Northborough, MA

White Cliffs Mansion

Assessment and Reuse Study

Submitted To:

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Northborough, MA

White Cliffs Mansion

Condition Assessment and Preservation Plan

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EXECUTIVE SUMMARY

Executive Summary

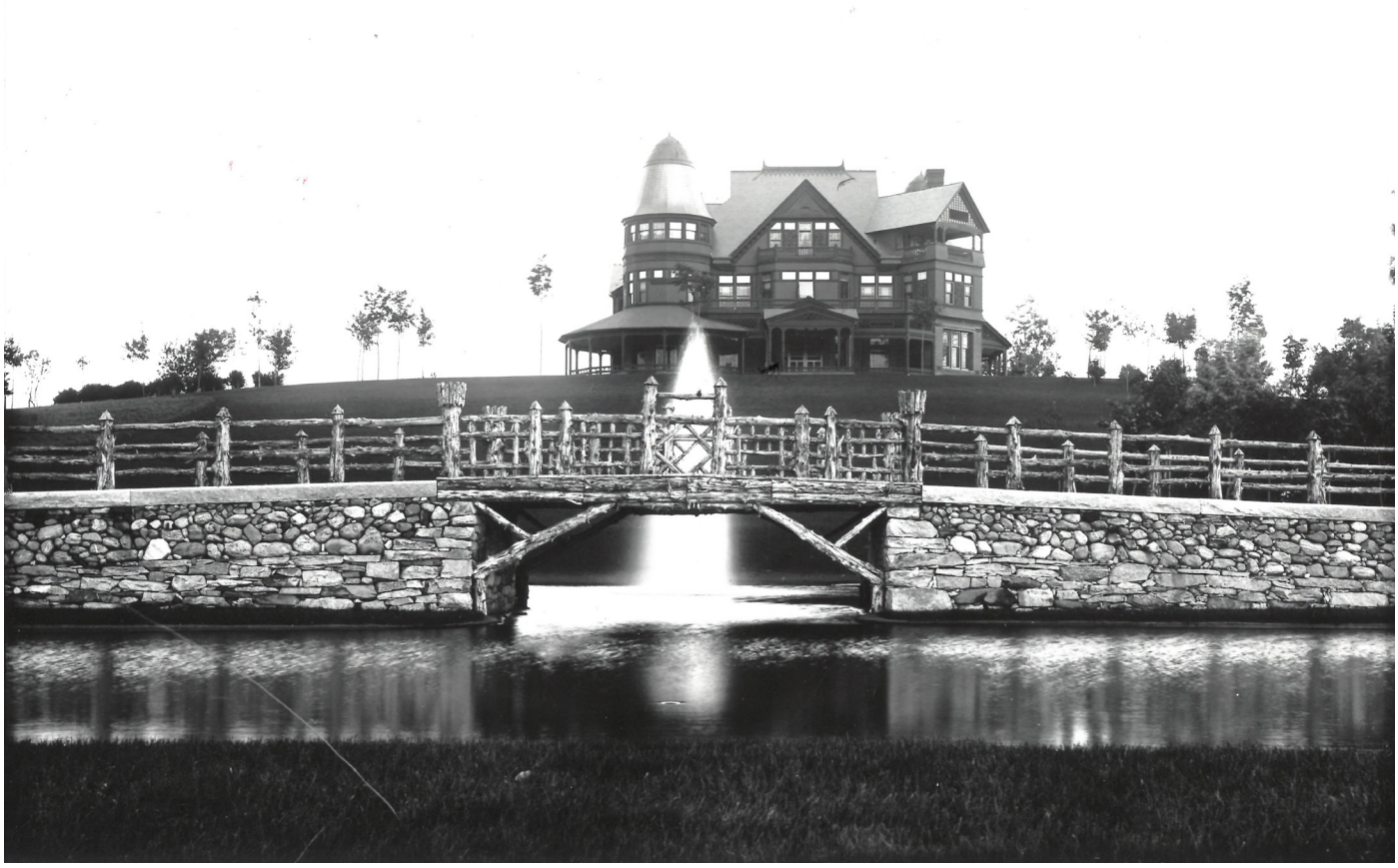


Figure 1.12: West elevation, c. 1897.
Source: Northborough Historical Society.

The historic White Cliffs Mansion began life as a summer retreat for the Wesson family, of Smith & Wesson fame, in the mid-1880s. After experiencing multiple uses in the early 20th century, White Cliffs became an event facility in 1953, serving the Northborough community and surrounding area until its closure in late 2014. The building sat vacant in the years following, and was purchased by the Town of Northborough in 2017.

White Cliffs is a remarkable example of Queen Anne / Shingle Style architecture, and despite several additions and renovation campaigns, retains much of its original historic fabric. Deferred maintenance and vacancy have recently posed challenges to the longevity of the structure and ultimate reuse potential.

In early 2019, the Town of Northborough hired DBVW Architects to complete an Assessment and Feasibility Study of White Cliffs. The project team, which includes Peregrine Group (market consulting), Wozny/Barbar & Associates (MEP/FP engineering), Yoder + Tidwell (structural engineering), and VHB (civil engineering), together created a collection of resources organized as follows:

- **Phase I: Securing the Facility** A plan focused on immediate repair of the vital components of the building envelope to prevent future damage
- **Phase II: Condition Assessment and Preservation Plan** A detailed account of White Cliffs' history, physical characteristics, conditions, and recommendations for preservation
- **Phase III: Feasibility and Reuse** An analysis concentrated on identification and evaluation of potential reuse options

Under Phase I, DBVW Architects identified and developed construction documents for the highest priority work that would prevent White Cliffs from deteriorating further in the short term. This work included replacing roofs (sloped roofs and flat turret roofs), enlarging a deficient cricket between the east chimney and the skylight over the main staircase, and repairing the skylight to make it water tight. While the flat-roofed additions were also experiencing significant water infiltration, spending the limited amount of funding that was available on additions that will ultimately be removed was not recommended.

In early 2020, based on construction documents issued by DBVW, the sloped asphalt roofs on the historic portions of White Cliffs were replaced with new fiberglass shingles and the flat roofs on the turrets were replaced with new rubber membranes. The cricket at the east chimney was enlarged and the skylight over the main stair was repaired. Minor repairs were also conducted at some of the lower flat roofs to reduce infiltration as much as possible.

Additional high-priority work, including rebuilding and repointing chimneys, and creating a separation between the main house and the additions was not completed, due to a lack of available funds. Recommendations for crating the stained glass windows and other artifacts that are in storage in a safe and secure manner were also developed, however, this work was also postponed due to limited funding.

A complete list of DBVW's Phase I recommendations can be found in *Section III*. Throughout 2020, Town has addressed several of these recommendations.

DBVW's Phase II findings are included in this report. Portions of the exterior of White Cliffs are intact and display a significant amount of historic fabric. All of the original features, including decorative wood shingle siding, decorative trim, multiple window configurations, ornamental chimneys and wrap-around porches should be restored or replaced in-kind where they are too deteriorated to save. Unfortunately, a large section of the west elevation was removed when the additions were added and some of the porches were subsumed by the additions.

In general, our assessment determined that two of the four additions are in very poor condition and should be removed as soon as possible, since they are contributing to the deterioration of White Cliffs. The addition that is attached to the east elevation, which housed the commercial kitchen, is also in poor condition, but could be salvaged if re-activating the commercial kitchen was needed. This addition does not detract from the historic portions of the house to the extent that the other additions do. When the additions are removed, the original facades and porches should be reconstructed based on historic documentation.

The work that is done inside White Cliffs will be largely dependent on the building's ultimate use. Any use should be designed to preserve the spectacular and largely intact decorative features and finishes that adorn the interior of White Cliffs. The interior is in relatively good condition, given that is was used as event space and has been unoccupied for several years. It will, however, continue to deteriorate if more funds cannot be made available to preserve the building in its entirety. All of the systems – mechanical, electrical and plumbing – will require replacement. Fire protection will also be required to accommodate any commercial use.

Under Phase III, DBVW worked with the Peregrine Group to evaluate potential reuse options for White Cliffs. Many different re-use scenarios were discussed with Northborough's White Cliffs' Committee and the options were narrowed down to the following three: event space, municipal offices for the Town, and residential use. Each of these options was then tested with financial models. Each of the reuse scenarios will require financial subsidy, as none of the proposed reuse options can generate enough income to pay for the preservation of White Cliffs and, as with some of the reuse opportunities, some new construction on the site. Each option is described in greater detail in the section titled "Feasibility and Reuse."

The Appendix includes existing conditions drawings of the building and site. These documents, and the data used to create this information, has been provided to the Town of Northborough for their future use.

In general, White Cliffs is a highly significant historic property that maintains a large amount of historic fabric, especially with respect to decorative finishes and features. Preservation of the building is desirable for many reasons, however, substantial financial subsidy will be required regardless of the use to which the building is converted.

SECTION I :

OVERVIEW OF PROPERTY HISTORY

Background

Figure 1.1: Daniel B. and Cynthia M. Wesson.
Source: Town of Northborough.

The White Cliffs Mansion, completed in 1886 for Daniel Baird Wesson, is one of the most architecturally significant buildings in the town of Northborough, Massachusetts. The approximately 14,000 square foot building was originally designed by architect Benjamin Hammett Seabury as a summer home for the Wesson family, near the site of the childhood home of Wesson's wife, Cynthia Maria (Hawes) Wesson. Despite many owners, uses, and renovations over the lifetime of White Cliffs, much of the original historic fabric remains and provides Northborough with a rare example of Queen Anne / Shingle Style architecture.

Daniel B. Wesson, along with his business partner Horace Smith, became magnates in arms manufacturing. Wesson was born in Worcester, Massachusetts in 1825. He apprenticed as a gunsmith under his brother Edwin at his shop in Northborough. During his time working in Northborough Daniel met his wife, Cynthia, a Northborough native *(Figure 1.1)*. The pair married in 1847, and by 1859 were parents to four children. During the 1850's Wesson formed his partnership with Smith in the "Smith & Wesson Company" where they made their fortunes through the invention of innovative fire arms and as a result of the fortuitous timing of the American Civil War.

Wesson and his family settled in Springfield, Massachusetts, where Smith & Wesson was established and headquartered. Wesson was a prolific patron of architecture in central and western Massachusetts. Wesson was involved with, or funded, the construction of at least a dozen buildings in this area including private residences for his family, a homeopathic hospital, and multiple churches. Wesson employed some of the most notable architects of his time period, such as Calvert Vaux and Bruce Price *(Figure 1.2)*. When designing his summer home in Northborough, Wesson hired Springfield architect Benjamin Hammett Seabury. Although Seabury is lesser known than other architects commissioned by Wesson, he had a prolific career in the Springfield area and throughout southern New England. Seabury's portfolio included a YWCA, fire stations, private residences, schools, churches, commercial buildings, and a façade for the Patton Building in Springfield which was added to the National Register of Historic Places in 1983 *(Figure 1.4)*. Seabury was born in 1856 and graduated from MIT, known then as Boston Tech, in 1879. He worked in Springfield as part of the partnership of Richmond & Seabury, as a sole proprietor, and eventually with his son Harry. Seabury died in Springfield in 1945. Unfortunately almost no information or drawings related to the construction of White Cliffs are available. The only historic information DBVW was able to locate consisted of a short article and sketch published in the Springfield Republican newspaper on June 23, 1893. The text of the article has been transcribed below, see *Figure 1.3* for the original.

Figure 1.2: Wessons' primary residence at 50 Maple Street Springfield, MA designed by architect Bruce Price.
Source: Lost New England.

The Cliffs

Springfield Republican June 23, 1893

THE COSTLY NORTHBORO RESIDENCE

Built by D. B. Wesson – Some Features of "The Cliffs."

Outside of the Lenox district, there is probably no costlier or handsomer summer residence in inland Massachusetts than D. B. Wesson's mansion at Northboro. It was built five years ago, at a cost of over $100,000, and has been christened "The Cliffs," as it occupies an eminence. The structure was planned by Architect Seabury, and occupies a space 60 by 80 feet. It is 2 ½ stories high, the first story walls being of brick and stone. The towers are of the same material, but the rest of the house has shingled sides. The general style is of an English country residence. The main entrance is through the porte-cochere, which forms the center treatment, flanked by ornamental towers. A marble piazza 13 feet wide surrounds the front and two sides. On passing through the vestibule one enters a beautiful hall, the interior feature of the building. It extends up to the roof and is lighted by a skylight, while a balcony gives access to the chambers. The hall is finished in polished and carved oak, the stairs in the rear passing over the fireplace. There is also an elevator in the rear. On the right is the library, finished in black walnut, and from it opens a bay window 11 feet in diameter. Behind the library is the parlor, finished in satin wood, while the dining room is across the hall and opens out into another bay window formed by the tower. Over the main entrance is a large octagonal bay window, and the rest of the floor is given up to six chambers.

Figure 1.3: Springfield Republican news article describing "The Cliffs", dated June 23, 1893. *Source: Springfield Republican Historical Archive.*

Context

Figure 1.4: Facade of the Patton Building in Springfield, MA. by architect B. H. Seabury.

Source: Wikipedia.

Figure 1.5: Map of Northborough with vignettes of prominent buildings, 1855. Future location of White Cliffs noted in white.

Source: Harvard Library Map Collection.

Northborough, Massachusetts was founded in 1766 as the Northern District of Westborough, and became a town in 1775. The site of Northborough was originally part of Marlborough until 1717. Located in Central Massachusetts within Worcester County, Northborough is situated approximately 10 miles east of Worcester and about 40 miles west of Boston. The town of Northborough is a unique choice for a summer home. The Wessons likely chose the location for sentimental reasons. Northborough mostly consisted of undeveloped rural land at the time White Cliffs was completed, however there were a number of successful businesses in the manufacturing industry. Northborough was linked to surrounding towns to the east by the Agricultural Branch Railroad with service beginning in 1855. Several prominent business owners in Northborough built stately homes in town, although few match the scale or level of ornament exhibited at White Cliffs. The Ezra Chapin Mansion, on Hudson Street, was a contemporary of White Cliffs built just 4 years later in 1890 *(Figure 1.6)*. The Chapin Mansion exhibits many of the characteristic features of White Cliffs, including decorative shingle siding, a round corner turret, multiple porches, a complicated steep-sloped roof with many dormers and gables, and a rusticated stone foundation and first floor. (See *SECTION II* for a full physical description of White Cliffs.) The Chapin Mansion may have been the most comparable rival to White Cliffs ever built in Northborough. Unfortunately it was destroyed by fire in 1915.

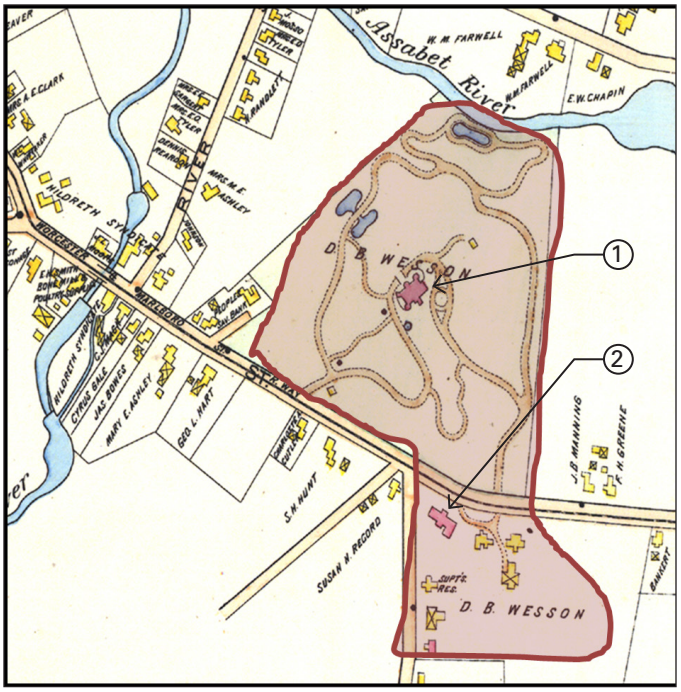


Figure 1.7: Map with The Cliffs properties indicated, c. 1898. Note 1: location of The Cliffs, Note 2: location of greenhouse.

Source: Town of Northborough.

Figure 1.6: Ezra Chapin Mansion in Northborough, MA.

Source: Northborough Historical Society.

Building Chronology

Much of the history of White Cliffs comes from the Registry of Deeds of Worcester County and by examination of historic photos. See *Appendix E* for the full records of sale of White Cliffs dating back to when the land was initially purchased by Daniel Wesson from Tristram Pinkham in 1882. There were multiple parcels of land associated with the White Cliffs property. DBVW's research focused on the parcel that contained the White Cliffs mansion.

White Cliffs, then known as "The Cliffs", was completed in 1886 when both Daniel and Cynthia were in their early 60s. The Cliffs was a luxurious summer residence for the Wesson family. According to the 1893 Springfield Republican article *(Figure 1.3)*, the first floor contained a grand entry hall, library, parlor, and dining room; the second floor housed six bedrooms. The article also notes an elevator in the back of the house. What wasn't included in the newspaper article was the kitchen and bathroom on the first floor; servants' stair; full basement including wine cellar, servants' bathroom, and laundry room, among other spaces; bathroom(s) on the second floor; and a full third floor which is assumed to have contain servants' quarters. Unfortunately, no architectural drawings of The Cliffs are known to exist. Therefore, the 1893 news article, historical photos and maps, and the building itself are the only resources for understanding the original configuration of The Cliffs.

In addition to The Cliffs, the Wessons also built an advanced water supply and distribution system to serve the house and grounds. Remnants of the infrastructure of this system are visible today *(Figure 1.8)*. Ancillary buildings were also constructed by the Wessons to support their summer home, including houses for some of their staff, a green house and barns *(Figure 1.9)*. See *Figure 1.7* for a map indicating some of the properties associated with White Cliffs.

Early photos are the best record of the original condition of White Cliffs that are available. Several photos from the 1890s clearly illustrate the east, south, and west facades of the house *(Figures 1.10-12)*. Rusticated and tooled stone comprise the visible foundation and first floor walls of the house, except the kitchen, which is clad in brick. The majority of the facades are clad with decorative cut wood shingles; including square, half circle, cove, wave, and ogee in a variety of patterns. The steep slope slate roof has many complicated geometries including two hexadecagonal (16-sided) bell-shaped roofs, gables, and dormers, with various ridge ornaments and finials. Dozens of double hung and stained glass windows, four sculptural brick chimneys, and many intricate wood carvings adorn the exterior. As a summer house, The Cliffs had a variety of indoor-outdoor spaces, including at least four covered porches, a porte-cochere at the main entrance, and several balconies; all with ornamental wood railings, brackets, and screens. Refer to *Section II* for a complete architectural description.

Figure 1.8: Part of The Cliffs' water system, 1897.
Source: Town of Northborough.

Figure 1.9: The Cliffs' greenhouse and staff houses beyond.
Source: Town of Northborough.

Figure 1.10: Southeast elevation with driveway, c. 1890s.
Source: Northborough Historical Society.

Figure 1.11: Southeast elevation with visible ledge, c. 1890s.
Source: Northborough Historical Society.

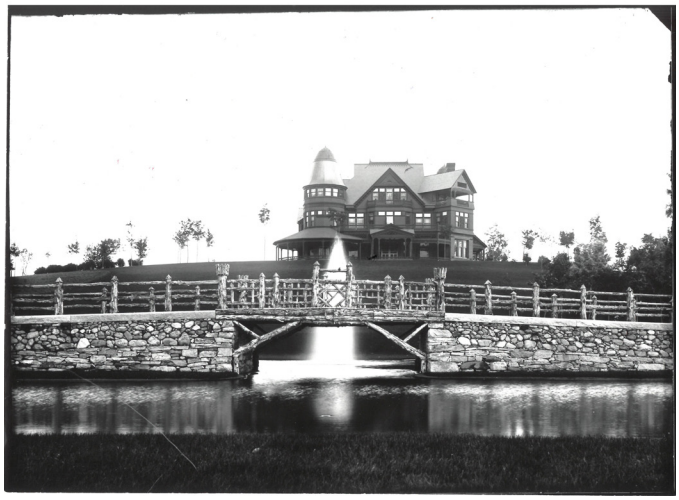


Figure 1.12: West elevation with pond and water feature, c. 1897.
Source: Northborough Historical Society.

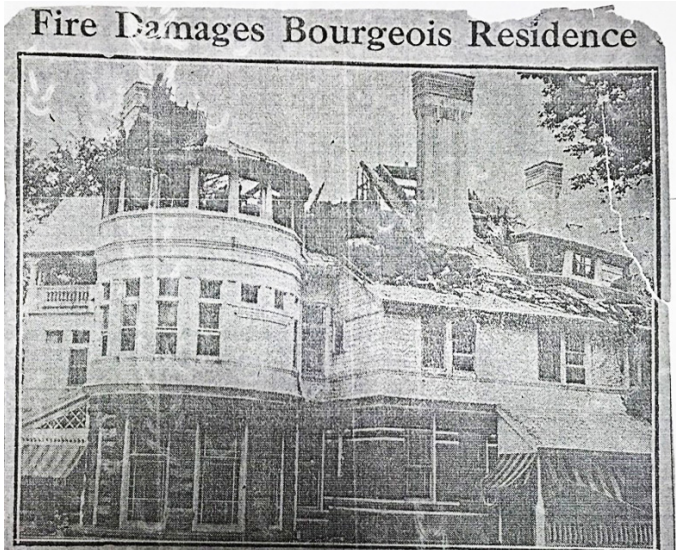


Figure 1.13: Newspaper photo of fire damage, 1931.
Source: Northborough Historical Society.

Set at the top of a hill with visible ledge in areas, The Cliffs rose prominently above Main Street and its surroundings. Photos show an elaborate fountain, sweeping lawns, a driveway edged with river rock, and even a pond with a water feature and bridge.

After Daniel and Cynthia died in 1906, The Cliffs was sold by the Wessons' heirs to Alfred Thomas in 1912. Then, Muriel N. Lacier purchased the house 1926, owning it for approximately two years, during which time she was remarried and became Muriel Bourgeois. The period after Bourgeois' ownership becomes confusing. The mansion was sold two more times in the next four month, ultimately to George and Alma Roussel in 1928. The Registry of Deeds show that the Roussels mortgaged the house to Clinton Savings Bank in 1941, and that the house was ultimately foreclosed on less than a year later with the intent to sell the property at auction. Newspaper articles from 1931 describe a devastating fire at White Cliffs accompanied by a photo *(Figure 1.13)* showing significant damage to the roof and third floor. The date of the fire, August 9, 1931, is confirmed by fire department records. Interestingly, the news articles clearly state the occupant of the house to be Muriel Bourgeois, even referring to the house as the "Bourgeois Mansion". However, according to the property deeds, the house had not been owned by Bourgeois in over three years. It is unclear whether the Roussels actually lived in the house at any point or if possibly their ownership was a guise to protect the house during Bourgeois' very public divorce. Although the 1926 deed of sale lists Muriel N. Lacier, a news article regarding her 1932 divorce states that George Bourgeois paid for her Northborough home among other residences she occupied on the east coast.

An undated photo from the 1930s or 1940s depicts changes The Cliffs experienced following the fire *(Figure 1.14)*. This is the first known photo which shows The Cliffs painted white. It also displays a new flat roof over the southeast turret with a railing at the top, a new skylight, and porches enclosed by screens. The overgrown lawn and shrubbery around the house is a surprising contrast to the well-manicured landscape visible both in earlier and later photos. It is also worth noting that The Great New England Hurricane of 1938, which devastated Central Massachusetts, occurred seven years following the fire and any resulting damage to The Cliffs is unknown.

Sometime in 1942 The Cliffs was sold, presumably at auction shortly after the foreclosure, to The Panepirotic Federation of America, a cultural organization of people descended from the Epirus region of modern Greece and Albania. The Cliffs was the site of the first Panepirotic conference in July 1942, which was a major gathering of Epirotes from across the country. However, this chapter of The Cliffs' history was short lived; it was sold to Felician Rojcewicz three years later in 1945. Rojcewicz began

operating a restaurant known as "Northborough Manor" out of the house. Interior and exterior photos from 1946 show a bar in the northeast corner of the second floor; an open floor plan throughout the rest of the second floor, almost identical to what is seen today, with restaurant style tables and chairs; a fire escape structure attached to the second floor porch over the main entrance; and a modified porte-cochere *(Figures 1.15-18)*. In 1949 Rojcewicz sold the property to his son, Albert Rojcewicz, also known as Al Rogers. The Rojcewiczes' era ended in 1953 when the house was sold to the Tomaiolo brothers, who were incorporated as "Tomaiolo's White Cliffs". At this point the house was utilized as a function facility in addition to a restaurant; and this is the first time the building was officially known as "White Cliffs".

In 1961 the first documented addition, the single story commercial kitchen, was added to the east façade of the building. In 1969 the Tomaiolos completed a substantial renovation to White Cliffs. This project included the removal of the porte-cochere; enlargement of the main entrance; enclosure of the south porch; and a large addition which included a ballroom, support spaces, the encapsulation of the porch at the northwest turret, and the enlargement of the second floor event space *(Figure 1.19)*. This final addition almost doubled the square footage within White Cliffs. A postcard from the 1970s and photos from 1975 show both the interior and exterior of White Cliffs almost exactly as they are seen today *(Figures 1.20-22)*. Aside from ownership, White Cliffs experienced little change since the 1970s. In 1985 the facility was sold to LaCava Companies who operated it as an event space. Building permits from the mid-1970s on show only minor renovations and repairs.

In 2014 The LaCava Companies decided to cease operations at White Cliff. When a buyer for the property could not be found, a permit for demolition was requested. In anticipation of impending demolition, many elements of the house were salvaged, including all the stained glass windows. For a full index of salvaged elements see *Appendix F*. To save White Cliffs from demolition, the Town of Northborough voted to purchase the property in 2016 and the sale was finalized in 2017.

Figure 1.14: Southeast elevation after fire, c. 1930s - 1940s.
Source: Northborough Historical Society.

Figure 1.15: Second floor bar at northeast corner, c. 1946.
Source: Northborough Historical Society.

Figure 1.16: Second floor "Skycrest Room", c. 1946.
Source: Northborough Historical Society.

Figure 1.17: South elevation, 1946.
Source: Northborough Historical Society.

Figure 1.20: Post card, c. 1970s.
Source: Northborough Historical Society.

Figure 1.18: West elevation, c. 1946.
Source: Northborough Historical Society.

Figure 1.21: Southeast elevation, c. 1975.
Source: Northborough Historical Society.

Figure 1.19: South elevation, c. 1969.
Source: Northborough Historical Society.

Figure 1.22: South elevation, c. 1975.
Source: Northborough Historical Society.

TIMELINE

1825
Daniel Baird Wesson born
Worcester, MA
Cynthia Maria Hawes born
Northborough, MA

1825

1830

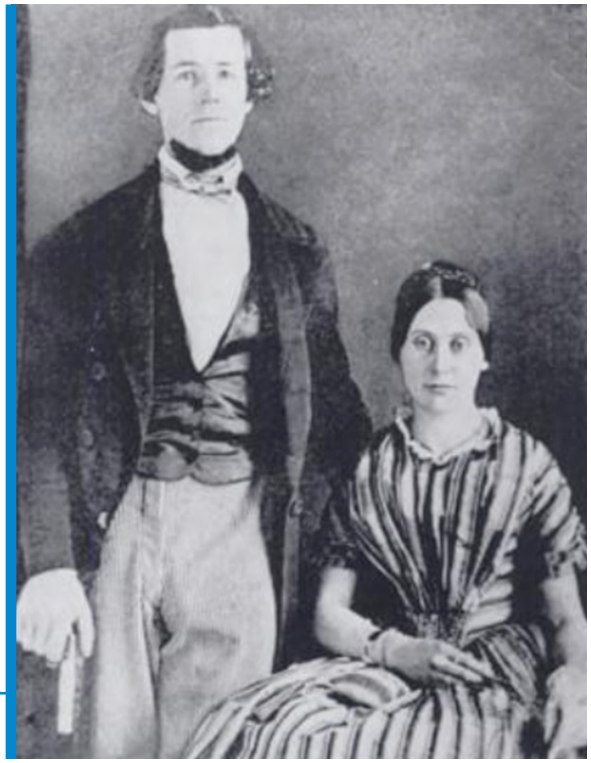
1835

1840s
Wesson apprentices as a gunsmith
Northborough, MA

1840

1845

1847
Wesson and Hawes marry
Thompson, CT



Daniel and Cynthia Wesson
Source: Town of Northborough

1850

1852
Wesson partners with Horace Smith

1854
Original Smith & Wesson company founded
Norwich, CT

1855

1856
Benjamin Hammett Seabury born

1860

Horace Smith and Daniel Wesson
Source: Springfield Museums

1861-1865
American Civil War, bolstered sales of
Smith & Wesson revolvers

1865

1870

1875

Smith & Wesson advertisement
Source: smith-wesson.com

TIMELINE

Source: Northborough Historical Society

1880

1882
D. B. Wesson purchases land to become *The Cliffs* from Tristram Pinkham

1885

1886
The Cliffs complete for over $100,000, article published in Springfield Republican

1890

1895

1900

1905

1906
D. B. and Cynthia Wesson die Springfield, MA

1910

1910
The Cliffs sold to Alfred Thomas

1915

1920

1925

1926
The Cliffs sold to Muriel (Lacier) Bourgeois

4/28/1928
The Cliffs sold to Nickerson Co

8/10/1928
The Cliffs sold to Thomas Sullivan

1930

8/21/1928
The Cliffs sold to George Rousell

TIMELINE

1930

1931
The Cliffs suffers significant fire

1935

1938
The Great New England Hurricane of 1938

1940

6/8/1942
The Cliffs sold to Clinton Savings Bank

1942
The Cliffs sold to Panepirotic Federation of America

11/28/1945
The Cliffs sold to Felician Rojcewicz

1945
Northborough Manor beings operation as a Restaurant

1945
B. H. Seabury Dies
Springfield, MA

1945

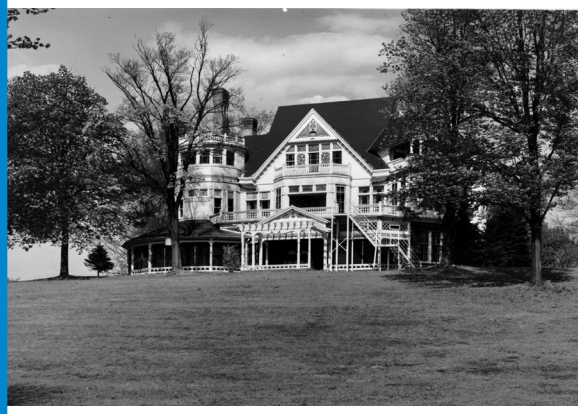
7/14/1949
Northborough Manor sold to Albert Rojcewicz (Al Rogers)

1950

8/19/1953
Northborough Manor sold to Tomaiolo brothers

1953
White Cliffs beings operation as a restaurant and function facility

1955



Source: Northborough Historical Society

TIMELINE

Source: Northborough Historical Society

1960

1961
Kitchen addition built

1965

1969
Kitchen and ballroom additions built

1970

1975

1975
Miscellaneous renovations/repairs

1980

2/27/1985
White Cliffs sold to LaCava Companies

1985
White Cliffs operated as a function facility only

1985

1985
Miscellaneous renovations/repairs

1986
Miscellaneous renovations/repairs

1990

1995

1996
Roof Replacement

2000

2005

2010

2014
White Cliffs officially closed for business

2015

2016
Northborough votes to purchase *White Cliffs*

2017
White Cliffs sale finalized

2020

2020
Roof Replacement

Source: DBVW Architects

SECTION II :

DESCRIPTION OF BUILDING COMPONENTS AND CONDITION ASSESSMENT

Exterior Components Description and Condition Assessment

Figure 2.1: View of White Cliffs from the south with new roof.

White Cliffs' sprawling 14,000 square-feet are comprised of three above grade floors, a basement, a steeply sloped, complex roof, and various additions built in the 1960s and 1970s. The following exterior architectural description and recommendations are focused on the original 1886 house and its modifications prior to 1960. Additions and other post-1960 modifications are discussed in a later portion of this section.

A conditions assessment and recommendations for the roof are not included in the follow section. For a general description of the original roof condition inferred from historic photos refer to Section I. The entire roof of the original house was replaced in early 2020. The roof project was an emergency repair that consisted of replacement of all sloped roofing with new asphalt shingles, new EPDM roofing at the flat turret roofs, all new flashings at the skylight and chimneys, replacement of fire damaged roof decking and structure at the west gable, replacement of the failed cricket behind the southeast chimney, and resealing all glazing at the existing skylight.

Masonry

The entirety of the first floor and visible foundations of White Cliffs are composed of a combination of brownstone and brick masonry. The brownstone typically exhibits a rough, rusticated finish. Decorative units at corners, lintels, sills, etc. are dressed with boasted margins, or are completely smooth. The majority of the masonry at White Cliffs consists of brick walls with brownstone accents at windows and decorative brick band courses. The first floor masonry portion of both turrets and a segment of the south elevation are entirely clad in brownstone.

While masonry at White Cliffs was entirely exposed to the exterior in the original configuration, only 20% of these surfaces have remained exterior *(Figure 2.2-4)*. This is a result of the enclosure of the south porch and the engulfment of the west, north, and east elevations by additions in the 1960s *(Figure 2.5)*. Unfortunately, all visible masonry has been painted at both the interior and exterior, with minor exceptions. There are areas of exposed natural brownstone at a portion of the south facade and at the northwest turret; both locations are currently interior *(Figures 2.6-7)*. The east façade, which was covered by a secondary wall during the 1960s, appears to be unpainted where visible through a former window opening.

