Agenda Item: 6
BAR Meeting: 12/20/2017

Board of Architectural Review

DATE: December 20, 2017
TO: Board of Architectural Review Chair and Members
THROUGH: Jason Sutphin, Community Development Division Chief JDS
FROM: Tommy Scibilia, BAR Liaison TS
SUBJECT: Paul VI Redevelopment – Work Session

ATTACHMENTS:
1. Relevant regulations
2. Site photos
3. Plans, elevations, renderings
4. NPS Historic Structures Reports Reference Materials
    a. Professional Qualification Standards
    b. Historic Structures Reports
5. Structures Reports
    a. Paul VI
    b. John C. Wood House ("Yellow House")
6. Fairfax Boulevard Master Plan Vision and Summary

Nature of Request

1.	Case Number:	BAR-17-00406
2.	Address:	10675 Fairfax Boulevard, 10600 Cedar Avenue, 10606 Cedar Avenue
3.	Request:	New mixed-use development
4.	Applicant:	IDI Fairfax, LC
5.	Applicant's Representative:	Enrico Cecchi
6.	Status of Representative:	Manager
7.	Zoning:	CR Commercial Retail, RM Residential Medium, John C. Wood House Historic Overlay District

BACKGROUND

The subject site is composed of three parcels of land central to the City. The block is bound by Fairfax Boulevard, McLean Avenue, Cedar Avenue, Panther Place, and Oak Street. To the north is the Shops at Fairfax shopping center, to the east are single family homes, to the south is Pat Rodio Park, and to

the west are duplex homes. Within the block, three properties are not included in the proposal: the lot at the corner of Fairfax Boulevard and McLean Avenue, the McDonald's restaurant and parking area at the corner of Fairfax Boulevard and Oak Street, and the Montessori school at the corner of Oak Street and Panther Place.

The largest of the three parcels on site currently contains Paul VI Catholic High School, built in 1934 with subsequent additions, and its associated parking areas and athletic fields. The school building was included on the Historic Property Survey conducted by the City in 2004.

The two smaller parcels in the southeast corner of the site contain single family homes. 10600 Cedar Lane, at the corner of Cedar Avenue and McLean Avenue, is a Cape Cod style house, currently occupied, and was built in 1951. 10606 Cedar Avenue contains the John C. Wood House, and was designated a local historic overlay district in 2010. The Provisions of the Zoning Ordinance relating to this district restrict allowable uses on the property (see attachment 1). The vacant colonial style house was once home to the City of Fairfax's first mayor, and was built in 1911.

The applicant is currently pursuing a rezoning of the property from CR Commercial Retail (Paul VI), RM (10600 and 10606 Cedar Avenue), and John C. Wood House Historic Overlay District (10606 Cedar Avenue) to PD-M Planned Development Mixed Use. The applicant is also requesting a Comprehensive Plan amendment to the Future Land Use Map from designations of Institutional (Paul VI) and Residential-Low (10600 and 10606 Cedar Avenue) to Mixed Use. As part of these cases, the BAR will make a formal recommendation to City Council on the major certificate of appropriateness, which would also include a recommendation on the demolition of the John C. Wood House. The Zoning Ordinance does not require a BAR recommendation on the rezoning or Comprehensive Plan amendment requests. This work session will be used for the applicant to gather preliminary feedback on the architecture, landscaping, and to a limited degree, site design of the project, but will not result in a recommendation at this stage.

Staff requested that the applicant provide historic structures reports to summarize the condition of both the John C. Wood House and Paul VI High School, including recommendations on how to treat them appropriately (i.e. demolition, preservation, rehabilitation, restoration, reconstruction). The current proposal would modify the school building significantly, and demolish the John C. Wood House altogether. The applicant has provided structural reports, but the reports do not demonstrate that the consultants that prepared them meet the National Park Service's Professional Qualification Standards for Historic Architecture (see attachment 4a). Additionally, the reports do not provide information on the historical or architectural significance of either property, or specific recommendations for how to appropriately treat them. Staff will require that a proper historic structures report be completed for both properties by a qualified historic architecture specialist that includes a recommendation on their appropriate treatment. Attachment 4b contains more information on historic structures reports. The submitted structures reports for both properties are included as attachment 5.

PROPOSAL

The proposal is a mixed-use development consisting of three commercial buildings along part of the frontage on Fairfax Boulevard, a condominium building in the southwest portion of the site, and townhouses on the eastern half of the site.

Site:
The roadway design along Fairfax Boulevard includes a one-way slow lane that provides parallel parking for retail uses and townhomes along the corridor. The main entrance to the site would be located at the existing signalized intersection across from the entrance to the Shops at Fairfax. Three other curb cuts are proposed along Fairfax Boulevard: one at the western end to service the retail uses, one east of the main entrance, and a right-out exit at the eastern end. A secondary entrance would be an extension of Panther Place off of Oak Street into a parking lot that services the condominium building. Underground parking would be provided for condominium residents, with access from this parking lot. Access to a small parking lot intended to service the townhomes on the southern portion of the site is accessible from Cedar Avenue and Keith Avenue. No vehicular entrances to the interior of the site are located on the southern or eastern edges of the site, however a bike path is proposed along the adjacent lengths of both Cedar Avenue and McLean Avenue. The internal street network includes two north-south boulevards, one that ends before connecting to Cedar Avenue, and one that connects the main entrance on Fairfax Boulevard to the secondary entrance at Panther Place. Another road with perpendicular parking is proposed around the back of the retail buildings. Smaller private roads and alleys provide driveway access to the townhouses. There is no east-west connection proposed through the site. The BAR will not be commenting on this, as the City land use planners and transportation engineers will deem the feasibility and safety of these proposed entrances, exits, and private roadways.

The proposed pedestrian network includes sidewalks fronting the commercial buildings and townhouses on Fairfax Boulevard, sidewalks running parallel to the bike paths on Cedar Avenue and McLean Avenue, sidewalks along the internal boulevards, a nature trail meandering through the southwestern portion of the site near the condo building, and sidewalks through a linear green space that cuts east to west from McLean Avenue to the condo building.

The proposed open space consists of the retention and expansion of the front lawn of Paul VI High School, the southwestern portion of the site where the nature trail would be located, a small pocket park off of Cedar Avenue, and the previously mentioned linear green space. A handful of smaller pockets of green space would be scattered throughout the townhouse development.

Architecture:

Commercial Buildings:
The applicant is proposing to modify the original 1934 portion of the Paul VI High School building while retaining some architectural features of the north (front) façade including the central entry bay, brickwork, and cast stone band beneath the parapet. Changes to the school building include:

- Removal of the east and west wings and all of the south additions to the school building
- Replacement of nearly all of the fenestration on the north façade with storefront systems on the ground floor and tall industrial style windows on the second floor
- New south, east, and west façades reflecting the proposed architecture of the north façade
- Introduction of flat metal awnings at the northwest tenant space
- Wall art at the ground floor in limited locations

Two new one-story commercial buildings are proposed to the east and west of the remaining school building, and would flank the open space. The architecture is reminiscent of the redesigned school building. Materials are not called out on the applicant's submittals, but the proposed materials and features appear to include:

- Red brick to match the school building
- White or gray brick to match the cast stone of the school building
- Cast stone cornices
- Dark bronze coping, storefront, and wall-mounted sconces
- Wall art above some portions of storefront
- Several types of awning

The applicant provided only two of four views of these commercial buildings. Staff will require that in their next submission they include:

- Elevations of all sides of both new commercial buildings
- Dimensions
- Material labels on the elevations for all three commercial buildings
- Awning details
- Lighting fixture specifications
- A material sample board
- Site amenities (benches, trashcans, outdoor restaurant seating, other open space amenities, etc.)
- Appurtenances (HVAC equipment, meters, dumpsters and screening)

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Townhouses:
There are four types of townhouses proposed for inclusion on the site. Two sticks of three-story townhomes in a modern style with flat roof, tall windows, and flat metal awnings is proposed along Fairfax Boulevard (Type 1, attachment 3). Prevalent materials include brick and fiber cement siding.

One stick of a traditional style three-story units is proposed on the south side of the site next to Pat Rodio Park (Type 2, attachment 3). These units are proposed to be front-loaded, and facing internal to the site. The backs of these units would face the park and would be visible. Brick is the prevalent material proposed for these units. Other features include decorative dormers and gables, projecting window bays, second-floor porches, and window headers and sills.

Four-story modern units are proposed internally to the site (Type 3, attachment 3). These have many of the same design features as the Fairfax Boulevard units. They would all be rear loaded and have fourth-floor front terraces.

A traditional three- and four-story unit is proposed along McLean Avenue and Cedar Avenue (Type 4, attachment 3). These units have similar design features to the Pat Rodio Park units, except they are narrower and the four-story models have fourth-floor rear terraces. End units have side entrances to enhance these façades, however no side elevations have been provided.

The rear elevation of all townhome units is proposed to be fiber cement siding.

With the exception of the units along McLean Avenue and Cedar Avenue, no townhome units within sticks have any offsets from one another. The Zoning Ordinance requires this (see attachment 1, §3.5.1.C.3). The applicant is requesting a modification to this section of the Zoning Ordinance as part of the rezoning.

Staff will require that in the next submission the applicant include:

- Side elevations of all four types of townhomes
- Dimensions
- More specific material labels
- Door and window specifications
- Lighting fixture specifications
- Railing detail
- A material sample board
- Site amenities (benches, trashcans, other open space amenities, etc.)
- Appurtenances (HVAC equipment, meters, dumpsters and screening)

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Condominium Building:
The condo building is a U-shaped five-story building. This would be the tallest, most massive structure on the site. The longest continuous façade is 340 feet in length. Based on the prepared renderings in attachment 3, staff expects that this building would be visible from all adjoining streets. The entrances on the north and south legs of the building would be the tallest areas, with large window bays a few feet shorter, and with the shortest portions of the building being the recessed balconies. The articulation for

this building occurs at the recessed balconies and at recessed wall sections at the entrances and on the side façades. The materials proposed for this building include red brick and beige EIFS.

Staff will require that in the next submission the applicant include:

- Courtyard elevations
- Dimensions
- Material labels
- Awning details
- Door and window specifications
- Lighting fixture specifications
- Railing detail
- A material sample board
- Site amenities (benches, trashcans, other courtyard amenities, etc.)
- Appurtenances (HVAC equipment, meters, dumpsters and screening)

Landscaping:
An illustrative representation of landscaping is included in attachment 3 on the colored site plan. It shows the general location of street trees throughout the site, and some areas where it appears shrubs or other ground cover is proposed. No detailed landscape plan has been provided and will be required at the next submission.

Lighting:
Information on lighting fixtures has not been submitted, but will be required in the next submission.

Signage:
Signage is not within the BAR's purview in this part of the City.

ANALYSIS

As this is an initial work session with the BAR and the plans and materials for review are not complete, this staff report does not contain any specific recommendations.

Community Appearance Plan:
The following excerpts from the Community Appearance Plan are relevant to this application.

Because of the variety of existing styles and the lack of an historical architectural reference along the corridors, no single architectural style is favored over others. Both modern styles and traditional architecture are appropriate – if well-designed and appropriately sited (50).

This property, due to its depth and variety of contexts, is proposed to have several building styles, namely within the proposed townhome models. Both traditional and modern designs are proposed for these units. Due to the large number and close conditions of the townhomes proposed, anonymity and wayfinding within the site could become issues.

The commercial buildings are cohesive in their appearance, and exhibit both traditional materiality and modern design. Staff recommends that the BAR comment on the architecture of these buildings, especially the treatment of the original portion of the school building, and whether a modern design approach or a preservation/rehabilitation approach is most appropriate, keeping in mind a historic structures report with a recommendation will follow. It is noted that a determination of eligibility for the Virginia Landmarks Register and the National Register of Historic Places has not been provided at this time, nor has one been provided based on the proposed modifications.

Traditional materials such as brick, wood, and stone have survived the various architectural trends over time and exhibit longevity and quality (51).

The condominium building uses a large amount of EIFS. Historically, the City has not supported EIFS as a high-quality material, and while it has been approved, it has been in smaller proportions than what is proposed for this building. The BAR should comment on the preliminary material palette for the condominium building and all of the other buildings on site with the above guideline in mind.

Colors for use on buildings and signs should be selected for their compatibility with the natural features and existing development found in and adjacent to the corridors (51).

A material samples board to include paint chips as needed (e.g. fiber cement elements) will be required for the next BAR meeting.

The design of lighting fixtures installed on-site should complement the architecture of the built features on the site (44).

Lighting fixture specifications and locations will be required for the next BAR meeting.

In general, deciduous trees should be used in parking and pedestrian areas to provide protective canopies. Evergreen trees should be used in conjunction with deciduous trees where an effective vegetative screen is needed (41).

A landscape plan that meets the intent of this guideline will be required for the next BAR meeting.

Comprehensive Plan:
The following excerpts from the 2012 Comprehensive Plan are relevant to this application.

Connectors should take the form of a linear, aesthetically enhanced boulevard. Most of these areas do not have the property depth or potential for unified, coordinated redevelopment. Their focus would be on lower scale buildings (predominantly 1 to 3 stories) with emphasis on accessibility, improvements in architectural and site design, and appropriate "interface" between the commercial boulevard and existing neighborhoods, such as appropriate land use transitions and green space buffers (Land Use chapter, 170).

Housing objective HOU-2: Preserve and enhance the City's existing housing stock. Analyze the City's residential neighborhood patterns and ensure that traditional neighborhood characteristics are respected as these neighborhoods undergo change (65).

