CONDITION ASSESSMENT REPORT FOR

# THE WILLOWS

*A PROPERTY OWNED BY RADNOR TOWNSHIP, PENNSYLVANIA*

*PREPARED BY*


**Avison Young**

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AVISON YOUNG Intelligent Real Estate Solutions

October 10, 2016

AVISON YOUNG Intelligent Real Estate Solutions

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AVISON YOUNG Intelligent Real Estate Solutions

## Executive Summary

**Purpose and Function**

The purpose of this report is to summarize the physical condition of the subject property to assist the Township with its short-term, mid-term, and long-range planning and goals for the building and to provide cost estimates for six options that could be considered to facilitate the reuse of the property and/or building structure.

**Scope of the Investigation**

Senior Project Manager, Sara Anderson, NCIDQ and Project Manager, Jennifer Stark, AIA, CSBA visited the property on August 23, 2016 and conducted a review of the building and surrounding site. Two subsequent visits were made to gather additional information.

The Asbestos Report dated January 4, 2013 and the Lead-based Paint Report dated January 9, 2013 prepared by React Environmental Professional Services Group, Inc. (REPSG) for The Willows Mansion and Cottage were also reviewed. These reports were used as the basis for estimating the expense for abatement.

We reviewed cost information from R. S. Means Cost data as well as data in our files to provide cost estimates.

**Future Use Options**

Based on our understanding of the property, the recent past function of the building, and our evaluation of the conditions, we have identified six (6) courses of action that address scenarios varying from demolition to comprehensive renovation and restoration. The probable lump sum price for each option is provided below. The probable costs do not include escalation beyond 2017, prevailing wage impact, or account for economic changes to material and fuel costs. A detailed Action Plan Matrix with line item pricing is located on Page 20.

- **Option 1 – No Action (Estimated Cost- $0)**
  The Township will carry the property as a mothballed resource.

- **Option 2 - Demolition (Estimated Cost Range – *with* prevailing wage $240,000 - $305,000 or *without* prevailing wage $200,000 - $270,000)**

The Township turns the property over to a demolition contractor. The scope of work would include:

1. Fence the area during the work.
2. Demolish the building and hardscape.
3. Remove the basement and foundations and crush masonry.
4. Backfill basement to grade with crushed material.
5. Import clean fill and 4" topsoil.
6. Seed per Township specifications.

- **Option 2A – Demolition with the Terrace to remain (Estimated Cost Range – *with* prevailing wage $240,000 - $305,000 or *without* prevailing wage $200,000 - $270,000) plus $20,000 for the Terrace related work.**

  The Township turns the property over to a demolition contractor. The scope of work would include:

  1. Fence the area during the work.
  2. Demolish the building and hardscape.
  3. Remove the basement and foundations and crush masonry.
  4. Backfill basement to grade with crushed material.
  5. Import clean fill and 4" topsoil.
  6. Seed per Township specifications.
  7. Retain the rear terrace hardscape and use this area for passive recreation. The surrounding grade would be augmented so that the area is accessible from the paved courtyard and no more than 30" above the lawn on the opposite side looking toward the pond.

  **For either Demolition effort, the Township could consider selling architectural salvage for profit. The salvage dealer would be responsible for the removal of the select items or building materials after the abatement work is done, but before the building is turned over to the demolition contractor.*

- **Option 3 – Selective Restoration (Estimated Cost- $1,394,000)**
  This option rehabilitates the 1st floor and select rooms on the 2nd floor of the mansion. This involves removing the Solarium and replacing it with an up-to-date structure, in-keeping with the character of the mansion, that would provide a fully integrated event space suitable as a single room rental or to supplement a full 1st floor rental. The historic

attributes of the mansion would be refurbished and retained. New restroom facilities, expanded accessible toilets, and an elevator for access to the 2nd floor (with a 3rd floor option available) are proposed.

- **Option 4 – Status Quo- 1st First Floor Only (Estimated Cost - $691,400)**
  This scheme proposes to rehabilitate the 1st floor as-is without any changes to the general floor plan or Solarium except for improvements that are required to meet current life safety codes.

- **Option 5 – Status Quo 1st & 2nd Floors (Estimated Cost - $1,096,400)**
  This scheme proposes to rehabilitate the 1st and 2nd floors without any changes to the general floor plan or Solarium except for improvements that are required to meet current life safety codes. This includes the addition of an elevator to service the 2nd floor to meet ADA requirements.

- **Option 6 – Comprehensive Renovation and Restoration (Estimated Cost- $2,169,400)** In this option the entire interior of the 1st, 2nd, and 3rd floors are gutted and renovated, **with the exception of highly significance features which will be retained and restored**. The new design would support futures uses such as public meetings, fitness classes, luncheons, school banquets and school dances. The upgrades would include building and system changes required to meet current accessibility requirements and life safety codes such as a sprinkler system and an elevator.

  ***The basement was not considered for public use. It was evaluated as a storage and utilities space.***

## Property Summary

**History**

The property was developed in 1910 by John Sinnott Jr. when he purchased the 47.5-acre parcel and built a stone manor home which he named Rose Garland. The property was purchased in 1937 by Clarence Geist as a wedding present for his daughter. The estate was renamed Maral Brook, which was a combination of the newlyweds' names, Mary and Alfred Zantzinger. During the Zantzinger era, the gate house was occupied and the property featured horses as well as vernacular flora and fauna. The estate was purchased by Radnor Township in 1973 and renamed, The Willows and Willows Park, to recognize the specimen willow trees on the site. The township

made architectural changes to the house to accommodate its use as a public venue such as adding bathrooms and enclosing an outdoor Terrace space.

**Additional Information**

Acres: 47.5
Ward: 3
GPS Coordinates:
40 01.393N
075 23.697W

**General Description**

The stone and stucco house features a main rectangular section with 3 bays with the front facing westerly and the rear facing easterly. There are service additions appended to the main structure on the northerly and southerly ends of the main building, a solarium and storage garage, respectively. The 3 story structure features hipped, Ludowici tile roofs over each bay and a flat, membrane roof with fixed skylights over the solarium. Historic photographs indicate that the tile roof was once terra cotta Spanish Tile, rather than the current shingle style, terra cotta. The house has a mixture of original and replacement windows. Most of the original windows exist on the first and second floors including single glazed 1/1 double hung units (1st floor), single glazed 6/9 double hung units (1st floor), single glazed 3 mullion casement units (1st floor), and single glazed 6/6 double hung units (Kitchen and 2nd floor). The former Billiard Room, Living Room and Dining Room have newer insulated, aluminum casement windows and the Solarium features an aluminum storefront windows and door system. The 3rd floor has newer insulated vinyl 1/1 double hung windows.

The single family dwelling was converted to public use in the last quarter of the twentieth century and some original features have been modified due to the change in use. This includes but is not limited to enclosing a terrace area with glass, removing French doors on the Front Façade and infilling the openings with fixed windows, adding toilet rooms on the 1st floor, adding a bathroom where two closets bedroom closets existed on the 2nd floor, and converting a bedroom into a kitchen on the second floor to accommodate a live-in caretaker who occupied part of the 2nd floor and the 3rd floor. Building system changes include the addition of ductwork in the basement for air conditioning on the first floor and a ventilation system for a commercial range in the Kitchen.

The house is situated on a hill overlooking a sloping landscape. The easterly facing terrace is largely intact. A lower parcel on the western foot of the winding drive has been paved to

accommodate event and park visitors; this is located approximately 360 feet from the main entrance. A pond and rolling hills are defining features of the site.

To date, there have been multiple evaluations of the house and site for the purposes of updating and converting the house into an active community venue. These proposals included renovations and recommendations for additions to the house and site. This assessment presents a current condition evaluation and will address upgrades and/or renovations and repairs necessary to make the house a better version of its current self. The intent with this assessment report is to provide the Township with a set of recommendations with their associated costs to assist the Township with the stewardship and maintenance of the house and the immediate grounds.

**General Physical Condition**

The general condition of the house is satisfactory. The main roof has had some leaks and the water damage that is evident on the 3rd floor is clearly attributable to the failure of the roofing tiles. Other than this deficit, the exterior envelope of the building appears reasonably weathertight.

**Additional Considerations**

The Township may consider the following actions while studying the property and its related issues. They are all best practices for stewardship and prepare the building for whatever the future holds for the site.

- *Energy Efficiency*- We would recommend that an energy audit be conducted to ascertain what the Township can do to operate the property with greater energy efficiencies, resulting in lower operating costs and greater user comfort. For instance, the original single glazed windows are a character defining feature of the house. Adding storm windows would benefit the energy efficiency for heating and cooling loads and preserve the building's architectural integrity.

- *Termite Control*- Because of the wooded setting, if there isn't an inspection program already in-place, an annual or bi-annual inspection and treatment program, if necessary, should be considered.

- *Building Insurance*- The existing building insurance policy should be reviewed to confirm that coverage is adequate.

- *Chimney Inspection*- The chimneys should be inspected and cleared of debris and any animal that may be living in the chimney stack or died in the non-working chimneys. The screens visible at the top of the stacks should be re-secured or replaced if they are broken.

- *Open Flame Policy*- It was noted that when the house was last used for events, candles were allowed. There are closets full of wax candles. It would be safer to only permit battery operated candles moving forward. Fortunately, the aesthetics of battery operated candles has improved greatly and there are options for real wax bodies, flickering light effects and varying styles and sizes.

- *Flammable Material Collection*- It was observed that there are dead evergreens, possibly from Christmas 2013 (the last occupation of the house), on the second floor. It would be prudent to have a clean sweep of the house to remove the dried greens and other potentially flammable debris that is deposited throughout the house.

## Assumptions and Limiting Conditions

The report is to be used in whole and not in part. The conclusions and findings contained in this report may not be utilized by anyone other than the party identified in the letter of transmittal, nor may this report be reproduced without the prior written consent of the author.

For matters of a legal nature, the author assumes no responsibility. The author shall not be requested to give testimony or appear in court by reason of this report unless prior arrangements have been made.

Information contained in this report or used as a basis for the conclusions herein was gathered from sources believed to be reliable and accurate, but no guarantee of the accuracy or completeness of this information is made.

Any exhibits, plans, or renderings included in this report are present only to assist the reader in visualizing the property, and no claim is made for their accuracy, scale, or correctness. No survey of the property was made unless specifically noted otherwise.

## System Description and Observations

## Site

The site consists of 47.5 acres featuring rolling hills, a pond, paved vehicular drives, a Gate Keeper's Cottage, the Manor House and assorted park amenities added by the Township since 1973.

According to the *Willows Property Report* dated August 8, 2012, Township resources cover the care and maintenance of shrubbery, mulching and weeding beds, repairing fences, tables and benches, tree maintenance, gutter cleaning, leaf collection, spring and fall clean-ups, snow removal and limited building repairs.


*Figure 1 Contemporary aerial view of the property.*

*Figure 2 Archival image of the front facade. The French doors flanking the front door have already been replaced with fixed infill windows.*

*Figure 3 Archival image of the Right and Rear facades. Note that the storage garage is not constructed yet. The Dining and Living rooms still have their original back walls and the covered terraces are still intact. The roof tiles are Spanish tiles, not the current shingle style terra cotta tiles.*

## Storm Water Management

The house has half-round gutters and corrugated leaders that discharge below grade. There are two surface drains in the main courtyard and two surface drains in the rear courtyard. The courtyard is graded toward these surface drains. It appears that the captured water is directed away from the building subgrade. The surface drains had minor accumulations of dead leaves and organic debris.

## Access and Egress

The house is accessed from a westerly direction via a winding paved driveway. A paved courtyard acts as a drop-off zone immediately adjacent to the double front doors which serve as the main entry to the house. A ramp to the south of the main door leads to a small service porch with a single, 32" clear width door. This is the designated accessible entrance to the building.

There is another service door into the building next to the accessible entry. This has a small wood deck with two risers to meet the grade.

There are rear façade doors in the Solarium and the Living Room, both of which lead to exterior terraces that link together. The Solarium doors are a pair of aluminum framed "storefront" doors and the Living Room doors are wood framed, all glass doors. A single door leads from the Dining Room to the upper terrace.

There is access to the basement from the courtyard via a stone areaway and winding stone steps.

Beyond the house, heading through the front courtyard is a secondary, paved courtyard that leads to a storage garage and a designated trash container zone that is enclosed with a chain link fence.

## Paving, Curbing, and Parking

The paved driveway leading to the house is in good condition. There are no curbs in this park setting. The courtyards are sloped toward drains. The paving has some cracking and some uneven areas due to tree roots heaving the pavement and freeze-thaw movement. The "well" feature in the secondary courtyard sits above the courtyard on a circular stone base raised by a series of steps. The pavers comprising the steps are mortared in-place and the mortar is cracked or missing in areas. Some of the steps are subsequently dislodged or uneven.

General parking is provided approximately 1000 feet from the house. There is no designated walking path from the parking lot to the house. All foot traffic from the parking lot must use the cart way. There is no designated accessible parking spot adjacent to the house.

## Landscaping & Appurtenances

The house is prominently sited on a gentle hill and surrounded by lush greens and mature trees. There is low shrubbery and manicured landscape immediately surrounding the perimeter of the building.

A single bay, 1 story, hipped roof garage was added to the southerly end of the house adjacent to the kitchen support area. The chain link fence enclosed trash area borders the back left corner of the secondary courtyard.

## Utilities

Water

The house is supplied by Aqua Pennsylvania water company's Southeastern Division.

Electricity

The property is served by PECO.

Natural Gas

The property is served by PECO.

Sanitary Sewer

The property is served by public sewer.

## Building Envelope

Building Structure and Façade

The house has a stone masonry foundation and stucco clad walls. The house is a masonry load bearing building. There is cracking and mortar missing in areas of the foundation and along the raised terrace areas. There is organic staining on portions of the stucco due to water and moss growth. Areas of stucco are also spalled and cracked.

Roofing

The main roof features terra cotta, Ludowici tile; the Solarium addition has a rubber membrane roof, a small portico has cedar shakes, and a garage addition has a 3-tab asphalt shingle roof. The terra cotta tiles are beginning to fail and pieces are breaking off and falling to the ground. When one surveys the roof, you can see missing broken tiles throughout the tile field. Historic photos show that the house originally had terra cotta Spanish Tile, not the current shingle style tiles.

Windows and Doors

The windows are a combination of original and replacement ranging from 1/1, 6/6, 6/9 wood original single-glazed double hung units, to original single-glaze wood fixed and casement three mullion units, to vinyl insulated double hung units, to aluminum clad insulated casement units. All of the windows are weather tight. But, the original wood windows have heavy paint build-up at the mullions and there is decay on some sills and frames. There are exterior hooks at the top of the window heads that were for hanging storm window panels and screen panels. None of the original windows had storm or screen panels on them.

The doors range from original wood French doors, to original wood panel doors with glass and newer French doors clad in aluminum and/or wood. The wood doors do have some deterioration and peeling paint around their frames and sills as well as the door bottoms.

## Building Systems

Plumbing

There is a mixture of c. 1973 or newer fixtures and original fixtures, c. 1910. The original fixtures largely include the single sinks, bathtubs and showers. New sinks and toilets are located on the first floor and second floor where new toilet rooms were created to support the use of the house as a public venue.

Heating

The building is divided into heating zones which are serviced by York heat pumps and a natural gas 400,000 btu boiler and original hot water radiators. There is forced air on the first floor in supplement to the radiators. The Solarium is solely heated by forced air. The 3rd floor is heated with perimeter, base board heating using hot water.

The natural gas boiler is serviced by Madsen, Inc., 610-356-4800.

Air Conditioning and Ventilation

The main portion of the first floor has central air conditioning which is fed from the basement; this includes the Solarium, the Entry Hall and the 3 event rooms (original Billiard Room, Living Room, Dining Room). The second floor and third floors use window air conditioning units. There are condensing units located outside adjacent to the accessible ramp area.

The Kitchen has a commercial sidewall vent to exhaust the range hood.

There are local thermostats to control heating and cooling.

Electrical

*Service*
There were 4 electrical panels, a trench emergency generator and transfer switch with a service disconnect panel observed. The Cummins power generation appears to be inspected regularly. Every Monday at approximately 10:30am, the generator is tested and runs for about 30 minutes. The major concerns are the antiquity of the wiring, the frequent power overloads, and the need to meet current codes.

The service disconnect panel has an inspection label indicating that Keith Martin Electrical Contractors, 610-527-1442, services the electrical equipment.

Life Safety and Fire Protection

*Notification*
There are illuminated exit signs at appropriate egress doors. None of the egress doors have panic hardware. There are emergency lights along the egress routes.

*Smoke Detectors*
There are battery operated smoke detectors located throughout the house.

*Active features*
Fire extinguishers are mounted throughout the house. There is no sprinkler system.

Vertical Transportation

There is no elevator. The main staircase is the primary access to the second floor. A service stair near the kitchen also connects the 1st floor to the 2nd floor and continues to the 3rd floor. Stair access to the basement is located under the main stair and a service smaller service stair in the kitchen wing.

## Historic Building Materials

The house was originally designed to be a statement of wealth and later served as a wedding gift to a beloved daughter. The general expression of the formal, first floor plan and the massing of the house reflects the affluence of the original owner. There is a distinctive hierarchy of materials and architectural detail to differentiate staff and support areas from the public spaces in the house. When evaluating a historic property, it is helpful to identify the areas where a higher level of craftsmanship and architectural detail exists not only to quantify the amount of material, but also to help determine areas that are highly sensitive to modern interventions such as new stairs, the addition of mechanical chases, the placement of new equipment, the location of a new elevator or changes needed to meet accessibility requirements.

The Entry Hall, Stair Hall, Dining Room, Living Room and Billiard Room are the areas of most historic significance if you evaluate the house using the criteria above. Other rooms and areas of the house may be categorized as contributing to the highly significant zones, or non-contributing. A contributing area usually has some historic fabric that is significant, such as plaster walls or original windows, or an adjacency to the highly significant rooms. Non-contributing areas are not

directly visible from the highly significant rooms and may be considered prime locations for modern interventions, renovation, or an addition.

Exterior Historic and Character Defining Materials

- Stucco wall cladding,
- Terra cotta roofing (originally Spanish Tile, now shingle style),
- Juliet balconies with iron railings,
- French Doors at main the entry,
- Louvered shutters with black iron shutter dogs,
- Wood 6/6 and 6/9 double hung windows,
- Wood casement and fixed windows,
- Bluestone terrace and patios.

Historic and Character Defining Materials in Significant Rooms

*Main Hall and Stair Hall*

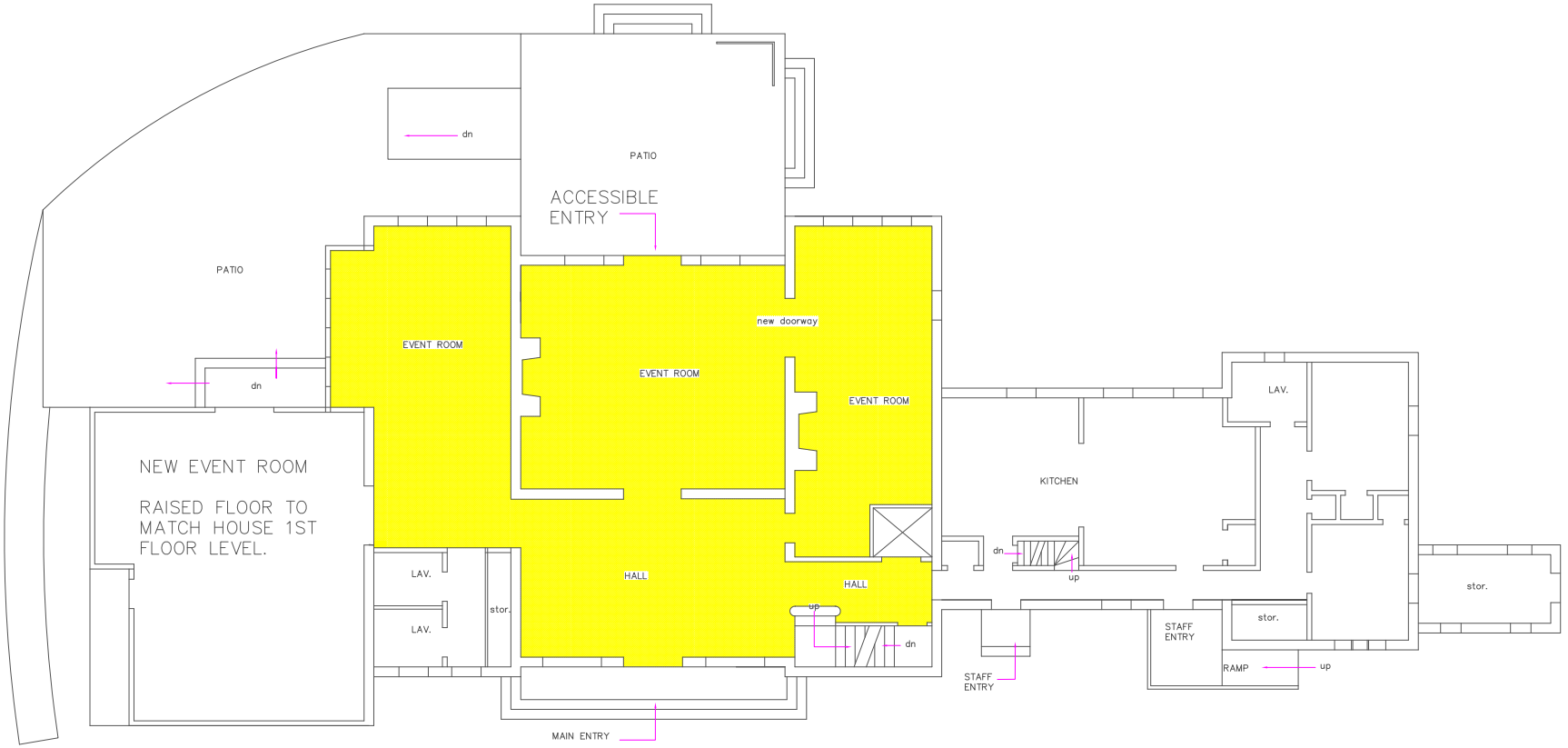
- Wood, tongue & groove floor,
- Original French Door and original windows. (The openings flanking the main door once had similar French Doors),
- Plaster walls and ceiling,
- Decorative white metal stair railing,
- Crystal, tiered chandelier,
- Gilded frame, pier mirror,
- White metal door handles.