Brick and brownstone masonry exposed at the exterior exhibit minor to moderate deterioration, including deteriorated mortar joints and localized unit cracking and displacement *(Figures 2.8-10)*. Far less deterioration is visible at now-interior masonry.

Recommendations

Paint should be removed from all masonry surfaces utilizing the gentlest means possible; avoiding any methods which may abrade or damage the brownstone or brick surface. Open mortar joints should be repointed, taking care to avoid over-cutting joints and damaging adjacent masonry. Displaced brownstone units should be repositioned, cracked or otherwise damaged brownstone should be repaired where possible or replaced, and all cracked brick units should also be replaced. Replacement units should match the color, texture, size, and finish of existing masonry as closely as possible. Repair of open joints, displacement, and cracks is essential in preventing water ingress to the exterior wall assemblies and ultimately the interior spaces beyond. The extent of repointing and other masonry repairs that is needed may not be known until paint removal is complete. Repainting of masonry is not recommended, since all of the masonry was originally unpainted.

Figure 2.2: South elevation of White Cliffs with areas of original masonry indicated (excluding chimneys).

Figure 2.3: Brownstone masonry (painted) at southeast turret.

Figure 2.4: Brick masonry and brownstone foundation at southwest bay (painted).

Figure 2.5: Brick wall with infilled window openings at the now interior north facade.

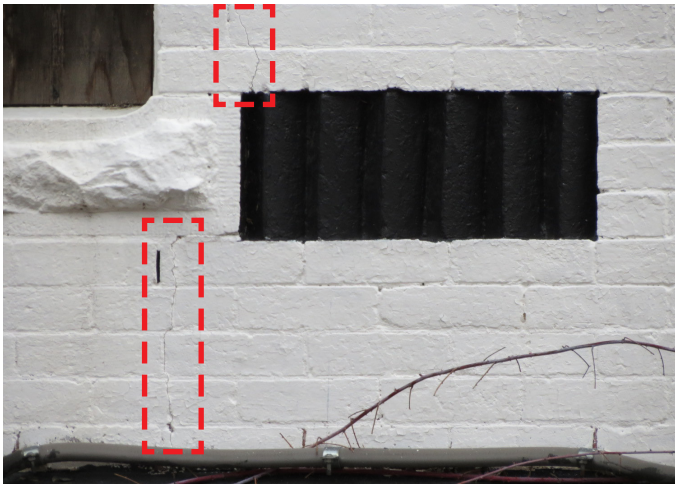


Figure 2.8: Decorative brownstone sill (left), rotated brick band course (center), and brick unit cracks (indicated).

Figure 2.6: Exposed brownstone at the south elevation, inside porch.

Figure 2.9: Displaced brownstone units at south foundation.

Figure 2.7: Exposed brownstone at the northwest turret, inside porch.

Figure 2.10: Open joint between brownstone foundation and porch construction.

Wood Siding

The entirety of the second and third floor exterior wall surfaces are clad with decorative wood shingles and trim. As mentioned in *Section I*, there are a variety of decorative shingle cuts in a multitude of patterns *(Figure 2.11)*. Observation of early photos shows that the current shingle sizes and configurations are likely original to the building. Historic photos also show a slight contrast in color value, or lightness, between the shingles and adjacent trim. Damage at siding is typically moderate, with cracked and peeling paint, and deterioration at exposed elements *(Figure 2.12)*.

At the base of the second floor, the siding typically flares out about 12 inches and is met on the underside with elaborate moldings *(Figure 2.13)*. This detail exists wherever a transition between first floor masonry and second floor siding occurs; although many of these locations have been obscured by additions. These sloped conditions are more susceptible to weather damage and exhibit paint and wood deterioration at a higher rate than vertical surfaces. Another example of severe deterioration occurs at transitions between vertical siding and sloped roof surfaces *(Figure 2.14)*. Damage at these locations is due to prolonged and repeated water exposure. Similar to flared shingle locations, damage noted at these intersections includes increased paint loss and wood deterioration.

In addition to the systematic deterioration noted above, there are also isolated areas of severe damage. One example occurs at both turrets where quarter sized holes have been bored into wood trim *(Figure 2.15)*. The large size of these holes, and their location near the edges of trim indicate that the perpetrators are most likely woodpeckers. These types of holes in wood siding are intended for feeding. Water damage and rot is already occurring at these locations, providing a habitat for insects, and ultimately a food source for woodpeckers. A second example of localized damage is the inner corner east of the southeast turret, where an undersized and deteriorated gutter and downspout have led to significant water damage *(Figure 2.16)*. It is also evident that this inner corner did not receive repainting and other maintenance as frequently as the main elevation of the building. A third location of isolated damage is the east dormer *(Figure 2.17)*. This third floor dormer is entirely surrounded by roof and appears to have not received routine maintenance, similar to the previous example. The east dormer exhibits a much greater rate of paint failure than typical on the building. Many wood components are too deteriorated to be salvaged.

Recommendations

Complete paint removal is not recommended for siding at White Cliffs. However, wood components that are determined to be sound and reusable should have all loose and cracked paint removed to next sound layer prior to repainting. All deteriorated wood components should be replicated in a decay resistant wood species and shaped to match the existing components. It is important that adequate flashing and waterproofing is installed behind wood siding at intersections with roofs and other geometries where water is more likely to damage the structure and interior surfaces beyond.

Based on historic documentation alone, the original color palette is not known, but it is clear that the exterior was polychromatic, not white. If it is desirable to return to an original color palette, a paint analysis can be performed to determine the historic finishes buried beneath the white paint.

Figure 2.11: Southeast turret with four distinct shingle patterns exhibiting moderate deterioration.

Figure 2.12: Typical deterioration at the upper gable of the south elevation.

Figure 2.15: Woodpecker holes (indicated) at the northwest turret.

Figure 2.13: Severe deterioration at flared siding at the base of the second floor.

Figure 2.16: Severe deterioration adjacent to an undersized gutter.

Figure 2.14: Severe deterioration at a siding-to-roof intersection.

Figure 2.17: Severe deterioration of all wood components at the east dormer.

Windows

White Cliffs contains dozens of double-hung and fixed, single pane, rectangular wood windows that are original to the house *(Figure 2.18)*. Some windows were replaced due to the 1931 fire or other isolated damage. Many of the windows have decorative wood muntin patterns resulting in multiple glass pane sizes *(Figure 2.19)*. Several irregularly shaped windows exist at the third floor gables *(Figure 2.20)*. Largely, the condition of the wood windows is quite good, although a detailed survey has not been completed. All wood components of the windows have been painted on the exterior; much of the first and second floor windows are stained on the interior, with painted interior components in "back of house" spaces. All interior window surfaces at the third floor have been painted. Window hardware at double hung windows includes decorative metal operating chains, pulleys, and sash locks *(Figure 2.21)*. Typical damage at windows includes broken or missing glass panes and limited deteriorated wood muntins, stiles, and rails. Several windows have been covered with plywood adjacent to the single story addition to prevent intrusion and at locations with broken glass. All stained glass windows have been previously removed from the property. Locations of stained glass removals have also been enclosed with plywood. For a full inventory of salvaged stored materials see *Appendix F*. There are also removed window sashes in the basement and third floor *(Figure 2.22)*. Original locations of these windows are unknown, however it's possible that they were removed from exterior walls which were enclosed for the 1960s additions. There are currently no installed insect screens or storm windows at White Cliffs.

In addition to the historic windows, White Cliffs also contains a skylight, located directly over the grand central stair, which originally illuminated a stained glass laylight mounted at the second floor ceiling *(Figure 2.23)*. The skylight itself was only visible from the interior at the third floor and attic. The laylight components have been salvaged and are in storage *(Appendix F)*. It appears that the skylight was replaced after the 1931 fire damaged much of the roof. The currently installed skylight is slightly smaller than the original configuration, and is comprised of translucent glass embedded with a wire mesh to prevent shattering. There is also a ventilator installed within the skylight to prevent heat build up.

Figure 2.18: View from southwest depicting many window sizes and several removals.

Figure 2.19: Large double hung windows with decorative muntin patterns at first floor of the southeast turret.

Figure 2.20: Irregular window shapes at north gable.

Recommendations

All wood windows at White Cliffs appear to be salvageable for restoration. Because he original windows are important character-defining features, they should be restored rather that replaced during any rehabilitation of White Cliffs. It is recommended that operable sashes be removed from the window opening, labeled, and shop restored. Restoration of sashes would include the removal of all hardware, paint and glazing, repair or replacement of deteriorated wood components, refinishing of wood components, replacement of cracked and broken glass, and re-glazing of all glass panes. Wood frames should be restored in-situ and treated similarly to wood sash components. All hardware should be cleaned and reinstalled, missing hardware shall be replaced in kind. If desired, insect screens and storm windows may also be installed after the completion of window restoration.

While a hazardous material analysis was not completed as part of this assessment, it is important to note that the existing windows are likely to include lead paint.

A survey of removed window sashes located within White Cliffs is recommended. When the 1960s additions are removed and the historic exterior of White Cliffs is reestablished, these windows may be restored and reinstalled in their original locations.

The current skylight is in fair condition. During the 2020 roof replacement project all flashing surrounding the skylight curb, and sealant at the glass panes and ventilator was replaced to prevent water infiltration.

Figure 2.21: Typical window hardware.

Figure 2.22: Removed windows in the basement.

Figure 2.23: Laylight frame and skylight beyond.

Chimneys

White Cliffs contains nine ornate fireplaces that rely on four brick chimneys *(Figure 2.24)*. Each of the chimneys is tall, slender, and appears top heavy due to the sculptural form. All chimneys are painted white with black painted terra cotta caps. The three less decorative chimneys exhibit moderate deterioration; including open joints, paint failure, cracked bricks, and isolated terra cotta damage. The south chimney, which is the most elaborate, displays severe damage *(Figure 2.25)*. In addition to the typical damage noted at the three other chimneys, the south chimney also has significant brick displacement, structural cracks, and more extreme paint failure *(Figure 2.26)*. The base of the chimney is comprised of multiple types of terra cotta decoration. Refer to Ornament, later within this section, for a detailed description and recommendations for the terra cotta base of the south chimney. Complete visual assessment of the four chimneys is not possible due to access. The backsides of all chimneys are not visible without access to the steeply sloped roofs.

Recommendations

Historic photos suggest that the chimneys were not painted originally. Paint should be removed from all chimney surfaces, and all joints should be 100% repointed. Isolated repairs to terra cotta will be necessary, although the scope of these repairs is will not be fully known until paint is removed and all sides of the chimneys can be investigated up close. A significant portion of the south chimney will need to be rebuilt in order to adequately address all displacement and ensure the remainder of the chimney is properly supported. All cracked brick units should be replaced in kind. Refer to *Masonry*, within this section, for detailed recommendations related to paint removal and masonry repair.

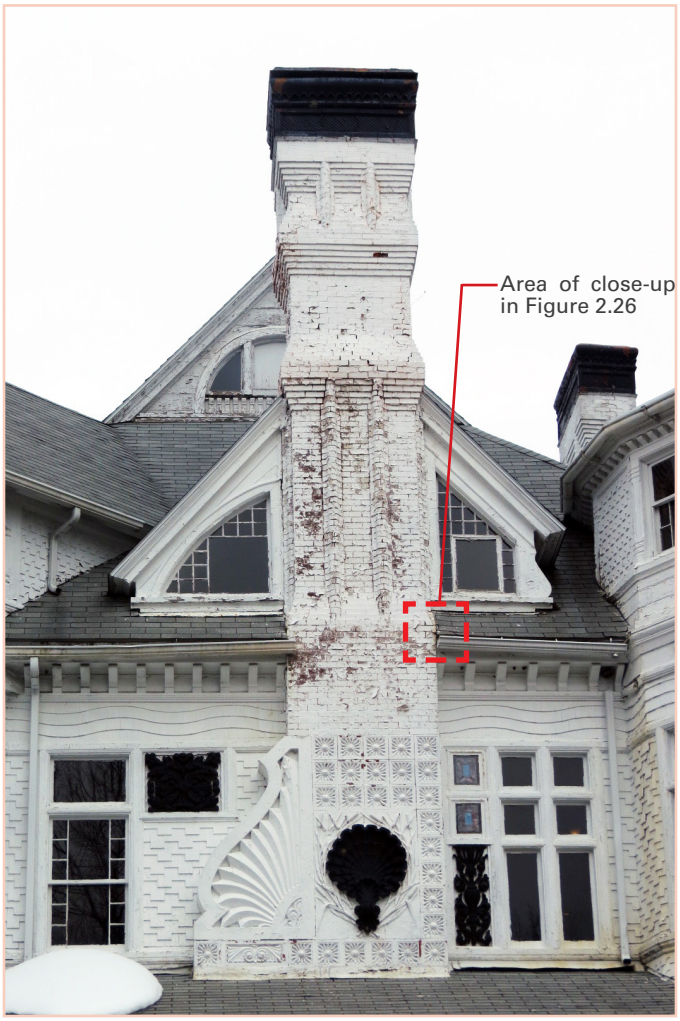


Figure 2.25: South chimney.

Figure 2.24: View from northeast partially depicting all chimneys.

Figure 2.26: Displacement at south chimney

Figure 2.27: Interior view of enclosed south porch.

Figure 2.28: Interior view of enclosed west porch at main entrance.

Figure 2.29: Interior view of engulfed northwest turret porch.

Porches

Of the original four porches, only the third floor porch at the southwest corner remains in its original configuration. The south porch has been enclosed with walls and windows *(Figure 2.27)*, the large west porch which extended across the main entrance and wrapped around the northwest turret has been absorbed by additions, and the small east porch has been removed entirely. Despite the more recent modifications, much of the original fabric of the enclosed porches has been preserved *(Figure 2.28)*. The now interior enclosed and engulfed porches still display decorative wooden posts, screens, and wood patterned ceilings. The former porch surrounding the northwest turret's original marble floor is also visible *(Figure 2.29)*. All wooden railings at the first floor porches have been removed. The third floor porch on the west elevation has retained its original wooden railings and an elaborate wood and glass screen *(Figure 2.30)*. Unfortunately, balconies at the second and third floors of the west elevation above the main entrance have been completely removed.

Recommendations

When the 1960s additions are removed, demolition in the areas which previously absorbed the large west porch will need to be undertaken in a careful, surgical manner to retain as much original porch construction as possible. Because of the visible remaining components, it's safe to assume that most, if not all, of the original structure, including roofs, is intact. Restoration of the south porch will be much simpler because the only modification was the enclosure of openings between structural posts. After demolition is complete, restoration recommendations for wood and glass components will be similar to those listed in other sections. Due to the extent of previous modification, there will be more recreation of missing components at porches and balconies than at other elements of the building. Fortunately, historic photos provide much of the needed information for replication.

Figure 2.30: Third floor porch at west elevation.

Ornament

Most facades of White Cliffs are decorated with elaborate cast terra cotta and carved wood ornament. The ornament typically displays organic motifs, mostly depicting acanthus leaves and sea shell forms. The terra cotta ornament includes caps at all four chimneys *(Figure 2.31)*, square blocks with flower motifs set as a panel within the north chimney, acanthus themed cast units along the south facade *(Figure 2.32)*, and the elaborate decoration at the south chimney *(Figure 2.33)*. Terra cotta at the base of the south chimney features a large shell set on a background of cattail reeds surrounded by blocks similar to those at the north chimney and a large profiled unit with a more abstract flower petal motif. All ornamental wood and terra cotta elements have been painted. No severe damage has been observed.

In addition to the many decorative shingle patterns described earlier, there are wood applique carvings set into trim or formed as rectangular panels that imitate windows. There are nine acanthus motif panels, one of which has been relocated to the 1960s entrance addition; many half-round medallions, and a large sunburst motif *(Figure 2.34)*.

Recommendations

Treatment of terra cotta is similar to that of previously described masonry treatments. All paint should be removed, any damaged units repaired, and joints repointed. Recommendations for wood ornament are similar to wood siding, including the removal of failed paint, repair and replacement of deteriorate components, and refinishing. As noted previously, the full extent of the deterioration will not be known until paint is removed.

Figure 2.32: Terra cotta unit at the south facade

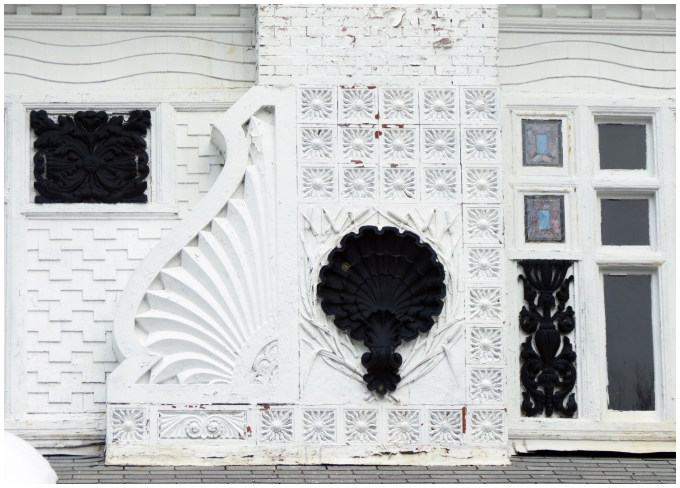


Figure 2.33: Terra cotta ornament at the south chimney with wood applique carvings on either side.

Figure 2.31: Terra cotta cap at the southeast chimney.

Figure 2.34: Wood applique carvings at the west gable with small half round medallion set in trim.

Areaways

Figure 2.35: Exterior view of areaway adjacent to southeast turret.

Figure 2.36: Exterior view of areaway at southwest bay.

The foundations of White Cliffs include ten areaways, each providing space for multiple double hung operable windows at the basement level. At least four areaways were obscured by original porches. Currently, two areaways are visible from the exterior, both of which are severely deteriorated. The areaway adjacent to the southeast turret is covered with a wood enclosure with parged brick construction below, and penetrated by utility connections *(Figure 2.35)*. There is active water infiltration at this location. The areaway at the southwest bay is covered by a metal grate supported by large brownstone units over brick construction below, and is also penetrated by utility connections *(Figures 2.36-37)*. The metal grate is significantly rusting, and much of the supporting brick walls have collapsed.

All other areaways are completely separated from the exterior by either enclosed porches or 1960s era additions and are visible from the basement interior only *(Figure 2.38)*. Most of these areaways have utility connections running through them to serve the additions. Areaway walls are typically brick, some with parged or concrete facings; many contain stone rubble and other debris. It is unknown whether all areaways originally contained provisions for drainage.

Recommendations

Recommended treatment for areaways depends largely on demolition of additions and excavation. Portions of masonry walls that have collapsed or are otherwise structurally compromised must be rebuilt. Proper drainage must be reestablished at areaways exposed to the exterior to prevent water infiltration at the basement level.

Figure 2.37: Interior view of areaway adjacent to southeast turret.

Figure 2.38: Interior view of areaway at the northeast corner, now enclosed by additions.

Interior Components Description and Condition Assessment

Figure 2.39: View of Entry Hall and Grand Stair beyond.
Source: Town of Northborough.

The interior of White Cliffs contains numerous spaces with intact historic finishes. The extent of decorative historic finishes is limited to the first and second floors, which would have been the only areas the Wessons regularly occupied within the building. Other areas of the house were intended for use by the Wessons' support staff and will be discussed later within this section. See *Figure 2.40* for a comparison of the current floor plans, with the original plans (as best we can surmise). These plans highlight spaces with intact decorative finishes.

Programmatically and structurally the first floor is divided into three portions. The center third provides the main circulation routes through the house, containing the entry hall, grand open stair, a hallway leading to the back-of-house stair, and a connection to the original kitchen *(Figure 2.39)*. The grand open stair was originally crowned with an elaborate, 15-part, stained glass laylight, and illuminated by a skylight above. Although the stained glass panels have been salvaged and stored off site *(Appendix F)*, the framework for the laylight remains in place.

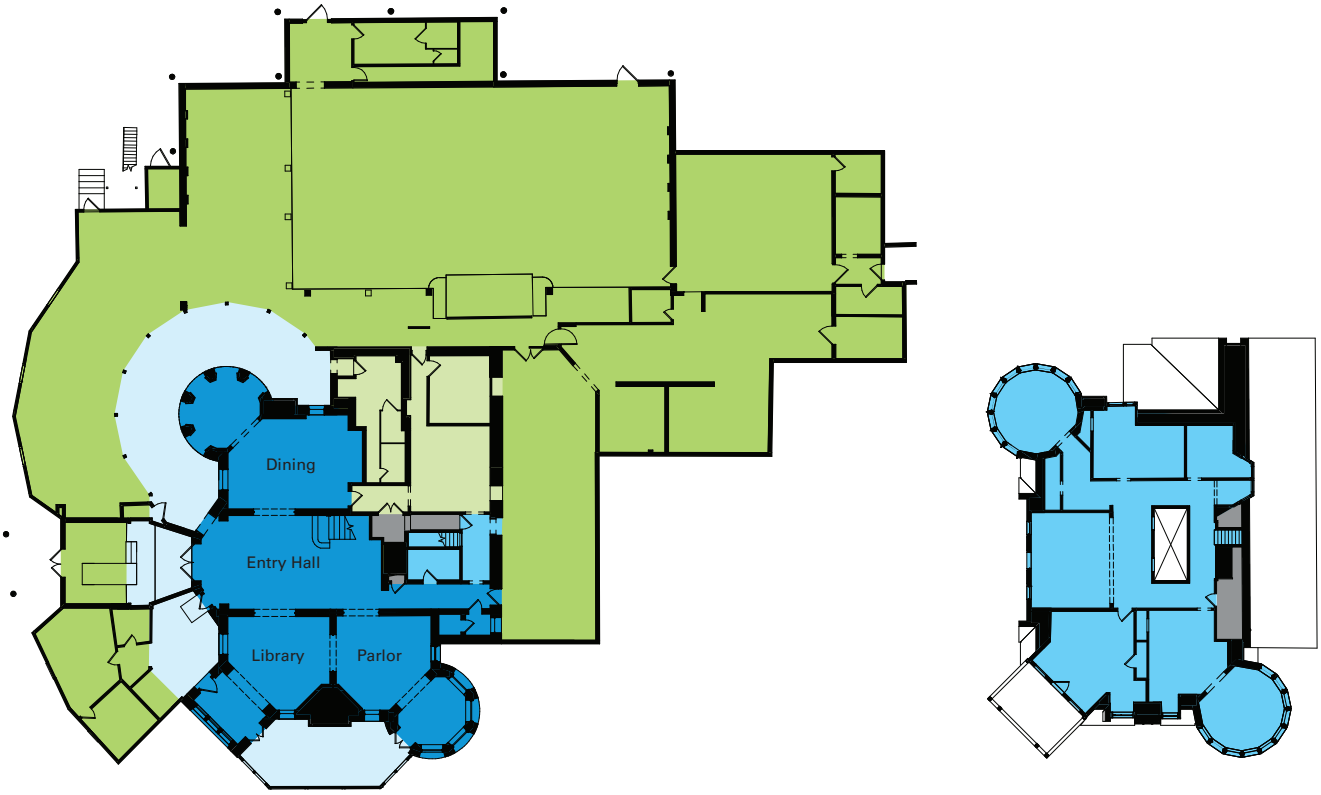
The north portion of the first floor, to the left of the entry hall, contains a dining room at the front of the house that extends into the northwest turret. Behind the dining room may have been the original kitchen, which has been significantly renovated, and most recently housed a component of the catering kitchen and multi-user bathrooms. The south portion of the first floor, to the right of the entry hall, contains the original library at the front of the house, a parlor beyond extending into the southeast turret, and a small original bathroom.

The layout of the first floor appears to be very close to the original condition of The Cliffs. The first floor contains the most intact historic finishes, and the layout exactly matches the description in the Springfield Republican article from 1893 *(Figure 1.3)*. However, it is unknown if the fire of 1931 may have affected the first floor and if any of the decorative finishes we see today was altered or installed after the fire. Luckily, the 1960s additions largely left the interior of the first floor intact, with only minor modification at connection points.

The layout of the second floor has been more significantly altered from its original configuration. The only record of the original layout is again the Springfield Republican article, which minimally stated that the second floor was divided into six chambers. Currently, the majority of the second floor acts as one large event space, connecting about 50% of the area of that floor. Based on the historic photo from 1946, which shows the second floor laid out as a restaurant *(Figure 1.16)*, it appears that the current configuration has not changed greatly since that time.

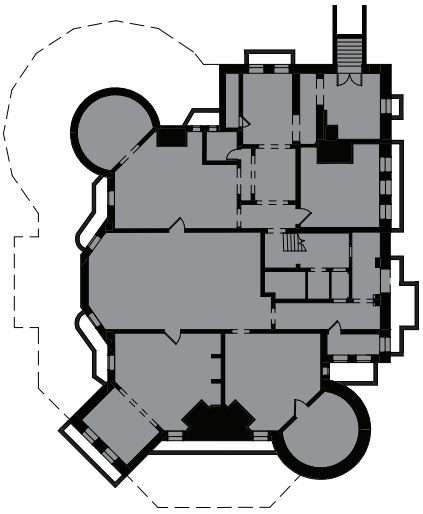
The entire west exterior wall of the second floor, above the main entrance, has been removed for the 1960s addition which enlarged the event space on the second floor. A full description and recommendations for the additions are included later within this section. The remainder of the second floor is taken up by multi-user bathrooms and a small catering kitchen, which stack vertically above spaces of the same use and level of renovation on the first floor.

Current Floor Plans

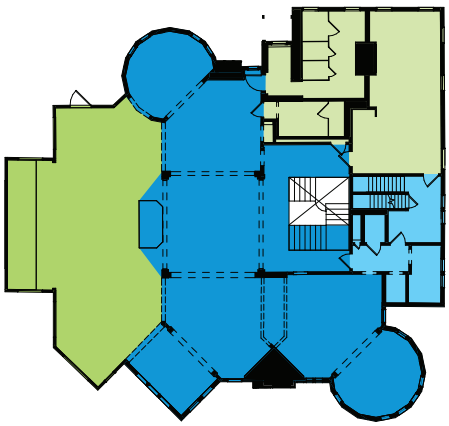


First Floor

Third Floor



Basement



Second Floor

Figure 2.40: Floor Plan Diagrams.

Original Floor Plans

Highly Significant Historic Finishes

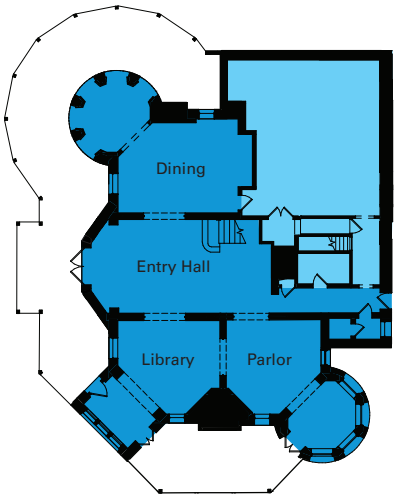
Moderately Significant Historic Finishes

Enclosed Historic Porch

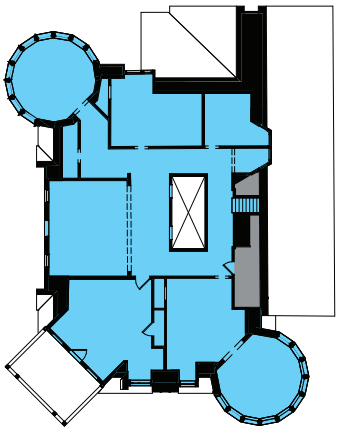
No Original Decorative Finishes

Historic Finishes Removed

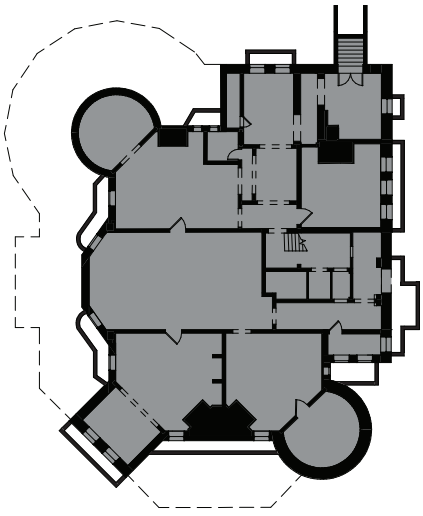
1960s Addition



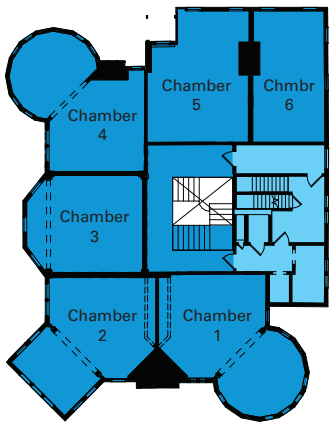
First Floor



Third Floor



Basement



Second Floor

Woodwork

The most extensive, and possibly most ornate element of the interior historic fabric of White Cliffs is the woodwork. Elaborate, unpainted woodwork is displayed on almost every surface of White Cliffs at the first and second floors. Wall paneling, elaborate door frames, and patterned ceiling trim is visible throughout the first and second floors *(Figures 2.41-42)*. Carvings set within these elements typically display organic motifs. It's difficult to determine the variety of wood species within White Cliffs. The tone of woodwork varies visually throughout the house, which may be a product of the wood species, applied stain, discoloration of varnishes, or all three.

The condition of woodwork is largely very good. There are areas with moisture-related mildew/mold build-up on the surface of millwork, especially at carved ornament *(Figure 2.43)*. This condition is concentrated at areas adjacent to the 1960s additions at the first floor, specifically at the dining room, which is open to the large ballroom portion of the addition; the hallway connecting the entry hall to the kitchen portion of the addition; and the entry hall which connects the dining room and the hallway. It is evident based on the concentration and location of build-up that moisture entering White Cliffs through the 1960s additions is the cause.

The historic bathroom at the southeast corner of the first floor appears to have suffered a severe plumbing leak, which has since been repaired *(Figure 2.44)*. Woodwork in this room displays more extensive moisture-related surface damage. Woodwork at the library and parlor is in excellent condition, with the exception of minor moisture-related build-up immediately adjacent to openings to the entry hall.

The woodwork at the second floor does not display moisture-related damage like that noted at the first floor. However, it is apparent that the original woodwork has been modified to accommodate the open floor plan that connected what was originally four individual bedrooms to create a large restaurant/event space. This condition is most obvious at large cased openings where concealed structural posts and beams allow for openings where walls once separated individual rooms. At these locations, the adjacent ornament and paneling divisions do not align. It appears that elements of woodwork from the individual rooms were salvaged, modified, and relocated to create these new openings *(Figure 2.45)*.

Figure 2.41: Woodwork at entry hall grand stair.

Figure 2.42: Built-in hutch at Dining Room.

Figure 2.43: Surface build-up at hutch.

Figure 2.44: Deteriorated woodwork at the first floor bathroom.

Figure 2.45: Mismatched woodwork at the second floor event space.

Another anomaly at the second floor is the plumbing fixture set within a wood cased alcove near the newer multi-user bathrooms *(Figure 2.46)*. This feature contains a marble counter, porcelain sink basin, water faucets, and carved wooden drawers below. The counter top is mounted very low at 26 inches above the floor, the walls above the counter are covered with mirrors. The area of the alcove below the drawers is clad with marble on all three sides and at the floor, which also has a circular drain at the center. However, there is no plumbed water source at the bottom portion. It is likely that this feature is original, however its intended use is not clear. Bathrooms are typically stacked vertically in the southeast corner of White Cliffs, although this may have been at or near the location of an additional second floor bathroom which was lost during the extensive renovations at the northeast corner of the building. The placement of components within this feature appear similar to an elaborate 18th century washstand, however such a feature would be unnecessary since White Cliffs was built with an extensive plumbing system to serve the house. The woodwork and other materials at this feature are in good condition; no work is recommended.

Recommendations

Most woodwork within the primary two floors of White Cliffs requires no work. Areas with moisture-related surface build-up should be gently cleaned with a liquid mildew/mold removing solution. Build-up does not appear to have damaged the finish of the wood. Therefore, extensive sanding and refinishing is not recommended. Areas with severe water damage, such as the first floor bathroom, require more intensive restoration. Surface build-up should be removed, per the previous recommendation. Woodwork with finish loss should be lightly sanded and refinished to match the existing finishes. Severely deteriorated wood elements should be replaced in kind. It is evident that wood and plaster substrates behind wood paneling and trim in the bathroom are also severely damaged in some areas. All woodwork should be removed and salvaged at these conditions to allow for replacement of the substrates below with new, sound material. Then the cleaned/repaired millwork may be reinstalled.

Figure 2.46: Second floor plumbing feature.

Decorative Ceilings

White Cliffs exhibits several types of decorative ceilings at spaces with historic finishes. On the first floor the entry hall, dining room, and library contain ceilings with elaborate wood trim laid out in geometric patterns *(Figure 2.47)*. Wood trim at ceilings also exists at stenciled ceilings at the first floor hallway and library, and on the second floor above the grand stair, and at three of the original bedrooms along the west side of the house. The motifs of the stenciled ceilings vary from room to room. First floor spaces depict floral themes including leaves, flowers, vines, buds and berries. The color scheme at the library is subdued, with tan and brown hues *(Figure 2.48)*. However the hallway is much bolder with greens, reds, blues and browns set against a gold background *(Figure 2.49)*. The stenciling on the second floor displays less formal motifs in lighter color palettes. Patterns in these spaces are again floral, although simpler. Colors typically include tans, light blues, pinks, reds and gold *(Figures 2.50-52)*. The condition of the majority of the painted stenciled ceilings is very good. However, there are panels at the second floor that appear to have been replaced to allow for the installation of mechanical equipment. These panels, which do not match the patterns and color schemes of the adjacent panels, have been finished with a wallpaper-like covering that is now peeling *(Figure 2.52)*.