This site is considered part of the West Connector as identified in the Fairfax Boulevard Master Plan Vision and Summary Appendix of the Comprehensive Plan (attachment 6), and should therefore be treated as a connector. The townhouses along McLean Avenue and Cedar Avenue are directly across from single-family homes. While townhomes can be appropriate as a transitional use from residential areas to commercial areas, staff believes a different housing type should be considered or the massing of the townhomes proposed should be reduced for a more compatible sense of scale. To accomplish this, staff recommends one or a combination of any of the following five options:

- Replace townhome units in these areas with single-family homes or provide a mix of single-family homes with townhomes
- Add variation in setbacks and unit orientation and decrease the maximum number of units in a row that faces either of those streets
- Deepen the setback at a minimum to match the existing bulk plane as measured from existing single-family homes across the street
- Note that building heights should be limited to no more than three stories in those areas of the site that are closest to existing residential neighborhoods
- Increase variation in offset distance between townhomes within individual sticks

As part of the dialogue between the applicant and staff for the rezoning request, staff has also recommended the units at the edge of Pat Rodio Park be reoriented to face the park with a rear-loaded garage. This way, the site will embrace the surrounding community rather than turning inward away from it.

Community Appearance objective CA-3: Encourage exemplary site and building design, construction, and maintenance (105).

The condominium building is by far the largest structure proposed on site and its massing, because it is incongruent with that of the rest of the proposal and surrounding development, could cause it to appear

monolithic. The BAR should discuss the scale, architecture, materiality, and articulation of this building.

Historic Resources objective HR-1 Preserve and promote the City's historic resources.

Strategy HR-1.8 Seek National Register nomination of additional historic resources, as appropriate.

The City should support individual property owners in seeking National Register designation for their properties. In addition, the City should initiate designation for publicly held properties, as appropriate. Examples of sites that may now or soon meet the designation criteria include Paul VI High School (formerly Fairfax High School), the Farr property, the Sisson House (currently used for School Board and Voter Registrar offices) on the City Hall grounds, and a potential residential historic district in the Fairfax Triangle area (114).

As stated, staff has requested the applicant provide a historic structures report for the Paul VI High School building complete with an analysis of the proposal, a determination of eligibility for the state and national registers, and recommendations regarding preservation or rehabilitation (see discussion on the Secretary of the Interior's Standards below). It is also worth noting that Mount Vernon High School in Fairfax County, the brother school of Paul VI constructed at around the same time, was deemed eligible for inclusion on the Virginia Landmarks Register and the National Register of Historic Places and is in the final stages of consideration currently. The County has planned for rehabilitation and adaptive reuse of the school building.

Secretary of the Interior's Standards for the Treatment of Historic Properties:
The following excerpts from the 2017 Secretary of the Interior's Standards are relevant to this application.

Preservation is the appropriate treatment when the objective of the project is to retain the building as it currently exists. This means that not only the original historic materials and features will be preserved, but also later changes and additions to the original building. The expressed goal of the Standards for Preservation and Guidelines for Preserving Historic Buildings is retention of the building's existing form, features, and materials (29).

In Rehabilitation, historic building materials and character-defining features are protected and maintained as they are in the treatment Preservation. However, greater latitude is given in the Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings to replace extensively deteriorated, damaged, or missing features using either the same material or compatible substitute materials. Of the four treatments, only Rehabilitation allows alterations and the construction of a new addition, if necessary for a continuing or new use for the historic building (77).

The above definitions make it clear that the proposal for the Paul VI High School building is neither preservation nor rehabilitation. Although this building is not listed on the Virginia Landmarks Register or the National Register of Historic Places, staff believes that it maintains a high degree of architectural

integrity. The BAR should provide a recommendation to City Council on whether this project move forward in the direction presented in the current proposal (demolition of most of the existing building and reconstruction), or towards either preservation or rehabilitation. If the BAR decides that the current proposal is acceptable, they should keep in mind that this will likely preclude this property from being considered for placement on the Virginia Landmarks Register and the National Register. If the BAR decides to recommend preservation or rehabilitation, a different design approach is needed for this building. At this stage, the BAR should comment on the architecture presented, but also keep in mind a historic structures report with a recommendation on building treatment will be provided for review and consideration.

RELEVANT REGULATIONS

- Attachment 1-

§3.5.1. Residential use standards

C. Townhouses

3. No more than two of any 10 or one of any three to five abutting dwelling units having the same front yard setback. Varied front yard setbacks shall not be less than two feet offset from adjoining units as measured at the principal foundation line of each unit and no setback distance shall be less than the required minimum.

§3.7.2. Historic overlay district

A. General

1. Any structure, group of structures, site or area may be designated a historic district, provided such property is found to:

(a) Have significant historic character, interest or value as part of the city's heritage;

(b) Be the site of a historic event with a significant effect upon society;

(c) Exemplify the cultural, political, economic, social or historic heritage of the community;

(d) Portray an era of history characterized by a distinctive architectural style;

(e) Be part of or related to a distinctive area which should be developed or preserved according to an historic, cultural or architectural motif;

(f) Represent an established and familiar visual feature of the community; or

(g) Be likely to yield information important to history or prehistory.

2. All structures and improvements erected, enlarged, or reconstructed in historic overlay districts shall be designed and constructed in a manner that will complement the unique character of the district with respect to building size, scale, placement, design and the use of materials.

3. Improvements within this district shall be subject to the approval of a certificate of appropriateness in accordance with the provisions of §6.5.

E. John C. Wood House Historic Overlay District

1. Prohibited uses

(a) Electric transformers and substations

(b) Telephone repeater stations

§3.7.4. Architectural control overlay district

B. Certificate of appropriateness required

Except as specified in §3.7.4.C, below, all development in the architectural control overlay district shall be subject to the approval of a certificate of appropriateness in accordance with the provisions of §6.5.

C. Exceptions

The architectural control overlay district shall not apply to signs, unless otherwise specified, or to the following uses:

1. Single-family detached;
2. Duplex dwellings, after initial approval and construction; and
3. Townhouses, after initial approval and construction.

§5.4.5. Powers and duties

B. Final decisions

The board of architectural review shall be responsible for final decisions regarding the following:

1. Certificates of appropriateness, major (§6.5)

§6.5.1. Applicability

Certificates of appropriateness shall be reviewed in accordance with the provisions of §6.5.

A. A certificate of appropriateness shall be required:

1. To any material change in the appearance of a building, structure, or site visible from public places (rights-of-way, plazas, squares, parks, government sites, and similar) and located in a historic overlay district (§3.7.2), the Old Town Fairfax Transition Overlay District (§3.7.3), or in the Architectural Control Overlay District (§3.7.4). For purposes of §6.5, "material change in appearance" shall include construction; reconstruction; exterior alteration, including changing the color of a structure or substantial portion thereof; demolition or relocation that affects the appearance of a building, structure or site;

§6.5.3. Certificate of appropriateness types

A. Major certificates of appropriateness

1. Approval authority

(a) General

Except as specified in §6.5.3.B.2(b), below, the board of architectural review shall have authority to approve major certificates of appropriateness.

(b) Alternative (in conjunction with other reviews)

Alternatively, and in conjunction with special use reviews, planned development reviews, special exceptions or map amendments (rezoning), the city council may approve major certificates of appropriateness.

§6.5.6. Action by decision-making body

A. General (involving other review by city council)

After receiving the director's report on proposed certificates of appropriateness, which do not involve other reviews described below, the board of architectural review (BAR) shall review the proposed certificates of appropriateness in accordance with the approval criteria of §6.5.7. The BAR may request modifications of applications in order that the proposal may better comply with the approval criteria. Following such review, the BAR may approve, approve with modifications or

conditions, or disapprove the certificate of appropriateness application, or it may table or defer the application.

B. Other reviews

1. Prior to taking action on special use reviews, planned development reviews, and map amendments (rezoning), the city council shall refer proposed certificates of appropriateness to the BAR for review in accordance with the approval criteria of §6.5.7.

2. In conjunction with special use reviews, planned development reviews, special exceptions and map amendments (rezoning), the city council may review the proposed certificate of appropriateness in accordance with the approval criteria of §6.5.7. The city council may request modifications of applications in order that the proposal may better comply with the approval criteria. Following such review, the city council may approve, approve with modifications or conditions, or disapprove the certificate of appropriateness application, or it may table or defer the application.

§6.5.7. Approval criteria

A. General

1. Certificate of appropriateness applications shall be reviewed for consistency with the applicable provisions of this chapter, any adopted design guidelines, and the community appearance plan.

2. Approved certificates of appropriateness shall exhibit a combination of architectural elements including design, line, mass, dimension, color, material, texture, lighting, landscaping, roof line and height conform to accepted architectural principles and exhibit external characteristics of demonstrated architectural and aesthetic durability.

§6.5.9. Action following approval

A. Approval of any certificate of appropriateness shall be evidenced by issuance of a certificate of appropriateness, including any conditions, signed by the director or the chairman of the board of architectural review. The director shall keep a record of decisions rendered.

B. The applicant shall be issued the original of the certificate, and a copy shall be maintained on file in the director's office.

§6.5.10. Period of validity

A certificate of appropriateness shall become null and void if no significant improvement or alteration is made in accordance with the approved application within 18 months from the date of approval. On written request from an applicant, the director may grant a single extension for a period of up to six months if, based upon submissions from the applicant, the director finds that conditions on the site and in the area of the proposed project are essentially the same as when approval originally was granted.

§6.5.11. Time lapse between similar applications

A. The director will not accept, hear or consider substantially the same application for a proposed certificate of appropriateness within a period of 12 months from the date a similar application was denied, except as provided in §6.5.11.B, below.

B. Upon disapproval of an application, the director and/or board of architectural review may make recommendations pertaining to design, texture, material, color, line, mass, dimensions or lighting. The director and/or board of architectural review may again consider a disapproved application if within 90 days of the decision to disapprove the applicant has amended his application in substantial accordance with such recommendations.

§6.5.12. Transfer of certificates of appropriateness

Approved certificates of appropriateness, and any attached conditions, run with the land and are not affected by changes in tenancy or ownership.

§6.5.13. Appeals

A. Appeals to city council

Final decisions on certificates of appropriateness made may be appealed to city council within 30 days of the decision in accordance with §6.22.

B. Appeals to court

Final decisions of the city council on certificates of appropriateness may be appealed within 30 days of the decision in accordance with §6.23.

ATTACHMENT 2


PAUL VI HIGH SCHOOL


PAUL VI HIGH SCHOOL

ILLUSTRATIVE

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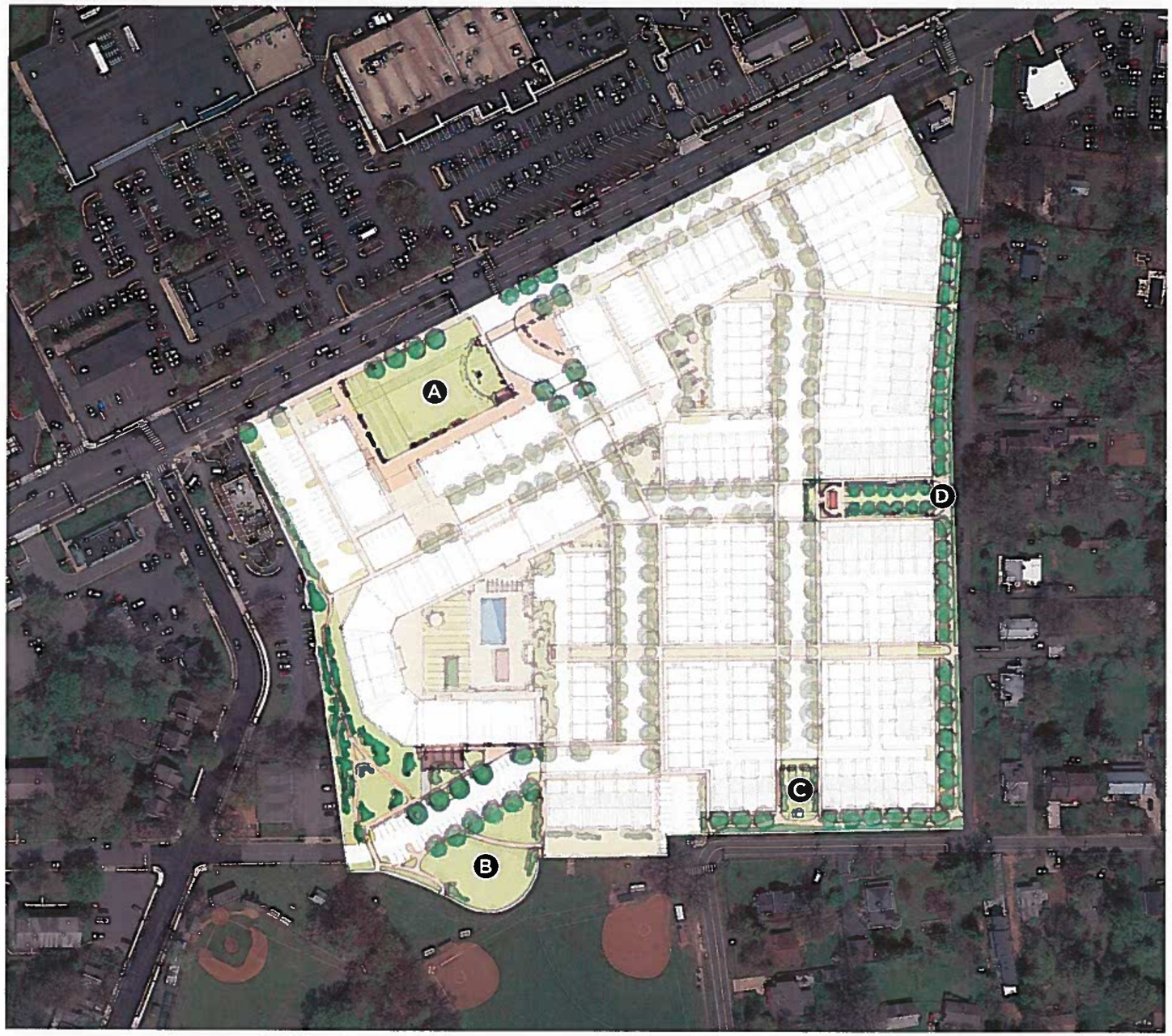

The plan for the re-development of the Paul VI site offers several opportunities to celebrate the breadth and depth of its history. By reintroducing and reimagining historic features, celebrating its impacts on its surroundings and respecting its cultural significance, the project can serve as a conduit from the past to the future through experience.

