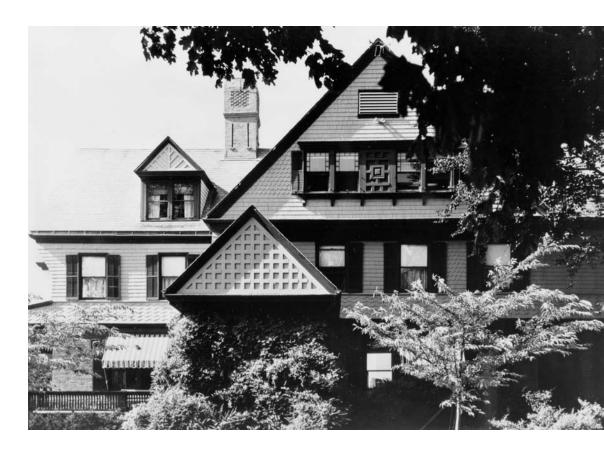
## **Sagamore Hill National Historic Site**

20 Sagamore Hill Road Oyster Bay, New York 11771

# Rehabilitate Theodore Roosevelt Home

**Pre-Design Report** 

**PMIS No. SAHI-077375** 



**FEBRUARY 2009** 

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### PROJECT PROGRAM

Introduction

The Theodore Roosevelt Home was designed by Lamb & Rich, Architects and constructed between 1884 and 1885 for the man who would become the twenty-sixth President of the United States. It is the primary resource and attraction at the Sagamore Hill National Historic Site.

The Queen Anne style house is a three-story, wood-framed building of approximately 14,175 square feet with painted brick masonry and wood shingle siding, a wood shingle roof, and massive brick chimneys. The interiors are typically finished in painted or wallpapered plaster or wood paneling, with wood floors that are carpeted in many of the publicly-accessible spaces. Throughout the house, there are extraordinary collections, which include many furnishings, works of art, and a significant number of big game and hunting trophies.

There is a generous attic over the central portion of the house, and a raised basement with stone or brick masonry walls under much of the house. Two crawlspaces are accessed from the basement; they are located underneath the eastern portion of the house and underneath the north wing, which was designed by C. Grant LaFarge and constructed in 1905.

The house, several other associated structures, and the surrounding landscape is located in the town of Oyster Bay, on the north shore of Long Island in Nassau County, New York. The house and site are currently administered by the National Park Service.

#### ARCHITECTURAL PROGRAM

The Theodore Roosevelt Home is a nationally significant historic building that currently functions as a house museum. Guided public tours are led through the house by National Park Service staff and volunteer docents. The exterior of the house has seen little modification over time, except where toilet rooms have been added and porches have been modified. The interior is furnished to reflect the daily life of the Roosevelt family; additional stairs and modifications to the third floor were made in the 1950s when the house first opened as a museum. As the only home that Roosevelt built for himself and his family, the house and its contents are a unique interpretive and educational experience and an important, irreplaceable cultural resource that requires the highest level of care and preservation to ensure its long-term survival.

The Theodore Roosevelt Home has been well maintained by the National Park Service, but the condition of the house is starting to deteriorate, and both the exterior and interior are in need of restoration and repair in many areas. A holistic approach to the restoration of the entire house should guide decision-making for the first phase of construction work anticipated at the house. Priorities for the building's restoration and upgrade have been established to address the most critical problems that affect the house; these priorities have been outlined in the cost estimate included in this Pre-Design Report.

## Exterior

Recent inspections of the building envelope have identified a number of water infiltration problems. The existing wood shingle roof, which dates to the 1980s, is in poor condition, and there are active leaks causing interior plaster damage to second floor spaces. Areas of brick masonry walls and wood shingle cladding are in need of repair, and doors and windows require

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restoration. Chimneys should be investigated to determine whether they have been properly capped to allow ventilation, and corrections where required should be implemented. Targeted improvements to the building envelope, including the addition of insulation or radiant barriers, should be considered in conjunction with these exterior repairs. The reduction of air infiltration can also be accomplished during window and door restoration with the addition of perimeter weatherstripping and the replacement of existing storm windows. Of lower priority is the removal and reconstruction of the northeast entrance porch, currently used by National Park Service Staff and volunteer docents. The existing porch is in poor condition, and does not reflect the historic condition of this entrance; its future reconstruction should be considered during a comprehensive restoration of the exterior building fabric of the house.

Roof gutters and downspouts at the Theodore Roosevelt Home are undersized; as a result, rainwater is not properly conducted away from the building's exterior and foundation. Water infiltration has also occurred in localized areas of the basement; the existing extent and condition of foundation drainage and exterior waterproofing should be confirmed, as well as any other underground storm drainage components such as drywells. Replacement drainage and belowgrade, reversible waterproofing will likely be required.

There is an existing lightning protection system installed on the Theodore Roosevelt Home and several surrounding trees that dates to 1983. The existing system should be evaluated, and an upgraded lightning protection system for the house and surrounding trees that is consistently grounded should be incorporated into the roof restoration work.

Universal accessibility for visitors and National Park Service staff into the Theodore Roosevelt Home and throughout the main areas of the first floor is a high priority. It is desirable to bring all visitors through the front entrance of the house; this may require the construction of either a wheelchair lift or a ramp to provide access to the raised wooden porch that wraps around the southwest side of the house. No further modifications for accessibility are proposed for the interior of the house within this project due to funding limitations.

#### **Building Systems**

The existing mechanical systems, including two air handlers, two oil-fired boilers, and a series of non-original hot water radiators that are located in the east wing of the house, have exceeded their useful lifespan and are in poor condition. In particular the air handlers, which were installed in the late 1970s and provide heating, ventilation, and some humidification for the house, require replacement. The existing 4,000 gallon double-walled underground fuel oil tank is relatively new, is in very good condition, and has a leak detection alarm.