The first floor parlor, which occupies the southeast corner of the building including the southeast turret, is the only room with ornamental plasterwork at the ceiling. Both spaces within the parlor have a slight cove transition from the wall to ceiling. The perimeter molding at the turret is simple and gilded, while the main ceiling plane is textured without additional ornament *(Figure 2.53)*. Plaster ornament at the perimeter of the main portion of the parlor is much more elaborate with multiple moldings and inset panels *(Figure 2.54)*. The overall decorative plaster border is approximately 18 inches wide. Similar to the turret, accents are gilded and the main portion of the ceiling is also textured. Both types of plaster ornament at the parlor are in good condition with isolated areas of cracking, without significant plaster loss. Plaster cracking is common due to building settlement over time and also in unheated buildings, especially when water infiltration is present.

It's worth noting that the second floor room above the parlor is the only space with historic wall finishes that does not also contain any type of decorative ceiling finish. It's evident that the third floor of southeast turret was severely damaged by the 1931 fire *(Figure 1.13)*. It's possible that the plain plaster ceiling at the second floor and unique ornamental plaster at the first floor directly below may be a result of the fire.

Figure 2.47: Wood trim at Entry Hall.

Figure 2.48: Stenciling at Library.

Figure 2.49: Gilded stenciling at hallway.

Figure 2.50: Typical second floor stenciling

Recommendations

Wood trim elements at ceilings should be given the same treatment as noted in Recommendations for Woodwork. Stenciled ceilings typically do not require any work. However, a very gentle cleaning by a professional conservator may bring them back to their original splendor. Areas with replacement panels should be removed. It's unclear why replacement panels have failed categorically; removal of these deteriorated panels will allow for examination of the conditions above. Ultimately, the failed panels should be replaced with new drywall and plaster and the stenciling should be replicated based on the surviving stenciling located within the same room. Patching of minor plaster cracking is recommended at the parlor, however no plaster work should be undertaken until water infiltration is remedied and the building is once again heated.

Figure 2.51: Stenciling at second floor northwest turret.

Figure 2.53: Simple plasterwork at southeast turret in Parlor.

Figure 2.52: Failed replacement panel at second floor.

Figure 2.54: Ornamental plasterwork at Parlor.

Fireplaces

White Cliffs contains nine unique fireplaces throughout the first and second floors. On the first floor, the entry hall, dining room, library, and parlor each contain a fireplace *(Figure 2.55-56)*. The second floor contains fireplaces at three of the original "chambers" which now comprise the open event space *(Figure 2.57)*. Two additional fireplaces are located back-to-back on the second floor at the newer restroom and catering kitchen in the northeast corner of the building *(Figure 2.63)*. At the south elevation of the building, the decorative chimney noted within this section in Chimneys, serves back-to-back fireplaces set at 45 degrees on both the first and second floors. This condition is especially prominent at the second floor where the wall between adjacent rooms has been removed *(Figures 2.58-60)*. Typically, fireplaces stack vertically throughout the building, with chimneys easy to locate from basement clean-outs all the way up through the roof. However there are no fireplaces or chimney structures visible at the first floor directly below the back-to-back chimneys at the second floor northeast corner. The northeast corner of the first floor has been heavily renovated and it's probable that at least one fireplace existed at this location in the original kitchen.

All fireplaces are comprised of elaborately carved wood components that integrate with the surrounding woodwork of the room. Wood components of fireplaces typically include bracketed legs, mantel shelves, and overmantels containing mirrors. Hearths are always comprised of patterned mosaic tile *(Figure 2.61)*. Various types of marble facings are inset within the larger wood surrounds. The only exceptions to this occur at the entry hall with its elaborate cast bronze surround, and the library which has a mosaic surround *(Figure 2.62)*. Firebox openings are adorned with decorative bronze frames. Fireboxes, themselves, are also metal, with stamped or cast relief patterns. Although materials may be similar among multiple fireplaces, each one has its own unique carvings, mosaic pattern, and firebox frame.

Recommendations

A full survey of fireplace components has not been completed, and the internal condition of flues is unknown. Generally, the decorative components of fireplaces are in very good condition. Wood components do not appear to require any repair work. Minor damage was noted at mosaic hearths. Any damaged or missing tiles should be replaced in kind to match the existing color palette and pattern. If reuse of fireplaces is desired in the future, a full inspection of the flues, clean-outs, and chimney caps should be performed by an experienced contractor. Refer to Chimneys for recommendations at masonry chimneys visible on the exterior.

Figure 2.55: Fireplace at Entry Hall, note bronze surround has been salvaged.

Figure 2.56: Salvaged bronze surround from Entry Hall fireplace.

Figure 2.57: Fireplace at northwest corner of second floor.

Figure 2.58: West side of back-to-back 45-degree fireplaces at second floor.

Figure 2.61: Detail view of mosaic hearth with minor damage in upper corner.

Figure 2.59: Detail of woodwork at fireplace overmantel in photo above.

Figure 2.62: Detail view of bronze firebox frame and mosaic surround.

Figure 2.60: Side view of back-to-back 45-degree fireplaces at second floor.

Figure 2.63: Detail view of fireplace in second floor`multi-user restroom.

Third Floor and Attic

The third floor of White Cliffs is a unique space within the house, and is only accessed by the much less formal back-of-house stair at the east side of the building. The spatial layout of the third floor is centered around the light well that brings daylight from the skylight above down to the laylight below *(Figure 2.64)*. There are interior windows at the third floor level around the lightwell that help provide daylight to the interior of the third floor. Circulation throughout the third floor consists of a ring around the lightwell which gives access to five rooms and one bathroom. The finishes of the third floor are very simple: hardwood floors, plaster walls and ceilings, and simple, sometimes painted wood trim. Many ceilings at the third floor are partially sloped, indicative of the complicated roof geometries above *(Figure 2.65)*. It's likely that the third floor originally housed the Wessons' staff. These spaces still contain unique charm due to the amount of windows within individual rooms and the eccentric geometries, such as the two almost completely circular turret rooms *(Figure 2.66)* and the steeply sloped ceilings throughout. A large covered porch is accessed through a bedroom at the southwest corner.

As mentioned previously within this section, the third floor and roof appear to have been significantly damaged by the 1931 fire. This is apparent at the attic where the condition, sizing, and spacing of wood framing appears to be from a more modern time period than the original construction of the house *(Figure 2.67)*. From the attic and crawl spaces at the third floor, the backside of third floor ceiling and wall construction is visible. It appears that all walls and ceilings at the third floor were built with "Rock Wall Lath", an early drywall-like board which was patented decades after the initial construction of White Cliffs was complete. Also, the Art Deco style light fixtures in the turret rooms suggest renovation in the 1930s *(Figure 2.68)*. The attic itself is small, only occupying the upper part of the central gable with connections to low eave spaces that correspond to some of the smaller intersecting gables. Isolated areas of fire-damaged roof framing and decking were observed at the attic, and were replaced in the 2020 roof project noted in the introduction to this section. The attic is accessed by a hatch in the ceiling of the third floor with no permanent stair or ladder.

The condition of the third floor spaces is fair to poor. Plaster damage is prevalently at the ceilings of both turret rooms, indicating roof leaks above. There is also considerable damage from water infiltration from a roof leak between the skylight and chimney on the east side of the main roof. This water infiltration has led to plaster damage at the ceiling and walls of the third floor landing and down the back-of-house stair, where the wood stair construction

Figure 2.64: Light well at the third floor.

Figure 2.65: Sloped ceiling at the third floor.

Figure 2.66: Third floor room at southeast turret, note plaster damage at ceiling.

Figure 2.67: Attic framing.

Figure 2.68: Art Deco ceiling mounted light figure.

itself is also deteriorated *(Figure 2.69)*. In addition to the aforementioned areas of significant damage, general plaster cracking is visible throughout the third floor. This damage appears to be age and settlement related and not necessarily indicative of an underlying problem. Ductwork has been installed in the third floor to serve the former event space below *(Figure 2.70)*. Luckily, the ductwork was routed from the exterior through existing window openings without permanently damaging the window sashes or frames. Small penetrations were cut in the wood floor to serve the space below.

Recommendations

As mentioned in the introduction of this section, roof replacement at the original house was completed in early 2020. The roof replacement also included targeted repairs to flashings and a chimney cricket that were thought to be responsible for the area of severe damage at the stair landing. Since the source of water infiltration has been repaired, it would be appropriate to repair the damaged plaster below once the building is again heated. All damaged plaster and substrate should be removed and replaced in kind to match the adjacent plaster. Small holes in the hardwood floors at the duct penetrations can be repaired with new hardwood strips cut at various lengths to blend in with the existing flooring. For recommendations at the ductwork itself, refer to *Appendix D*.

Figure 2.69: Plaster damage at third floor landing.

Figure 2.70: Ductwork at third floor windows serving event space below.

Basement

The basement at White Cliffs is accessed by the back-of-house stair, and does not contain any significant finished spaces. Most recently the basement served as utility and storage space; housing the furnace, ductwork, water heater, electrical and telephone equipment, oil tank, and all utility connections. Generally, all walls within the basement are constructed of load-bearing brick masonry with arched openings between rooms *(Figure 2.71)*. All ceilings and some walls are finished with simple wood paneling *(Figure 2.72)*. A concrete floor, dotted with various clean-outs, exists throughout the basement, except at isolated areas. Areas of water were noted at the floor in several locations *(Figure 2.73)*. Four steel columns on raised concrete footings appear to have been added at the center of the basement to help support the grand stair above. Wood paneling exhibits moderate moisture-related surface buildup, typical of a basement of this age and construction.

Figure 2.71: Typical brick masonry walls at basement.

As mentioned previously within this section, areaways punctuate all exterior foundation walls and provide the main route for utility connections, as well as water infiltration at the basement. In addition to the various areaways, there's a stair at the north exterior foundation wall of the basement that has been enclosed with modern concrete masonry units and wood framing *(Figure 2.74)*. This stair most likely was the only direct access into the basement from the exterior. The existing enclosure appears to have been created during construction of the 1969 ballroom addition, which engulfed the north elevation of the original house. There are two areas along the east exterior foundation wall that appear to be infilled openings in the original masonry. One of the openings may have connected to an areaway; the other does not appear to connect to any known construction. The site at this location has large areas of visible ledge, therefore, it's unlikely that any additional construction existed below grade at this location.

Figure 2.72: Wood paneled walls and ceiling at basement.

The spaces within White Cliff's basement are mostly vacant. There is little evidence left within these spaces to indicate their original use, except for the following examples. The room at the southwest corner of the basement, which currently contains the oil tanks and large ductwork, was apparently the original laundry room. A large soapstone sink with three basins and six taps stretches across the north wall of the space *(Figure 2.75)*. There is also a workbench in the far southwest corner of the room. A few loose boards at base of the workbench show a dirt floor below. This suggests that the concrete floor at the basement may have been a later addition. The room at the southeast corner of the basement, below the southeast turret, appears to have originally functioned as a wine cellar. The room, which is completely circular, is partially lined with narrow, sloped wood shelving. The shelving is built around ledge that rises out of the floor at the outer-most portion of the room, which corresponds to the visible ledge at the exterior of the

Figure 2.73: Evidence of water damage at basement slab.

Figure 2.74: Enclosure at original exterior basement stair.

Figure 2.75: Laundry sink.

Figure 2.76: Wine cellar shelving built over ledge.

building *(Figure 2.76)*. There is also a small bathroom at the southeast corner of the basement that aligns vertically with the bathrooms at the first and second floors. This is likely to have been a servants' bathroom due to its location and simple finishes. The bathroom has a plain, white subway tile wainscot with a thin green accent band. Walls above are plastered *(Figure 2.77)*.

Recommendations

Similar to other areas of White Cliffs, water infiltration must be addressed before repairs to specific building elements are undertaken. At the basement this includes repairs to the areaways, previously noted within this section; removal and replacement of failed MEP equipment, see *Appendix D*; video investigation and subsequent repairs to all below-slab sewer lines; and repairs to exterior masonry foundation walls, also previously noted within this section. The brick walls are in fair condition, with water damage visible at the lower courses, refer to *Appendix C* for recommendations. The concrete slab is in good condition, despite suspected repeated wetting. Wood paneling at ceilings and walls typically exhibits moisture related surface build-up. Since wood paneling has very little significance within the basement, it may be removed wherever damage is observed.

Figure 2.77: Tile at basement bathroom.

Additions Description and Condition Assessment

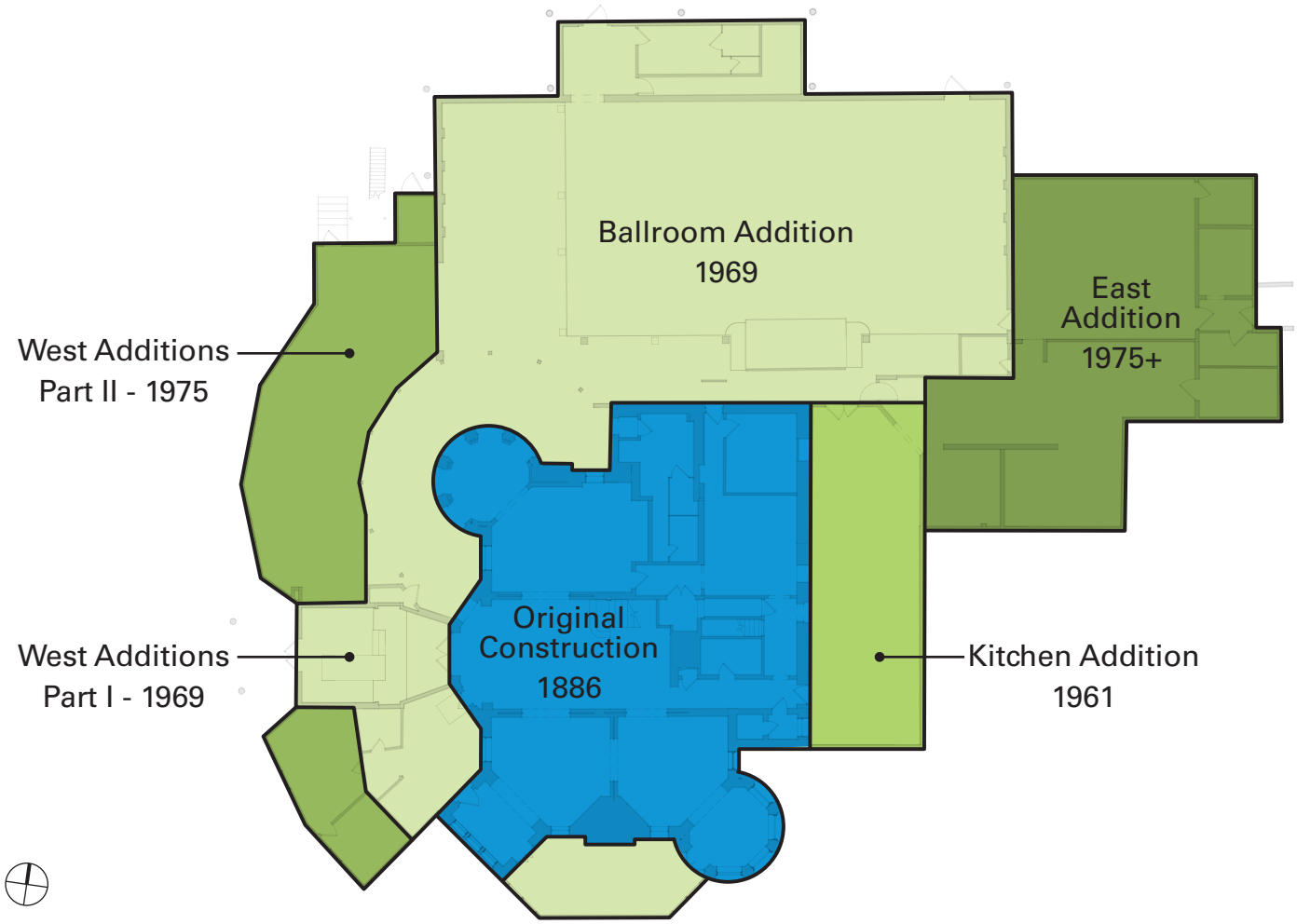


Figure 2.78: Diagram of additions at White Cliffs.

From the 1940s on, White Cliffs ceased functioning as a residence and became first a restaurant, then an event space, until its closure in 2014. Throughout the 1960s and '70s several additions were built on to the original house to aid in the building's transition in use. Little documentation is available for this time period except for building permits in the Town of Northborough's records.

The first building permit during this time period is from 1961 and describes the project as "… an addition to the existing building and will be utilized as a kitchen…" The permit application also provides the overall dimensions for the addition as 52' x 17' x 8'. These descriptions make it clear that the first addition was the long slender room added along the entire brick portion of the east elevation.

Published articles on the evolution of White Cliffs state that the construction of the large ballroom addition on the north elevation was completed in 1969, although no official documentation has been reviewed by DBVW.

A building permit and plot plan from 1975 were created for the addition of a cocktail lounge and the small office area on either side of the main entry at the west elevation. These documents show the ballroom and kitchen additions as existing. However, the back-of-house "east addition" attached at the end of the ballroom was not yet constructed as of 1975. No verification of the date of construction of the east addition has been found.

From more recent building permits, it appears that all post 1975 work at White Cliffs was limited to repairs and minor renovations.

Condition of Additions

1961 Kitchen Addition

The one story 1961 kitchen addition is constructed of concrete masonry unit (CMU) walls with a flat membrane roof. There is no basement and no interior partitions *(Figure 2.79)*. This addition covers the original east exterior wall at the first floor. However, it appears that the addition was built with an air space between the original exterior wall and the new construction, preserving the integrity of the original masonry wall. Window and door openings within the original wall were incorporated into the new construction or left in place and covered with the wall of the new addition.

The interior of this kitchen addition has been effected by significant water infiltration through the severely deteriorated membrane roof system *(Figure 2.80)*. The ceiling panels are failing and there is evidence of considerable water accumulation on the floor. The interior faces of the exterior walls are finished with tile, which is in fair condition. It is not possible to know the internal condition of the wall system without performing small areas of destructive demolition for visual assessment. However, the exterior of the CMU walls appear to be in fair condition.

Figure 2.79: Exterior view of the kitchen addition.

Figure 2.80: Interior view of the kitchen addition.

1969 Ballroom Addition

The approximately 5000 square foot ballroom addition provided White Cliffs with its only large event space. Similar to the kitchen addition, the one story ballroom appears to have been constructed with CMU exterior walls and a flat membrane roof, again with no basement *(Figure 2.81)*. On the exterior, the walls have been clad with vertical plywood siding and brick veneer. The interior of the space is more formally finished with paneled and wallpapered walls, carpeting, and a decorative suspended ceiling system *(Figure 2.82)*.

This portion of the addition completely engulfs the original exterior north wall. Unlike the kitchen addition, the original masonry exterior walls are left exposed and painted *(Figure 2.83)*. Window openings have been infilled with new masonry. Similar to the kitchen addition, the ballroom has not significantly altered the existing historic fabric of White Cliffs.

Although severe leaks have not yet appeared, areas of water infiltration are evident, especially where membrane roof construction abuts the original exterior masonry wall. The membrane roof system has exceeded its expected lifespan of about 20 years and significant ponding water was observed, indicating blocked roof drains. Water infiltration in the form of humidity is evident throughout this addition.

Figure 2.81: Exterior view of the ballroom addition.

Figure 2.82: Interior view of the ballroom addition.

Figure 2.83: Original exterior masonry wall beyond.

Figure 2.84: Exterior view of West Additions.

West Additions – Part I: Porches and Entrance

It appears that the enclosure of the original porches, the addition to the main entry, and the expansion of the second floor event space were completed at roughly the same time as the ballroom *(Figure 2.84)*. This series of alterations was constructed with concrete foundations, wood framed walls, and flat membrane roofs. Although these alterations are in better condition than the ballroom and kitchen, they have significantly destroyed or modified the original historic fabric; including the complete removal of the second floor of the exterior west wall. Enclosure at the porches was less destructive, and typically encapsulated the porch structure within a new building envelope.

West Additions – Part II: 1975 Cocktail Lounge and Office

The cocktail lounge and office addition is mostly attached to the previous west additions and is of similar construction. Although the condition of these additions is fair, they compound the issues noted in the previous paragraph.

East Addition

The addition at the east end of the ballroom provides additional support spaces for the ballroom and catering kitchen. Similar to the kitchen and ballroom additions, the east addition is constructed with CMU walls and a flat membrane roof *(Figure 2.85)*. Like all other additions, there is no basement. The east addition connects directly to the kitchen and ballroom additions and is divided into nine rooms. There is no direct attachment to the original construction of White Cliffs.

The entirety of the east addition displays the most severe water infiltration of anywhere within the original portion of White Cliffs or the additions. Significant standing water, building material destruction, and mold are evident. The worst water infiltration appears to be coming from the connection between the east and ballroom additions where there is a difference in height between the two roof systems, which is also the location of a large roof top mechanical unit that penetrates the lower east addition roof *(Figure 2.86)*. The suspended ceiling tile adjacent to this active leak has completely failed and standing water is visible at the floor *(Figure 2.87)*. Mold is pervasive throughout the east addition as a result.

Recommendations for Additions

Kitchen, Ballroom, and East Additions

Preventing water and moisture infiltration from affecting the historic portion of White Cliffs is the biggest concern regarding the additions. Due to the extent of water infiltration at the kitchen, ballroom, and east additions, complete or partial demolition of the additions is recommended. However, the determination of how much construction is salvageable would need to be made after careful investigation of the existing conditions. All roof systems need to be replaced *(Figures 2.88-89)*, although the condition of the roof structure below is unknown. An environmental report commissioned by the Town of Northborough indicated that the existing flat roof systems on all additions contain hazardous materials. The presence of water damage and mold throughout the kitchen, ballroom, and east elevations greatly limits the amount of salvageable construction to unaffected structural elements such as CMU walls and roof and floor framing.

If the complete or partial demolition of additions is not feasible, intermediate steps should be taken to protect the historic fabric of White Cliffs. Active roof leaks at the additions may be flashed or patched to provide a temporary "band aid" that will not solve the problem permanently, but may buy more time until demolition can be performed. Other minor protective measures that may be undertaken include replacement of failed trim, sealing of large gaps, and covering vulnerable windows with plywood. These small acts will help prevent water, animals and even trespassers from unwanted entry into the building.

There is already a considerable amount of mold growth in the additions, even with the temporary repairs to leaking building components that have been competed. The existing moisture and mold in the additions poses a continued threat to White Cliffs. The construction of temporary separations between the new additions and the original house will help slow the infiltration of mold into the historic building. Simple wood framed plywood enclosures may be constructed within existing openings of the original exterior walls of the house. These enclosures should be sealed on all sides, but cannot be expect to be completely air tight. Access between the original construction and the additions should be preserved because the existing functional electrical and fire alarm systems are not separated between the house and the additions. Access can be achieved through an existing door or through a new door installed within an enclosure.

At the time that complete or partial demolition of additions is possible, care must be taken to protect any portions of the original building that may be compromised. Although the kitchen, ballroom, and east additions do not appear to have structurally compromised the original building, repairs and enclosures will be needed where addition roofs have been tied into the original building envelope and where windows and doors have been removed.

Figure 2.85: Exterior view of east addition.

Figure 2.86: Area of active water infiltration at east addition roof.

Figure 2.87: Result of active water infiltration at east addition roof.

Figure 2.88: Ponding water at the roof of ballroom addition.

Figure 2.89: Ponding water at the roof of the ballroom addition.

Figure 2.90: View from inside the second floor of the west addition toward the location of the removed exterior wall. Note the structural column in the right of the image.

West Additions

As mentioned previously, the several additions on the west facade of White Cliffs are in better condition than other additions. However, these additions had greater impact on the historic building fabric. At the time that a restoration project at White Cliffs is able to be undertaken, these additions must be carefully demolished so that as much of the original building construction as possible is preserved. The infill of the south porch and the encapsulation of the west porches appear to have preserved most, if not all, of the existing porch structure. Therefore demolition will need to be performed surgically to ensure that the historic building components are not compromised. Refer to *Porches* within the exterior portion of this section for more information.

The upper portion of the west additions, which enlarged the second floor event space, completely removed the historic west façade at the second floor *(Figure 2.90)*. It appears that the weight of the third floor exterior wall has been transferred to a pair of metal posts that were installed when the second floor wall was demolished. Removal of this portion of the addition may necessitate shoring and will certainly require temporary projection until the west elevation can be reestablished and properly enclosed. Unlike other addition removals, the west additions will require the most reconstruction of historic fabric. Luckily, the original west elevation has been well documented in historic photographs.

Sequential Demolition

In terms of water infiltration, the kitchen, ballroom, and east additions provide the greatest threat to the historic fabric within White Cliffs. Ideally these additions would be demolished in one phase. A portion of the west additions is structurally attached to the ballroom addition. If the west additions are demolished at a separate time from the ballroom addition, the remaining addition will need to be temporarily supported and enclosed.

Due to the level of deterioration throughout the additions, attempts to salvage portions of the additions would most likely be more complicated and costly than complete demolition, and is not recommended. Regardless of the extent or sequence of demolition, building and site utilities will have to be modified to keep the property safe, and to preserve the electrical service within the original house. As mentioned previously, all flat membrane roofs contain hazardous materials and would need to be abated by a licensed contractor.

STRUCTURAL AND BUILDING SYSTEMS DESCRIPTION AND CONDITION ASSESSMENT

Figure 2.91: View of components of the existing mechanical and plumbing systems at the basement.

White Cliffs was assessed by a team of structural, mechanical, electrical, plumbing, and fire protection engineers in January 2020. This assessment was focused on the historic White Cliffs building and its associated building systems. The additions were not investigated in great detail. For the engineers' full reports see *Appendices C and D*.

Structural Systems

The structural assessment of White Cliffs found no deficiencies that would make the building unsafe or unsuitable for renovation or future occupancy. The following structural concerns were noted and further investigation is recommended:

- Localized attic fire damage (some of which was repaired when the roof was replaced)
- Localized deterioration of floor joists
- Localized deterioration at roof leaks
- Mortar and brick deterioration at basement walls and chimneys

No structural concerns were noted related to the potential demolition of the additions.

Building Systems

The mechanical, electrical, and plumbing assessments of White Cliffs determined that almost none of the existing building systems can feasibly be reused in the original building or additions. Currently the only active building system at White Cliffs is the electrical service. However, the distribution, lighting, life safety, and fire alarm systems are outdated and not salvageable for future use. All of the mechanical equipment has been inactive for years and is not usable. Plumbing fixtures are also not salvageable, and distribution systems must be tested to determine if they are reusable. There is currently no fire protection sprinkler system installed in White Cliffs.

Electrical and plumbing systems appear to be fed from the original building. Therefore, if demolition of the additions is undertaken it would be easy to identify and cap branches of the system which serve the additions. Mechanical systems which serve the original building and additions are not combined. The systems that serve the additions can be removed without affecting the original building.

Code Assessment

A full code assessment of the existing conditions was not performed at White Cliffs. Code requirements vary depending on the building's occupancy classification. Therefore, a code analysis is recommended at the time a new use is determined. Since White Cliffs is currently unoccupied, reuse of the building under any occupancy would be considered a "change of use" and would eliminate any potential for existing nonconformance to be deemed acceptable. Under most reuse scenarios a fire protection sprinkler system would be required by code in the historic building. The routing of this system poses an extremely difficult task give the level of decorative finishes throughout much of the first and second floors.

SECTION III :

PRIORITIZATION OF CHARACTER DEFINING FEATURES

NOTE: THE FOLLOWING CHART DESCRIBES "CHARACTER DEFINING FEATURES" AND ATTRIBUTES A HIGH OR MEDIUM LEVEL OF SIGNIFICANCE TO EACH. WHITE CLIFFS IS SO ARCHITECTURALLY SIGNIFICANT THAT MOST OF ITS FEATURES COULD BE IDENTIFIED AS "CHARACTER-DEFINING" TO SOME EXTENT, EXCEPT OF COURSE THOSE THAT ARE NOT ORIGINAL. THE CHART BELOW HIGHLIGHTS THE FEATURES THAT ARE THE MOST CHARACTER-DEFINING.

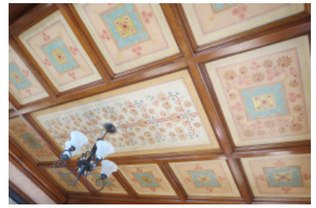
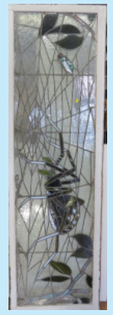
PRIORITIZATION OF CHARACTER DEFINING FEATURES

NUMBER	LOCATION	FEATURE	DESCRIPTION	LEVEL OF SIGNIFICANCE	IMAGE
1.	Exterior	Roof - overall form	Steep gabled roofs with multiple dormers. Turrets originally had bell-shaped roofs that have been replaced with flat roofs.	High	 
2.	Exterior	Chimneys	Tall, decorative chimneys feature brick and terra cotta ornament.	High	 
3.	Exterior	Turrets	Multi-faceted turrets adorn the northwest and southeast corners of the house. Both have lost their original roofs and currently have flat roofs.	High	 
4.	Throughout	Windows	Multiple window designs with varying configurations and muntin patterns adorn the facades.	High	 

PRIORITIZATION OF CHARACTER DEFINING FEATURES

NUMBER	LOCATION	FEATURE	DESCRIPTION	LEVEL OF SIGNIFICANCE	IMAGE
5.	Exterior	Exterior wood decorative elements	The exterior is characterized by multiple types of wood ornamentation, including decorative sidewall shingle patterns, bracketed cornices, and ornamental trim profiles.	Medium (Note: each element is of medium significance, however, cumulatively these elements are of high significance)	 
6.	South elevation (and formerly on west elevation)	Porches	Historically there were large open porches on the south and west elevations of the first floor. These have been enclosed and/or subsumed by later additions. An open porch on the south elevation at the third floor remains intact.	Medium (Note: if the first floor porches were restored, they would be of a higher level of significance)	 
7.	Interior, two floors	Main staircase	A large, open, decorative staircase is located in the center of the building. It was capped by a decorative lay-light, with skylight above (see stained glass windows, item X).	High	 
8.	Multiple	Fireplaces	Multiple ornate fireplaces exist on the first and second floors. The fireplaces feature decorative wood surrounds, tile, stone and metalwork.	Medium	 

PRIORITIZATION OF CHARACTER DEFINING FEATURES

NUMBER	LOCATION	FEATURE	DESCRIPTION	LEVEL OF SIGNIFICANCE	IMAGE
9.	Multiple	Decorative inteiror woodwork	Decorative woodwork adorns fireplaces, stairs, window and door openings, walls, etc.	Medium	 
10.	Multiple	Decorative ceilings	Multiple decorative ceilings on the first and second floors feature wood coffers of various patterns and decorative, stenciled paint schemes.	Medium	 
11.	Multiple	Stained Glass	Many of the windows, as well as the laylight above the central stair, contained decorative stained glass panels. The stained glass has been removed and is in storage. Collectively it represents a character defining element.	Medium to High	  

PRIORITIZATION OF EXTERIOR STABILIZATION WORK

Figure 3.1: View of the south elevation after roof replacement.

Figure 3.2: Vulnerable first floor windows at the southeast turret.

Figure 3.1: Connection between the original building at additions.

The following summary of scope is based on construction documents and specifications issued by DBVW Architects on 4/5/2019. Scope noted with an asterisk (*) was completed in early 2020 as a limited emergency repair project due to funding constraints. All other scope has not yet been addressed. Completion of this scope is recommended by DBVW when funding becomes available.

Exterior Scope

Building Envelope Repairs at Original Building

- Replace asphalt roof system and flashings.*
- Replace flat membrane roof system and flashings at both turrets.*
- Replace fire damaged roof substrate at west gable.*
- Replace existing skylight. Replace adjacent water damaged roof substrate.
- Replace and enlarge cricket behind east chimney.*
- Replace or reline select gutters. Replace missing and undersized downspouts.
- Secure east dormer, including salvaging windows and replacement of deteriorated wood panels, shingles, and trim.

Intrusion Protection

- Provide painted plywood panels over vulnerable exterior window openings at the original building and additions.
- Remove the existing fire escape stair which provides access to the roof of the ballroom addition.

Interior Scope

- Separate the historic interior of the original building from the areas of the additions exhibiting severe water infiltration with the installation of wood framed plywood enclosures in existing interior door and window openings.

Alternates

- Alternate 1: Repair the south chimney, including removal of paint, 100% repointing, select brick replacement, and partial rebuilding.
- Alternate 2: Crate previously salvaged stained glass to prevent further deterioration.
- Alternate 3: Demolish portions of the additions where the most significant water infiltration is observed. Provide weather tight enclosures at new exterior openings resulting from removals.

SECTION IV :

FEASIBILITY AND REUSE

POTENTIAL REUSE OPTIONS

Figure 4.1: View of the Library set up as an event space.
Source: Town of Northborough.

Working closely with the Town's advisory committee, DBVW Architects developed a list of potential reuse options for White Cliffs. The list was initially very broad to include as many options as possible and was then distilled down to the most feasible options.

The full list of options included six categories of reuse: residential, cultural, municipal, hospitality/event, educational/institutional, and commercial. Within these categories, the six uses were further defined as follows:

- Residential: Condominiums, apartments, affordable housing and/or senior housing
- Cultural: House museum and/or arts center
- Municipal: Town hall, community center, and/or municipal offices
- Hospitality/Event: Restaurant, microbrewery, hotel, bed & breakfast, conference center, and/or event space
- Educational/Institutional: Conference center, event space, classroom, and/or office
- Commercial: Office, medical, retail or funeral home

The *White Cliffs Reuse Analysis* chart includes additional information pertaining to ownership, financing considerations, and the pros and cons of each potential reuse option. Based on the evaluations in this chart, the committee refined our study to focus on three potential reuse options: hospitality/event, municipal and residential. The *White Cliffs Reuse Comparison Matrix* provides rough cost estimates for each of the three uses for planning purposes only. Each of these uses was developed further from an architectural perspective to determine how the house might be repurposed and whether or not any new construction on the site was recommended as part of the reuse. Refer to the schematic plans and diagrams on the following pages. DBVW and Peregrine Group, LLC, who is DBVW's consultant for market feasibility, then developed an analysis of each of the options to determine its market feasibility and cost/revenue projections.

