	NAD
19 - B	Living Room 1	Ceiling Plaster- Base	NAD
20 - A	Bedroom 1	Ceiling Plaster- Finish	NAD
20 - B	Bedroom 1	Ceiling Plaster- Base	NAD
21 - A	Hall at Stairwell 2nd FL	Ceiling Plaster- Finish	NAD
21 - B	Hall at Stairwell 2nd FL	Ceiling Plaster- Base	NAD
22 - A	Bedroom 4	Ceiling Plaster- Finish	NAD
22 - B	Bedroom 4	Ceiling Plaster- Base	NAD
23 - A	Bedroom 3	Ceiling Plaster- Finish	NAD
23 - B	Bedroom 3	Ceiling Plaster- Base	NAD
24 - A	Dining Room	Ceiling Plaster- Finish	NAD
24 - B	Dining Room	Ceiling Plaster- Base	NAD
25	Living Room 2	Drywall Board	NAD
26	Kitchen Ceiling	Drywall Board	NAD
27	Bedroom 2	Drywall Board	NAD
28	**Living Room 2**	**Drywall Joint Compound**	**3% Chrysotile**
29	Kitchen Ceiling	Drywall Joint Compound	N/A
30	Bedroom 2	Drywall Joint Compound	N/A

Notes:
Bold = Asbestos-Containing Material
NAD = No Asbestos Detected
N/A = Sample Not Analyzed; Positive Stop

TABLE 7

BULK SAMPLING OF SUSPECT ASBESTOS-CONTAINING MATERIALS

Sample #	Sample Location	Material/Description	Analytical Results
31	Bath off Liv Rm 2	Dark Yellow Ceramic Mastic	NAD
32	Bath off Liv Rm 2	Dark Yellow Ceramic Mastic	NAD
33	Kitchen	Ceiling Debris	Drywall - NAD Jt. Cmpd - NAD
34	Kitchen	Ceiling Debris	Drywall - NAD Jt. Cmpd - NAD
35	**Kitchen**	**White Sink Undercoat**	**5% Chrysotile**
36	Kitchen	White Sink Undercoat	N/A
37 - A	Laundry	Brick Pattern Sheet flooring	NAD
37 - B	Laundry	Yellow Mastic of Brick Pattern Sheet flooring	NAD
38 - A	Laundry	Brick Pattern Sheet flooring	NAD
38 - B	Laundry	Yellow Mastic of Brick Pattern Sheet flooring	NAD
39	Laundry	Black Felt of Siding	NAD
40	Laundry	Black Felt of Siding	NAD
41	Basement	Fiberboard Wall	NAD
42	Basement	Fiberboard Wall	NAD
43	Basement Plumbing	Black Pipe Wrap	NAD
44	Basement Plumbing	Black Pipe Wrap	NAD
45 - A	Basement Wall	White Texture Wall Coating with Gray Compound- Texture	NAD
45 - B	Basement Wall	White Texture Wall Coating with Gray Compound - Compound	NAD
46 - A	Basement Wall	White Texture Wall Coating with Gray Compound- Texture	NAD
46 - B	Basement Wall	White Texture Wall Coating with Gray Compound - Compound	NAD
47 - A	Basement Wall	White Texture Wall Coating with Gray Compound- Texture	NAD
47 - B	Basement Wall	White Texture Wall Coating with Gray Compound - Compound	NAD
48 - A	Bedroom 4	Ceiling Board- Drywall	NAD

Notes:
Bold = Asbestos-Containing Material
NAD = No Asbestos Detected
N/A = Sample Not Analyzed; Positive Stop

TABLE 7

BULK SAMPLING OF SUSPECT ASBESTOS-CONTAINING MATERIALS

Sample #	Sample Location	Material/Description	Analytical Results
48 - B	Bedroom 4	Ceiling Board- Plaster Finish	NAD
48 - C	Bedroom 4	Ceiling Board- Plaster Base	NAD
49	Bedroom 4	Exterior White Window Glazing	NAD
50	Lower Rear House	Exterior White Window Glazing	NAD
51	2nd FL Bathroom	Tan Ceramic Wall Tile Mastic	NAD
52	2nd FL Bathroom	Tan Ceramic Wall Tile Mastic	NAD
53	Attic	Brown Insulation	NAD
54	Attic	Brown Insulation	NAD
55	Garage Roof	White Flashing Caulk on Chimney	NAD
56	Garage Roof	White Flashing Caulk on Chimney	NAD
57	Garage Roof	Black with White Pebble Asphalt Sheet Roll - Top Layer	NAD
58	Garage Roof	Black with White Pebble Asphalt Sheet Roll - Top Layer	NAD
59 - A	Garage Roof	Black Membrane under Sheet Roll	NAD
59 - B	Garage Roof	Fiberboard under Sheet Roll	NAD
60 - A	Garage Roof	Black Membrane under Sheet Roll	NAD
60 - B	Garage Roof	Fiberboard under Sheet Roll	NAD
61 - A	Laundry Roof	Black Asphalt Roof Shingle - Shingle	NAD
61 - B	Laundry Roof	Black Felt of Black Asphalt Roof Shingle	NAD
62 - A	Laundry Roof	Black Asphalt Roof Shingle - Shingle	NAD
62 - B	Laundry Roof	Black Felt of Black Asphalt Roof Shingle	NAD
63 - A	Roof Bedroom 1	Black Asphalt Sheet Roll with Black Sealant- Sheet Rock	NAD
63 - B	**Roof Bedroom 1**	**Black Sealant of Black Asphalt Sheet Roll**	**5% Chrysotile**
64 - A	Roof Bedroom 1	Black Asphalt Sheet Roll with Black Sealant- Sheet Rock	NAD

Notes:
Bold = Asbestos-Containing Material
NAD = No Asbestos Detected
N/A = Sample Not Analyzed; Positive Stop

TABLE 7

BULK SAMPLING OF SUSPECT ASBESTOS-CONTAINING MATERIALS

Sample #	Sample Location	Material/Description	Analytical Results
64 - B	Roof Bedroom 1	Black Sealant of Black Asphalt Sheet Roll	N/A
65 - A	Main Roof	Black/Brown Asphalt Roof Shingle	NAD
65 - B	Main Roof	Tar/Felt of Black/Brown Asphalt Roof Shingle	NAD
66 - A	Main Roof	Black/Brown Asphalt Roof Shingle	NAD
66 - B	Main Roof	Tar/Felt of Black/Brown Asphalt Roof Shingle	NAD
67	**Roof Bedroom 1**	**Black Cement on Vent**	**8% Chrysotile**
68	Roof Bedroom 1	Black Cement on Vent	N/A
69	**Side Porch**	**Exterior Tan Caulk on Chimney**	**6% Chrysotile**
70	Side Porch	Exterior Tan Caulk on Chimney	N/A
71	Exterior Siding of Garage	Exterior Brown Siding Fiberboard Panels	NAD
72	Exterior Siding of Garage	Exterior Brown Siding Fiberboard Panels	NAD
73	**Exterior Siding**	**Exterior Gray Siding Cement Panels**	**15% Chrysotile**
74	Exterior Siding	Exterior Gray Siding Cement Panels	N/A
75	Exterior Windows	Exterior White Window Caulk (Layered)	NAD
76	Exterior Windows	Exterior White Window Caulk (Layered)	NAD
77	Living Room 2	Black Floor Felt	NAD
78	Living Room 2	Black Floor Felt	NAD

Notes:
Bold = Asbestos-Containing Material
NAD = No Asbestos Detected
N/A = Sample Not Analyzed; Positive Stop

TABLE 8
XRF READINGS: LEAD BASED-PAINT RESULTS

10606 Cedar Avenue Property
ECS Project No. 47:4166
Site Visit 6-7-2017

Date	Reading	Floor Level	Area/Room	Side	Substrate	Color	Component	Pb	Pb +/-
6/7/2017	1	Standardization						-	-
6/7/2017	2	Calibration						1.01	0.06
6/7/2017	3	Calibration						1.03	0.05
6/7/2017	4	Calibration						1.01	0.06
6/7/2017	5	1st Floor	Den	D	Wood	Natural	Wall	0.01	0.01
6/7/2017	6	1st Floor	Den	D	Plaster	White	Wall	0.03	0.01
6/7/2017	7	1st Floor	Den	D	Wood	Natural	Chair Rail	0.02	0.02
6/7/2017	8	1st Floor	Den	C	Wood	Natural	Shelf	0.01	0.01
6/7/2017	9	1st Floor	Den	C	Wood	Natural	Door	0.01	0.02
6/7/2017	**10**	**1st Floor**	**Den**	**C**	**Wood**	**Natural**	**Door Jamb**	**3.41**	**1.09**
6/7/2017	11	1st Floor	Den	B	Wood	Natural	Wall	0.03	0.03
6/7/2017	12	1st Floor	Den	B	Wood	White	Wall	0.02	0.01
6/7/2017	13	1st Floor	Den	B	Wood	Natural	Baseboard	0.02	0.02
6/7/2017	14	1st Floor	Den	B	Wood	Natural	Window Casing	0.11	0.10
6/7/2017	15	1st Floor	Den	B	Wood	Natural	Window Sill	0.01	0.02
6/7/2017	16	1st Floor	Den	A	Wood	Natural	Wall	0.04	0.04
6/7/2017	17	1st Floor	Den	A	Wood	White	Wall	0.01	0.01
6/7/2017	**18**	**1st Floor**	**Den**	**D**	**Wood**	**White**	**Wall**	**3.53**	**0.37**
6/7/2017	19	1st Floor	Den	D	Wood	Natural	Door Jamb	0.05	0.04
6/7/2017	20	1st Floor	Den	D	Wood	Natural	Door	0.06	0.05
6/7/2017	21	1st Floor	Dining Room	B	Wood	White	Door	0.74	0.12
6/7/2017	22	1st Floor	Dining Room	B	Wood	Brown	Floor	0.04	0.06
6/7/2017	23	1st Floor	Dining Room	B	Wood	Brown	Floor	0.02	0.03
6/7/2017	24	1st Floor	Dining Room	B	Plaster	Green	Wall	0.01	0.01
6/7/2017	25	1st Floor	Dining Room	B	Plaster	White	Wall	0.08	0.04
6/7/2017	**26**	**1st Floor**	**Dining Room**	**B**	**Wood**	**White**	**Chair Rail**	**2.48**	**0.73**
6/7/2017	**27**	**1st Floor**	**Dining Room**	**A**	**Wood**	**White**	**Chair Rail**	**2.35**	**0.62**
6/7/2017	28	1st Floor	Dining Room	A	Plaster	White	Wall	0.03	0.02
6/7/2017	29	1st Floor	Dining Room	A	Plaster	Green	Wall	0.03	0.03
6/7/2017	30	1st Floor	Dining Room	A	Wood	White	Window Sill	0.44	0.15
6/7/2017	31	1st Floor	Dining Room	A	Wood	White	Window Casing	0.03	0.07