The design of a new mechanical system should respect the existing configuration of the building envelope fabric, which likely has a high level of infiltration. Particulate filtration, acoustics, vibration isolation, and thermostatic control will be important considerations for the new system design, which should seek to reclaim aspects of the building's original active and passive heating and cooling strategies wherever possible. Additional research about the original heating and ventilation system should be undertaken to inform this effort. Effective climate control within the house will mitigate seasonal temperature and humidity fluctuations that currently contribute to the deterioration of the historic building fabric and the collections throughout the house. The need to provide air-conditioning for the house will be evaluated, and sustainable solutions for new systems and equipment that can also reduce operational costs will be explored throughout the design process.

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The electrical distribution within the building is in fair condition. The original 1905 electrical wiring system installed during construction of the north wing may still remain, and the 1918 electrical wiring throughout the remainder of the house is partially extant but may be deenergized. Several upgrade campaigns, most significantly in the 1950 and again in the 1980s, have modified the original distribution network.

New electrical distribution throughout the house is needed to provide adequate service for maintenance activities, as well as improved lighting within the interiors for egress and exhibits. Interior lighting upgrades will likely include both historic reproduction fixtures and modern exhibit lighting that utilized LED (light-emitting diode) technology. LED fixtures do not emit light in the ultraviolet range of the spectrum; they produce less heat; and they are energy efficient. Lighting control options will be studied to augment interpretive techniques and experiences.

The existing fire suppression system is a wet pipe, fully automatic sprinkler system that dates to the 1950s; modifications to some branch piping have occurred, and most of the sprinkler heads have been replaced with more modern fittings. The system covers the entire basement, including crawlspaces, and the easternmost portion of the first floor. Additionally, a standpipe and hose/cabinet system was installed with the original fire protection system at all floors except the attic. The hoses and cabinets have since been removed; the riser has been disconnected, but remains in place. At the exterior of the house, three yard hydrants are located around the perimeter to aid in firefighting. While the fire protection system is frequently tested, it is unclear if there is adequate water pressure to serve the system should it be activated.

A number of fire codes and standards may be applicable to assess the fire suppression system requirements for the Theodore Roosevelt Home. These include the National Fire Protection Association (NFPA) standards as well as local codes such as the Nassau County Fire Prevention Ordinance. Past fire protection strategies had included discussions with the Nassau County Fire Marshal, who issued a permit for the existing Automatic Fire Alarm in the 1990s. Criteria for an acceptable fire protection strategy should be determined early in the design process with the appropriate Authorities Having Jurisdiction.

Fire detection and notification systems exist throughout the house, and the system is well maintained. Anticipated upgrades to the fire suppression system should be evaluated to determine compatibility with existing fire detection devices. Elements of an early fire detection system installed during the 1950s are still extant in several rooms; these elements do not appear to be active, and should be removed.

The existing security system consists primarily of perimeter door and window contacts and interior motion detection devices. Several important artifacts within the collection are individually alarmed. The perimeter devices are beginning to fail; their repair or replacement should be incorporated into exterior window and door restoration activities to ensure full perimeter security for the house.

#### Interior

Currently, some collections storage is located in basement areas; other items are stored in closets located on the upper floors of the house. Other portions of the collection are stored at Old Orchard, the main administration building for Sagamore Hill National Historic Site. These various locations are undesirable; the collections should be located in a single space, near

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curatorial staff, where an acceptable level of climate control for long-term preservation of the collections can be achieved. A separate collections storage building is recommended for the site, so that specialized storage requirements do not place undue burden on the historic building fabric of the Theodore Roosevelt Home. It is recommended that collections storage be removed from the building prior to the beginning of any significant construction activities within the house.

Areas of interior restoration include further augmentation of the structural support of the main stairs that lead from the first floor to the second floor; a series of repair campaigns have been undertaken over the past few decades, but additional work is required to stabilize the stair construction and balustrade railing. As the design work proceeds, localized areas of minor structural deflection in the house framing will be studied in more detail.

Plaster deterioration is visible throughout the house where water infiltration has occurred, and in areas around several chimneys and fireplaces. Following exterior restoration to eliminate water infiltration, interior painted and wallpapered plaster surfaces should be carefully repaired. Staff bathrooms located in the basement are in fair to poor condition, and require fixture replacement and the upgrade of existing finishes. The original passive ventilation system that utilized the central hall and attic spaces was extensively remodeled during the 1950s. This system should be restored to its original configuration, along with the restoration of historic finishes in five rooms on the third floor.

#### SITE PROGRAM

Landscape and site improvements at the Theodore Roosevelt Home are anticipated, as utility services to the building are upgraded and storm water drainage issues at the building's perimeter are addressed. Accessibility improvements for visitors and National Park Service Staff should be coordinated with significant landscape features, and re-grading to provide positive drainage away from the house. Exterior lighting of the house and surrounding landscape should be augmented to improve pedestrian safety and security for the building.

Many areas at Sagamore Hill are archaeologically sensitive; these areas should be avoided to the greatest extent possible during construction. Please see the Archaeology section of the Site Analysis for further discussion.

#### SITE ANALYSIS

Topography and Slope Analysis

The Theodore Roosevelt Home sits on the top of a small rise in the landscape, the highest point of topography at Sagamore Hill with historically advantageous views of the surrounding water and farmland. However, in the areas immediately adjacent to the house there are flat and sloped areas that do not provide positive drainage away from the building's foundation. A preliminary topographic survey of the entire site was completed for the National Park Service in 1993. This survey was based on aerial photography, and recorded 5' contour intervals. An additional topographic survey, recording close contours at 6" intervals, is recommended, so that corrective actions for re-grading around the building's foundation can be studied and implemented. Care should be taken to avoid re-grading in ways that may negatively impact the root structure of historically significant trees surrounding the house. Coordination with adjacent paved areas and with basement window sills that were historically close to grade will be required.