Successfully preserving White Cliffs is one of the key goals of any reuse scenario. For this reason, it is recommended that the existing additions be removed regardless of which reuse option is pursued. The additions are generally in extremely poor condition and they detract significantly from the historic character of the property. The only possible exception to this is the kitchen addition on the east side, which could potentially be reused under the hospitality/event space scenario, however, removing it is preferable from a preservation perspective.

Hospitality/Event Use

Hospitality and event space is the category for which White Cliffs had been used since 1945. While this use was ultimately not sustainable under the previous ownership (partially due to too much deferred maintenance), it is still a use that is worth considering. Hospitality/event use is compatible with the historic nature of the property and it allows for the greatest retention of original features within the house.

White Cliffs could resume use as event space for small weddings, corporate events, community events and the like without significantly altering the building. As with any of the proposed uses, the building would have to be brought up to code, which would mean adding an egress stair (and potentially seeking relief to use the main stair as a means of egress), making the building accessible (including adding an elevator), and adding a fire suppression system. Under this scenario, space would be provided for caterers, however, a commercial kitchen would not be provided.

Event space within the house could be supplemented by the construction of a new building that would be connected to White Cliffs and that could accommodate large functions (+/- 250 people), a commercial kitchen, and additional bathrooms. In the attached conceptual design, the intent of the new addition is that it would be similar in scale and form to the large, historic greenhouse that used to exist to the south of White Cliffs (see historic image). As demonstrated in the financial analysis, the cost of constructing such an addition is probably not justified by the increase in revenue it would provide based on the ability to accommodate larger functions.

Municipal Use

Since the Town of Northborough is looking into options for relocating their town hall, it is logical to consider White Cliffs for this potential reuse. While the house itself cannot accommodate very many of the spaces that a town hall would require, the house could be used as an accessory building to a larger new facility. Under this scenario, the house could be preserved for meeting rooms and limited office space, while most of the town hall would be accommodated in a new building connected to White Cliffs. The historic house could also be rented out for small functions when not in use by the municipality. One of the benefits of this reuse option is that White Cliffs would remain open to the public. The size of the addition that would be needed to accommodate a town hall is significant. For this reason it must be very carefully designed to be compatible with and not overwhelm White Cliffs. The massing study in this report demonstrates the scale of an addition that is 22,000 square feet, which is approximately what would be required to accommodate town hall functions. (It is important to note that a programmatic analysis is needed to determine exactly how much new space is needed for a town hall.)

Residential

Residential use was also considered as a reuse option because White Cliffs is within and abuts a residential neighborhood. This reuse option is only worth considering if new residential units are constructed on the property to support the very limited number of residential units that could be accommodated within the house. Under the residential reuse scenario, the first floor of White Cliffs would remain as common space (that could also be used for public functions) because the historic nature of first floor does not lend itself to being carved up as residential space. The second and third floors could be converted to two townhouse units, which would necessitate adding stairs and an elevator.

The site can accommodate approximately 20 units of housing in five new buildings that are two and one half stories each. These units would most likely need to be sold as market-rate units to generate as much income as possible to support the restoration of White Cliffs, however, if funds were available they could also be constructed for affordable or workforce housing to address this need in the community. Constructing five new buildings would, of course, involve significant site development costs. Five new buildings containing 20 units is not the only way to add residential units to the site. However, this configuration makes sense in terms of scale and density.

Zoning

The White Cliffs property is located partially within a business zone (along Route 20) and partially within a residential zone. Zoning relief would be required for both the residential use (due to density) and the event space use. If the property were to be used for municipal purposes, zoning relief would not be required because a municipal use is exempt from zoning requirements.

Financial Feasibility

As demonstrated in Peregrine's market feasibility study, each of the proposed uses described above would have a significant shortfall in terms of the cost to preserve the

building and develop the property versus the anticipated revenue that could be generated. The municipal use, because it would generate little or no revenue, would have the greatest shortfall. Each of the uses evaluated would require some degree of subsidy to move forward.

The construction budgets included in this report represent order-of-magnitude costs based on the team's professional experience. They were developed on a cost-per-square-foot basis and are meant for planning purposes only. These numbers are **not** the result of the development of detailed cost estimates.

Preservation Lite

In the fall of 2020, the Town of Northborough asked DBVW Architects and the Peregrine Group to explore a fourth option, focused on the immediate future of White Cliffs. This option, playfully titled "Preservation Lite", represents the minimum essential upgrades required to stabilize the existing building and prevent further deterioration without assuming any specific future uses.

"Preservation Lite" includes basic restoration of the historic house, focusing on integrity of the building envelope, installation of all new building systems and utilities, and repairs to the interior. In this option the Kitchen, Ballroom, and West Additions would be retained and repaired; with only the East Addition being demolished. Work at the additions would include new roof systems, exterior wall cladding, and structural enclosures where the West Addition is removed. Interior work at the additions is limited to the removal of deteriorated finishes, providing a "blank slate" for future reuse. No new construction is included in this option, and only necessary site improvements related to utility upgrades and demolition are assumed.

White Cliffs Reuse Analysis Chart

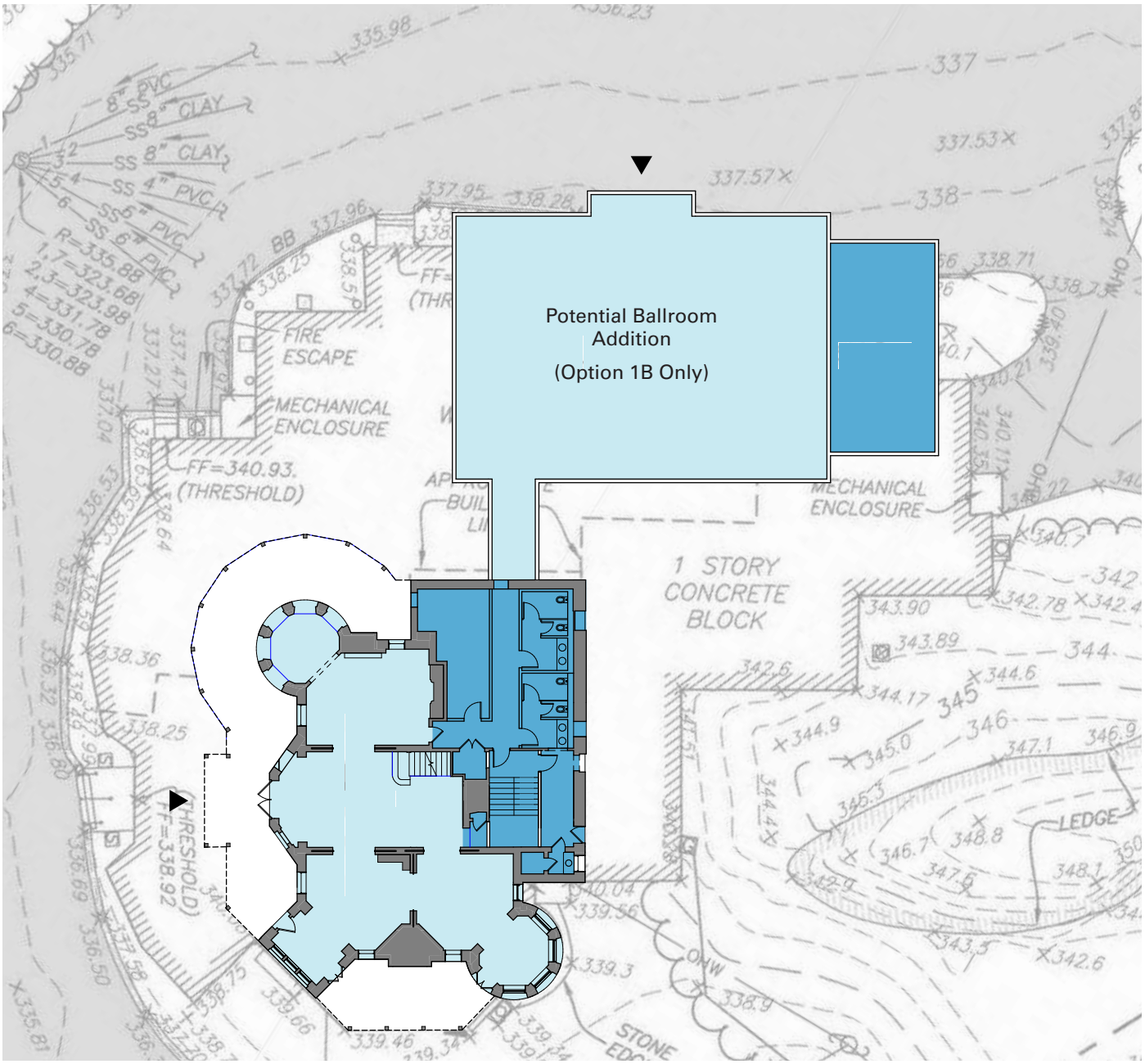
Category	Use Types	Ownership	Financing Considerations	Pros	Cons	Evaluation
Residential	Condominiums	Private / Management Company	Potential for partial market financing Large financial investment Assumed need for density to make financially viable may require significant new construction on site.	Capitalize on historic exterior Compatible with residential neighborhood Potential to use house as a community center or other publicly accessible ammenity	Moderate to major architectural impact on interior Limited site for development House not available to public	**Pursue** (due to compatibility with neighborhood)
	Apartments	Private / Management Company				
	Affordable Housing	Private (Non-Profit) or Housing Authority				
	Senior Housing	Private or Housing Authority				
Cultural	House Museum	Private (Non-Profit)	Large financial investment Potential for tax credits / grants Reliance on donor support Limited to no opportunity for market financing	Capitalize on historic exterior and interior Minor impact on existing building Community benefit House becomes available to public	Contingent on owner / operator / organization that will drive the process; or clear operating / fundraising affiliation. Limited identified need in area House museums within the region are challenged with economic sustainability	Do not pursue (due to owner / operator concerns)
	Arts Center					
Municipal	Town Hall	Town of Northborough	Significant financial investment No / Limited market financing solution	Capitalize on historic exterior and interior Community benefit House becomes available to public Ample parking Could combine with other uses (i.e. event) Building already owned by town	Moderate impact on interior Large addition required	**Pursue** (due to ownership by Town and need for improved administrative / municipal space)
	Community Center					
	Municipal Offices					
Hospitality / Event	Restaurant	Private	Potential for partial market financing Medium to large financial investment Phased approach may help financial viability by deferring portion of capital raise until after demand is proven/established	Capitalize on historic exterior and interior House becomes somewhat available to public Ample parking History of restaurant and event use Variety of different size spaces already exist Potential for phasing construction	Moderate impact on interior Addition likely to be required Owner / Operator structure to be determined based on various models Limited need in area Commercial kitchen likely to be required Use may impact surrounding residential uses via noise, traffic in evenings / weekends	**Pursue** (due to history of similar use)
	Microbrewery					
	Hotel					
	Bed & Breakfast					
	Conference Center					
	Event					
Educational / Institutional	Conference Center	Institution or Non-Profit	See above	See above	Difficult to find owner, requires commitment by local institution	Pursue only in combination with another use
	Event					
	Classroom					
	Office					
Commercial	Office	Private / Management Company	Potential for partial market financing Large financial investment Market financing may be largely dependent on identified/credit-worthy lease or identified user	Ample parking Proximity to town center (under 1 mile)	Moderate to major impact on interior Availability of lower cost commercial space in Northborough No foot traffic Potentially difficult to find owner	Do not pursue (due to lack of need in local market)
	Medical					
	Retail					
	Funeral Home					

White Cliffs Reuse Comparison Matrix

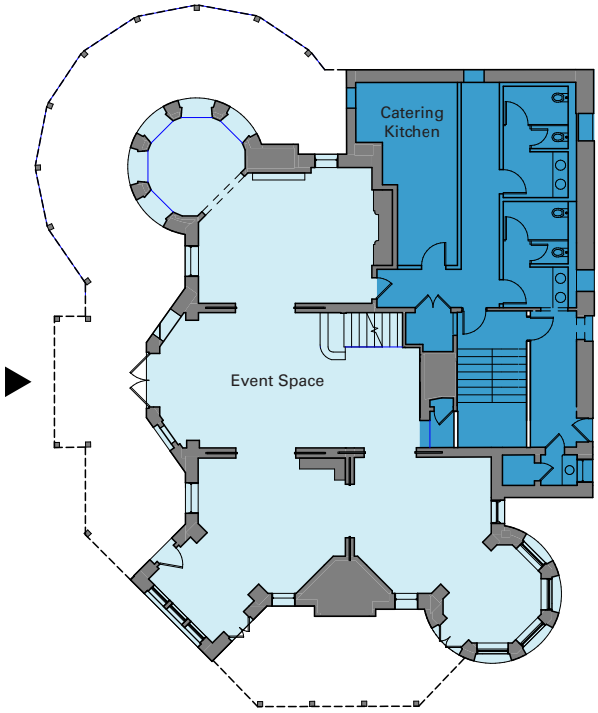
	Category	Restoration of White Cliffs	Added Cost Based on Use	Demolition of Additions (Including Haz-Mat)	New Construction	Site Improvements	Construction Costs		Soft Costs (30%)	Total	Next Steps for Town
		10,205 GSF	By Use Category	11,360 GSF	By Use Category	283,544 GSF	Hard Costs	Contingency (10%)			
1A	**Hospitality / Event** (within Existing House Only)	**$6,633,250** ($ 650 / SF)	Not Applicable	**$454,400** ($ 40 / SF)	Not Applicable	**$750,000**	**$7,837,650**	**$783,765.0**	**$2,351,295.0**	**$10,972,710**	Seek zoning relief Identify operator Conduct detailed market study
1B	**Hospitality / Event** (w/ New Ballroom / Kitchen Addition)		Not Applicable		Ballroom and Commercial Kitchen (4,550 GSF) **$2,161,250** ($ 475 / SF)	**$1,500,000**	**$10,748,900**	**$1,074,890**	**$3,224,670.0**	**$15,048,460**	See above
2	**Municipal** (1st Floor Meeting / Event Space)		Not Applicable		Town Hall (22,000 GSF) **$12,650,000** ($ 575 / SF)	**$1,500,000**	**$21,237,650**	**$2,123,765**	**$6,371,295.0**	**$29,732,710**	Evaluate public financing options Conduct programming study Complete inventory of Town owned property
3	**Residential** (1st Floor Meeting / Event Space)		2 Residential Units 2nd & 3rd Floors (6,325 GSF) **$632,500** ($ 100 / SF)		5 Buildings w/ 4 Residential Units Each (23,000 GSF) **$4,025,000** ($ 175 / SF)	**$2,000,000**	**$13,745,150**	**$1,374,515**	**$4,123,545.0**	**$19,243,210**	Seek zoning relief Identify developer Begin fundraising for restoration
4	**Minimum Essential Upgrades** "Preservation Lite"	**$3,061,500.00** ($ 300 / SF)	Reno of Select Additions (9,080 GSF) **$908,000.00** ($ 100 / SF)	Removal of Select Additions (2,280 GSF) **$91,200.00** ($ 40 / SF)	Not Applicable	**$200,000**	**$4,260,700.00**	**$426,070**	**$1,278,210.00**	**$5,964,980.00**	**OPTION 4 - SCOPE CLARIFICATIONS** Minimum preservation of White Cliffs exterior and interior finishes Complete replacement of MEP/FP systems Demolition of heavily deteriorated additions Replacement of roof and exterior cladding at remaining additions including abatement "Blank slate" removal of interior finishes at addition to remain No site work beyond utility upgrades and work related to demolition of additions

NOTES
1. The preceding Comparison Matrix are intended for planning purposes only. These costs are being provided by DBVW Architects and our consultants based on our collective experience; however, they do not represent a professional cost estimate.
2. Soft costs, such as design and construction contingencies and architectural and engineering fees, are included as a percentage increase, but should be verified if the project moves forward.
3. Estimates provided reflect 2020 numbers. Escalation has not been included since a time frame has not be established.
4. Ownership and delivery method are presently unknown and will affect planning order of magnitude costs indicated in this Comparison Matrix.
5. Acquisition cost has not be included in this Matrix.

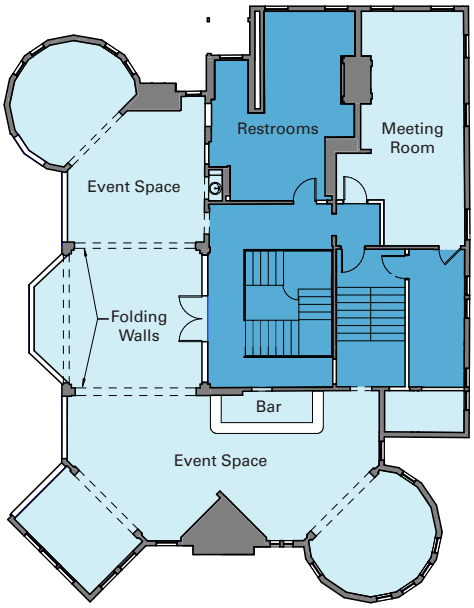
Hospitality / Event Use Schematic Site Plan



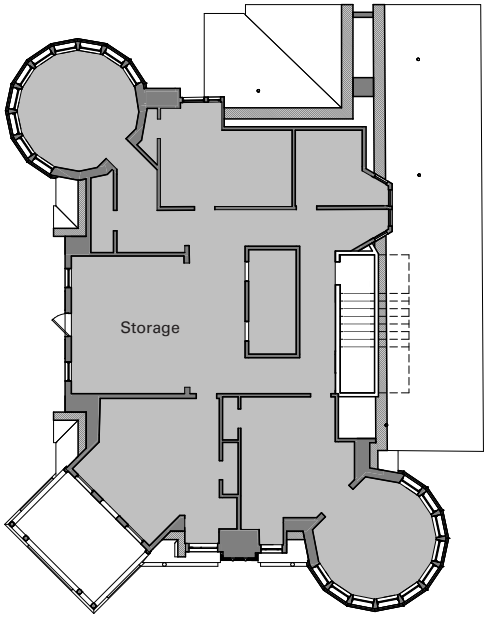
Option 1A - Hospitality / Event Use Schematic Floor Plans