This map highlights the most important places where the importance of the site's heritage will seek to inform, highlight, and commemorate some of the higher profile elements of the story.

A **Reunion Square.** On the existing site of the forecourt to the school, we have reimagined a public plaza that engages Fairfax Boulevard and serves as a location for new structures that house the most active elements of the plan to coexist with a rehabilitated and re-purposed main school building. Reunion Square is imagined as a public gathering space, suitable for large and small events (the area between buildings is an acre), which can be used by residents here and in the City of Fairfax. This Square commemorates the site's history along a commercial corridor and creates a new, more intimate and pedestrian-friendly format for neighborhood service that doesn't exist along Fairfax Boulevard.

B **Veterans Triangle.** At the southwestern edge of the site, we have proposed an extension of the existing park system that can continue to the north and reach Fairfax Boulevard. This green area begins (at the southern end) with a natural continuance of play areas from the ballfields through a veterans memorial area to a commemorative greenway that references the old Tussica Creek. The areas closes to the ballfields could be used for playground activity during game time, while the green edge becomes more passive and discovery-oriented as it passes by the condominium building northward. We imagine a sensitively designed "dry creek bed" with a nature trail that can help teach visitors and residents about the water story in this part of the City.

Given the site's adjacency to the American Legion post, we also imagine an opportunity to honor veterans from several periods of America's wartime history – from the Revolution to present day, including an opportunity to incorporate the Fairfax High School students' WWII memorial in this space of quiet contemplation and honor.

C **Leadership Park.** Along Cedar Avenue, a landscaped square that serves as an entry (for pedestrians or cyclists) to the project is near the site of the home of Fairfax's first mayor, John C. Wood. Interpretive panels can serve as a way to express the significance of this part of the site's history at a location near its original site.

D **The Heritage Bike Trail.** Along McLean Avenue there is a significant opportunity to renew the City's relationship to transportation in a very sustainable and connected way. An 8' bike trail connects to the City's bike network and allows for several places from which to connect in to the project – or simply allow it to be a backdrop for a daily commute. Opportunities along the bike trail may provide locations to memorialize the old streetcar line, the pre-automotive era history and the evolution of transportation in Fairfax in a very symbolic and experiential way.

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HERITAGE PLACES

Paul VI Development | Fairfax, Virginia

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The plan for the re-development of the Paul VI site also offers several different ways to experience the site through traveling its passages, streets and spaces. The goal was to ensure a comfortable, convenient and memorable experience from edge to center and from outside to inside, inside to out. As an important site in the City, it was vital to connect in numerous ways to the neighborhoods that surround us, rather than create barriers and walls.

This map highlights the most important pathways for allowing easy connectivity from existing neighborhoods to all that the future development has to offer.

A **Tussica Creek.** From the southern park to the northern edge of the property, pedestrians and cyclists are encouraged to take a leisurely stroll along the western edge of the site, reserved to commemorate the Tussica Creek. With a winding path and native plantings, the pathway connects active play areas with a contemplative, peaceful passage that celebrates the water story that existed here.

B **The Bikeway to the Square.** From the bikeway along McLean Avenue, visitors are provided with a multitude of connections into and through the property. The most significant is at the midpoint of the new trail which turns westward through a new park and along new streets to the Square and the commercial offerings. Arriving by bike helps significantly broaden the potential for events, commerce and community activities and the project makes allowances to ensure all modes of transportation are accommodated.

C **McLean and Cedar Passages.** At various points along the edges, smaller greenways connect the outside to the inside – intended primarily for pedestrians to experience the neighborhood's character in a direct manner. These passages are intimate, but welcoming – and provide a second layer of scale to experience the neighborhood.

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HERITAGE PATHS

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VIEW FROM CEDAR AVENUE & OAK STREET

RENDERING

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VIEW FROM KEITH AVENUE

RENDERING

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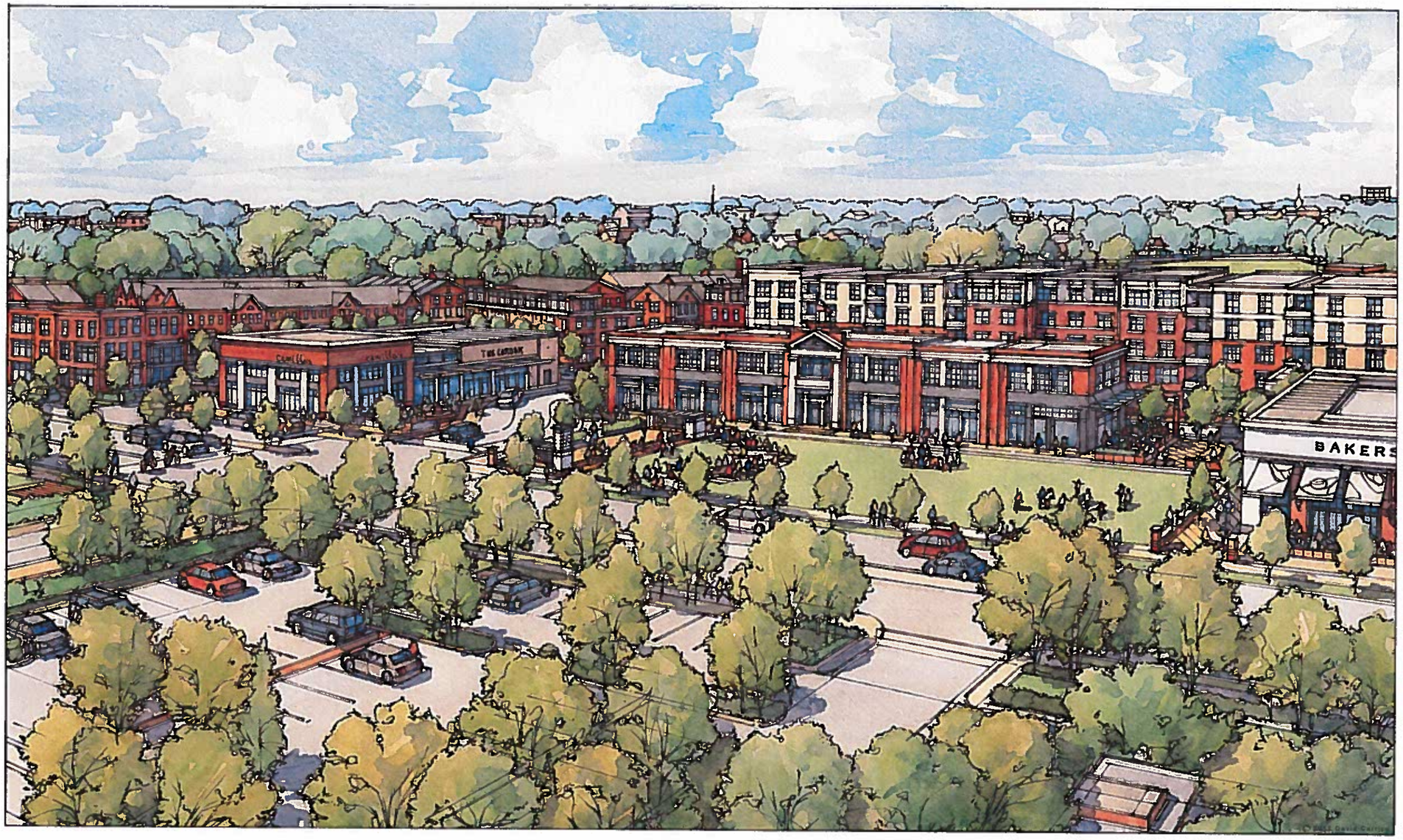
VIEW FROM THE NORTH



RENDERING

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VIEW ALONG MCLEAN AVENUE

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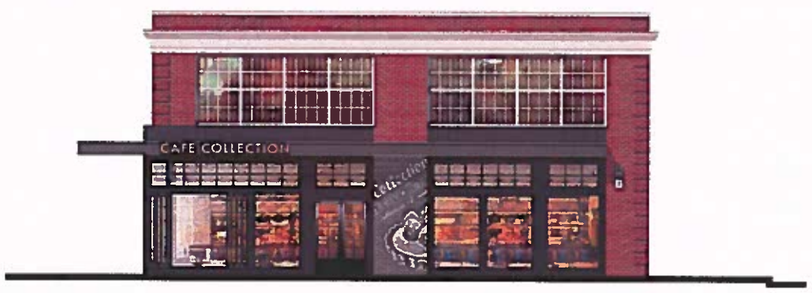
SCHOOL BUILDING

❶ FRONT ELEVATION (NORTH SIDE)

❷ BACK ELEVATION (SOUTH SIDE)

❸ SIDE ELEVATION (EAST SIDE)



❹ SIDE ELEVATION (WEST SIDE)

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ELEVATIONS

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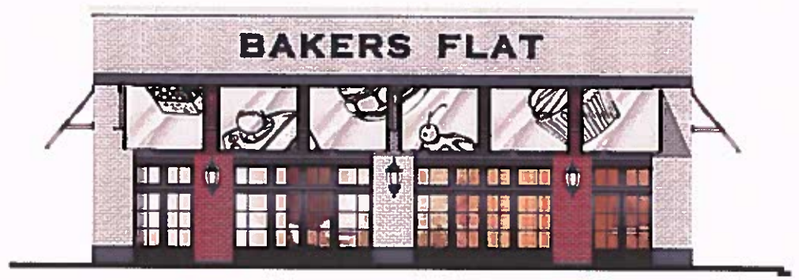
COMMERCIAL BUILDINGS

❶ FRONT ELEVATION (EAST SIDE)



❷ SIDE ELEVATION (NORTH SIDE)

❸ SIDE ELEVATION (NORTH SIDE)

❹ FRONT ELEVATION (WEST SIDE)

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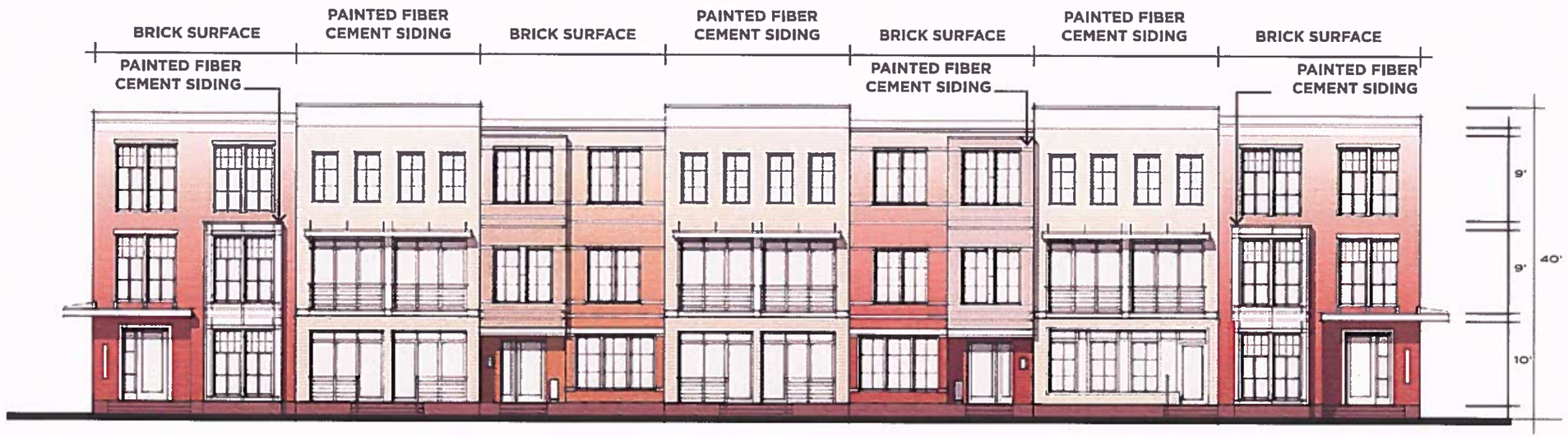
TOWNHOMES - TYPE 1 - URBAN 3-STORY



❶ FRONT ELEVATION (STREET SIDE)

❷ REAR ELEVATION (ALLEY SIDE)