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Landscape improvements will be required to successfully integrate strategies for universal accessibility to the house; conceptual ideas will be studied/evaluated by the Northeast Region of the National Park Service for effects and feasibility. Site lighting for safety and security should be developed concurrently, and should take advantage of the SmartParks energy efficiency program under joint administration by the Department of Energy and the National Park Service.

Analysis of Physical Features

Not applicable

Access and Circulation

Not applicable

Traffic and Parking Studies

Not applicable

Existing Water Bodies

No impact to existing water bodies, which include Oyster Bay Cove to the west and Cold Spring Harbor to the east, is anticipated. Sagamore Hill National Historic Site extends to the shore of Cold Spring Harbor; however, the Theodore Roosevelt Home is at the opposite end of the site.

Site History, History of Existing Structures and Landscape

The site's history is fully described in the Sagamore Hill Cultural Landscape Report completed in the early 1990s, as well as in the various volumes of the Historic Structure Report for the Theodore Roosevelt Home.

Structures that surround the Theodore Roosevelt Home include the ice house, which is located directly east of the house; the pump house and windmill, which are located further northeast of the house; and the flagpole and memorial to Quentin Roosevelt, located southwest of the house. Currently, the ice house and the pump house are marginally used for storage, and may provide locations for equipment that may be required to support building system upgrades at the main house.

Vegetation and Natural Features

Several trees and ornamental bushes that are located in the landscape surrounding the Theodore Roosevelt Home are historically significant and must be protected during construction activities. They are more completely described in the Cultural Landscape Report prepared by the National Park Service.

New and Existing Utility Studies

Existing on-site utilities that support the Theodore Roosevelt Home include water service, electric service, storm water and septic systems, and telecommunications. There is no public utility gas distribution, or municipal sewer or storm water connections for the property.

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Water for the house was originally pumped up to the third floor tank room from a well located under the pump house. The pump was powered by the windmill and was augmented by a hand-pump located in the kitchen. This system was abandoned in the early 1950s; at that time, two new wells were put into service, and were subsequently capped and abandoned in the 1990s.

Currently, a 10" diameter water main service comes onto the property from the southeast to a meter pit located to the northeast of the pump house; this service was installed in 1995. A 2-1/2" diameter copper pipe supplies potable water from the meter pit to the Theodore Roosevelt Home. A separate 6" diameter yard main feeds the three exterior fire hydrants; this underground piping may date to the 1950s. The building sprinkler system is fed by a 4" diameter lead-in that connects to the 6" diameter yard main on the northeast side of the house. While the volume of water within this system may be adequate, the pressure may not be sufficient for an upgraded fire suppression system. A hydrant flow test should be conducted, and/or data should be obtained from the Oyster Bay Water District.

Electric service to the house comes underground from a transformer located in an underground vault approximately 400 feet to the east of the house and enters a room on the north side of the basement. The age of this underground transformer is unknown. Underground service from National Grid, the local electric utility company, comes to this transformer from the north.

New electrical service is currently proposed for the Theodore Roosevelt Home, the visitor contact station, the maintenance shop, and four staff quarters. Several factors will affect the new design of this electrical service. New distribution panels should be provided at each of these buildings in anticipation of interior electrical upgrades. Requirements for three-phase electrical service and stand-by or emergency generator capacity should be evaluated; anticipated electrical loads should be determined; and the condition and capacity of the existing transformer – as well as potential locations for a new transformer, if required – should be discussed with the local utility.

An interior security system for the Theodore Roosevelt Home is augmented by exterior lighting that provides additional measures of security for the areas surrounding the building. Upgrades to these systems should be implemented and sensitively designed to complement the historic features of the building and landscape. Discreet, energy-saving fixtures should be incorporated into the design.

The existing septic system is relatively new and is reported to be in good condition. A 1,000 gallon underground tank is located to the east of the pump house; leech fields for the Theodore Roosevelt Home and several other buildings are located further northeast, between the pump house and the visitor's center.

The existing telecommunications service consists of fiber optic cable that provides internal LAN capabilities and 50 pair of copper wiring for telephone service. As the service is in good condition, no modifications to the existing telecommunications service are planned for this project.

## Archaeology

There are several important archaeological features that are in the vicinity of the Theodore Roosevelt Home; most significant are the remains of the foundation for the Stable/Barn complex to the northeast of the house. Several existing utility corridors have already been established across the site, where archaeological features do not exist or have previously been disturbed.

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These corridors should be re-used to the greatest extent possible. Prior to any construction, preliminary archaeological testing should be done in areas where significant underground excavation is anticipated; such a location is the original builder's trench at the perimeter of the house. Other areas around the house will require excavation for new utilities, site lighting, and regrading and accessibility modifications. These areas should be evaluated and tested prior to construction so that an avoidance or mitigation plan can be developed to minimize archaeological impact. A map of known archaeological features and potential areas for underground construction that would not impact archaeologically-sensitive areas is being prepared by the Northeast Region of the National Park Service for use by the design team.

## Environmental Studies and Reports

Temperature and humidity conditions have been recorded throughout the house by the National Park Service over the past two years. A study that documents the existing mechanical systems and evaluates the thermal and air-transmission performance of the building envelope of the Theodore Roosevelt Home is being prepared by Art Preservation Services. This report also includes a synthesis of the recorded temperature and humidity conditions. Completion of the report is anticipated in February of 2009. Recommendations from the report should inform the design of the new mechanical systems proposed for the house and collections.