First Floor



Second Floor



Third Floor

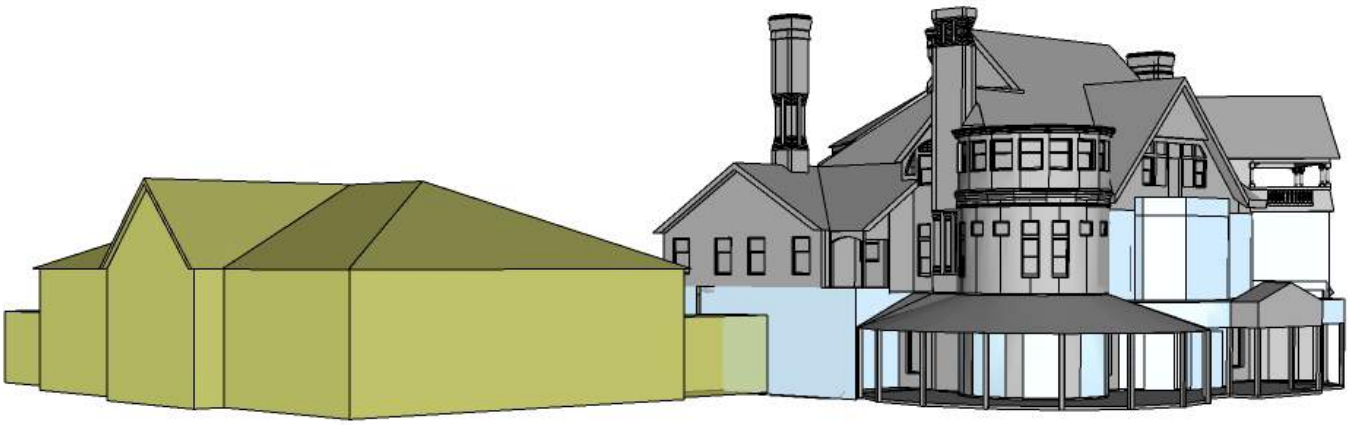
Event Space

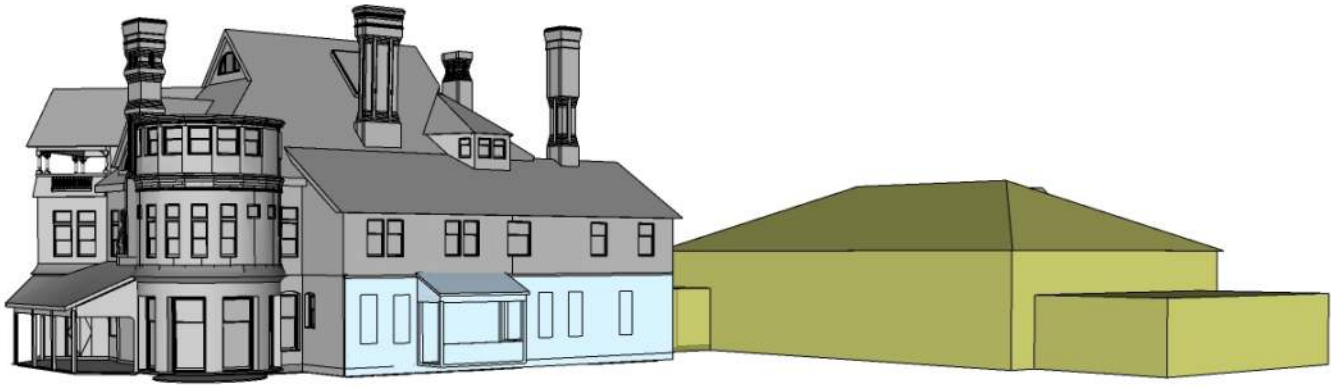
Event Support Space

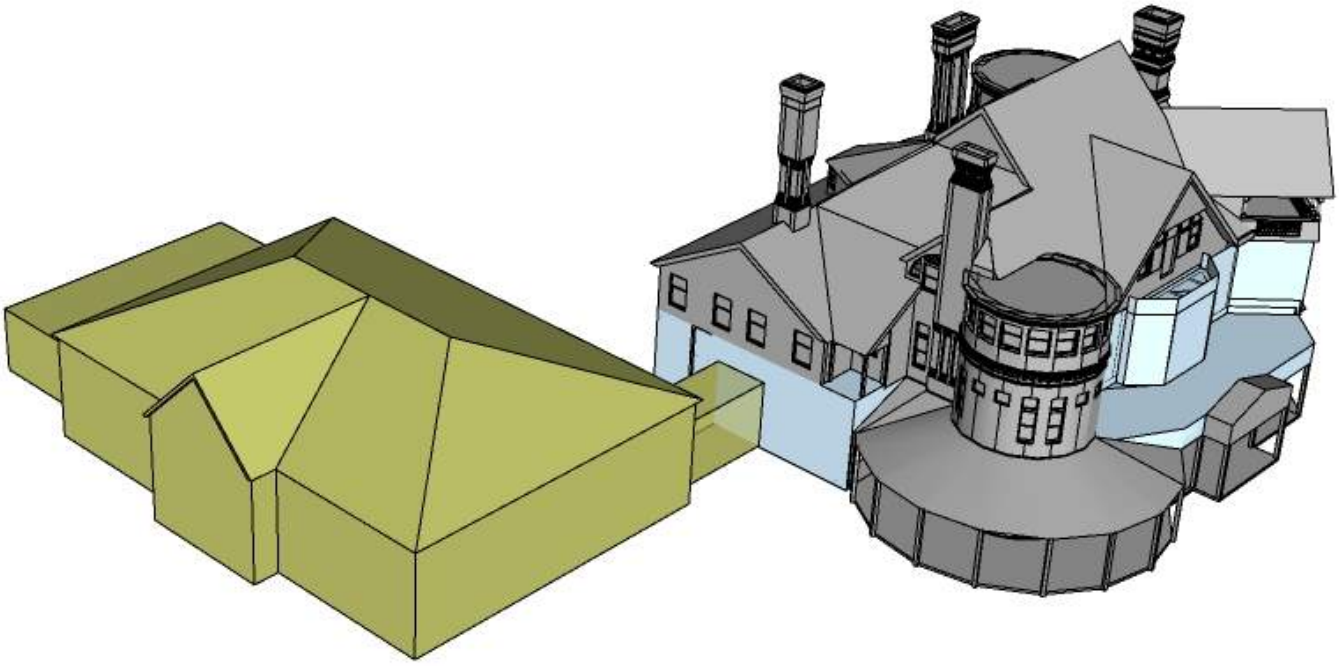
Storage

Option 1B - Hospitality / Event Use Schematic Massing Diagrams

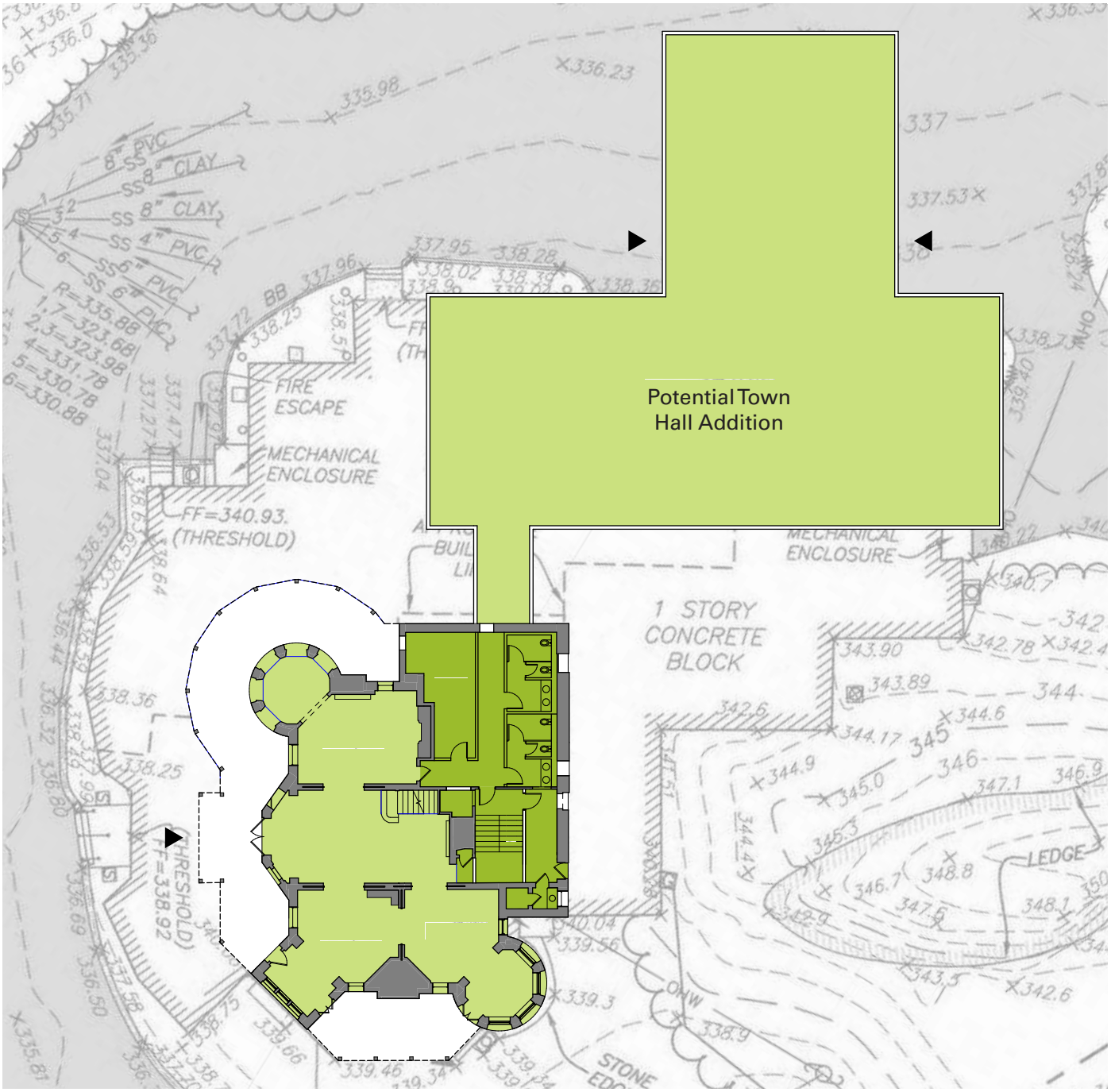
With Potential Ballroom Addition





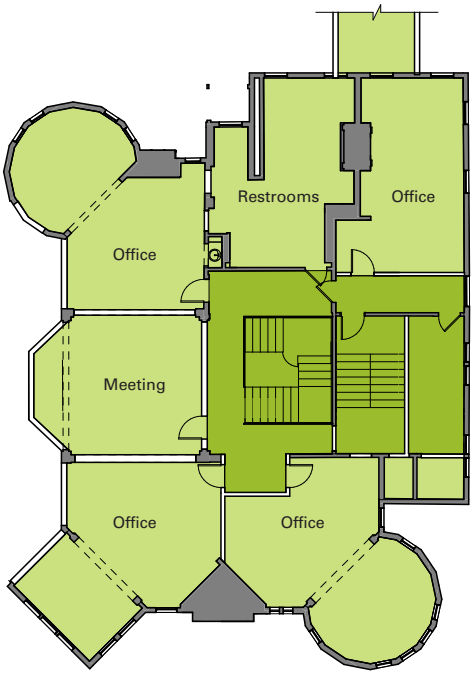


Municipal Use Schematic Site Plan

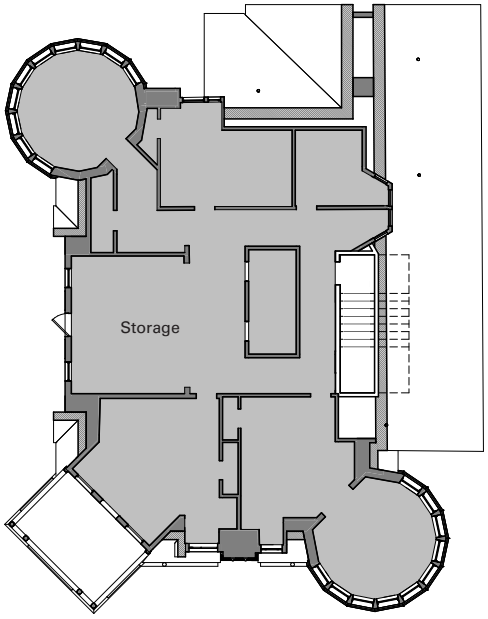


Option 2 - Municipal Use Schematic Floor Plans

First Floor



Second Floor



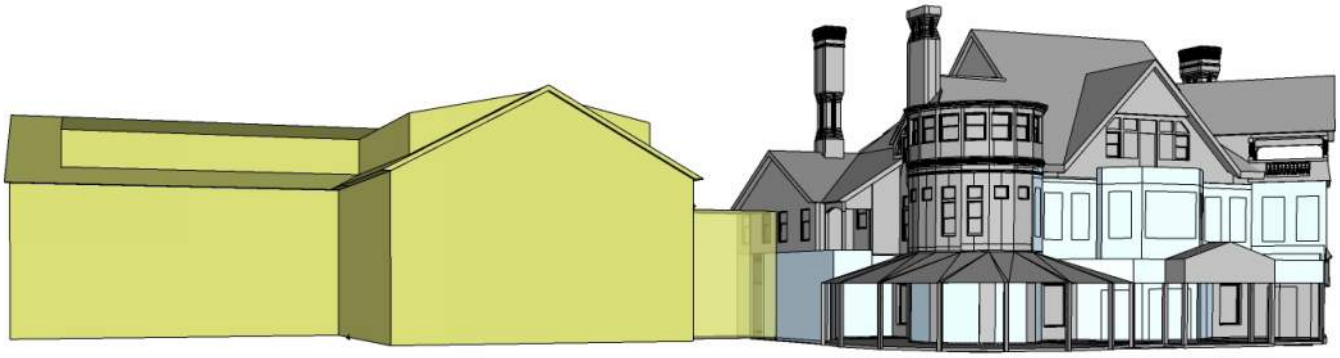
Third Floor

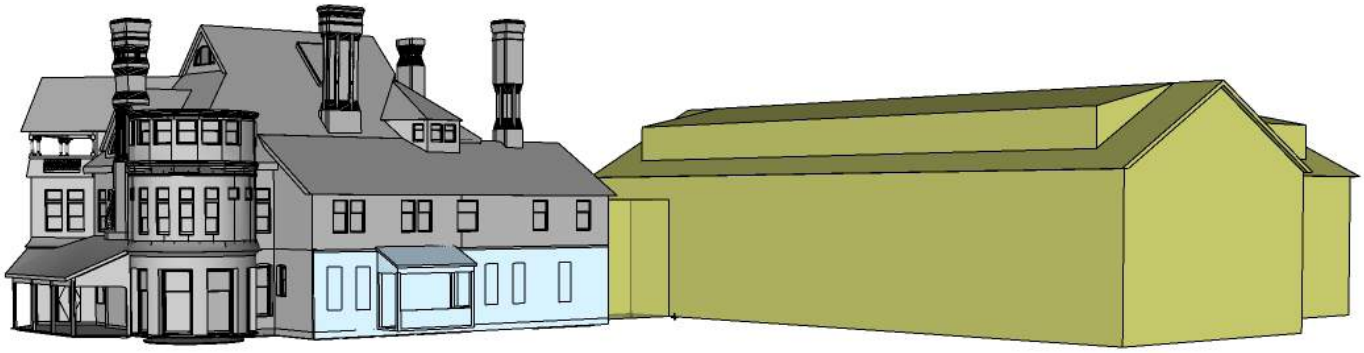
Town Hall Program Space

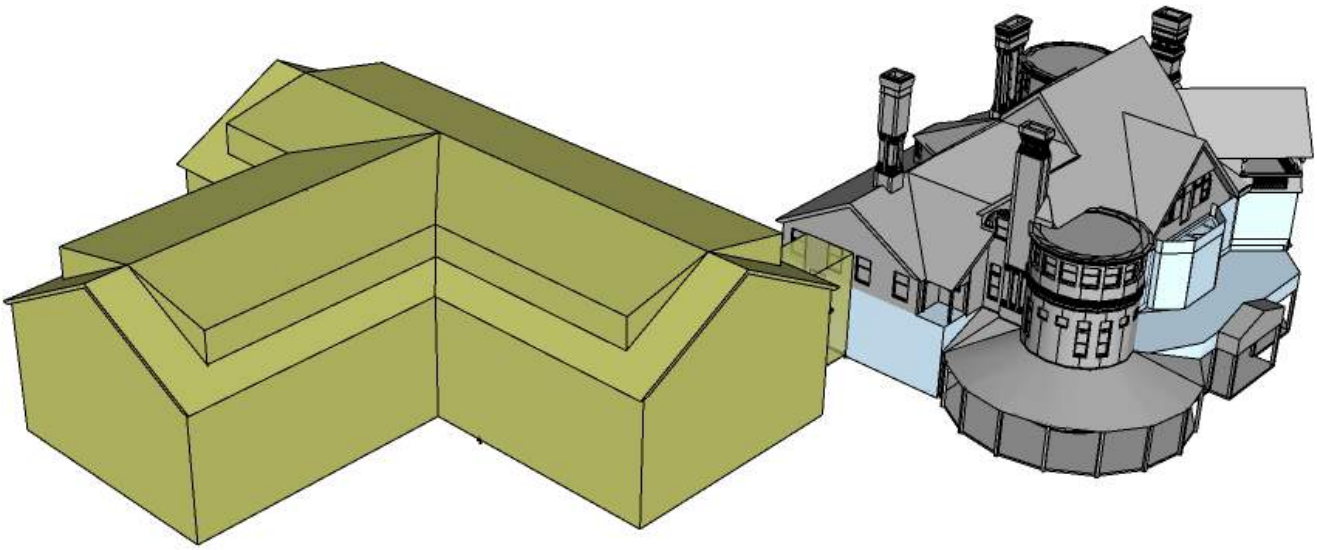
Town Hall Back of House Space

Storage

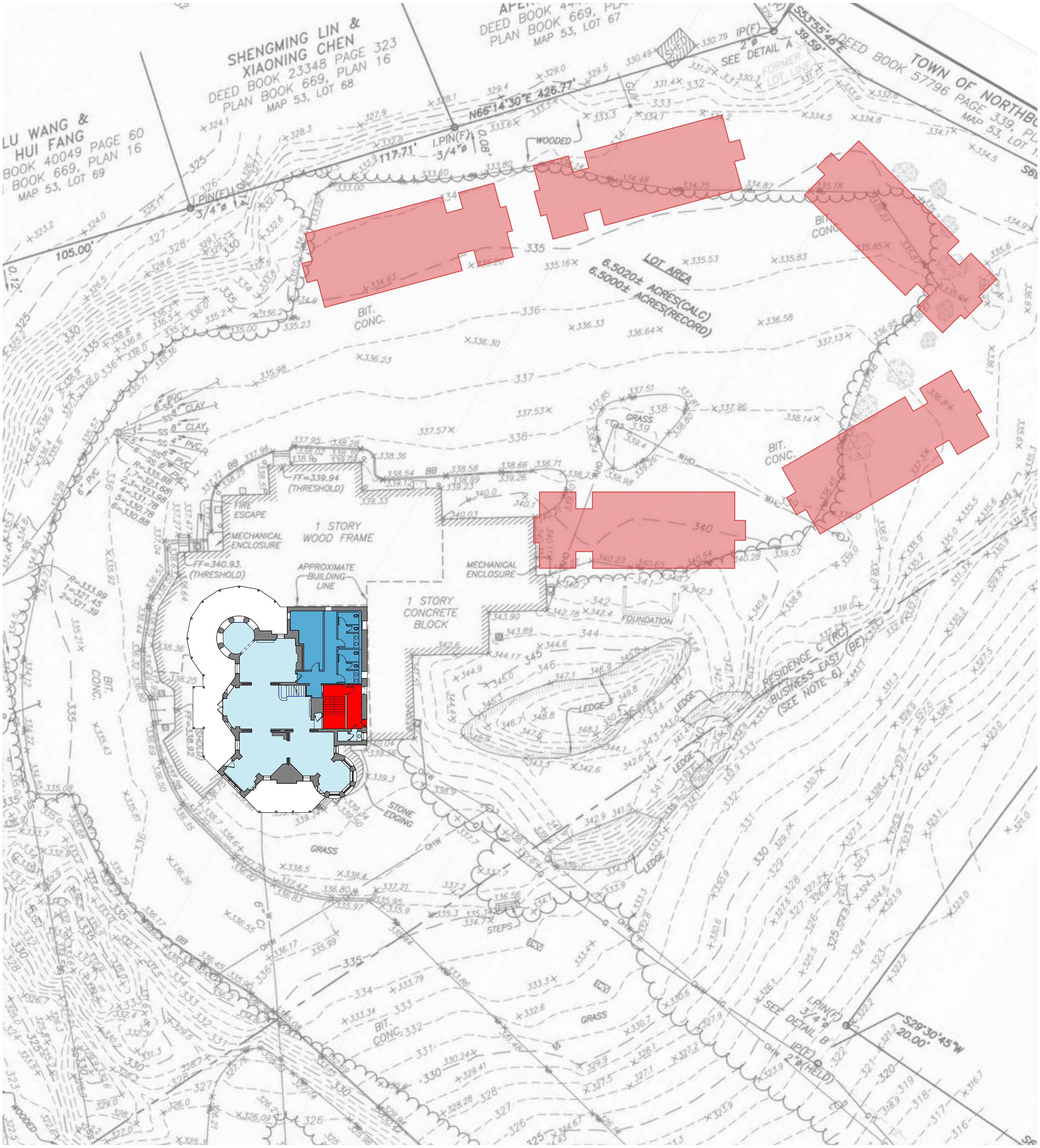
Option 2 - Municipal Use Schematic Massing Diagrams



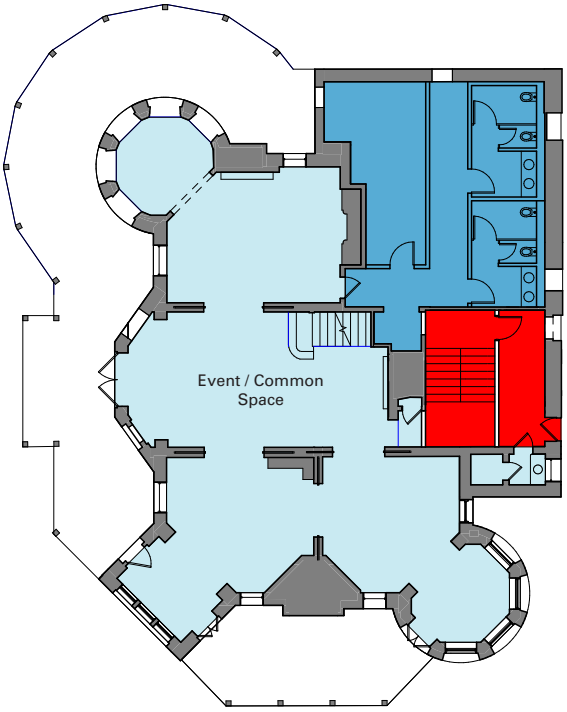




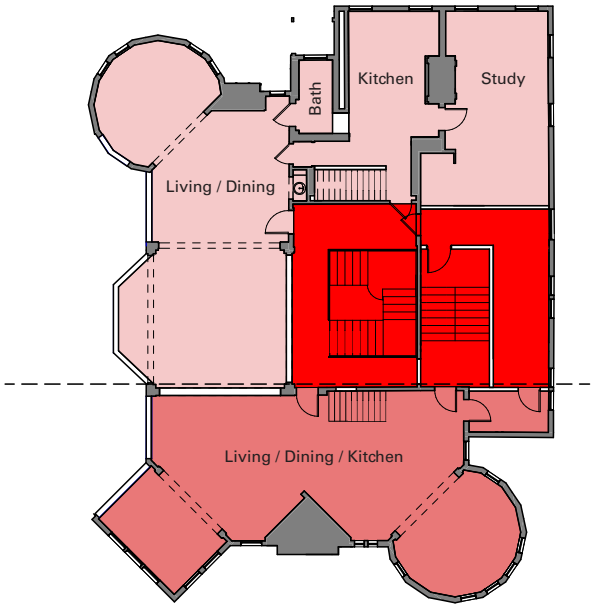
Residential Use Schematic Site Plan



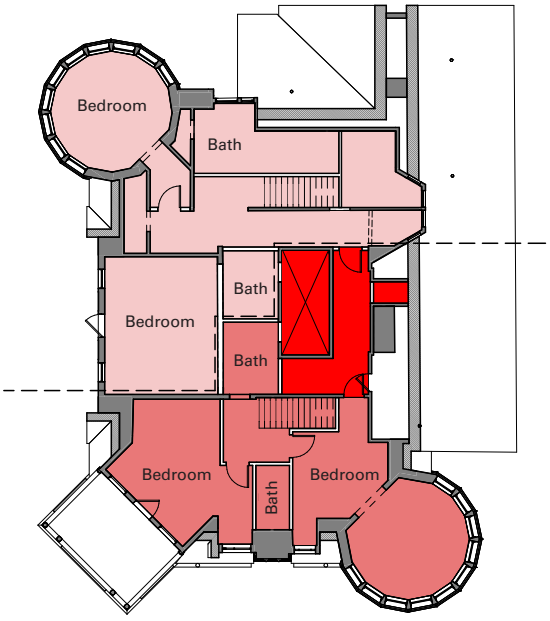
Option 3 - Residential Use Schematic Floor Plans



First Floor



Second Floor



Third Floor

Residential Unit A

Residential Unit B

Shared Residential Access

Event / Common Space

Event Support Space

MARKET FEASIBILITY ANALYSIS

Market / Economic Feasibility

For each of the three potential reuse opportunities outlined herein, a conceptual analysis was completed to outline general market feasibility and the potential funding sources that could be utilized to help implement the plans. The analysis includes Market Data survey information as well as the Capital Cost information as previously described. Each re-use program was evaluated to compare forecast market value (as completed) to the forecast cost of the improvements - and to determine the disconnect between those two points. In this exercise, numerous assumptions were made based upon market experience and available benchmarks. The intent was to offer an illustrative, order of magnitude review of feasibility.

Market Data

As each potential re-use plan was shaped and defined, a survey of market data was completed. This included the following:

- Available retail and office/commercial spaces within Northborough and in surrounding communities, to understand the general supply and demand for such space and baseline rent ranges.
- Comparable event spaces within the region. Focus on historic houses and related grounds. A summary of the survey is located in the market data which was presented to the White Cliffs Committee. See *Appendix G*.
- Condominium and apartments within the market; to understand sizing, general demand and pricing (rental and for sale). See *Appendix G* for list of comparables.

Capital Costs

As each programmatic option was defined, order of magnitude cost assumptions were applied. The cost assumptions are based upon team experience and benchmarks from working with similar building types and in similar re-use programs. Costs were included in relation to the following:

- Order of magnitude site and infrastructure costs; shaped to support each program and with the basic assumption that the buildings would require utility upgrades related to electrical, gas and sewer connections. Rough assumptions of grading, site lighting and landscaping are also included. Limited by the scope of this exercise, more detailed information would include a survey of existing utilities, a civil/site plan as well as a foundation and grading plan.
- Demolition costs for the non-historic additions on the main house. This is intended to uncover as much of the original house as is feasible.
- Rehabilitation costs related to general building stabilization and modernization to meet current code and accessibility requirements given the program, and to fit-out the space to generally accommodate each re-use plan. As in all cost assumptions included herein, a more detailed code, architectural and engineering study and design would be needed to produce more accurate projections.
- New construction costs are based upon comparable buildings and data points from recent or current projects. As in all cost assumptions included herein, a more detailed code, architectural and engineering study and design would be needed to produce more accurate projections.
- Land costs are including based upon the existing, incurred cost to acquire the land. This is intended as a baseline for analysis. The implementation plan would include decisions on third-party site control via sale, ground lease, etc. that would refine this assumption.
- Soft costs, such as all of the architectural, engineering, permitting, legal, professional/consultant, financing and carry costs are assumed as a percentage of hard/ construction costs. The percentage is defined via a survey of comparable projects. These costs may vary be eventual duration of the project and by financing mechanism. For example, more debt would include a greater amount of interest during the construction period, while other funding sources may require increased costs related to legal, application or transactional costs.
- It is important to note that the order of magnitude assumptions are based on today's costs/ dollars. Construction cost escalation has been a significant factor in recent years, with costs often rising over 5% per year due to a high-level of market activity. The timing of construction and the future state of the market is not addressed in the cost (or revenue) assumptions.

Feasibility

Economic feasibility, in its simplest form, would seek to have the market value of a finished project be greater than the cost to produce that asset. For example, if a townhouse were deemed to have a market value (price) of $400,000 and the total cost to produce that finished townhouse was $300,000; the basic feasibility test would be met – and the opportunity to develop the townhome would likely be able to attract private professionals. Essentially, the cost of producing that asset would be available to the project via available capital market sources. Traditionally, a combination of debt or loans and equity are combined to fund market feasible projects. This economic equation assumes that the ability to meet debt service requirements would be met and therefore the project would be attractive to potential lenders. Likewise, attracting equity to the project would be achievable because the levels of projected returns would offset the assumed risk in funding the project. As such, the project would be able to attract equity to fund a portion of capital improvements. Typically, in market feasible projects, this ratio is roughly 20-30% equity and 70-80% debt.

If the general feasibility test is not meant, and market value is not greater than cost; then a project often needs to seek subsidy sources to fund the shortfall between the sources of capital and the uses of capital (i.e. the project budget). In many cases, the attraction of equity based on returns is simply not viable because the projected cash flow is not sufficient to repay an investment, nor to meet returns to offset that investor's risk. In the same manner, challenged projects cannot support a level of debt financing that approaches the typical 70-80% of costs. For these reasons, there is a funding gap that must be filled in order to pay for the improvements. In the analysis included herein, the projected costs are weighed against the projected market value and related cash flow of the completed project. A funding gap is roughly outlined, as are common potential subsidies that may help fill the gap.

Given the high cost of demolition and rehabilitation on the subject location, and the fact that the site has seen decades of disinvestment, the basic test of economic feasibility is not met without assistance and creativity.

OPTION 1A - HOSPITALITY / EVENT USE

Re-Use Option	
1A	Hospitality/ Event w/in existing house only

Uses of Funds / Order of Magnitude Scale Budget

		/SF		
			10,205	Square Feet (SF)
Land/Building Cost	$0	$0		Municipal land cost not included
Demolition	$454,400	$45		
Site Improvements	$750,000	$73		
Building Costs (Rehab)	$6,633,250	$650		
Construction Contingency	$783,765	$77	10%	of Hard Costs
Soft Costs	$2,351,295	$230	30%	of Hard Costs not incl. contingency
Order of Magnitude Cost	$10,972,710	$1,075		

Sources of Funds / Order of Magnitude

Commercial Debt (Approx)	$560,306	5%	able to be supported per assumptions (see: 'Key Assumptions')
Funding Gap	$10,412,404	95%	additional sources needed to fund improvements
SubTotal	$10,972,710		
Approximations of Significant Potential Gap Sources			
Federal Historic Tax Credit Equity	$1,319,353	12%	see: 'Key Assumptions'
MA Historic Tax Credit Equity	$1,128,780	10%	see: 'Key Assumptions'
Community Preservation Act (Additional)	TBD		
Fundraising	TBD		
Grants, etc.	TBD		

Key Notes

Assumes rental fees only; no dining, catering operation, lodging, etc.
Rental fees based on market comparables; assuming max sizing of approx. 125 seated indoor events

Option 1A - Key Assumptions

Revenue and expenses projections include the assumption of rental fees for use of the space – only. The business structure of catering options and other related revenue streams should be evaluated as part of an operating business plan and in analyzing potential ownership structures. In addition, the finish levels, amenities and competitive position would need to be further defined through a more refined and detailed process to fully vet listed rental fees, as well as staffing levels and expenses.

Re-Use Option		WORK
1A	Hospitality/ Event w/in existing house only	

EVENT SPACE WORKSHEET TO DETERMINE # OF EVENTS + REVENUE

		M-Th	Friday	Saturday	Sunday		Avg. Rates	Gross Total Revenue
Days per Year	365	209	52	52	52			
Peak	50%	104	26	26	26			
Off-Peak	50%	104	26	26	26			
Event Space								
Peak	% Occupied	10%	25%	85%	10%		$4,000	
Off-Peak	% Occupied	0%	10%	20%	5%		$1,200	
		10	9	27	4	51		
Assume 125 Seated		10	7	22	3	42		$166,857
		0	3	5	1	9		$10,950
								$177,807

Event Rental (Room Fee) | Gross Income	$177,807		
LESS: Operating Expenses		/ Year or / SF	
Payroll & Staffing: Events Manager	($50,000)	$50,000	
Payroll & Staffing: Assistant/Porter	($20,000)	$20,000	
Utilities	($15,308)	$1.50	
Insurance	($4,082)	$0.40	
Landscaping/Snow Removal	($10,205)	$1.00	
Wifi/Communications	($1,531)	$0.15	
Repairs & Maintenance	($7,654)	$0.75	
Administration, incl Accounting	($2,551)	$0.25	
Supplies	($1,531)	$0.15	
Trash/Recycling	($1,021)	$0.10	
Cleaning/Janitorial	($5,103)	$0.50	
Reserves for Replacement	($3,572)	$0.35	
Real Estate Taxes (if applicable)	$0	$0.00 ($12.01)	69%
Net Operating Income	$55,251		

Calculations to support Construction/Mini-perm Debt/Financing		
Required Debt Service Coverage Ratio	1.25	$44,201
Amortization Term	20	
Interest Rate	4.8%	
Calculated Debt Amount	$560,306	

Calculations to approximate Historic Tax Credit (HTC) Equity	
% of Costs that are eligible (QRE)	85%
Federal HTC %	20%
Federal HTC Pricing	$0.90
Approx. Equity	$1,319,353
MA HTC %	20%
MA HTC Pricing	$0.77
Approx. Equity	$1,128,780

All assumptions based upon comparables and benchmarks. Intended as conceptual, order-of-magnitude for general feasibility and funding gap determination.

OPTION 1B - HOSPITALITY / EVENT USE

Re-Use Option	
1B	Hospitality/ Event w/new Ballroom & Kitchen Addition

Uses of Funds / Order of Magnitude Scale Budget

		/SF		
			14,755	Square Feet (SF)
Land/Building Cost	$0	$0		Municipal land cost not included
Demolition	$454,400	$31		
Site Improvements	$1,500,000	$102		
Building Costs (Rehab)	$6,633,250	$450		
Building Costs (New)	$2,161,250	$146		
Construction Contingency	$1,074,890	$73	10%	of Hard Costs
Soft Costs	$3,224,670	$219	30%	of Hard Costs not incl. contingency
Order of Magnitude Cost	$15,048,460	$1,020		

Sources of Funds / Order of Magnitude

Commercial Debt (Approx)	$941,500	6%	able to be supported per assumptions (see: 'Key Assumptions')
Gap	$14,106,960	94%	
SubTotal	$15,048,460		

Approximations of Significant Potential Gap Sources			
Federal Historic Tax Credit Equity	$1,319,353	9%	see: 'Key Assumptions'
MA Historic Tax Credit Equity	$1,128,780	8%	see: 'Key Assumptions'
Community Preservation Act (Additional)	TBD		
Fundraising	TBD		
Grants, etc.	TBD		

Key Notes

Assumes rental fees only; no dining, catering operation, lodging, etc.
Rental fees based on market comparables; assuming max sizing of approx. 250 seated indoor events

Option 1B - Key Assumptions

Revenue and expenses projections include the assumption of rental fees for use of the space – only. The business structure of catering options and other related revenue streams should be evaluated as part of an operating business plan and in analyzing potential ownership structures. In addition, the finish levels, amenities and competitive position would need to be further defined through a more refined and detailed process to fully vet listed rental fees, as well as staffing levels and expenses.

Re-Use Option		WORK
1B	Hospitality/ Event w/new Ballroom & Kitchen Addition	

EVENT SPACE WORKSHEET TO DETERMINE # OF EVENTS + REVENUE								
		M-Th	Friday	Saturday	Sunday			
Days per Year	365	209	52	52	52			
Peak	50%	104	26	26	26			
Off-Peak	50%	104	26	26	26			
							Avg. Rates	Gross Total Revenue (Annual)
Event Space								
Peak	% Occupied	10%	25%	85%	10%		$5,200	
Off-Peak	% Occupied	0%	10%	20%	5%		$1,850	
		10	9	27	4	51		
	Assume 250 Seated	10	7	22	3	42		$216,914
		0	3	5	1	9		$16,881
								$233,796

Event Rental (Room Fee) | Gross Income	$233,796			
LESS: Operating Expenses				
Payroll & Staffing: Events Manager	($50,000)	$3.39		
Payroll & Staffing: Assistant/Porter	($25,000)	$1.69		
Utilities	($22,133)	$1.50		
Insurance	($5,902)	$0.40		
Landscaping/Snow Removal	($11,066)	$0.75		
Wifi/Communications	($1,476)	$0.10		
Repairs & Maintenance	($8,115)	$0.55		
Administration, incl Accounting	($2,951)	$0.20		
Supplies	($1,476)	$0.10		
Trash/Recycling	($1,033)	$0.07		
Cleaning/Janitorial	($6,640)	$0.45		
Reserves for Replacement	($5,164)	$0.35		
Real Estate Taxes (if applicable)	$0	$0.00	($9.55)	60%
Net Operating Income	$92,841			

Calculations to support Construction/Mini-perm Debt/Financing		
Required Debt Service Coverage Ratio	1.25	$74,273
Amortization Term	20	
Interest Rate	4.8%	
Calculated Debt Amount	$941,500	

Calculations to approximate Historic Tax Credit (HTC) Equity			
% of Costs that are eligible (QRE)	85%	Existing Bldg Hard Costs	$6,633,250
Federal HTC %	20%	Soft Costs (%)	$1,989,975
Federal HTC Pricing	$0.90	Eligible Costs	$8,623,225
Approx. Equity	$1,319,353		
MA HTC %	20%		
MA HTC Pricing	$0.77		
Approx. Equity	$1,128,780		

All assumptions based upon comparables and benchmarks. Intended as conceptual, order-of-magnitude for general feasibility and funding gap determination.

OPTION 2 - MUNICIPAL USE

Re-Use Option
2 Municipal

Uses of Funds / Order of Magnitude Scale Budget

		/SF		
			32,205	Square Feet (SF)
Land/Building Cost	$0	$0		Municipal land cost not included
Demolition	$454,400	$14		
Site Improvements	$1,500,000	$47		
Building Costs (Rehab)	$6,633,250	$206		
Building Costs (New)	$12,650,000	$393		
Construction Contingency	$2,123,765	$66	10%	of Hard Costs
Soft Costs	$6,371,295	$198	30%	of Hard Costs not incl. contingency
Order of Magnitude Cost	$29,732,710	$923		

Sources of Funds / Order of Magnitude

TBD | Public Finance Approach	TBD		
SubTotal	$29,732,710		
Approximations of Significant Potential Gap Sources			
Federal Historic Tax Credit Equity*	$1,552,181	5%	see: 'Key Assumptions'
MA Historic Tax Credit Equity	$1,327,977	4%	see: 'Key Assumptions'
Community Preservation Act (Additional)	TBD		
Fundraising	TBD		
Grants, etc.	TBD		

Key Notes

* FHTC could not be leveraged by the municipality; requires taxable entity
Recommend working with an experienced Tax Credit Attorney re. the use of MA tax credits to ensure compliance on ownership and structural items.

OPTION 3 - RESIDENTIAL

Re-Use Option

3 Residential | New Constr = For Sale; Rehab Units in House = Rental

Uses of Funds / Order of Magnitude Scale Budget

		/SF		
			33,205	Square Feet (SF)
Land/Building Cost	$0	$0		Municipal land cost not included
Demolition	$454,400	$14		
Site Improvements	$2,000,000	$60		
Building Costs (Rehab)	$7,265,750	$219		
Building Costs (New)	$4,025,000	$121		
Construction Contingency	$1,374,515	$41	10%	of Hard Costs
Soft Costs	$4,123,545	$124	30%	of Hard Costs not incl. contingency
Order of Magnitude Cost	$19,243,210	$580		
Cost Per Unit	*$874,691*			

Sources of Funds / Order of Magnitude

Commercial Debt (Approx) | For Sale	$4,458,964	23%	65% Loan to Cost ratio	36%
Commercial Debt (Approx) | Rental	$253,120	1%	able to be supported per assumptions (see: 'Key Assumptions')	
Equity | For Sale	$2,294,903	12%	Calculated at 15-17% return	
Equity | Rental	$62,400	0%	Calculated at approx. 8% current/annual return	
Funding Gap	$12,173,823	63%		
SubTotal	$19,243,210			

Approximations of Significant Potential Gap Sources

Federal Historic Tax Credit Equity	$1,445,158	8%	see: 'Key Assumptions'
MA Historic Tax Credit Equity	$1,236,413	6%	see: 'Key Assumptions'
Fundraising	TBD		
Grants, etc.	TBD		

Key Notes

Assumes new construction as for sale. Assumes 2 units within existing building as rental to allow FHTC. The use of FHTC would generally require rental structure for the apartments for 60 months from the completion of the project.
Rental and For Sale assumptions approximated per market comparables

OPTION 3 - KEY ASSUMPTIONS

The analysis and assumptions are based upon all of the new construction being marketed as 'for sale' as condominiums or townhomes. Within the existing building, the two residential units would be rented as apartments. This structure allows for the potential use of Federal Historic Tax Credits as a funding source. The credits require the rehabilitated structure to be an incoming-producing property for a period of approximately five years from project completion, as well as placing restrictions on ownership changes or physical changes that could take place within that time period.

Re-Use Option					
3 Residential | New Constr = For Sale; Rehab Units in House = Rental					WORK
Market Value Calculations					
Number of Condo/Townhome Units	20	units	New Construction		
Number of Rental Apartments	2	units	Within Existing Structure		
Condo/Townhome Units [New Construction]					
Total New Constr SF	22,900	SF			
Number of Buildings	5	bldgs			
Average SF per Unit (New Constr)	1,145	SF			
Gross Sales Price/ Unit | Market Value	$380,000		$332	See 'Condo Comps'	
Total Market Value (20 Units)	$7,600,000			---------->	$7,600,000
LESS: Sales Commissions	($22,800)	6%			
Net Sales Proceeds/ Unit	$357,200				
Total Sales Proceeds (20 Condos)	$7,144,000				
Repayment of Debt	($4,458,964)				
Sales Proceeds after Repayment of Debt	$2,685,036				
Supportable Equity; assuming 17% return	$2,294,903	17%	$390,133 APPROX.		
Apartment Units [Existing Structure]					
Monthly Rent per Unit	$3,200	Approximate per comparables			
LESS: Operating Expenses (%)	($1,120)	35%			
Net Operating Income (Annual)	$24,960				
Cash Flow After Debt Service	$4,992				
Supportable equity; 8% Current Return	$62,400	8%		8%	
Capitalization Rate (%)	6.00%	Approximate			
Market Value / Unit	$416,000				
Total Market Value (2 Apartments)	$832,000			---------->	$832,000
				Total Market Value	$8,432,000

Calculations to support Construction/Mini-perm Debt/Financing		
Required Debt Service Coverage Ratio	1.25	$19,968
Amortization Term	20	
Interest Rate	4.8%	
Calculated Debt Amount	$253,120	

Calculations to approximate Historic Tax Credit (HTC) Equity			
% of Costs that are eligible (QRE)	85%		
		Existing Bldg Hard Costs	$7,265,750
Federal HTC %	20%	Soft Costs (%)	$2,179,725
Federal HTC Pricing	$0.90	Eligible Costs	$9,445,475
Approx. Equity	$1,445,158		
MA HTC %	20%		
MA HTC Pricing	$0.77		
Approx. Equity	$1,236,413		

All assumptions based upon comparables and benchmarks. Intended as conceptual, order-of-magnitude for general feasibility and funding gap determination.

Option 4 - Minimum Essential Upgrades "Preservation Lite"

Re-Use Option

4 Minimum Essential Upgrades ('Preservation Lite')

Uses of Funds / Order of Magnitude Scale Budget

		/SF		
			10,205	Square Feet (SF)
Land/Building Cost	$0	$0		Municipal land cost not included
Demolition	$91,200	$9		
Site Improvements	$200,000	$20		
Restoration of White Cliffs	$3,061,500	$300		
Renovation of Select Additions	$908,000	$89		
Construction Contingency	$426,070	$42	10%	of Hard Costs
Soft Costs	$1,278,210	$125	30%	of Hard Costs not incl. contingency
Order of Magnitude Cost	$5,964,980	$585		

Sources of Funds / Order of Magnitude

Commercial Debt (Approx)	N/A		able to be supported per assumptions (see: 'Key Assumptions')
Gap	$5,964,980	100%	
SubTotal	$5,964,980		
Approximations of Significant Potential Gap Sources			
Federal Historic Tax Credit Equity*	$180,601	3%	see: 'Key Assumptions'
MA Historic Tax Credit Equity*	$154,514	3%	see: 'Key Assumptions'
Fundraising	TBD		
Grants, etc.	TBD		

Key Notes

* FHTC could not be leveraged by the municipality; requires taxable entity

Both MA and Federal Historic Tax Credits are uncertain in this scenario. A more detailed plan that provides clarity on the allowable occupancy of the structure (typically allowed through a Certificate of Occupancy via the building official) would need to be thoughtfully defined, designed and implemented. Under the historic guidelines, the Placed-In-Service step - generally defined as meeting the appropriate level of work that would allow for occupancy of either the entire building or some identifiable portion of the building - would be a key determinate in the ability to use tax credits. A refined architectural and engineering plan, in addition to guidance from an experienced Tax Credit Attorney, is recommended before assuming the use of tax credits.

The analysis and assumptions are based upon an investment to stabilize and improve the building and site conditions, but not to the full extent of occupancy nor to support an active market use. Additional work would be needed to finish the building and to complete key upgrades for the end users. The approach is intended to make the property more marketable for an adaptive reuse by addressing major cost components, but does not include the cost to allow for market use without the assumption of additional fit-out costs. As such, no income is forecast. However, the baseline expenses (as order of magnitude) to operate/maintain a vacant structure are included in the analysis. More precise operating assumptions, such as insurance, general and minimal maintenance, baseline utilities, security, fire protection systems, etc. would need to be further refined based on exact systems and oversight procedures.

Without an income source, the level of debt that may be supported to help fund improvements would be based on a combination of collateral value and the level of cash flow (from an outside source) that a lender would underwrite to support the debt service payments. As such, the amount of debt would not be based upon the activity of the real estate – but on the municipal backing or other funding source that would be dedicated to support a loan or bond.

OPTION 4 - KEY ASSUMPTIONS

Re-Use Option	
4 Minimum Essential Upgrades ('Preservation Lite')	WORK

~~EVENT SPACE WORKSHEET TO DETERMINE # OF EVENTS + REVENUE~~								
		~~M-Th~~	~~Friday~~	~~Saturday~~	~~Sunday~~			
~~Days per Year~~	~~365~~	~~209~~	~~52~~	~~52~~	~~52~~			
~~Peak~~	~~50%~~	~~104~~	~~26~~	~~26~~	~~26~~			
~~Off-Peak~~	~~50%~~	~~104~~	~~26~~	~~26~~	~~26~~			
							~~Avg. Rates~~	~~Gross Total Revenue (Annual)~~
~~Event Space~~								
~~Peak~~	~~% Occupied~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~		~~$0~~	
~~Off-Peak~~	~~% Occupied~~	~~0%~~	~~0%~~	~~0%~~	~~0%~~		~~$0~~	
		~~0~~	~~0~~	~~0~~	~~0~~	~~0~~		
		~~0~~	~~0~~	~~0~~	~~0~~	~~0~~		~~$0~~
		~~0~~	~~0~~	~~0~~	~~0~~	~~0~~		~~$0~~
								~~$0~~

Event Rental (Room Fee) | Gross Income	$0		
LESS: Operating Expenses			
~~Payroll & Staffing: Events Manager~~	~~$0~~	~~$0.00~~	Intended to approximate baseline operating expenses for a vacant structure. More precise operating assumptions, such as insurance, general and minimal maintenance, baseline utilities, security, fire protection systems, etc. would need to be further refined based on exact systems and oversight procedures.
~~Payroll & Staffing: Assistant/Porter~~	~~$0~~	~~$0.00~~	
Utilities	($15,308)	$1.50	
Insurance	($4,082)	$0.40	
Landscaping/Snow Removal	($7,654)	$0.75	
Wifi/Communications	($1,021)	$0.10	
Repairs & Maintenance	$0	$0.55	
Administration, incl Accounting	($2,041)	$0.20	
Supplies	($1,021)	$0.10	
Trash/Recycling	$0	$0.07	
Cleaning/Janitorial	$0	$0.45	
Reserves for Replacement	($3,572)	$0.35	
Real Estate Taxes (if applicable)	$0	$0.00 ($3.40)	
Net Operating Income	($34,697)		

Calculations to support Construction/Mini-perm Debt/Financing	
Required Debt Service Coverage Ratio	0.00
Amortization Term	0
Interest Rate	0.0%
Calculated Debt Amount	N/A

Calculations to approximate Historic Tax Credit (HTC) Equity | FOR PURPOSS OF EVALUATION			
% of Costs that are eligible (QRE)	85%	Existing Bldg Hard Costs	$908,000
Federal HTC %	20%	Soft Costs (%)	$272,400
Federal HTC Pricing	$0.90	Eligible Costs	$1,180,400
Approx. Equity	$180,601		
MA HTC %	20%		
MA HTC Pricing	$0.77		
Approx. Equity	$154,514		

All assumptions based upon comparables and benchmarks. Intended as conceptual, order-of-magnitude for general feasibility and funding gap determination.