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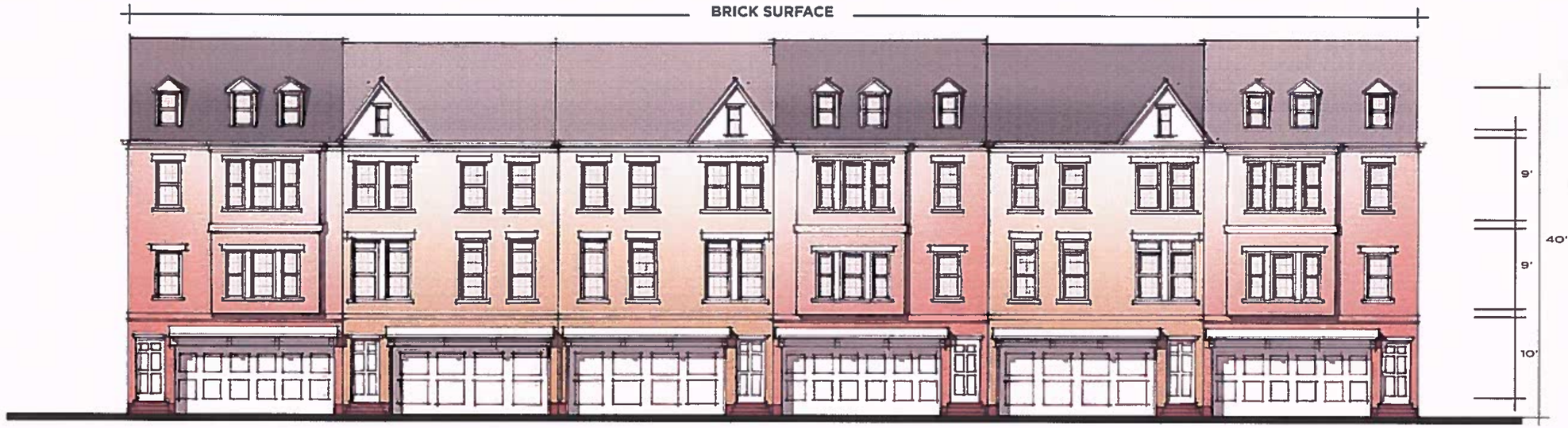
TOWNHOMES - TYPE 2 - TRADITIONAL 3-STORY FRONT-LOADED



❶ FRONT ELEVATION (STREET SIDE)

❷ REAR ELEVATION

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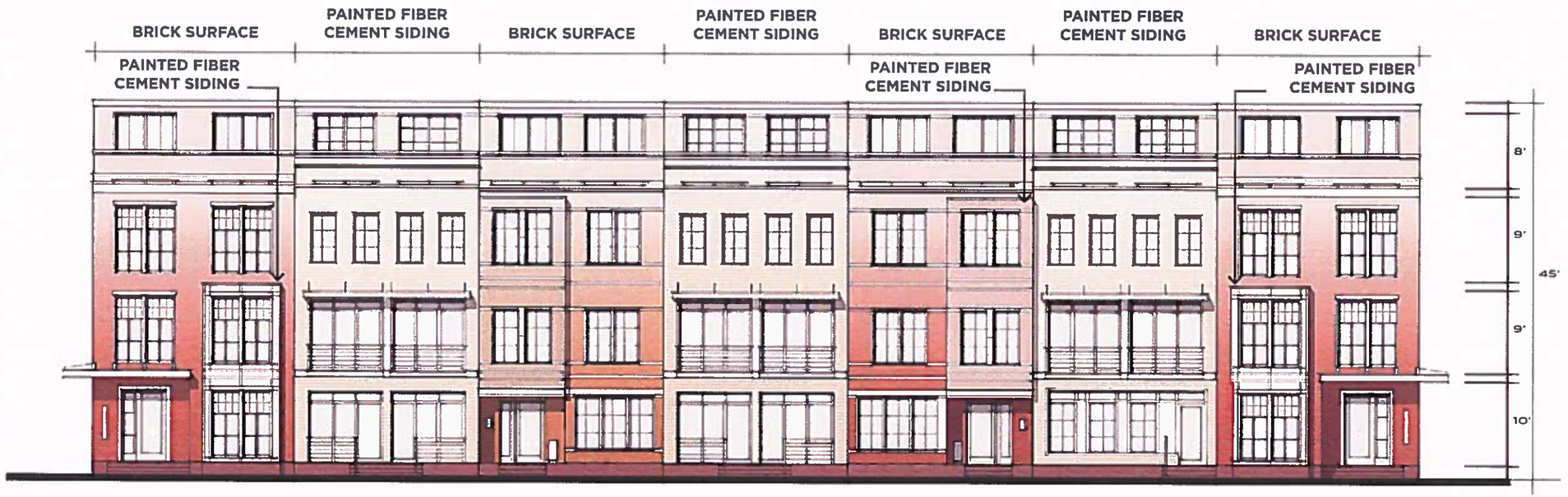
TOWNHOMES - TYPE 3 - URBAN 3.5-STORY



❶ FRONT ELEVATION (STREET SIDE)

❷ REAR ELEVATION (ALLEY SIDE)

ELEVATIONS

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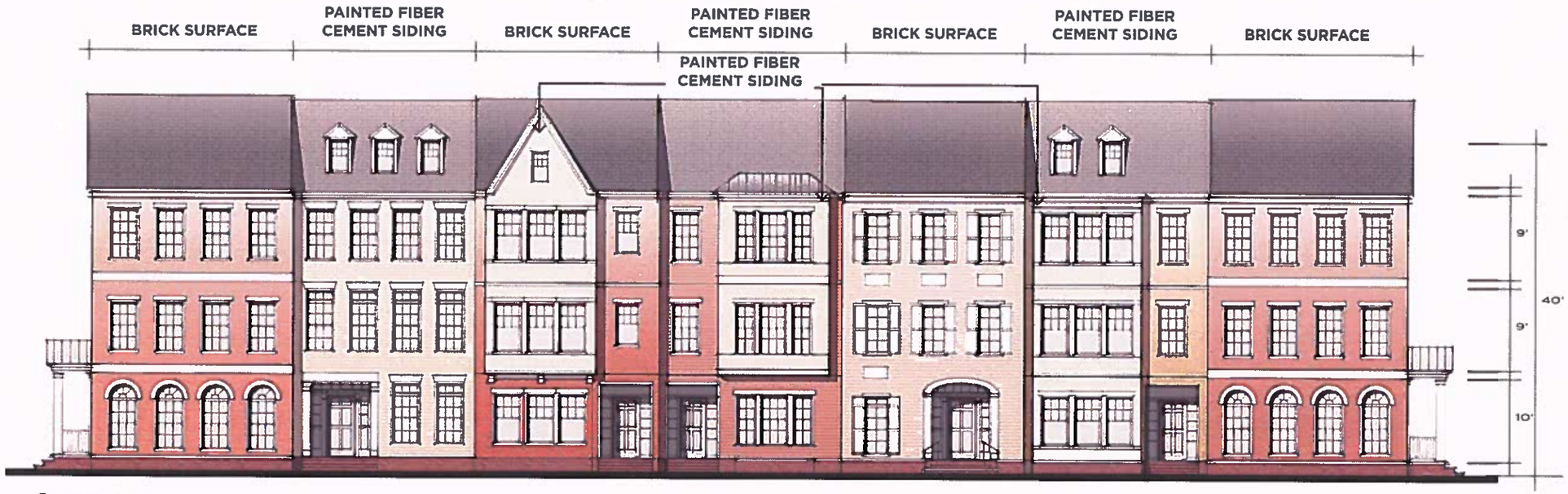
TOWNHOMES - TYPE 4 - TRADITIONAL 3-STORY



❶ FRONT ELEVATION (STREET SIDE)

❷ REAR ELEVATION (ALLEY SIDE)

ELEVATIONS

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CONDO BUILDING

5 NORTHEAST CORNER

4 ENTRY

3 NORTHEAST CORNER

2 PERSPECTIVE FROM ACROSS THE STREET

1 NORTH

HEFFNER ARCHITECTS PC

PAUL VI MULTI-FAMILY STUDY
FAIRFAX, VA

IDI

DESIGN SCHEME XIV

A203

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ELEVATIONS

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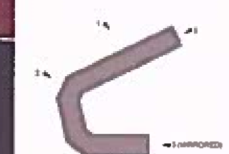
CONDO BUILDING

4 NORTHEAST CORNER

5 PHASE 1 ENTRY

6 PHASE 1 COURTYARD FACADE

7 PERSPECTIVE FROM ACROSS THE STREET



KEY PLAN

3 EAST

1 NORTH ELEVATION (FACING EXISTING SCHOOL)

2 GARAGE ENTRY

HEFFNER ARCHITECTS PC

PAUL VI
MULTI-FAMILY
STUDY
FAIRFAX, VA

IDI

OWNER ADDRESS

PROJECT NUMBER 17008

PHASE 1
ELEVATIONS

A401

ELEVATIONS

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CONDO BUILDING

6 PHASE 2 OVERALL

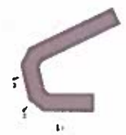
5 PHASE 2 CORNER

4 PHASE 2 ENTRY

3 WEST ELEVATION (OAK STREET)

2 SOUTHWEST ELEVATION (OAK STREET)

1 SOUTH ELEVATION (NEW STREET)



KEY PLAN

HEFFNER ARCHITECTS PC

624 MONTGOMERY STREET
ALEXANDRIA, VIRGINIA 22314
(703) 549-7789 PH ▪ (703) 549-8212 FAX

PAUL VI MULTI-FAMILY STUDY
FAIRFAX, VA

IDI

OWNER ADDRESS

MARK	DESCRIPTION	DATE

PROJECT NUMBER 17008
SHEET ISSUE DATE 11/21/17
PRINT DATE Issue Date
SHEET TITLE
PHASE 2 ELEVATIONS

SHEET NUMBER
A402
Project Status

2017-11-22 12:13:07 PM

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ELEVATIONS

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CONDO BUILDING

1 NORTH

1/16" = 1'-0"

ELEVATIONS

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NOVEMBER 28, 2017

ARCHEOLOGY AND HISTORIC PRESERVATION:

Secretary of the Interior's Standards and Guidelines [As Amended and Annotated]

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Preservation Planning
Identification
Evaluation
Registration
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Historical Documentation
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Professional Qualifications Standards

The following requirements are those used by the National Park Service, and have been previously published in the Code of Federal Regulations, 36 CFR Part 61. The qualifications define minimum education and experience required to perform identification, evaluation, registration, and treatment activities. In some cases, additional areas or levels of expertise may be needed, depending on the complexity of the task and the nature of the historic properties involved. In the following definitions, a year of full-time professional experience need not consist of a continuous year of full-time work but may be made up of discontinuous periods of full-time or part-time work adding up to the equivalent of a year of full-time experience.

History
The minimum professional qualifications in history are a graduate degree in history or closely related field; or a bachelor's degree in history or closely related field plus one of the following:

1. At least two years of full-time experience in research, writing, teaching, interpretation, or other demonstrable professional activity with an academic institution, historic organization or agency, museum, or other professional institution; or

2. Substantial contribution through research and publication to the body of scholarly knowledge in the field of history.

Archeology
The minimum professional qualifications in archeology are a graduate degree in archeology, anthropology, or closely related field plus:

1. At least one year of full-time professional experience or equivalent specialized training in archeological research, administration or management;

2. At least four months of supervised field and analytic experience in general North American archeology, and

3. Demonstrated ability to carry research to completion.

In addition to these minimum qualifications, a professional in prehistoric archeology shall have at least one year of full-time professional experience at a supervisory level in the study of archeological resources of the prehistoric period. A professional in historic archeology shall have at least one year of full-time professional experience at a supervisory level in the study of archeological resources of the historic period.

Architectural History
The minimum professional qualifications in architectural history are a graduate degree in architectural history, art history, historic preservation, or closely related field, with coursework in American

architectural history, or a bachelor's degree in architectural history, art history, historic preservation or closely related field plus one of the following:

1. At least two years of full-time experience in research, writing, or teaching in American architectural history or restoration architecture with an academic institution, historical organization or agency, museum, or other professional institution; or

2. Substantial contribution through research and publication to the body of scholarly knowledge in the field of American architectural history.

Architecture
The minimum professional qualifications in architecture are a professional degree in architecture plus at least two years of full-time experience in architecture; or a State license to practice architecture.

Historic Architecture
The minimum professional qualifications in historic architecture are a professional degree in architecture or a State license to practice architecture, plus one of the following:

1. At least one year of graduate study in architectural preservation, American architectural history, preservation planning, or closely related field; or

2. At least one year of full-time professional experience on historic preservation projects.

Such graduate study or experience shall include detailed investigations of historic structures, preparation of historic structures research reports, and preparation of plans and specifications for preservation projects.

<< Hist. Preserv. Projects | Intro | Preserv. Terms >>

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MJB

Some of the web versions of the Preservation Briefs differ somewhat from the printed versions. Many illustrations are new and in color; Captions are simplified and some complex charts are omitted. To order hard copies of the Briefs, see Printed Publications.

PRESERVATION BRIEFS

43

The Preparation and Use of Historic Structure Reports

Deborah Slaton

Wisconsin State Capitol. Photo: Wiss, Janney, Elstner Associates, Inc.

Introduction

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Commissioning the Report

How Much Will It Cost?

Report Preparation

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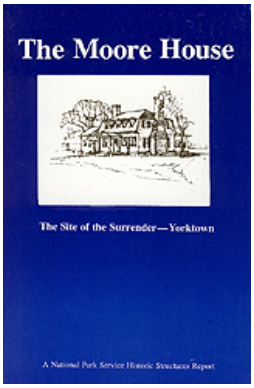
Introduction



In the introduction to the first historic structure report in this country, Charles E. Peterson of the National Park Service wrote in 1935, "any architect who undertakes the responsibility of working over a fine old building should feel

A historic structure report 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.