Climate Studies

Not applicable.

Geotechnical / Soils Investigation

Preliminary information from the Natural Resources Conservation Service (NRCS) Web Soil Survey indicates that Montauk fine sandy loam, which is a poorly-drained soil, may be present at the site. This soil is often found at areas with high water tables. However, according to on site park maintenance staff, the ground water table is located more than 40' below the surface. Additional geotechnical information should be obtained to assist in the design of a new or supplemental underground storm drainage system.

Hydrologic Studies, Watershed Modeling Studies

Not applicable.

Hazardous Materials

A hazardous materials survey should be completed at the Theodore Roosevelt Home prior to the beginning of any construction work. It has been reported that asbestos pipe insulation has been abated from the basement, but there does not seem to be a comprehensive evaluation of all materials throughout the building. Materials that should be tested for the presence of asbestos include, but are not limited to, mastics, floor tile, plaster wall and ceiling surfaces, building insulation, fireproofing materials, and electrical wiring insulation. It is anticipated that interior and exterior painted surfaces contain lead. Caution should be taken when repairs are made to these surfaces, and during preparation and painting of these areas.

Recently, mold growth has been observed on some surfaces in the basement, particularly in areas where collections have been stored and a small dehumidifier has been installed. Previous studies

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determined that the mold was not hazardous to human health; however, conditions throughout the basement should be improved to eliminate the potential for mold growth in the future.

There is an electrical transformer in an underground concrete vault approximately 400 feet to the east of the Theodore Roosevelt Home. The vault is capped with a steel grate, and appears to be filled with soil, leaves, and other debris. Given the apparent age of the transformer, it may contain PCBs. This transformer should be replaced as part of the incoming electrical service upgrade; options for proper removal and disposal of the transformer and vault should be discussed with the local utility company.



Exterior 1. The west elevation of the Theodore Roosevelt Home (JGWA 2008)



Exterior 2. The south elevation of the Theodore Roosevelt Home (JGWA 2008)



Exterior 3. The Theodore Roosevelt Home, Pump House, and Windmill as seen from the northeast (JGWA 2009)



Exterior 4. The northwest porch (MACTEC 2008)



Exterior 5. Spalling bluestone water table and open mortar joints at the northwest corner of the 1905 north wing addition (JGWA 2008)



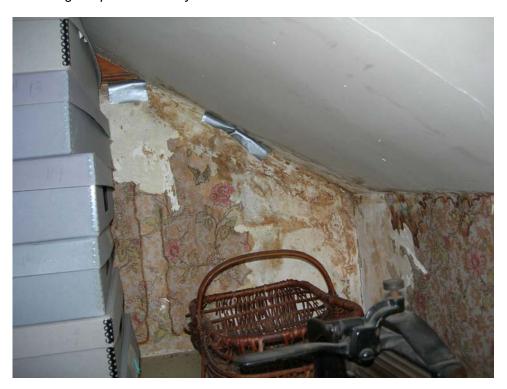
Interior 1. The Parlor, Room 102, facing northwest (JGWA 2009)



Interior 2. The Library, Room 110, facing east (JGWA 2009)



Interior 3. Room 204, facing west (JGWA 2009)



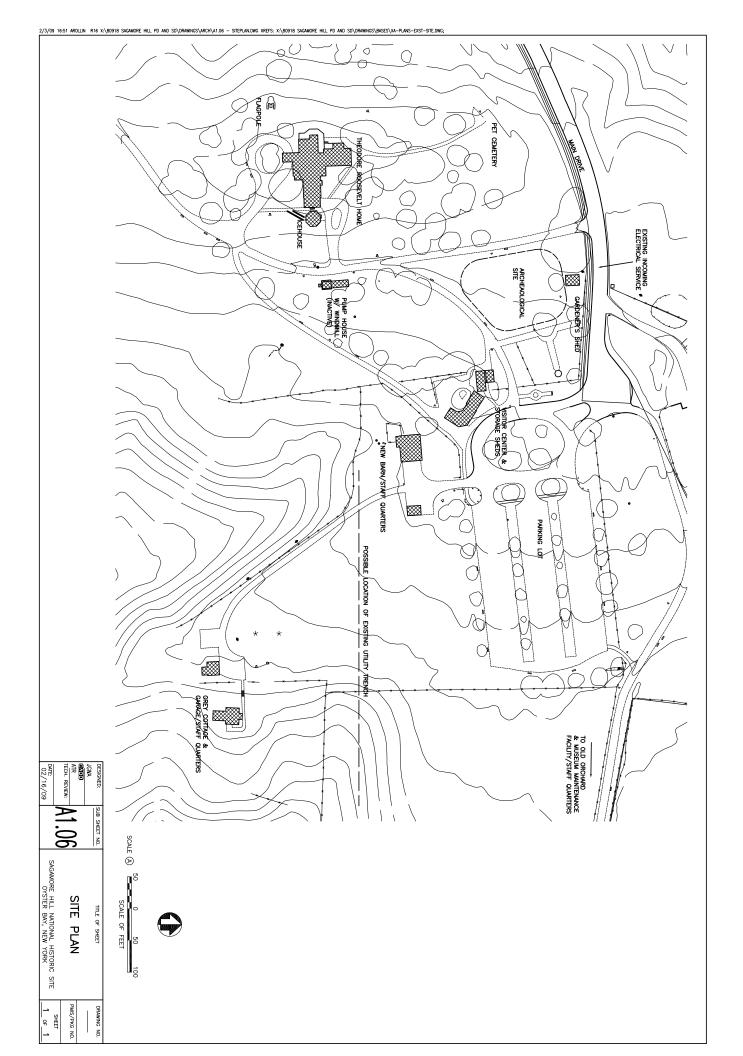
Interior 4. Room 213, "Alice's Bedroom Closet", exhibits extensive water damage and plaster deterioration along the northeast exterior wall (JGWA 2008)