*Living Room*

- Wood paneling,
- Wood coffered ceiling,
- Sandstone fireplace surround,
- Wood, tongue & groove floor.

Dining Room

- Wood, tongue & groove floor,
- Wood mantle fireplace surround,
- Plaster walls and ceiling.




FIRST FLOOR PLAN– areas of historic significance
not to scale

# AREAS OF HISTORIC SIGNIFICANCE

Billiard Room

- Wood, tongue & groove floor;
- Plaster walls and ceiling.

It is important to be cognizant that these elements are key to distinguishing the Willows from any other property. Missing features may be replaced in-kind and existing damaged features may be restored. This kind of preservation planning should be incorporated into all future improvement, maintenance, repair, or capital projects to ensure that the architectural integrity of the house is maintained. The drawing on the following pages highlights the historically significant zones.

## Accessibility Evaluation

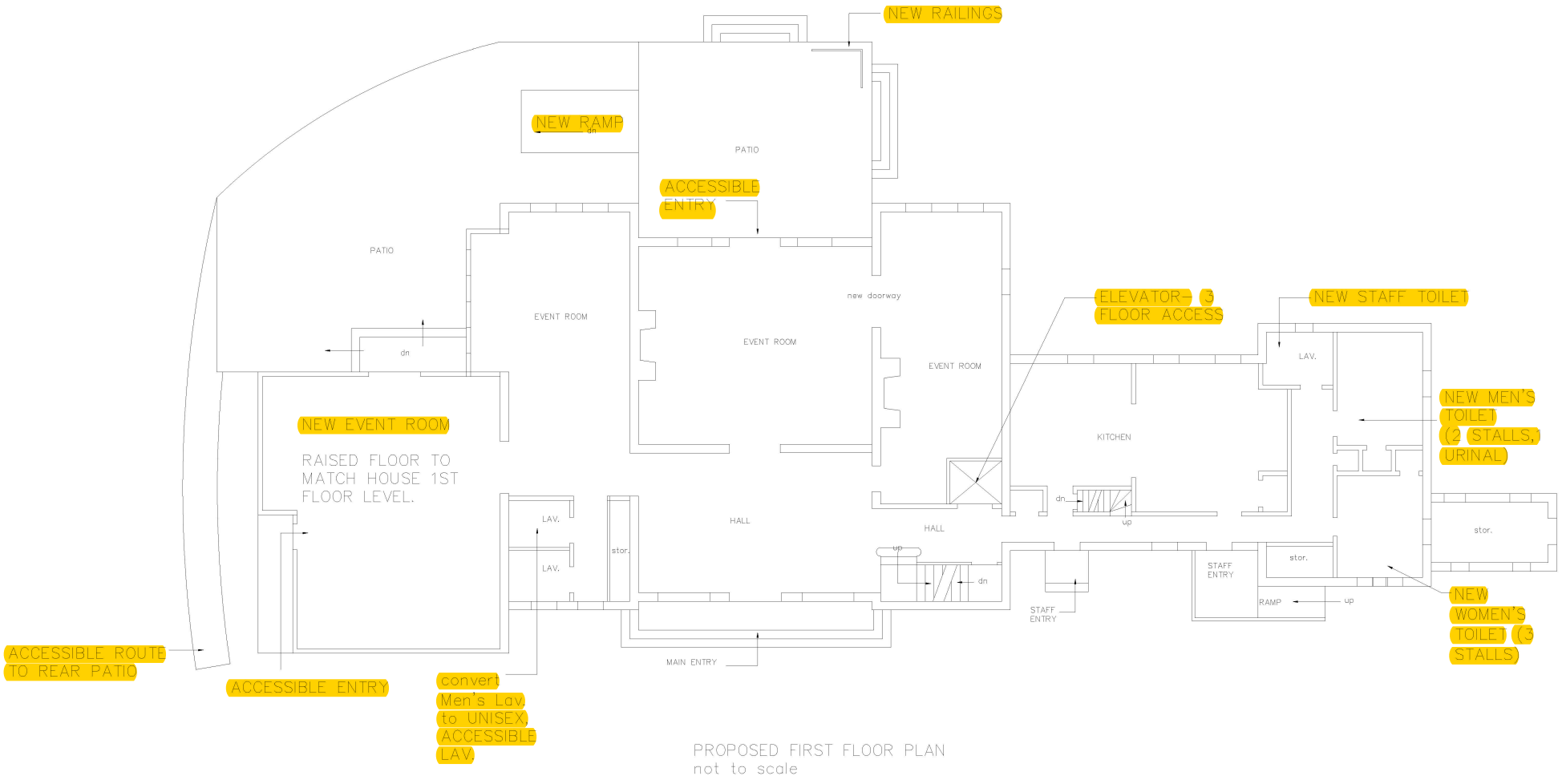
Because the property is within a public park and most likely will continue to be used as a public venue for meetings and events, it is important to bring the building and immediate site up to the standards required to meet the current accessibility codes. Radnor Township has adopted the Uniform Construction Code, International Building Code (IBC) 2009. IBC recognizes ANSI A117.1 and the IBC Chapter 11, 2015.

The general criteria of the standards are prescribed to render sites, facilities, buildings and elements accessible to and usable by people with such physical disabilities as the inability to walk, difficulty walking, reliance on walking aides, blindness and visual impairment, deafness and hearing impairment, incoordination, reaching and manipulation disabilities, lack of stamina, difficulty interpreting and reacting to sensory information, and extremes of physical size. The resulting design intent is to allow a person with a physical disability to independently get to, enter, and use a site, facility, building, or element.

Basic guidelines include:

1. Provide an accessible parking place.
2. Provide an accessible route from the parking place to the building.
3. Provide an accessible entry into the building.
4. Provide an accessible path of travel through the building.
5. Provide an accessible toilet facility.

During our site visit, we observed that there was a high potential, with minor intervention, to meet the five basic guidelines. The external improvements involve creating accessible pathways and ramps. Internal changes include expanding the number of accessible toilet rooms and adding




PROPOSED FIRST FLOOR PLAN
not to scale

# ADA COMPLIANCE

an elevator. The inherent grand scale of the first floor lends itself to good traffic circulation with wide doorways and corridors. The second floor also offers good maneuverability from the stair foyer to the areas that are currently designated for pre-party preparation by the users. There is flexibility to make the elevator feature a 2 or 3 stop unit. There appears to be enough floor to ceiling height on the third floor to allow for an elevator run to the third floor, but it may not be programmatically necessary to provide this. For the purposes of costing, we have included the 3 floor service option. Monetarily, the cost savings for a 2 floor service is a savings of $15,000 - $25,000 depending on the amenities and materials offered in the elevator design. The following plan indicates recommendations that meet the five goals above.

## Hazardous Material Observations

The Willows was constructed in 1910. It is considered self-evident that some building materials used historically have now been deemed unsafe and hazardous based on contemporary science, environmental and medical evidence. The common culprits are asbestos and lead in residential construction.

Asbestos was considered a wonder material because it was cheap, durable, flexible and naturally acted as an insulating and fireproofing agent. The construction and manufacturing industries were enamored with its potential and used asbestos-containing products whenever possible. From the early 1900's to the 1970's, asbestos was the ideal material to use.

Lead is most commonly found in paint because it was used as a pigment (chrome yellow, red and white). Lead also sped up drying time, increased paint durability, allowed the finish to appear fresher longer and caused a coating of paint to act as a barrier against moisture absorption. In 1978, the United States banned the use of lead in paint.

The Township commissioned two reports from React Environmental Professional Services Group, Inc., in January 2013, to conduct sampling and testing for lead and asbestos. These reports provide an excellent overview of areas that contain lead and asbestos. Asbestos was found in fire doors, pipe insulation and roofing materials. All of the painted surfaces tested contained lead-based paint. These included:

- Walls
- Ceilings
- Baseboard molding
- Window frames
- Stair components
- Doors and door components

- Radiators
- Fireplace mantles
- Wood trim
- Exterior railings
- Cabinets

Remediation for asbestos is removal. Remediation for lead-based paint is removal or encapsulation. All work requires that proper regulations and procedures be followed and conducted by a Pennsylvania licensed abatement professional. All of the recommendations contained within this report as well as all future projects (renovation, additions, demolition, repair or restoration) must take into consideration the extra effort required to address the asbestos and lead containing materials in the house.

Copies of REPSG's surveys and findings may be found in the Appendix of this report.

## Action Plan Matrix

The following pages detail the potential action scenarios presented on Page 3.

# ACTION PLAN MATRIX

WILLOWS CONDITION ASSESSEMENT REPORT

| | | Option 1 | Option 2 | Option 2A | Option 3 | Option 4 | Option 5 | Option 6 |
|---|---|---|---|---|---|---|---|---|
| | | No Action | Conventional Demolition | Demoliton - Terrace to remain | Selective Restoration - 1st & 2nd Floor | Status Quo- 1st Floor Only | Status Quo- 1st & 2nd Floor | Comprehensive Renovation and Restoration |
| **Task** | **Probable Cost** | | | | | | | |
| **Demolition-** *w/ Prevailing Wage Range* | $240,000 - $305,000 | | $240,000 - $305,000 | $240,000 - $305,000 | | | | |
| **Demolition-** *w/o Prevailing Wage Range* | $200,000 - $270,000 | | $200,000 - $270,000 | $200,000 - $270,000 | | | | |
| Retain the rear terrace and build perimeter walls to create an elevated "stage". Provide clean fill and grade around the terrace sides so that the terrace surface is not more than 30" higher than the grass lawn. The side facing the driveway should be flush with the grade for accessibility. | $20,000.00 | | | $20,000.00 | | | | |
| **SITE** | | | | | | | | |
| Repave driveway courtyard adjacent to the house, delineate accessible parking zone | $20,000.00 | | | | $20,000.00 | $20,000.00 | $20,000.00 | $20,000.00 |
| Provide a concrete pad at fenced in garbage pen | $2,000.00 | | | | $2,000.00 | | | $2,000.00 |
| Scrape, repair stucco and repaint courtyard retaining wall/garden feature | $5,000.00 | | | | $5,000.00 | | | $5,000.00 |
| Relay stones and mortar in-place stones around rear courtyard "well" | $2,500.00 | | | | $2,500.00 | | | $2,500.00 |
| Provide an accessible pathway to rear patio | $3,500.00 | | | | $3,500.00 | $3,500.00 | $3,500.00 | $3,500.00 |
| Provide an accessible ramp from the rear patio to the upper patio | $2,000.00 | | | | $2,000.00 | $2,000.00 | $2,000.00 | $2,000.00 |
| Provide an exterior accessible ramp into the "Solarium" wing | $4,000.00 | | | | $4,000.00 | $4,000.00 | $4,000.00 | $4,000.00 |
| Provide new railings as needed to meet code around rear, raised patio perimeter | $1,400.00 | | | | $1,400.00 | $1,400.00 | $1,400.00 | $1,400.00 |
| Repoint the retaining wall and base of raised patio | $5,000.00 | | | | $5,000.00 | $5,000.00 | $5,000.00 | $5,000.00 |
| | | | | | | | | |





AVISON YOUNG

# ACTION PLAN MATRIX

WILLOWS CONDITION ASSESSEMENT REPORT

| | | Option 1 | Option 2 | Option 2A | Option 3 | Option 4 | Option 5 | Option 6 |
|---|---|---|---|---|---|---|---|---|
| | | No Action | Conventional Demolition | Demoliton - Terrace to remain | Selective Restoration - 1st & 2nd Floor | Status Quo- 1st Floor Only | Status Quo- 1st & 2nd Floor | Comprehensive Renovation and Restoration |
| Restack dry-stacked stone retaining wall in rear courtyard. | $2,500.00 | | | | $2,500.00 | | | $2,500.00 |
| **EXTERIOR** | | | | | | | | |
| Reparge chimneys | $7,500.00 | | | | $7,500.00 | $7,500.00 | $7,500.00 | $7,500.00 |
| Clean organic matter off of stucco and repair and paint exterior of entire house | $30,000.00 | | | | $30,000.00 | $30,000.00 | $30,000.00 | $30,000.00 |
| Scrape and paint all wood windows. Reputty glass where necessary. | $12,000.00 | | | | $12,000.00 | $12,000.00 | $12,000.00 | $12,000.00 |
| Provide new wood framed storm windows for all original, single glazed windows. | $31,000.00 | | | | $31,000.00 | $31,000.00 | $31,000.00 | $31,000.00 |
| Scrape and paint all wood exterior trim at doors, windows, exterior architectural wood work (cornice, soffit, etc), shutters and panels | $36,000.00 | | | | $36,000.00 | $36,000.00 | $36,000.00 | $36,000.00 |
| Provide new Ludowici Tile roof or similar terra cotta tile in size and profile (provide new wood roof sheathing in areas where water damage occurred.) | $150,000.00 | | | | $150,000.00 | $150,000.00 | $150,000.00 | $150,000.00 |
| Provide new lead coated copper half round gutters and round downspouts | $21,000.00 | | | | $21,000.00 | $21,000.00 | $21,000.00 | $21,000.00 |
| Provide new shutter dogs where they are missing | $3,000.00 | | | | $3,000.00 | $3,000.00 | $3,000.00 | $3,000.00 |
| Provide (2) new French doors to flank main entry door. Match the existing door. | $8,000.00 | | | | $8,000.00 | $8,000.00 | | $8,000.00 |
| Scrape and paint all metal railings (front entry, 2nd floor balconies, etc) | $3,500.00 | | | | $3,500.00 | $3,500.00 | $3,500.00 | $3,500.00 |
| | | | | | | | | |
| **INTERIOR** | | | | | | | | |
| ***Asbestos Abatement*** | | | | | | | | |
| Remove pipe insulation and pipe insulation debris reported by REPSG, 1/1/13 | $8,000.00 | | | | $8,000.00 | $8,000.00 | $8,000.00 | $8,000.00 |



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AVISON YOUNG

# ACTION PLAN MATRIX

WILLOWS CONDITION ASSESSEMENT REPORT

| | | Option 1 | Option 2 | Option 2A | Option 3 | Option 4 | Option 5 | Option 6 |
|---|---|---|---|---|---|---|---|---|
| | | No Action | Conventional Demolition | Demoliton - Terrace to remain | Selective Restoration - 1st & 2nd Floor | Status Quo- 1st Floor Only | Status Quo- 1st & 2nd Floor | Comprehensive Renovation and Restoration |
| Lead-based paint removal (All painted elements must be stripped down to bare substrate for restoration or repair before repainting.) | $25,000.00 | | | | $25,000.00 | $25,000.00 | $25,000.00 | |
| Lead-based paint removal - remove all existing painted millwork elements and provide new elements (Entire architectural millwork scope.) (Existing doors and windows to be scraped and painted.) | $250,000.00 | | | | | | | $250,000.00 |
| | | | | | | | | |
| ***Architectural*** | | | | | | | | |
| Gut removal and reconfiguration of all non historic areas- 1st, 2nd, 3rd floors | $250,000.00 | | | | | | | $250,000.00 |
| Refinish wood floors- 1st floor | $20,000.00 | | | | | $20,000.00 | | |
| Refinish wood floors- 1st and 2nd floor | $40,000.00 | | | | $40,000.00 | | $40,000.00 | $40,000.00 |
| Refinish original wood doors- 1st floor with stain and clear coat | $5,000.00 | | | | $5,000.00 | $5,000.00 | $5,000.00 | $5,000.00 |
| Refinish wood paneling in the Living Room- stain and clear coat | $15,000.00 | | | | $15,000.00 | $15,000.00 | $15,000.00 | $15,000.00 |
| Repaint the interior walls and ceilings- 1st floor | $32,000.00 | | | | | $32,000.00 | | |
| Repaint the interior walls and ceilings- 1st and 2nd floor | $65,000.00 | | | | $65,000.00 | | $65,000.00 | |
| Repaint the interior walls and ceilings- 1st, 2nd, 3rd floors | $110,000.00 | | | | | | | $110,000.00 |
| Repair water damaged walls and ceiling on 3rd floor | $8,000.00 | | | | $8,000.00 | $8,000.00 | $8,000.00 | $8,000.00 |
| | | | | | | | | |
| ***Plumbing*** | | | | | | | | |
| Renovate existing Women's Room to become a Unisex, Accessible Lav. | $20,000.00 | | | | $20,000.00 | $20,000.00 | $20,000.00 | $20,000.00 |
| Renovate existing Men's Room to become a Unisex, Accessible Lav. | $20,000.00 | | | | $20,000.00 | $20,000.00 | $20,000.00 | $20,000.00 |

# ACTION PLAN MATRIX

WILLOWS CONDITION ASSESSEMENT REPORT

| | | Option 1 | Option 2 | Option 2A | Option 3 | Option 4 | Option 5 | Option 6 |
|---|---|---|---|---|---|---|---|---|
| | | No Action | Conventional Demolition | Demoliton - Terrace to remain | Selective Restoration - 1st & 2nd Floor | Status Quo- 1st Floor Only | Status Quo- 1st & 2nd Floor | Comprehensive Renovation and Restoration |
| Renovate existing Storage Rooms in the South wing into Women's Lav. ( 3 stalls) and Men's Lav. (2 stalls, 1 urinal). | $60,000.00 | | | | $60,000.00 | | | $60,000.00 |
| Provide a full sprinkler system-basement to 3rd floor | $200,000.00 | | | | $200,000.00 | | $200,000.00 | $200,000.00 |
| Gut removal and reinstallation of all plumbing | $160,000.00 | | | | | | | $160,000.00 |
| | | | | | | | | |
| ***Electrical*** | | | | | | | | |
| Provide new wiring throughout house | $35,000.00 | | | | $35,000.00 | $35,000.00 | $35,000.00 | $35,000.00 |
| Provide hardwired smoke detectors | $15,000.00 | | | | $15,000.00 | $15,000.00 | $15,000.00 | $15,000.00 |
| Provide new electrical panel for the kitchen and upgrade all outlets to meet current code in wet areas (kitchen and toilet rooms) | $25,000.00 | | | | $25,000.00 | $25,000.00 | $25,000.00 | $25,000.00 |
| Provide new light fixtures throughout 1st floor. Sconces and ceiling fixtures to match and have a cohesive design. LED lamping recommended. | $15,000.00 | | | | | $15,000.00 | | |
| Provide new light fixtures throughout 1st and 2nd floor. Sconces and ceiling fixtures to match and have a cohesive design. LED lamping recommended. | $25,000.00 | | | | $15,000.00 | | $25,000.00 | $25,000.00 |
| Provide new light fixtures 1st - 3rd floors. Sconces and ceiling fixtures to match and have a cohesive design. LED lamping recommended. | $35,000.00 | | | | | | $35,000.00 | $35,000.00 |
| Provide exterior lighting that illuminates walkways, perimeter planting, courtyard and garden features (retaining garden wall and "well") | $20,000.00 | | | | $20,000.00 | $20,000.00 | $20,000.00 | $20,000.00 |
| Restore existing exterior porch lights | $2,000.00 | | | | $2,000.00 | $2,000.00 | $2,000.00 | $2,000.00 |
| Provide 4 outdoor rated power outlet hubs - 2 in front, 2 in rear to power outdoor | $8,500.00 | | | | $8,500.00 | $8,500.00 | $8,500.00 | $8,500.00 |