POTENTIAL GREEN TECHNOLOGIES AND PRACTICES

The following sustainable technologies and practices could be implemented as part of the rehabilitation of White Cliffs or as part of any new construction that may occur on site. Unfortunately, because this project is challenged from a financial perspective, careful consideration will have to be given to the impact that these technologies will have on the cost of the project.

1. Geothermal Heating and Cooling: Geo-thermal or ground-sourced heat pumps work by transferring heat to or from the ground to the building's heating and cooling systems. These systems are more energy efficient than conventional systems and can greatly reduce operating costs associated with heating and cooling. One of the advantages of geothermal systems for historic buildings is that they do not require unsightly exterior equipment such as condensing units or cooling towers. A significant disadvantage, especially with respect to a financially-challenged project like White Cliffs, is that there is significantly greater cost up front.
2. Photo-voltaic panels: Photo voltaic or solar panels may offer an opportunity to take advantage of this green technology and reduce energy bills, however, panels would have to be located and installed in a manner that does not adversely impact the historic building. This may be possible on new buildings on the site or if the panels are located in a remote, free-standing, site installation.
3. Wind turbine: Because White Cliffs is situated on a hill, it may be a candidate for wind power. Like with solar panels, it would be critical that any turbine is sited in a way that does not adversely impact the historic building.
4. Water-conserving fixtures: DBVW recommends that any renovation of White Cliffs and any new construction on site (if applicable) incorporate water-saving fixtures such as dual-flush toilets and low flow faucets. Water harvesting for irrigation is also an option, but may not prove to be cost effective.
5. Energy conserving fixtures: Massachusetts building codes will require energy conservation with respect to light fixtures and controls.
6. Drought tolerant landscape features and bio-swales: All new landscaping should consist of drought tolerant, native plants to reduce dependency on irrigation. Bio-swales or rain gardens may also be used to manage site drainage and runoff.
7. Reducing Heat Island Effect: Hardscape should be reduced as much as possible and consideration may be given to installing pervious pavement material. Roofing materials that reflect, as opposed to absorb heat should also be considered where doing so does not adversely impact the historic character of the building.
8. Recycled and locally sourced materials: New products that are incorporated into the renovation and new construction should include recycled and locally sourced materials to the greatest extent possible.
9. Walking paths and bike racks: The White Cliffs site lends itself to the creation of walking paths for the community and the provision of bike racks to reduce vehicular traffic to the site.
10. New construction: If the re-use of White Cliffs includes new construction, then it may be possible to incorporate an even higher level of energy-conserving design elements and fixtures into the new construction. It should be noted, however, that this could have the potential of increasing construction cost.
11. Property Management: Once the rehabilitation (and potentially new construction) is complete, management practices can be implemented that will reduce the overall carbon footprint of the building in the future. These might include strict recycling practices, restrictions on fertilizers and pesticides, use of car charging stations, and implementation of educational programs for the community.

MAINTENANCE REQUIREMENTS

Figure 4.2: Southeast view of the exterior.

The following regular maintenance should occur at White Cliffs. There may be additional maintenance items, depending on the ultimate use of the building and site, however, this list can serve as the basis for establishing a regular maintenance program.

Annual Maintenance:

1. Clean out gutters and downspouts twice per year.
2. Inspect site drainage twice per year to ensure that water is draining away from the building.
3. Inspect visible portions of roofs annually to determine if any deterioration or failure is occurring.
4. Inspect windows and window glazing to identify any breakage or loss that needs to be addressed.
5. Inspect large trees on site to determine pruning and/ or removal requirements before trees become a safety hazard.

Bi-Annual Maintenance:

6. Inspect all portions of exterior of building to identify any losses, deterioration, or failures.
7. Inspect site, including paved surfaces, walkways, landscaping and utilities to identify problems that exist or may arise in the short-term.

APPENDIX A:

EXISTING CONDITIONS DRAWINGS

OWNER/CLIENT:
TOWN OF NORTHBOROUGH

63 MAIN STREET
NORTHBOROUGH, MA 01532

ARCHITECT:
DBVW ARCHITECTS, INC.

111 CHESTNUT STREET
PROVIDENCE, RI 02903
T: 401.831.1240 F: 401.331.1945

WHITE CLIFFS

EXISTING CONDITIONS PACKAGE

IMAGES: NORTHBOROUGH HISTORICAL SOCIETY

DRAWING LIST

GENERAL NOTES

1. THESE DOCUMENTS REPRESENT AS FOUND EXISTING CONDITIONS SURVEYED BY EXISTING CONDITIONS INC. (EC) IN 2019. THE SURVEY WAS LIMITED TO AREAS PHYSICALLY ACCESSIBLE TO EC. SEE FLOOR PLANS FOR AREAS INDICATED AS "INACCESSIBLE".
2. THESE DOCUMENTS ARE FOR REFERENCE ONLY, NOT FOR CONSTRUCTION.
3. DO NOT SCALE DRAWINGS. DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE SHOWN ON DRAWINGS.
4. SURVEY AND REPRESENTATION OF MEP/FP SYSTEMS IS NOT INCLUDED IN THESE DOCUMENTS. ANY REFERENCE TO MEP/FP SYSTEMS IS FOR REFERENCE ONLY.

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WHITE CLIFFS

167 Main Street
Northborough, MA

TOWN OF NORTHBOROUGH

NO	DATE	DESCRIPTION

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DATE: 05/31/2019
DRAWN BY: NEM
JOB NO: 1901
SCALE: 1/8" = 1'-0"

COVER

A000

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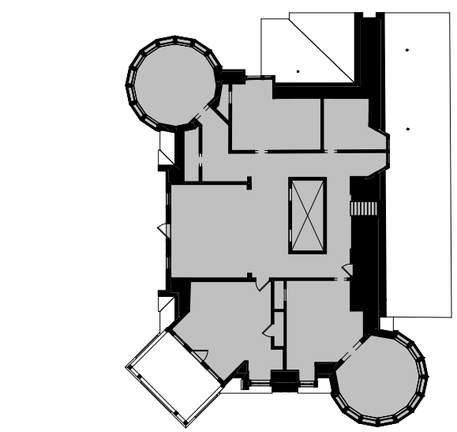
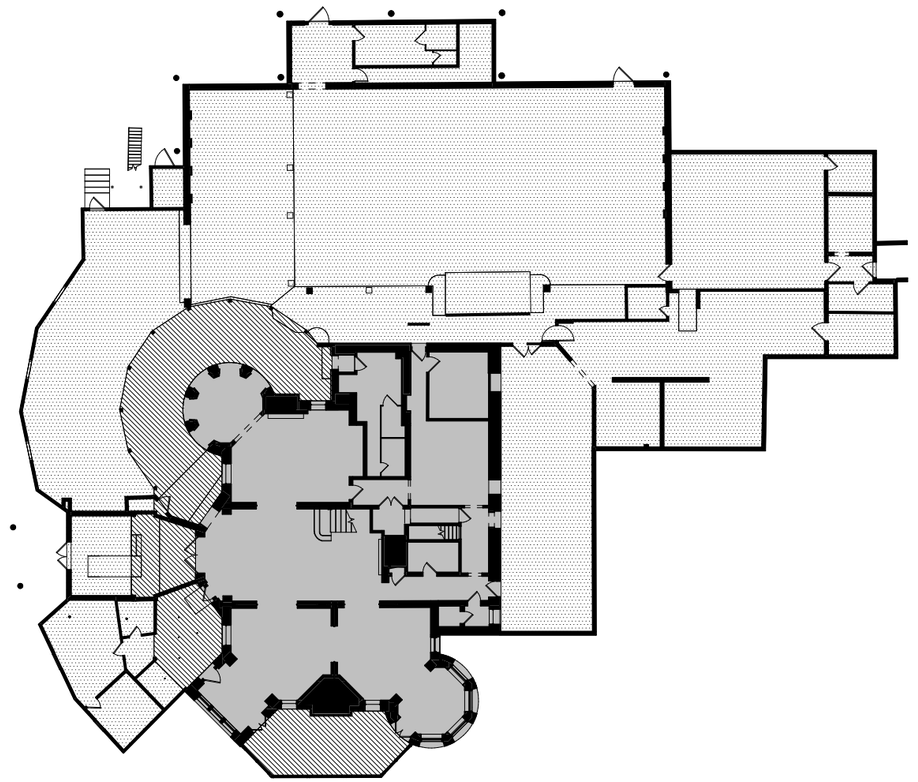
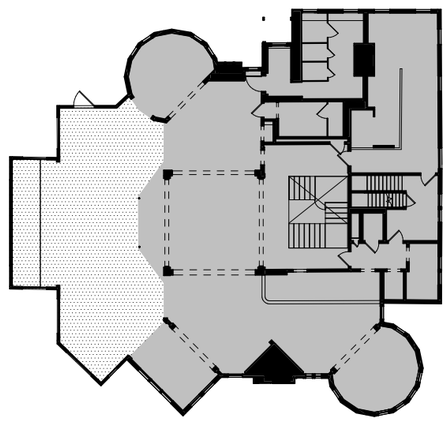


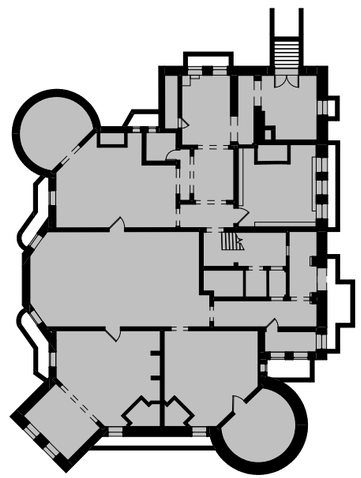
4 THIRD FLOOR AREA DIAGRAM
3/32" = 1'-0"



2 FIRST FLOOR AREA DIAGRAM
3/32" = 1'-0"



3 SECOND FLOOR AREA DIAGRAM
3/32" = 1'-0"



1 BASEMENT AREA DIAGRAM
3/32" = 1'-0"

HATCH LEGEND

- HISTORIC MANSION (CIRCA 1886)
- ENCLOSED HISTORIC PORCH
- ADDITIONS (CIRCA 1969)

SUMMARY OF OCCUPIABLE AREA (GROSS SQUARE FEET)				
	HISTORIC MANSION	ENCLOSED HISTORIC PORCH	ADDITIONS	**TOTAL (LEVEL)**
BASEMENT	3,880	-	-	3,880
FIRST FLOOR	3,880	1,535	10,225	15,640
SECOND FLOOR	3,880	-	1,135	5,015
THIRD FLOOR	2,445	-	-	2,445
TOTAL (SPACE)	14,085	1,535	11,360	**26,980**

DRAWINGS ARE NOT TO SCALE

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TOWN OF NORTHBOROUGH

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AREA SUMMARY

A001

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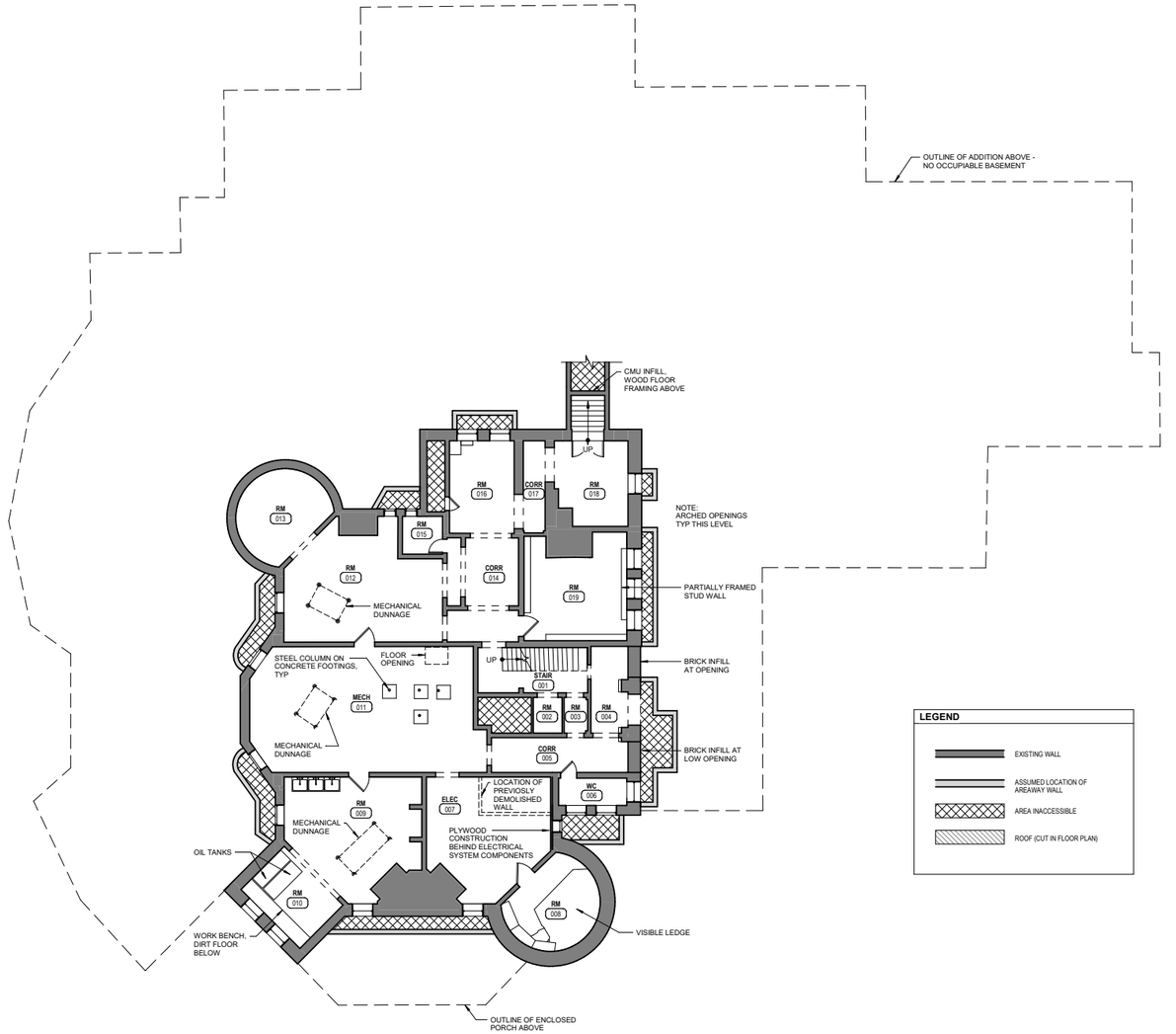

1 EXISTING BASEMENT PLAN
1/8" = 1'-0"

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EXISTING BASEMENT FLOOR PLAN

EX200

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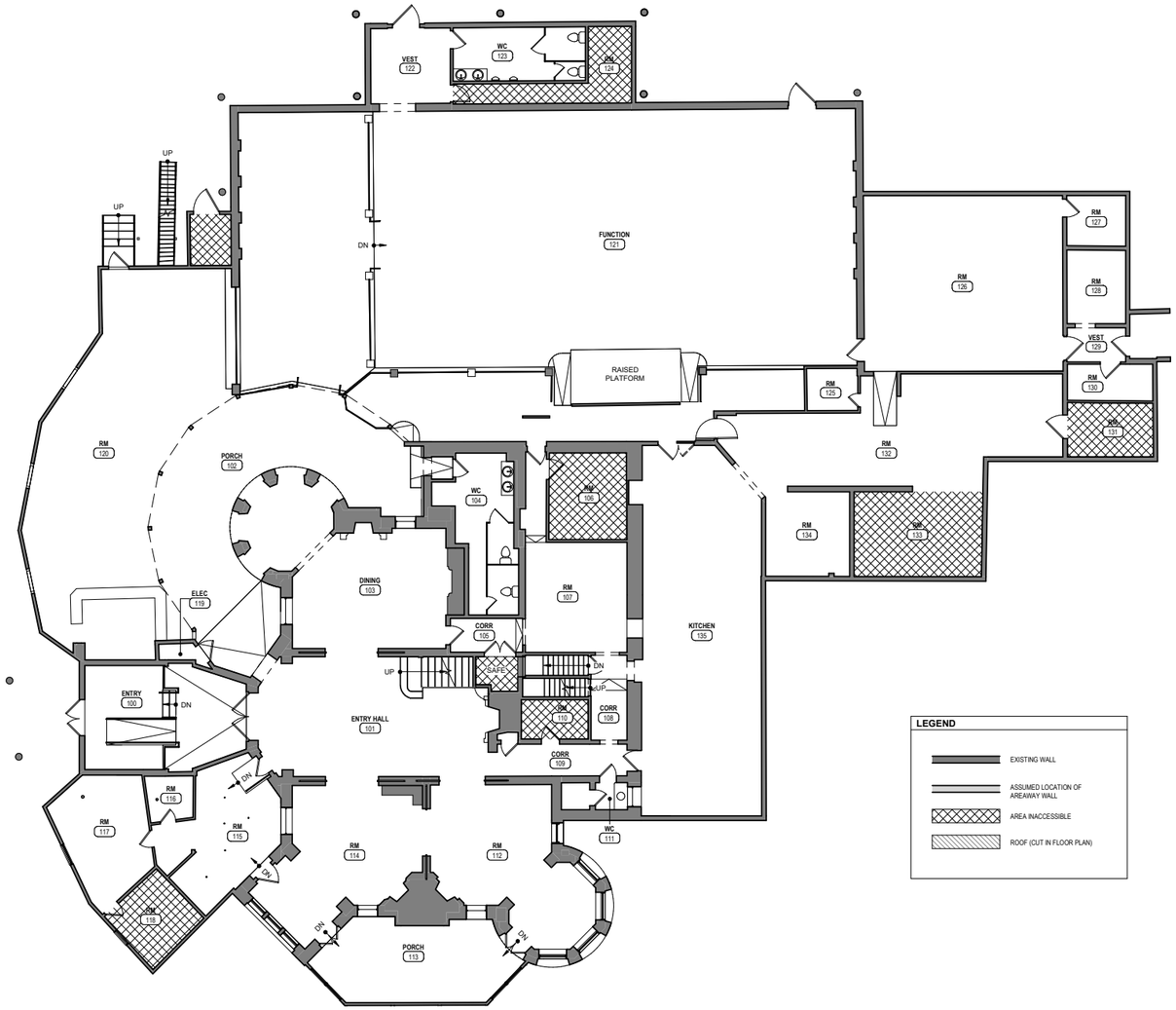

1 EXISTING FIRST FLOOR PLAN
1/8" = 1'-0"

DRAWINGS ARE NOT TO SCALE

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EXISTING FIRST FLOOR PLAN

EX201

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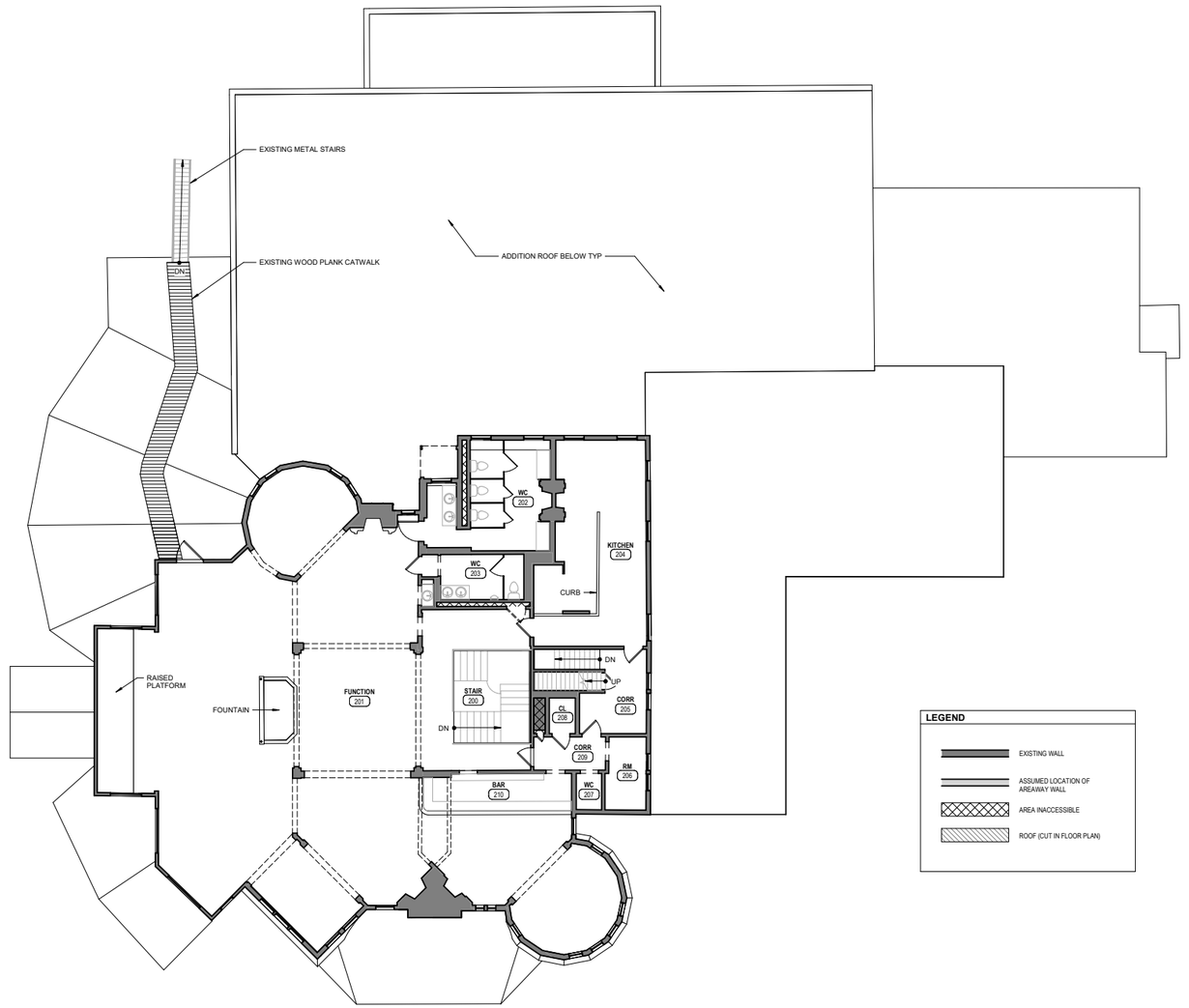

1 EXISTING SECOND FLOOR PLAN
1/8" = 1'-0"

DRAWINGS ARE NOT TO SCALE

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www.dbvw.com PROVIDENCE, RI 02903

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WHITE CLIFFS

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Northborough, MA

TOWN OF NORTHBOROUGH

NO	DATE	DESCRIPTION

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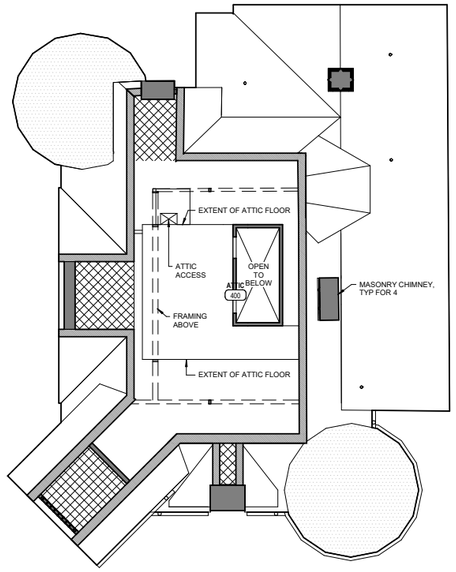
DATE: 05/31/2019
DRAWN BY: PO
JOB NO: 1901
SCALE: As indicated

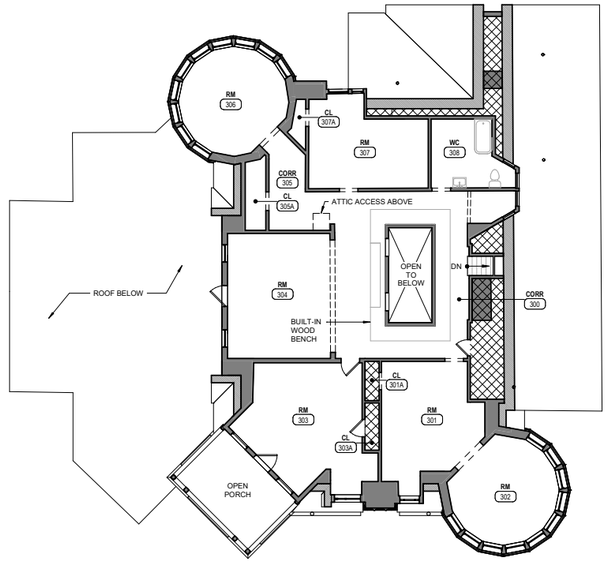
EXISTING SECOND FLOOR PLAN

EX202

FOR REFERENCE ONLY



2 EXISTING ATTIC PLAN
1/8" = 1'-0"



1 EXISTING THIRD FLOOR PLAN
1/8" = 1'-0"

DRAWINGS ARE NOT TO SCALE

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www.dbvw.com PROVIDENCE, RI 02903

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WHITE CLIFFS

167 Main Street
Northborough, MA

TOWN OF NORTHBOROUGH

NO	DATE	DESCRIPTION

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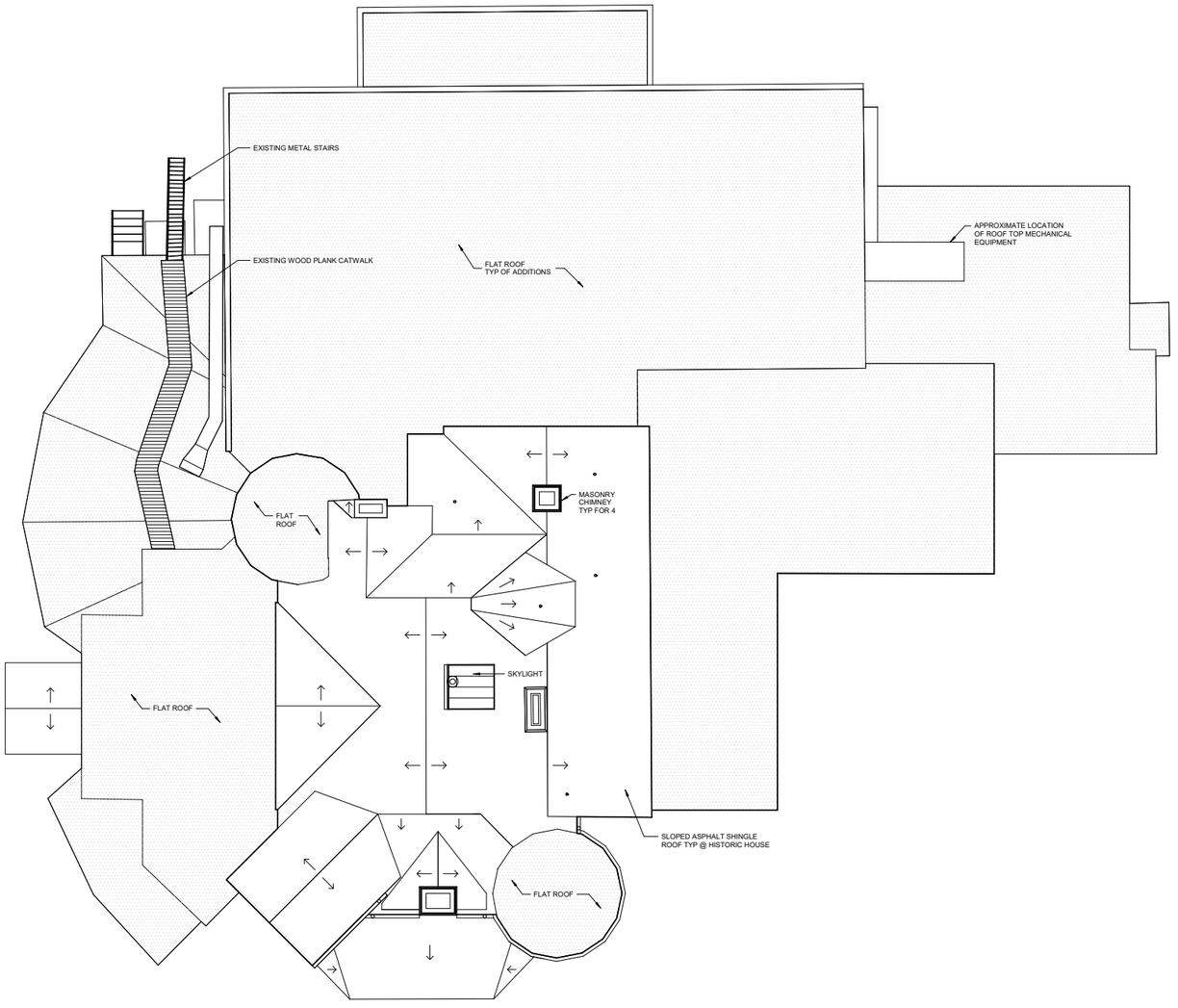
DATE: 05/31/2019
DRAWN BY: PO
JOB NO: 1901
SCALE: 1/8" = 1'-0"

EXISTING THIRD FLOOR & ATTIC PLAN

EX203

FOR REFERENCE ONLY



1 EXISTING ROOF PLAN
1/8" = 1'-0"

DRAWINGS ARE NOT TO SCALE

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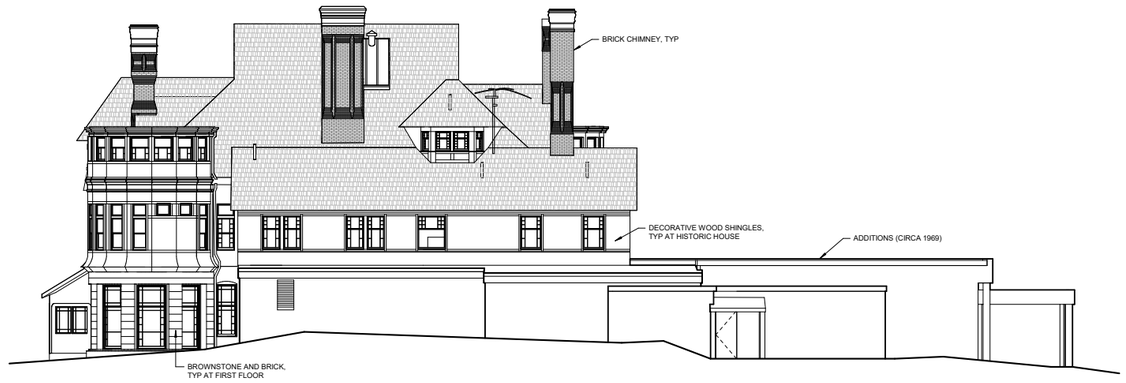
JOB NO: 1901
SCALE: 1/8" = 1'-0"

EXISTING ROOF PLAN

EX204

FOR REFERENCE ONLY

1 EXISTING NORTH ELEVATION
1/8" = 1'-0"



2 EXISTING EAST ELEVATION
1/8" = 1'-0"

DRAWINGS ARE NOT TO SCALE

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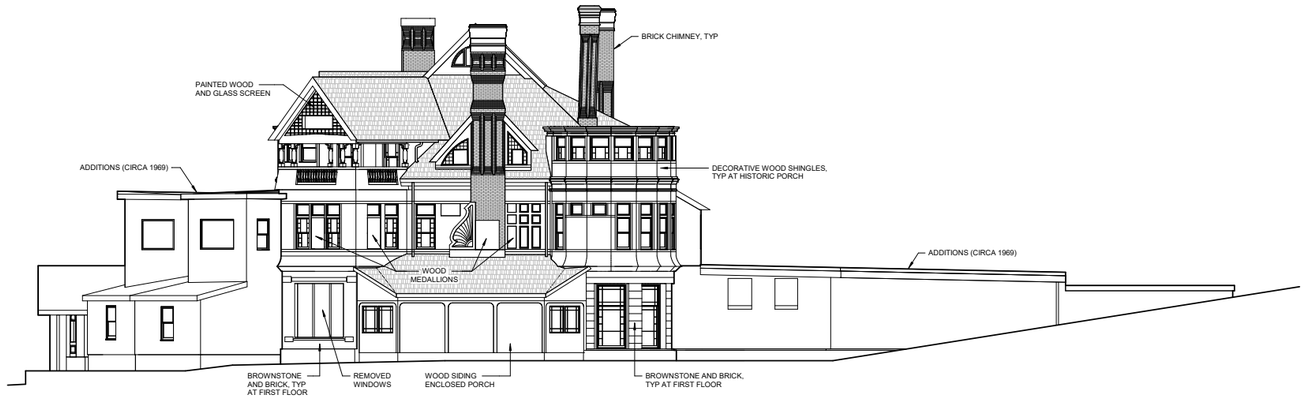
SCALE: 1/8" = 1'-0"