A historical "first." The first historic structure report prepared in the United States, *The Moore House: The Site of the Surrender-Yorktown*, was written by Charles E. Peterson of the National Park Service in the early 1930s. In the decades since the Moore House report was completed, preservation specialists commissioned by owners and managers of historic properties have prepared thousands of reports of this type. Similar studies have also been used for many years as planning tools in France, Canada, Australia, and other countries, as well as in the United States. Although historic structure reports may differ in format, depending upon the client, the producer of the report, the significance of the structure, treatment requirements, and budgetary and time

obligated to prepare a detailed report of his findings for the information of those who will come to study it in future years." Since then, thousands of historic structure reports (HSRs) have been prepared to help guide work on historic properties. Photo: National Parks and Conservation Association.

restrictions, the essential historic preservation goal is the same.

"Just as an art conservator would not intervene in the life of an artistic artifact before obtaining a thorough knowledge of its history, significance, and composition, so those engaged in the preservation of buildings...should proceed only from a basis of knowledge. Too often in the past, the cultural integrity of countless buildings...has been compromised by approaches to restorations grounded on personal whim, willful romanticism, and expedient notions of repair...The preparation of a historic structure report is the first step in adopting a disciplined approach to the care of a historic building." (From the introduction to The University of Virginia, Pavilion 1, Historic Structure Report, Mesick Cohen Waite Hall Architects, 1988.)

Historic structure reports are prepared for many different types of structures with various intended uses. Examples include courthouses and state capitols still serving their historic function, such as the Wisconsin State Capitol (above); significant properties that are to be rehabilitated and adaptively reused; and properties that are to be preserved or restored as house museums. Photo: Wiss Janney Elstner Associates, Inc

In response to the many inquires received on the subject, this Preservation Brief will explain the purpose of historic structure reports, describe their value to the preservation of significant historic properties, outline how reports are commissioned and prepared, and recommend an organizational format. The National Park Service acknowledges the variations that exist in historic structure reports and in how these reports address the specific needs of the properties for which they have been commissioned. Thus, this Brief is written primarily for owners and administrators of historic properties, as well as architects, architectural historians, and other practitioners in the field, who have limited experience with historic structure reports. It also responds to the requests of practitioners and owners to help define the scope of a historic structure report study.

Guiding the Treatment of Significant Historic Properties

A historic structure report is generally commissioned by a property owner for an individual building and its site that has been designated as historically or architecturally significant, particularly buildings open to the public, such as state capitols, city halls, courthouses, libraries, hotels, theaters, churches, and house museums. It is certainly possible, but is less common, to prepare a historic structure report for a privately owned residence.

Besides the building itself, a historic structure report may address immediate site or landscape features, as well as items that are attached to the building, such as murals, bas reliefs, decorative metalwork, wood paneling, and attached floor coverings. Non-attached items, including furniture or artwork, may be discussed in the historic structure report, but usually receive in-depth coverage in a separate report or inventory. One significant property may include multiple buildings, for example, a house, barn, and outbuildings; thus, a single historic structure report may be prepared for several related buildings and their site.

The scope of such studies includes the interior as well as exterior of the historic structure. This is the interior of the Stanley Field Hall, Field Museum, Chicago. Photo: McGuire Igleski & Associates, Inc.

The University of Vermont has more than thirty contributing buildings in four historic districts listed in the National Register of Historic Places. The Campus Master Plan recognizes a commitment to respect and maintain the historic integrity of these facilities. Historic structure reports are available for many of the University's historic structures. Photo: University of Vermont Historic Preservation Program.

Historic structure reports can be prepared for other historic resource types as well, including bridges, canals, ships, mines, and locomotives, which are categorized as structures by the National Register of Historic Places; sculpture and monuments, which are categorized as objects; and college campuses and industrial complexes, which are categorized as districts. For battlefields, gardens, designed landscapes, and cemeteries, which are categorized as sites, parallel evaluation and investigation is usually undertaken through a separate document called a cultural landscape report.

A Team Approach

With such an array of subject matter, it is not surprising that preparation of a historic structure report is almost always a multidisciplinary task. For a small or simple project, the project team may include only one or two specialists. For a complex project, a team may involve historians, architectural historians, archeologists, architects, structural engineers, mechanical engineers, electrical engineers, landscape architects, conservators, curators, materials scientists, building code consultants, photographers,

and other specialists.

The disciplines involved in a specific historic structure report reflect the key areas or issues to be addressed for the particular property. The project leader or designated principal author for the report is responsible for coordinating and integrating the information generated by the various disciplines. Designation of a principal author may depend on the goals of the historic structure report and on which disciplines are emphasized in the study.

For small or simple projects, the project team may include only one or two specialists while complex projects may involve a large number of investigators and specialists. Evaluation of this barn may primarily involve an historian, an architectural conservator, and a structural engineer. Photo: Wiss Janney Elstner Associates, Inc.

Value of the Historic Structure Report

The completed historic structure report is of value in many ways. It provides:

- A primary planning document for decision-making about preservation, rehabilitation, restoration, or reconstruction treatments
- Documentation to help establish significant dates or periods of construction
- A guide for budget and schedule planning for work on the historic structure
- A basis for design of recommended work
- A compilation of key information on the history, significance, and existing condition of the historic structure
- A summary of information known and conditions observed at the time of the survey
- A readily accessible reference document for owners, managers, staff, committees, and professionals working on or using the historic structure
- A tool for use in interpretation of the structure based on historical and physical evidence
- A bibliography of archival documentation relevant to the structure
- A resource for further research and investigation
- A record of completed work

Benefits for Large-scale and Long-term Projects

In the development of any historic structure report, the scope of work and level of detail are necessarily adjusted to meet the requirements of a particular project, taking into account the property's significance, condition, intended use, and available funding. This does not mean that every significant historic property requires-or receives-a comprehensive investigation and detailed report. Some historic structure reports are of very limited scope. It may be necessary for a project to proceed without a historic structure report, either because of the cost of the report or a perceived need to expedite the work.

Most large-scale or long-term work projects would benefit greatly from the preparation of such a report-and not only from the value of the report as an efficient planning tool (See box above). If work proceeds without a historic structure report to guide it, it is possible that physical evidence important to understanding the history and construction of the structure may be destroyed or that inappropriate changes may be made. The preparation of a report prior to initiation of work preserves such information for future researchers. Even more importantly, prior preparation of a report helps ensure that the history, significance, and condition of the property are thoroughly understood and taken into consideration in the selection of a treatment approach and development of work recommendations. One of the goals of a historic structure report is to reduce the loss of historic fabric or significance and to ensure the preservation of the historic character of the resource.

When to Prepare the Report

Optimal First Phase

The historic structure report is an optimal first phase of historic preservation efforts for a significant building or structure, preceding design and implementation of preservation, rehabilitation, restoration, or reconstruction work. Information contained in the report documents existing conditions and serves as a basis for proposing physical changes. As additional information is learned relevant to the history of the building, and as work on the historic structure is implemented, the report can be amended and supplemented.

Scope of Work

The following questions should be answered to determine the scope of work required for the study:

- Is the building's history well understood?
- Has the period of significance been established?
- Does the building represent a variety of periods of construction, additions, and modifications, not all of which may be significant?
- What archival documentation is available?
- Does the building have physical problems that require repair? What construction materials and systems are known to exhibit distress or deterioration?
- Does the building have code or functional problems that interfere with its use?
- Is the building in use? Is a new or more intensive use planned?
- Is funding available to commission the report needed to address these requirements? If not, can the scope of the report be reduced to answer critical questions in a limited report?
- Has the time frame for the overall project been established?

The length of time required to prepare a historic structure report and the budget established for its development will vary, depending on the complexity of the project, the extent and availability of archival documentation, and to what extent work has already been performed on the building. If the scope of a historic structure report for a simple building is limited to a brief overview of historic significance, a walk-through condition assessment, and general treatment, the study and report may be completed within a few months' time by an experienced investigator. On the other hand, a historic structure report for a larger building with numerous past alterations and substantive problems will require extensive research and on-site study by a multidisciplinary team. This type of report can often take up to two years to complete.

At the Hudson Opera House, a multi-arts center in Hudson, New York, the historic structure report was prepared incrementally. The first phase of the report focused on assessment and recommendations for repair of the roofing, the most critical issue in preservation of the building. Photo: Gary Schiro.

Incremental Preparation

If budgetary constraints preclude completing the historic structure report as one project, it can be prepared incrementally. The work recommendations should not be developed or implemented prior to completion of research and investigation, except for emergency stabilization to prevent immediate failure or damage, or temporary measures to address critical health and safety issues. A partial historic structure report can be completed in preparation for anticipated work that must be initiated to preserve or protect the building. This type of report includes analysis of only those building elements and systems that may be affected by the proposed work, and involves only the specialists needed to address the types of investigation and work planned. For example, research and documentation of existing interior finishes may be required before undertaking localized structural stabilization that will require removal of interior materials.

In undertaking such work prior to the completion of a historic structure report, caution should be taken not to alter or unnecessarily remove changes to the building that had occurred over time. The completed report may conclude that such changes to the building may have acquired significance in their own right and therefore merit preservation.

Documenting Past Work

Sometimes a historic structure report is initiated when repair or restoration work on the historic building has already been completed. Although it is always recommended that the study be done prior to new work, in this case, the report needs to document--as fully as possible-the condition and appearance of materials, elements, and spaces as they existed prior to the work performed. The extent to which this can be achieved depends on the quality of archival documentation available and physical recording undertaken prior to the completed work. The report should describe the nature and extent of the past repair or restoration work, and, if possible, should also document research performed, reasons for design decisions made, and the construction process for the work already completed on the structures.

Commissioning the Report

Commissioning a historic structure report requires answering a series of questions to establish the scope of work. The goals of the report need to be defined and the report should be designed to support planning for the future of the historic structure. This effort may involve gathering information to answer questions about what is significant about the building and site; what uses are appropriate for the building, or whether existing uses need to be modified; what known conditions require repair and whether those repairs are urgent; and what short-term and long-term goals need to be addressed.

Finally the available budget for the historic structure report project should be established before a request for proposals is issued.

The procedures for preparing a historic structure report and the outline of report content and organization can serve as the basis to develop a scope of work for the study and also to solicit proposals for a report that reflects the requirements of the specific structure, and, of course, the available budget. Although the request for proposals should always establish such a scope of work, firms may be invited to suggest adjustments to the scope of work based on their past experience. The request for proposals should include a qualifications submittal from each proposer. This submittal should include resumes for the principal investigators and a description of experience in preparing historic structure reports or similar studies, as well as experience with buildings of similar type, age, and construction to the subject of the study. References and sample of work may be requested from the proposer as part of this submittal. An interview with one or more candidates is highly recommended, both so that the proposers can present their project approach and qualifications, and so that the client can ask questions in response to the submitted proposal.

Historical photographs are an invaluable aid and time saver in establishing a building's original construction and evolution; in guiding the replication of missing features; and even in understanding existing material deterioration. The availability of information, such as archival photographs, surviving original architectural drawings, or HABS documentation, has a direct bearing on the cost of preparing a historic structure report. In this circa 1890 photo of the Rancho San Andrés Castro Adobe, the "lumbering up" on the south end is a character-defining feature of adobe construction that is rarely seen today. Photo: Historic photograph from the Historic Structure Report for Rancho San Andrés Adobe by Edna Kimbro, State Historian, California State Parks, Monterey District

How Much Will It Cost?

The cost of undertaking a historic structure report is determined by numerous factors, some of which may be unique to a particular property. Common to most projects, however, are seven factors that help determine the cost of a report:

1. The level of significance of the property will certainly influence the cost. That is, a property that is nationally significant would likely require a greater effort than a property that is only locally significant.

2. The treatment and use for which the historic structure report information provides a basis is an important cost consideration. If the decision is reached to maintain a building in its current form, the level of effort required in preparing a historic structure report would be less than where the intended treatment is a comprehensive restoration. A change in building use likewise may increase the level of effort; for example, the additional work involved in addressing different building code provisions.

3. The availability of information about the historic resource has a direct bearing on costs. Some historic structures are well researched, and drawings may have been prepared to exacting standards, while others may require considerable original research and investigation to establish the evolution of the structure. On occasion, a property owner's in-house staff or volunteers may undertake research in advance of a contracted study as a way to reduce the cost of the report.

4. The location of and access to a historic building is a cost factor for some studies. A property in a remote mountain location can involve high travel costs relative to properties in or near an urban area. A structure requiring special techniques for exterior physical inspection would involve higher access costs than a small residential structure.

Collecting Information for the Report

A typical study involves:

- Preliminary walk through
- Research and review of archival documentation
- Oral histories
- An existing condition survey (including exterior and interior architectural elements, structural systems, mechanical and electrical systems, etc.)
- Measured drawings following *The Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation*
- Record photography
- Evaluation of significance
- Discussion with the owner and users about current and future intended uses for the structure
- Selection and rationale for the most appropriate approach to treatment (preservation, rehabilitation, restoration, or reconstruction)
- Development of specific work recommendations

5. The size and architectural character of a property affects the time required to prepare a historic structure report. A simple four-room vernacular structure would usually involve less effort than a complicated high-style courthouse with many significant spaces.

6. The physical condition of the structure and also the extent of physical fabric that is accessible for study will be cost determinants as well. Obviously, a property in good condition is usually less problematic than one in a deteriorated state. For a structure that was continuously occupied and where alterations cover earlier fabric, the opportunity to extract information from physical fabric dating to early periods may be limited without extensive removals that are usually beyond the scope of the historic structure report study. Even where buildings are vacant, there are instances where certain physical investigations may need to be limited because of the destructive impact that will occur to historic fabric.