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AVISON YOUNG

# ACTION PLAN MATRIX

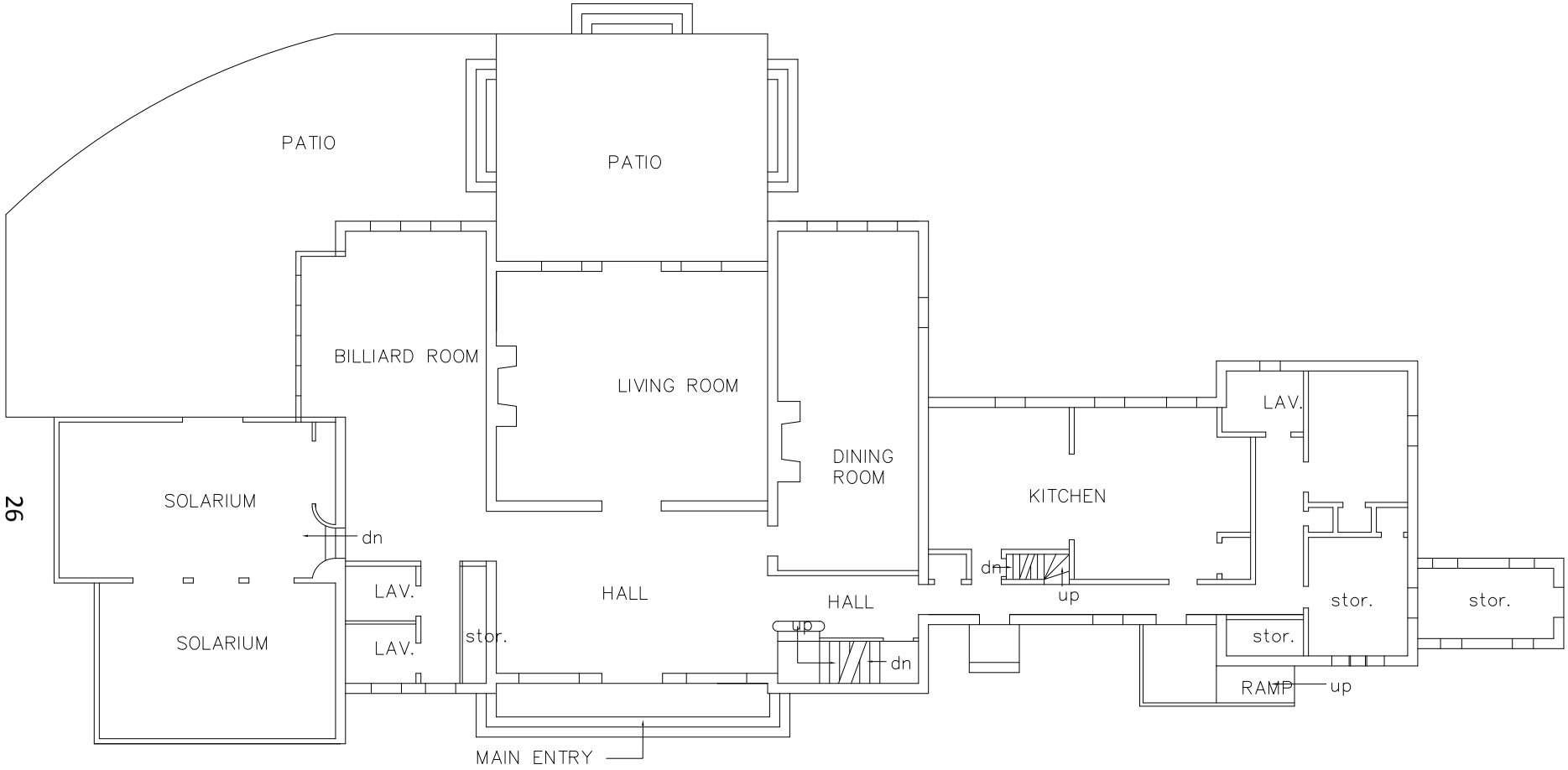
WILLOWS CONDITION ASSESSEMENT REPORT

| | | Option 1 | Option 2 | Option 2A | Option 3 | Option 4 | Option 5 | Option 6 |
|---|---|---|---|---|---|---|---|---|
| | | No Action | Conventional Demolition | Demoliton - Terrace to remain | Selective Restoration - 1st & 2nd Floor | Status Quo- 1st Floor Only | Status Quo- 1st & 2nd Floor | Comprehensive Renovation and Restoration |
| ***Heating, Ventilation, Air Conditioning (HVAC)*** | | | | | | | | |
| Provide high velocity central air conditioning for 2nd floor (feeding down from 3rd floor). Unico, Spacepak or similar. | $35,000.00 | | | | $35,000.00 | | $35,000.00 | |
| Provide high velocity central air conditioning throughout building. Unico, Spacepak or similar. | $85,000.00 | | | | | | | $85,000.00 |
| | | | | | | | | |
| ***Vertical Transportation*** | | | | | | | | |
| Provide a 3-stop hydraulic elevator servicing the 1st , 2nd, 3rd floors (includes a pit located in the basement and a machine room, self-closing & locking doors, climate control, emergency lights, emergency communication, & smoke detector) | $98,000.00 | | | | $98,000.00 | | | $98,000.00 |
| Provide a 2-stop hydraulic elevator servicing the 1st and 2nd floors (includes a pit located in the basement and a machine room, self-closing & locking doors, climate control, emergency lights, emergency communication, & smoke detector) | $75,000.00 | | | | | | $75,000.00 | |
| | | | | | | | | |
| *Equipment* | | | | | | | | |
| Provide new double kitchen sink, hand washing station, dishwasher, stainless counter tops, and 2 ovens. Inspect existing cooking range, it may be salvageable. | $85,000.00 | | | | $85,000.00 | $85,000.00 | $85,000.00 | $85,000.00 |
| | | | | | | | | |

# ACTION PLAN MATRIX

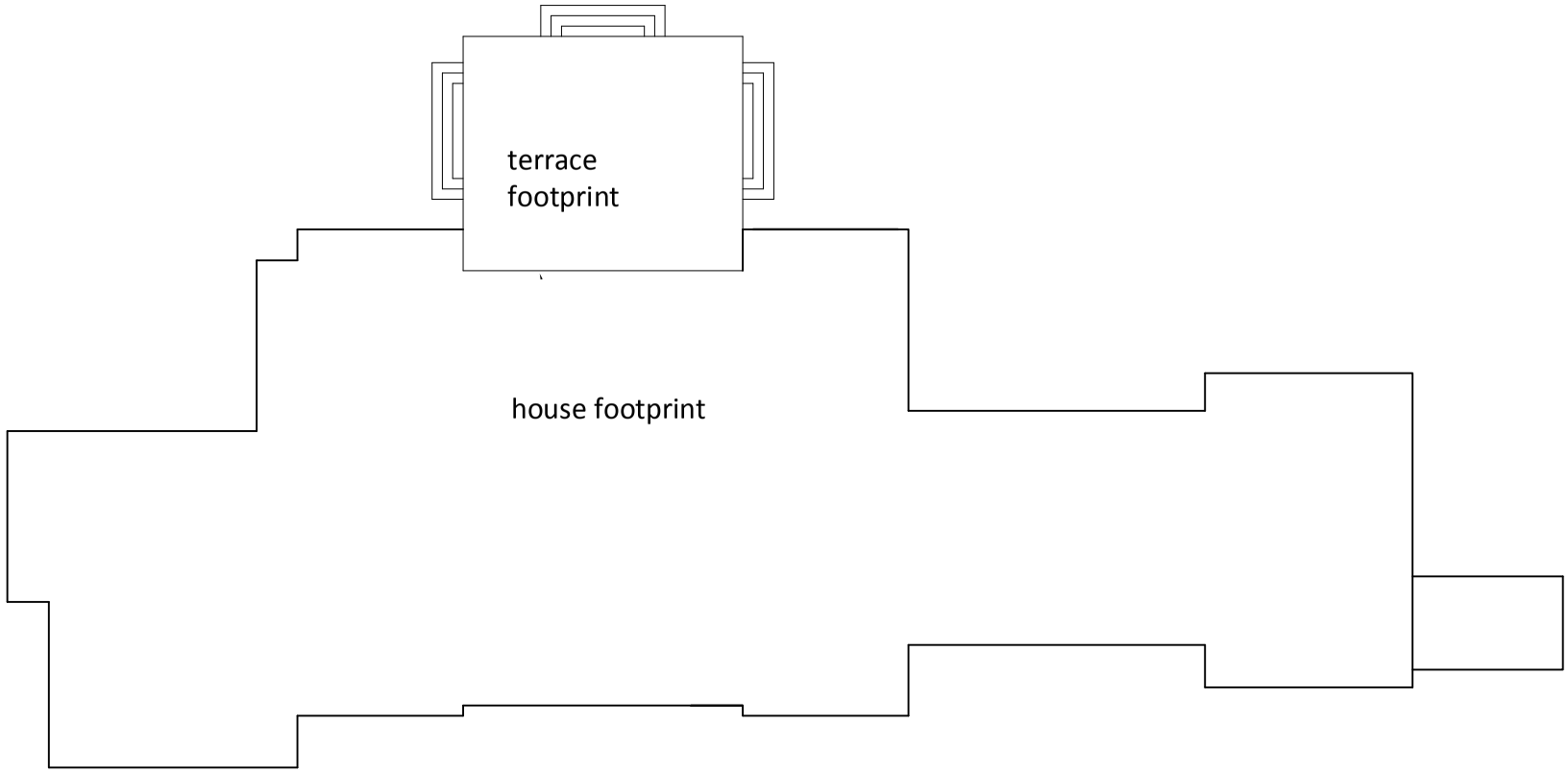
WILLOWS CONDITION ASSESSEMENT REPORT

| | | Option 1 | Option 2 | Option 2A | Option 3 | Option 4 | Option 5 | Option 6 |
|---|---|---|---|---|---|---|---|---|
| | | No Action | Conventional Demolition | Demoliton - Terrace to remain | Selective Restoration - 1st & 2nd Floor | Status Quo- 1st Floor Only | Status Quo- 1st & 2nd Floor | Comprehensive Renovation and Restoration |
| ***Capitol Project*** | | | | | | | | |
| terrazzo floor as a crawl space slab and the front wall (original) and construct a new event room with the finished floor level to match the main house's 1st floor. Provide for CMU walls with stucco exterior, Gypsum drywall interior, sloped ceiling to the underside of a hipped roof clad with 3 | $240,000.00 | | | | $240,000.00 | | | $240,000.00 |
| | | **$0.00** | **$200,000 - $305,000** | **$220,000 - $325,000** | **$1,394,400.00** | **$696,400.00** | **$1,096,400.00** | **$2,169,400.00** |