Notes:
Bold - Lead Based Paint
Pb - Lead in milligrams per square centimeter

TABLE 8
XRF READINGS: LEAD BASED-PAINT RESULTS

10606 Cedar Avenue Property
ECS Project No. 47:4166
Site Visit 6-7-2017

Date	Reading	Floor Level	Area/Room	Side	Substrate	Color	Component	Pb	Pb +/-
6/7/2017	32	1st Floor	Dining Room	A	Wood	White	Baseboard	0.35	0.08
6/7/2017	33	1st Floor	Dining Room	D	Plaster	White	Wall	0.06	0.05
6/7/2017	34	1st Floor	Dining Room	D	Plaster	Green	Wall	0.02	0.02
6/7/2017	35	1st Floor	Dining Room	D	Wood	White	Door Jamb	0.44	0.16
6/7/2017	36	1st Floor	Dining Room	D	Plaster	White	Ceiling	0.02	0.02
6/7/2017	37	1st Floor	Dining Room	D	Wood	White	Door	0.12	0.06
6/7/2017	38	1st Floor	Dining Room	A	Wood	Natural	Cabinet	0.03	0.06
6/7/2017	39	1st Floor	Dining Room	B	Wood	Natural	Cabinet Door	0.05	0.07
6/7/2017	**40**	**1st Floor**	**Dining Room**	**B**	**Plaster**	**Yellow**	**Wall**	**1.00**	**0.00**
6/7/2017	**41**	**1st Floor**	**Dining Room**	**B**	**Plaster**	**Yellow**	**Wall**	**1.00**	**0.02**
6/7/2017	42	1st Floor	Dining Room	B	Wood	White	Door	0.00	0.00
6/7/2017	43	1st Floor	Dining Room	B	Wood	White	Door Jamb	0.00	0.00
6/7/2017	44	1st Floor	Kitchen	C	Wood	White	Breakfast Nook	0.00	0.00
6/7/2017	45	1st Floor	Kitchen	C	Wood	White	Window Sill	0.00	0.00
6/7/2017	46	1st Floor	Kitchen	C	Wood	White	Window	0.00	0.00
6/7/2017	47	1st Floor	Laundry	A	Plaster	White	Wall	0.00	0.00
6/7/2017	48	1st Floor	Laundry	A	Wood	White	Door Jamb	0.00	0.00
6/7/2017	49	1st Floor	Laundry	B	Wood	White	Door	0.00	0.00
6/7/2017	50	1st Floor	Kitchen	A	Plaster	Yellow	Wall	0.01	0.02
6/7/2017	51	1st Floor	Kitchen	D	Wood	White	Door Casing	0.00	0.00
6/7/2017	52	1st Floor	Kitchen	D	Wood	White	Door Jamb	0.00	0.00
6/7/2017	53	1st Floor	Kitchen	D	Wood	White	Door	0.01	0.02
6/7/2017	54	1st Floor	Hallway	A	Plaster	White	Wall	0.00	0.00
6/7/2017	55	1st Floor	Living Room	A	Plaster	White	Wall	0.01	0.01
6/7/2017	56	1st Floor	Living Room	B	Wood	White	Baseboard	0.00	0.00
6/7/2017	57	1st Floor	Living Room	B	Drywall	White	Wall	0.01	0.00
6/7/2017	58	1st Floor	Living Room	B	Wood	White	Window Sill	0.00	0.00
6/7/2017	59	1st Floor	Living Room	C	Wood	White	Shelf	0.00	0.00
6/7/2017	60	1st Floor	Living Room	D	Wood	Natural	Wall	0.01	0.01
6/7/2017	61	1st Floor	Living Room	D	Plaster	White	Ceiling	0.00	0.00
6/7/2017	**62**	**1st Floor**	**Bathroom**	**A**	**Ceramic**	**White**	**Wall**	**1.37**	**0.13**
6/7/2017	63	1st Floor	Bathroom	A	Plaster	White	Wall	0.00	0.00

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TABLE 8
XRF READINGS: LEAD BASED-PAINT RESULTS

Date	Reading	Floor Level	Area/Room	Side	Substrate	Color	Component	Pb	Pb +/-
6/7/2017	**64**	**1st Floor**	**Bathroom**	**D**	**Ceramic**	**Blue**	**Wall**	**2.16**	**0.28**
6/7/2017	**65**	**1st Floor**	**Bathroom**	**D**	**Ceramic**	**White**	**Sink**	**1.00**	**0.00**
6/7/2017	**66**	**1st Floor**	**Bathroom**	**D**	**Ceramic**	**White**	**Toilet**	**1.00**	**0.01**
6/7/2017	**67**	**1st Floor**	**Bathroom**	**C**	**Ceramic**	**White**	**Tub**	**5.00**	**0.65**
6/7/2017	68	1st Floor	Family Room	C	Plaster	White	Wall	0.00	0.01
6/7/2017	69	1st Floor	Family Room	C	Wood	White	Door Jamb	0.00	0.00
6/7/2017	70	1st Floor	Family Room	C	Wood	White	Door Casing	0.00	0.00
6/7/2017	71	1st Floor	Family Room	C	Wood	White	Baseboard	0.46	0.18
6/7/2017	72	1st Floor	Family Room	C	Wood	Natural	Floor	0.02	0.03
6/7/2017	73	1st Floor	Family Room	B	Plaster	White	Wall	0.01	0.01
6/7/2017	74	1st Floor	Family Room	A	Plaster	White	Wall	0.01	0.01
6/7/2017	75	1st Floor	Family Room	A	Wood	White	Window Sill	0.37	0.14
6/7/2017	76	1st Floor	Family Room	A	Wood	White	Window	0.00	0.00
6/7/2017	77	1st Floor	Family Room	A	Wood	White	Window Casing	0.16	0.05
6/7/2017	78	1st Floor	Family Room	D	Plaster	White	Wall	0.00	0.01
6/7/2017	79	1st Floor	Family Room	A	Brick	Red	Fireplace	0.33	0.03
6/7/2017	80	1st Floor	Family Room	D	Wood	White	Mantle	0.04	0.02
6/7/2017	81	1st Floor	Family Room	D	Wood	White	Door	0.17	0.05
6/7/2017	82	1st Floor	Family Room	D	Wood	White	Door Casing	0.28	0.10
6/7/2017	83	1st Floor	Family Room	A	Wood	White	Door Casing	0.27	0.09
6/7/2017	84	1st Floor	Family Room	A	Wood	White	Door	0.48	0.18
6/7/2017	85	Stairwell	Stairwell	B	Wood	Natural	Railing	0.02	0.02
6/7/2017	86	Stairwell	Stairwell	B	Wood	White	Stair Stringer	0.44	0.10
6/7/2017	87	Stairwell	Stairwell	B	Wood	White	Stair Baluster	0.51	0.11
6/7/2017	88	Stairwell	Stairwell	B	Wood	Natural	Railing	0.01	0.01
6/7/2017	89	Stairwell	Stairwell	B	Wood	Natural	Stair Riser	0.01	0.02
6/7/2017	90	1st Floor	Family Room	A	Wood	White	Window Soffit	0.02	0.03
6/7/2017	91	Basement	Basement	B	Plaster	White	Wall	0.00	0.01
6/7/2017	92	Basement	Basement	A	Plaster	White	Ceiling	0.01	0.01
6/7/2017	93	1st Floor	Kitchen	A	Plaster	White	Beam	0.00	0.00
6/7/2017	94	Basement	Basement	B	Wood	Gray	Stair Railing	0.00	0.00
6/7/2017	95	Basement	Basement	B	Wood	Gray	Stair Railing	0.00	0.00

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TABLE 8
XRF READINGS: LEAD BASED-PAINT RESULTS

10606 Cedar Avenue Property
ECS Project No. 47:4166
Site Visit 6-7-2017

Date	Reading	Floor Level	Area/Room	Side	Substrate	Color	Component	Pb	Pb +/-
6/7/2017	96	Basement	Basement	B	Wood	Gray	Stairs	0.23	0.05
6/7/2017	**97**	**Basement**	**Basement**	**B**	**Wood**	**Gray**	**Stair Riser**	**4.45**	**0.44**
6/7/2017	98	Basement	Basement	A	Plaster	White	Wall	0.63	0.15
6/7/2017	99	Basement	Basement	B	Concrete Block	White	Wall	1.18	0.16
6/7/2017	**100**	**Basement**	**Basement**	**C**	**Concrete Block**	**White**	**Wall**	**2.66**	**0.40**
6/7/2017	101	Basement	Basement	C	Wood	Gray	Stair Baluster	0.00	0.00
6/7/2017	102	Basement	Basement	C	Wood	Gray	Stair Stringer	0.24	0.04
6/7/2017	**103**	**Basement**	**Basement**	**D**	**Brick**	**White**	**Wall**	**1.16**	**0.08**
6/7/2017	**104**	**Basement**	**Basement**	**A**	**Plaster**	**White**	**Wall**	**1.54**	**0.26**
6/7/2017	105	1st Floor	Family Room	B	Wood	White	Crown Molding	0.00	0.00
6/7/2017	106	2nd Floor	Hallway	A	Plaster	White	Wall	0.00	0.00
6/7/2017	107	2nd Floor	Hallway	A	Wood	White	Baseboard	0.07	0.01
6/7/2017	108	2nd Floor	Hallway	A	Wood	White	Window Sill	0.10	0.04
6/7/2017	**109**	**2nd Floor**	**Hallway**	**A**	**Wood**	**White**	**Window Casing**	**2.28**	**0.53**
6/7/2017	110	2nd Floor	Hallway	B	Plaster	White	Wall	0.03	0.01
6/7/2017	111	2nd Floor	Hallway	D	Plaster	White	Wall	0.00	0.00
6/7/2017	112	2nd Floor	Hallway	D	Plaster	White	Ceiling	0.01	0.01
6/7/2017	**113**	**2nd Floor**	**Bathroom**	**D**	**Ceramic**	**White**	**Wall**	**1.00**	**0.00**
6/7/2017	114	2nd Floor	Bathroom	A	Ceramic	White	Sink	0.00	0.00
6/7/2017	**115**	**2nd Floor**	**Bathroom**	**C**	**Ceramic**	**White**	**Toilet**	**1.00**	**0.01**
6/7/2017	**116**	**2nd Floor**	**Bathroom**	**C**	**Ceramic**	**White**	**Floor**	**5.00**	**0.63**
6/7/2017	**117**	**2nd Floor**	**Bathroom**	**C**	**Ceramic**	**White**	**Floor**	**1.00**	**0.00**
6/7/2017	118	2nd Floor	Bathroom	B	Wood	White	Door	0.08	0.04
6/7/2017	119	2nd Floor	Bathroom	B	Wood	White	Door Jamb	0.13	0.04
6/7/2017	120	2nd Floor	Bedroom	B	Plaster	White	Wall	0.00	0.01
6/7/2017	121	2nd Floor	Bedroom	B	Plaster	White	Wall	0.00	0.01
6/7/2017	122	2nd Floor	Bedroom	B	Wood	White	Window Sill	0.08	0.04
6/7/2017	**123**	**2nd Floor**	**Bedroom**	**B**	**Wood**	**White**	**Baseboard**	**1.00**	**0.09**
6/7/2017	124	2nd Floor	Bedroom	C	Wood	White	Shelf	0.00	0.00
6/7/2017	125	2nd Floor	Bedroom	C	Wood	White	Door Jamb	0.08	0.04
6/7/2017	126	2nd Floor	Bedroom	C	Wood	White	Cabinet Door	0.00	0.00
6/7/2017	127	2nd Floor	Hallway	C	Plaster	Violet	Wall	0.00	0.00

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TABLE 8
XRF READINGS: LEAD BASED-PAINT RESULTS

Date	Reading	Floor Level	Area/Room	Side	Substrate	Color	Component	Pb	Pb +/-
6/7/2017	128	2nd Floor	Hallway	C	Wood	White	Door Jamb	0.00	0.00
6/7/2017	129	2nd Floor	Hallway	B	Plaster	Violet	Wall	0.00	0.00
6/7/2017	130	2nd Floor	Hallway	B	Wood	White	Baseboard	0.00	0.00
6/7/2017	131	2nd Floor	Bedroom	A	Wood	White	Door Casing	0.00	0.00
6/7/2017	**132**	**2nd Floor**	**Bathroom**	**B**	**Ceramic**	**White**	**Sink**	**5.00**	**0.53**
6/7/2017	133	2nd Floor	Bathroom	B	Wood	Tan	Cabinet	0.00	0.00
6/7/2017	134	2nd Floor	Bathroom	B	Wood	Tan	Cabinet	0.00	0.00
6/7/2017	**135**	**2nd Floor**	**Bathroom**	**B**	**Ceramic**	**White**	**Toilet**	**1.00**	**0.01**
6/7/2017	**136**	**2nd Floor**	**Bathroom**	**C**	**Ceramic**	**White**	**Wall**	**1.00**	**0.00**
6/7/2017	137	2nd Floor	Closet	C	Plaster	White	Wall	0.00	0.01
6/7/2017	138	2nd Floor	Closet	B	Wood	White	Shelf	0.00	0.00
6/7/2017	139	2nd Floor	Bedroom	C	Wood	White	Door	0.00	0.00
6/7/2017	140	2nd Floor	Bedroom	C	Wood	White	Door Jamb	0.00	0.00
6/7/2017	141	2nd Floor	Bedroom	C	Wood	White	Window Casing	0.00	0.00
6/7/2017	142	2nd Floor	Bedroom	C	Wood	White	Window Sill	0.00	0.00
6/7/2017	143	2nd Floor	Bedroom	D	Wood	White	Window Sill	0.04	0.05
6/7/2017	144	2nd Floor	Bedroom	D	Wood	White	Window	0.00	0.00
6/7/2017	145	2nd Floor	Bedroom	D	Wood	White	Window Casing	0.00	0.00
6/7/2017	146	2nd Floor	Bedroom	B	Wood	White	Door	0.00	0.00
6/7/2017	147	2nd Floor	Bedroom	B	Wood	White	Door	0.00	0.00
6/7/2017	**148**	**2nd Floor**	**Bedroom**	**A**	**Plaster**	**White**	**Wall**	**1.00**	**0.02**
6/7/2017	149	2nd Floor	Bedroom	D	Plaster	White	Wall	0.03	0.01
6/7/2017	150	2nd Floor	Bedroom	C	Wood	White	Baseboard	0.02	0.01
6/7/2017	**151**	**2nd Floor**	**Bedroom**	**B**	**Plaster**	**White**	**Wall**	**1.00**	**0.02**
6/7/2017	152	2nd Floor	Bedroom	A	Plaster	Off White	Wall	0.00	0.00
6/7/2017	153	2nd Floor	Bedroom	D	Plaster	Off White	Wall	0.00	0.01
6/7/2017	154	2nd Floor	Bedroom	A	Wood	White	Window Casing	0.02	0.02
6/7/2017	155	2nd Floor	Bedroom	A	Wood	White	Window Sill	0.06	0.07
6/7/2017	156	2nd Floor	Bedroom	C	Wood	White	Baseboard	0.06	0.07
6/7/2017	**157**	**Exterior**	**Exterior**	**D**	**Wood**	**Yellow**	**Wall**	**1.00**	**0.01**
6/7/2017	**158**	**Exterior**	**Exterior**	**D**	**Wood**	**Black**	**Shutter**	**2.67**	**0.31**
6/7/2017	**159**	**Exterior**	**Exterior**	**D**	**Wood**	**White**	**Window Casing**	**1.81**	**0.20**