Numerous factors influence the cost of preparing a historic structure report including the level of significance, size, and complexity of the property; required treatment and use; existing condition; and the location and access to the structure. Historic structure reports were prepared for several small lighthouses along the Oregon coast, including the Coquille River Lighthouse, shown here. Photo: Wiss, Janney Elstner Associates, Inc.

7. The type of final report that is required can significantly affect the cost of the project, but is an area where costs can readily be controlled. Historic structure reports do not necessarily need to be professionally bound and printed. In-house desktop publishing has become commonplace, and a formal work product can often be obtained without excessive costs. Overly sophisticated printing and binding efforts represent a misplaced funding allocation for most historic properties. There are distinct advantages to having a report prepared in an appropriate electronic form, thus reducing the number of hard copies and facilitating future updates and additions to the report. For most properties where historic structure reports are prepared, ten or so hard copies should suffice. Providing one copy of the report in a three-ring binder is a helpful and inexpensive way to furnish the owner with a "working" copy of the document.

Suggested steps for collecting information prior to configuring the data into the actual report are as follows:

Preliminary Walk Through

A preliminary walk through of the building and its site with the owner or site manager, appropriate building staff representatives, and key members of the historic structure report team is important to review the project scope of work. During the walk through, a brief review of existing conditions can be performed to highlight user concerns and gather information about distress and deterioration observed. Building staff may also be able to provide information on recent repairs, current maintenance procedures, and specific areas of active deterioration. A brief review of existing documentation available on site is also useful. Site personnel may be able to recommend additional archival resources.

Historical research is directed toward gathering information on a structure's history, original construction and later modifications, occupancies, and uses over time. Research may range from national repositories such as the Library of Congress to local collections or private family records. Old newspapers, architectural journals and even manufacturing trade catalogs can be surprising sources of historical accounts and illustrations. This circa 1902 photograph of New York's Flatiron Building is of the construction in progress; such photographs are useful in understanding building chronology as well as concealed conditions of as-built construction such as building framing. Photo: Library of Congress, LC-D401-14278.

Historical Research

Archival research should be directed toward gathering information on the building's history, original construction and later modifications, occupancies, and uses over time. Research for the report is not intended to produce a large compendium of historical and genealogical material, but rather selected information necessary to understand the evolution of the structure, its significance, and justification for the treatment selected. For significant sites where other types of studies such as archeological investigations or a cultural landscape report have been completed or are underway, coordination is required to ensure that research information is shared and that the research effort is not duplicated.

If a National Register nomination or other inventory has already been completed for the building and its site, the bibliography of that document may suggest possible sources for further research. In addition, a completed National Register nomination can serve as a starting point for development of the historic structure report sections on history and significance, and can be included in the appendix of the report.

Public and university libraries, and state and local historical societies are likely sources of relevant materials. Municipal records collections often contain deed and building permit information that is useful in developing a chronology of ownership and construction. Architectural, engineering, and construction documents, shop drawings, repair documents, and maintenance records are valuable sources of information. The original drawings and specifications, if extant, may be kept at the archives of the historic building but may also have been retained by the firm that designed the building or successor firms.

Building records and other archival documentation may have remained with the structure or site, with previous owners, or with related properties.

Historic photographs are invaluable in developing a chronology of building changes and in determining the character and detailing of missing elements. Photographs in private collections, not intended as formal documentation, can often be useful. For example, family photographs taken outdoors can document a building that appears in the background. Renderings and paintings can also be useful, but these images must be carefully analyzed and compared with other information to ensure accurate interpretation. Correspondence and oral histories can be important additions to the overall information, but may be unreliable and should be confirmed, when possible, by comparison with photographic documentation and physical evidence.

Fire insurance maps, such as Sanborn maps, can provide information on type of construction materials. When maps from different years are available, these can be useful in developing a chronology of additions and other changes to the structure.

Archeological studies may be valuable in uncovering important evidence of changes to a historic structure. Following historical research and after several archeological soil probes, a decision was made to excavate an area in front of a mid-nineteenth century fireplace, revealing the original dirt floor and hearth undetected by earlier restoration efforts. Photo: NPS files.

Existing Condition Survey

A survey is performed to document physical spaces and elements, and to assess the current condition of building materials and systems. In conjunction with historical research, the condition survey helps determine the historic integrity of a structure. The survey and inspection should address the building's exterior and interior materials, features and finishes; structural systems; interior spaces; mechanical, electrical, and plumbing systems; and fire detection and security systems. Further study may be required such as non-intrusive or intrusive investigation, field testing, sample removal, and laboratory testing and analysis of materials.

Archeological investigations can provide information on the locations of building foundations and other sub-grade building elements, and can assist in developing information on the function of adjacent site areas, building elements, and previously unfinished floor spaces. The survey may also address the immediate site landscape, if this is not covered in a separate cultural landscape report.

Information gathered during the survey can be documented with field notes on baseline drawings consisting of field sketches or measured drawings. In addition, documentation can include photographs (35-mm, large format, digital, perspective-corrected, and scale-rectified photographs; photogrammetry; and laser techniques), sketches and measured drawings, computer-aided design and drafting (CADD), video records, and written notes and field measurements. Depending upon project requirements, documentation may need to be prepared to archival standards regarding paper, photographs and negatives, electronic records, and backup data.

Measured Drawings and Record Photography

The collection of the Historic American Building Survey/Historic American Engineering Record (HABS/HAER) archive at the Library of Congress should be searched in case the property has been previously documented through drawings and photographs. While many historic properties have been documented since the start of this invaluable collection in the 1930s, it is still more likely that this type of documentation does not exist for a property for which a historic structure report is being undertaken. Preparation of such documentation to portray the current condition of a property can be an invaluable addition to the historic structure report. Besides serving as a documentary record of a structure, the recording documents can serve another purpose such as an easement document, information for catastrophic loss protection, interpretive drawings, or baseline drawings for proposed work. If undertaken as part of the current building study, the measured drawings and record photography should follow *The Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation*.

Materials Investigation and Testing

Field examination and testing of building material may include non-destructive (non-intrusive) or, where necessary, destructive (intrusive) examination and/or testing of materials, components, and systems. Examples of non-destructive methods of field examination and testing include field microscopy, the use of a metal detector to locate concealed metal elements, and X-ray techniques to assess concealed conditions. Some examples of destructive methods of field examination and testing include structural testing, strain relief testing, and inspection openings (probes). Instruments such as a borescope, through which concealed conditions can be viewed through a small hole, permit enhanced examination while limiting damage to the existing building fabric.

The use of special access methods may be necessary for close-up investigation of building elements. At the Wisconsin State Capitol, project architects and engineers used rappelling techniques. Photo: Wiss, Janney, Elstner Associates, Inc.

Depending upon existing conditions and the results of the site inspection, field monitoring may be required. Field monitoring can include humidity and temperature monitoring, documentation of structural movement and vibrations, light level monitoring, and other environmental monitoring.

In addition, materials samples may be removed for laboratory studies. A wide range of laboratory testing may be appropriate to establish the composition of various construction materials, determine causes of deterioration, and identify and assess appropriate conservation and repair measures. Materials analysis may also be helpful in dating changes to the structure and in developing a chronology of construction. For example, mortar analysis may be performed to determine the composition of original and repointing mortars and to provide information for use in designing a mortar mix for repointing. As another example, paint and other coatings may be analyzed to determine finish types and composition, and original and subsequent color schemes, using special analysis techniques and comparison with color standard systems. Samples should generally be returned to the owner and retained in case future testing is required. In some cases, it may be appropriate to reinstall the samples after materials studies have been completed.

Paint studies may not only help establish the chronology of paints and paint colors used on a building but also may aid in the dating of existing architectural features. Examination of the paint layers on these modillions utilizing a hand-held microscope enabled an investigating team to confirm in the field which modillions were original and which were later replacements. Photo: NPS files.

Sample removal and analysis may also be required to identify hazardous materials, which are present in many historic buildings. For example, lead and other heavy metals are components of many older paints and coatings, and asbestos is a constituent of some roofing materials, claddings, sealants, and insulation. Mold and mildew may be present and require special treatment; in this case a consulting industrial hygienist may need to be included in the project team. Analysis may be performed to confirm the materials present, determine the nature of the hazard, and help identify methods of remediation or management.

As buildings constructed during recent decades become "historic," newer materials require study and analysis as part of historic structure reports. For example, curtain wall components and joint sealants may require analysis to determine their composition, identify causes of deterioration, and select appropriate replacement sealants. Composite materials and plastics, present in post-World War II buildings, may also require special effort to determine repair techniques or appropriate materials for replacement.

All of the information gathered during the physical investigation, and through field testing and laboratory analysis, should be documented in field notes, sketches, photographs, and test reports. This information is incorporated in the historic structure report and provides a basis for the development of treatment recommendations.

Evaluation of Significance

The process of evaluation occurs throughout the study of the historic structure as information is gathered, compared, and reviewed. Historical data and physical evidence are reviewed to help evaluate the historical, architectural, engineering, and cultural significance of the property, its construction and use, and occupants or other persons associated with its history and development. This evaluation includes determination of the period(s) of primary significance. An overview of the building's history and an assessment of its significance are included in the report.

The Secretary of the Interior provides four distinct but interrelated approaches to the treatment of historic properties:

- **Preservation** focuses on the maintenance and repair of existing historic materials and retention of a property's form as it has evolved over time.
- **Rehabilitation** acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character.
- **Restoration** is undertaken to depict a property at a particular period of time in its history, while removing evidence of other periods.
- **Reconstruction** re-creates vanished or non-surviving portions of a property for interpretive purposes.

Depending on the historical significance of the property, and whether a detailed history has already been written, a brief or more detailed history may be appropriate. A chronology of construction and changes to the building, developed through historic and physical research, is an effective approach to identifying original building elements, as well as modifications that have occurred over time. If a comprehensive National Register nomination or other inventory has been prepared, the significance may already be defined. In other cases, the significance of a building and even its treatment may have been established through authorizing legislation or through the charter of an organization or foundation that owns the historic property. Where appropriate, however, the building's significance should be re-evaluated in light of research performed for the historic structure report.

The results of the research, investigation, and field and laboratory testing are reviewed as a basis for developing specific work recommendations. The history and significance of the building and its site are evaluated to understand what spaces, elements, and finishes are of architectural or historical importance, and to confirm the overall project goals and treatment direction. The physical condition of the building and its systems is evaluated with regard to existing deterioration and distress, and needed repairs, as well as changes required to meet treatment goals. Attention is given to identification of life safety issues and code considerations. Conditions are also identified that could lead to future safety risks, loss of historic fabric, or loss of performance.

Selection of a Treatment Approach

Once the building's history, significance, and physical condition have been researched and investigated, an appropriate treatment is usually selected. Depending upon the intended use of a property, funding prospects, and the findings of the investigation, it may be necessary in some cases to identify and discuss an alternate treatment as well. For example, a building currently occupied by caretakers that is a candidate for restoration and use as a museum may require such ambitious funding support that, for the foreseeable future, a more practical treatment could be to preserve the building and retain the caretakers. In this case, the treatment recommendation would be to restore the property and project work relevant to the restoration would be described. However, the alternate treatment (in this instance an interim one) of preserving the building in its current form would also be described, including discussion of work appropriate to preservation such as repairing the existing roof and installing a monitored fire detection system.

The treatment approach selected for a building usually is determined by the intended use of a property, funding prospects, and the findings of an investigation. The Wolf Creek Inn, operated by the Oregon Parks and Recreation Department, is among the most intact and oldest active traveler's inns in Oregon. The historic structure report outlined a rehabilitation treatment which included such work recommendations as repairs to specific historic fabric, landscape restoration and site improvements, and upgrading of the building's mechanical and electrical systems. Photo: Historic American Building Survey, 1934.

In selecting an appropriate treatment, *The Secretary of the Interior's Standards for the Treatment of Historic Properties* can be particularly helpful. In use for more than twenty-five years, the Standards are a widely accepted means of planning for and undertaking project work in a manner that preserves historic materials and elements. The Secretary's Standards have been adopted by many state and local review entities for review of work proposals on historic structures.

The Standards and their accompanying Guidelines describe four different options for treatment and list recommended techniques for exterior and interior work consistent with each option. One treatment (preservation, rehabilitation, restoration, or reconstruction) is usually selected and followed throughout the course of a project involving a particular building. Application of a single treatment approach helps to avoid inappropriate combinations of work, such as restoring a building's appearance to an earlier time in history while simultaneously constructing a new addition.

Development of Work Recommendations

The work recommendations are a central feature of the report. They are developed only after the research and investigation has been completed and the overall project goal established as to whether a particular building should be preserved, rehabilitated, restored, or reconstructed. The specific work recommendations need to be consistent with the selected treatment. If analysis performed during the study suggests that the approach or use initially proposed would adversely affect the materials, character, and significance of the historic building, then an alternate approach with a different scope of work or different use may need to be developed. The process of developing work recommendations also needs to take into account applicable laws, regulations, codes, and functional requirements with specific attention to life safety, fire protection, energy conservation, abatement of hazardous materials, and accessibility for persons with disabilities.

In addition to project goals, the proposed work is also guided by the building's condition. The scope of recommended work may range from minor repairs to structural stabilization to extensive restoration. In addition, the scope of work may be very narrow (e.g., priming and painting of woodwork and repair of deteriorated roof flashings), or very extensive (e.g., stabilization of timber framing or major repair and repointing of exterior masonry walls). The result of implementing (or not implementing) the recommended work needs to be considered as the recommendations are developed.