FIRST FLOOR PLAN
not to scale

**OPTION 1**
**No Action**



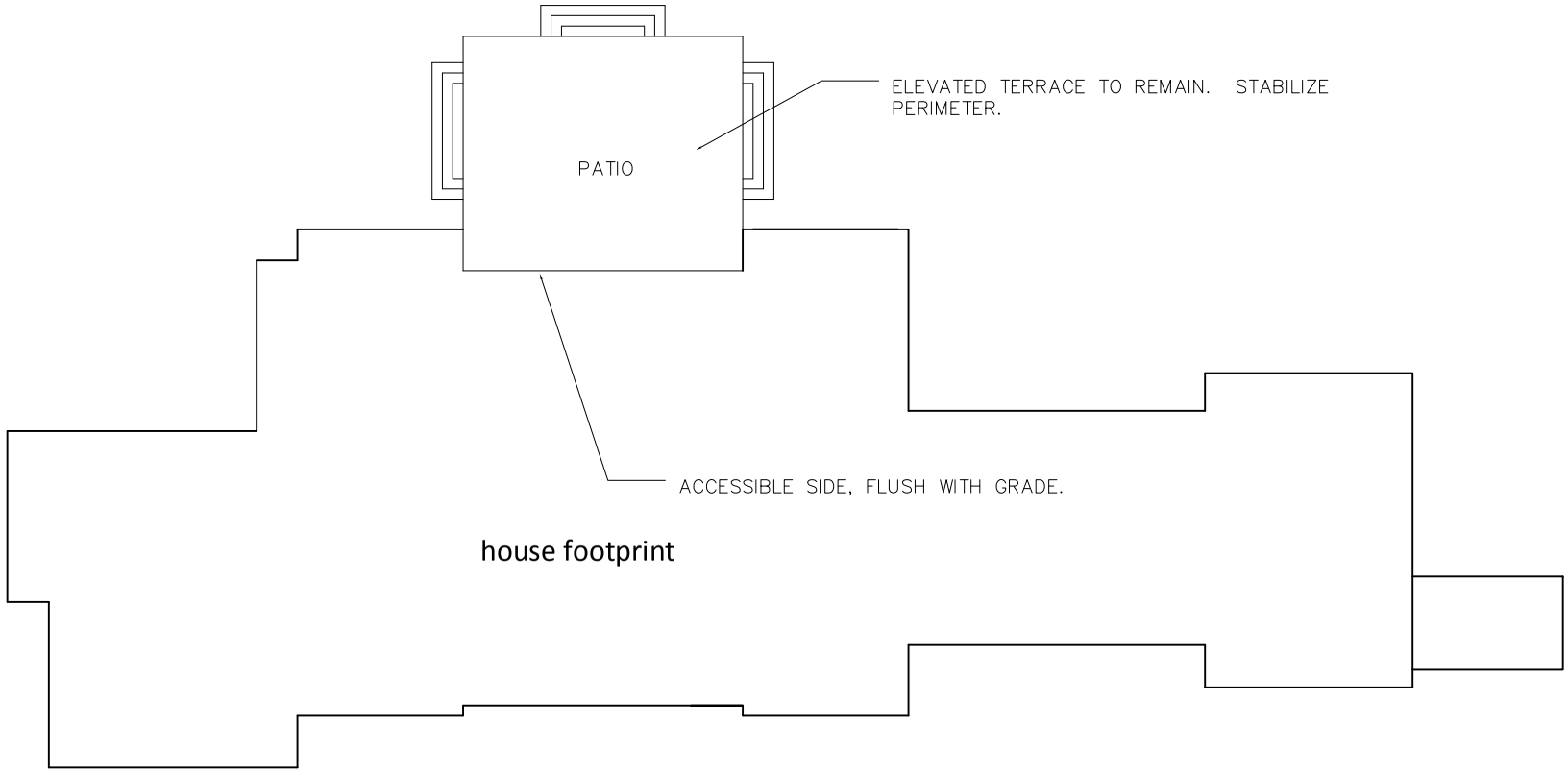

EXISTING FIRST FLOOR PLAN– DEMOLITION
not to scale

**OPTION 2**

**Demolition -Return entire site to Grassy Lawn**



27

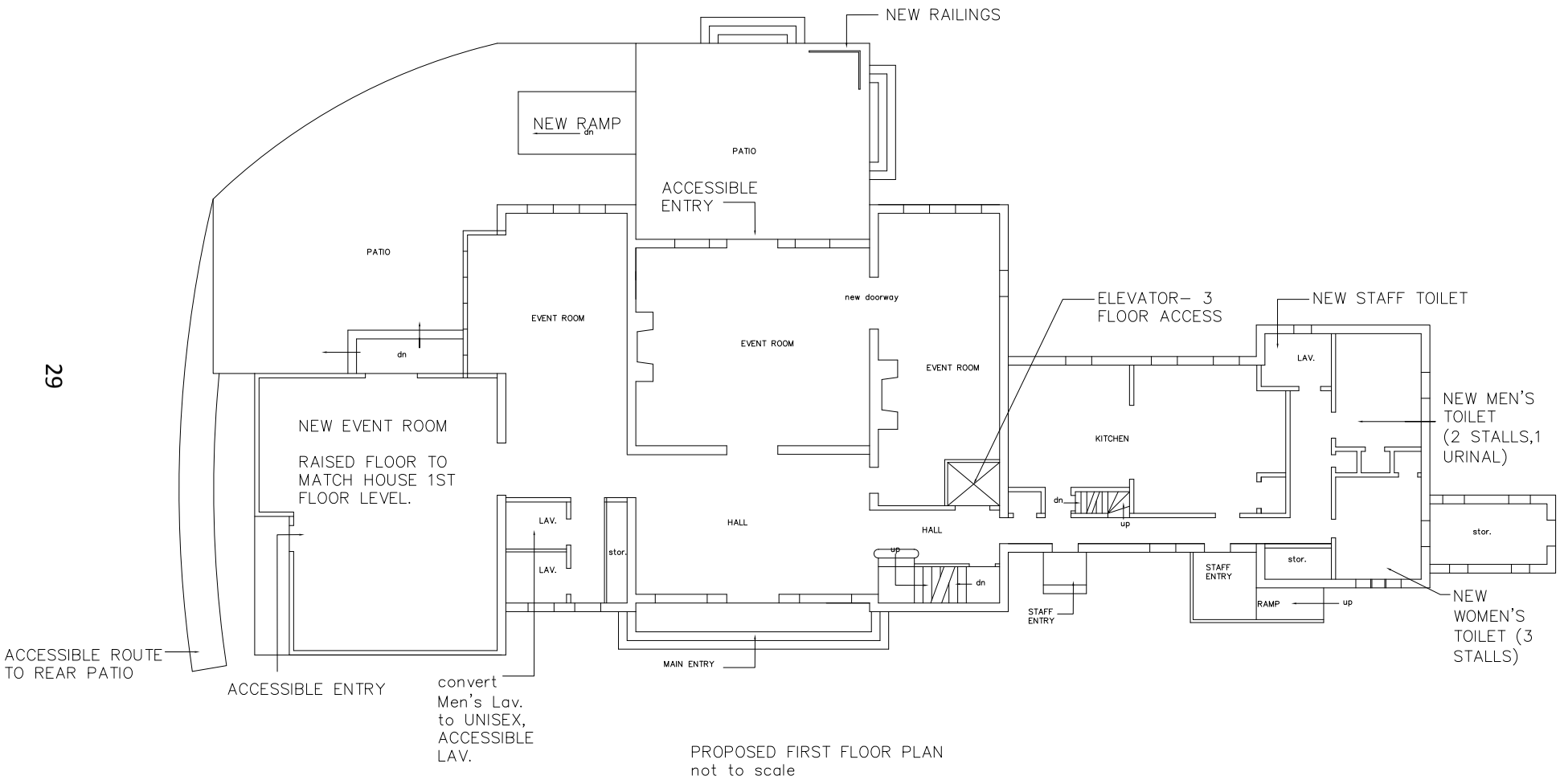



EXISTING FIRST FLOOR PLAN– DEMOLITION
not to scale

## OPTION 2 A
## Demolition -Grassy Lawn w/Terrace to remain



AVISON YOUNG

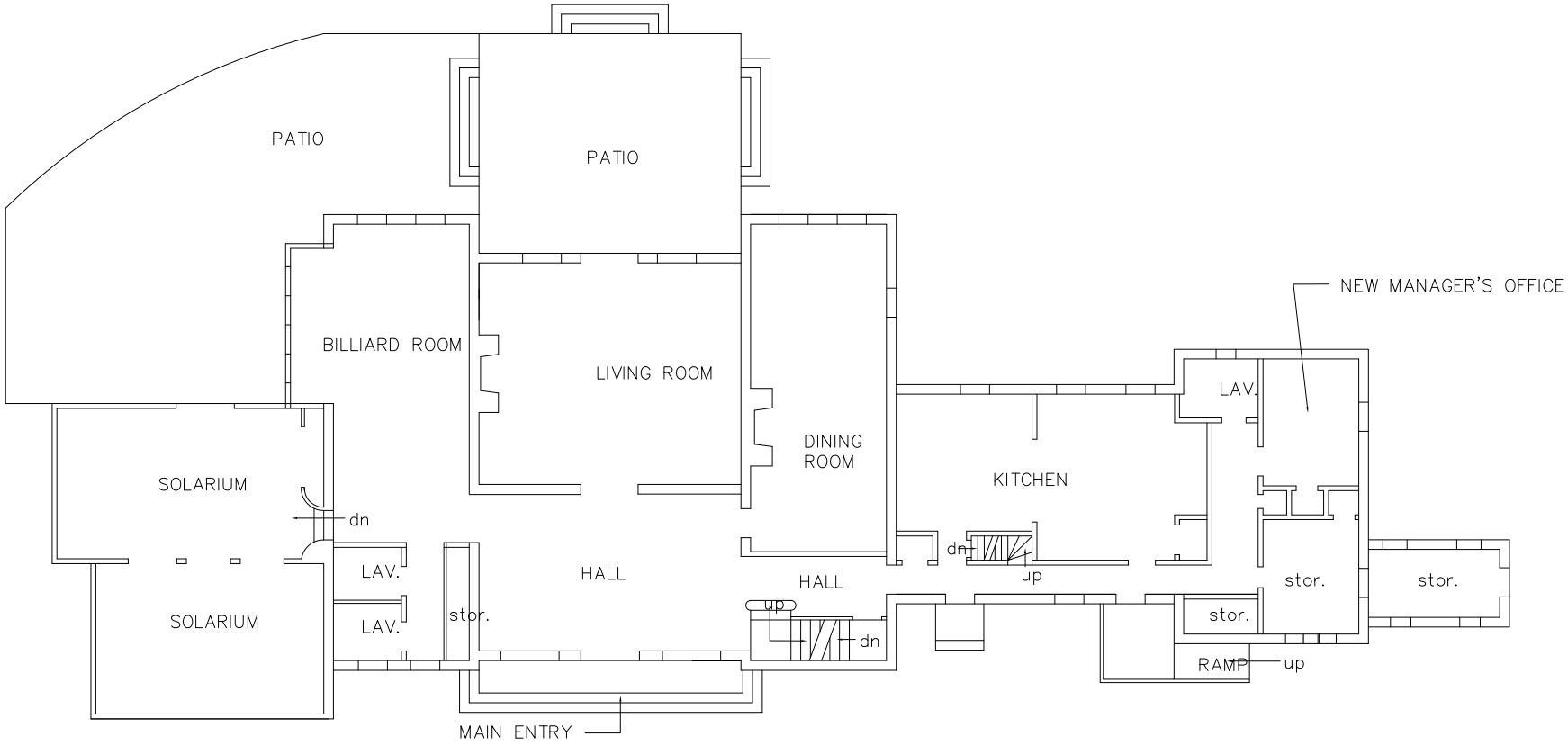



PROPOSED FIRST FLOOR PLAN
not to scale

## OPTION 3

## Selective Restoration 1st Floor Plan

*2nd Floor Plan not available*

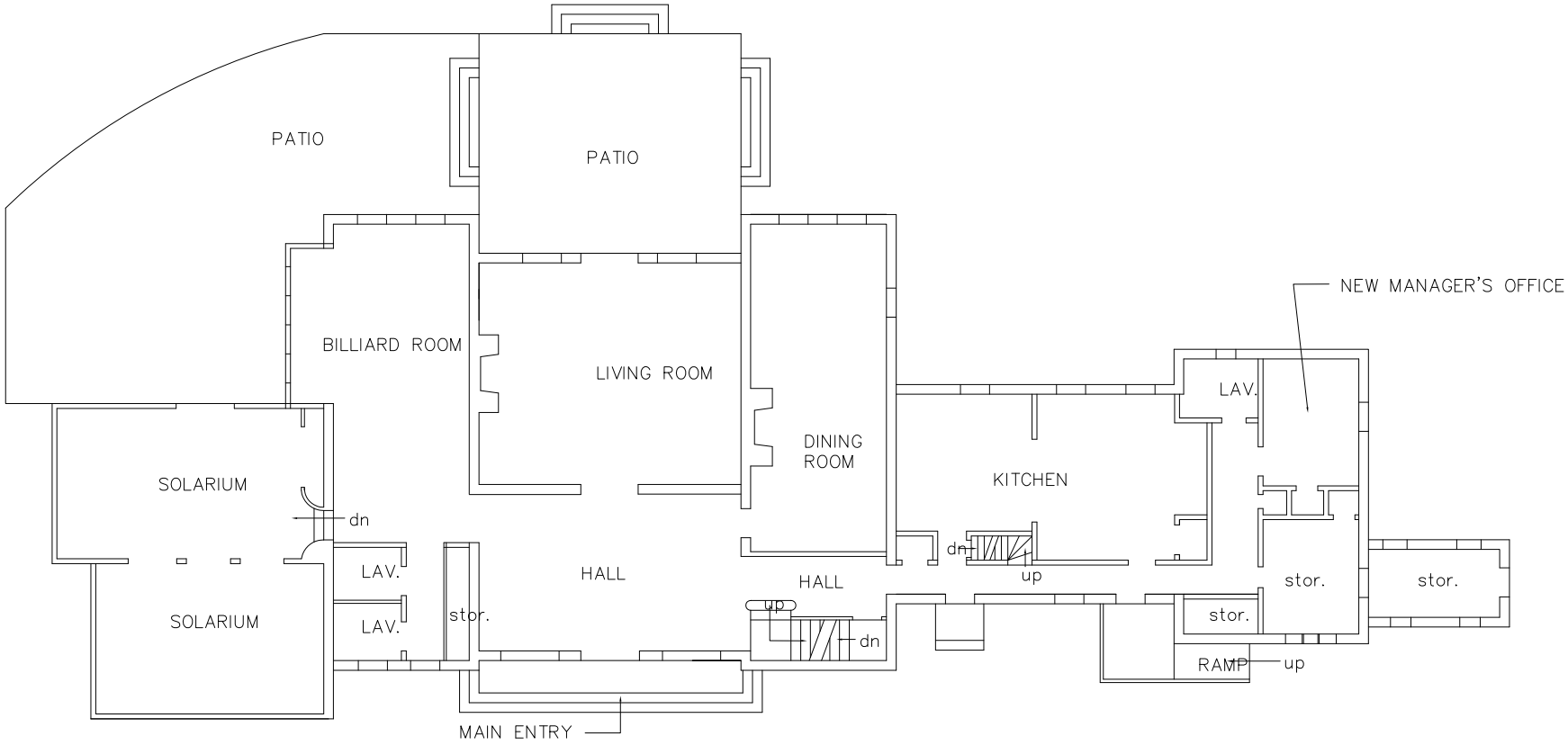



FIRST FLOOR PLAN
not to scale

## OPTION 4
## Status Quo- 1st Floor only



30




FIRST FLOOR PLAN
not to scale

## OPTION 5

## Status Quo- 1st & 2nd Floors

*2nd Floor Plan not available*



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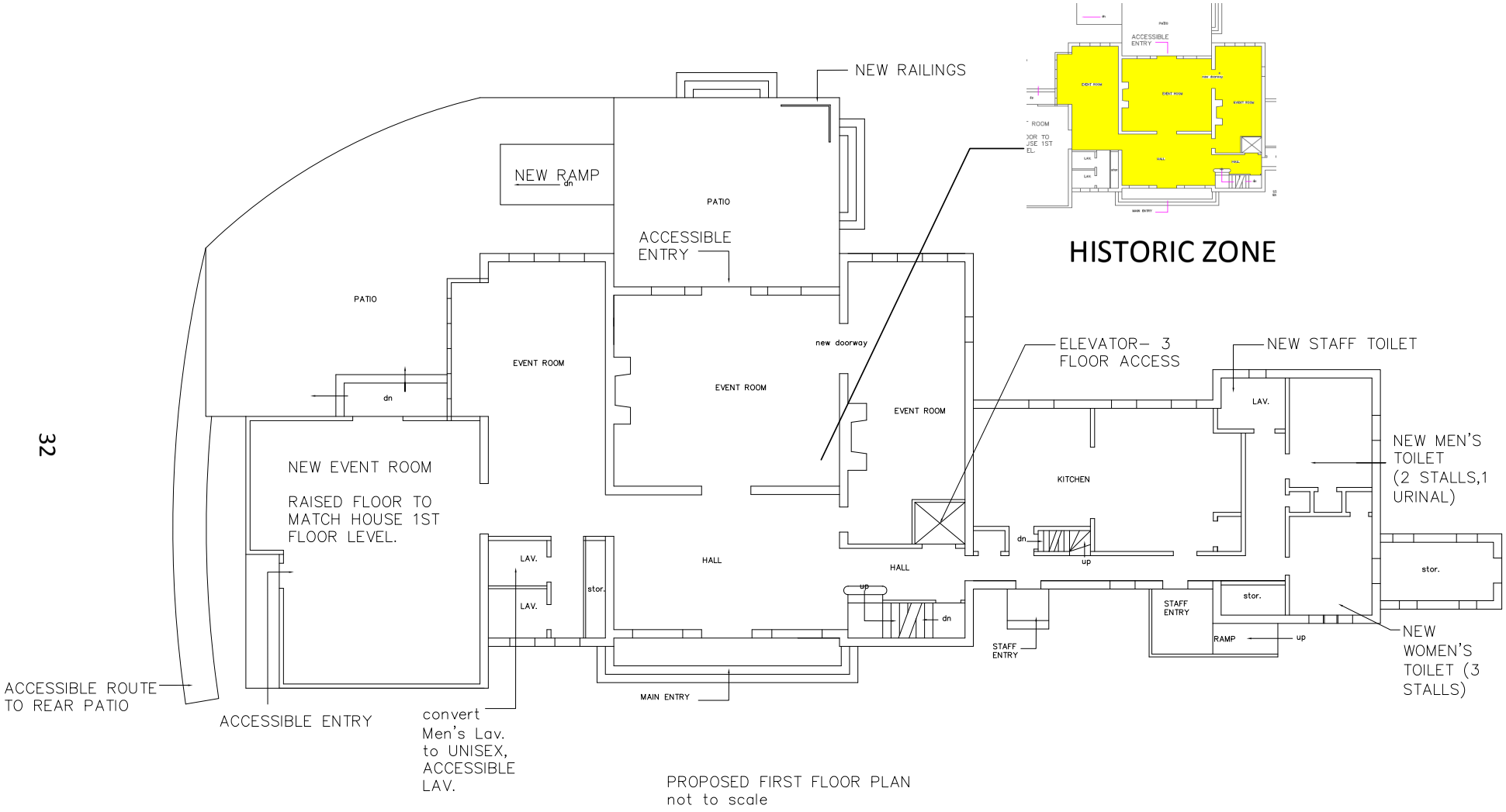


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**OPTION 6**

**Comprehensive Renovation & Restoration Includes 1st - 3rd Floors**

*2nd & 3rd Floor Plans not available*

# APPENDIX

**TOPOGRAPHY**


Aerial Photo

Topography




Storm Water Management

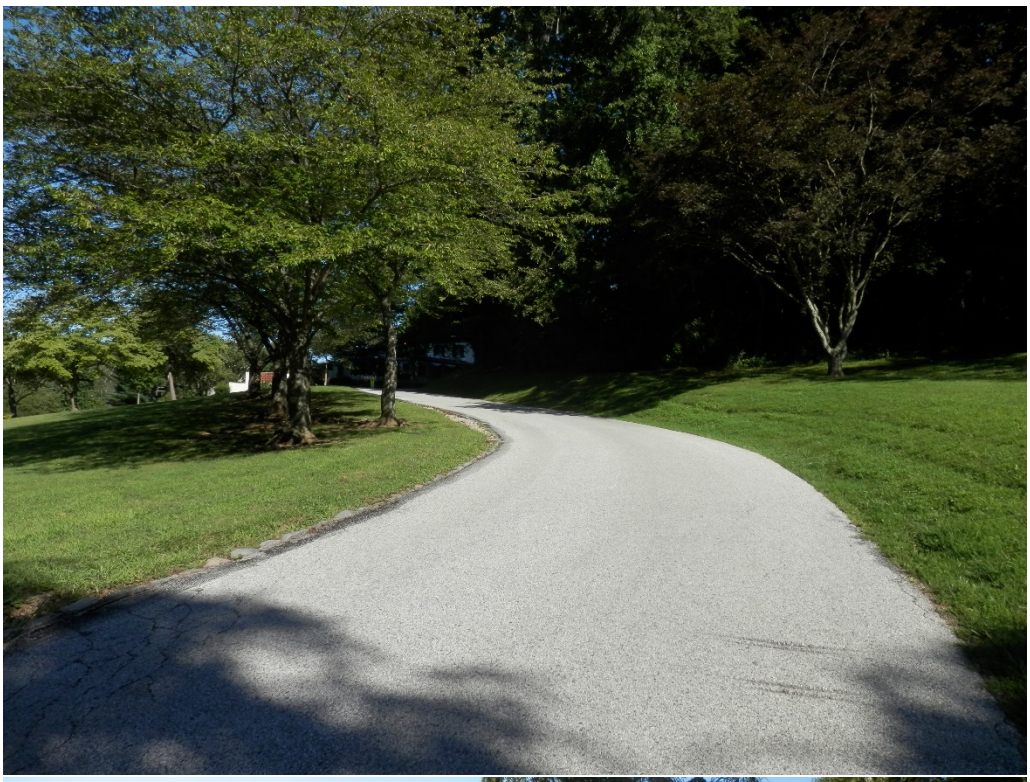


Access and Egress





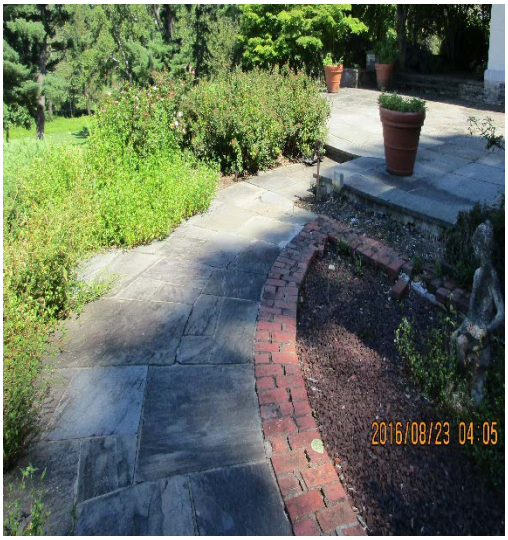

Paving, Curbing, Parking



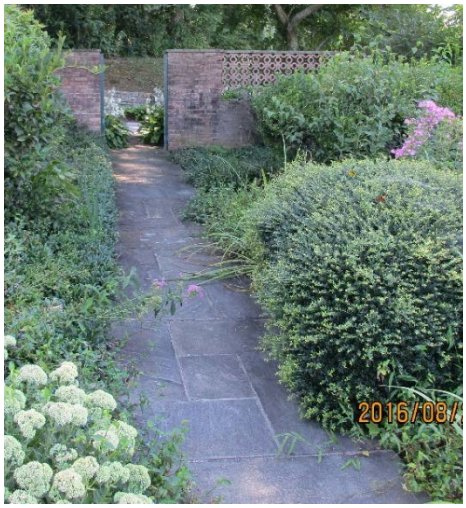
Paving, Curbing, Parking




Patio, Elevated Hardscape

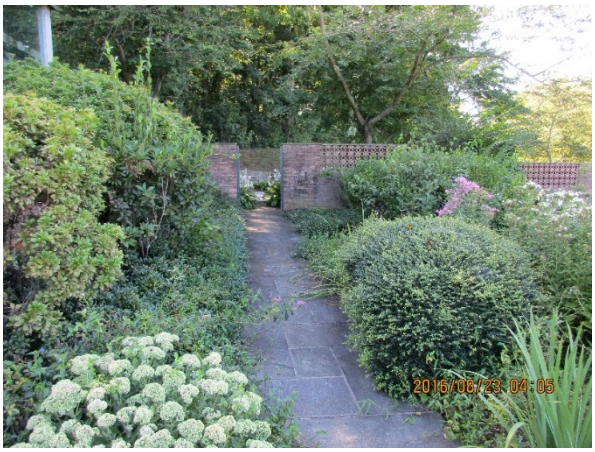






Patio, Elevated Hardscape

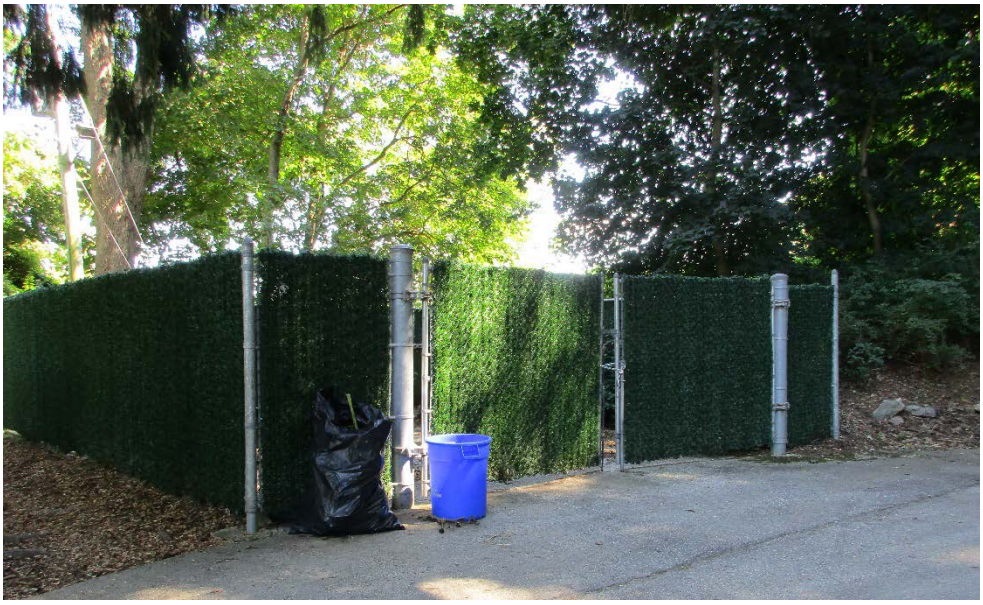








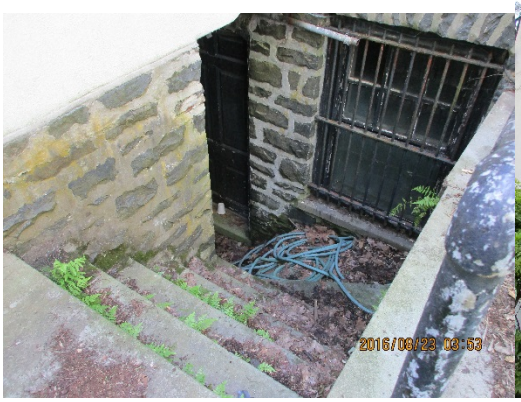
Landscaping & Appurtenances

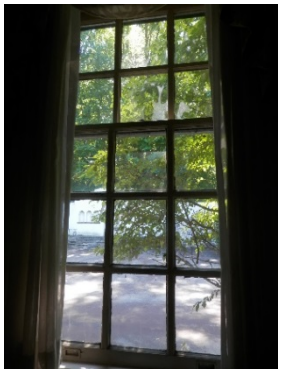


Landscaping & Appurtenances

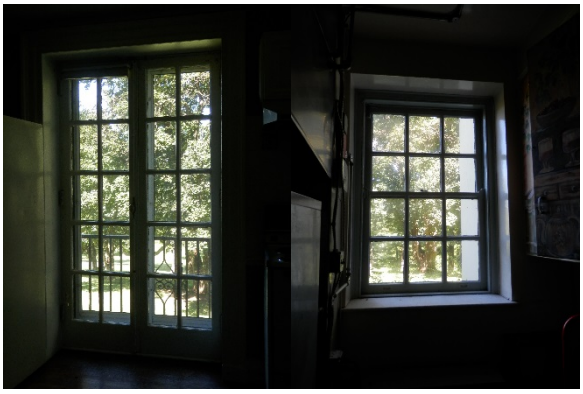
**Building Envelope**



Windows



Windows





Doors







Building Structure & Facade


Building Structure & Facade

Roofing

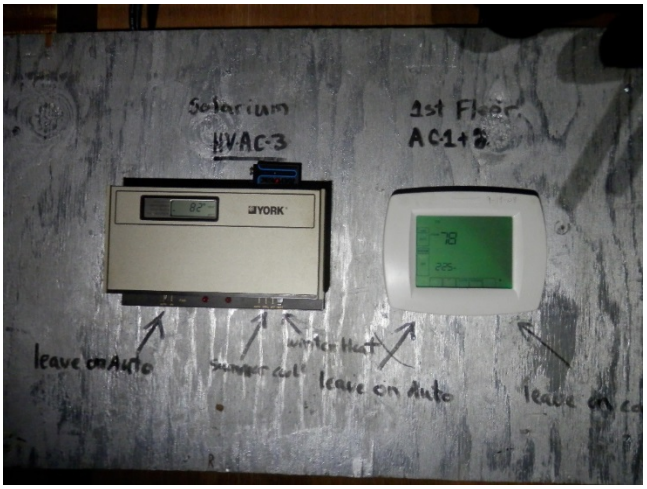
**Building Systems**


Water





Heating, Cooling & Ventilation





Heating, Cooling & Ventilation




Heating, Cooling & Ventilation


PANEL #2


PANEL #3


PANEL #1


PowerCommand
Common Alarm
Genset Supplying Load
Genset Running
Not in Auto
High Battery Voltage
Low Battery Voltage
Charger AC Failure
Fail To Start
Low Engine Temp
Pre-High Engine Temp
High Engine Temp
Pre-Low Oil Pressure
Low Oil Pressure
Overspeed
Low Coolant Level
Low fuel Level
Silence/
Lamp Test


2016/08/23 03:52

Electrical





Electrical


Electrical Distribution




Life Safety & Fire Protection

Historic Building Material Considerations

Historic Building Material Considerations

Historic Building Material Considerations

REPSG
React Environmental
Professional Services Group, Inc.

January 4, 2013

Radnor Township
310 Iven Avenue
St. Davids, PA 19087
Attn: Mr. Stephen Norcini, P.E.
Director of Public Works
[via email: snorcini@radnor.org]

**RE: Report of Asbestos Survey**
**Willows Park, Mansion and Cottage**
**490 Darby-Paoli Road**
**Villanova PA 19085**
**REPSG Project Number 8994.230.01**

Dear Mr. Norcini:

**React Environmental Professional Services Group, Inc., (REPSG)** has performed a survey for the presence of asbestos-containing materials (ACMs) at the Willows Park Mansion and Cottage located at 490 Darby-Paoli Road in Villanova, Pennsylvania (the subject property). This survey was conducted in general accordance with the inspection protocol found in the US Environmental Protection Agency's *Asbestos Hazard Emergency Response Act (AHERA)*. The survey was conducted by Mr. James Romanchek, an EPA-accredited and Pennsylvania-licensed Asbestos Inspector.