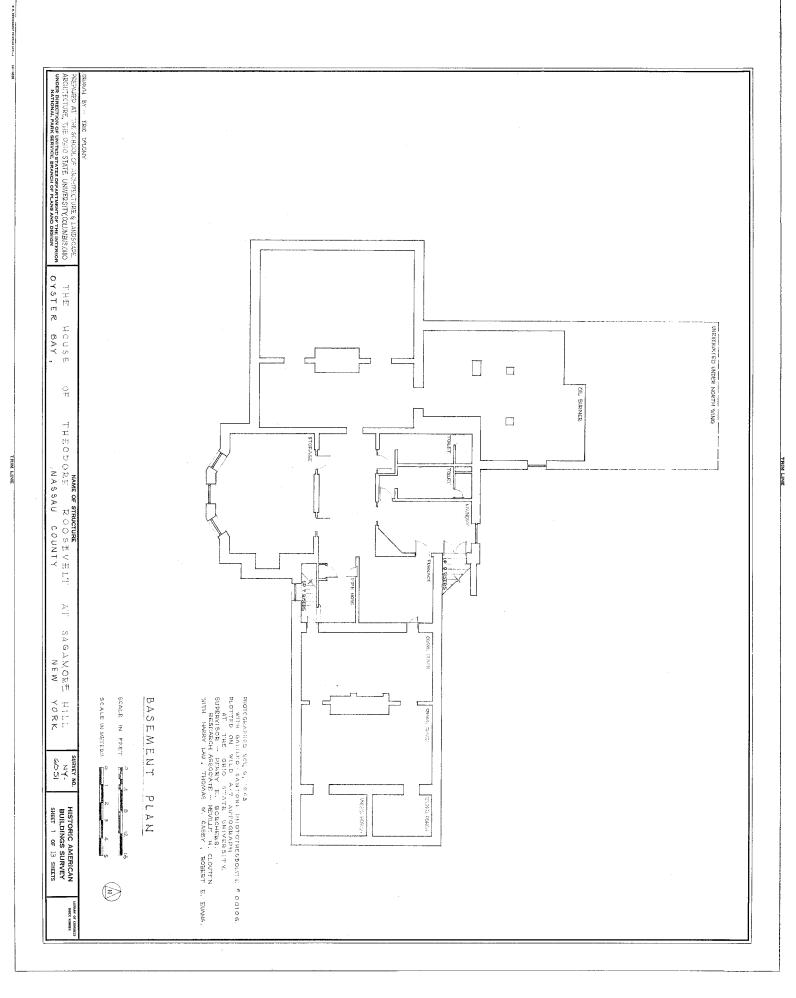


Interior 5. Room 007, electrical splice box at ceiling (JGWA 2008)



Interior 6. Room 008, existing oil-fired boilers (JGWA 2008)