The historic structure report for the Hotel Florence, shown here in 1886, provided a basis for stabilization and repair work which has been completed. Initial phases of work addressed preservation of the building envelope, structural repairs, and limited mechanical and electrical improvements. The report also provided recommendations for future rehabilitation work that will be implemented in phases as funding becomes available. Photo: Historic American Buildings Survey.

Of course, the available project budget is also a factor in determining the extent of recommended work and whether it must be accomplished in several phases or projects. Whether or not available budget is the primary factor in determining the extent of work that can be performed, it is often useful to prioritize recommended work items. The recommended tasks can be examined in terms of relative importance and the time required for implementation. Prioritizing repairs can be critical where immediate or short-term work is needed to stabilize a building or structure, eliminate safety hazards, make the building weather tight, and protect it against further deterioration.

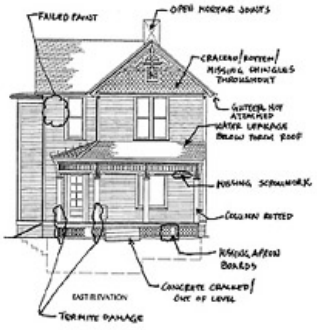
Appropriate procedures for undertaking the recommended work items are described in the historic structure report and are intended to serve as a basis for planning the repair, rehabilitation, or restoration design. The level of detail to which the work items are defined should be limited in the historic structure report, as these recommendations serve as the foundation for, rather than in place of, design and construction documents for the work. For example, baseline drawings annotated with existing condition notes can later serve as a starting place for development of construction drawings. Outline procedures provided in the report for recommended work items can be used later to develop specifications for the work. Finally, a general opinion of probable costs associated with the recommended work is often prepared. A cost estimate is useful to building owners and managers in budget planning and also assists in prioritizing the work. For large or complex projects, the services of a professional cost estimator may be helpful in this effort.

Report Preparation

The historic structure report for the Noland House in Independence, Missouri, a vernacular house that is significant as part of the context of Harry S. Truman's life and family in Independence, Missouri, includes photographs and measured drawings to record existing features and conditions of the building. The measured drawings will also provide a basis for construction documents for future preservation work. This photograph illustrates the front elevation of the house. Photo: Bahr, Vermeer & Haecker, Architects Ltd.

Upon completion of the research, physical investigation, evaluation, and work recommendations, the historic structure report is compiled. The principal investigator may submit an outline of the report for owner review at the beginning of the report preparation. A draft report may also be submitted for review when the report is partially complete, especially if there are many new research findings, significant physical distress conditions to be addressed, or complicated choices to be made in determining the treatment.

The report should be prepared in a style and format that is readily accessible and user-friendly; however, it is not essential that a standardized method or format be followed for all historic structure reports. The report can be primarily narrative or graphic, but is most typically a combination of these formats. Ease and economy of report preparation should be considered but should not take precedence over clarity and thoroughness of documentation.



This is one of the measured drawings for the Noland House. Drawing: Bahr, Vermeer & Haecker, Architects Ltd.

Meetings and Presentations

In addition to meetings with site personnel early in the study process, it is helpful for the project team to meet at key points during the research, investigation, and development of the historic structure report. For example, it is useful for the project team members performing archival research to meet with site personnel to review documents and findings, and to help ensure that important archival sources have not been overlooked. Project team members may also walk through the building with site personnel during the investigation phase to review and discuss existing conditions and possible recommendation approaches. When the report is in draft form, a meeting of the project team with those personnel who will be reviewing and using the report is useful to discuss overall goals, treatments, and recommendations as these are being developed. Finally, when the study is complete, a presentation of the completed study by the project team helps to familiarize the owner and building personnel with the report, highlight key issues, answer questions, and provide a transition to the use of the report as a working document by the building's caretakers.

Report Organization

The scope of the study-historical research, condition survey, investigation and testing, evaluation, selection of appropriate treatment, and development of specific work recommendations-generates a wealth of information about the history and

condition of the building and the specific work needed to, preserve, rehabilitate, restore, or reconstruct it. This information is typically a combination of historical and technical data obtained by different members of the project team and presented as an integrated report in text, photographs, drawings, and tables. The project leader or principal author must guide the development of the report so that key issues are addressed, information is documented and assimilated in the report findings and discussion, recommendations are clearly presented, and no information is lost or misinterpreted in the compilation process.

In order to integrate the many pieces of information into a coherent and comprehensive whole, the historic structure report is generally organized into two principal sections preceded by a brief introduction that summarizes overall findings and recommendations and provides project administrative data. The main sections of the report consist of (1) a narrative that documents the evolution of the building, its physical description, existing condition, and an evaluation of significance; and (2) a discussion of historic preservation objectives, together with recommendations for an overall treatment approach and for specific work. The report is usually supplemented with footnotes or endnotes, bibliography, and appendices of historical documentation and technical data.

It is highly recommended that a post project record of all work performed later be added as a supplement to the historic structure report. This record may consist of annotated drawings, photographs, and other documentation of the work performed. Site personnel may help coordinate this supplement or record if the principal author of the report is not involved in the later construction phase. Some organizations and government agencies consider the post project record to be a third part of a historic structure report and not just a supplement.

When physical evidence is discovered during the course of the construction work or when new documentary evidence is discovered as research continues after completion of the report, this also should be recorded and incorporated into the historic structure report or in an appendix to the report. An important goal of the historic structure report process is to maintain the report as an active and working document, both to facilitate the use of information compiled in the report and to permit the report to readily accommodate new information as it becomes available.

Report Production and Availability

The historic structure report is most often prepared in the form of a printed, illustrated manuscript. In recent years, attention has been given to creating or transforming the historic structure report into an electronic document as well. In electronic format, the report can easily be shared with interested parties and is readily updated.

However, because historic structure reports are still mostly produced in printed format (although sometimes concurrently with an electronic document), it is important that, after production, one or more copies be provided to the property owner and also made available to the project team. As the basis for design and construction documents, the historic structure report needs to be readily available and extensively used during implementation of the work.

At least one site copy should be maintained in a physical format that can be readily updated, such as a three-ring notebook to which additional documentation can easily be added. Field documentation materials, including photographs and negatives, measured field drawings, condition reports and surveys, materials test reports, and other information gathered during the study can be stored in an archive by the building owner for future reference.

An archival copy should also be provided to the owner, and a minimum of one archival copy kept at the project site and at an appropriate local or regional archive, such as a state historical library. Copies of the historic structure report may also be provided to a local historical organization or university and the state historic preservation agency or historical society. In addition, a copy may be given to the National Trust for Historic Preservation Library at the University of Maryland at College Park, which has established a reference collection of historic structure reports.

Summary and References

Various agencies and organizations have employed historic structure reports as planning tools for many years, for example, the National Park Service, General Services Administration, New York State Office of Parks, Recreation and Historic Preservation, and the Society for the Preservation of New England Antiquities. These and other agencies and organizations may have specific requirements and procedures for reports prepared for properties under their stewardship that differ from those described in this Preservation Brief. All historic structure reports, however, share a common goal-the careful documentation and appropriate treatment of significant historic structures.

The historic structure report is an optimal first phase of historic preservation efforts for a significant building, preceding design and implementation of its preservation, rehabilitation, restoration, or reconstruction. If work proceeds without a historic structure report as a guide, physical evidence important to understanding the history and construction of the building may be destroyed. The preparation of a report prior to initiation of work provides documentation for future researchers. Even more importantly, prior preparation of a report helps ensure that the history, significance, and condition

of the property are thoroughly understood and taken into consideration in the selection of an appropriate treatment and in the development of work recommendations. A well prepared historic structure report is an invaluable preservation guide.

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Introduction. This section includes a concise account of research and investigation findings and recommendations for treatment and use, and a record of project administrative data.

- *Study Summary*—a brief statement of the purpose, findings, and recommendations of the study, including major research findings, key issues addressed by the study, and a summary of recommendations for treatment and use.
- *Project Data*—a summary of project administrative data (e.g., location, ownership, and landmark status of property) and the methodology and project participants.

Part 1 Developmental History. This section consists of a narrative report based on historical research and physical examination documenting the evolution of the building, its current condition and causes of deterioration, and its significance.

- *Historical Background and Context*—a brief history of the building and its context, its designers and builders, and persons associated with its history and development.
- *Chronology of Development and Use*—a description of original construction, modifications, and uses, based on historical documentation and physical evidence.
- *Physical Description*—a description of elements, materials, and spaces of the building, including significant and non—significant features of the building.
- *Evaluation of Significance*—a discussion of significant features, original and non—original materials and elements, and identification of the period(s) of significance (if appropriate).
- *Condition Assessment*—a description of the condition of building materials, elements, and systems and causes of deterioration, and discussion of materials testing and analysis (if performed as part of this study).

Part 2 Treatment and Work Recommendations. This section presents the historic preservation objective and selected treatment (preservation, rehabilitation, restoration, or reconstruction), requirements for work, and recommended work that corresponds with the defined treatment goal.

- *Historic Preservation Objectives*—a description and rationale for the recommended treatment and how it meets the project goals for use of the building, e.g., rehabilitation for a new use, restoration for interpretive purposes, etc.
- *Requirements for Work*—an outline of the laws, regulations, and functional requirements that are applicable to the recommended work areas (e.g., life safety, fire protection, energy, conservation, hazardous materials abatement, and handicapped accessibility).
- *Work Recommendations and Alternatives*—a presentation of tasks recommended to realize the proposed treatment approach; evaluation of proposed solutions; and description of specific recommendations for work, including alternate solutions, if appropriate.

Notes, Bibliography and Appendices

- Footnotes or endnotes
- Bibliography, annotated if possible
- List of sources of information (e.g., archives, photograph collections)
- Appendices (e.g., figures, tables, drawings, historic and current photographs, reference documents, materials analysis reports, etc.)
- Index (if the report is particularly long or complex)

Supplemental Record of Work Performed. This section documents work performed, which may include planning studies, technical studies such as laboratory studies or structural analysis, or other investigation work that was not part of the scope of the original historic structure report, and records physical work on the building (construction documents, annotated drawings, photographs). The section is usually added later to update the report, as most historic structure reports are issued prior to implementation of the recommended treatment approach and specific work. It is sometimes referred to as Part 3 of the report.

- *Completion Report*—a record of the work accomplished, physical evidence discovered during construction, and how findings affect interpretation of the building.
- *Technical Data*—a collection of field reports, material data sheets, field notes, correspondence, and construction documents.

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April 2005

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ATTACHMENT 5a

PROJECT: Paul VI	**PROJECT NUMBER:** 17-124	**PAGE:** 1
REPORT DATE: 09-01-2017	**REPORT NUMBER:** 1	**DATE OF SITE VISIT:** 07-25-2017
TO: Patrick Rhodes – IDI Group		**TIME OF SITE VISIT:** 1:00 pm
		WEATHER/TEMP: SUNNY/85

PROJECT: Paul VI - Condition Assessment Study of Original School Section

LOCATION: 10675 Fairfax Blvd. Fairfax, VA

SITE VISIT BY: D. Linton - LE

PRESENT: P. Rhodes - IDI

OBSERVATIONS/DISCUSSIONS: The following observations were made of the original 24,000 SF circa 1935 portion of the existing school building. All findings are based upon the visually accessible portions of the existing structure. The existing building is two stories above grade and appears to have been constructed with open web steel joists spanning to masonry bearing walls at the exterior and at the two corridor wall locations. A utility tunnel occurs below the first-floor corridor.

Second Floor Level:

The 2nd floor structure is framed with open web steel joists spanning front to back. See Photo #1. The joists are supported by the existing brick walls at the sides of the corridor and at the exterior walls. At some locations, the corridor walls are discontinuous and steel beams are likely present to support the floor joists. See Photo #2. Two different types of floor deck construction were observed. At some locations at steel form deck was used to span between the joists and at other locations a floor deck consisting of a wire mesh with concrete fill that was draped between the existing joists. In each case, the joists were spaced at approximately 2-feet on center. No structural defects were observed at any of the visually accessible second floor areas.

Roof Framing:

The framing for the roof also consists of open web steel joists spanning front to back between the brick walls at the exterior and to the interior brick walls or steel beams occurring at the interior corridor lines. See Photos #3 and #4. The joists support a roof deck system that appears to be tectum type roofing consisting of a steel "T" spanning between the joists with the tectum panels located between the tees. No structural defects were observed at any of the visually accessible roof areas.

In looking at the various parapet conditions at the top of the roof, it was observed that parapet walls appear to align directly above the original 1935 building wall location. There are clear delineations between the existing original portion of the building and adjacent roof structures that occur where the existing Library, Cafeteria and Auditorium join to the classroom wing. See Photo #5.

Bearing Walls:

The exterior walls are composed of interlocking multi-wythe brick. Header courses are present every few feet to tie the wythes together. See Photo #6. It appears that the walls are (3) courses in thickness at the exterior and (2) courses thick at the interior bearing wall locations. Brick walls are also evident in the transverse direction of the building at the interior of the building between the classrooms. It was confirmed that these walls are non-load bearing but may be contributing to the lateral force resisting system of the building.

FINDINGS AND RECOMMENDATIONS:

Based upon the visually accessible portions of the building, the existing structure appears to be in a very sound structural condition. No structural defects were observed in the existing framing for the 1st floor, 2nd floor or the roof. Additionally, there we no signs of any foundation settlement or cracking observed which would indicate excessive structural movement/deflection occurring in the building.