## 1.0 SUBJECT PROPERTY INFORMATION

### 1.1 Subject Property: Current Development/Proposed Usage

At the time of this inspection, the subject property was developed with two structures.

The Cottage structure was a two-story caretaker house and former stables constructed in the late nineteenth century. One half of the structure was a residence with a full basement. The other half was a garage and large banquet hall with residential space on the second floor and no basement. There was a shed in the back that was a former chicken coop. The structure had plaster walls, wood floor and roof deck, and a shingled roof. The basement of the structure had undergone recent interior renovations and was fitted with contemporary sheetrock wall systems.

P.O. Box 5377
6901 Kingsessing Avenue, Suite 201
Philadelphia, PA 19142-0377

215 729.3220
215 729.1557 (Fax)
www.repsg.com

The Mansion structure was a 2-3 Story residential structure constructed in the early 1900s with a full basement. The first floor and basement served as caterer's kitchen and banquet halls, while the upper stories had a mixture of offices and bedrooms. The structure had plaster walls, wood floor and roof deck, and a shingled roof.

REPSG understands that both structures at the subject property are scheduled for extensive renovations.

## 2.0 ASBESTOS-CONTAINING MATERIALS (ACMS)

### 2.1 Background and Definitions

Asbestos containing material (ACM) is defined as material that is shown by polarized light microscopy (PLM) techniques to contain greater than 1.0% asbestos. Friable ACMs are those that when dry can be pulverized by hand pressure and is therefore more susceptible to creating airborne asbestos hazards. Both friable and non-friable suspect ACMs were observed by REPSG at the subject property.

Asbestos was used in the manufacture of heat-resistant clothing, automotive brake and clutch linings, and a variety of building materials, including floor tiles, roofing felts, ceiling tiles, asbestos-cement pipe and sheet, and fire-resistant drywall. Asbestos may also be present in pipe and boiler insulation materials and in sprayed-on or trowelled-on surfacing materials on walls, ceilings, beams, crawlspaces, and between walls. Asbestos fiber may be a component in gaskets and packings, in reinforced plastic molding compounds, in coatings and sealants, and in friction products, including brake linings, clutch facings, and industrial linings for equipment and appliances. Buildings constructed prior to 1981 may contain significant amounts of asbestos building materials. Thermal system insulation, sprayed or trowelled-on surfacing materials, and vinyl or asphalt flooring installed before 1981 is particularly likely to contain asbestos.

Any material that contains more than 1% asbestos as one of its components is regulated as an ACM. For purposes of the OSHA Asbestos Standards, "thermal system insulation" (TSI), sprayed-on or trowelled-on or otherwise applied "surfacing materials", or vinyl or asphalt "resilient flooring materials" in buildings constructed prior to 1981 are presumed to be asbestos containing materials, unless proven otherwise by testing.

### 2.2 Regulations Governing ACMs

Federal regulations that govern asbestos are found in the following Code of Federal Regulations (CFR) Publications:

- 20 CFR 1910.134 - Respiratory Protection;
- 29 CFR 1910.145 - Specifications for Accident Prevention Signs and Tags;
- 29 CFR 1910.20 - Access to Employee's Exposure and Medical Records;
- 29 CFR 1910.1001 – Asbestos;
- 29 CFR 1926.1101 - Asbestos, Tremolite, Anthophyllite, and Actinolite;
- 29 CFR 1926.58 – OSHA;
- 40 CFR Part 241 - Guidelines for the Land Disposal of Solid Wastes;
- 40 CFR Part 259 - Criteria for Classification of Solid Waste Disposal Facilities and Practices;
- 40 CFR Part 61, Subpart A - General Provisions; and
- 40 CFR Part 61 -National Emission Standard for Hazardous Air Pollutants (NESHAP).

Asbestos is sampled and analyzed by methods found in National Institute of Occupational Safety and Health (NIOSH) Publications:

- Manual of Analytical Methods, 2d Ed., Vol. 1, Physical and Chemical Analysis Method (P&CAM);
- Method 239 Asbestos Fibers in Air;
- Method 7400 Fibers (NI, 3c Ed., Vl. 1); and
- Method 7402 Transmission Electron Microscopy29 CFR Part 763;

Asbestos is also governed by regulations promulgated by the following Pennsylvania agencies:

- Pennsylvania Department of Labor and Industry; and
- Pennsylvania Department of Environmental Protection (PADEP)

NESHAP regulations require the removal of friable ACMs prior to demolition. Non-friable ACMs are grouped into two categories. Category I non-friable ACMs include only asbestos-containing resilient floor coverings (VATs), asphalt roofing products, and packings and gaskets. All other non-friable ACMs are considered Category II non-friable ACMs.

## 3.0 REPSG ASBESTOS SURVEY ACTIVITIES

### 3.1 REPSG Survey Purpose/Conditions

This survey is intended to be used to provide an initial asbestos assessment prior to upcoming renovations at the property that may disturb asbestos-containing materials. This inspection was non-destructive in nature. All accessible interior and exterior spaces and building components were visually inspected, with the following limitations:

- Limited access was available to assess the space behind some areas of existing plaster walls and ceilings at the subject property, therefore there is the potential for additional concealed materials, including but not limited to asbestos-insulated pipe risers, to exist in these places. Asbestos-containing pipe insulation was observed at the Mansion structure at the subject property, increasing the potential that additional material consists concealed behind the plaster walls.
- The attic crawl space of the Cottage structure was inaccessible at the time of this survey.
- The roofing materials were not sampled for during the course of this survey.

This survey was conducted by James Romanchek, an EPA-accredited and Pennsylvania-licensed asbestos building inspector. Survey activities at the subject property were conducted on December 11 and 12, 2012. Twenty-four (24) bulk samples of suspected ACM were collected from the subject property by REPSG during the course of this survey.

### 3.2 Laboratory Analysis

The samples of suspected ACMs collected from the subject property were submitted to EMSL Analytical Inc., an independent, analytical testing laboratory located in Cinnaminson, New Jersey, for analysis. EMSL is an American Industrial Hygiene Association (AIHA) and National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory. The analytical method utilized for these samples was polarized light microscopy (EPA Method 600/R-93/116). Full documentation of the sampling and analysis, including laboratory analysis reports and chain of custody documentation, are included as attachments to this report.

## 4.0 ACMS PRESENT AT THE SUBJECT PROPERTY

### 4.1 Asbestos-Containing Materials

#### 4.1.1 Wilson Park Cottage Structure

The friable materials observed were confirmed through laboratory analysis to be non asbestos-containing:

The following non-friable materials observed were presumed to be asbestos-containing.

- **Fire Door**; located on the first floor near the converted garage. One door was observed. This material was observed to be in good condition.
- **Roofing Materials**; Located on the roof. These materials were not sampled during the course of this survey and are therefore presumed to be asbestos-containing.

#### 4.1.2 Wilson Park Mansion Structure

The following friable materials observed were presumed to be asbestos-containing:

- **Pipe Insulation Debris**; located in the walk-in portion of the attic above the two-story section of the Mansion. Approximately 20 linear feet (LF) of debris were observed in a corner of the attic. This material was observed to be damaged.
- **Pipe Insulation**; located in the attic above the three-story portion of the Mansion. Approximately 60 LF of this material was observed. Additional vertical chases were observed to descend into the plaster walls of the structure but could not be inspected. This material was observed to be in good condition.

The following non-friable materials observed were presumed to be asbestos-containing.

- **Roofing Materials**; Located on the roof. These materials were not sampled during the course of this survey and are therefore presumed to be asbestos-containing.

### 4.2 Confirmed Non Asbestos-Containing Materials

Other materials submitted for analysis by REPSG were not found to be asbestos-containing by Polarized Light Microscopy (PLM) analysis. These materials included:

- Plaster;
- Tile Mortar;
- Window glazing;
- Sheet flooring; and
- 1'x1' ceiling tiles..

For more information regarding locations and amounts, please see the chain of custody documentation, included as an attachment.

## 5.0 DISCUSSION OF SURVEY RESULTS

REPSG's asbestos survey confirmed the presence of non-friable asbestos-containing materials at the interior of the subject property. These materials included **fire doors, pipe insulation,** and **roofing materials.**

Planned site activities are reported to include comprehensive renovations of the structures at the subject property. All ACMs identified at the subject property should be abated in advance of such activities as will affect them. All abatement work must be performed in accordance with local, State, and Federal regulations including USEPA, PADEP, PADOL, OSHA, and DOT regulations. Workers performing abatement work must be Pennsylvania-certified asbestos workers.

The roofing materials present at the subject property are presumed to contain asbestos; these materials are categorized as NESHAPs Category 1 non-friable asbestos-containing materials. As such, they do not require abatement prior to demolition, provided that applicable NESHAPS requirements regarding the handling and disposal of these materials are fulfilled.

Additionally, as noted above in **Section 3.1**, the potential exists that additional suspect ACMs are present at areas which could not be accessed (behind walls, in equipment, etc.). Should any additional suspect ACMs be found during the course of renovations, work should stop in that area immediately and an abatement company should be contacted for further investigation and/or removal prior to the resuming work in said area.

Full documentation of the sampling and analysis, including laboratory analysis reports and chain of custody documentation are attached. Should you have any questions or need any further information, please do not hesitate to contact our office.

Sincerely,
**React Environmental Professional Services Group, Inc.**

James Romanchek
Project Manager

attachment

**EMSL Analytical, Inc.**
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-5974
http://www.emsl.com cinnasblab@EMSL.com

| | |
|---|---|
| EMSL Order: | 041231933 |
| CustomerID: | REAC59 |
| CustomerPO: | 7647 |
| ProjectID: | |

Attn: **James Romanchek**
**REACT Env. Prof. Services Group, Inc.**
**6901 Kingsessing Ave.**
**Philadelphia, PA 19142**

| | |
|---|---|
| Phone: | (215) 729-3220 |
| Fax: | (215) 729-1557 |
| Received: | 12/12/12 7:40 PM |
| Analysis Date: | 12/13/2012 |
| Collected: | 12/12/2012 |

Project: **Wilson Park/7647**

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

| | | | Non-Asbestos | | | | Asbestos |
|---|---|---|---|---|---|---|---|
| Sample | Description | Appearance | % | Fibrous | % | Non-Fibrous | % Type |
| 001<br>*041231933-0001* | Cottage right 2nd floor bathroom - Mortar | Gray<br>Fibrous<br>Homogeneous | 20% | Cellulose | 80% | Non-fibrous (other) | **None Detected** |
| 002<br>*041231933-0002* | Cottage right 2nd floor bedroom - Plaster | Tan/White<br>Fibrous<br>Heterogeneous | 1% | Synthetic | 99% | Non-fibrous (other) | **None Detected** |
| 003<br>*041231933-0003* | Cottage right 2nd floor bedroom - Mortar | Gray<br>Non-Fibrous<br>Homogeneous | | | 100% | Non-fibrous (other) | **None Detected** |
| 004<br>*041231933-0004* | Cottage right 2nd floor living room - Plaster | Gray<br>Non-Fibrous<br>Homogeneous | | | 100% | Non-fibrous (other) | **None Detected** |
| 005<br>*041231933-0005* | Cottage right front door - Window glazing | White/Various<br>Non-Fibrous<br>Heterogeneous | | | 100% | Non-fibrous (other) | **None Detected** |
| 006<br>*041231933-0006* | Cottage left sunroom door - Plaster | Gray/White<br>Fibrous<br>Heterogeneous | 1% | Synthetic | 99% | Non-fibrous (other) | **None Detected** |
| 007<br>*041231933-0007* | Cottage garage hallway - Plaster | Gray<br>Non-Fibrous<br>Homogeneous | | | 100% | Non-fibrous (other) | **None Detected** |
| 008<br>*041231933-0008* | Cottage kitchen - Sheet flooring | Gray/Tan<br>Fibrous<br>Heterogeneous | 10%<br>10% | Cellulose<br>Synthetic | 80% | Non-fibrous (other) | **None Detected** |

Analyst(s)
*Adam Gart (7)*
*Ted Young (16)*

Stephen Siegel, CIH, Laboratory Manager
or other approved signatory



Initial report from 12/13/2012 13:30:15

**EMSL Analytical, Inc.**
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-5974
http://www.emsl.com cinnasblab@EMSL.com

| | |
|---|---|
| EMSL Order: | 041231933 |
| CustomerID: | REAC59 |
| CustomerPO: | 7647 |
| ProjectID: | |

Attn: **James Romanchek**
**REACT Env. Prof. Services Group, Inc.**
**6901 Kingsessing Ave.**
**Philadelphia, PA 19142**

| | |
|---|---|
| Phone: | (215) 729-3220 |
| Fax: | (215) 729-1557 |
| Received: | 12/12/12 7:40 PM |
| Analysis Date: | 12/13/2012 |
| Collected: | 12/12/2012 |

Project: **Wilson Park/7647**

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

| | | | Non-Asbestos | | Asbestos |
|---|---|---|---|---|---|
| Sample | Description | Appearance | % Fibrous | % Non-Fibrous | % Type |
| 009-Skim Coat<br>*041231933-0009* | Cottage 2nd floor hallway - Plaster | White<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (other) | **None Detected** |
| 009-Base Coat<br>*041231933-0009A* | Cottage 2nd floor hallway - Plaster | Gray<br>Fibrous<br>Homogeneous | <1% Synthetic | 100% Non-fibrous (other) | **None Detected** |
| 010<br>*041231933-0010* | Cottage 2nd floor hallway - Plaster | White<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (other) | **None Detected** |
| 011<br>*041231933-0011* | Cottage eco center - Plaster | Gray/White<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (other) | **None Detected** |
| 012<br>*041231933-0012* | Cottage exterior - Window glazing | Tan<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (other) | **None Detected** |
| 013<br>*041231933-0013* | Cottage exterior - Window glazing | White<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (other) | **None Detected** |
| 015<br>*041231933-0014* | Mansion exterior - Window glazing | Tan/White<br>Non-Fibrous<br>Homogeneous | | 100% Non-fibrous (other) | **None Detected** |
| 016<br>*041231933-0015* | Mansion basement electric room - Plaster | Gray<br>Fibrous<br>Homogeneous | 1% Cellulose | 99% Non-fibrous (other) | **None Detected** |

Analyst(s)
*Adam Gart (7)*
*Ted Young (16)*

Stephen Siegel, CIH, Laboratory Manager
or other approved signatory



Initial report from 12/13/2012 13:30:15

**EMSL Analytical, Inc.**
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-5974
http://www.emsl.com cinnasblab@EMSL.com

| | |
|---|---|
| EMSL Order: | 041231933 |
| CustomerID: | REAC59 |
| CustomerPO: | 7647 |
| ProjectID: | |

Attn: **James Romanchek**
**REACT Env. Prof. Services Group, Inc.**
**6901 Kingsessing Ave.**
**Philadelphia, PA 19142**

| | |
|---|---|
| Phone: | (215) 729-3220 |
| Fax: | (215) 729-1557 |
| Received: | 12/12/12 7:40 PM |
| Analysis Date: | 12/13/2012 |
| Collected: | 12/12/2012 |

Project: **Wilson Park/7647**

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

| | | | Non-Asbestos | | | Asbestos |
|---|---|---|---|---|---|---|
| **Sample** | **Description** | **Appearance** | **% Fibrous** | | **% Non-Fibrous** | **% Type** |
| 017<br>*041231933-0016* | Mansion closet - Plaster | Gray<br>Fibrous<br>Homogeneous | 1% | Synthetic | 99% Non-fibrous (other) | **None Detected** |
| 018<br>*041231933-0017* | Mansion hallway - Plaster | Gray<br>Fibrous<br>Homogeneous | 2% | Synthetic | 98% Non-fibrous (other) | **None Detected** |
| 019<br>*041231933-0018* | Mansion kitchen & hallway - Sheet flooring | White/Various<br>Fibrous<br>Heterogeneous | 10%<br>5% | Cellulose<br>Glass | 85% Non-fibrous (other) | **None Detected** |
| 020<br>*041231933-0019* | Mansion 3rd floor - Plaster | White<br>Non-Fibrous<br>Homogeneous | | | 100% Non-fibrous (other) | **None Detected** |
| 021-Skim Coat<br>*041231933-0020* | Mansion 3rd floor - Plaster | White<br>Non-Fibrous<br>Homogeneous | | | 100% Non-fibrous (other) | **None Detected** |
| 021-Base Coat<br>*041231933-0020A* | Mansion 3rd floor - Plaster | Gray<br>Fibrous<br>Homogeneous | 2% | Synthetic | 98% Non-fibrous (other) | **None Detected** |
| 022<br>*041231933-0021* | Mansion exterior - Window glaze | Cream<br>Non-Fibrous<br>Homogeneous | | | 100% Non-fibrous (other) | **None Detected** |

Analyst(s)
*Adam Gart (7)*
*Ted Young (16)*

Stephen Siegel, CIH, Laboratory Manager
or other approved signatory



Initial report from 12/13/2012 13:30:15

**EMSL Analytical, Inc.**
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-5974
http://www.emsl.com cinnasblab@EMSL.com

| | |
|---|---|
| EMSL Order: | 041232018 |
| CustomerID: | REAC59 |
| CustomerPO: | |
| ProjectID: | |

Attn: **James Romanchek**
**REACT Env. Prof. Services Group, Inc.**
**6901 Kingsessing Ave.**
**Philadelphia, PA 19142**

| | |
|---|---|
| Phone: | (215) 729-3220 |
| Fax: | (215) 729-1557 |
| Received: | 12/13/12 1:20 PM |
| Analysis Date: | 12/14/2012 |
| Collected: | 12/12/2012 |

Project: **Wilson Park/7647**

## Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 and/or EPA 600/M4-82-020 Method(s) using Polarized Light Microscopy

| | | | Non-Asbestos | | | Asbestos |
|---|---|---|---|---|---|---|
| **Sample** | **Description** | **Appearance** | **% Fibrous** | | **% Non-Fibrous** | **% Type** |
| 023<br>*041232018-0001* | First floor - 1x1 ceiling tile | Brown<br>Fibrous<br>Homogeneous | 50% Min. Wool<br>30% Cellulose | | 20% Non-fibrous (other) | **None Detected** |

Analyst(s)
*Andrew Castellano (1)*

Stephen Siegel, CIH, Laboratory Manager
or other approved signatory



Initial report from 12/14/2012 12:38:38



**THIS IS THE LAST PAGE OF THE REPORT.**

041231933

041231933

Please fax and email results to: jromanchek@repsg.com

REPSG
React Environmental
Professional Services Group, Inc.

# Asbestos Bulk Sample
# Chain of Custody

**REPSG Project Number:** Wilson Park
**REPSG Purchase Order Number:** 7647

Fax Results To: James Romanchek
(215) 729-1557

Laboratory: EMSL
Telephone: (856) 858-4800
Chain of Custody Page 1 of 2

Notes: EDD Needed

**Matrix:** ☒ Bulk ☐ Other: _____

**Turnaround:** ☐ 3 Hour ☐ 6 Hour ☒ 24 Hour ☐ Other: _____

**Analytical Method:** ☒ EPA 600 ☐ TEM ☐ NOB ☐ Other: _____

| Sample Number | Material | Location | Notes |
|---|---|---|---|
| 001 | Mortar | Cottage Right 2nd Floor Bathroom | |
| 002 | Plaster | " " Bedroom | |
| 003 | " | " " " | |
| 004 | " | " " Living Room | |
| 005 | Window Glazing | " " Front door | |
| 006 | Plaster | Cottage Left Sun Room Door | |
| 007 | " | " " Garage Hallway | |
| 008 | Sheet Flooring | " " Kitchen | |
| 009 | Plaster | " " 2nd Floor Hallway | |
| 010 | " | " " " | |
| 011 | " | " " Eco Center | |
| 012 | Window Glazing | " " Exterior | |
| 013 | " | " " " | |

RECEIVED
EMSL
CINNAMINSON, NJ
12 DEC 12 PM 8:08

Sampled by: _____ Date: 12/11/12 Time: _____
Relinquished by: _____ Date: 12/12/12 Time: _____
Received by: Tony Tobbs Date: 12-12-12 Time: _____
Relinquished by: Tony Tobbs Date: 12-12-12 Time: _____
Received by: _____ Date: ~~12-12-12~~ 12-12-12 Time: 7:40 pm. COC

(#21)

P.O. Box 5377
6901 Kingsessing Avenue, Suite 201
Philadelphia, PA 19142-0377

215 729.3220
215 729.1557 (Fax)

*Missing sample 14

041231933

041231933

Please fax and email results to: jromanchek@repsg.com

REPSG
React Environmental
Professional Services Group, Inc.