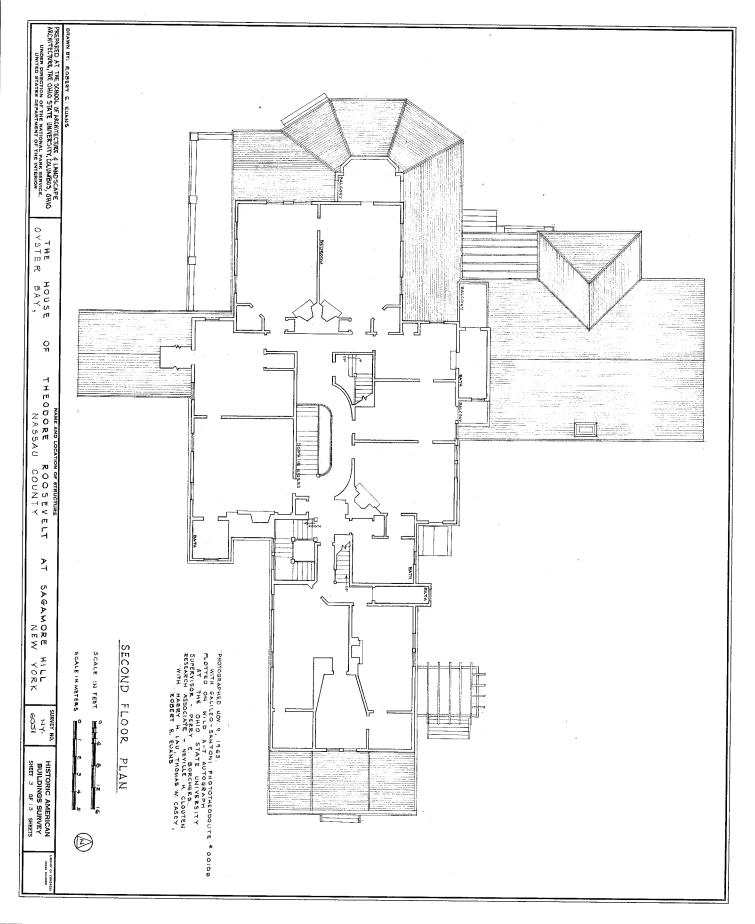


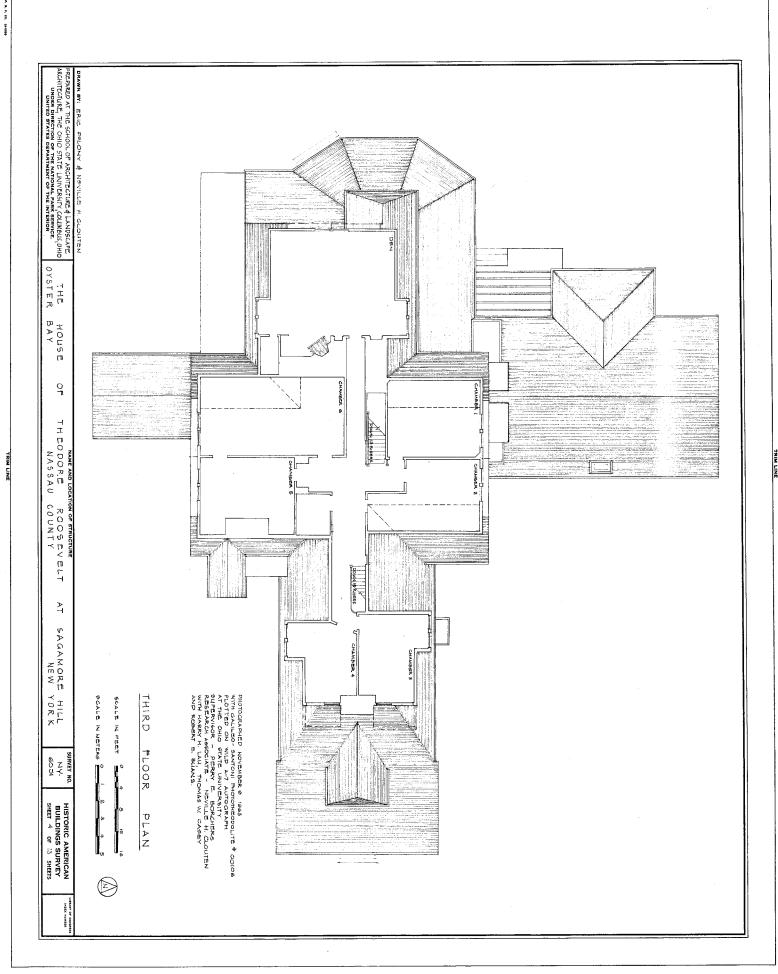


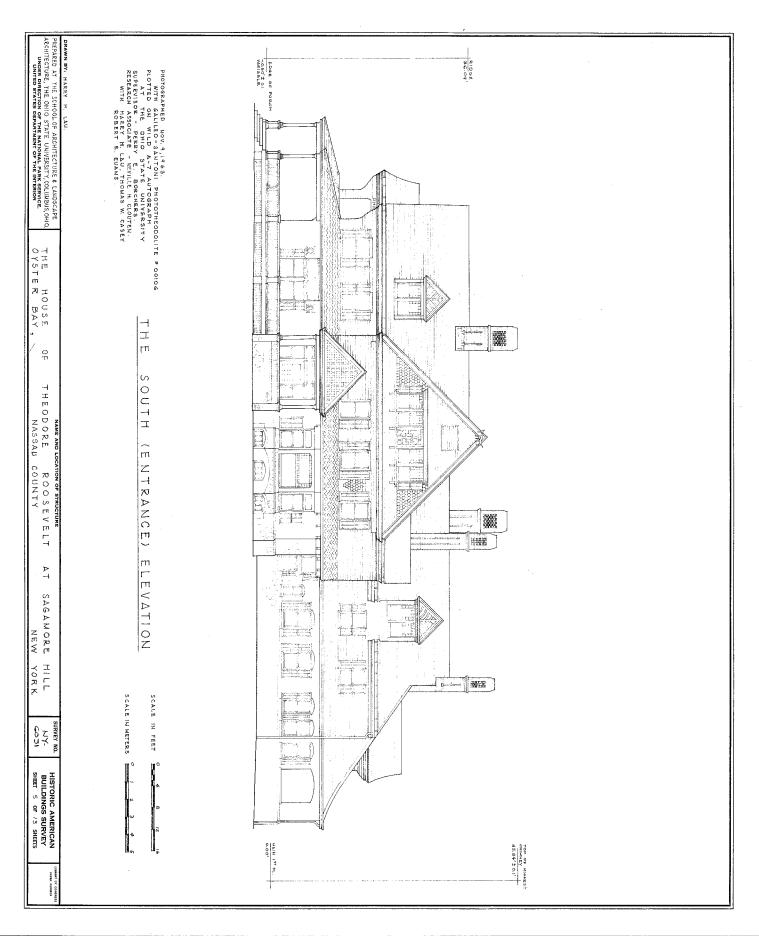
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