Notes:
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TABLE 8
XRF READINGS: LEAD BASED-PAINT RESULTS

Date	Reading	Floor Level	Area/Room	Side	Substrate	Color	Component	Pb	Pb +/-
6/7/2017	160	Exterior	Exterior	D	Wood	White	Window Soffit	0.91	0.10
6/7/2017	161	Exterior	Exterior	C	Wood	White	Railing	0.62	0.13
6/7/2017	162	Exterior	Exterior	B	Wood	Yellow	Wall	0.00	0.00
6/7/2017	163	1st Floor	Garage	A	Wood	White	Wall	0.00	0.00
6/7/2017	164	1st Floor	Garage	D	Concrete Block	White	Wall	0.01	0.01
6/7/2017	**165**	**1st Floor**	**Garage**	**D**	**Wood**	**White**	**Door Jamb**	**1.02**	**0.27**
6/7/2017	**166**	**1st Floor**	**Garage**	**D**	**Wood**	**White**	**Door**	**1.25**	**0.18**
6/7/2017	167	1st Floor	Garage	B	Wood	White	Door	0.01	0.00
6/7/2017	168	1st Floor	Garage	B	Wood	White	Wall	0.00	0.00
6/7/2017	169	Exterior	Garage	A	Wood	White	Wall	0.01	0.03
6/7/2017	170	Exterior	Exterior	A	Wood	Yellow	Wall	0.01	0.02
6/7/2017	**171**	**Exterior**	**Exterior**	**A**	**Wood**	**Black**	**Shutter**	**1.72**	**0.18**
6/7/2017	172	Exterior	Exterior	A	Wood	White	Window Casing	0.07	0.02
6/7/2017	173	Exterior	Exterior	A	Wood	White	Window Casing	0.07	0.02
6/7/2017	174	Exterior	Exterior	A	Wood	Yellow	Wall	0.05	0.07
6/7/2017	**175**	**Exterior**	**Exterior**	**A**	**Wood**	**White**	**Door Casing**	**1.35**	**0.21**
6/7/2017	**176**	**Exterior**	**Exterior**	**A**	**Wood**	**Red**	**Door**	**1.79**	**0.40**
6/7/2017	177	Exterior	Exterior	A	Wood	White	Column	0.00	0.00
6/7/2017	178	Exterior	Exterior	B	Wood	White	Wall	0.59	0.11
6/7/2017	179	Exterior	Exterior	B	Wood	White	Fence	0.00	0.00
6/7/2017	180	Exterior	Exterior	C	Metal	White	Wall	0.01	0.00
6/7/2017	181	Exterior	Exterior	C	Wood	White	Window Casing	0.00	0.00
6/7/2017	182	Calibration						1.03	0.05
6/7/2017	183	Calibration						1.02	0.03
6/7/2017	184	Calibration						1.01	0.06

Notes:
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Pb - Lead in milligrams per square centimeter

Appendix II: Environmental Photographs

1. View of the den with 9” x 9” black floor tiles (ACM), Samples 1-2.

2. View of the 9” x 9” black floor tiles (ACM), Samples 1-2.

3. View of the light gray wall caulk, Samples 5-6.

4. View of peeling paint with mold in the basement stairwell.

5. View of water impacts and mold beneath the sheet flooring in the laundry hallway.

6. View of visible mold on kitchen cabinets.

7. View of the hole in the roof at the 2nd floor stairwell hallway.

8. View of debris on the floor, partial hole in the floor from the roof leak.

9. View of visible mold on the ceiling/walls in the den.

10. View of visible mold on the ceiling in the dining room.

11. View of peeling paint in the dining room with mold on the ceiling.

12. View of visible mold on the doors in the living room area.

10606 Cedar Avenue
Fairfax, Virginia

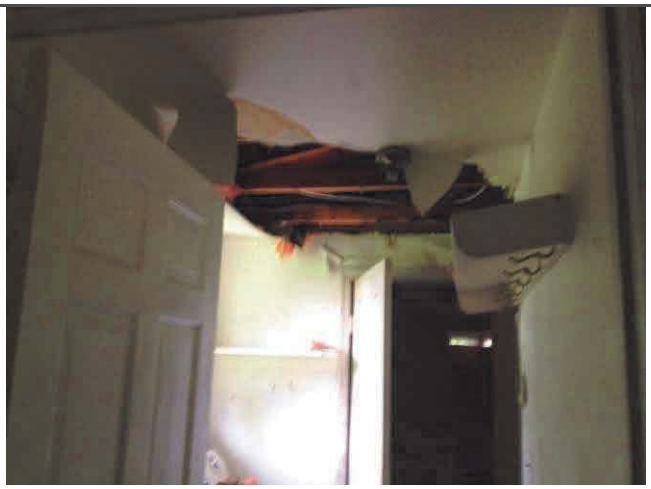
Site Photographs
ECS Project No. 47:4166
Site Visit: June 7, 2017

13. View of peeling paint on the walls and ceiling.

14. View of peeling paint on the floor surfaces.

15. View of water impacted walls and ceiling in the northeast living room.

16. View of ceiling debris (with asbestos) on the floor in the kitchen.



17. View of the ceiling damage from a roof leak in the laundry room/hall.

18. View of impacted materials from a roof leak in the laundry room/hall.

19. View of visible mold and peeling paint in the upstairs hallway.

20. View of the black seam sealant (ACM), Samples 63-64.

21. View of the cement (ACM) on the roof vent, Samples 67-68

22. View of the cement board siding (ACM), Samples 73-74, and paint chips in the drip line.

23. View of the tan caulk (ACM) on the chimney of the patio.

24. View of peeling paint (LBP) on the exterior of the house.

Appendix III: Environmental Laboratory Results

Direct Exam: Bulk Analysis

SAI Method B-SOP-005

Client:	ECS Chantilly	**Attn:**	Beverly Sedon
	14026 Thunderbolt Place Suite 100	**Lab ID:**	1712077
	Chantilly, VA 20151	**Received:**	6/8/2017
Project ID:	47:4166	**Reported:**	6/13/2017

Sample ID	B-1							
Sample Description	Attic Insulation							
IDENTIFICATION: 1=Trace (1-10 spores); 2=Light (11-100 spores); 3=Abundant (101-300 spores) 4=Loaded (>300 spores)								
Alternaria								
Ascospores	3							
Aspergillus								
Aspergillus/Penicillium-like								
Basidiospores	1							
Chaetomium								
Cladosporium	2							
Curvularia	1							
Drechslera/Bipolaris								
Epicoccum	1							
Myxomycete/Rust/Smut-like								
Nigrospora								
Penicillium								
Pithomyces								
Scopulariopsis								
Spegazzinia								
Stachybotrys								
Stemphylium								
Tetraploa								
Torula								
Ulocladium								
Unknown/Other								
Fruiting bodies								
Hyphal fragments	1							
Pollen								
Debris	N/A							
COMMENT:								

Microbiology Technical Manager

B-F-013 EXP: 3/1/2020

Scientific Analytical Institute, Inc. 4604 Dundas Dr. Greensboro, NC 27407 (336) 292-3888

Scientific Analytical Institute
4604 Dundas Dr. Greensboro, NC 27407
Phone: 336.292.3888 Fax: 336.292.3313
www.sailab.com lab@sailab.com

Lab Use Only
Lab Order ID: 171207
Client Code: _____

Company Contact Information	
Company: ECS Mid-Atlantic, LLC	Contact: Beverly Sedon
Address: 14026 Thunderbolt Place, Suite 100	Phone ☐: 301-672-2096
Chantilly, VA 20151	Fax ☐:
bsedon@ecslimited.com	Email ☒:

Billing/Invoice Information	Turn Around Times	
Company: Same	90 Min. ☐	48 Hours ☐
Contact:	3 Hours ☐	72 Hours ☐
Address:	6 Hours ☐	96 Hours ☒
	12 Hours ☐	120 Hours ☐
	24 Hours ☐	144+Hours ☐

Microbiology Test Types	
Spore Trap - Slit Impact, ie, AOC/Allergenco (STA)	☒
Spore Trap Other, ie. Micro-5 (STO)	☐
Direct Exam Tape (DET)	☐
Direct Exam Swab (DES)	☒
Direct Exam Bulk (DEB)	☒
Fungal Culture Air (FCA)	☐
Fungal Culture Swab (FCS)	☐
Fungal Culture Bulk (FCB)	☐
Bacteria Culture Air (BCA)	☐
Bacteria Culture Bulk (BCB)	☐
Bacteria Culture Swab (BCS)	☐
Biolog (BLG)	☐
Drinking Water (BCC) (Coliform/E.coli)	☐
Other:	☐

PO Number: 47:41666
Project Name/Number: 47:41666

Sample ID #	Description/Location	Volume/Area	Serial# Comments
A-1	Exterior	75 L	2433-5090
A-2	Kitchen	75 L	2433-5089
A-3	Basement	75 L	2433-5096
A-4	Living Room	75 L	2433-5080
A-5	2nd Floor Stairwell	75 L	2433-5462
A-6	Exterior	75L	2433 5435
S-1	DOOR to Basement	—	—
B-1	Attic Insulation	—	—

Accepted ☑
Rejected ☐

Total # of Samples 8

Relinquished by	Date/Time	Received by	Date/Time
	12/7/2017		12/8 9:30 AM

Direct Exam: Swab Analysis

SAI Method B-SOP-005

Client:	ECS Chantilly	**Attn:**	Beverly Sedon
	14026 Thunderbolt Place Suite 100	**Lab ID:**	1712078
	Chantilly, VA 20151	**Received:**	6/8/2017
Project ID:	47:4166	**Reported:**	6/13/2017

Sample ID	S-1							
Sample Description	Door to Bsmt							
IDENTIFICATION: 1=Trace (1-10 spores); 2=Light (11-100 spores); 3=Abundant (101-300 spores) 4=Loaded (>300 spores)								
Alternaria								
Ascospores								
Aspergillus								
Aspergillus/Penicillium-like								
Basidiospores								
Chaetomium								
Cladosporium	4							
Curvularia								
Drechslera/Bipolaris								
Epicoccum								
Myxomycete/Rust/Smut-like								
Nigrospora								
Penicillium								
Pithomyces								
Scopulariopsis								
Spegazzinia								
Stachybotrys								
Stemphylium								
Tetraploa								
Torula								
Ulocladium								
Unknown/Other								
Fruiting bodies	4							
Hyphal fragments	4							
Pollen								
Debris	1							
COMMENT:								

Microbiology Technical Manager
B-F-015 EXP: 3/1/2020

Scientific Analytical Institute, Inc. 4604 Dundas Dr. Greensboro, NC 27407 (336) 292-3888

Scientific Analytical Institute
4604 Dundas Dr. Greensboro, NC 27407
Phone: 336.292.3888 Fax: 336.292.3313
www.sailab.com lab@sailab.com