# Asbestos Bulk Sample
# Chain of Custody

**REPSG Project Number:** Wilson Park
**REPSG Purchase Order Number:** 7647

Fax Results To: James Romanchek
(215) 729-1557

Laboratory: EMSL
Telephone: (856) 858-4800
Chain of Custody Page 2 of 2

Notes: EDD Needed

**Matrix:** ☒ Bulk ☐ Other: _____

**Turnaround:** ☐ 3 Hour ☐ 6 Hour ☒ 24 Hour ☐ Other: _____

**Analytical Method:** ☒ EPA 600 ☐ TEM ☐ NOB ☐ Other: _____

| Sample Number | Material | Location | Notes |
|---|---|---|---|
| * 014 | Window Glaze | Cottage Left Exterior | |
| 015 | " | Mansion " | |
| 016 | Plaster | " Basement Electric Room | |
| 017 | " | " " Closet | |
| 018 | " | " " Hallway | |
| 019 | Sheet Flooring | " Kitchen & Hallway | |
| 020 | Plaster | " 3rd Floor | |
| 021 | " | " " | |
| 022 | Window Glaze | " Exterior | |
| | | | |
| | | | |
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| | | | |

RECEIVED
EMSL
ANNA, MN
12 DEC 12 PM 8:09

Sampled by: _____ Date: 12/11/12 Time: _____
Relinquished by: _____ Date: 12/12/12 Time: _____
Received by: Tony Tobias Date: 12-12-12 Time: _____
Relinquished by: Tony Tobias Date: 12-12-12 Time: _____
Received by: _____ Date: _____ Time: _____

P.O. Box 5377
6901 Kingsessing Avenue, Suite 201
Philadelphia, PA 19142-0377

215 729.3220
215 729.1557 (Fax)

041232018

041232018

Please fax and email results to: jromanchek@repsg.com

REPSG
React Environmental
Professional Services Group, Inc.

# Asbestos Bulk Sample
# Chain of Custody

**REPSG Project Number:** Wilson Park
**REPSG Purchase Order Number:** 7647

Fax Results To: James Romanchek
(215) 729-1557

Laboratory: EMSL
Telephone: (856) 858-4800
Chain of Custody Page 1 of 1

Notes: EDD Needed

**Matrix:** ☒ Bulk ☐ Other: _____

**Turnaround:** ☐ 3 Hour ☐ 6 Hour ☒ 24 Hour ☐ Other: _____

**Analytical Method:** ☒ EPA 600 ☐ TEM ☐ NOB ☐ Other: _____

| Sample Number | Material | Location | Notes |
|---|---|---|---|
| 023 | 1x1 Ceiling tile | First Floor | |
| | | | |
| | | | |
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EMSL
CINNAMINSON, NJ
2012 DEC 13 P 1:22

Sampled by: _____ Date: 12/12/12 Time: _____
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Relinquished by: _____ Date: _____ Time: _____
Received by: _____ Date: _____ Time: _____

P.O. Box 5377
6901 Kingsessing Avenue, Suite 201
Philadelphia, PA 19142-0377

215 729.3220
215 729.1557 (Fax)

REPSG
React Environmental
Professional Services Group, Inc.

***TRANSMITTAL***

| | | | |
|---|---|---|---|
| ***To:*** | ***Radnor Township*** | ***Date:*** | ***Wednesday, January 09, 2013*** |
| | ***310 Iven Avenue*** | ***Project No.:*** | ***8995.230.01*** |
| | ***St. Davids, PA 19087*** | ***Re:*** | ***Willows Park*** |
| | ***ATTN: Mr. Stephen Norcini*** | | ***Mansion & Cottage*** |
| | | | ***490 Darby-Paoli Road*** |
| | | | ***Villanova, PA 19085*** |

***Via:***

- [X] ***First Class Mail***
- [ ] ***Certified Mail***
- [ ] ***Express Mail***
- [ ] ***Pick-up***
- [ ] ***Hand Delivery***

| ***Quantity*** | ***Description*** |
|---|---|
| ***2*** | ***Survey for Lead-Based Paint, X-Ray Fluorescence (XRF Method)*** |
| ***1*** | ***Invoice No. 0063088*** |
| | |
| | |

***Comments:***

***Copy To:***

***By:*** ***Donna M. Stanuikynas***
***For:*** ***James Romanchek***

***Thank You.***

***REPSG, Inc.***

P.O. Box 5377
6901 Kingsessing Avenue, Suite 201
Philadelphia, PA 19142-0377

215 729.3220
215 729.1557 (Fax)
www.repsg.com

REPSG
React Environmental
Professional Services Group, Inc.

January 4, 2013

Radnor Township
310 Iven Avenue
St. Davids, PA 19087
Attn: Mr. Stephen Norcini, P.E.
Director of Public Works
[via email: snorcini@radnor.org]

**RE: Survey for Lead-Based Paint, X-Ray Fluorescence (XRF) Method**
**Willows Park, Mansion and Cottage**
**490 Darby-Paoli Road**
**Villanova PA 19085**
**REPSG Project Number 8994.230.01**

Dear Mr. Norcini:

**React Environmental Professional Services Group, Inc. (REPSG)** has completed a survey for the presence of **Lead-Based Paint (LBP)** at the Willows Park Mansion and Cottage located at 490 Darby-Paoli Road in Villanova, Pennsylvania (the subject property). This survey was conducted using **X-Ray Fluorescence (XRF)** methodology. All accessible interior and exterior building components were inspected. This letter report summarizes the sampling activities performed and the results of the XRF analyses.

## 1.0 BACKGROUND INFORMATION

### 1.1 Subject Property: Current Development

At the time of this inspection, the subject property was developed with two structures.

The Cottage structure was a two-story caretaker house and former stables constructed in the late nineteenth century. One half of the structure was a residence with a full basement. The other half was a garage and large banquet hall with residential space on the second floor and no basement. There was a shed in the back that was a former chicken coop. The structure had plaster walls, wood floor and roof deck, and a shingled roof. The basement of the structure had undergone recent interior renovations and was fitted with contemporary sheetrock wall systems.

The Mansion structure was a 2-3 story residential structure constructed in the early 1900s with a full basement. The first floor and basement served as caterer's kitchen and banquet halls, while the upper stories had a mixture of offices and bedrooms. The structure had plaster walls, wood floor and roof deck, and a shingled roof.

P.O. Box 5377
6901 Kingsessing Avenue, Suite 201
Philadelphia, PA 19142-0377

215 729.3220
215 729.1557 (Fax)
www.repsg.com

REPSG understands that both structures at the subject property are scheduled for extensive renovations.

## 1.2 Properties of Lead

Lead is a blue-gray, malleable metal that alloys readily with other metals, is non-conductive, and does not rust. It has been utilized for multiple purposes since around 3,000 B.C. Common uses of lead in the twentieth century have included use as a gasoline additive, in batteries, in plumbing and solder, in ammunition, and as a component of paint.

The health effects of acute lead exposure include blindness, kidney damage or failure, seizures, coma, and death. Chronic lead exposure results in more subtle symptoms, including irritability, appetite suppression, weight loss, sleep disturbance, hearing impairment, hyperactivity, and I.Q. deficits. Lead's toxicity in humans has been noted since at least Roman times. In America, environmental lead exposure has been recognized as a major public health concern since the 1970s.

## 1.3 Lead-Based Paint Hazards

The Centers for Disease Control and Prevention (CDC) has estimated approximately 900,000 children, or about 4.4% of children under the age of 6, may have unacceptable high levels of lead in their blood. Lead exposure in young children is of particular concern, because children absorb lead more readily than adults and their nervous systems are particularly vulnerable to the effects of lead. Common sources of lead exposure to children include contaminated dust and paint chips from deteriorating LPB in older structures and renovation activities that disturb LBP. Children with high levels of lead in their body can suffer from learning disabilities, behavioral and learning problems, and mental retardation. The effects of long-term lead exposure or poisoning in children are well documented: higher school failure rates and reductions in lifetime earnings due to permanent loss of intelligence and increased social pathologies. Fetuses are also at risk, as lead can pass from a pregnant woman's bloodstream to the developing child. There is also some indication that lead exposure contributes to high blood pressure, reproductive and memory problems in adults. Lead has no known use in the body and is difficult to remove from blood and bones in cases where medical intervention is necessary.

## 1.4 Regulations Governing Lead-Based Paint

Over the last two decades the Federal government has taken a number of steps to address the problems of lead exposure. In 1978, the Consumer Product Safety Commission banned the residential use of paint containing more than 0.06% lead by weight on interior and exterior surfaces, toys, and furniture. EPA placed controls on lead in gasoline in 1978 and lowered the maximum levels of lead permitted in public water systems (40 CFR parts 141 and 142). CDC has set and lowered blood lead levels of concern several times, most recently in 1991. The Department of Housing and Urban Development (HUD) began in 1986 to abate lead hazards in public housing that is being renovated or in structures occupied by a child with elevated blood lead levels. In 2010, EPA issued regulations that require that all firms performing renovations be EPA-certified (40 CFR 745.89). These certification requirements apply to any ***target housing where a child with an elevated blood lead level resides***; any ***rental target housing built before 1960***; and any ***owner-occupied target housing built before 1960*** (40 CFR 745.81).

Target housing is defined as any housing built before 1978. Where applicable, these EPA regulations also mandate specific work practices during renovation and clean-up of work areas where lead-based paint is present.

Worker safety regulations administered by the Occupational Safety and Health Administration (OSHA) are referenced in The General Industry Lead Standard (29 CFR 1910.1025) and the Final Rule for Lead in the Construction Standard (29 CFR 1926.62). These regulations are designed to protect workers involved in the construction industry (including renovation, painting, and decorating activities) who may be exposed to lead-based paint hazards.

Baseline air sampling and analysis should be performed during the interior demolition and activities affecting lead-based paint throughout the subject property. This air sampling should be sufficient in scope to establish baseline concentrations of air-born lead. The Final Rule for Lead has set a permissible exposure limit (PEL) for lead exposure of 50 micrograms per cubic meter of air (50 µg/m3), measured as an 8-hour time-weighted average (TWA). As with all OSHA health standards, when the PEL is exceeded, the hierarchy of controls requires employers to institute feasible engineering and work practice controls as the primary means to reduce and maintain employee exposures to levels at or below the PEL. If levels indicated by sampling exceed OSHA standards, then additional dust control measures and/or increased respiratory protection provisions will be recommended. When all feasible engineering and work practice controls have been implemented but have proven inadequate to meet the PEL, employers must nonetheless implement these controls and must supplement them with appropriate respiratory protection. The employer also must ensure that employees wear the respiratory protection provided when it is required.

Solid waste generated during demolition of materials containing lead-based paint can be subject to pre-disposal analysis to satisfy federal and state solid waste regulations.

Federal regulations that govern lead-based paint in the following Code of Federal Regulations (CFR) Publications:

- 24 CFR 35 – HUD Lead Rule
- 29 CFR 1926.62 – OSHA Lead in Construction Standard
- 29 CFR 1910.1025 – OSHA Lead in General Industry Standard
- 40 CFR 745 EPA Lead-Based Paint Poisoning Prevention in Certain Residential Structures

Lead-based paint activities are also governed by the following Pennsylvania regulations:

- Pennsylvania Department of Labor and Industry (PADL&I): Lead Occupation Accreditation and Certification Act, 1997; and
- Pennsylvania Department of Environmental Protection (PADEP) Regulations.

### 1.5 X-Ray Fluorescence (XRF) Methodology

X-Ray Fluorescence (XRF) methodology is commonly used to determine whether lead-based paint is present on specified building components. The XRF testing technology has a demonstrated ability to accurately determine the amount of lead present without disturbing the painted/coated surface, and also offers the advantages of high speed and relatively low cost per sample. The portable XRF instrument determines if lead is present by exciting atoms in suspected components with gamma radiation, which causes lead to emit X-Rays. The XRF instrument then measures the level of radiation that is emitted by the atoms in the paint layer being tested. The XRF machine will display positive or negative readings based on the levels of radiation measured. The full XRF methodology involves taking multiple readings from representative surfaces throughout the area to be surveyed.

## 2.0 XRF SURVEY

The survey was conducted by a trained lead inspector/X-Ray Fluorescence (XRF) technician. A total of three hundred and one (301) surfaces were assessed at the two structures via XRF analysis. The surfaces tested included:

- Walls; seventy-two (72) samples;
- Doors; forty-four (44) samples;
- Door frames; thirty-one (31) samples;
- Window sills; nine (9) samples;
- Window frame; thirty-one (31) samples;
- Stair components; twenty-six (26) samples;
- Stair component walls; eight (8) samples;
- Ceilings; twenty (20) samples
- Baseboard molding; fourteen (14) samples;
- Wood trim; seven (7) samples;
- Floors; fourteen (14) samples;
- Columns; six (6) samples;
- Cabinets; nine (9) samples;
- Gutter system; two (2) samples;
- Fireplace mantle; one (1) sample;
- Railings; three (3) samples; and
- Radiators; four (4) samples.

## 3.0 RESULTS

XRF testing indicates that the following surfaces at the subject property were found to be covered with lead-based paint:

**Mansion**

- **Walls**: all of the ceramic-tile walls, and a majority of the plaster and wood walls tested were determined to be covered by lead-based paint. It should be assumed that all ceramic tile, plaster, and wood walls are covered by lead-based paint.
- **Ceilings:** The majority of the ceilings tested were determined to be covered in lead-based paint
- **Baseboard Molding:** The majority of the wooden baseboards tested were determined to be covered in lead-based paint. It should be assumed that the paint on all baseboards is lead-based.
- **Window Frames**: The majority of window frames tested were determined to be covered with lead-based or lead-containing paint. It should be assumed that the paint on all window frames is lead-based or lead-containing.
- **Stair components:** The majority of stair components tested were determined to be covered in lead-based or lead-containing paint. It should be assumed that the paint on all stair components is lead-based.
- **Doors and door components:** All door and door frames tested were determined to be covered in lead-based or lead-containing paint. It should be assumed that the paint on all door and door components is lead-based.
- **Radiator:** the white radiators in the 2nd floor bedroom was tested and determined to be covered in lead-based paint. All other radiators tested were determined not to be covered in lead-based paint.
- **Fireplace Mantle:** the fireplace mantle on the 2nd floor was determined to be covered in lead-based paint.
- **Trim:** The wood trim was tested and determined to be covered in lead-based paint.
- **Exterior Railing:** The exterior railings in the bedrooms were tested and determined to be covered in lead-based paint.
- **Cabinets:** All of the cabinets tested were determined to be covered in lead-based paint.

**Cottage:**

- **Walls**: The interior and exterior walls of the cottage and the exterior walls of the chicken coop were determined to be covered in lead-based paint. The wood walls of the garage stalls were determined not to be covered in lead-based paint.
- **Doors and door components:** All door and door frames tested were determined to be covered in lead-based or lead-containing paint, with the exception of the ceramic door frames. It should be assumed that the paint on all door and door components is lead-based.
- **Cabinets:** All of the cabinets tested were determined to be covered in lead-based paint, with the exception of the cabinets at the exterior kitchen..

- **Columns:** The exterior porch columns were determined to be covered in lead-based paint.
- **Ceilings:** The majority of the ceilings tested were determined to be covered in lead-based paint. The ceilings in the chicken coop were determined not to be covered in lead-based paint.
- **Baseboard Molding:** The majority of the wooden baseboards tested were determined to be covered in lead-based paint. It should be assumed that the paint on all baseboards is lead-based.
- **Floors:** the floors in the garage and the chicken coop were determined to be covered in lead-containing paint.
- **Stair components and stair walls:** The majority of stair components tested were determined to be covered in lead-based or lead-containing paint. It should be assumed that the paint on all stair components is lead-based.
- **Trim:** the exterior wood trim was tested and determined to be covered in lead-based paint.
- **Window Frames and Sills**: The majority of window frames and all window sills tested were determined to be covered with lead-based or lead-containing paint. It should be assumed that the paint on all window frames and sills is lead-based or lead-containing.

## 4.0 DISCUSSION

This survey documented the presence of lead-based paint on selective building components at the subject property, as listed above. The majority of painted surfaces were observed to be intact and in good condition.

REPSG recommends that the presence of lead-based paint at the areas described above be taken into account during the proposed renovations at the subject property. As discussed in Section 1.4, above, safety regulations governing worker exposure to lead are administered by the Occupational Safety and Health Administration (OSHA). It is not necessary to remove all potential sources of lead paint prior to interior demolition activities. However, caution must be exercised prior to and during demolition. The following general work practices are recommended for demolition work:

- Release of airborne dust particles to the interior and exterior during demolition must be minimized;
- Adjusting work practices to minimize disturbance of lead-based paint films; and
- Containment structures can be used but may pose additional hazards to workers due to increased lead concentrations within the containment.

Any surfaces which require abrasive blasting, scaling, chipping, grinding should include engineering controls, safe work practices and personal protective equipment (PPE) to minimize lead exposure. Engineering controls could include centrifugal blasting, wet blasting or vacuum blasting, heating and scraping, use of needle guns or chemical removal. REPSG recommends that any such work be performed by a professional lead abatement contractor licensed by the State of Pennsylvania.

Proper worker hygiene should include washing faces and hands prior to eating, banning tobacco products in the work area and removal of work clothes prior to eating or leaving the work site. Regulatory requirements regarding personnel monitoring, worker right-to-know provisions, hazard communication and respiratory protection (as required by OSHA) should be fulfilled. Regulatory requirements regarding the handling, transportation and disposal of construction waste and the generation of effluent, sediment and suspended particles related to demolition activities should also be met.

The full analytical report of the XRF testing is included as **Attachment 1**. If you have any further questions or comments do not hesitate to contact our office.

Sincerely yours,
**React Environmental Professional Services Group, Inc.**

James Romanchek
Project Manager

**ATTACHMENT 1: XRF ANALYTICAL REPORT**

# Accredited Environmental Technologies, Inc.

## XRF READINGS

**CLIENT:** REACT ENVIRONMENTAL PROFESSIONAL SERVICES GROUP, INC.
**LOCATION:** WILLOW PARK
490 DARBY-PAOLI ROAD, VILLANOVA, PA 19085
**METHOD:** NITON XLp 300A INSTRUMENT

**AET PROJECT# 12-12-Y017B**

**DATE: 12/11/12**

| TEST ID | BUILDING | FLOOR | ROOM | WALL | COLOR | COMPONENT | SUBSTRATE | CONDITION | L-SHELL MG/CM² | HUD/EPA | OSHA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 170 | Carriage House | Exterior | Kitchen | A-D | Tan | Cabinet | Wood | Intact | 0.0 | Negative | Negative |
| 171 | Carriage House | Exterior | Kitchen | A-D | Tan | Cabinet | Wood | Intact | 0.0 | Negative | Negative |
| 172 | Carriage House | Exterior | Kitchen | A-D | Tan | Cabinet | Wood | Intact | 0.0 | Negative | Negative |
| 440 | Main Building | 3rd | Hallway | A-D | Tan | Cabinet | Wood | Fair | 0.1 | Negative | Positive |
| 438 | Main Building | 3rd | Hallway | A-D | Tan | Cabinet | Wood | Fair | 0.3 | Negative | Positive |
| 439 | Main Building | 3rd | Hallway | A-D | Tan | Cabinet | Wood | Fair | 0.3 | Negative | Positive |
| 279 | Carriage House | 2nd | Garage - Kitchen | A-D | Green | Cabinet | Wood | Fair | 2.9 | Positive | Positive |
| 281 | Carriage House | 2nd | Garage - Kitchen | A-D | Green | Cabinet | Wood | Fair | 5.2 | Positive | Positive |
| 280 | Carriage House | 2nd | Garage - Kitchen | A-D | Green | Cabinet | Wood | Fair | 6.0 | Positive | Positive |
| 338 | Carriage House | 1st | Chicken Coop | Ceiling | White | Ceiling | Drywall | Fair | 0.0 | Negative | Negative |
| 339 | Carriage House | 1st | Chicken Coop | Ceiling | White | Ceiling | Drywall | Fair | 0.0 | Negative | Negative |
| 302 | Carriage House | 2nd | Garage - Bedrooms | Ceiling | Blue | Ceiling | Plaster | Fair | 0.0 | Negative | Negative |
| 429 | Main Building | 3rd | Hallway | Ceiling | White | Ceiling | Plaster | Fair | 0.0 | Negative | Negative |
| 430 | Main Building | 3rd | Hallway | Ceiling | White | Ceiling | Plaster | Fair | 0.0 | Negative | Negative |
| 370 | Main Building | 1st | Kitchen | Ceiling | White | Ceiling | Plaster | Fair | 0.0 | Negative | Negative |
| 301 | Carriage House | 2nd | Garage - Bedrooms | Ceiling | Blue | Ceiling | Plaster | Fair | 0.0 | Negative | Negative |
| 369 | Main Building | 1st | Kitchen | Ceiling | White | Ceiling | Plaster | Fair | 0.0 | Negative | Negative |
| 277 | Carriage House | 2nd | Garage - Kitchen | Ceiling | White | Ceiling | Plaster | Fair | 0.1 | Negative | Positive |
| 434 | Main Building | 3rd | Hallway | Ceiling | White | Ceiling | Plaster | Fair | 0.3 | Negative | Positive |
| 224 | Carriage House | 2nd | Bedrooms | Ceiling | White | Ceiling | Plaster | Fair | 0.3 | Negative | Positive |
| 225 | Carriage House | 2nd | Bedrooms | Ceiling | White | Ceiling | Plaster | Fair | 1.0 | Positive | Positive |
| 276 | Carriage House | 2nd | Garage - Stairwell Hallway | Ceiling | White | Ceiling | Plaster | Fair | 1.1 | Positive | Positive |
| 179 | Carriage House | 1st | Living Area | Ceiling | White | Ceiling | Plaster | Fair | 1.5 | Positive | Positive |
| 387 | Main Building | Basement | N/A | Ceiling | White | Ceiling | Plaster | Intact | 3.1 | Positive | Positive |
| 386 | Main Building | Basement | N/A | Ceiling | White | Ceiling | Plaster | Fair | 3.7 | Positive | Positive |
| 416 | Main Building | 2nd | Bedrooms | Ceiling | Wall Paper | Ceiling | Plaster | Fair | 4.3 | Positive | Positive |
| 417 | Main Building | 2nd | Bedrooms | Ceiling | Wall Paper | Ceiling | Plaster | Fair | 4.8 | Positive | Positive |
| 159 | Carriage House | Exterior | Kitchen | Ceiling | White | Ceiling | Plaster | Fair | 5.1 | Positive | Positive |
| 323 | Carriage House | Exterior | Porch | Ceiling | White | Ceiling | Plaster | Intact | 6.3 | Positive | Positive |
| 198 | Carriage House | Basement | N/A | A-D | Pink | Column | Brick | Fair | 10.1 | Positive | Positive |
| 194 | Carriage House | Basement | N/A | A-D | Pink | Column | Brick | Intact | 0.0 | Negative | Negative |
| 195 | Carriage House | Basement | N/A | A-D | Pink | Column | Brick | Intact | 0.0 | Negative | Negative |
| 321 | Carriage House | Exterior | Porch | A-D | White | Column | Brick | Intact | 0.0 | Negative | Negative |
| 320 | Carriage House | Exterior | Porch | A-D | White | Column | Wood | Fair | 0.0 | Negative | Negative |
| 322 | Carriage House | Exterior | Porch | A-D | White | Column | Wood | Fair | 4.2 | Positive | Positive |
| 448 | Main Building | 2nd | Bedrooms | A-D | White | Column | Wood | Fair | 10.1 | Positive | Positive |
| 418 | Main Building | 2nd | Bedrooms | A-D | White | Door | Metal | Fair | 6.1 | Positive | Positive |
| 157 | Carriage House | Exterior | Exterior | A-D | Green | Door | Wood | Fair | 7.9 | Positive | Positive |
| 164 | Carriage House | Exterior | Kitchen | A-D | White | Door | Wood | Fair | 0.0 | Negative | Negative |
| 394 | Main Building | Basement | N/A | A-D | White | Door | Wood | Intact | 0.0 | Negative | Negative |
| 384 | Main Building | 1st | Kitchen | A-D | Blue | Door | Wood | Fair | 0.0 | Negative | Negative |