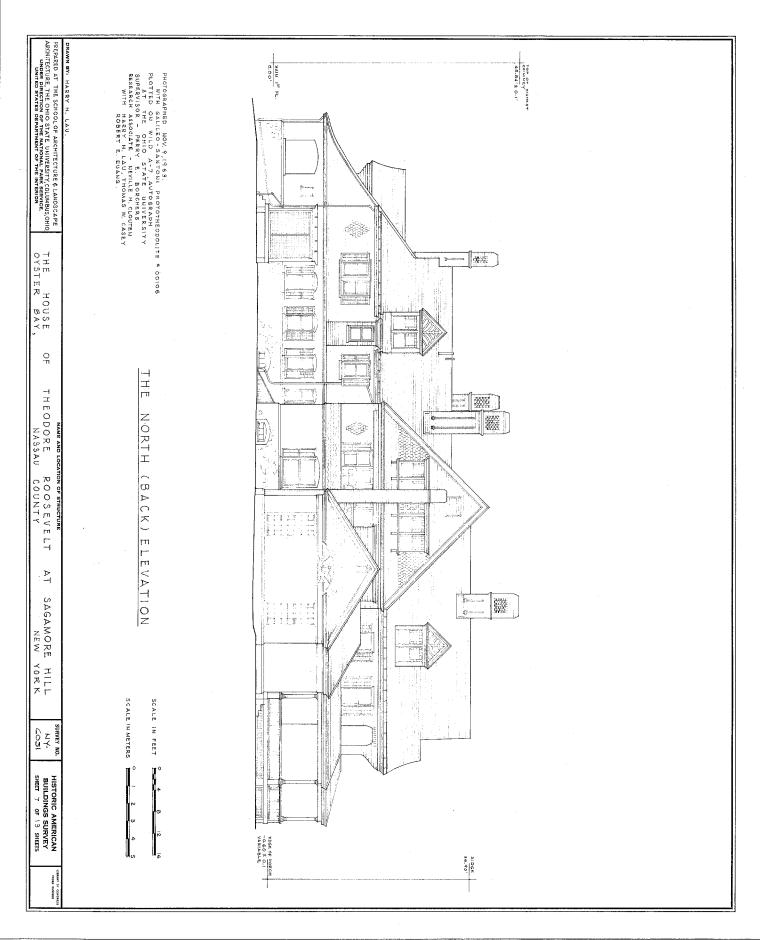
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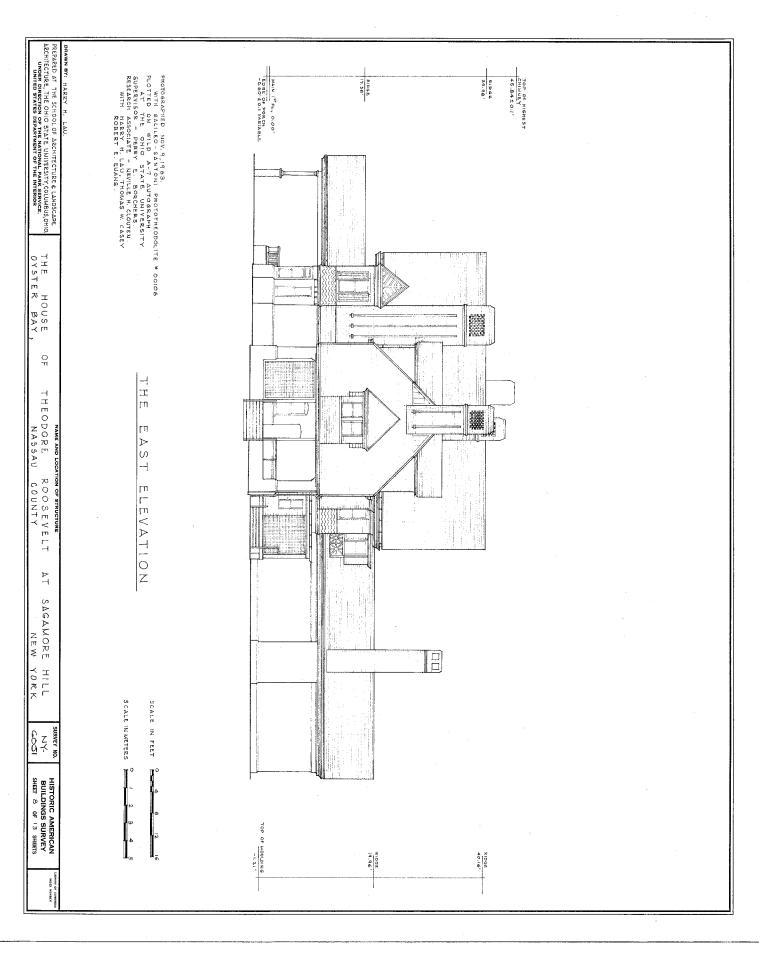