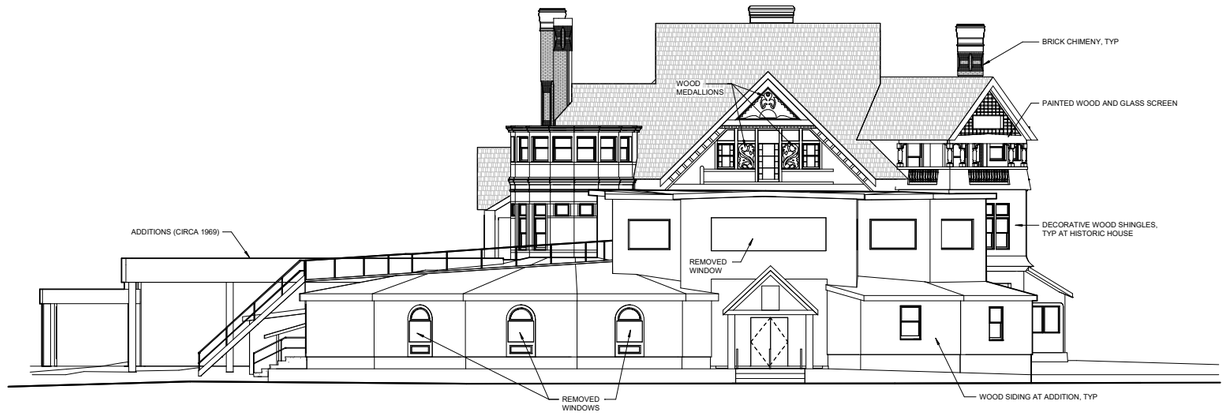
EXTERIOR ELEVATIONS

EX300

FOR REFERENCE ONLY



1 EXISTING SOUTH ELEVATION
1/8" = 1'-0"



2 EXISTING WEST ELEVATION
1/8" = 1'-0"

DRAWINGS ARE NOT TO SCALE

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NORTHBOROUGH

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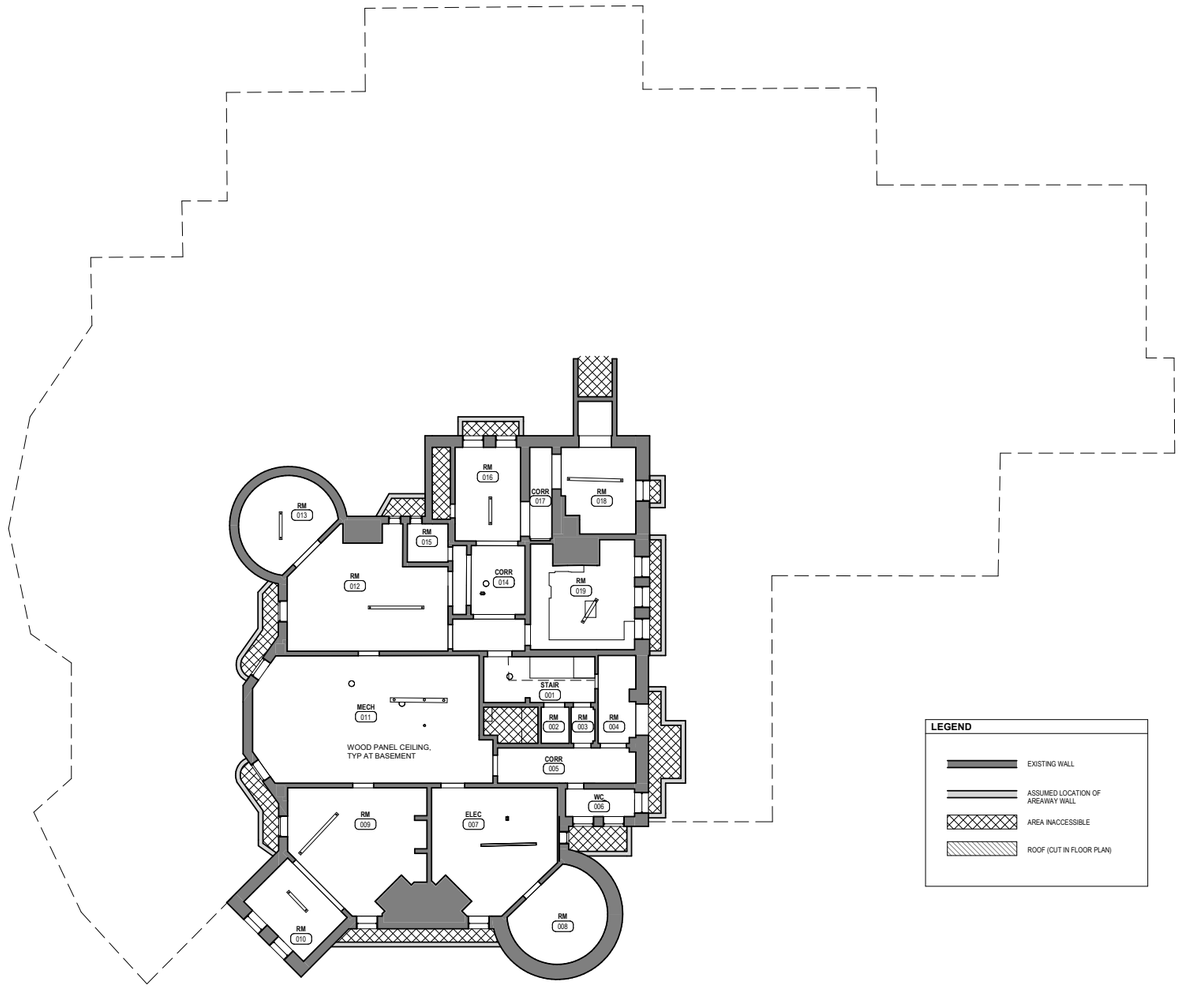
DRAWN BY: PO
JOB NO: 1901
SCALE: 1/8" = 1'-0"

EXTERIOR
ELEVATIONS

EX301

FOR REFERENCE ONLY



1 EXISTING BASEMENT REFLECTED CEILING PLAN
1/8" = 1'-0"

DRAWINGS ARE NOT TO SCALE

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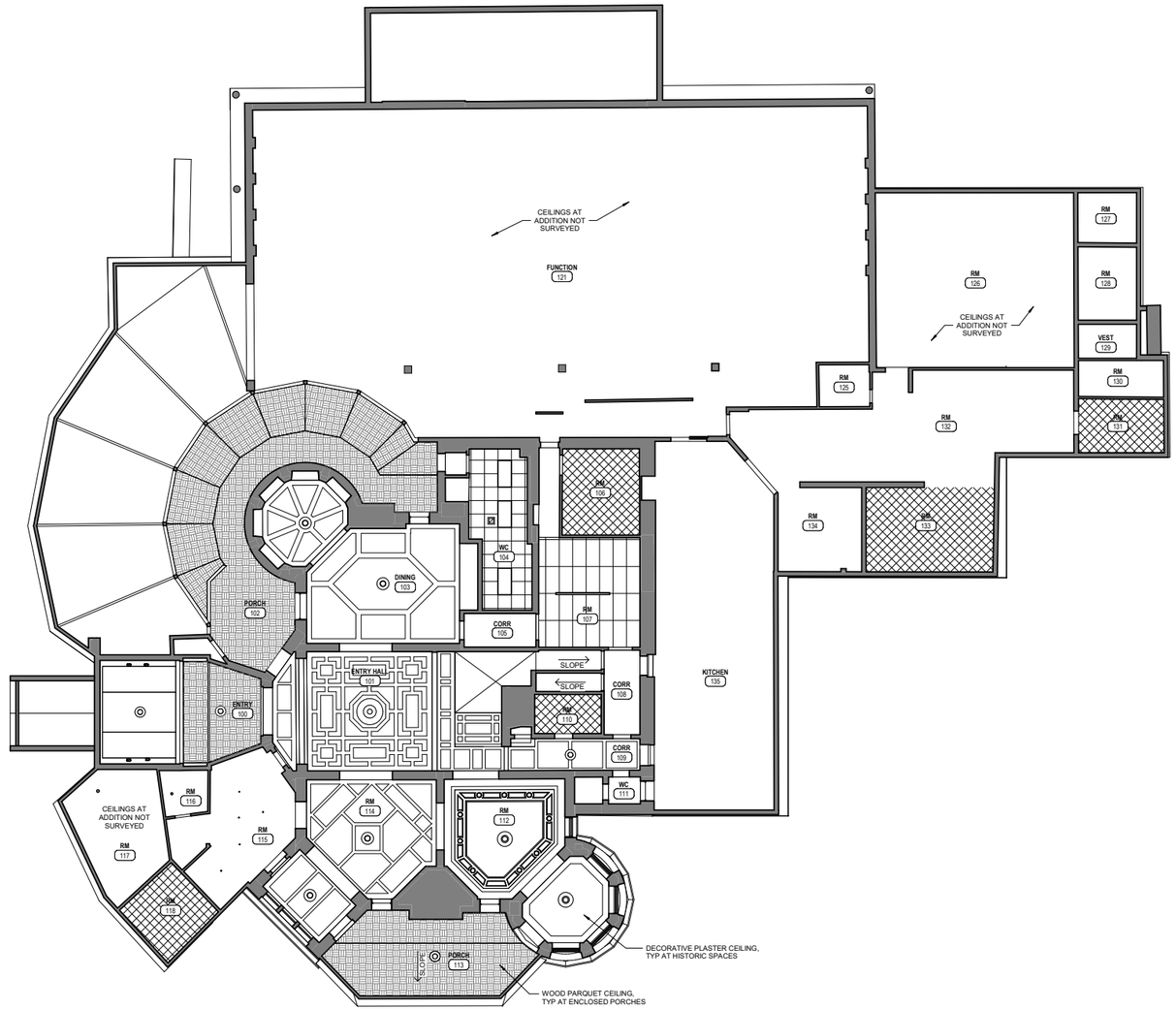
DRAWN BY: PO
JOB NO: 1901
SCALE: As indicated

EXISTING BASEMENT RCP

EX900

FOR REFERENCE ONLY



1 EXISTING FIRST FLOOR REFLECTED CEILING PLAN
1/8" = 1'-0"

DRAWINGS ARE NOT TO SCALE

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WHITE CLIFFS

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Northborough, MA

TOWN OF NORTHBOROUGH

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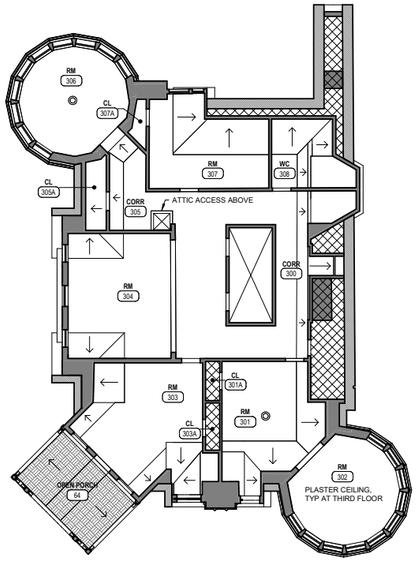
DRAWN BY: PO
JOB NO: 1901
SCALE: 1/8" = 1'-0"

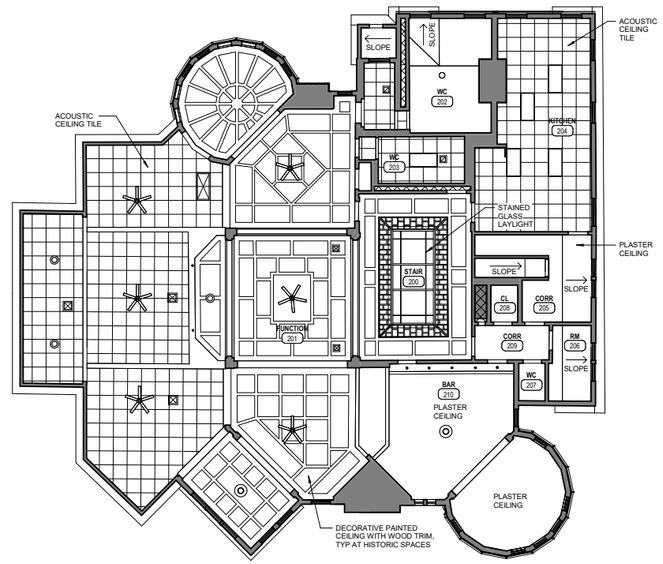
FIRST FLOOR RCP

EX901

FOR REFERENCE ONLY



2 EXISTING THIRD FLOOR REFLECTED CEILING PLAN
1/8" = 1'-0"



1 EXISTING SECOND FLOOR REFLECTED CEILING PLAN
1/8" = 1'-0"

DRAWINGS ARE NOT TO SCALE

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WHITE CLIFFS

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TOWN OF
NORTHBOROUGH

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DRAWN BY: PO
JOB NO: 1901
SCALE: 1/8" = 1'-0"

SECOND AND THIRD
FLOOR RCP

EX902

FOR REFERENCE ONLY

APPENDIX B:

CIVIL SITE SURVEY

ASSESSORS:

MAP 53, LOT 73

ZONING:

RESIDENCE C (RC)
BUSINESS EAST (BE)

REFERENCES:

DEED BOOK 57796, PAGE 339
PLAN BOOK 531, PLAN 77
PLAN BOOK 669, PLAN 16
PLAN BOOK 672, PLAN 17
PLAN BOOK 700, PLAN 75
PLAN BOOK 736, PLAN 121

RECORD OWNER:

TOWN OF NORTHBOROUGH
63 MAIN STREET
NORTHBOROUGH, MA 01532

ANTHONY & ANNA SERVIDEO
DEED BOOK 57423 PAGE 240
PLAN BOOK 669, PLAN 16
MAP 53, LOT 66

TOWN OF NORTHBORO (PARCEL D)
DEED BOOK 57796 PAGE 339, PLAN BOOK 736, PLAN 121
MAP 53, LOT 155

G.R. VISHWANATH & APEKSHA TRIPATHI
DEED BOOK 44465 PAGE 19
PLAN BOOK 669, PLAN 16
MAP 53, LOT 67

SHENGMING LIN & XIAONING CHEN
DEED BOOK 23348 PAGE 323
PLAN BOOK 669, PLAN 16
MAP 53, LOT 68

LU WANG & HUI FANG
DEED BOOK 40049 PAGE 60
PLAN BOOK 669, PLAN 16
MAP 53, LOT 69

JAMES & LOUISE M. HETTIGER
DEED BOOK 20650 PAGE 302
PB 669, PLAN 16
MAP 53, LOT 70

C.R. CRAIG M. & BUDDEN WEBBER
DEED BOOK 20263 PAGE 131
PLAN BOOK 669, PLAN 16
MAP 53, LOT 71

BRIAN & ERICA ZEIGER
DEED BOOK 49223 PAGE 225
PLAN BOOK 669, PLAN 16
MAP 53, LOT 72

SUGARLOAF TRUST
RICHARD HALLISEY, TRUSTEE
DEED BOOK 20951 PAGE 23
PLAN BOOK 736, PLAN 121
MAP 53, LOT 74

#167 3 STORY WOOD FRAME "THE WHITE CLIFFS" DANIEL WESSON ESTATE

1 STORY WOOD FRAME
1 STORY CONCRETE BLOCK
RESIDENCE C (RC) / BUSINESS EAST (BE) (SEE NOTE 6)

LOT AREA
6.5020± ACRES(CALC)
6.5000± ACRES(RECORD)

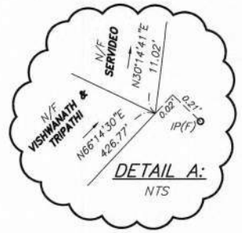
MAIN STREET (ROUTE 20)
(66' WIDE ~ PUBLIC)
(1918 STATE HIGHWAY LAYOUT #1783)

EAST MAIN STREET
(66' WIDE ~ PUBLIC)
(DISCONTINUANCE LOT 3522)
(SHEET 9)

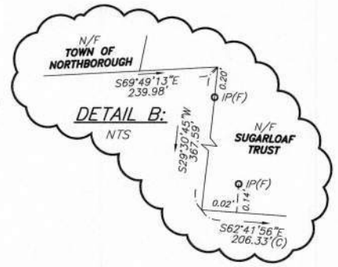
STRATTON WAY
(50' WIDE ~ PUBLIC WAY)
(PLAN BOOK 700 PLAN 75)

NORTH AMERICA DATUM OF 1983

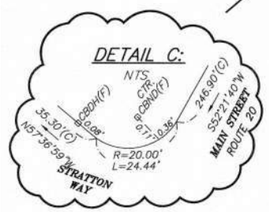
DETAIL A:
NTS



DETAIL B:
NTS



DETAIL C:
NTS



ELEVATION BENCH MARKS
DATUM: (SEE NOTE 1)

NO.	DESCRIPTION	ELEV.
A	MAGNETIC NAIL SET ON FOUNDATION	340.91

SCALE: 1" = 30'
0 30 60 120

NOTES:

1) PROJECT SOURCE BENCHMARK IS BASED ON MASS DOT BENCHMARK 509,3Z DESCRIBED AS A DISK SET ON TOP OF THE NORTHEAST END POST OF THE ROUTE 20 BRIDGE OVER ROUTE 495. THE ELEVATION OF SAID BENCHMARK IS ON THE NORTH AMERICAN VERTICAL DATUM OF 1929 AND IS REPORTED TO BE 469.39. A VERTCON DATUM SHIFT OF -0.72 WAS APPLIED TO THE ELEVATION TO CONVERT THE DATUM TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 AND AN ADJUSTED ELEVATION OF 468.66.

2) UNDERGROUND UTILITIES SHOWN HEREON ARE COMPILED FROM FIELD LOCATIONS OF STRUCTURES AND FROM AVAILABLE RECORD INFORMATION ON FILE AT THE TOWN ENGINEERING OFFICES, TOWN D.P.W., MASS HIGHWAY DEPT. AND UTILITY COMPANIES. OTHER UNDERGROUND UTILITIES MAY EXIST. IT SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER AND THE CONTRACTOR TO VERIFY THE LOCATION, SIZE & ELEVATION OF ALL UTILITIES WITHIN THE AREA OF PROPOSED WORK AND TO CONTACT "DIG-SAFE" AT 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION, DEMOLITION OR CONSTRUCTION.

3) THE LOCATION OF UNDERGROUND STORAGE TANKS, IF ANY, ARE UNKNOWN.

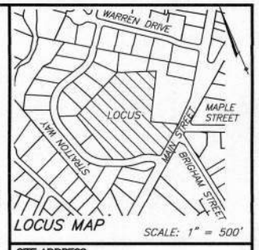
4) THIS TOPOGRAPHIC SURVEY WAS PREPARED TO MEET NATIONAL MAP ACCURACY STANDARDS AT A SCALE OF 1"=30' HORIZONTALLY AND A 1 FOOT CONTOUR INTERVAL VERTICALLY. ANY REPRODUCTIONS OR RE-SCALING MAY EFFECT THE MAP ACCURACY.

5) THE HORIZONTAL DATUM FOR THIS SURVEY IS THE MASSACHUSETTS COORDINATE SYSTEM, NAD 1983, MAINLAND ZONE ESTABLISHED BY GPS RTK PROCEDURES UTILIZING REALIZATION NAD83 (2011).

6) ZONING LINE SHOWN HEREON IS APPROXIMATE AND HAS BEEN COMPILED FROM THE TOWN OF NORTHBOROUGH GIS.

LEGEND

ø	DIAMETER
AC	AIR CONDITIONING UNIT
ASW	ASPHALT SIDEWALK
BB	BITUMINOUS BERM
BIT.	BITUMINOUS
(C)	CALCULATED
CONC.	CONCRETE
CSW	CONCRETE SIDEWALK
CTR	CENTER
EB	ELECTRIC BOX
(F)	FOUND
FF	FIRST FLOOR ELEVATION
HH	HAND HOLE
ICV	IRRIGATION CONTROL VALVE
(M)	FIELD MEASURED
N/F	NOW OR FORMERLY
PVC	POLYVINYL CHLORIDE
(R)	RECORD
RCP	REINFORCED CONCRETE PIPE
S	STATUE
SG	SLOPED GRANITE CURB
CBDH	CONCRETE BOUND WITH DRILL HOLE
CBND	CONCRETE BOUND NO DRILL HOLE
DMH	DRAIN MANHOLE
IP	IRON PIPE
I.PIN	IRON RIN
SMH	SEWER MANHOLE
234	SURFACE CONTOUR
	EDGE OF PAVEMENT
	HAND RAIL
	EDGE OF WOODED AREA
8"SD	SEWERLINE & MANHOLE WITH PIPE SIZE, MATERIAL & FLOW DIRECTION
12"RCP	DRAINLINE WITH PIPE SIZE, MATERIAL & FLOW DIRECTION, CATCHBASIN, MANHOLE & ROUND CATCHBASIN
W 6"Cl	WATER MANHOLE, WATER MAIN WITH SIZE, TEE, GATE VALVE & FIRE HYDRANT
G 10"DI	GAS MAIN WITH SIZE & GATE VALVE
#181 OHW	EXISTING UTILITY POLE W/NUMBER OVERHEAD WIRES AND GUY POLE
E	ELECTRIC MANHOLE & UNDERGROUND ELECTRIC LINES
T	TELEPHONE MANHOLE & UNDERGROUND TELEPHONE LINES
	EDGE OF LEDGE OUTCROP
× 232.6	SPOT ELEVATION
BOULDER	BOLLARD
CONCRETE	SIGN
BM	BENCHMARK
CB	CATCH BASIN



LOCUS MAP SCALE: 1" = 500'

SITE ADDRESS:

"THE WHITE CLIFFS" #167 MAIN STREET

NORTHBORO, Massachusetts

PREPARED FOR:

VHB, INC.

1 CEDAR STREET, SUITE 400
PROVIDENCE, RI 02903

HANCOCK ASSOCIATES
Civil Engineers
Land Surveyors
Environmental Consultants
315 Elm Street, Marlborough, MA 01752
Voice (508) 460-1111, Fax (508) 460-1121
www.hancockassociates.com

COMMONWEALTH OF MASSACHUSETTS
CARLOS M. FRIAS No. 41407 REGISTERED LAND SURVEYOR
4-29-19

NO.	BY	APP	DATE	ISSUE/REVISION DESCRIPTION
1	CMC	CMF	4/26/19	GENERAL REVISIONS

DATE: 2/7/19 DRAWN BY: CMC
SCALE: 1" = 30' CHECK BY: CMF

EXISTING CONDITIONS PLAN OF LAND

PLOT DATE: Apr 29, 2019 2:52 pm
PATH: V:\VHB\SHA\CAD 3D Projects\22199-WHITE CLIFFS-NORTHBORO\DWG\

DWG: 22199-SV.dwg
LAYOUT: EC
SHEET: 1 OF 1

EC

PROJECT NO.: 22199

APPENDIX C:

STRUCTURAL SYSTEMS REPORT

YODER + TIDWELL, Ltd.

WHITE CLIFFS
167 MAIN STREET
NORTHBOROUGH, MA

STRUCTURAL ASSESSMENT REPORT

PREPARED FOR:
DBVW Architects
111 Chestnut Street
Providence, RI 02903

PREPARED BY:
Loren Yoder, PE
Yoder + Tidwell, Ltd.
333 Smith Street
Providence, RI 02908

YTL Project #2019-045
January 2020

Introduction

This report summarizes the results of our site observations and general structural review of the White Cliffs building located at 167 Main Street in the town of Northborough, MA. The primary purpose of this report is to provide a general structural assessment of the existing building and comment on the suitability of the building for future use and occupancy. It is also to identify any significant structural conditions that may exist so that preliminary costs for repairs can be developed. This report is subject to the limitations described at the end of the report.

Scope of Structural Review

The scope of our structural review consisted of the following.

- Site visit on January 9, 2020 to perform a limited existing conditions observation of the building.
- Review of existing conditions floor plans and elevations.
- Determine in general the existing structural systems that were used and primary bearing lines.
- Photograph areas of exposed typical structural conditions or deficiencies.
- Report summarizing results of our observations with general written recommendations for any observed deficiencies.

General Structural

The original part of the building was constructed in the 1880's and consists of a three story wood framed structure that served as a summer residence. The building has a full basement, as well as an unoccupied attic above the third floor. There are several large, one/two story additions that were built in the 1960's along the north, east, and west sides of the building. These additions served as a commercial kitchen, banquet room, and other event support spaces for the buildings more recent use as a place for functions and meetings. The primary focus of our site observations and this report is on the original historic residence portion of the building and not the more recent additions.

Nearly all of the structural framing in the original building is concealed. However based on limited areas that were open to view in the basement, the typical floor framing system appears to consist of conventionally framed wood joists. Areas that were exposed indicate that the general direction of the floor framing runs in the north/south direction with two primary interior bearing lines that align with the north and south walls of the main entry hall on the first floor. The only exception to this appears to be at the east side of the building in the area of the back stair where the joists appear to switch and run in the east/west direction. The floor joists observed in the basement were approximately 2-1/2"x11-1/2" and spaced at 12" on center. Portions of the first floor appear to use a dropped subfloor system where the floor boards used for the subfloor are cut to fit between joists and supported on

small ledgers nailed the full length to the face of the joists. This allowed for approximately 2" of mortar (or poured gypsum or other similar cementitious material) to be placed flush to the top of the floor joists (see photo below left). Typically a tile floor would be placed over a floor constructed like this. This type of detail would allow areas of floor that are tile to match up flush with areas that had hardwood floors. The added weight of the floor also dampens the floor for sound and vibrations giving a much more solid feel to the floor than a typical wood floor system. It is not known if the dropped sheathing detail was used throughout the building, or if it is limited to the first floor only, or only to areas that originally had finished tile flooring. In general, the portions of the original floor that were exposed appear to be well constructed. The floors felt very solid and there did not appear to be any areas of significant deflection or sloping of the floor joists.

The main roof of the original building is generally the form of a dutch hip, with a number of intersecting gable and shed dormer roofs. The existing rafters are 2x8's and tied with ceiling joists. There is a clear span beam and truss system on the west side of the attic running in the north/south direction that spans between the two primary interior bearing lines of the building (see photo above right). This truss system provides interior support for the long span rafters on the west side of the center gable. There is a bearing wall on the eastern side of the roof that provides interior support for the rafters. Similar to the floor construction, the portions of the original roof framing that were exposed appear to be well constructed and in good condition.

The exterior stone foundation walls of the original building have a brownstone face for the above grade portion. The interior foundation walls in the basement are brick. In the southeast corner of the building, in the circular bay, ledge outcroppings were observed in the basement, suggesting that portions of the foundation wall may be constructed directly on ledge.

The later additions to the original residence appear to have been constructed using a combination of wood framing, steel, and load bearing concrete block. In order to create the larger spans for some of the open event spaces, steel beams were installed with conventional wood rafters spanning between them to support the flat roof.

Observed Structural Deficiencies

In general, the existing building appears to be in good structural condition. No significant structural deficiencies were observed that would make the building unsafe or unsuitable for renovation or future occupancy. The following is a list of several observed structural conditions that will require further study and investigation if the building is to be occupied or if a renovation to the building is to occur. These conditions are listed in order of their structural significance (based on observed conditions alone). A general recommended action is given for each of the conditions.

Localized Fire Damage

A couple of areas with localized fire damage were observed. The first area is in the attic on the west portion of the building below the gable dormer. The sheathing, rafters, and ceiling joists in the majority of this area of gable roof are fire damaged (photo below left). The loss of material of the original framing members is significant. Some of the existing rafters were previously reinforced by sistering. This area was identified during a previous site visit as needing repair/reinforcement and at the time of writing this report, this work is currently underway. All roof sheathing is being replaced, and all rafters and ceiling joists sistered full length in this area of fire damage.

Another area with some fire damage was observed in the attic crawl space on the third floor above adjacent to the east chimney and back stair (photo above right). The extent of the damage could not be determined since the framing is mostly hidden by the ceiling and floor sheathing. This area will need to be investigated further and some portions of floor or ceiling removed in order to observe the existing framing.

Localized Deterioration of Floor Joists

In the basement on the southeast corner of the main building, there was a localized area below the first floor bathroom where the ceiling was damaged and some of the first floor joists were deteriorated (see photo below left). This is mostly likely due to plumbing leaks

which is commonly found in areas of floor adjacent to kitchens and baths. The joists in this area will need to be sistered and the subfloor replaced where deteriorated.

Localized Deterioration at Roof Leaks

Several areas were observed where roof leaks have led to localized deterioration of the ceiling materials, roof sheathing, and potentially the rafters (photo above right). The areas with roof leaks on the main building appear to be fairly localized to the main skylight, chimney, and at the main roof to dormer roof slope transition at the east side of the building. The observed roof leaks are being addressed under the scope of roof repairs that are currently being performed. All deteriorated structural framing will be assessed when the roofing materials are removed, and repairs made as necessary.

Mortar and Brick Deterioration in Basement Bearing Walls

Some of the lower few courses of brick and mortar at the interior bearing walls in the basement are deteriorated (see photos below). This is due to moisture being wicked up from the ground, and causing localized deterioration of the outer faces of the mortar and brick. Mortar deterioration is visible at the bottom of many of the interior brick bearing walls. As you move further up the wall, the condition of the brick and mortar improves. Any future renovation to the building should include localized repointing and repairs to the lower portions of the interior brick bearing walls. Similarly, the mortar joints of the exterior stone foundation walls may also require some localized repointing.

Suitability for Future Use

Based on our observations, it is our opinion that in general, the current structural condition of the building is good. There are a number of minor structural conditions noted above that will need to be addressed. However, no significant structural conditions were observed that would make the building unsafe or unsuitable for occupancy or future renovation. If a major renovation or change of use were to occur, there may be additional code required structural items that would need to be reviewed. However, depending on the future use, the code provides significant relief from many of the current building code requirements for historic structures provided that they are not considered an issue of public safety by the building official, and that no alterations are made that would cause the building to lose its historic designation.

Limits of Investigation and Report

The conclusions and recommendations contained in this report are based on observation of those structural items that were visible at the time of our visit. They are also based on building conditions that existed at the time of our observation. No warranty is made or should any be construed that other unseen conditions may not exist, other than those that were observed.

This report is limited to that which could be reasonably assessed from visual observation alone. No detailed survey or probing was made of structural elements or their connections. Due to finished ceilings in walls in the majority of the spaces, most structural elements could not be directly observed. No structural analysis was performed as part of this report.

If you have any questions or need any additional information in regards to these matters, please contact us.

Sincerely,

Loren Yoder, PE
President
Yoder + Tidwell Ltd.

APPENDIX D:

BUILDING SYSTEMS REPORT

SITE ASSESSMENT SURVEY

February 12, 2020

Ms. Nealia Morrison, AIA, LEED AP BD+C
Project Manager
DBVW Architects
111 Chestnut Street
Providence, RI 02903
Office: 401-831-1240 ex. 119

Reference: White Cliff

167 Main Street
Northborough, MA

Dear Ms. Morrison,

Wozny/Barbar & Associates (WBA) is pleased to present the following Mechanical, Electrical, Plumbing, and Fire Suppression (MEP/FP) Building Systems Assessment Report for the above-referenced project. This report was based on a site visit conducted on January 9th, 2020 to review the existing conditions. The information contained herein was compiled by visual inspection and not dismantling and testing of equipment/systems.

The purpose of this Building System Assessment Report was to observe all parts of the MEP/FP building systems, and to gather enough information to develop professional opinions and make preliminary judgments on the conditions of the building systems that would remain or otherwise require major repairs or modifications due to deteriorated physical condition, energy inefficiencies, non-compliance with building and life safety codes, and building systems inadequacies to be considered for replacement or upgrade.

Present at the site walk through were Salim Afsar, PE, Casey Archacki, PE and Greg Wozny, PE of WB&A Engineers.

1.0 FIRE PROTECTION

The building has not been provided with a fire suppression system. The only exception is the kitchen hood, which was equipped with an Ansul system.

Based on the size of the building, if renovated, NFPA 13 compliant system shall be provided at all spaces within basement through third floor. Also, the attic, which is unconditioned space, would require a dry pipe system.

2.0 PLUMBING

Water Service Room

Domestic cold water enters the water service room located in the basement. The service has been disconnected and capped. The pipe supplying domestic water to the building is threaded, galvanized, steel, 2".

The age of the service is unknow. The inside surface of the pipe shall be examined to determine if corrosion or sediment compromised the service performance. Additional piping shall be tested for possible lead content.

Based on the site survey of the existing condition, there is a 6" domestic water service for the building.

Domestic Water Heaters

Domestic water heaters were provided by an indirect water heater consisting of boiler and storage tank and a direct fired gas water heater.

Both heaters are standard efficiency and had been installed in 2008 and are at the end of its useful life.

Sanitary Sewer System

Sanitary sewer and vent system consist of combination of cast iron and copper piping. It appears that the sewer system was modified, possibly when additions were built. The newer cast iron piping exits the building above the basement finish floor, with an old system exiting the building below basement slab. The piping seems to be in good condition but will have to be visually inspected and pressure tested.

Main Kitchen

The existing main kitchen was a commercial style with required kitchen equipment. Cold and hot water, waste and vent and natural gas was provided. At this point of time we could not verify if correct temperature of hot water was supplied. Renovated kitchen will require 120-degree F and 140-degree F water. The kitchen equipment may be salvageable, but a kitchen consultant will have to determine this.

During our site visit we noticed one small grease interceptor located next to 3-compartment sink.If this kitchen is renovated a large inside and possibly large outside grease interceptor will be required.

Additional kitchen equipment was located on the second floor. From the equipment left in this space it appears that this area was used for dish washing only.

2.1 Piping

Domestic Cold & Hot Water Systems

Domestic Cold and Hot Water piping consists of type "L" copper with soldered fittings.

Domestic water piping appeared to be in fair condition but if reused it shall be pressure tested, chlorinated and insulated.

Copper piping depending on the quality of the water has a usable life between fifty and seventy years. It is difficult to estimate the age of installed piping, but it seems possible that the piping have been installed in the 1960's, so there are approximately 60 years old.