Lab Use Only
Lab Order ID: 171208
Client Code: _____

Company Contact Information	
Company: ECS Mid-Atlantic, LLC	Contact: Beverly Sedon
Address: 14026 Thunderbolt Place, Suite 100	Phone ☐: 301-672-2096
Chantilly, VA 20151	Fax ☐:
bsedon@ecslimited.com	Email ☒:

Billing/Invoice Information	Turn Around Times	
Company: Same	90 Min. ☐	48 Hours ☐
Contact:	3 Hours ☐	72 Hours ☐
Address:	6 Hours ☐	96 Hours ☒
	12 Hours ☐	120 Hours ☐
	24 Hours ☐	144*Hours ☐

PO Number: 47:41666
Project Name/Number: 47:41666

Microbiology Test Types	
Spore Trap - Slit Impact, ie, AOC/Allergenco (STA)	☒
Spore Trap Other, ie. Micro-5 (STO)	☐
Direct Exam Tape (DET)	☐
Direct Exam Swab (DES)	☒
Direct Exam Bulk (DEB)	☒
Fungal Culture Air (FCA)	☐
Fungal Culture Swab (FCS)	☐
Fungal Culture Bulk (FCB)	☐
Bacteria Culture Air (BCA)	☐
Bacteria Culture Bulk (BCB)	☐
Bacteria Culture Swab (BCS)	☐
Biolog (BLG)	☐
Drinking Water (BCC) (Coliform/E.coli)	☐
Other:	☐

Sample ID #	Description/Location	Volume/Area	Serial# Comments
A-1	Exterior	75 L	2433-5090
A-2	Kitchen	75 L	2433-5089
A-3	Basement	75 L	2433-5096
A-4	Living Room	75 L	2433-5080
A-5	2nd Floor Stairwell	75 L	2433-5462
A-6	Exterior	75 L	2433 5435
S-1	Door to Basement	—	—
B-1	Attic Insulation	—	—

Accepted ☑

Rejected ☐

Total # of Samples 8

Relinquished by	Date/Time	Received by	Date/Time
	11/1/2017		9:30 am

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237
Telephone: 800.347.4010

PCB Bulk Analysis Report

Report Number: 17-06-01044

Client: ECS Mid-Atlantic - Chantilly
14026 Thunderbolt Pl
Suite 100
Chantilly, VA 20151

Received Date: 06/08/2017
Reported Date: 06/14/2017

Project/Test Address: 47:4166; Fairfax, VA

Client Number: 201119

Fax Number:

Laboratory Results

Lab Sample Number: 17-06-01044-001
Client Sample Number: 1
Sample Matrix: Bulk
Reporting Limit (mg/kg): 0.95

Preparation Date: 06/13/2017
Analysis Date: 06/14/2017
Sample Weight (g): 1.060
Narrative ID:

Aroclor 1016 (mg/kg)	Aroclor 1221 (mg/kg)	Aroclor 1232 (mg/kg)	Aroclor 1242 (mg/kg)	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Aroclor 1262 (mg/kg)	Aroclor 1268 (mg/kg)
<0.95	<0.95	<0.95	<0.95	<0.95	<0.95	<0.95	<0.95	<0.95

Lab Sample Number: 17-06-01044-002
Client Sample Number: 2
Sample Matrix: Caulk
Reporting Limit (mg/kg): 10

Preparation Date: 06/13/2017
Analysis Date: 06/14/2017
Sample Weight (g): 1.010
Narrative ID:

Aroclor 1016 (mg/kg)	Aroclor 1221 (mg/kg)	Aroclor 1232 (mg/kg)	Aroclor 1242 (mg/kg)	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Aroclor 1262 (mg/kg)	Aroclor 1268 (mg/kg)
<10	<10	<10	<10	<10	<10	<10	<10	<10

Environmental Hazards Services, L.L.C

Client Number: 201119 Report Number: 17-06-01044
Project/Test Address: 47:4166; Fairfax, VA

Sample Narratives:

Preparation Method: EPA SW846 3550C
Analysis Method: EPA SW846 8082A

Reviewed By Authorized Signatory: Melissa Kanode

Missy Kanode
QA/QC Clerk

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. All internal quality control requirements associated with the batch were met, unless otherwise noted. Results represent the analysis of samples submitted by the client. Unless otherwise noted, samples are reported without a dry weight correction. Sample location, description, area, volume, etc., was provided by the client. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of the Environmental Hazards Service, L.L.C. Virginia Certification #460172 NY ELAP #11714.

Legend g = gram mg/kg = milligram per kilogram

PCB Chain-of-Custody Form

EHS Laboratories™
Environmental Hazards Services, LLC

SHIP TO: 7469 Whitepine Rd. Richmond, VA 23237
Phone: (800) 347-4010 FAX: (804) 275-4907
ONLINE CLIENT PORTAL AVAILABLE FOR ANALYSIS RESULTS AT:
www.leadlab.com

17-06-01044

Due Date:
06/15/2017
(Thursday)
E

Company Name: ECS Mid Atlantic LLC Account Number:

Address: 14026 Thunderbolt Pl Ste 100 City/State/Zip: Chantilly VA 20151

Phone: 703 471 8400 Email: bsedon@ecslimited.com Fax: P.O. #: 47:4166

Project Name / Testing Address: 47:4166 City/State (Required): Fairfax, VA

LAB USE: Cooler Receipt Info: Sufficient Ice: Yes/No Temp: _____ Containers Preserved: Yes/No If no, explain Custody seal present/intact: Yes/No Initials: _____ Date: _____

TURN AROUND TIMES: IF NO TAT IS SPECIFIED, SAMPLE(S) WILL BE PROCESSED AND CHARGED AS 5 - DAY TAT.

1 Day		2 Day		3 Day	X	5 Day

No.	Client Sample ID	Collection Date	Collection Time	Extraction Method For Soil, Paint, Caulk or Bulk (Ultrasonic Extraction will be used unless otherwise requested) Ultrasonic	Extraction Method Soxhlet	Matrix Caulk	Air	Wipe	Oil	Soil	Paint	Other	Area Sampled (cm)² Or Air Volume (L)	Grab or Composite	Comments
1	1	6/7/17	12:00 AM (PM)			✓								Grab	Glaze
2	2	6/17/17	12:00 AM (PM)			✓								Composite	Caulk
3			AM / PM												
4			AM / PM												
5			AM / PM												
6			AM / PM												
7			AM / PM												
8			AM / PM												
9			AM / PM												
10			AM / PM												

Released by: Signature: Date/Time: 6/7/2017 3:33pm

Received by: Signature: Date/Time: 6/8/17 10:45

Analysis for Lead Concentration in Soil Samples

by Flame Atomic Absorption Spectroscopy
EPA SW-846 3050B/6010C/7000B

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712080
Analysis ID: 1712080_PBS
Date Received: 6/8/2017
Date Reported: 6/13/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Mass *(g)*	Concentration *(ppm)*	Concentration *(% by weight)*
S-1	Front of house	1.1747	660	**0.066%**
1712080PBS_1				
S-2	Rear of house	1.4123	160	**0.016%**
1712080PBS_2				

Daniel Olson (2)

Analyst

Laboratory Director

Scientific Analytical Institute, Inc. 4604 Dundas Dr. Greensboro, NC 27407 (336) 292-3888

Scientific Analytical Institute
4604 Dundas Dr. Greensboro, NC 27407
Phone: 336.292.3888 Fax: 336.292.3313
www.sailab.com lab@sailab.com

Lab Use Only
Lab Order ID: 171280
Client Code: _____

Contact Information	
Company Name:	ECS Mid-Atlantic, LLC
Address:	14026 Thunderbolt Pl, Ste 100
	Chantilly, VA 20151
Contact:	Beverly Sedon
Phone ☐:	301-672-2096
Fax ☐:	
Email ☒:	bsedon@ecslimited.com
PO Number:	47:4166
Project Name/Number:	47:4166

Billing/Invoice Information	
Company:	Same
Address:	
Contact:	
Phone ☐:	
Fax ☐:	
Email ☐:	

Lead Test Types		
Paint Chips by Flame AA (PBP) ☐	Soil by Flame AA (PBS) ☒	Other ☐
Wipe by Flame AA (PBW) ☐	Air by Flame AA (PBA) ☐	

Turn Around Times			
3 Hours	☐	72 Hours	☐
6 Hours	☐	96 Hours	☒
12 Hours	☐	120 Hours	☐
24 Hours	☐	144+ Hours	☐
48 Hours	☐		

Sample ID #	Description/Location	Volume/Area	Comments
S-1	Front of House	—	
S-2	Rear of House	—	

Total Number of Samples 2

Relinquished by	Date/Time	Received by	Date/Time
	6/7/2017		9:30

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
1 - A *1712056PLM_1*	9" x 9" Black Floor Tile with Green Streaks with Black Mastic *tile*	**5% Chrysotile**		**95% Other**	Black Non Fibrous Heterogeneous Dissolved
1 - B *1712056PLM_79*	9" x 9" Black Floor Tile with Green Streaks with Black Mastic *mastic*	**None Detected**		**100% Other**	Black Non Fibrous Homogeneous Dissolved
2 - A *1712056PLM_2*	9" x 9" Black Floor Tile with Green Streaks with Black Mastic *tile*	**Not Analyzed**			
2 - B *1712056PLM_80*	9" x 9" Black Floor Tile with Green Streaks with Black Mastic *mastic*	**None Detected**		**100% Other**	Black Non Fibrous Homogeneous Dissolved
3 *1712056PLM_3*	Fiberboard Ceiling with White Coating	**None Detected**	**85% Cellulose**	**15% Other**	Tan, White Fibrous Heterogeneous Teased
4 *1712056PLM_4*	Fiberboard Ceiling with White Coating	**None Detected**	**85% Cellulose**	**15% Other**	Tan, White Fibrous Heterogeneous Teased
5 *1712056PLM_5*	Light Gray Interior Wall Caulk	**6% Chrysotile**		**94% Other**	Gray Non Fibrous Homogeneous Dissolved
6 *1712056PLM_6*	Light Gray Interior Wall Caulk	**Not Analyzed**			

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommend that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Analytical uncertainty available upon request. Scientific Analytical Institute participates in the NVLAP Proficiency Testing program. Unless otherwise noted blank sample correction was not performed. Estimated MDL is 0.1%.

Sharon Donald (109)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
7 *1712056PLM_7*	Electrical Wire Cloth	None Detected	90% Cellulose	10% Other	Brown Fibrous Homogeneous Teased
8 *1712056PLM_8*	Electrical Wire Cloth	None Detected	90% Cellulose	10% Other	Brown Fibrous Homogeneous Teased
9 *1712056PLM_9*	Interior White Window Caulk	None Detected		100% Other	White Non Fibrous Homogeneous Ashed
10 *1712056PLM_10*	Interior White Window Caulk	None Detected		100% Other	White Non Fibrous Homogeneous Ashed
11 - A *1712056PLM_11*	Wall Plaster *finish*	None Detected	10% Cellulose	90% Other	White, Yellow Non Fibrous Heterogeneous Crushed
11 - B *1712056PLM_81*	Wall Plaster *base*	None Detected		100% Other	Gray Non Fibrous Heterogeneous Crushed
12 - A *1712056PLM_12*	Wall Plaster *finish*	None Detected	10% Cellulose	90% Other	Brown, White Non Fibrous Heterogeneous Crushed
12 - B *1712056PLM_82*	Wall Plaster *base*	None Detected		100% Other	Gray Non Fibrous Heterogeneous Crushed

Sharon Donald (109)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Lab ID # 173190

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
13 - A	Wall Plaster	None Detected		100% Other	White, Yellow Non Fibrous Heterogeneous
1712056PLM_13	*finish*				Crushed
13 - B	Wall Plaster	None Detected		100% Other	Gray Non Fibrous Heterogeneous
1712056PLM_83	*base*				Crushed
14 - A	Wall Plaster	None Detected		100% Other	White Non Fibrous Heterogeneous
1712056PLM_14	*finish*				Crushed
14 - B	Wall Plaster	None Detected		100% Other	Gray Non Fibrous Heterogeneous
1712056PLM_84	*base*				Crushed
15 - A	Wall Plaster	None Detected	10% Cellulose	90% Other	Brown, White Non Fibrous Heterogeneous
1712056PLM_15	*finish*				Crushed
15 - B	Wall Plaster	None Detected		100% Other	Gray Non Fibrous Heterogeneous
1712056PLM_85	*base*				Crushed
16 - A	Wall Plaster	None Detected		100% Other	White Non Fibrous Heterogeneous
1712056PLM_16	*finish*				Crushed
16 - B	Wall Plaster	None Detected		100% Other	Gray Non Fibrous Heterogeneous
1712056PLM_86	*base*				Crushed