# Accredited Environmental Technologies, Inc.

**XRF READINGS**

**CLIENT:** REACT ENVIRONMENTAL PROFESSIONAL SERVICES GROUP, INC.
**LOCATION:** WILLOW PARK
490 DARBY-PAOLI ROAD, VILLANOVA, PA 19085
**METHOD:** NITON XLp 300A INSTRUMENT

**AET PROJECT# 12-12-Y017B**

**DATE: 12/11/12**

| TEST ID | BUILDING | FLOOR | ROOM | WALL | COLOR | COMPONENT | SUBSTRATE | CONDITION | L-SHELL MG/CM² | HUD/EPA | OSHA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 385 | Main Building | 1st | Kitchen | A-D | Blue | Door | Wood | Fair | 0.1 | Negative | Positive |
| 395 | Main Building | Basement | N/A | A-D | White | Door | Wood | Fair | 0.1 | Negative | Positive |
| 156 | Carriage House | Exterior | Exterior | A-D | Green | Door | Wood | Fair | 0.1 | Negative | Positive |
| 282 | Carriage House | 2nd | Garage - Kitchen | A-D | White | Door | Wood | Fair | 0.1 | Negative | Positive |
| 217 | Carriage House | 2nd | Bedrooms | A-D | White | Door | Wood | Fair | 0.1 | Negative | Positive |
| 246 | Carriage House | 1st | Stalls | A-D | Varnish | Door | Wood | Fair | 0.1 | Negative | Positive |
| 182 | Carriage House | 1st | Living Area | A-D | White | Door | Wood | Fair | 0.2 | Negative | Positive |
| 245 | Carriage House | 1st | Stalls | A-D | Varnish | Door | Wood | Intact | 0.2 | Negative | Positive |
| 262 | Carriage House | 1st | Garage | A-D | White | Door | Wood | Fair | 0.2 | Negative | Positive |
| 422 | Main Building | 3rd | Hallway | A-D | White | Door | Wood | Fair | 0.3 | Negative | Positive |
| 377 | Main Building | 1st | Kitchen | A-D | Blue | Door | Wood | Fair | 0.3 | Negative | Positive |
| 423 | Main Building | 3rd | Hallway | A-D | White | Door | Wood | Fair | 0.4 | Negative | Positive |
| 215 | Carriage House | 2nd | Bedrooms | A-D | White | Door | Wood | Fair | 0.4 | Negative | Positive |
| 375 | Main Building | 1st | Kitchen | A-D | Blue | Door | Wood | Fair | 0.5 | Negative | Positive |
| 216 | Carriage House | 2nd | Bedrooms | A-D | White | Door | Wood | Fair | 0.5 | Negative | Positive |
| 428 | Main Building | 3rd | Hallway | A-D | White | Door | Wood | Fair | 0.6 | Negative | Positive |
| 376 | Main Building | 1st | Kitchen | A-D | Blue | Door | Wood | Fair | 1.4 | Positive | Positive |
| 408 | Main Building | 2nd | Bedrooms | A-D | Blue | Door | Wood | Fair | 2.2 | Positive | Positive |
| 294 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Door | Wood | Fair | 2.5 | Positive | Positive |
| 293 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Door | Wood | Fair | 5.8 | Positive | Positive |
| 270 | Carriage House | 2nd | Garage - Stairwell Hallway | A-D | Gray | Door | Wood | Fair | 6.0 | Positive | Positive |
| 427 | Main Building | 3rd | Hallway | A-D | White | Door | Wood | Fair | 7.0 | Positive | Positive |
| 329 | Carriage House | Exterior | Chicken Coop | A-D | White | Door | Wood | Fair | 9.9 | Positive | Positive |
| 330 | Carriage House | Exterior | Chicken Coop | A-D | White | Door | Wood | Fair | 10.1 | Positive | Positive |
| 259 | Carriage House | 1st | Garage | A-D | White | Door | Wood | Fair | 10.1 | Positive | Positive |
| 258 | Carriage House | 1st | Garage | A-D | White | Door FIRE | Metal | Fair | 0.1 | Negative | Positive |
| 260 | Carriage House | 1st | Garage | A-D | White | Door FIRE | Metal | Fair | 0.1 | Negative | Positive |
| 261 | Carriage House | 1st | Garage | A-D | White | Door Frame | Ceramic | Fair | 0.0 | Negative | Negative |
| 447 | Main Building | 2nd | Bedrooms | A-D | White | Door Frame | Ceramic | Fair | 0.0 | Negative | Negative |
| 214 | Carriage House | 2nd | Bedrooms | A-D | White | Door Frame | Metal | Fair | 5.4 | Positive | Positive |
| 175 | Carriage House | 1st | Living Area | A-D | White | Door Frame | Wood | Fair | 0.0 | Negative | Negative |
| 242 | Carriage House | 1st | Stalls | A-D | Varnish | Door Frame | Wood | Intact | 0.1 | Negative | Positive |
| 283 | Carriage House | 2nd | Garage - Kitchen | A-D | White | Door Frame | Wood | Fair | 0.1 | Negative | Positive |
| 241 | Carriage House | 1st | Stalls | A-D | Varnish | Door Frame | Wood | Fair | 0.1 | Negative | Positive |
| 211 | Carriage House | 2nd | Bedrooms | A-D | White | Door Frame | Wood | Fair | 0.1 | Negative | Positive |
| 424 | Main Building | 3rd | Hallway | A-D | White | Door Frame | Wood | Fair | 0.2 | Negative | Positive |
| 166 | Carriage House | Exterior | Kitchen | A-D | White | Door Frame | Wood | Fair | 0.2 | Negative | Positive |
| 213 | Carriage House | 2nd | Bedrooms | A-D | White | Door Frame | Wood | Intact | 0.2 | Negative | Positive |
| 240 | Carriage House | 1st | Stalls | A-D | Varnish | Door Frame | Wood | Fair | 0.2 | Negative | Positive |
| 212 | Carriage House | 2nd | Bedrooms | A-D | White | Door Frame | Wood | Fair | 0.3 | Negative | Positive |
| 158 | Carriage House | Exterior | Exterior | A-D | Green | Door Frame | Wood | Fair | 0.3 | Negative | Positive |
| | | | | | | | | | 2.1 | Positive | Positive |

# Accredited Environmental Technologies, Inc.

## XRF READINGS

**CLIENT:** REACT ENVIRONMENTAL PROFESSIONAL SERVICES GROUP, INC.
**LOCATION:** WILLOW PARK
490 DARBY-PAOLI ROAD, VILLANOVA, PA 19085
**METHOD:** NITON XLp 300A INSTRUMENT

**AET PROJECT# 12-12-Y017B**

**DATE: 12/11/12**

| TEST ID | BUILDING | FLOOR | ROOM | WALL | COLOR | COMPONENT | SUBSTRATE | CONDITION | L-SHELL MG/CM² | HUD/EPA | OSHA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 379 | Main Building | 1st | Kitchen | A-D | Blue | Door Frame | Wood | Fair | 2.8 | Positive | Positive |
| 378 | Main Building | 1st | Kitchen | A-D | Blue | Door Frame | Wood | Fair | 3.1 | Positive | Positive |
| 426 | Main Building | 3rd | Hallway | A-D | White | Door Frame | Wood | Fair | 3.7 | Positive | Positive |
| 407 | Main Building | 2nd | Bedrooms | A-D | Blue | Door Frame | Wood | Fair | 4.5 | Positive | Positive |
| 290 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Door Frame | Wood | Fair | 5.4 | Positive | Positive |
| 292 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Door Frame | Wood | Fair | 5.4 | Positive | Positive |
| 419 | Main Building | 2nd | Bedrooms | A-D | White | Door Frame | Wood | Fair | 6.0 | Positive | Positive |
| 291 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Door Frame | Wood | Fair | 8.0 | Positive | Positive |
| 271 | Carriage House | 2nd | Garage - Stairwell Hallway | A-D | Gray | Door Frame | Wood | Fair | 8.8 | Positive | Positive |
| 331 | Carriage House | Exterior | Chicken Coop | A-D | Green | Door Frame | Wood | Fair | 10.1 | Positive | Positive |
| 165 | Carriage House | Exterior | Kitchen | A-D | White | DoorR | Wood | Intact | 0.0 | Negative | Negative |
| 236 | Carriage House | 1st | Stalls | A-D | Varnish | Egress Door | Wood | Fair | 0.2 | Negative | Positive |
| 235 | Carriage House | 1st | Stalls | A-D | Varnish | Egress Door | Wood | Fair | 0.4 | Negative | Positive |
| 356 | Main Building | Exterior | N/A | A-D | Green | Egress Door | Wood | Fair | 4.9 | Positive | Positive |
| 191 | Carriage House | 1st | Hallway | A-D | Yellow | Egress Door | Wood | Intact | 5.3 | Positive | Positive |
| 357 | Main Building | Exterior | N/A | A-D | Green | Egress Door | Wood | Fair | 6.1 | Positive | Positive |
| 244 | Carriage House | 1st | Stalls | A-D | Green | Egress Door | Wood | Fair | 10.1 | Positive | Positive |
| 273 | Carriage House | 2nd | Garage - Stairwell Hallway | A-D | Gray | Egress Door | Wood | Fair | 10.1 | Positive | Positive |
| 243 | Carriage House | 1st | Stalls | A-D | Varnish | Egress Door Frame | Wood | Fair | 0.0 | Negative | Negative |
| 272 | Carriage House | 2nd | Garage - Stairwell Hallway | A-D | Gray | Egress Door Frame | Wood | Fair | 4.2 | Positive | Positive |
| 359 | Main Building | Exterior | N/A | A-D | Green | Egress Door Frame | Wood | Fair | 4.4 | Positive | Positive |
| 193 | Carriage House | 1st | Hallway | A-D | Yellow | Egress Door Frame | Wood | Intact | 5.0 | Positive | Positive |
| 358 | Main Building | Exterior | N/A | A-D | Green | Egress Door Frame | Wood | Fair | 5.5 | Positive | Positive |
| 192 | Carriage House | 1st | Hallway | A-D | Yellow | Egress Door Frame | Wood | Intact | 10.1 | Positive | Positive |
| 237 | Carriage House | 1st | Stalls | A-D | Varnish | Egress Door ORG | Wood | Fair | 3.2 | Positive | Positive |
| 238 | Carriage House | 1st | Stalls | A-D | Varnish | Egress Door ORG | Wood | Fair | 6.1 | Positive | Positive |
| 239 | Carriage House | 1st | Stalls | A-D | Green | Egress Door ORG | Wood | Fair | 10.1 | Positive | Positive |
| 449 | Main Building | 2nd | Bedrooms | A-D | White | Fire Place Mantle | Metal | Fair | 3.0 | Positive | Positive |
| 173 | Carriage House | 1st | Living Area | Ceiling | Varnish | Floor | Wood | Intact | 0.0 | Negative | Negative |
| 208 | Carriage House | 2nd | Bedrooms | Ceiling | Varnish | Floor | Wood | Fair | 0.0 | Negative | Negative |
| 435 | Main Building | 3rd | Hallway | Ceiling | Varnish | Floor | Wood | Fair | 0.0 | Negative | Negative |
| 174 | Carriage House | 1st | Living Area | Ceiling | Varnish | Floor | Wood | Intact | 0.0 | Negative | Negative |
| 209 | Carriage House | 2nd | Bedrooms | Ceiling | Varnish | Floor | Wood | Fair | 0.0 | Negative | Negative |
| 436 | Main Building | 3rd | Hallway | Ceiling | Varnish | Floor | Wood | Fair | 0.0 | Negative | Negative |
| 437 | Main Building | 3rd | Hallway | Ceiling | Varnish | Floor | Wood | Fair | 0.0 | Negative | Negative |
| 345 | Carriage House | 1st | Chicken Coop | Ceiling | Brown | Floor | Wood | Fair | 0.0 | Negative | Negative |
| 210 | Carriage House | 2nd | Bedrooms | Ceiling | Varnish | Floor | Wood | Fair | 0.0 | Negative | Negative |
| 299 | Carriage House | 2nd | Garage - Bedrooms | Ceiling | Varnish | Floor | Wood | Fair | 0.0 | Negative | Negative |
| 300 | Carriage House | 2nd | Garage - Bedrooms | Ceiling | Varnish | Floor | Wood | Fair | 0.0 | Negative | Negative |
| 343 | Carriage House | 1st | Chicken Coop | Ceiling | Brown | Floor | Wood | Fair | 0.1 | Negative | Positive |
| 344 | Carriage House | 1st | Chicken Coop | Ceiling | Brown | Floor | Wood | Fair | 0.1 | Negative | Positive |

# Accredited Environmental Technologies, Inc.

**XRF READINGS**

**CLIENT:** REACT ENVIRONMENTAL PROFESSIONAL SERVICES GROUP, INC.
**LOCATION:** WILLOW PARK
490 DARBY-PAOLI ROAD, VILLANOVA, PA 19085
**METHOD:** NITON XLp 300A INSTRUMENT

**AET PROJECT# 12-12-Y017B**

**DATE: 12/11/12**

| TEST ID | BUILDING | FLOOR | ROOM | WALL | COLOR | COMPONENT | SUBSTRATE | CONDITION | L-SHELL MG/CM² | HUD/EPA | OSHA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 298 | Carriage House | 2nd | Garage - Bedrooms | Ceiling | Varnish | Floor | Wood | Fair | 0.2 | Negative | Positive |
| 360 | Main Building | Exterior | N/A | A-D | Green | Gutter System | Metal | Fair | 0.0 | Negative | Negative |
| 361 | Main Building | Exterior | N/A | A-D | Green | Gutter System | Metal | Fair | 0.0 | Negative | Negative |
| 441 | Main Building | 2nd | Bedrooms | A-D | White | Heater - Radiator | Metal | Fair | 0.0 | Negative | Negative |
| 373 | Main Building | 1st | Kitchen | A-D | Blue | Heater - Radiator | Metal | Fair | 0.0 | Negative | Negative |
| 374 | Main Building | 1st | Kitchen | A-D | Blue | Heater - Radiator | Metal | Fair | 0.0 | Negative | Negative |
| 442 | Main Building | 2nd | Bedrooms | A-D | White | Heater - Radiator | Metal | Fair | 0.0 | Negative | Negative |
| 167 | Carriage House | Exterior | Kitchen | A-D | White | Molding - Baseboard | Wood | Intact | 1.2 | Positive | Positive |
| 396 | Main Building | Basement | N/A | A-D | White | Molding - Baseboard | Wood | Fair | 0.0 | Negative | Negative |
| 178 | Carriage House | 1st | Living Area | A-D | White | Molding - Baseboard | Wood | Intact | 0.0 | Negative | Negative |
| 218 | Carriage House | 2nd | Bedrooms | A-D | White | Molding - Baseboard | Wood | Fair | 0.3 | Negative | Positive |
| 380 | Main Building | 1st | Kitchen | A-D | Blue | Molding - Baseboard | Wood | Fair | 0.5 | Negative | Positive |
| 219 | Carriage House | 2nd | Bedrooms | A-D | White | Molding - Baseboard | Wood | Fair | 0.5 | Negative | Positive |
| 381 | Main Building | 1st | Kitchen | A-D | Blue | Molding - Baseboard | Wood | Fair | 0.7 | Negative | Positive |
| 383 | Main Building | 1st | Kitchen | A-D | Blue | Molding - Baseboard | Wood | Fair | 0.9 | Negative | Positive |
| 421 | Main Building | 3rd | Hallway | A-D | White | Molding - Baseboard | Wood | Fair | 1.0 | Positive | Positive |
| 296 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Molding - Baseboard | Wood | Fair | 2.1 | Positive | Positive |
| 295 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Molding - Baseboard | Wood | Fair | 3.4 | Positive | Positive |
| 297 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Molding - Baseboard | Wood | Fair | 4.1 | Positive | Positive |
| 382 | Main Building | 1st | Kitchen | A-D | Blue | Molding - Baseboard | Wood | Fair | 5.5 | Positive | Positive |
| 420 | Main Building | 2nd | Bedrooms | A-D | White | Molding - Baseboard | Wood | Fair | 6.1 | Positive | Positive |
| 443 | Main Building | 2nd | Bedrooms | A-D | White | Molding - Baseboard | Wood | Fair | 8.3 | Positive | Positive |
| 445 | Main Building | 2nd | Bedrooms | A-D | White | Railing | Metal | Fair | 0.0 | Negative | Negative |
| 444 | Main Building | 2nd | Bedrooms | A-D | White | Railing | Metal | Fair | 1.4 | Positive | Positive |
| 402 | Main Building | 2nd | Bedrooms | A-D | White | Railing | Metal | Fair | 1.8 | Positive | Positive |
| 403 | Main Building | 2nd | Bedrooms | A-D | Brown | Stair Component | Wood | Fair | 0.0 | Negative | Negative |
| 188 | Carriage House | 1st | Hallway | A-D | Brown | Stair Component | Wood | Fair | 0.0 | Negative | Negative |
| 265 | Carriage House | 2nd | Garage - Stairwell Hallway | A-D | Varnish | Stair Component | Wood | Intact | 0.0 | Negative | Negative |
| 397 | Main Building | Basement | N/A | A-D | Varnish | Stair Component | Wood | Fair | 0.0 | Negative | Negative |
| 187 | Carriage House | 1st | Hallway | A-D | White | Stair Component | Wood | Fair | 0.0 | Negative | Negative |
| 267 | Carriage House | 2nd | Garage - Stairwell Hallway | A-D | Varnish | Stair Component | Wood | Intact | 0.0 | Negative | Negative |
| 266 | Carriage House | 2nd | Garage - Stairwell Hallway | A-D | Varnish | Stair Component | Wood | Fair | 0.1 | Negative | Positive |
| 401 | Main Building | 2nd | Bedrooms | A-D | Brown | Stair Component | Wood | Fair | 0.1 | Negative | Positive |
| 186 | Carriage House | 1st | Hallway | A-D | Brown | Stair Component | Wood | Fair | 0.1 | Negative | Positive |
| 199 | Carriage House | Basement | N/A | A-D | Green | Stair Component | Wood | Intact | 0.1 | Negative | Positive |
| 400 | Main Building | Basement | N/A | A-D | Brown | Stair Component | Wood | Fair | 0.1 | Negative | Positive |
| 185 | Carriage House | 1st | Hallway | A-D | Brown | Stair Component | Wood | Fair | 0.1 | Negative | Positive |
| 183 | Carriage House | 1st | Hallway | A-D | White | Stair Component | Wood | Intact | 0.1 | Negative | Positive |
| 184 | Carriage House | 1st | Hallway | A-D | White | Stair Component | Wood | Intact | 0.1 | Negative | Positive |
| 398 | Main Building | Basement | N/A | A-D | Brown | Stair Component | Wood | Intact | 0.1 | Negative | Positive |
| 399 | Main Building | Basement | N/A | A-D | Brown | Stair Component | Wood | Fair | 0.5 | Negative | Positive |
| | | | | | | | | Fair | 2.1 | Positive | Positive |