The only portion of the building where any signs of deterioration were observed was at isolated exterior mortar joint locations. The most consistent damage has occurred at the mortar joint locations at the jambs of the window openings where it appears that the steel angle lintel has rusted, causing volumetric expansion of the steel. This condition causes tensile stresses to develop in the adjacent mortar joints which cracks the mortar and causes the mortar joint to become loose and in some case open to the exterior. Subsequent additional brick damage is likely at these locations as additional water penetration can occur which leads to possible freeze-thaw damage. See Photo #7.

Other locations of isolated mortar joint damage where observed at the base of wall in the front façade of the building. See Photo #8.

The existing 1935 building structure is in a good condition and it can be readily adaptively reused for the proposed modifications. Minor mortar joint repointing work is needed at some locations and some minor lintel repair work is also needed. It appears that the 1935 original portion of the building is structurally independent of the adjacent building structures. The structure is in a solid structural condition and can be readily repurposed with little additional structural work. Some further, more detailed study will be needed in the areas where the classroom wing joins the adjacent building areas to confirm the full impact of the proposed demolition work.

It will be necessary to retain some portions of the transverse brick walls in the building in order to maintain a code compliant lateral force resisting system but there should be few additional engineering requirements in reusing the existing structure. Temporary shoring and bracing may be needed at the adjacent building areas as they are sequentially removed from around the perimeter of the original portion of the building to remain.

SITE VISITORS SIGNATURE: **DAVID E. LINTON, PE**

Photo #1: Underside of 2nd floor joists with metal lath decking

Photo #2: Underside of 2nd floor joists with steel form decking

Photo #3: Roof joist bearing on interior brick wall.

Photo #4: Steel beam supporting roof joists at corridor bearing line

Photo #5: Parapet walls pop-up at Library and Cafeteria wings

Photo #6: Front elevation at building corner

Photo #7: Open mortar joint at corner of window

Photo #8: Deteriorated mortar joints at base of exterior wall corner.

Consulting and Regulatory Process Management for the Construction Industry

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.

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

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

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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

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 (≥ 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

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

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

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

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

TABLE 8
XRF READINGS: LEAD BASED-PAINT RESULTS

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

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

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

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:
Bold - Lead Based Paint
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.

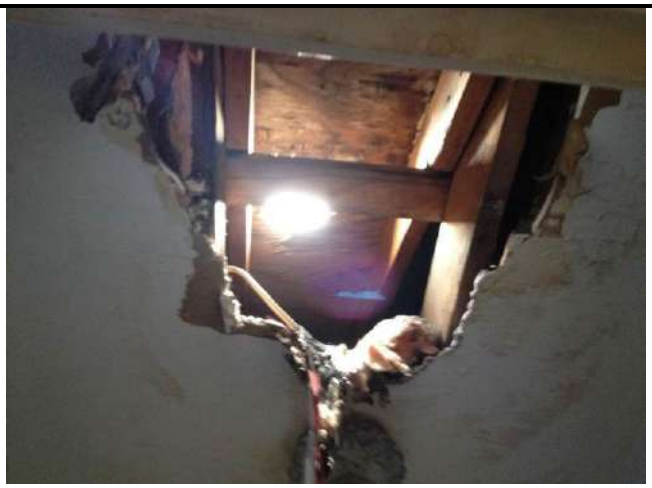
4. View of peeling paint with mold in the basement stairwell.

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

6. View of visible mold on kitchen cabinets.

10606 Cedar Avenue
Fairfax, Virginia

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



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

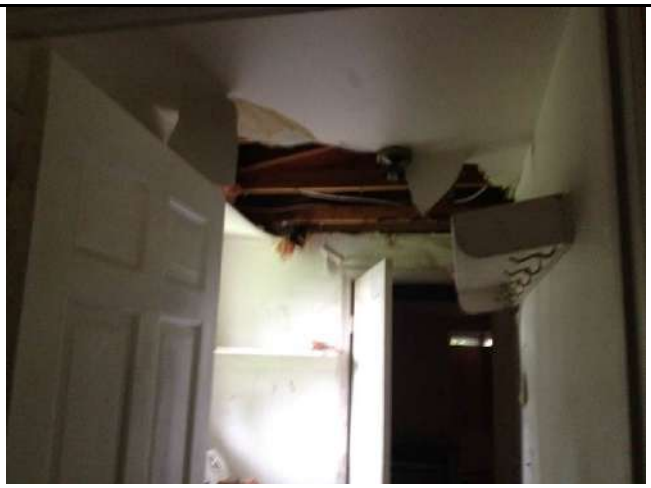
Site Photographs
ECS Project No. 47:4166
Site Visit: June 7, 2017

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	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
	12/7/2017		12/8 9:30

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
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 ☐

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
	11/1/2017		9:30am

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. #: 47:41626
Project Name / Testing Address: 47:41626 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 (cm²) 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: Thoha Signature: Date/Time: 6/7/2017 3:33pm
Received by: Signature: Date/Time: 6/18/17 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				

Unless otherwise noted blank sample correction was not performed on analytical results. Scientific Analytical Institute participates in the AIHA ELPAT program. ELPAT Laboratory ID: 173190. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. Analytical uncertainty available upon request. The quality control samples run with the samples in this report have passed all EPA required specifications unless otherwise noted. RL: (Report Limit for an undiluted 50ml sample is 4µg Total Pb).

Daniel Olson (2)

Analyst

Laboratory Director

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: 200664-0

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

Project: 47:4166

Attn: Beverly Sedon

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**			

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: 200664-0

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: 200664-0

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
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: 200664-0

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	Wall Plaster	None Detected	10% Cellulose	90% Other	White, Yellow Non Fibrous Heterogeneous
1712056PLM_17	*finish*				Crushed
17 - B	Wall Plaster	None Detected		100% Other	Gray Non Fibrous Heterogeneous
1712056PLM_87	*base*				Crushed
18 - A	Ceiling Plaster	None Detected		100% Other	White Non Fibrous Heterogeneous
1712056PLM_18	*finish*				Crushed
18 - B	Ceiling Plaster	None Detected		100% Other	Gray Non Fibrous Heterogeneous
1712056PLM_88	*base*				Crushed
19 - A	Ceiling Plaster	None Detected		100% Other	White Non Fibrous Heterogeneous
1712056PLM_19	*finish*				Crushed
19 - B	Ceiling Plaster	None Detected		100% Other	Gray Non Fibrous Heterogeneous
1712056PLM_89	*base*				Crushed
20 - A	Ceiling Plaster	None Detected		100% Other	White Non Fibrous Heterogeneous
1712056PLM_20	*finish*				Crushed
20 - B	Ceiling Plaster	None Detected		100% Other	Gray Non Fibrous Heterogeneous
1712056PLM_90	*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: 200664-0

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: 200664-0

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	Drywall Board	**None Detected**	**15% Cellulose**	**70% Gypsum** **15% Other**	Brown, White Non Fibrous Heterogeneous
1712056PLM_25					Teased
26	Drywall Board	**None Detected**	**15% Cellulose**	**70% Gypsum** **15% Other**	Brown, White Non Fibrous Heterogeneous
1712056PLM_26					Teased
27	Drywall Board	**None Detected**	**15% Cellulose**	**70% Gypsum** **15% Other**	Brown, White, Blue Non Fibrous Heterogeneous
1712056PLM_27					Teased
28	Drywall Joint Compound	**3% Chrysotile**		**97% Other**	Cream Non Fibrous Homogeneous
1712056PLM_28					Crushed
29	Drywall Joint Compound	**Not Analyzed**			
1712056PLM_29					
30	Drywall Joint Compound	**Not Analyzed**			
1712056PLM_30					
31	Dark Yellow Ceramic Mastic	**None Detected**		**100% Other**	Tan Non Fibrous Homogeneous
1712056PLM_31	*mastic only*				Dissolved
32	Dark Yellow Ceramic Mastic	**None Detected**		**100% Other**	Tan Non Fibrous Homogeneous
1712056PLM_32	*mastic only*				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: 200664-0

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: 200664-0

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

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: 200664-0

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: 200664-0

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: 200664-0

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

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Bulk Asbestos Analysis

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

NVLAP Lab Code: 200664-0

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
62 - B	Black Asphalt Roof Shingle with Felt	**None Detected**	**80% Cellulose**	**20% Other**	Black Fibrous Heterogeneous
1712056PLM_105	*felt*				Teased, Dissolved
63 - A	Black Asphalt Sheet Roll with Black Sealant	**None Detected**	**10% Fiber Glass**	**90% Other**	Black Non Fibrous Heterogeneous
1712056PLM_63	*sheet rock*				Dissolved
63 - B	Black Asphalt Sheet Roll with Black Sealant	**5% Chrysotile**		**95% Other**	Black Non Fibrous Homogeneous
1712056PLM_106	*sealant*				Dissolved
64 - A	Black Asphalt Sheet Roll with Black Sealant	**None Detected**	**10% Fiber Glass**	**90% Other**	Black Non Fibrous Heterogeneous
1712056PLM_64	*sheet rock*				Dissolved
64 - B	Black Asphalt Sheet Roll with Black Sealant	**Not Analyzed**			
1712056PLM_107	*sealant*				
65 - A	Black/Brown Asphalt Roof Shingle	**None Detected**	**15% Fiber Glass**	**85% Other**	White, Black Non Fibrous Heterogeneous
1712056PLM_65	*shingle*				Dissolved
65 - B	Black/Brown Asphalt Roof Shingle	**None Detected**	**60% Cellulose**	**40% Other**	Black Fibrous Heterogeneous
1712056PLM_108	*tar / felt*				Teased
66 - A	Black/Brown Asphalt Roof Shingle	**None Detected**	**15% Fiber Glass**	**85% Other**	White, Black Non Fibrous Heterogeneous
1712056PLM_66	*shingle*				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: 200664-0

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

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: 200664-0

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

171056

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

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Phone: 336.292.3888 Fax: 336.292.3313
www.sailab.com lab@sailab.com

Lab Use Only
Lab Order ID: 171207b
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 ☐

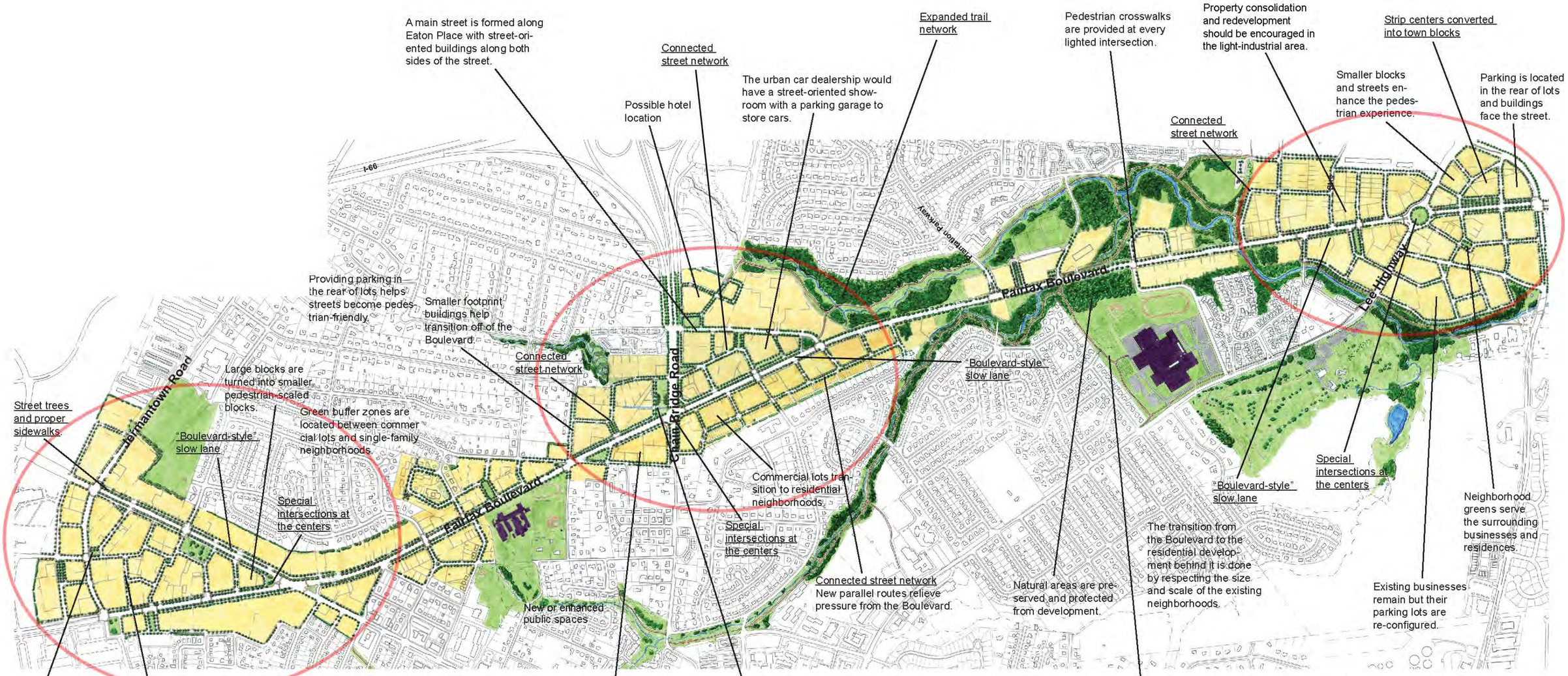
Total # of Samples 8

Relinquished by	Date/Time	Received by	Date/Time
	11/7/2017		9:30 am

ATTACHMENT 6

Fairfax Boulevard Master Plan Vision and Summary

Illustrative Plan



Source: Dover, Kohl & Partners, April 2008