Sharon Donald (109)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
17 - A *1712056PLM_17*	Wall Plaster *finish*	None Detected	10% Cellulose	90% Other	White, Yellow Non Fibrous Heterogeneous Crushed
17 - B *1712056PLM_87*	Wall Plaster *base*	None Detected		100% Other	Gray Non Fibrous Heterogeneous Crushed
18 - A *1712056PLM_18*	Ceiling Plaster *finish*	None Detected		100% Other	White Non Fibrous Heterogeneous Crushed
18 - B *1712056PLM_88*	Ceiling Plaster *base*	None Detected		100% Other	Gray Non Fibrous Heterogeneous Crushed
19 - A *1712056PLM_19*	Ceiling Plaster *finish*	None Detected		100% Other	White Non Fibrous Heterogeneous Crushed
19 - B *1712056PLM_89*	Ceiling Plaster *base*	None Detected		100% Other	Gray Non Fibrous Heterogeneous Crushed
20 - A *1712056PLM_20*	Ceiling Plaster *finish*	None Detected		100% Other	White Non Fibrous Heterogeneous Crushed
20 - B *1712056PLM_90*	Ceiling Plaster *base*	None Detected		100% Other	Gray Non Fibrous Heterogeneous Crushed

Sharon Donald (109)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
21 - A *1712056PLM_21*	Ceiling Plaster *finish*	None Detected		100% Other	White Non Fibrous Heterogeneous Crushed
21 - B *1712056PLM_91*	Ceiling Plaster *base*	None Detected		100% Other	Gray Non Fibrous Heterogeneous Crushed
22 - A *1712056PLM_22*	Ceiling Plaster *finish*	None Detected		100% Other	White Non Fibrous Heterogeneous Crushed
22 - B *1712056PLM_92*	Ceiling Plaster *base*	None Detected		100% Other	Gray Non Fibrous Heterogeneous Crushed
23 - A *1712056PLM_23*	Ceiling Plaster *finish*	None Detected		100% Other	White Non Fibrous Heterogeneous Crushed
23 - B *1712056PLM_93*	Ceiling Plaster *base*	None Detected	5% Cellulose	95% Other	Gray Non Fibrous Heterogeneous Crushed
24 - A *1712056PLM_24*	Ceiling Plaster *finish*	None Detected		100% Other	White Non Fibrous Heterogeneous Crushed
24 - B *1712056PLM_94*	Ceiling Plaster *base*	None Detected		100% Other	Gray Non Fibrous Heterogeneous Crushed

Sharon Donald (109)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
25 *1712056PLM_25*	Drywall Board	None Detected	15% Cellulose	70% Gypsum 15% Other	Brown, White Non Fibrous Heterogeneous Teased
26 *1712056PLM_26*	Drywall Board	None Detected	15% Cellulose	70% Gypsum 15% Other	Brown, White Non Fibrous Heterogeneous Teased
27 *1712056PLM_27*	Drywall Board	None Detected	15% Cellulose	70% Gypsum 15% Other	Brown, White, Blue Non Fibrous Heterogeneous Teased
28 *1712056PLM_28*	Drywall Joint Compound	3% Chrysotile		97% Other	Cream Non Fibrous Homogeneous Crushed
29 *1712056PLM_29*	Drywall Joint Compound	Not Analyzed			
30 *1712056PLM_30*	Drywall Joint Compound	Not Analyzed			
31 *1712056PLM_31*	Dark Yellow Ceramic Mastic *mastic only*	None Detected		100% Other	Tan Non Fibrous Homogeneous Dissolved
32 *1712056PLM_32*	Dark Yellow Ceramic Mastic *mastic only*	None Detected		100% Other	Tan Non Fibrous Homogeneous Dissolved

Sharon Donald (109)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
33 *1712056PLM_33*	Ceiling Debris *drywall: none detect; joint compnd: none detect*	**None Detected**	**10% Cellulose**	**60% Gypsum** **30% Other**	Gray, White Non Fibrous Heterogeneous Teased
34 *1712056PLM_34*	Ceiling Debris *drywall: none detect; joint compnd: none detect*	**None Detected**	**10% Cellulose**	**60% Gypsum** **30% Other**	Gray, White Non Fibrous Heterogeneous Teased
35 *1712056PLM_35*	White Sink Undercoat	**5% Chrysotile**		**95% Other**	Pink Non Fibrous Homogeneous Dissolved
36 *1712056PLM_36*	White Sink Undercoat	**Not Analyzed**			
37 - A *1712056PLM_37*	Brick Pattern Sheetflooring *sheet flooring*	**None Detected**	**15% Cellulose** **15% Synthetic Fibers**	**70% Other**	Gray, Red Fibrous Heterogeneous Teased
37 - B *1712056PLM_95*	Brick Pattern Sheetflooring *mastic*	**None Detected**		**100% Other**	Yellow Non Fibrous Homogeneous Dissolved
38 - A *1712056PLM_38*	Brick Pattern Sheetflooring *sheet flooring*	**None Detected**	**15% Cellulose** **15% Synthetic Fibers**	**70% Other**	Gray, Red Fibrous Heterogeneous Teased
38 - B *1712056PLM_96*	Brick Pattern Sheetflooring *mastic*	**None Detected**		**100% Other**	Yellow Non Fibrous Homogeneous Dissolved

Sharon Donald (109)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
39 *1712056PLM_39*	Black Felt of Siding	None Detected	80% Cellulose	20% Other	Black Fibrous Heterogeneous Teased
40 *1712056PLM_40*	Black Felt of Siding	None Detected	80% Cellulose	20% Other	Black Fibrous Heterogeneous Teased
41 *1712056PLM_41*	Fiberboard Wall	None Detected	90% Cellulose	10% Other	Brown, White Fibrous Heterogeneous Teased
42 *1712056PLM_42*	Fiberboard Wall	None Detected	90% Cellulose	10% Other	Brown, White Fibrous Heterogeneous Teased
43 *1712056PLM_43*	Black Pipe Wrap	None Detected	10% Cellulose	90% Other	Black Non Fibrous Homogeneous Dissolved
44 *1712056PLM_44*	Black Pipe Wrap	None Detected	10% Cellulose	90% Other	Black Non Fibrous Homogeneous Dissolved
45 - A *1712056PLM_45*	White Texture Wall Coating with Gray Compound *texture*	None Detected		100% Other	White Non Fibrous Heterogeneous Crushed
45 - B *1712056PLM_97*	White Texture Wall Coating with Gray Compound *compound*	None Detected		100% Other	Gray Non Fibrous Heterogeneous Crushed

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommend that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Analytical uncertainty available upon request. Scientific Analytical Institute participates in the NVLAP Proficiency Testing program. Unless otherwise noted blank sample correction was not performed. Estimated MDL is 0.1%.

Sharon Donald (109)

Analyst

Approved Signatory

P-F-002 r15 1/15/2018

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
46 - A *1712056PLM_46*	White Texture Wall Coating with Gray Compound *texture*	None Detected		100% Other	White Non Fibrous Heterogeneous Crushed
46 - B *1712056PLM_98*	White Texture Wall Coating with Gray Compound *compound*	None Detected		100% Other	Gray Non Fibrous Heterogeneous Crushed
47 - A *1712056PLM_47*	White Texture Wall Coating with Gray Compound *texture*	None Detected		100% Other	White Non Fibrous Heterogeneous Crushed
47 - B *1712056PLM_99*	White Texture Wall Coating with Gray Compound *compound*	None Detected		100% Other	Gray Non Fibrous Heterogeneous Crushed
48 - A *1712056PLM_48*	Drywall Board *drywall*	None Detected	15% Cellulose	85% Gypsum	Gray, White Non Fibrous Heterogeneous Teased
48 - B *1712056PLM_100*	Drywall Board *finish*	None Detected		100% Other	White Non Fibrous Heterogeneous Crushed
48 - C *1712056PLM_101*	Drywall Board *base*	None Detected		100% Other	Gray Non Fibrous Heterogeneous Crushed
49 *1712056PLM_49*	Exterior White Window Glazing	None Detected		100% Other	Gray, White Non Fibrous Homogeneous Crushed

Sharon Donald (109)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
50 *1712056PLM_50*	Exterior White Window Glazing	None Detected		100% Other	Gray, White Non Fibrous Homogeneous Crushed
51 *1712056PLM_51*	Tan Ceramic Mastic *mastic only*	None Detected		100% Other	Tan Non Fibrous Homogeneous Dissolved
52 *1712056PLM_52*	Tan Ceramic Mastic *mastic only*	None Detected		100% Other	Tan Non Fibrous Homogeneous Dissolved
53 *1712056PLM_53*	Brown Insulation	None Detected	95% Mineral Wool	5% Other	Brown Fibrous Homogeneous Teased
54 *1712056PLM_54*	Brown Insulation	None Detected	95% Mineral Wool	5% Other	Brown Fibrous Homogeneous Teased
55 *1712056PLM_55*	White Flashing Caulk on Chimney	None Detected		100% Other	White Non Fibrous Homogeneous Ashed
56 *1712056PLM_56*	White Flashing Caulk on Chimney	None Detected		100% Other	White Non Fibrous Homogeneous Ashed
57 *1712056PLM_57*	Black with White Pebble Asphalt Sheet Roll	None Detected	10% Synthetic Fibers	90% Other	Gray, Black Non Fibrous Heterogeneous Dissolved

Sharon Donald (109)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
58 *1712056PLM_58*	Black with White Pebble Asphalt Sheet Roll	None Detected	10% Synthetic Fibers	90% Other	Gray, Black Non Fibrous Heterogeneous Dissolved
59 - A *1712056PLM_59*	Black Membrane with Fiberboard under Sheet Roll *membrane*	None Detected	10% Cellulose	90% Other	Black Non Fibrous Homogeneous Dissolved
59 - B *1712056PLM_102*	Black Membrane with Fiberboard under Sheet Roll *fiberboard*	None Detected	95% Cellulose	5% Other	Tan Fibrous Homogeneous Teased
60 - A *1712056PLM_60*	Black Membrane with Fiberboard under Sheet Roll *membrane*	None Detected	10% Cellulose	90% Other	Black Non Fibrous Homogeneous Dissolved
60 - B *1712056PLM_103*	Black Membrane with Fiberboard under Sheet Roll *fiberboard*	None Detected	95% Cellulose	5% Other	Tan Fibrous Homogeneous Teased
61 - A *1712056PLM_61*	Black Asphalt Roof Shingle with Felt *shingle*	None Detected	15% Fiber Glass	85% Other	Black Non Fibrous Heterogeneous Dissolved
61 - B *1712056PLM_104*	Black Asphalt Roof Shingle with Felt *felt*	None Detected	80% Cellulose	20% Other	Black Fibrous Heterogeneous Teased
62 - A *1712056PLM_62*	Black Asphalt Roof Shingle with Felt *shingle*	None Detected	15% Fiber Glass	85% Other	Black Non Fibrous Heterogeneous Dissolved

Sharon Donald (109)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Customer: ECS Chantilly
14026 Thunderbolt Place
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Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
62 - B *1712056PLM_105*	Black Asphalt Roof Shingle with Felt *felt*	None Detected	80% Cellulose	20% Other	Black Fibrous Heterogeneous Teased, Dissolved
63 - A *1712056PLM_63*	Black Asphalt Sheet Roll with Black Sealant *sheet rock*	None Detected	10% Fiber Glass	90% Other	Black Non Fibrous Heterogeneous Dissolved
63 - B *1712056PLM_106*	Black Asphalt Sheet Roll with Black Sealant *sealant*	5% Chrysotile		95% Other	Black Non Fibrous Homogeneous Dissolved
64 - A *1712056PLM_64*	Black Asphalt Sheet Roll with Black Sealant *sheet rock*	None Detected	10% Fiber Glass	90% Other	Black Non Fibrous Heterogeneous Dissolved
64 - B *1712056PLM_107*	Black Asphalt Sheet Roll with Black Sealant *sealant*	Not Analyzed			
65 - A *1712056PLM_65*	Black/Brown Asphalt Roof Shingle *shingle*	None Detected	15% Fiber Glass	85% Other	White, Black Non Fibrous Heterogeneous Dissolved
65 - B *1712056PLM_108*	Black/Brown Asphalt Roof Shingle *tar / felt*	None Detected	60% Cellulose	40% Other	Black Fibrous Heterogeneous Teased
66 - A *1712056PLM_66*	Black/Brown Asphalt Roof Shingle *shingle*	None Detected	15% Fiber Glass	85% Other	White, Black Non Fibrous Heterogeneous Dissolved