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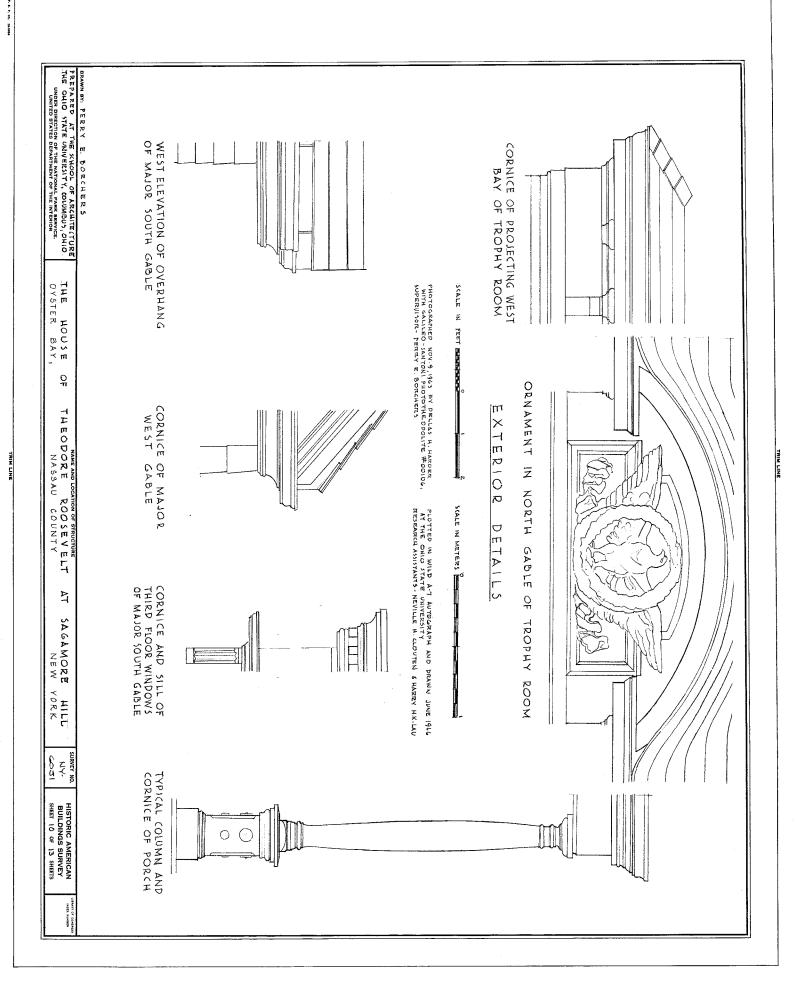
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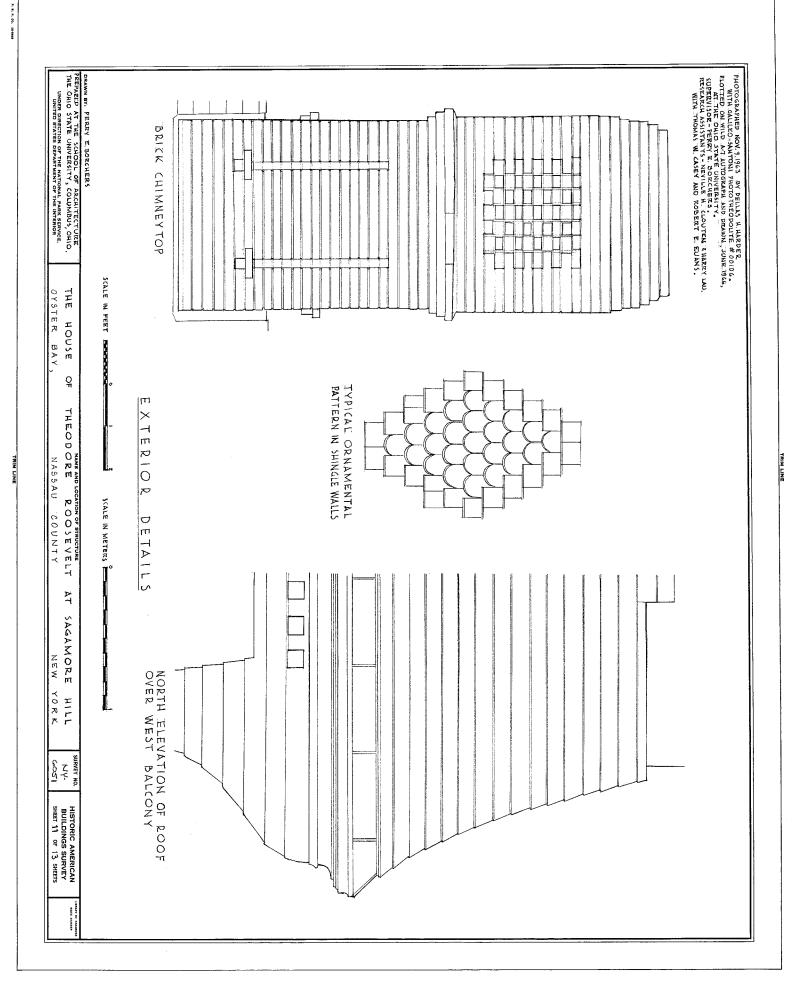
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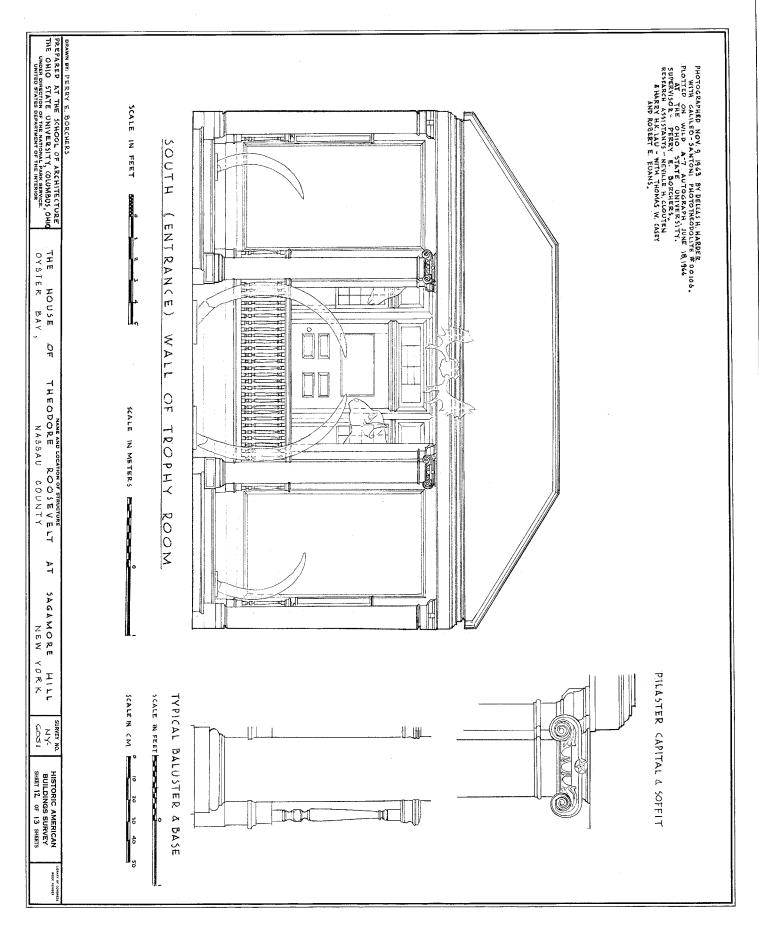
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NITH KALLED - SANTONI PHOTOGRAPH, JUNE 19,1966

AT THE CHIO STATE UNIVERSITY.

SUPERVISOR - PERRY E. BORGHERS.

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