Sanitary, Waste and Vent Systems

Sanitary, Waste and Vent piping consists of a combination of no hub cast iron and hub and spigot cast iron. Piping visible for inspection was properly supported. Vent pipes extend up and thru the roof.

Cast iron piping depending on the quality of the water has a usable life between seventy-five and one hundred years. It is safe to assume that piping serving addition are 60 years old and piping serving fixtures located in the main building are older.

Storm System

Storm system consists of gutters and downspouts. The rain water is discharged at grade onto the site.

Natural Gas System

During our site visit we could not locate natural gas service but based on the site survey of the existing condition, there is a natural gas service located at the outside wall of the 1 story concrete block, which is the ballroom addition.

Plumbing Fixtures

Plumbing fixtures consists of vitreous water-closets, free standing and vanity type lavatories bathtubs and urinals.





2.2 Plumbing System Conditions Summary

The overall condition of the plumbing system including equipment, fixtures and piping is fair to poor. The water heaters are at the end of their useful life. Reuse of most of the plumbing fixtures is not feasible if a renovation is undertaken, but some of the piping system, after testing confirms good condition, may be reused. The testing of the piping system is critical due to the age of the piping.

2.3 Potential Demolition of 1960s Addition

It seems that all plumbing services, water, sanitary and natural gas, for the addition are coming from the main building, therefore they could be easily identified, removed and capped at the main building.

3.0 MECHANICAL SYSTEMS

The home was originally designed as a Summer Home. The primary source of heating was a boiler system which was connected to three or four air handlers within the basement. There is no central cooling system.

3.1 Space Heating System

The boilers serving the central heating system were installed in 2008 as part of the last major upgrade to the building. However, given the size of the building. It appears the heating system was not sized to adequately heat the building throughout the entire winter.

In general, everything regarding the heating system is nearing the end of its service life. The air handlers are extremely deteriorated. The hydronic piping is very corroded. Finally, the ductwork is very rusty and the ductwork insulation has been significantly damaged.

Primary Boiler Serving HVAC System

3.2 Cooling System

The home itself doesn't have a dedicated cooling system. Based on the layout of the building, it appears the design intent for cooling was to use the equipment serving the additions and to use fans to push air into the home.

In only the enclosed porch area, there is a small packaged air handler providing some cooling to the first floor of the original home.

There are also several thru-wall, cooling-only, AC units located in various parts of the building.

Existing Cooling Unit Serving the First Floor

Ductwork Serving the First Floor

3.3 Support Spaces

There are only a handful of support spaces on the main floor. In the main entrance the adjacent office, there a few electric wall heaters. Other than that, there are no HVAC systems serving the support spaces.

3.4 Ventilation System

The original home was never provided with a dedicated ventilation system. The ventilation air requirements were met through the use of operable doors and windows.

3.5 Potential Demolition of 1960's Additions

Based on the equipment layout and the ductwork layout on the roof, there are no HVAC systems which are connected between the original, historic home and the additions constructed in the 1960's. Since the original house and additions do not share any mechanical systems, there are no concerns with demolishing the additions.

3.6 Mechanical System Condition Summary

Based on the age of the systems, the overall quality of the existing equipment, and the fact the systems have been turned off for quite some time, it is clear all of the existing heating and cooling equipment will need to be demolished. A new HVAC system will be required for any renovation work done to this building.

4.0 ELECTRICAL SYSTEMS

The building is fed by three single phase pole mounted transformers. The pole number is 31-2. The incoming service from the secondary of the transformer is fed by overhead cables and weather head.

Pole #31-2


Pole mounted transformers


Overhead secondary service cables


Main Service Disconnect

The incoming service is rated 400amps, 120/208volts 3phase, 4wire. The main service disconnect is located in the basement electrical room. The equipment is manufactured by Federal Pacific. This equipment is obsolete and the manufacturer is not in business. The utility company CT cabinet and the meter is located adjacent to the service disconnect.


Panel B and Disconnect for Panel C


Disconnects for mechanical equipment

Panel A, Panel B and disconnect switch for Panel C are fed through a wire trough. Both panels are rated 200amps, 120/208volts, 3phase, 4 wire and 42 poles. Panel C is located on the first floor in the Kitchen area 135.

All the wiring is mix match with a combination of Romex, MC and in EMT conduits. Distribution equipment for mechanical equipment and other devices are severely rusted and beyond their usable life


Existing wiring through corridor


No fire proofing was done


Wiring exiting the Panel A & Panel B

Panel C located in the main Kitchen

4.1 Building Lighting System

Most lights are recessed downlights, and fluorescent strip lights. Architectural decorative incandescent type are chandeliers installed in few locations. All these light fixtures are very old and not energy efficient.


General Lighting in the addition


Chandelier

4.2 Building Life Safety

Life safety lights are provided by emergency battery units (EBU). Exit signs are installed. The building is not sprinklered and is protected with smoke, heat detectors, pull stations and audio-visual devices. Basement is protected with heat detectors; upper levels are equipped with smoke detectors.


EBU in the lobby


Smoke detector

Fire and life safety systems serving the building include a Silent Knight Fire Alarm System. The control Panel model # 5207 and built in communicator with exclusive Accu-Zone feature. There are a total of eight zones. Main kitchen is equipped with Ansul system and tied to the FACP for monitoring. The system reports via internal communicator.

FACP located in the main lobby

Exit sign, pull station and audio visual


Ansul system in the Kitchen


Electrical sub panel in the kitchen

4.3 Electrical System Conditions Summary

The overall existing electrical distribution system, lighting system, life safety system, and fire alarm system are all outdated and not salvageable. Distribution equipment manufacturer appears to be out of business.

Pole mounted utility transformers appear to be at their end of life as well. Also, due to the age, condition, and end of life, refurbishment of power distribution equipment system is not recommended at this time.

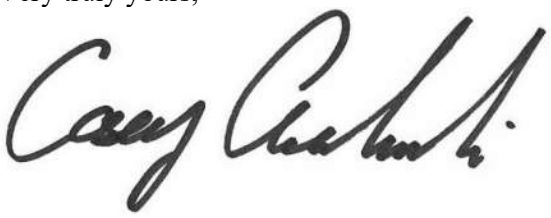
New electrical service will be required at the time of any renovation. Based on the mechanical systems selected a new utility company owned transformer will be required. A new electrical room with proper rating will be required. New service size will be determined based on the systems selected. The new electrical system will comply with the applicable electrical code at the time of construction.

4.4 Potential Demolition of 1960s Addition

It appears that all electrical services for the addition are coming from the main building, therefore they could be easily identified, removed and capped at the main building.

Please do not hesitate to call us with questions.

Very truly yours,



Casey Archacki, P.E.
Wozny/Barbar & Associates, Inc.

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161 Exchange Street, 3rd Floor, Pawtucket, RI 02860

APPENDIX E:

BUILDING OWNERSHIP

BUILDING OWNERSHIP TIMELINE

Date Recorded	Seller	Buyer	Book	Page
3/15/1982	Tristam C. Pinkham	Daniel B. Wesson	1114	354
4/9/1912	Heirs of D. B. Wesson	Alfred Thomas	2045	48
6/25/1926	Alfred Thomas	Muriel N. Laciar	2430	349
4/28/1928	Muriel N. Laciar Bourgeois	Nicholson Co.	2465	486
8/10/1928	Nicolson Co.	Thomas H. Sullivan, Trustee	2476	462
8/21/1928	Eugene N. Harris (Sullivan Trustee)	George and Alma Roussel	2542	347
8/7/1941	George and Alma Roussel	Clinton Savings Bank (mortgage)	2826	171
6/11/1942	George and Alma Roussel	Clinton Savings Bank (foreclosure)	2859	54
June/ 1942*	Clinton Savings Bank	Panepirotic Federation of America, Inc.	?	?
11/28/1945	Panepirotic Federation of America, Inc.	Felician Rojcewicz	2979	41
7/14/1949	Felician Rojcewicz	Albert A. Rojcewicz	3193	228
8/19/1953	Albert A. Rojcewicz	Tomaiolo's White Cliffs, Inc.	3526	254
2/27/1985	Tomaiolo's White Cliffs, Inc.	A.J.L. LaCava Realty Trust	8595	220
8/15/1985	A.J.L. LaCava Realty Trust	A.J.L. LaCava Realty Trust II	8875	316
9/25/2017	A.J.L. LaCava Realty Trust II	Town of Northborough	57796	342

*Verification of sale to Panepirotic Federation of America, Inc. could not be located

All information provided by the Worcester County Registry of Deeds

APPENDIX F:

INDEX OF SALVAGED MATERIALS

Lot	Description	Location	Item	Dimensions	Notes
163862/1	Stained Glass Windows Floral/Geometric Motif	Unknown *Relocated to Entrance	typical	-	wood frame painted both sides, protective glazing, some paint on glass & lead, minor bowing, minor separation at soldered joints, stained glass contains variety of colors/textures/opacities
			033	19.5" x 32"	-
			042		(2) cracks
			043		-
			046		significant cracking at protective glazing
			047		(1) crack, minor frame damage
			050		minor frame damage
			051		(1) crack
			052		-
163862/2	Stained Glass Windows Vine Motif	Unknown *Relocated to Addition	typical	-	wood frame painted both sides, protective glazing, embedded marbles typically loose, significant bowing at center panel, glass panels loose from caming
			027	44" x 37.25"	(2) rebars, minor frame damage at exterior
			028		(2) rebars, (2) cracks at protective glazing
163862/3	Stained Glass Windows Vine Motif	(1) Dining Room (Based on Photos) (1) Unknown* *Relocated to Addition	typical	-	wood frame with wood muntins painted at exterior only, protective glazing, minor separation at soldered joints, stained glass contains variety of colors/textures/opacities
			011	44" x 37.5"	(2) rebars, (1) crack, (1) crack at protective glazing, (1) muntin damaged at interior side, significant bowing, (3) missing/damaged glass components
			016		(2) rebars, (3) cracks, (1) muntin damaged at interior side, significant bowing
163862/4	Stained Glass Fanlights	*Suspected non-original, located in Addition	023	17.5" x 36"	wood frame with wood muntins painted both sides, caming is wider/cruder, motif is simpler, wood is newer, paint on cames/glass, no specific damage at individual window units
			024		
			025		
163862/5	Stained Glass Window "Spider and Fly"	3rd Floor Balcony (Based on size) *Relocated to Addition	-	22.5" x 74.5"	wood frame painted both sides, protective glazing, areas of missing caming many cracked and missing glass, significant bowing, (4) rebars, integral protective glazing, significant deterioration of glazing putty at protective glazing, overshot/crackle glass masking cracking

Lot	Description	Location	Item	Dimensions	Notes
163862/6	Stained Glass Windows Floral Motif	3rd Floor - West Elevation, Above main entrance (Based on sizes)	typical	-	wood frame painted both sides, protective glazing, some paint on cames/glass, minor bowing, minor separation at soldered joints, stained glass contains variety of colors/textures/opacities, lead oxidizing
			-	19.75" x 30.5"	wedge shaped, (6) cracks, glass border intentionally painted
			044	19.75" x 29.75"	many cracks, missing glass, (1) rebar
			045	19.75" x 29.75"	(5) cracks, (1) rebar
			048	19.75" x 30.5"	wedge shaped, (3) cracks, glass border intentionally painted
			049	22.5" x 36"	(4) glass components damaged/cracked/missing, (2) rebars, glass border intentionally painted
163862/7	Stained Glass Windows Vine Motif	1st Floor - Southeast Room (Based on photos)	typical	-	wood frame with wood muntins painted at exterior only, protective glazing, minor separation at soldered joints, minor bowing at center panels
			009	37.25" x 34"	(1) rebar, (1) missing interior muntin, (1) damaged interior muntin
			010		(1) rebar, (1) crack at protective glazing
			015		(1) rebar
163862/8	Stained Glass Laylight	Ceiling above main stair (Based on photos)	typical	-	unpainted wood frame, glazing putty deteriorated, minor separation at soldered joints, stained glass contains variety of colors/textures/opacities
			001	12.75" x 42.5"	(2) rebars
			002		(2) rebars
			003		(1) crack, (2) rebars
			004		(2) rebars
			005		(2) rebars
			006		(2) rebars
			007		(2) rebars, frame is separating
			008		(2) rebars
			012	42.5" x 42.5"	(5) cracks, (2) rebars, significant bowing
			013		(5) cracks, (2) rebars, significant bowing
			014		(3) cracks, (2) rebars, significant bowing, minor frame damage
			029	12.5" x 12.5"	-
			030		-
			031		-
			032		-

Lot	Description	Location	Item	Dimensions	Notes
163862/9	Water Feature	Exterior	typical	-	all surfaces significantly oxidized, some components missing
			022	17" h x 5" dia	component of Pump: with tube
			035	48" h x 37" dia	top: portions missing/separated
			053	11" h x 68" dia	base:
163862/10	Water Feature	Exterior	019	37" h x 32" dia	all surfaces significantly oxidized
163862/11	Wood Panel with Stained Glass Panel	Suspected non-original, located in Dining Room (Based on photos)	typical	-	components are not doors, but look similar with large stained glass panel at top and (3) recessed wood panels at below. Wood panel and stained glass appear to be more recent than other stained glass windows. No exterior weathering. Foam shims between glass panel and wood frame. No bowing or significant deterioration noted at (1) surveyed panel. (5) rectangular rebars per component.
			034	9'-0" x 47.5" x 1.5" d	DBVW not able to access individual components to for assessment
			038		
			039		
			040		
			041		
163862/12	Owl Andirons	Unknown	020	15"h x 9"w x 17"d	cast iron, rusting, no visible damage, no glass at eyes
			026		
163862/13	Table Lamp and Shade	Unknown	017	10"h x 19.5"dia	shade: stained glass, no visible damage
			021	27"h x 8" dia	base: painted with bronze color, no visible damage
163862/14	Light Fixtures	Unknown	typical (no item no.s)	16" long 6.5" dia back plate 7.5" dia shade	wall mounted, hardwired, light fixtures manufactured by Loevsky & Loevsky White Metal Casting (L&LWMC) in 1967, slag glass tulip shape shade, bronze back plate/arm/chain, (4) pink; (1) green - 1 crack; (2) white; (3) dark purple
?	Fireplace Components	Entry Hall	036	66"w x 48"h x 1.5"d	surround: patinaed bronze, good condition, inscriptions "EAST WEST HAMES BEST" and "1886"
			054	48"w x 37.5"h x 3"d	frame: patinaed bronze, good condition

White Cliffs
Catalog of Salvaged Items
Project Number: 1901

LOT	ITEM	PHOTOS	
163862/1	033	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
163862/1	042	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			

White Cliffs
Catalog of Salvaged Items
Project Number: 1901

LOT	ITEM	PHOTOS	
163862/1	043	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
163862/1	046	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			

White Cliffs
Catalog of Salvaged Items
Project Number: 1901

LOT	ITEM	PHOTOS	
163862/1	047	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
163862/1	050	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
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		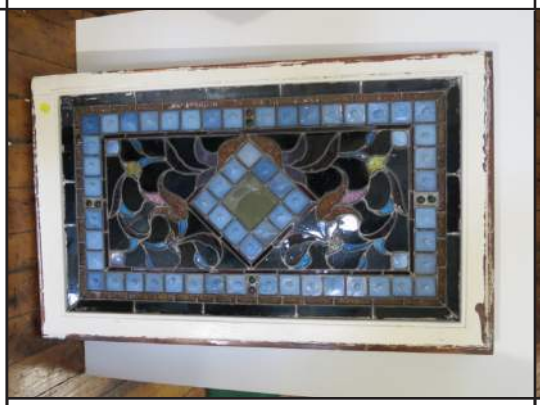	
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			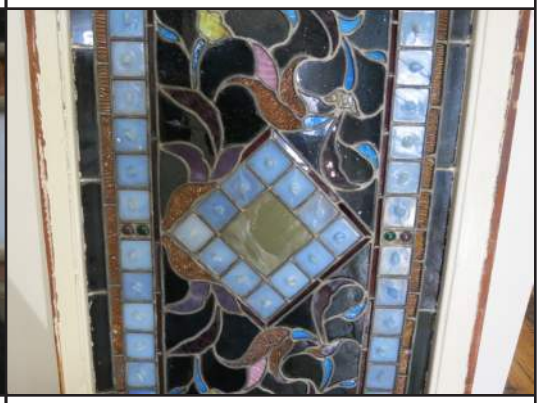
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		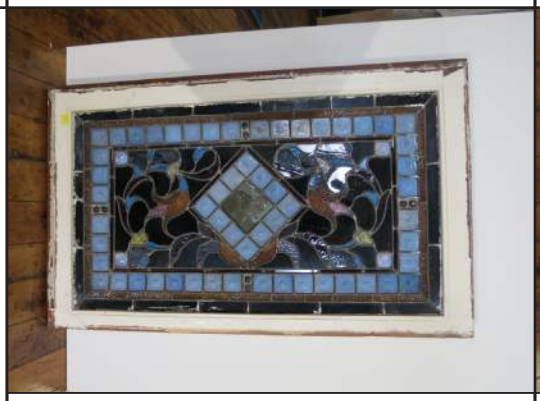	
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LOT	ITEM	PHOTOS	
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		DETAIL	DETAIL
			
163862/2	028	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
163862/3	011	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
163862/3	016	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
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			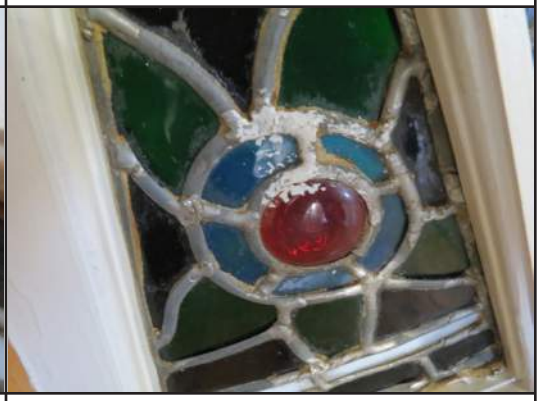
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		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
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		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
163862/5	-	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
163862/6	044	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
163862/6	045	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
163862/6	048	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
163862/6	049	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
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		DETAIL	DETAIL
			
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		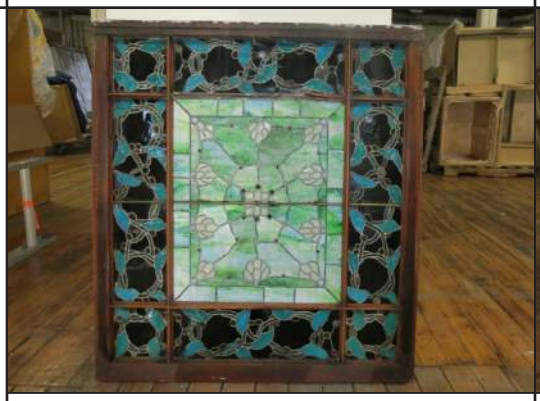	
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
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		DETAIL	DETAIL
			
163862/7	015	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
163862/8	001	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
163862/8	002	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
163862/8	003	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
163862/8	004	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
163862/8	005	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
163862/8	006	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
		DETAIL	
			

LOT	ITEM	PHOTOS	
163862/8	007	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
		DETAIL	
			

LOT	ITEM	PHOTOS	
163862/8	008	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
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LOT	ITEM	PHOTOS	
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			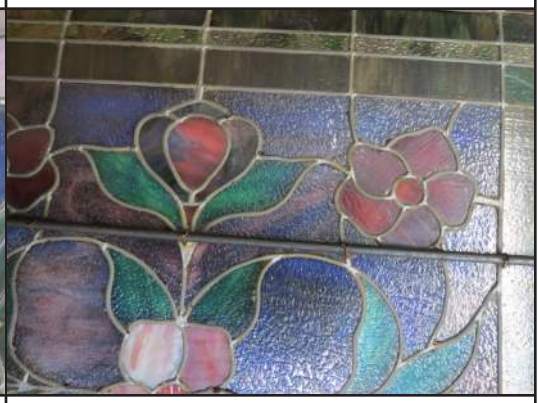
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		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
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		DETAIL	DETAIL
			
163862/8	029	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			

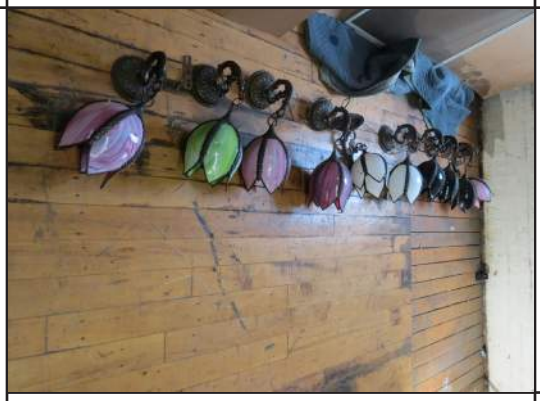
LOT	ITEM	PHOTOS	
163862/8	030	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			
163862/8	031	INTERIOR	EXTERIOR
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
163862/8	032	INTERIOR	EXTERIOR
			
		DETAIL	
			
163862/9	022	OVERALL	
			
163862/9	053	OVERALL	
			

LOT	ITEM	PHOTOS	
163862/9	035	OVERALL	DETAIL
			
			DETAIL
			
163862/10	019	OVERALL	DETAIL
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
163862/11	TYPICAL	OVERALL	DETAIL
			
		DETAIL	DETAIL
			
163862/12	020	FRONT	SIDE
			
		DETAIL	DETAIL
			

LOT	ITEM	PHOTOS	
163862/12	026	FRONT	SIDE
			
		DETAIL	DETAIL
			
163862/13	017	TOP	OVERALL
			
		BOTTOM	DETAIL
			

LOT	ITEM	PHOTOS	
163862/13	021	OVERALL	TOP
			
		DETAIL	BASE
			
163862/14	TYPICAL	LOT	OVERALL
			
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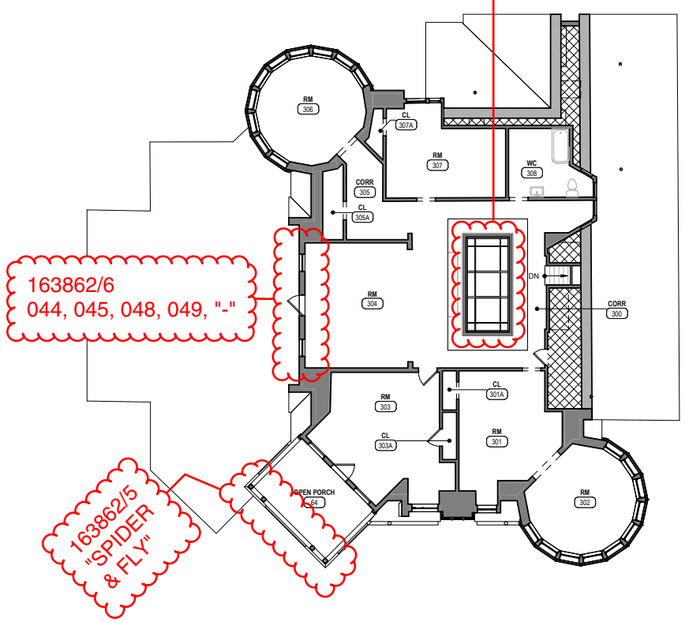
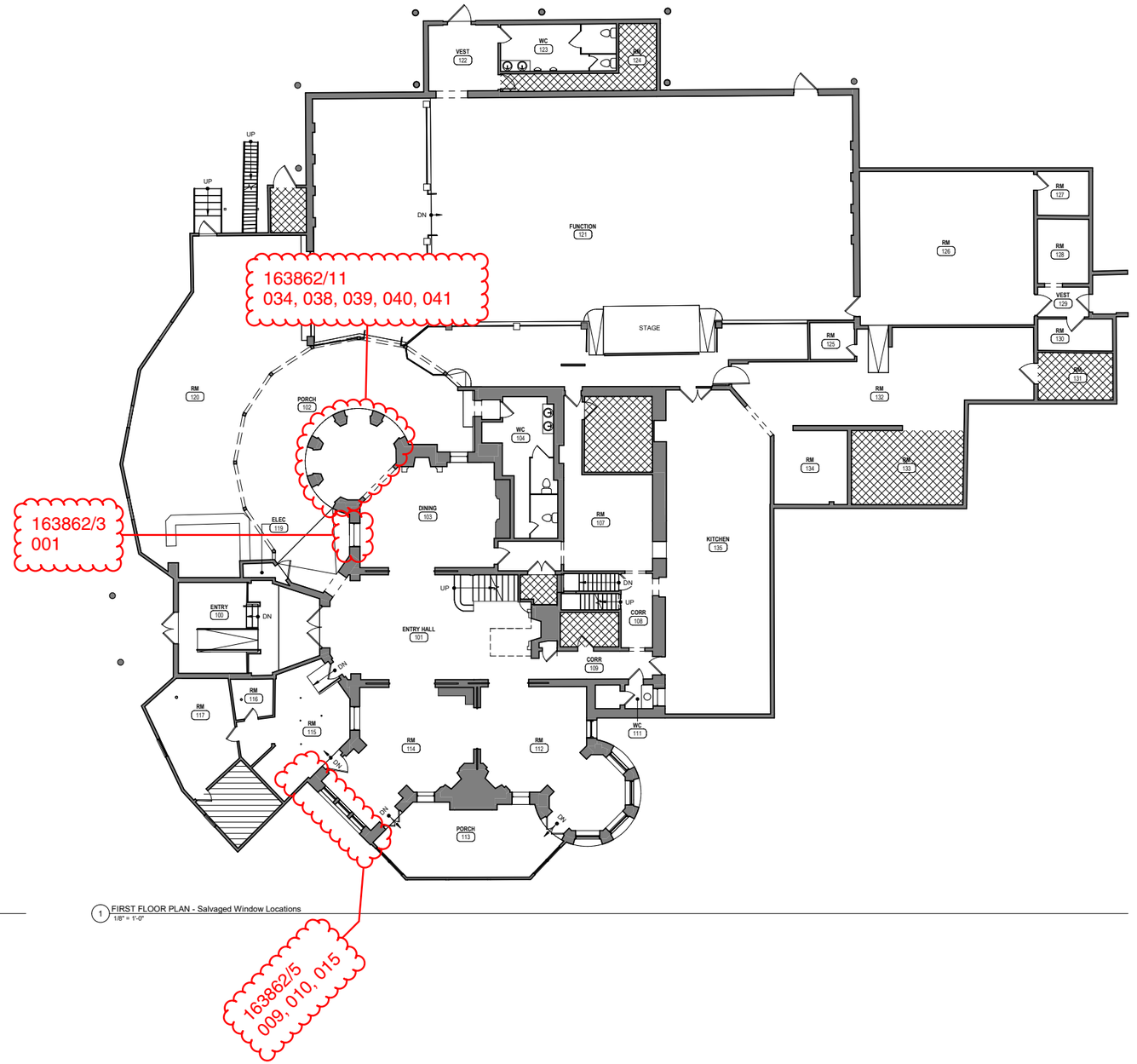
LOT	ITEM	PHOTOS	
FIREPLACE	036	OVERALL	DETAIL
			
		DETAIL	DETAIL
			
FIREPLACE	054	OVERALL	DETAIL
			
		DETAIL	DETAIL
			

PRESUMED ORIGINAL
STAINED GLASS LOCATIONS



2 THIRD FLOOR PLAN - Salvaged Window Locations
1/8" = 1'-0"



1 FIRST FLOOR PLAN - Salvaged Window Locations
1/8" = 1'-0"

DBVW
ARCHITECTS
T 401 831 1340 111 CHESTNUT STREET
www.dbvw.com PROVIDENCE, RI 02903

FOR REFERENCE ONLY NOT FOR CONSTRUCTION

WHITE CLIFFS

167 Main Street
Northborough, MA

TOWN OF NORTHBOROUGH

NO	DATE	DESCRIPTION

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DATE: 04/23/2019
DRAWN BY: Author
JOB NO: 1901
SCALE: 1/8" = 1'-0"

SALVAGED WINDOW LOCATIONS

A01

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APPENDIX G:

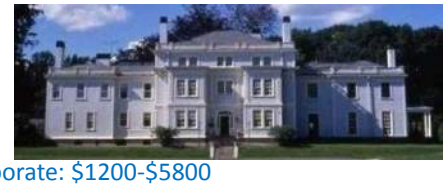
MARKET FEASIBILITY REUSE COMPARABLES

Event Use

Key *Comparables* for conceptual look

- Endicott Estate – Dedham, MA
  - Estate + 18 acres; largest area (interior) = 900 SF (+,-)
  - Wedding, social, corporate
  - 150 seated; 200+ cocktail reception
  - Peak (May – Dec 31); $2000 to $3800
  - Off-Peak (Jan-April); $1200 to $2800
  - Refined/period interiors + exteriors
  - Town-owned; Endicott Estate Commission – via legislative act

- Lyman Estate – Waltham, MA
  - Estate + greenhouses + 37 acres
  - Wedding, social, corporate
  - 150 seated; 175+ cocktail reception; 225 tented
  - Peak (May – October); Wedding: $2800 to $5800 | Corporate: $1200-$5800
  - Off-Peak (Nov-April); Wedding: $1200 to $2400 | Corporate: $1200-$2400
  - Refined interiors + exteriors
  - Offers tours; once a month ($4-8). Owned by non-profit; grounds open to public



RE-USE APPROACH

Event Use

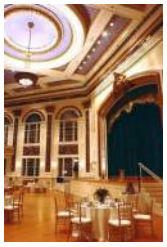
Key *Comparables* for conceptual look (Continued…)

- Smith Barn – Peabody, MA
  - Barn + 250 acres
  - Wedding, social
  - 240 max
  - Peak / Off-Peak; range from $2000 to $5000
  - Managed by Historical Society

- Asa Waters Mansion – Millbury, MA
  - 85 indoor, up to 150 w/ tent
  - Non-profit; restored via fundraising + volunteer + other

RE-USE APPROACH

Event Use



Key *Comparables* for conceptual look (Continued…)

Within 10 miles:

- Worcester Art Museum | 120 seated; 175 cocktail | Up to $5000
- Mechanics Hall | Worcester, MA | up to 450 guests | < 250; $5500 <250; $6900
- Chocksett Inn | Sterling, MA | 250 guests (interior) | Lodging/guest rooms | Packages – driven by level of service/food
- Tower Hill Botanic Gardens | Boylston, MA | Non-profit | up to 120 guests | Peak / Off-Peak $9500 to $3500
- Tuckerman Hall (pictured)|Worcester, MA | Hall; music venue | 200 max | $4250
- Bull Mansion | Worcester, MA | Multiple rooms/options; up to 250 guests
- Grafton Inn | Grafton, MA | Lodging + dining | Up to 125 guests + patio (75) | Function Hall
- Wayside Inn | Sudbury, MA | Chapel- adjacent; included lodging | Non-profit | up to 100 guests (indoor) + tent allows 200| $2000-3000; ten up to $5000 +

Market Feasibility Notes: Condo/Townhouse Market Data & Comparables

Address	Town	Price	Beds	Baths	SF	Price/SF
Talbot Way	Westborough	$316,420	1	1	1,030	$307
Commons Dr	Shrewsbury	$229,000	2	2	1,134	$202
Talbot Way	Westborough	$424,720	2	2	1,326	$320
Talbot Way	Westborough	$495,665	2	2	1,469	$337
Abby Lane	Shrewsbury	$469,900	2	2	1,500	$313
Orchard Meadow	Shrewsbury	$389,900	2	2	1,580	$247
Main St	Northborough	$382,000	2	2	1,600	$239
Brookdale Cir	Shrewsbruy	$349,000	2	3	1,630	$214
Main St	Northborough	$369,900	2	2	1,640	$226
Daania Dr	Westborough	$559,900	2	3	1,718	$326
Fiddle Neck	Southborough	$425,000	2	2	1,750	$243
Westminster Dr	Marlborough	$334,900	2	2	1,824	$184
Bowstring	Marlborough	$389,900	3	3	1,832	$213
Lincoln St	Marlborough	$392,500	2	2	1,860	$211
Glen Court	Southborough	$575,000	2	3	1,983	$290
Oregon Rd	Southborough	$579,900	2	3	2,000	$290
Oregon Rd	Southborough	$579,900	2	3	2,000	$290
Oregon Rd	Southborough	$589,900	2	3	2,000	$295
Oregon Rd	Southborough	$614,900	2	3	2,000	$307
Oregon Rd	Southborough	$639,900	2	3	2,000	$320
Wyman Dr	Shrewsbury	$550,000	2	3	2,043	$269
Wyman Dr	Shrewsbury	$550,000	2	3	2,043	$269
Wessonville Village	Westborough	$550,000	2	2	2,090	$263
Parkerville Rd	Southborough	$649,900	2	3	2,190	$297
Parkerville Rd	Southborough	$679,900	2	3	2,190	$310
S. Quinsigamond	Shrewsbury	$499,900	3	4	2,200	$227
Wyman Dr	Shrewsbury	$620,000	2	3	2,239	$277
Parkerville Rd	Southborough	$699,900	2	3	2,255	$310
Arch St	Westborough	$448,888	3	3	2,312	$194
Maple Ave	Shrewsbury	$449,999	3	3	2,324	$194
Wyman Dr	Shrewsbury	$575,000	2	3	2,488	$231
Wyman Dr	Shrewsbury	$575,000	2	3	2,488	$231
Heatherwood	Marlborough	$449,900	2	3	2,532	$178
Golden Ct	Westborough	$549,900	2	3	2,565	$214
Harrington Farms	Shrewsbury	$439,900	2	3	2,595	$170
Powder Hill	Westborough	$525,000	3	4	2,978	$176
Arch St	Westborough	$488,888	4	4	3,214	$152
				Average:	2,017	$252

As of Q1 2020