Sharon Donald (109)

Analyst

Approved Signatory

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
66 - B *1712056PLM_109*	Black/Brown Asphalt Roof Shingle *tar / felt*	**None Detected**	**60% Cellulose**	**40% Other**	Black Fibrous Heterogeneous Teased, Dissolved
67 *1712056PLM_67*	Black Cement on Vent	**8% Chrysotile**		**92% Other**	Black Non Fibrous Homogeneous Dissolved
68 *1712056PLM_68*	Black Cement on Vent	**Not Analyzed**			
69 *1712056PLM_69*	Exteiror Tan Caulk on Chimney	**6% Chrysotile**		**94% Other**	Tan, White Non Fibrous Heterogeneous Ashed
70 *1712056PLM_70*	Exteiror Tan Caulk on Chimney	**Not Analyzed**			
71 *1712056PLM_71*	Exterior Brown Siding Fiberboard Panels	**None Detected**	**90% Cellulose**	**10% Other**	Brown Fibrous Homogeneous Teased
72 *1712056PLM_72*	Exterior Brown Siding Fiberboard Panels	**None Detected**	**90% Cellulose**	**10% Other**	Brown Fibrous Homogeneous Teased
73 *1712056PLM_73*	Exterior Gray Siding Cement Panels	**15% Chrysotile**		**85% Other**	Gray Fibrous Heterogeneous Teased

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Sharon Donald (109)

Analyst

Approved Signatory

P-F-002 r15 1/15/2018

Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and 600/M4-82-020

NVLAP Lab Code: 200654-0

Customer: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712056
Analysis ID: 1712056_PLM
Date Received: 6/8/2017
Date Reported: 6/12/2017

Sample ID *Lab Sample ID*	Description *Lab Notes*	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes Treatment
74 *1712056PLM_74*	Exterior Gray Siding Cement Panels	**Not Analyzed**			
75 *1712056PLM_75*	Exterior White Window Caulk (Layered) *unable to distinguish layers*	**None Detected**		**100% Other**	White Non Fibrous Homogeneous Ashed
76 *1712056PLM_76*	Exterior White Window Caulk (Layered) *unable to distinguish layers*	**None Detected**		**100% Other**	White Non Fibrous Homogeneous Ashed
77 *1712056PLM_77*	Black Floor Felt	**None Detected**	**70% Cellulose**	**30% Other**	Black Fibrous Heterogeneous Teased, Dissolved
78 *1712056PLM_78*	Black Floor Felt	**None Detected**	**70% Cellulose**	**30% Other**	Black Fibrous Heterogeneous Teased, Dissolved

Sharon Donald (109)

Analyst

Approved Signatory

171256

Client:	ECS Mid-Atlantic, LLC
Contact:	Beverly Sedon
Address:	14026 Thunderbolt Place, Suite
Phone:	301-672-2096 (cell)
Fax:	
Email:	bsedon@ecslimited.com
Project:	47:4166
Client Notes:	**Positive Stop**
P.O. #.	47:4166
Date Submitted:	6/7/2017 0:00
Analysis:	PLM EPA 600/R-93/116
TurnAroundTime:	3 Day TAT

Instructions:
Use Column "B" for your contact info

To See an Example Click the bottom Example Tab.

Enter samples between "<<" and ">>"
Begin Samples with a "<< "above the first sample and end with a ">>" below the last sample.
Only Enter your data on the first sheet "Sheet1"

Note: Data 1 and Data 2 are optional fields that do not show up on the official report, however they will be included in the electronic data returned to you to facilitate your reintegration of the report data.

Scientific Analytical Institute

4604 Dundas Drive
Greensboro, NC 27407
Phone: 336.292.3888
Fax: 336.292.3313
Email: lab@sailab.com

Sample Number	Data 1	Sample Description	Data 2
<<			
1	HA1	9" x 9" Black Floor Tile with Green Streaks with Black M	Room Next to Garage
2	HA1	9" x 9" Black Floor Tile with Green Streaks with Black M	Room Next to Garage
3	HA2	Fiberboard Ceiling with White Coating	Room Next to Garage
4	HA2	Fiberboard Ceiling with White Coating	Room Next to Garage
5	HA3	Light Gray Interior Wall Caulk	Room Next to Garage
6	HA3	Light Gray Interior Wall Caulk	Room Next to Garage
7	HA4	Electrical Wire Cloth	Dining Room
8	HA4	Electrical Wire Cloth	Dining Room
9	HA5	Interior White Window Caulk	Dining Room
10	HA5	Interior White Window Caulk	Bedroom 1
11	HA6	Wall Plaster	Dining Room
12	HA6	Wall Plaster	Living Room 1
13	HA6	Wall Plaster	Bedroom 1
14	HA6	Wall Plaster	Hall at Stairwell 2nd FL
15	HA6	Wall Plaster	Bedroom 4
16	HA6	Wall Plaster	Bedroom 3
17	HA6	Wall Plaster	Dining Room
18	HA7	Ceiling Plaster	Dining Room

Accepted ☑

Rejected ☐

6/8 9:30am

17/2056

19	HA7	Ceiling Plaster	Living Room 1
20	HA7	Ceiling Plaster	Bedroom 1
21	HA7	Ceiling Plaster	Hall at Stairwell 2nd FL
22	HA7	Ceiling Plaster	Bedroom 4
23	HA7	Ceiling Plaster	Bedroom 3
24	HA7	Ceiling Plaster	Dining Room
25	HA8	Drywall Board	Living Room 2
26	HA8	Drywall Board	Kitchen Ceiling
27	HA8	Drywall Board	Bedroom 2
28	HA9	Drywall Joint Compound	Living Room 2
29	HA9	Drywall Joint Compound	Kitchen Ceiling
30	HA9	Drywall Joint Compound	Bedroom 2
31	HA10	Dark Yellow Ceramic Mastic	Bath off Liv Rm 2
32	HA10	Dark Yellow Ceramic Mastic	Bath off Liv Rm 2
33	HA11	Ceiling Debris	Kitchen
34	HA11	Ceiling Debris	Kitchen
35	HA12	White Sink Undercoat	Kitchen
36	HA12	White Sink Undercoat	Kitchen
37	HA13	Brick Pattern Sheetflooring	Laundry
38	HA13	Brick Pattern Sheetflooring	Laundry
39	HA14	Black Felt of Siding	Laundry
40	HA14	Black Felt of Siding	Laundry
41	HA15	Fiberboard Wall	Basement
42	HA15	Fiberboard Wall	Basement
43	HA16	Black Pipe Wrap	Basement Plumbing
44	HA16	Black Pipe Wrap	Basement Plumbing
45	HA17	White Texture Wall Coating with Gray Compound	Basement Wall
46	HA17	White Texture Wall Coating with Gray Compound	Basement Wall
47	HA17	White Texture Wall Coating with Gray Compound	Basement Wall
48	HA8	Drywall Board	Bedroom 4
49	HA18	Exterior White Window Glazing	Bedroom 4
50	HA18	Exterior White Window Glazing	Lower Rear House
51	HA19	Tan Ceramic Mastic	2nd FL Bathroom
52	HA19	Tan Ceramic Mastic	2nd FL Bathroom
53	HA20	Brown Insulation	Attic
54	HA20	Brown Insulation	Attic
55	HA21	White Flashing Caulk on Chimney	Garage Roof

17/2056

56	HA21	White Flashing Caulk on Chimney	Garage Roof
57	HA22	Black with White Pebble Asphalt Sheet Roll	Garage Roof
58	HA22	Black with White Pebble Asphalt Sheet Roll	Garage Roof
59	HA23	Black Membrane with Fiberboard under Sheet Roll	Garage Roof
60	HA23	Black Membrane with Fiberboard under Sheet Roll	Garage Roof
61	HA24	Black Asphalt Roof Shingle with Felt	Laundry Roof
62	HA24	Black Asphalt Roof Shingle with Felt	Laundry Roof
63	HA25	Black Asphalt Sheet Roll with Black Sealant	Roof Bedroom 1
64	HA25	Black Asphalt Sheet Roll with Black Sealant	Roof Bedroom 1
65	HA26	Black/Brown Asphalt Roof Shingle	Main Roof
66	HA26	Black/Brown Asphalt Roof Shingle	Main Roof
67	HA27	Black Cement on Vent	Roof Bedroom 1
68	HA27	Black Cement on Vent	Roof Bedroom 1
69	HA28	Exteiror Tan Caulk on Chimney	Side Porch
70	HA28	Exteiror Tan Caulk on Chimney	Side Porch
71	HA29	Exterior Brown Siding Fiberboard Panels	Exterior Siding of Garage
72	HA29	Exterior Brown Siding Fiberboard Panels	Exterior Siding of Garage
73	HA30	Exterior Gray Siding Cement Panels	Exterior Siding
74	HA30	Exterior Gray Siding Cement Panels	Exterior Siding
75	HA31	Exterior White Window Caulk (Layered)	Exterior Windows
76	HA31	Exterior White Window Caulk (Layered)	Exterior Windows
77	HA32	Black Floor Felt	Living Room 2
78	HA32	Black Floor Felt	Living Room 2

>>

Direct Exam: Spore Trap Analysis

SAI Method B-SOP-003

Client: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712076
Analysis ID: 1712076_STA
Date Received: 06/08/2017
Date Reported: 06/12/2017

Sample ID	A-1			A-2			A-3			EXTERIOR		
Lab Sample ID	1712076_STA_001			1712076_STA_002			1712076_STA_003			AVERAGE		
Description	Exterior			Kitchen			Basement			N/A		
Lab Notes										N/A		
Volume(L)	75			75			75			N/A		
Analytical Sensitivity (counts/m³)	78			78			78			N/A		
IDENTIFICATION	**Raw Count**	**Concentration (counts/m³)**	**% Of Total**	**Raw Count**	**Concentration (counts/m³)**	**% Of Total**	**Raw Count**	**Concentration (counts/m³)**	**% Of Total**	**Raw Count**	**Concentration (counts/m³)**	**% Of Total**
Alternaria	3	235	2.42%	10	784	4.61%	5	392	4.00%	4	274	3.00%
Ascospores	74	5800	59.7%	42	3290	19.4%	24	1880	19.2%	70	5450	53.0%
Aspergillus/ Penicillium-like				51	4000	23.5%	36	2820	28.8%			
Basidiospores	29	2270	23.4%	14	1100	6.45%	23	1800	18.4%	30	2310	22.7%
Chaetomium				1	78.0	0.461%	1	78.0	0.800%			
Cladosporium	14	1100	11.3%	89	6980	41.0%	29	2270	23.2%	20	1570	15.2%
Curvularia												
Epicoccum	1	78.0	0.806%	5	392	2.30%	2	157	1.60%	4	314	3.00%
Myxomycete/ Rust/ Smut-like	1	78.0	0.806%	2	157	0.922%	3	235	2.40%	1	78.0	0.800%
Nigrospora	1	78.0	0.806%							<1	39.0	N/A
Pithomyces	1	78.0	0.806%	1	78.0	0.461%	2	157	1.60%	1	78.0	0.800%
Polythrincium				1	78.0	0.461%				<1	39.0	N/A
Stachybotrys				1	78.0	0.461%						
Unknown/Other										2	118	1.50%
TOTAL	**124**	**9720**	**100.%**	**217**	**17000**	**100.%**	**125**	**9800**	**100.%**	**132**	**10300**	**100.%**
Non-Cellulosic Fibers	-	-	-	-	-	-	-	-	-	-	-	-
Hyphal Fragments	5	392	-	11	862	-	8	627	-	4	275	-
Insect Parts	-	-	-	-	-	-	-	-	-	-	-	-
Pollen	1	78.0	-	9	705	-	14	1100	-	2	118	-
Skin Cell % of Total Debris	**0-20%**			**40-60%**			**40-60%**			**N/A**		
Total Debris in Background	**40-60%**			**80-100%**			**80-100%**			**N/A**		

Disclaimer: This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. Unless otherwise noted blank sample correction was not performed on analytical results. Scientific Analytical Institute participates in the AIHA EMPAT program for fungi. EMPAT Laboratory ID: 173190. Reporting Limit equals Analytical Sensitivity.