# Accredited Environmental Technologies, Inc.

XRF READINGS

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LOCATION: WILLOW PARK
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METHOD: NITON XLp 300A INSTRUMENT

AET PROJECT# 12-12-Y017B

DATE: 12/11/12

| TEST ID | BUILDING | FLOOR | ROOM | WALL | COLOR | COMPONENT | SUBSTRATE | CONDITION | L-SHELL MG/CM² | HUD/EPA | OSHA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 197 | Carriage House | Basement | N/A | A-D | Green | Stair Component | Wood | Fair | 2.2 | Positive | Positive |
| 198 | Carriage House | Basement | N/A | A-D | Green | Stair Component | Wood | Fair | 2.9 | Positive | Positive |
| 190 | Carriage House | 1st | Hallway | A-D | Yellow | Stair Component | Wood | Intact | 3.6 | Positive | Positive |
| 268 | Carriage House | 2nd | Garage - Stairwell Hallway | A-D | Gray | Stair Component | Wood | Fair | 4.9 | Positive | Positive |
| 406 | Main Building | 2nd | Bedrooms | A-D | Blue | Stair Component | Wood | Fair | 5.4 | Positive | Positive |
| 405 | Main Building | 2nd | Bedrooms | A-D | Blue | Stair Component | Wood | Fair | 5.5 | Positive | Positive |
| 404 | Main Building | 2nd | Bedrooms | A-D | Blue | Stair Component | Wood | Fair | 5.8 | Positive | Positive |
| 269 | Carriage House | 2nd | Garage - Stairwell Hallway | A-D | Gray | Stair Component | Wood | Fair | 6.5 | Positive | Positive |
| 189 | Carriage House | 1st | Hallway | A-D | Yellow | Stair Component | Wood | Intact | 7.7 | Positive | Positive |
| 204 | Carriage House | 2nd | Bedrooms | A-D | Brown | Stair Component WALL | Wood | Fair | 0.0 | Negative | Negative |
| 205 | Carriage House | 2nd | Bedrooms | A-D | Brown | Stair Component WALL | Wood | Fair | 0.0 | Negative | Negative |
| 206 | Carriage House | 2nd | Bedrooms | A-D | White | Stair Component WALL | Wood | Fair | 0.3 | Negative | Positive |
| 207 | Carriage House | 2nd | Bedrooms | A-D | White | Stair Component WALL | Wood | Fair | 0.3 | Negative | Positive |
| 200 | Carriage House | Basement | N/A | A-D | Green | Stair Component WALL | Wood | Fair | 0.7 | Negative | Positive |
| 201 | Carriage House | Basement | N/A | A-D | Green | Stair Component WALL | Wood | Fair | 1.0 | Positive | Positive |
| 202 | Carriage House | Basement | N/A | A-D | Green | Stair Component WALL | Wood | Fair | 1.7 | Positive | Positive |
| 203 | Carriage House | Basement | N/A | A-D | Green | Stair Component WALL | Wood | Fair | 7.7 | Positive | Positive |
| 336 | Carriage House | Exterior | Chicken Coop | A-D | White | Trim | Wood | Fair | 3.4 | Positive | Positive |
| 317 | Carriage House | Exterior | Exterior | A-D | White | Trim | Wood | Fair | 4.2 | Positive | Positive |
| 362 | Main Building | Exterior | N/A | A-D | Green | Trim | Wood | Fair | 6.2 | Positive | Positive |
| 337 | Carriage House | Exterior | Chicken Coop | A-D | White | Trim | Wood | Fair | 7.8 | Positive | Positive |
| 316 | Carriage House | Exterior | Exterior | A-D | White | Trim | Wood | Fair | 8.0 | Positive | Positive |
| 319 | Carriage House | Exterior | Exterior | A-D | White | Trim | Wood | Fair | 8.2 | Positive | Positive |
| 318 | Carriage House | Exterior | Exterior | A-D | White | Trim | Wood | Fair | 10.1 | Positive | Positive |
| 228 | Carriage House | 1st | Stalls | A-D | White | Wall | Brick | Fair | 0.0 | Negative | Negative |
| 230 | Carriage House | 1st | Stalls | A-D | White | Wall | Brick | Fair | 0.0 | Negative | Negative |
| 229 | Carriage House | 1st | Stalls | A-D | White | Wall | Brick | Fair | 0.0 | Negative | Negative |
| 366 | Main Building | 1st | Kitchen | A-D | White | Wall | Ceramic | Fair | 3.1 | Positive | Positive |
| 367 | Main Building | 1st | Kitchen | A-D | White | Wall | Ceramic | Fair | 7.9 | Positive | Positive |
| 368 | Main Building | 1st | Kitchen | A-D | White | Wall | Ceramic | Fair | 8.4 | Positive | Positive |
| 256 | Carriage House | 1st | Garage | A-D | White | Wall | Drywall | Fair | 0.0 | Negative | Negative |
| 257 | Carriage House | 1st | Garage | A-D | White | Wall | Drywall | Fair | 0.0 | Negative | Negative |
| 341 | Carriage House | 1st | Chicken Coop | A-D | White | Wall | Drywall | Fair | 0.0 | Negative | Negative |
| 342 | Carriage House | 1st | Chicken Coop | A-D | White | Wall | Drywall | Fair | 0.0 | Negative | Negative |
| 340 | Carriage House | 1st | Chicken Coop | A-D | White | Wall | Drywall | Fair | 0.0 | Negative | Negative |
| 151 | Carriage House | Exterior | Exterior | A-D | White | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 163 | Carriage House | Exterior | Kitchen | A-D | White | Wall | Plaster | Intact | 0.0 | Negative | Negative |
| 303 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 310 | Carriage House | Exterior | Exterior | A-D | White | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 411 | Main Building | 2nd | Bedrooms | A-D | Blue | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 412 | Main Building | 2nd | Bedrooms | A-D | Blue | Wall | Plaster | Fair | 0.0 | Negative | Negative |

# Accredited Environmental Technologies, Inc.

XRF READINGS

CLIENT: REACT ENVIRONMENTAL PROFESSIONAL SERVICES GROUP, INC.
LOCATION: WILLOW PARK
490 DARBY-PAOLI ROAD, VILLANOVA, PA 19085
METHOD: NITON XLp 300A INSTRUMENT

AET PROJECT# 12-12-Y017B

DATE: 12/11/12

| TEST ID | BUILDING | FLOOR | ROOM | WALL | COLOR | COMPONENT | SUBSTRATE | CONDITION | L-SHELL MG/CM² | HUD/EPA | OSHA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 450 | Main Building | 2nd | Bedrooms | A-D | White | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 150 | Carriage House | Exterior | Exterior | A-D | White | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 231 | Carriage House | 1st | Stalls | A-D | White | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 311 | Carriage House | Exterior | Exterior | A-D | White | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 324 | Carriage House | Exterior | Porch | A-D | White | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 363 | Main Building | 1st | Kitchen | A-D | White | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 364 | Main Building | 1st | Kitchen | A-D | White | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 431 | Main Building | 3rd | Hallway | A-D | White | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 232 | Carriage House | 1st | Stalls | A-D | White | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 350 | Main Building | Exterior | N/A | A-D | Tan | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 351 | Main Building | Exterior | N/A | A-D | Tan | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 365 | Main Building | 1st | Kitchen | A-D | White | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 155 | Carriage House | Exterior | Exterior | A-D | Green | Wall | Plaster | Fair | 0.0 | Negative | Negative |
| 413 | Main Building | 2nd | Bedrooms | A-D | Wall Paper | Wall | Plaster | Fair | 0.1 | Negative | Positive |
| 278 | Carriage House | 2nd | Garage - Kitchen | A-D | White | Wall | Plaster | Fair | 0.1 | Negative | Positive |
| 275 | Carriage House | 2nd | Garage - Stairwell Hallway | A-D | Gray | Wall | Plaster | Fair | 0.1 | Negative | Positive |
| 306 | Carriage House | 2nd | Garage - Bedrooms | A-D | Green | Wall | Plaster | Fair | 0.3 | Negative | Positive |
| 433 | Main Building | 3rd | Hallway | A-D | White | Wall | Plaster | Fair | 0.4 | Negative | Positive |
| 274 | Carriage House | 2nd | Garage - Stairwell Hallway | A-D | Gray | Wall | Plaster | Fair | 0.4 | Negative | Positive |
| 432 | Main Building | 3rd | Hallway | A-D | White | Wall | Plaster | Fair | 0.5 | Negative | Positive |
| 161 | Carriage House | Exterior | Kitchen | A-D | White | Wall | Plaster | Fair | 0.5 | Negative | Positive |
| 304 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Wall | Plaster | Intact | 0.6 | Negative | Positive |
| 305 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Wall | Plaster | Fair | 0.8 | Negative | Positive |
| 162 | Carriage House | Exterior | Kitchen | A-D | White | Wall | Plaster | Fair | 0.9 | Negative | Positive |
| 308 | Carriage House | 2nd | Garage - Bedrooms | A-D | Green | Wall | Plaster | Intact | 1.0 | Positive | Positive |
| 226 | Carriage House | 2nd | Bedrooms | A-D | White | Wall | Plaster | Fair | 1.2 | Positive | Positive |
| 227 | Carriage House | 2nd | Bedrooms | A-D | White | Wall | Plaster | Fair | 1.4 | Positive | Positive |
| 307 | Carriage House | 2nd | Garage - Bedrooms | A-D | Green | Wall | Plaster | Fair | 1.4 | Positive | Positive |
| 255 | Carriage House | 1st | Garage | A-D | Blue | Wall | Plaster | Fair | 1.5 | Positive | Positive |
| 181 | Carriage House | 1st | Living Area | A-D | White | Wall | Plaster | Fair | 1.6 | Positive | Positive |
| 253 | Carriage House | 1st | Garage | A-D | White | Wall | Plaster | Intact | 2.0 | Positive | Positive |
| 180 | Carriage House | 1st | Living Area | A-D | White | Wall | Plaster | Fair | 2.1 | Positive | Positive |
| 309 | Carriage House | Exterior | Exterior | A-D | White | Wall | Plaster | Intact | 2.2 | Positive | Positive |
| 389 | Main Building | Basement | N/A | A-D | White | Wall | Plaster | Fair | 2.3 | Positive | Positive |
| 254 | Carriage House | 1st | Garage | A-D | Blue | Wall | Plaster | Fair | 2.3 | Positive | Positive |
| 252 | Carriage House | 1st | Garage | A-D | White | Wall | Plaster | Fair | 2.4 | Positive | Positive |
| 390 | Main Building | Basement | N/A | A-D | White | Wall | Plaster | Fair | 3.6 | Positive | Positive |
| 388 | Main Building | Basement | N/A | A-D | White | Wall | Plaster | Fair | 4.0 | Positive | Positive |
| 251 | Carriage House | 1st | Garage | A-D | White | Wall | Plaster | Fair | 4.1 | Positive | Positive |
| 160 | Carriage House | Exterior | Kitchen | A-D | White | Wall | Plaster | Fair | 5.7 | Positive | Positive |
| 414 | Main Building | 2nd | Bedrooms | A-D | Wall Paper | Wall | Plaster | Fair | 10.1 | Positive | Positive |

# Accredited Environmental Technologies, Inc.

## XRF READINGS

**CLIENT:** REACT ENVIRONMENTAL PROFESSIONAL SERVICES GROUP, INC.
**LOCATION:** WILLOW PARK
490 DARBY-PAOLI ROAD, VILLANOVA, PA 19085
**METHOD:** NITON XLp 300A INSTRUMENT

**AET PROJECT# 12-12-Y017B**

**DATE: 12/11/12**

| TEST ID | BUILDING | FLOOR | ROOM | WALL | COLOR | COMPONENT | SUBSTRATE | CONDITION | L-SHELL MG/CM² | HUD/EPA | OSHA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 415 | Main Building | 2nd | Bedrooms | A-D | Wall Paper | Wall | Plaster | Fair | 10.1 | Positive | Positive |
| 249 | Carriage House | 1st | Stalls | A-D | White | Wall | Wood | Fair | 0.0 | Negative | Negative |
| 250 | Carriage House | 1st | Stalls | A-D | White | Wall | Wood | Fair | 0.0 | Negative | Negative |
| 248 | Carriage House | 1st | Stalls | A-D | Varnish | Wall | Wood | Fair | 0.0 | Negative | Negative |
| 247 | Carriage House | 1st | Stalls | A-D | Varnish | Wall | Wood | Fair | 0.0 | Negative | Negative |
| 451 | Main Building | 2nd | Bedrooms | A-D | White | Wall | Wood | Fair | 0.2 | Negative | Positive |
| 453 | Main Building | 2nd | Bedrooms | A-D | White | Wall | Wood | Fair | 0.2 | Negative | Positive |
| 452 | Main Building | 2nd | Bedrooms | A-D | White | Wall | Wood | Fair | 0.2 | Negative | Positive |
| 315 | Carriage House | Exterior | Exterior | A-D | White | Wall | Wood | Fair | 8.8 | Positive | Positive |
| 335 | Carriage House | Exterior | Chicken Coop | A-D | White | Wall | Wood | Fair | 9.8 | Positive | Positive |
| 314 | Carriage House | Exterior | Exterior | A-D | White | Wall | Wood | Fair | 10.1 | Positive | Positive |
| 332 | Carriage House | Exterior | Chicken Coop | A-D | White | Wall | Wood | Fair | 10.1 | Positive | Positive |
| 333 | Carriage House | Exterior | Chicken Coop | A-D | White | Wall | Wood | Fair | 10.1 | Positive | Positive |
| 334 | Carriage House | Exterior | Chicken Coop | A-D | White | Wall | Wood | Fair | 10.1 | Positive | Positive |
| 446 | Main Building | 2nd | Bedrooms | A-D | White | Window Frame | Metal | Fair | 10.1 | Positive | Positive |
| 154 | Carriage House | Exterior | Exterior | A-D | Green | Window Frame | Wood | Fair | 0.3 | Negative | Positive |
| 153 | Carriage House | Exterior | Exterior | A-D | White | Window Frame | Wood | Fair | 0.6 | Negative | Positive |
| 152 | Carriage House | Exterior | Exterior | A-D | White | Window Frame | Wood | Fair | 0.9 | Negative | Positive |
| 223 | Carriage House | 2nd | Bedrooms | A-D | White | Window Frame | Wood | Fair | 0.0 | Negative | Negative |
| 222 | Carriage House | 2nd | Bedrooms | A-D | White | Window Frame | Wood | Fair | 0.0 | Negative | Negative |
| 284 | Carriage House | 2nd | Garage - Kitchen | A-D | White | Window Frame | Wood | Fair | 0.0 | Negative | Negative |
| 409 | Main Building | 2nd | Bedrooms | A-D | Blue | Window Frame | Wood | Fair | 0.1 | Negative | Positive |
| 233 | Carriage House | 1st | Stalls | A-D | Varnish | Window Frame | Wood | Fair | 0.2 | Negative | Positive |
| 264 | Carriage House | 1st | Garage | A-D | White | Window Frame | Wood | Fair | 0.2 | Negative | Positive |
| 234 | Carriage House | 1st | Stalls | A-D | Varnish | Window Frame | Wood | Fair | 0.2 | Negative | Positive |
| 176 | Carriage House | 1st | Living Area | A-D | White | Window Frame | Wood | Intact | 0.2 | Negative | Positive |
| 392 | Main Building | Basement | N/A | A-D | White | Window Frame | Wood | Fair | 0.4 | Negative | Positive |
| 393 | Main Building | Basement | N/A | A-D | White | Window Frame | Wood | Fair | 0.4 | Negative | Positive |
| 168 | Carriage House | Exterior | Kitchen | A-D | White | Window Frame | Wood | Intact | 0.5 | Negative | Positive |
| 263 | Carriage House | 1st | Garage | A-D | White | Window Frame | Wood | Fair | 0.7 | Negative | Positive |
| 391 | Main Building | Basement | N/A | A-D | White | Window Frame | Wood | Fair | 0.7 | Negative | Positive |
| 372 | Main Building | 1st | Kitchen | A-D | Blue | Window Frame | Wood | Fair | 2.3 | Positive | Positive |
| 352 | Main Building | Exterior | N/A | A-D | Green | Window Frame | Wood | Fair | 2.6 | Positive | Positive |
| 371 | Main Building | 1st | Kitchen | A-D | Blue | Window Frame | Wood | Fair | 3.7 | Positive | Positive |
| 325 | Carriage House | Exterior | Porch | A-D | White | Window Frame | Wood | Fair | 4.0 | Positive | Positive |
| 425 | Main Building | 3rd | Hallway | A-D | White | Window Frame | Wood | Fair | 4.7 | Positive | Positive |
| 326 | Carriage House | Exterior | Porch | A-D | Green | Window Frame | Wood | Fair | 5.2 | Positive | Positive |
| 410 | Main Building | 2nd | Bedrooms | A-D | Blue | Window Frame | Wood | Fair | 6.0 | Positive | Positive |
| 353 | Main Building | Exterior | N/A | A-D | Varnish | Window Frame | Wood | Fair | 6.2 | Positive | Positive |
| 313 | Carriage House | Exterior | Exterior | A-D | Green | Window Frame | Wood | Fair | 8.8 | Positive | Positive |
| 312 | Carriage House | Exterior | Exterior | A-D | Green | Window Frame | Wood | Fair | 10.1 | Positive | Positive |

# Accredited Environmental Technologies, Inc.

## XRF READINGS

**CLIENT:** REACT ENVIRONMENTAL PROFESSIONAL SERVICES GROUP, INC.
**LOCATION:** WILLOW PARK
490 DARBY-PAOLI ROAD, VILLANOVA, PA 19085
**METHOD:** NITON XLp 300A INSTRUMENT

**AET PROJECT# 12-12-Y017B**

**DATE: 12/11/12**

| TEST ID | BUILDING | FLOOR | ROOM | WALL | COLOR | COMPONENT | SUBSTRATE | CONDITION | L-SHELL MG/CM² | HUD/EPA | OSHA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 327 | Carriage House | Exterior | Chicken Coop | A-D | Green | Window Frame | Wood | Fair | 10.1 | Positive | Positive |
| 328 | Carriage House | Exterior | Chicken Coop | A-D | White | Window Frame | Wood | Fair | 10.1 | Positive | Positive |
| 355 | Main Building | Exterior | N/A | A-D | Varnish | Window Frame | Wood | Fair | 0.4 | Negative | Positive |
| 354 | Main Building | Exterior | N/A | A-D | Varnish | Window Frame | Wood | Fair | 0.6 | Negative | Positive |
| 285 | Carriage House | 2nd | Garage - Kitchen | A-D | White | Window Sill | Wood | Fair | 0.2 | Negative | Positive |
| 221 | Carriage House | 2nd | Bedrooms | A-D | White | Window Sill | Wood | Fair | 0.2 | Negative | Positive |
| 169 | Carriage House | Exterior | Kitchen | A-D | White | Window Sill | Wood | Intact | 0.5 | Negative | Positive |
| 177 | Carriage House | 1st | Living Area | A-D | White | Window Sill | Wood | Intact | 0.5 | Negative | Positive |
| 220 | Carriage House | 2nd | Bedrooms | A-D | White | Window Sill | Wood | Fair | 0.6 | Negative | Positive |
| 287 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Window Sill | Wood | Fair | 2.7 | Positive | Positive |
| 286 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Window Sill | Wood | Fair | 3.5 | Positive | Positive |
| 289 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Window Sill | Wood | Fair | 4.3 | Positive | Positive |
| 288 | Carriage House | 2nd | Garage - Bedrooms | A-D | White | Window Sill | Wood | Fair | 6.9 | Positive | Positive |
| G | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | 1.0 | OK | OK |
| H | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | 1.1 | OK | OK |
| I | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | 1.0 | OK | OK |
| J | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | 1.3 | OK | OK |
| K | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | 1.1 | OK | OK |
| L | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | 1.1 | OK | OK |
| M | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | 1.0 | OK | OK |
| N | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | 1.1 | OK | OK |
| O | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | 0.9 | OK | OK |
| P | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | Calibration | 1.2 | OK | OK |