Darrin Parrick (6)

Analyst

Approved Signatory

Direct Exam: Spore Trap Analysis

SAI Method B-SOP-003

Client: ECS Chantilly
14026 Thunderbolt Place
Suite 100
Chantilly, VA 20151

Attn: Beverly Sedon

Project: 47:4166

Lab Order ID: 1712076
Analysis ID: 1712076_STA
Date Received: 06/08/2017
Date Reported: 06/12/2017

Sample ID	A-4			A-5			A-6			EXTERIOR		
Lab Sample ID	1712076_STA_004			1712076_STA_005			1712076_STA_006			AVERAGE		
Description	Living Room			2nd Floor Stairwell			Exterior			N/A		
Lab Notes										N/A		
Volume(L)	75			75			75			N/A		
Analytical Sensitivity (counts/m³)	78			78			78			N/A		
IDENTIFICATION	**Raw Count**	**Concentration (counts/m³)**	**% Of Total**	**Raw Count**	**Concentration (counts/m³)**	**% Of Total**	**Raw Count**	**Concentration (counts/m³)**	**% Of Total**	**Raw Count**	**Concentration (counts/m³)**	**% Of Total**
Alternaria	2	157	1.17%	3	235	2.27%	4	313	2.90%	4	274	3.00%
Ascospores	22	1720	12.9%	21	1650	15.9%	65	5090	47.1%	70	5450	53.0%
Aspergillus/ Penicillium-like	82	6430	48.0%	59	4620	44.7%						
Basidiospores	13	1020	7.60%	12	940.	9.09%	30	2350	21.7%	30	2310	22.7%
Chaetomium	5	392	2.92%	5	392	3.79%						
Cladosporium	38	2980	22.2%	28	2190	21.2%	26	2040	18.8%	20	1570	15.2%
Curvularia	1	78.0	0.585%									
Epicoccum	1	78.0	0.585%				7	549	5.07%	4	314	3.00%
Myxomycete/ Rust/ Smut-like	1	78.0	0.585%	1	78.0	0.758%	1	78.0	0.725%	1	78.0	0.800%
Nigrospora	2	157	1.17%	2	157	1.52%				<1	39.0	N/A
Pithomyces	1	78.0	0.585%				1	78.0	0.725%	1	78.0	0.800%
Polythrincium							1	78.0	0.725%	<1	39.0	N/A
Stachybotrys	3	235	1.75%	1	78.0	0.758%						
Unknown/Other							3	235	2.17%	2	118	1.50%
TOTAL	**171**	**13400**	**100.%**	**132**	**10300**	**100.%**	**138**	**10800**	**100.%**	**132**	**10300**	**100.%**
Non-Cellulosic Fibers	-	-	-	-	-	-	-	-	-	-	-	-
Hyphal Fragments	9	705	-	5	392	-	2	157	-	4	275	-
Insect Parts	-	-	-	-	-	-	-	-	-	-	-	-
Pollen	8	627	-	3	235	-	2	157	-	2	118	-
Skin Cell % of Total Debris	**0-20%**			**20-40%**			**0-20%**			**N/A**		
Total Debris in Background	**80-100%**			**60-80%**			**40-60%**			**N/A**		

Disclaimer: This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. Unless otherwise noted blank sample correction was not performed on analytical results. Scientific Analytical Institute participates in the AIHA EMPAT program for fungi. EMPAT Laboratory ID: 173190. Reporting Limit equals Analytical Sensitivity.

Darrin Parrick (6)

Analyst

Approved Signatory

Scientific Analytical Institute
4604 Dundas Dr. Greensboro, NC 27407
Phone: 336.292.3888 Fax: 336.292.3313
www.sailab.com lab@sailab.com

Lab Use Only
Lab Order ID: 172076
Client Code: _____

Company Contact Information	
Company: ECS Mid-Atlantic, LLC	Contact: Beverly Sedon
Address: 14026 Thunderbolt Place, Suite 100	Phone ☐: 301-672-2096
Chantilly, VA 20151	Fax ☐:
bsedon@ecslimited.com	Email ☒:

Billing/Invoice Information	Turn Around Times	
Company: Same	90 Min. ☐	48 Hours ☐
Contact:	3 Hours ☐	72 Hours ☐
Address:	6 Hours ☐	96 Hours ☒
	12 Hours ☐	120 Hours ☐
	24 Hours ☐	144⁺Hours ☐

Microbiology Test Types	
Spore Trap - Slit Impact, ie, AOC/Allergenco (STA)	☒
Spore Trap Other, ie. Micro-5 (STO)	☐
Direct Exam Tape (DET)	☐
Direct Exam Swab (DES)	☒
Direct Exam Bulk (DEB)	☒
Fungal Culture Air (FCA)	☐
Fungal Culture Swab (FCS)	☐
Fungal Culture Bulk (FCB)	☐
Bacteria Culture Air (BCA)	☐
Bacteria Culture Bulk (BCB)	☐
Bacteria Culture Swab (BCS)	☐
Biolog (BLG)	☐
Drinking Water (BCC) (Coliform/E.coli)	☐
Other:	☐

PO Number: 47:41666
Project Name/Number: 47:41666

Sample ID #	Description/Location	Volume/Area	Serial # Comments
A-1	Exterior	75 L	2433-5090
A-2	Kitchen	75 L	2433-5089
A-3	Basement	75 L	2433-5096
A-4	Living Room	75 L	2433-5080
A-5	2nd Floor Stairwell	75 L	2433-5462
A-6	Exterior	75 L	2433 5435
S-1	Door to Basement	—	—
B-1	Attic Insulation	—	—

Accepted ☑

Rejected ☐

Total # of Samples 8

Relinquished by	Date/Time	Received by	Date/Time
	4/7/2017		9:30

APPENDIX 3: ESC MATERIALS REPORT

November 10, 2017

Patrick J. Rhodes
Vice President, Senior Project Manager
The IDI Group Companies
1700 N. Moore Street, Suite 2020
Arlington, VA 22209

RE: Yellow House Conditions Assessment
10606 Cedar Avenue
Fairfax, Virginia

OVERVIEW

The McKeever Services Corporation (MSC) Team was engaged to perform an assessment of the existing Yellow House located at 10606 Cedar Avenue in Fairfax, Virginia. The focus of the assessment was to evaluate the condition of the building. We respectfully submit this letter report of our assessment. This report summarizes our findings based on our site visit investigation and provides our comments and recommendations. The attached Appendix contains photographic documentation of observations.

PROJECT DESCRIPTION

The property located at 10606 Cedar Avenue in Fairfax, Virginia consists of a two-story residential building with a partial basement and crawl space that is approximately 2,600 square feet. The oldest portion of the building was reportedly built in 1898. It was readily apparent that multiple additional were added to the original building at different time periods.

The MSC Team was engaged to perform an assessment of the observed building condition. Representatives of the team visited the property on November 10, 2017 to visually review the accessible portions of the structure. The exterior façades of the building and interior spaces that were accessible were visually reviewed by the team. Where existing conditions are concealed by finishes, the team examined the existing conditions for evidence of distress.

Deficiencies in structural members and connections, unusual structural features, previous modifications, and material deterioration were intended to be noted if observed. The structural review performed was not intended to be a comprehensive assessment of the complete building systems. A digital camera was utilized to record areas of interest and descriptive information was recorded in field notes. No existing building drawings or documents regarding the original construction were available for use.

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OBSERVATIONS AND COMMENTS

The information in this report is relative to information gathered from our site visit and is based solely on visual observations of existing conditions. No selective demolition or testing was performed. The following narratives document our observations. See attached Appendix A for photographic documentation of observations.

1. **Existing Residence.** The main residence was observed to consist of wood framed floors, supported on interior wood stud bearing walls and perimeter, brick bearing walls. The house has a full height cellar level under the south side of the structure that encompasses approximately 40% of the footprint. The floor is a conventional slab on grade and a sump pit is present at the northeast side of the space. The remaining footprint of the building was constructed over a crawl space or was built on grade. The foundation walls are a combination of brick masonry and concrete masonry unit (CMU) walls.

The house includes a slab on grade side porch on the east side, covered garage addition on the west, rear entrance addition, and an accessible attic. Multiple roof systems are present, including a pitched asphalt shingle and flat, bitumen, roof over the garage and porches. The building also has three brick masonry chimneys which extend notably above the roof elevations.

2. **Exterior Bearing Walls**. The exterior structure of the main building consists of brick masonry walls, clad in siding, which are supported on masonry foundations. The siding present does not appear historic. Along the perimeter of the residence a large amount of organic growth is present along the bottom of the wall, at grade. Organic growth also is growing from the gutters on the roof, on the west side of the building on the side porch, and on the exterior walls of the garage. The growth present has spread from grade to behind the siding. This condition enables water and insects to penetrate the siding and into the brick exterior walls. The wood siding appears to have begun separating in areas. The condition of the brick walls could not be readily observed.

3. **Wood Window Deterioration**. Along the exterior of buildings, wood window frames are typically one of the more historic portions of structures. Significant deterioration of the wood window frames was observed. The wood appears to have not been maintained and protected, and water has damaged the frames to the point that many are not salvageable.

4. **Soil Erosion**. Erosion of soil along the rear chimney and areas around the perimeter of the structure is present. It is typically recommended that exterior grades are sloped away from the structure to avoid excess water from damaging the building. Many low spots are present immediately against the structure and this condition has caused

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deterioration of masonry and washout of grades, possibly undermining foundations. Long-term, these conditions will typically cause settlement cracking. We could not observe enough of the exterior walls to determine if settlement cracking has occurred due to the present of the wood siding.

5. **Gutters and Downspout**. Multiple downspouts are present along the perimeter of the building. Some of the downspouts were not connected to a path of drainage for water to move away from the building. This condition may cause erosion of the soil around the foundation or create ways for water to penetrate the foundation and enter the property. Gutters observed along the roof edge are not functional. The gutters are sagging and not securely attached to the building and debris is present blocking the gutters from functioning properly. These conditions will cause damage to the building soffits and fascia and may also result in soil erosion, washout of soil at the foundation, and settlement issues caused by improper drainage.

6. **Roof Condition**. Multiple types of roofs are present on the residence. The main structure consists of a gabled roof with asphalt shingles. Flat roofs which appear to be modified bitumen roofing were observed over the garage, porch, sun room and other features of the building. The roofing observed are in poor condition and the material appear to have reached the end of their useful life. Multiple holes and gaps in the roofing material is present.

7. **Brick Chimney.** The existing chimneys were observed to be in fair to poor condition. Loss of mortar in brick joints can accelerate deterioration of the masonry and result in instabilities of the assembly, which can lead to a structural instability. The east chimney has significant mortar loss in joints. This condition appears to have results in movement and isolated dislocation of bricks. In addition, large voids between bricks were observed. The north and west chimneys were in fair condition. There appear to be mortar loss in the brick joints at the upper half of the chimneys.

8. **Covered Garage.** On the west side of the property, an attached garage was added after the original construction. The structure consists of wood roof sheathing and open web steel joists, supported on wood framed bearing walls. The floor appears to be a conventional slab on grade. Water damage was observed on the underside of the structure throughout the garage. This is an indication of issues with the roofing material. Water staining on the sheathing does not appear to have caused deterioration of the wood. Surface rusting on the steel is present. We did not observe steel section loss. If left unaddressed, the rusting will worsen and lead to reduction in the load carrying capacity of the steel. The condition of the wood bearing walls could not be readily observed. The walls are concealed in finishes. Since the garage is open to the weather

and signs of water infiltration is present, it is our assumption that the walls are very likely to be deteriorated.

In addition, during the course of our site visit, we observed signs of ponding water on top of the roof. This condition appears to have caused the roof framing to sag.

9. **Covered Garage.** On the west side of the property, an attached garage was added after the original construction. The structure consists of wood roof sheathing and open web steel joists, supported on wood framed bearing walls. The floor appears to be a conventional slab on grade. Water damage was observed on the underside of the structure throughout the garage. This is an indication of issues with the roofing material. Water staining on the sheathing does not appear to have caused deterioration of the wood. Surface rusting on the steel is present. We did not observe steel section loss. If left unaddressed, the rusting will worsen and lead to reduction in the load carrying capacity of the steel.

10. **Cellar Level.** The house has a full height cellar level under the south side of the structure. The remaining sections of the building was constructed over a crawl space or is constructed on grade. The foundations within the crawl space consist of brick masonry and was observed to be in poor condition. Mortar joints are deteriorated and sections of the foundations have partially collapsed. Organic growth was observed penetrating through the exterior walls. The extent of the growth has not yet significantly damaged the structure but if left unaddressed, the integrity of the structure will become compromised.

11. **Interior Structure.** The interior structure of the building typically consists of wood joists framing the floors and interior wood stud, bearing walls. The exterior brick walls are assumed to support the floors along the perimeter. One area above the kitchen was observed to be supported by beams which were encased in finish material. Drywall generally covers both the ceiling and walls in all of the rooms. Historic finish materials were not observed. The majority of the floors observed are level with the notable exception of an area within the kitchen which is displaced approximately 1.5” over a five-foot length. This area is over the crawl space and appears associated with foundation issues.

Most of the rooms throughout the property have paint peeling from the ceilings and walls, which is due to high moisture exposure that causes the paint to debond from the substrate. Some water pockets were observed to have formed in the ceiling of various rooms. Readily apparent water damaged finishes were soft to the touch and will require removal and replacement to repair. Swelling of floor finish material is present throughout. These conditions are indications of large amounts of moisture within the space. While the finish surfaces are generally not an integral part of the structure, observed damage can provide an indication as to the condition of the concealed framing. Water damage on

finishes indicates framing is exposed to moisture which can result in wood rot and a loss of strength.

12. **Wall Finish Cracking.** Diagonal cracks on the walls and ceilings throughout the inside of the building was observed. The majority of the cracks seen start or terminate near reentrant corners of wall openings such as door frames. Multiple cracks were observed to be greater than 1/16" in width, which can be indicative of settlement cracking or insufficient lateral resistance of the structure. Corners where materials change or wall opening corners are present are common areas for cracking. Cracks at these locations can be the result of differential movement of materials, settlement, or overstressing of framing. A more detailed review is necessary to determine if cracks are an indication of a structural issue.

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13. **Wall Finish Cracks.** Diagonal cracks on the walls and ceilings throughout the inside of the building was observed. The majority of the cracks seen start or terminate near reentrant corners of wall openings such as door frames. Multiple cracks were observed to be greater than 1/16" in width, which can be indicative of settlement cracking or insufficient lateral resistance of the structure.

14. **Roof Collapse.** As observed from the second floor, a collapsed area of roof and ceiling was observed from inside of the building. The hole has allowed water, debris, and animals inside the building. The wood flooring below the hole is damaged by the water infiltration. It is not clear what caused the collapse. If the resulting hole is not addressed, moisture and debris intrusion will continue and result in structural deterioration of the framing, expanding beyond the immediate collapse area.

15. **Roof Framing.** The framing of the roof along the main portion of the property consists of old growth wood rafters that abut along the ridge, without the presence of a ridge plate. A number of structural issues were observed within the attic space. Roof rafters have displaced out of plane along ridge line. The connection between the rafters appear to have been inadequate. Blocking between the rafters is missing. The displacement indicates movement of the roof structure. Water staining was observed at isolated locations, indicating infiltration at water through the roofing. One location was observed where the roof framing has partially cracked and failed. Some roof rafters were observed to be wrapped and excessively deformed. In addition, the bases of the rafters appear to have displaced outward.

16. **Environmental Condition.** A Hazardous Materials review was performed by ECS. The primary focus was a survey for asbestos-containing materials, lead based paint, universal waste materials, and mold and moisture for the structure. The full report is included as Appendix B. From the report, it is recommended that any persons entering

the structure use proper Personal Protective Equipment (PPE) due to the presence of lead, asbestos, and mold.

It was determined that asbestos containing materials is present throughout the structure. Materials found that contain asbestos include floor tile, wall caulk, drywall joint compound, undercoat, roof sealant, roof cement, chimney caulk, and siding cement board.

The readily accessible interior and exterior surfaces and substrates were evaluated for lead based paint (LBP) within the structure. Using a Direct-Read X-Ray Fluorescence (XRF) Spectrometer, a number of building components were detected to contain lead above 1.0 milligrams per square centimeter.

Peeling and chipped paint was observed in several areas, interior and exterior, of the structure. The floor surfaces were indicated that they should be assumed to contain lead dust from the degradation of the painted surfaces. In addition, lead in soil sampling along the exterior drip-line/foundation surrounding the structure was also performed. The sample collected from the front of the structure was reported to have a lead concentration of 660 parts per million (ppm), and the soil sample collected from the rear side of the house was reported at 160 ppm. The concentrations of lead were reported to be below the Housing and Urban Development (HUD) criteria for lead in bare soils at drip line/foundation areas at 1,200 ppm.

Various building materials were found to be classified as hazardous and/or universal wastes which will require special handling or disposal if removed. Testing was provided for temperature, relative humidity, and fungal spore concentrations in representative areas. Visible mold and water staining was present in areas. Interior wall, ceiling, and floor cavities are assumed to be impacted with mold and water staining due to the unconditioned environment of the structure. Airborne fungal spore counts can be used as an indicator of the possible presence of mold growth generated by sources of moisture.

Lack of elevations in spore count levels does not necessarily indicate that moisture intrusion concerns do not exist. It was determined that the elevations of fungal spore concentrations are greater within the interior areas of the structure as compared to the exterior. Based on the Delmhorst moisture meter scales for materials, moisture levels greater than 0.5% are considered elevated for drywall wallboard materials and are considered at risk for mold growth. Levels greater than 15% for wood materials and greater than 85% for plaster surfaces are considered elevated. Moisture levels within the building were found to be between 20% to 40%.

CONCLUSIONS

From our review of the existing conditions, the existing property is in poor condition. The environmental and structural conditions of the residence presents serious life safety risks to any inhabitation of the home. We do not recommend that the building be inhabited in its current condition.

CLOSING

The engineering observations and recommendations within this report are related to a visual examination of exposed surfaces and the professional judgment and experience of Jon Tung, Structural Engineer. We believe the review was sufficient for us to form a reasonable engineering opinion of the condition of the existing structure. The review was not intended to be a comprehensive investigation and assessment of the complete building systems.

If documentation of the original construction is located, these documents may reveal other issues that may necessitate modifications to our report and recommendations.

With the nature of our scope of work, we cannot take responsibility for issues with the property that were not examined under this scope of work, defects with the property that may appear in the future, or differing opinions of other qualified professionals.

We appreciate the opportunity to be of service. Please contact us if you have any questions or comments regarding the information presented in this report.

Sincerely,

Jaw (jon) Tung, PE
Structural Engineer

Attachments:

Appendix A – Photographic Documentation
Appendix B – ECS Report dated August 28, 2017

Consulting and Regulatory Process Management for the Construction Industry

Appendix A

Yellow House
10606 Cedar Avenue
Fairfax, Virginia

Conditions Assessment

Photographic Documentation

November 9, 2017

Front elevation / main entrance of property. South facing.

South elevation of property.

Southeast corner of building.

West side of building.

North elevation of property.

North elevation of property.

Crawl space under main portion of structure. Signinificant deterioration of masonry support.

Displacement of floor beam. Beam appears undersized.

Partial collapase of masonry foundation.

Wood post with crawl space, supporting floor. Wood deterioration.

Crawl space under main portion of structure.

Partially collpased masonry foundation.

Significant deterioration of masonry foundation.

Significant deterioration of masonry foundation.

Floor support beam spanning opening.

Cellar level under structure.

Sump pit within Cellar level. Pit was dry.

Significant displacement of floor structure within kitchen. Estimated 1.5” within five feet.

Collapsed ceiling observed on First Floor caused by water inflitration.

Collapsed ceiling debris on floor.

Typical main building gable roof framing.

Typical roof rafter.

Roof rafters have displaced out of plane along ridge.

Water inflitration at roof framing. Partial failure of wood framing.

Partial failure of roof framing.

Base of roof rafters appear to have displaced outward. Wood framing appear bowed and twisted.

Wood framing appear bowed and twisted.

Brick wall at gable end.

Partial collapse of roof structure.

Floor debris at partial collapse of roof structure.

Typical diagonal cracking through wall finish at opening corners.

Peeling paint typical throughout building.

Peeling paint typical throughout building.

Peeling paint and mold growth.

Peeling paint typical throughout building.

Peeling paint and mold growth.

Peeling paint typical throughout building.

Water damage to finishes.

Consulting and Regulatory Process Management for the Construction Industry

Appendix B

Yellow House
10606 Cedar Avenue
Fairfax, Virginia

Conditions Assessment

ECS Hazardous Materials and Structural Survey
Dated August 28, 2017

November 9, 2017

APPENDIX 4:

2018 BLACK & WHITE HABS PHOTOGRAPHS

(CONTACT SHEET)

John C. Wood House View NW.JPG

Facade,ScreenPorch,1972AdditionViewNW.JPG

Rear Elevation View South.JPG

1950s Attached Garage View East.JPG

Rear Yard Shed View NW.JPG

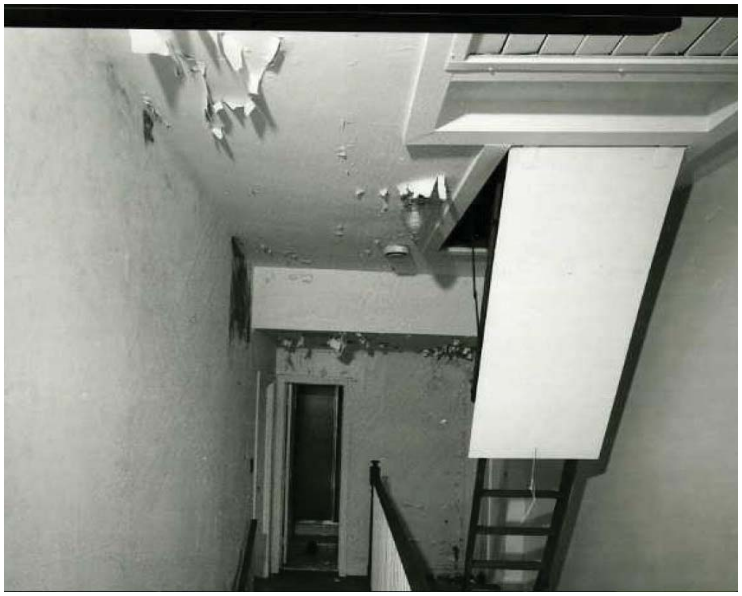
Living Room View East.JPG

Dining Room View NW.JPG

Den View North.JPG

Kitchen View North.jpg

Family Room View NE.JPG



Floor 2 Hallway View North.JPG

Master Bedroom View NW.jpg

Floor 2 Bedroom 1 View East.JPG

Floor 2 Bedroom 2 View NE.JPG

Floor 2 Bedroom 3 SE.JPG

APPENDIX 5:

2018 COLOR PHOTOGRAPHS

(CONTACT SHEET)

1911 Three-Bay Facade View N.JPG

1955_1943_1911_1972 Left to Right Portions of House View NW.JPG

1972 Rear Wing Addition View SW.JPG

1972 Wing and Kitchen Addition View S.JPG

1972_1911_1943 Left to Right Rear and Side Elevations View SE.JPG


1955 Attached Garage View E.JPG

1955_1943_1911 Left to Right John C. Wood House View NE.JPG

1955_1943_1911 Left to Right Facade View N.JPG

1955 Floor 1 Attached Garage View NE.JPG

1955 Floor 1 Attached Garage View SE.JPG

1911 Floor 1 Front Hall View N.JPG

1911 Floor 1 Dining Room View NW.JPG

1911 Floor 1 Living Room View NE.JPG

1911 Floor 1 Living Room View SE.JPG

1943 Floor 1 Den Addition View NW.JPG

1972 Floor 1 Family Room View NW.JPG

1972 Floor 1 Family Room View SW.JPG

1972 Floor 1 Family Room View W.JPG

1972 Floor 1 Kitchen and Hall View E.JPG

1972 Floor 1 Kitchen View SW.JPG

1972 Floor 1 Kitchen View N.JPG

1972 Floor 1 Kitchen View NW.JPG

1911 Floor 2 Hallway View N.JPG

1911 Floor 2 Bedroom 1 View NE.JPG

1911 Floor 2 Bedroom 2 View NW.JPG

1911 Floor 2 Bedroom 3 View NW.JPG

1972 Floor 2 Master Bedroom View NE.JPG

1972 Floor 2 Master Bedroom View SE.JPG

1972 Floor 2 Master Bedroom View NW.JPG

Basement View E.JPG

Basement View W.JPG